Program Directory for
IBM System Automation for z/OS

V4.1.0
Program Number 5698-SA4

FMIDs HWRE410, JWRE41F, JWRE41C, JWRE41I, JWRE411, HKAH35T
for Use with
z/OS Version 2 Release 1 or higher

Document Date: February 2017

GI13-4184-01
Note

Before using this information and the product it supports, be sure to read the general information under 7.0, “Notices” on page 32.

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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 IBM System Automation for z/OS. This publication refers to IBM System Automation for z/OS as SA z/OS.

The Program Directory contains the following sections:

- 2.0, “Program Materials” on page 6 identifies the basic program materials and documentation for SA z/OS.
- 3.0, “Program Support” on page 10 describes the IBM support available for SA z/OS.
- 4.0, “Program and Service Level Information” on page 12 lists the APARs (program level) and PTFs (service level) that have been incorporated into SA z/OS.
- 5.0, “Installation Requirements and Considerations” on page 13 identifies the resources and considerations that are required for installing and using SA z/OS.
- 6.0, “Installation Instructions” on page 22 provides detailed installation instructions for SA z/OS. It also describes the procedures for activating the functions of SA z/OS, or refers to appropriate publications.

Before installing SA z/OS, 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 10 tells you how to find any updates to the information and procedures in this program directory.

SA z/OS 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 SA z/OS are included on the CBPDO tape.

Do not use this program directory if you install SA z/OS 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 SA z/OS Description

IBM System Automation for z/OS (SA z/OS) is a NetView-based application designed to provide a single point of control for a full range of systems management functions. SA z/OS plays a key role in supplying high-end automation solutions. SA z/OS functions include monitoring, controlling and automating a large range of system elements spanning both the hardware and software resources of your enterprise. It is designed to automate processor and system operations.
SA z/OS software enables high availability for critical business applications through policy-based self-healing capabilities. It helps customers with single z/OS systems and Parallel Sysplex clusters to:

- Reduce the frequency and duration of incidents that impact IT availability
- Improve productivity with reduced scripting requirements
- Address high availability shortcomings with policy modules based on best practices
- Ease management of complex infrastructures with a single point of control for multi-site enterprises
- Move the IT organization from reactive error correction to preemptive service protection
- Free operators from low-level tasks so they can focus on higher value activities

### 1.1.1 System Operations

System operations monitors and controls system operations applications and subsystems such as NetView, SDSF, JES, RMF, TSO, ACF/VTAM, DB2, CICS, IMS, OMEGAMON, Tivoli Business Services Manager, and IBM Workload Scheduler. With system operations, you can automate Parallel Sysplex applications. SA z/OS can automate applications distributed over a sysplex by virtually removing system boundaries for automation through its automation manager/automation agent design. SA z/OS reduces the complexity of managing a Parallel Sysplex through its goal driven automation and its concepts, such as grouping and powerful dependency support, which enable you to model your configuration. Single systems are also fully supported; the automation scope is then just one system. Enterprise monitoring is used by SA z/OS to update the health status information that is displayed on the Tivoli Enterprise Portal (TEP) via the IBM Monitoring infrastructure and on the Service Management Unite Automation dashboards.

### 1.1.2 Processor Operations

Processor operations monitors and controls processor hardware operations. It provides a connection from a focal point processor to a target processor. With NetView on the focal point system, processor operations automates operator and system consoles for monitoring and recovering target processors. Processor operations allows you to power on and off multiple target processors and reset them, perform IPLs, set the time of day clocks, respond to messages, monitor status, and detect and resolve wait states.

