



**Program Directory for
AFP Download Plus
Feature of PSF for z/OS**

V04.07.00

Program Number 5655-M32

FMID JPRF471

for Use with
z/OS

Document Date: December 2019

G113-3006-02

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 system programmers who are responsible for program installation and maintenance. It contains information about the material and procedures associated with the installation of AFP Download Plus feature of PSF for z/OS. This publication refers to AFP Download Plus feature of PSF for z/OS as AFP Download Plus.

The Program Directory contains the following sections:

2.0, "Program Materials" on page 3 identifies the basic program materials and documentation for AFP Download Plus.

3.0, "Program Support" on page 5 describes the IBM support available for AFP Download Plus.

4.0, "Program and Service Level Information" on page 7 lists the APARs (program level) and PTFs (service level) that have been incorporated into AFP Download Plus.

5.0, "Installation Requirements and Considerations" on page 9 identifies the resources and considerations that are required for installing and using AFP Download Plus.

6.0, "Installation Instructions" on page 17 provides detailed installation instructions for AFP Download Plus. It also describes the procedures for activating the functions of AFP Download Plus, or refers to appropriate publications.

Before installing AFP Download Plus, 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.

AFP Download Plus 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 AFP Download Plus are included on the CBPDO.

Do not use this program directory if you install AFP Download Plus 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 AFP Download Plus Description

AFP Download Plus accepts line data, XML data, and MO:DCA-P data (including MO:DCA IS/3, MO:DCA AFP/A, MO:DCA AFP/A, IS/3, and MO:DCA GA) as input. It automatically transforms line data or XML data to MO:DCA-P data and transmits MO:DCA-P data from the JES spool to receiving systems through TCP/IP connections. This process eliminates the need for manual print file transfer with File Transfer Protocol (FTP). A cooperating print server that is running on a receiving system receives the data sets for printing, emailing, or faxing with PSF for z/OS or AIX, Linux, or Windows programs, or for archiving with

Content Manager OnDemand. AFP Download Plus provides high-speed data transfer, JES scheduling, job management, data integrity, and job accounting for distributed production print management.

1.2 AFP Download Plus FMID

AFP Download Plus consists of the following FMID:

JPRF471

2.0 Program Materials

An IBM program is identified by a program number. The program number for AFP Download Plus is 5655-M32.

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 AFP Download Plus. 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 17 for more information about how to install the program.

You can find information about the physical media for the basic machine-readable materials for AFP Download Plus in the *CBPDO Memo To Users Extension*.

2.2 Program Publications

The following sections identify the basic publications for AFP Download Plus.

Figure 1 identifies the basic unlicensed publications for AFP Download Plus. Those that are in softcopy format publications can be obtained from the IBM Publications Center website at <https://www.ibm.com/support/knowledgecenter>.

Figure 1. Basic Material: Unlicensed Publications		
Publication Title	Form Number	Media Format
<i>PSF for z/OS: AFP Download Plus</i>	S550-0433	https://www.ibm.com/support/knowledgecenter

2.3 Program Source Materials

No program source materials or viewable program listings are provided for AFP Download Plus.

2.4 Publications Useful During Installation

You might want to use the publications listed in Figure 2 on page 4 during the installation of AFP Download Plus.

<i>Figure 2. Publications Useful During Installation</i>		
Publication Title	Form Number	Media Format
<i>IBM SMP/E for z/OS User's Guide</i>	SA23-2277	https://www.ibm.com/support/knowledgecenter
<i>IBM SMP/E for z/OS Commands</i>	SA23-2275	https://www.ibm.com/support/knowledgecenter
<i>IBM SMP/E for z/OS Reference</i>	SA23-2276	https://www.ibm.com/support/knowledgecenter
<i>IBM SMP/E for z/OS Messages, Codes, and Diagnosis</i>	GA32-0883	https://www.ibm.com/support/knowledgecenter
<i>Print Services Facility for z/OS: Introduction</i>	G550-0430	http://www.ibm.com/support/knowledgecenter
<i>Print Services Facility for z/OS: User's Guide</i>	S550-0435	http://www.ibm.com/support/knowledgecenter
<i>Print Services Facility for z/OS: Customization</i>	S550-0427	http://www.ibm.com/support/knowledgecenter
<i>Print Services Facility for z/OS: Messages and Codes</i>	G550-0432	http://www.ibm.com/support/knowledgecenter
<i>Print Services Facility for z/OS: Diagnosis</i>	G550-0428	http://www.ibm.com/support/knowledgecenter
<i>Print Services Facility for z/OS: Security Guide</i>	S550-0434	http://www.ibm.com/support/knowledgecenter
<i>Print Services Facility for z/OS: Licensed Programming Specifications</i>	G550-0431	http://www.ibm.com/support/knowledgecenter
<i>IBM Content Manager OnDemand for Multiplatforms: Installation and Configuration Guide.</i>	GC19-3342	http://www.ibm.com/support/knowledgecenter

3.0 Program Support

This section describes the IBM support available for AFP Download Plus.

