IBM

Program Directory for

IBM Application Performance Analyzer for z/OS

V14.1.0

Program Number 5655-Q49

FMIDs HAD0E10, JAD0E1J, JAD0E1K

for Use with
z/OS

Document Date: September 2017

GI13-4303-01

> **Note**
>
> Before using this information and the product it supports, be sure to read the general information under 7.0, "Notices" on page 31.

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 Application Performance Analyzer for z/OS. This publication refers to IBM Application Performance Analyzer for z/OS as Application Performance Analyzer.

The Program Directory contains the following sections:

- 2.0, "Program Materials" on page 3 identifies the basic program materials and documentation for Application Performance Analyzer.

- 3.0, "Program Support" on page 7 describes the IBM support available for Application Performance Analyzer.

- 4.0, "Program and Service Level Information" on page 9 lists the APARs (program level) and PTFs (service level) that have been incorporated into Application Performance Analyzer.

- 5.0, "Installation Requirements and Considerations" on page 10 identifies the resources and considerations that are required for installing and using Application Performance Analyzer.

- 6.0, "Installation Instructions" on page 19 provides detailed installation instructions for Application Performance Analyzer. It also describes the procedures for activating the functions of Application Performance Analyzer, or refers to appropriate publications.

Before installing Application Performance Analyzer, read the *CBPDO Memo To Users* and the *CBPDO Memo To Users Extension* that are supplied with this program in softcopy format and this program directory; then keep them for future reference. Section 3.2, "Preventive Service Planning" on page 7 tells you how to find any updates to the information and procedures in this program directory.

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

Do not use this program directory if you install Application Performance Analyzer 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 Application Performance Analyzer Description

IBM Application Performance Analyzer for z/OS helps developers and systems personnel tu   ne applications and resolve performance constraints. Application Performance Analyzer helps optimize the perfomance of existing z/OS application resources.

- Easy-to-use functions helps isolate application performance problems.

- Helps pinpoint performance bottlenecks affecting online transaction-reponse times.

- Assists in reducing batch application turnaround time.

- Supports C/C++, Assembler, COBOL, PL/I, Java, CICS, DB2, IMS, WebSphere MQ, and WebSphere Application Server.

- Increases application understanding during stress and regression testing.

1.2 Application Performance Analyzer FMIDs

Application Performance Analyzer consists of the following FMIDs:

    HAD0E10
    JAD0E1J
    JAD0E1K

2.0 Program Materials

An IBM program is identified by a program number. The program number for Application Performance Analyzer is 5655-Q49.

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 Application Performance Analyzer. 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 19 for more information about how to install the program.

You can find information about the physical media for the basic machine-readable materials for Application Performance Analyzer in the *CBPDO Memo To Users Extension*.

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

Notes:

 1. The data set attributes in this table must be used in the JCL of jobs that read the data sets. However, because the data sets are in IEBCOPY unloaded format, their actual attributes might be different.

 2. If any RELFILEs are identified as PDSEs, ensure that SMPTLIB data sets are allocated as PDSEs.

Name	ORG	RECFM	LRECL	BLK SIZE
Figure 1 (Page 1 of 2). Program File Content Application Performance Analyzer - Base				
SMPMCS	SEQ	FB	80	3120
IBM.HAD0E10.F1	PDSE	U	0	6144
IBM.HAD0E10.F2	PDS	FB	80	8800
IBM.HAD0E10.F3	PDS	FB	80	8800
IBM.HAD0E10.F4	PDS	FB	80	8800
IBM.HAD0E10.F5	PDS	FB	80	8800

Figure 1 (Page 2 of 2). Program File Content Application Performance Analyzer - Base				
Name	**O R G**	**R E C F M**	**L R E C L**	**BLK SIZE**
IBM.HAD0E10.F6	PDS	FB	80	8800
IBM.HAD0E10.F7	PDS	FB	80	8800
IBM.HAD0E10.F8	PDS	VB	1028	27998

Figure 2. Program File Content Application Performance Analyzer - Japanese				
Name	**O R G**	**R E C F M**	**L R E C L**	**BLK SIZE**
SMPMCS	SEQ	FB	80	3120
IBM.JAD0E1J.F1	PDSE	U	0	6144
IBM.JAD0E1J.F2	PDS	FB	80	8800
IBM.JAD0E1J.F3	PDS	FB	80	8800
IBM.JAD0E1J.F4	PDS	FB	80	8800
IBM.JAD0E1J.F5	PDS	FB	80	8800
IBM.JAD0E1J.F6	PDS	FB	80	8800

Figure 3. Program File Content Application Performance Analyzer - Korean				
Name	**O R G**	**R E C F M**	**L R E C L**	**BLK SIZE**
SMPMCS	SEQ	FB	80	3120
IBM.JAD0E1K.F1	PDSE	U	0	6144
IBM.JAD0E1K.F2	PDS	FB	80	8800
IBM.JAD0E1K.F3	PDS	FB	80	8800
IBM.JAD0E1K.F4	PDS	FB	80	8800
IBM.JAD0E1K.F5	PDS	FB	80	8800
IBM.JAD0E1K.F6	PDS	FB	80	8800

2.2 Optional Machine-Readable Material

No optional machine-readable materials are provided for Application Performance Analyzer.

2.3 Program Publications

The following sections identify the basic publications for Application Performance Analyzer.

Figure 4 identifies the basic unlicensed publications for Application Performance Analyzer. Those that are in softcopy format publications can be obtained from the IBM Publications Center website at: http://www.ibm.com/shop/publications/order/

Figure 4. Basic Material: Unlicensed		
Publication Title	Form Number	Media Format
IBM Application Performance Analyzer for z/OS User's Guide	SC27-8403	http://www-01.ibm.com/software/awdtools/apa/library
IBM Application Performance Analyzer for z/OS Messages Guide	SC27-8402	http://www-01.ibm.com/software/awdtools/apa/library
Application Performance Analyzer Customization Guide	SC27-8401	http://www-01.ibm.com/software/awdtools/apa/library

2.4 Program Source Materials

No program source materials or viewable program listings are provided for Application Performance Analyzer.

2.5 Publications Useful During Installation

You might want to use the publications listed in Figure 5 during the installation of Application Performance Analyzer.

Figure 5 (Page 1 of 2). Publications Useful During Installation		
Publication Title	Form Number	Media Format
IBM SMP/E for z/OS User's Guide	SA23-2277	http://www.ibm.com/shop/publications/order/
IBM SMP/E for z/OS Commands	SA23-2275	http://www.ibm.com/shop/publications/order/
IBM SMP/E for z/OS Reference	SA23-2276	http://www.ibm.com/shop/publications/order/

Figure 5 (Page 2 of 2). Publications Useful During Installation		
Publication Title	**Form Number**	**Media Format**
IBM SMP/E for z/OS Messages, Codes, and Diagnosis	GA32-0883	http://www.ibm.com/shop/publications/order/
z/OS UNIX System Services Planning	GA32-0884	http://www.ibm.com/shop/publications/order/
z/OS UNIX System Services User's Guide	SA23-2279	http://www.ibm.com/shop/publications/order/
z/OS UNIX System Services Messages and Codes	SA23-2284	http://www.ibm.com/shop/publications/order/

3.0 Program Support

This section describes the IBM support available for Application Performance Analyzer.

3.1 Program Services

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

3.2 Preventive Service Planning

Before you install Application Performance Analyzer, 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 6.1.10, "Perform SMP/E APPLY" on page 26 for a sample APPLY command.

If you obtained Application Performance Analyzer as part of a CBPDO, HOLDDATA is included.

If the CBPDO for Application Performance Analyzer 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-01.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 Application Performance Analyzer are included in Figure 6.

UPGRADE	SUBSET	Description
Figure 6. PSP Upgrade and Subset ID		
APAE10	HAD0E10	Application Performance Analyzer Base
APAE10	JAD0E1J	Application Performance Analyzer Japanese
APAE10	JAD0E1K	Application Performance Analyzer Korean

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 7 on page 8 identifies the component IDs (COMPID) for Application Performance Analyzer.

			RETAIN
Figure 7. Component IDs			
FMID	**COMPID**	**Component Name**	**Release**
HAD0E10	5655Q4900	Application Performance Analyzer	E10
JAD0E1J	5655Q4900	Application Performance Analyzer Japanese	E1J
JAD0E1K	5655Q4900	Application Performance Analyzer Korean	E1K

4.0 Program and Service Level Information

This section identifies the program and relevant service levels of Application Performance Analyzer. 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

All resolved APARs of previous releases of Application Performance Analyzer have been incorporated into Application Performance Analyzer V14.1.0.

4.2 Service Level Information

No PTFs against this release of Application Performance Analyzer have been incorporated into the product package.