3.1 Program Services

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

3.2 Preventive Service Planning

Before you install AFP Download Plus, 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 6.1.9, “Perform SMP/E APPLY” on page 20 for a sample APPLY command

If you obtained AFP Download Plus as part of a CBPDO, HOLDDATA is included.

If the CBPDO for AFP Download Plus 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 <https://www.ibm.com/products/software/>.

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 AFP Download Plus are included in Figure 3.

<i>Figure 3. PSP Upgrade and Subset ID</i>		
UPGRADE	SUBSET	Description
PSFMVS470	JPRF471	AFP Download Plus

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 on page 6 identifies the component IDs (COMPID) for AFP Download Plus.

<i>Figure 4. Component IDs</i>			
FMID	COMPID	Component Name	RETAIN Release
JPRF471	5655M3201	AFP Download Plus	471

4.0 Program and Service Level Information

This section identifies the program and relevant service levels of AFP Download Plus. 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 AFP Download Plus have been incorporated into this release. They are listed by FMID.

FMID JPRF461

OA54593

4.2 Service Level Information

No PTFs against this release of AFP Download Plus have been incorporated into the product package.

Frequently check the AFP Download Plus 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-REQUIRESERVICE)** 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 AFP Download Plus. 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 AFP Download Plus.

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	V02.02.00 or higher	N/A	No

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

Note: Installation might require migration to new z/OS releases to be service supported. See https://www-01.ibm.com/software/support/lifecycle/index_z.html.

5.2 Target System Requirements

This section describes the environment of the target system required to install and use AFP Download Plus.

AFP Download Plus 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.

Figure 6 (Page 1 of 2). Target System Mandatory Installation Requisites

Program Number	Product Name	Minimum VRM	Minimum Service Level will satisfy these APARs	Included in the shipped product?
5655-M32	PSF for z/OS	04.07.00	N/A	No

<i>Figure 6 (Page 2 of 2). Target System Mandatory Installation Requisites</i>				
Program Number	Product Name	Minimum VRM	Minimum Service Level will satisfy these APARs	Included in the shipped product?
5650-ZOS	z/OS	V02.02.00 or higher	N/A	No

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.

AFP Download Plus 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.

AFP Download Plus has no mandatory operational requisites.

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 can be on z/OS, AIX, Linux, or Windows.

The following table lists the z/OS possibilities.

<i>Figure 7. Target System Conditional Operational Requisites</i>		
Program Number	Product Name and Minimum VRM/Service Level	Function
5655-M32	AFP Download Plus feature of PSF 4.7.0 for z/OS	For a remote system to receive output from AFP Download Plus
5724-J33	Content Manager OnDemand for Multiplatforms, Version 9.0 or later	For a remote system to receive output from AFP Download Plus

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.

AFP Download Plus has no toleration/coexistence requisites.

5.2.2.4 Incompatibility (Negative) Requisites

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

AFP Download Plus has no negative requisites.

5.2.3 DASD Storage Requirements

AFP Download Plus libraries can reside on all supported DASD types.

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

<i>Figure 8. Total DASD Space Required by AFP Download Plus</i>		
Library Type	Total Space Required in 3390 Trks	Description
Target	8 Tracks	
Distribution	60 Tracks	
File System(s)	49 Tracks	

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 6.1.6, "Allocate SMP/E Target and Distribution Libraries" on page 19.

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 value in the "Member Type" column specifies "LPA", it is advised to place the data set in the LPA.
These data sets can be in the LNKLIST.
These data sets are not required to be APF-authorized, with some exceptions. If the value in the "Member Type" column specifies "APF", the data set must be APF-authorized.