Frequently check the Application Performance Analyzer 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 Application Performance Analyzer. 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 Application Performance Analyzer.

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 8. 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	V02.01.00	N/A	No

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

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

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

If you plan to install Application Performance Analyzer 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 Application Performance Analyzer.

Application Performance Analyzer 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.

Figure 9. Target System Mandatory Installation Requisites				
Program Number	Product Name	Minimum VRM	Minimum Service Level will satisfy these APARs	Included in the shipped product?
5650-ZOS	z/OS	V02.01.00 or higher	N/A	No

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

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

Application Performance Analyzer 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.

Application Performance Analyzer 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.

Conditional operational requisites can be obtained by creating a report for Application Performance Analyzer on http://www.ibm.com/software/reports/compatibility/clarity/index.html. The requisites are documented in the "Supported Software" tab.

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.

Application Performance Analyzer 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.

Application Performance Analyzer has no negative requisites.

5.2.3 DASD Storage Requirements

Application Performance Analyzer libraries can reside on all supported DASD types.

Figure 10 lists the total space that is required for each type of library.

Library Type	Total Space Required in 3390 Trks	File System Description
Figure 10. Total DASD Space Required by Application Performance Analyzer - Base		
Target	945 Tracks	Target Datasets
Distribution	960 Tracks	Distribution Datasets
File System(s)	75 Tracks	/usr/lpp/IBM/apa/v14r1

Library Type	Total Space Required
Figure 11. Total DASD Space Required by Application Performance Analyzer - Japanese	
Target	255 Tracks
Distribution	255 Tracks

Library Type	Total Space Required
Figure 12. Total DASD Space Required by Application Performance Analyzer - Korean	
Target	255 Tracks
Distribution	255 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 24.

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, except for SCAZAUTH and ACAZAUTH which must be PDSEs.

5. All target libraries listed have the following attributes:

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

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

- These data sets can be in the LPA, but they are not required to be in the LPA.
- SCAZLINK must be in the LNKLST.
- SCAZLINK and SCAZAUTH must be APF-authorized.

7. Application Performance Analyzer 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 your existing SMPLTS into it and then change the SMPLTS DDDEF entry to indicate the new PDSE data set.

The following figures describe the target, distribution libraries and file system paths required to install Application Performance Analyzer. The storage requirements of Application Performance Analyzer 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.

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
SCAZAUTH	LMOD	ANY	U	PDSE	U	0	600	N/A
SCAZDBRM	Data	ANY	U	PDS	FB	80	15	3
SCAZEXEC	EXEC	ANY	U	PDS	FB	80	30	6
SCAZLINK	LMOD	ANY	U	PDS	U	0	15	5
SCAZMENU	Message	ANY	U	PDS	FB	80	15	13
SCAZPENU	Panel	ANY	U	PDS	FB	80	225	120
SCAZSAMP	Sample	ANY	U	PDS	FB	80	30	16
SCAZTENU	Table	ANY	U	PDS	FB	80	15	2

Figure 13. Storage Requirements for Application Performance Analyzer Target Libraries - Base

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
SCAZMJPN	Message	ANY	U	PDS	FB	80	15	13
SCAZPJPN	Panel	ANY	U	PDS	FB	80	225	120
SCAZTJPN	Table	ANY	U	PDS	FB	80	15	2

Figure 14. Storage Requirements for Application Performance Analyzer Target Libraries - Japanese

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
SCAZMKOR	Message	ANY	U	PDS	FB	80	15	13

Figure 15 (Page 1 of 2). Storage Requirements for Application Performance Analyzer Target Libraries - Korean

Figure 15 (Page 2 of 2). Storage Requirements for Application Performance Analyzer Target Libraries - Korean								
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**
SCAZPKOR	Panel	ANY	U	PDS	FB	80	225	120
SCAZTKOR	Table	ANY	U	PDS	FB	80	15	2

Figure 16. Application Performance Analyzer File System Paths		
DDNAME	**T Y P E**	**Path Name**
SCAZPAX	N	/usr/lpp/IBM/apa/v14r1/IBM

Figure 17. Storage Requirements for Application Performance Analyzer Distribution Libraries - Base						
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**
ACAZDBRM	U	PDS	FB	80	15	3
ACAZEXEC	U	PDS	FB	80	30	6
ACAZMENU	U	PDS	FB	80	15	13
ACAZMOD	U	PDSE	U	0	600	N/A
ACAZPAX	U	PDS	VB	1028	30	2
ACAZPENU	U	PDS	FB	80	225	120
ACAZSAMP	U	PDS	FB	80	30	16
ACAZTENU	U	PDS	FB	80	15	2

Figure 18 (Page 1 of 2). Storage Requirements for Application Performance Analyzer Distribution Libraries - Japanese						
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**
ACAZMJPN	U	PDS	FB	80	15	13

Figure 18 (Page 2 of 2). Storage Requirements for Application Performance Analyzer Distribution Libraries - Japanese						
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
ACAZPJPN	U	PDS	FB	80	225	120
ACAZTJPN	U	PDS	FB	80	15	2

Figure 19. Storage Requirements for Application Performance Analyzer Distribution Libraries - Korean						
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
ACAZMKOR	U	PDS	FB	80	15	13
ACAZPKOR	U	PDS	FB	80	225	120
ACAZTKOR	U	PDS	FB	80	15	2

5.3 FMIDs Deleted

Installing Application Performance Analyzer 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 Application Performance Analyzer 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

Security permit considerations:

A UID of 0 and READ access to the BPX.FILEATTR.APF profile in the FACILITY class of your security product is required to successfully install the PAX file.

PDSE considerations:

Application Performance Analyzer uses the "partitioned data set extended" or PDSE format for the SCAZAUTH target library. There are some operational differences between PDS and PDSE data sets. The PDS format may be shared by more than one z/OS system and no special precautions are necessary. However the PDSE format may only be shared by z/OS systems which are part of a sysplex or which are connected using Global Resource Serialization (are in a GRS complex). If z/OS systems share use of a PDSE data set outside of a sysplex or GRS environment, you may experience severe problems when the data set is updated. This is due to the fact that PDSE directory information is cached in storage, and when the data set is updated from one system the other system(s) have no knowledge of the update, and their cached directory information will be incorrect.

You must take care not to share the SCAZAUTH data set between z/OS systems unless they are in a sysplex or are connected in a GRS complex. If you need to share the content of the SCAZAUTH data set, a separate copy must be created for each z/OS 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 Application Performance Analyzer.

Please note the following points:

- If you want to install Application Performance Analyzer 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 Application Performance Analyzer

6.1.1 SMP/E Considerations for Installing Application Performance Analyzer

Use the SMP/E RECEIVE, APPLY, and ACCEPT commands to install this release of Application Performance Analyzer.

6.1.2 SMP/E Options Subentry Values

The recommended values for certain SMP/E CSI subentries are shown in Figure 20. 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 20. SMP/E Options Subentry Values		
Subentry	**Value**	**Comment**
DSSPACE	(300,150,250)	Space allocation for SMPTLIB data
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 Application Performance Analyzer:

Figure 21. Sample Installation Jobs - Base			
Job Name	**Job Type**	**Description**	**RELFILE**
CAZWSMPE **(Optional)**	SMP/E	Sample job to define and prime a new SMP/E CSI	IBM.HAD0E10.F4
CAZWRECV	RECEIVE	Sample RECEIVE job	IBM.HAD0E10.F4
CAZWALOC	ALLOCATE	Sample job to allocate target and distribution libraries	IBM.HAD0E10.F4
CAZWZFS	ALLOCATE	Sample job to allocate new ZFS data set **(Optional)**	IBM.HAD0E10.F4
CAZWISMK	MKDIR	Sample job to invoke the supplied CAZWMKDR EXEC to allocate paths	IBM.HAD0E10.F4
CAZWDDEF	DDDEF	Sample job to define SMP/E DDDEFs	IBM.HAD0E10.F4
CAZWAPLY	APPLY	Sample APPLY job	IBM.HAD0E10.F4
CAZWACPT	ACCEPT	Sample ACCEPT job	IBM.HAD0E10.F4

Figure 22. Sample Installation Jobs - Japanese			
Job Name	**Job Type**	**Description**	**RELFILE**
CAZWRECJ	RECEIVE	Sample RECEIVE job	IBM.JAD0E1J.F3
CAZWALOJ	ALLOCATE	Sample job to allocate target and distribution libraries	IBM.JAD0E1J.F3
CAZWDEFJ	DDDEF	Sample job to define SMP/E DDDEFs	IBM.JAD0E1J.F3
CAZWAPLJ	APPLY	Sample APPLY job	IBM.JAD0E1J.F3
CAZWACPJ	ACCEPT	Sample ACCEPT job	IBM.JAD0E1J.F3