The following figures describe the target and distribution libraries and file system paths required to install AFP Download Plus. The storage requirements of AFP Download Plus 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 9. Storage Requirements for AFP Download Plus Target Libraries

Library DDNAME	Member Type	Target Volume	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
LINKLIB	LMOD	TVOL1	E	PDS	U	0	4	1
SAMPLIB	Sample	TVOL2	E	PDS	FB	80	3	1
PROCLIB	Proc	TVOL2	E	PDS	FB	80	1	1

Figure 10. AFP Download Plus File System Paths

DDNAME	T Y P E	Path Name
SAPSBIN	X	/usr/lpp/psf/bin/IBM/
SAPSSMPL	X	/usr/lpp/psf/samples/IBM/

Figure 11. Storage Requirements for AFP Download Plus Distribution Libraries

Library DDNAME	T Y P E	O R G	R E C F M	L R E C L	No. of 3390 Trks	No. of DIR Blks
AAPSMOD0	E	PDS	U	0	7	3
AAPSHFS	U	PDS	VB	255	49	1
ASAMPLIB	E	PDS	FB	80	3	1
APROCLIB	E	PDS	FB	80	1	1

The following figures list data sets that are not used by SMP/E, but are required for AFP Download Plus to run.

Figure 12. AFP Download Plus HFS Additional Paths

Path Name
/usr/lpp/psf/local
/usr/lpp/psf/localsrc

5.3 FMIDs Deleted

Installing AFP Download Plus 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 AFP Download Plus 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

5.4.1 SYS1.PARMLIB member IFAPRD00

The SYS1.PARMLIB member, IFAPRD00, may have been customized by IBM to enable the IBM products and optional integrated features specifically ordered by you.

Please verify that the SYS1.PARMLIB member IFAPRD00 contains the following information for Download Plus and add if necessary.

```
PRODUCT OWNER('IBM CORP')
      NAME('PSF for z/OS')
      ID(5655-M32)
      VERSION(*)
      RELEASE(*)
      MOD(*)
      FEATURENAME('Download Plus')
      STATE(ENABLED)
```

5.4.2 Remote System Requirements

AFP Download Plus includes software for both the sender and the receiver. You can use just the sender or receiver as needed, or you can use both components on the same system. You can also install AFP Download Plus on two separate z/OS systems. Each AFP Download Plus system installation requires a separate IBM license.

You can use the download receiver function available with AIX, Linux, and Windows print servers, or Content Manager OnDemand instead of the AFP Download Plus receiver on z/OS. The programming requirements on the remote system can be one of these:

- AFP Download Plus feature of PSF 4.7.0 for z/OS
- Content Manager OnDemand for Multiplatforms, Version 9.0 or later
- AIX, Linux, or Windows print server

Refer to the appropriate workstation product documentation for installation instructions.

6.0 Installation Instructions

This chapter describes the installation method and the step-by-step procedures to install and to activate the functions of AFP Download Plus.

Please note the following points:

If you want to install AFP Download Plus into its own SMP/E environment, consult the SMP/E manuals for instructions on creating and initializing the SMP/CSI 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 AFP Download Plus

6.1.1 SMP/E Considerations for Installing AFP Download Plus

Use the SMP/E RECEIVE, APPLY, and ACCEPT commands to install this release of AFP Download Plus.

6.1.2 SMP/E Options Subentry Values

The recommended values for certain SMP/E CSI subentries are shown in Figure 13. 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.

<i>Figure 13. SMP/E Options Subentry Values</i>		
Subentry	Value	Comment
DSSPACE	(10,5,4)TRK	Recommended value for AFP Download Plus
PEMAX	SMP/E Default	IBM recommends using the SMP/E default for PEMAX.

6.1.3 SMP/E CALLLIBS Processing

AFP Download Plus uses the CALLLIBS function provided in SMP/E to resolve external references during installation. When AFP Download Plus is installed, ensure that DDDEFs exist for the following libraries:

CSSLIB

Note: CALLLIBS uses the previous DDDEFs only to resolve the link-edit for AFP Download Plus. These data sets are not updated during the installation of AFP Download Plus.