Figure 23. Sample Installation Jobs - Korean			
Job Name	**Job Type**	**Description**	**RELFILE**
CAZWRECK	RECEIVE	Sample RECEIVE job	IBM.JAD0E1K.F3
CAZWALOK	ALLOCATE	Sample job to allocate target and distribution libraries	IBM.JAD0E1K.F3
CAZWDEFK	DDDEF	Sample job to define SMP/E DDDEFs	IBM.JAD0E1K.F3
CAZWAPLK	APPLY	Sample APPLY job	IBM.JAD0E1K.F3
CAZWACPK	ACCEPT	Sample ACCEPT job	IBM.JAD0E1K.F3

You can access the sample installation jobs by performing an SMP/E RECEIVE (refer to 6.1.5, "Perform SMP/E RECEIVE" on page 23) then copy the jobs from the RELFILES to a work data set for editing and submission. See Figure 21 on page 19 to find the appropriate relfile data set.

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

To copy the sample jobs for the Application Performance Analyzer English components, use this JCL.

```
//STEP1    EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=*
//*************************************************************
//* Make the //TAPEIN DD statement below active if you install*
//* from a CBPDO tape by uncommenting the DD statement below. *
//*************************************************************
//*TAPEIN   DD DSN=IBM.HAD0E10.F4,UNIT=tunit,
//*           VOL=SER=volser,LABEL=(x,SL),
//*           DISP=(OLD,KEEP)
//*************************************************************
//* Make the //FILEIN DD statement below active for          *
//* downloaded DASD files.                                   *
//*************************************************************
//*FILEIN   DD DSN=IBM.HAD0E10.F4,UNIT=SYSALLDA,
//*           DISP=SHR,VOL=SER=filevol
//SYSUT3   DD UNIT=SYSALLDA,SPACE=(CYL,(1,1))
//OUT      DD DSNAME=jcl-library-name,
//           DISP=(NEW,CATLG,DELETE),
//*           VOL=SER=dasdvol,
//           UNIT=SYSALLDA,
//           SPACE=(TRK,(20,10,5))
//SYSIN    DD *
   COPY INDD=xxxxIN,OUTDD=OUT
   SELECT MEMBER=(CAZWSMPE,CAZWRECV,CAZWALOC,CAZWZFS)
   SELECT MEMBER=(CAZWISMK,CAZWDDEF,CAZWAPLY,CAZWACPT)
/*
```

To copy the sample jobs for the Application Performance Analyzer Japanese components, use this JCL.

```
//STEP1    EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=*
//*************************************************************
//* Make the //TAPEIN DD statement below active if you install*
//* from a CBPDO tape by uncommenting the DD statement below. *
//*************************************************************
//*TAPEIN   DD DSN=IBM.JAD0E1J.F3,UNIT=tunit,
//*           VOL=SER=volser,LABEL=(x,SL),
//*           DISP=(OLD,KEEP)
//*************************************************************
//* Make the //FILEIN DD statement below active for          *
//* downloaded DASD files.                                   *
//*************************************************************
//*FILEIN   DD DSN=IBM.JAD0E1J.F3,UNIT=SYSALLDA,
```

```
//*             DISP=SHR,VOL=SER=filevol
//SYSUT3   DD UNIT=SYSALLDA,SPACE=(CYL,(1,1))
//OUT      DD DSNAME=jcl-library-name,
//             DISP=(NEW,CATLG,DELETE),
//*            VOL=SER=dasdvol,
//             UNIT=SYSALLDA,
//             SPACE=(TRK,(20,10,5))
//SYSIN    DD *
    COPY INDD=xxxxIN,OUTDD=OUT
    SELECT MEMBER=(CAZWRECJ,CAZWALOJ,CAZWDEFJ,CAZWAPLJ,CAZWACPJ)
/*
```

To copy the sample jobs for the Application Performance Analyzer Korean components, use this JCL.

```
//STEP1    EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=*
//************************************************************
//* Make the //TAPEIN DD statement below active if you install*
//* from a CBPDO tape by uncommenting the DD statement below. *
//************************************************************
//*TAPEIN   DD DSN=IBM.JAD0E1K.F3,UNIT=tunit,
//*            VOL=SER=volser,LABEL=(x,SL),
//*            DISP=(OLD,KEEP)
//************************************************************
//* Make the //FILEIN DD statement below active for          *
//* downloaded DASD files.                                   *
//************************************************************
//*FILEIN    DD DSN=IBM.JAD0E1K.F3,UNIT=SYSALLDA,
//*            DISP=SHR,VOL=SER=filevol
//SYSUT3    DD UNIT=SYSALLDA,SPACE=(CYL,(1,1))
//OUT       DD DSNAME=jcl-library-name,
//             DISP=(NEW,CATLG,DELETE),
//*            VOL=SER=dasdvol,
//             UNIT=SYSALLDA,
//             SPACE=(TRK,(20,10,5))
//SYSIN     DD *
    COPY INDD=xxxxIN,OUTDD=OUT
    SELECT MEMBER=(CAZWRECK,CAZWALOK,CAZWDEFK,CAZWAPLK,CAZWACPK)
/*
```

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

> TAPEIN:
>> **tunit** is the unit value that matches the product package.
>> **volser** is the volume serial that matches the product package.
>> **x** is the tape file number that indicates the location of the data set name on the tape.
>> See the documentation that is provided by CBPDO for the location of IBM.HAD0E10.F4,
>> IBM.JAD0E1J.F3, and IBM.JAD0E1K.F3 on the tape.
> 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 are stored.
   dasdvol is the volume serial of the DASD device where the output data set resides.
SYSIN:
   xxxxIN is either TAPEIN or FILEIN depending on your input DD statement.

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

If you choose to create a new SMP/E environment for this install, a sample job is provided, or you may choose to use your own JCL. If you choose to use the sample job provided, edit and submit CAZWSMPE. Consult the instructions in the sample job for more information.

If you are using an existing CSI, do not run sample job CAZWSMPE. You can go on to the next step to perform an SMP/E RECEIVE.

- 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.

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

6.1.5 Perform SMP/E RECEIVE

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

You can also choose to edit and submit sample job CAZWRECV to perform the SMP/E RECEIVE for Application Performance Analyzer. Consult the instructions in the sample job for more information.

If your order contains the Japanese feature, edit and submit sample job CAZWRECJ to perform the SMP/E RECEIVE for that feature. Consult the instructions in the sample job for more information.

If your order contains the Korean feature, edit and submit sample job CAZWRECK to perform the SMP/E RECEIVE for that feature. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages: For all RECEIVE jobs above, you will receive a return code of 0 if the job runs correctly.

6.1.6 Allocate SMP/E Target and Distribution Libraries

Edit and submit sample job CAZWALOC to allocate the SMP/E target and distribution libraries for Application Performance Analyzer. Consult the instructions in the sample job for more information.

If your order contains the Japanese feature, edit and submit sample job CAZWALOJ to allocate the SMP/E target and distribution libraries for that feature. Consult the instructions in the sample job for more information.

If your order contains the Korean feature, edit and submit sample job CAZWALOK to allocate the SMP/E target and distribution libraries for that feature. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages: For all the ALLOCATE jobs, you will receive a return code of 0 if the job runs correctly.

6.1.7 Allocate, create and mount ZFS Files (Optional)

This job allocates, creates a mountpoint, and mounts zFS data sets.

If you plan to install Application Performance Analyzer into a new z/OS UNIX file system, you can edit and submit the optional CAZWZFS job to perform the following tasks:

- Create the z/OS UNIX file system
- Create a mount point
- Mount the z/OS UNIX file system on the mountpoint

Consult the instructions in the sample job for more information.

The recommended z/OS UNIX file system type is *zFS*. The recommended mount point is */usr/lpp/IBM/apa/v14r1*.

Before running the sample job to create the z/OS UNIX file system, you must ensure that OMVS is active on the driving system. zFS must be active on the driving system if you are installing Application Performance Analyzer into a file system that is zFS.

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.

```
 MOUNT FILESYSTEM('#dsn')
  MOUNTPOINT('/usr/lpp/IBM/apa/v14r1')
  MODE(RDRW)        /* can be MODE(READ) */
  TYPE(ZFS) PARM('AGGRGROW') /* zFS, with extents */
```

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

#dsn is the name of the data set holding the z/OS UNIX file system.

/usr/lpp/IBM/apa/v14r1 is the name of the mount point where the z/OS UNIX file system will be mounted.

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

6.1.8 Allocate File System Paths

The target system HFS or zFS data set must be mounted on the driving system when running the sample CAZWISMK 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 Application Performance Analyzer into a file system that is zFS.