6.1.4 Sample Jobs

The following sample installation jobs are provided as part of the product to help you install AFP Download Plus:

Figure 14. Sample Installation Jobs			
Job Name	Job Type	Description	RELFILE
APSXALOC	ALLOCATE	Sample job to allocate target and distribution libraries	IBM.JPRF471.F1
APSISMKD	MKDIR	Sample job to invoke the supplied APSMKDIR EXEC to allocate HFS paths	IBM.JPRF471.F1
APSXDDDEF	DDDEF	Sample job to define SMP/E DDDEFs	IBM.JPRF471.F1

You can access the sample installation jobs by performing an SMP/E RECEIVE (refer to 6.1.5, “Perform SMP/E RECEIVE” on page 19) then copy the jobs from the RELFILES to a work data set for editing and submission. See Figure 14 to find the appropriate relfile 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.JPRF471.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,(2,1,2))
//SYSUT3      DD UNIT=SYSALLDA,SPACE=(CYL,(1,1))
//SYSIN       DD *
              COPY INDD=IN,OUTDD=OUT
              SELECT MEMBER=APSXALOC
              SELECT MEMBER=APSISMKD
              SELECT MEMBER=APSMKDIR
              SELECT MEMBER=APSXDDDEF
/*
```

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.

6.1.5 Perform SMP/E RECEIVE

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

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

6.1.6 Allocate SMP/E Target and Distribution Libraries

Edit and submit sample job APSXALOC to allocate the SMP/E target and distribution libraries for AFP Download Plus that were not allocated by the base product PSF 4.7.0. 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 File System Paths

The target system HFS or zFS data set must be mounted on the driving system when running the sample APSISMKD 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 AFP Download Plus into a file system that is zFS.

If you plan to install AFP Download Plus into a new HFS or zFS file system, you must create the mountpoint and mount the new file system to the driving system for AFP Download Plus.

The recommended mountpoint is */usr/lpp/psf*.

Edit and submit sample job APSISMKD to allocate the HFS or zFS paths for AFP Download Plus. Consult the instructions in the sample job for more information.

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

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

6.1.8 Create DDDEF Entries

Edit and submit sample job APSXDDEF to create DDDEF entries for the SMP/E target and distribution libraries for AFP Download Plus that were not created by the base product PSF 4.7.0. 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.

6.1.9 Perform SMP/E APPLY

Perform an SMP/E APPLY CHECK for AFP Download Plus.

The latest HOLDDATA is available through several different portals, including <http://service.software.ibm.com/holddata/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.

1. 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.

6.1.10 Installation Verification Procedure

To verify that AFP Download Plus has been installed correctly, IVP procedures are provided.

6.1.10.1 Installation Test Page

This sample job, `APSIVPAJ`, consists of an `IEBGENER` job that submits a single test page called `APSIVPAF`.

The logical-page size needed for any printer to print this page is 8.5 inches wide by 11 inches long.

6.1.10.2 Submit APSIVPAJ

Submit the APSIVPAJ job in the data set `SYS1.SAMPLIB(APSIVPAJ)`. The job submits a single AFP page to the spool for transmission to a receiving system. The output class in the `SYSUT2 DD` statement is class A. Set up and start the AFP Download Plus printer. Refer to the AFP Download Plus manual for instructions.

You can also choose to print this page. The expected result from printing the test page is a frame with the letters *IBM*, the words *AFP Download Plus*, and the words *Advanced Function Printing* rotated 90 degrees. Refer to the publication *PSF for z/OS: AFP Download Plus* for an example of the printed page.

6.1.11 Perform SMP/E ACCEPT

Perform an SMP/E ACCEPT CHECK for AFP Download Plus.

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.

6.1.12 Run REPORT CROSSZONE

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

After you install AFP Download Plus, 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.

6.1.13 Dynamic Enablement - Update PARMLIB

To enable AFP Download Plus, to run with z/OS, the following entry must be in the IFAPRDxx PARMLIB member:

```
PRODUCT OWNER('IBM CORP')
NAME('PSF for z/OS')
FEATURENAME('Download Plus')
ID('5655-M32')
VERSION(*) RELEASE(*) MOD(*)
STATE(ENABLED)
```

6.2 Activating AFP Download Plus

6.2.1 File System Execution

If you mount the file system in which you have installed AFP Download Plus in read-only mode during execution, then refer to the publication *PSF for z/OS: AFP Download Plus* (S550-0433), to activate AFP Download Plus.

The publication *PSF for z/OS: AFP Download Plus* contains the necessary information to customize and use AFP Download Plus.

Note: AFP Download Plus must be defined in the OMVS RACF SEGMENT and contain a proper HOME directory.

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 contact the IBM Customer Support Center or use S/390 SoftwareXcel to obtain the current "PSP Bucket".

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Program Directory for AFP Download Plus feature of PSF for z/OS, December 2019

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