If you plan to install Application Performance Analyzer into a new HFS or zFS file system, you must create the mountpoint and mount the new file system to the driving system for Application Performance Analyzer.

The recommended mountpoint is *usr/lpp/IBM/apa/v14r1*.

Edit and submit sample job CAZWISMK to allocate the HFS or zFS paths for Application Performance Analyzer. 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 the job runs correctly.

6.1.9 Create DDDEF Entries

If you choose to install Application Performance Analyzer V14.1.0 in the **SAME** Target Zone as prior releases (V14.0.0 or lower), you must run a Dummy Delete job to delete the prior release before you run the new CAZWDDEF job. Failure to delete the prior release will cause an abend on the APPLY if installed in the same Zone. Otherwise, install Application Performance Analyzer in a new Target Zone and continue to the CAZWDDEF job.

Provided is a partial example of code to accomplish the delete. It is not intended to be run as-is. The prior release in this instance is HAD0E00 (V14.0.0). If you have other releases you will need to run the dummy delete for all. Once you have successfully deleted the prior version, you can continue to the CAZWDDEF job.

```
//SMPPTFIN DD *
++FUNCTION(DUMMY01).
++VER (Z038)
  DELETE(HAD0E00).
//SMPCNTL  DD *
  SET BDY(GLOBAL).
  RECEIVE S(DUMMY01).
  SET BDY(tzone).
  APPLY S(DUMMY01) REDO.
  SET BDY(dzone).
  ACCEPT S(DUMMY01) BYPASS(APPLYCHECK) REDO .
  SET BDY(TZONE).
   UCLIN.
   DEL SYSMOD(HAD0E00).
   DEL SYSMOD(DUMMY01).
   ENDUCL.
  SET BDY(DZONE).
   UCLIN.
   DEL SYSMOD(HAD0E00).
   DEL SYSMOD(DUMMY01).
   ENDUCL.
/*
```

Edit and submit sample job CAZWDDEF to create DDDEF entries for the SMP/E target and distribution libraries for Application Performance Analyzer. Consult the instructions in the sample job for more information.

If your order contains the Japanese feature, edit and submit sample job CAZWDEFJ to create DDDEF entries for that feature. Consult the instructions in the sample job for more information.

If your order contains the Korean feature, edit and submit sample job CAZWDEFK to create DDDEF entries for that feature. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages: For all the DDDEF jobs, you will receive a return code of 0 if the job(s) runs correctly.

6.1.10 Perform SMP/E APPLY

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

    If your order contains the Japanese feature, edit and submit sample job CAZWAPLJ to perform an SMP/E APPLY CHECK for that feature. Consult the instructions in the sample job for more information.

    If your order contains the Korean feature, edit and submit sample job CAZWAPLK to perform an SMP/E APPLY CHECK for that feature. 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),HOLDFIXCAT) .
  ..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: For all the APPLY CHECK jobs, you will receive a return code of 0 if the job(s) run correctly.

Expected Return Codes and Messages from APPLY: For all the APPLY jobs, you will receive a return code of 0 if the job(s) run correctly.

6.1.11 Perform SMP/E ACCEPT

Edit and submit sample job CAZWACPT to perform an SMP/E ACCEPT CHECK for Application Performance Analyzer. Consult the instructions in the sample job for more information.

If your order contains the Japanese feature, edit and submit sample job CAZWACPJ to perform an SMP/E ACCEPT CHECK for that feature. Consult the instructions in the sample job for more information.

If your order contains the Korean feature, edit and submit sample job CAZWACPK to perform an SMP/E ACCEPT CHECK for that feature. 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: For all ACCEPT CHECK jobs, you will receive a return code of 0 if the job(s) run 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: For all the ACCEPT jobs, you will receive a return code of 0 if the job(s) run 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 Application Performance Analyzer, 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 Cleaning Up Obsolete Data Sets, Paths, and DDDEFs

The following file system paths, which were created and used by previous releases of this product, are no longer used in this release. You can delete these obsolete file system paths after you delete the previous release from your system.

- /usr/lpp/IBM/apa/v14r0

6.2 Activating Application Performance Analyzer

6.2.1 File System Execution

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

6.2.2 Product Customization

The publication *Application Performance Analyzer Customization Guide* (SC27-8401) contains the necessary information to customize and use Application Performance Analyzer.

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Program Directory for IBM Application Performance Analyzer for z/OS, September 2017

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