### 1.1.3 IBM Service Management Unite Automation

IBM Service Management Unite is a new customizable dashboard user interface that is available with SA z/OS V4.1.0. Service Management Unite provides system programmers, operators, and administrators with a transparent view of system health status and allows for easy problem identification. The dashboard enables operators to see both monitoring and automation exception events together so they can identify critical problems. Operators can quickly and confidently analyze, isolate and diagnose problems by providing all relevant data in a single place. Service Management Unite also enables operators to interact directly with the system by issuing commands and viewing results without going to a different console.
1.2 What is New in SA z/OS V4.1.0

The following subsections highlight the capabilities that come with SA z/OS in this new release. The new release provides enhancements that are focused on a completely new user experience with a modernized management console to manage applications running beyond Parallel Sysplex barriers. This offering minimizes users’ efforts to reduce the costs of IT operation, lower risks, and improve system and application availability. Refer to System Automation for z/OS Planning & Installation (SC34-2716) for further details about the new capabilities provided with SA z/OS V4.1.0.

1.2.1 IBM Service Management Unite Automation

The introduction of Service Management Unite for Automation, a modernized graphical user interface that erases daily operator tasks and allows operators to manage the whole enterprise from a single point of control.

1.2.2 Cross-Sysplex Automation

Enhanced scope to automate applications and resources including dependencies across multiple sysplexes. Automate applications across multiple SA z/OS sysplexes from a single console, either using the NetView Command Control Facility (NCCF) based panels or from Service Management Unite Automation, the new graphical user interface, part of SA z/OS V4.1.0.

- Cross-sysplex operations. Application components can be located on different SA z/OS sysplexes.
- Dependencies can be defined across multiple SA z/OS sysplexes; automated from well trusted SA z/OS V4.1.0 Automation Manager.

1.2.3 Suspend automation for selected resources

A new and easier way to turn on or off automation for specific resources and their dependents without impacting the operations team by generating false alarms. SA z/OS V4.1.0 allows to suspend automation for selected resources in support of maintenance. The new command INGSUSPD can be used to suspend and resume automation for resources.

1.2.4 Built-in root cause analysis

A new SA z/OS V4.1.0 analyze function (INGWHY) provides expert capabilities to operators, when an unexpected status of an automated resource appears. The analysis is valuable in situations of technical error as well as user errors.

1.2.5 Improved Job log monitoring for JES2 or JES3

- JobLog monitoring can resume monitoring where it was before when NetView has to be recycled.
- JobLog Monitoring is enhanced to detect when a data is spun off by JES. As a result, it monitors the new spool data set.
1.2.6 Enhanced Alerting
Alerts can be sent by SA z/OS V4.1.0 using the NetView confirmed message adapter function, which can be used to guarantee delivery of alerts to the target of EIF events.

1.2.7 Enhanced IMS and CICS connection monitoring
SA z/OS V4.1.0 has been enhanced to monitor IMS-MQ and CICS-MQ connections or rather every future IMS-‘SUBSYS’ or CICS-‘SUBSYS’ connections using INGRMIDB and INGRMCDB monitoring routines.

1.2.8 Enhanced Workload Scheduler integration
SA z/OS V4.1.0 together with the IBM Workload Scheduler V9.3 supports conditional operations running on automation workstations.

1.2.9 Enhanced request filtering
SA z/OS V4.1.0 allows you to filter automation requests by resource or system or by request type, including the new suspend requests.

1.2.10 New and improved best-practices policies
SA z/OS V4.1.0 includes new and improved best-practices policies for the IBM z/OS Connect Enterprise Edition and the IBM OMEGAMON for JVM on z/OS.

1.2.11 IBM z13 enhancements
SA z/OS V4.1.0 has been enhanced to manage new Hardware Features available with IBM z13 and IBM z13s.

1.2.12 Removed I/O operations (IOOPS) functionality
SA z/OS V4.1.0 no longer includes the I/O operations component.

1.2.13 Removed support of the NetView Management Console (NMC)
SA z/OS V4.1.0 no longer includes the NetView Management Console.

1.3 SA z/OS FMIDs
SA z/OS consists of the following FMIDs:

- HWRE410
- JWRE41F
- JWRE41C
- JWRE41I
- JWRE411
- HKAH35T
Note: HKAH35T can be installed in a CSI different from where the other SA z/OS V4.1.0 FMIDs are installed.
2.0 Program Materials

An IBM program is identified by a program number. The program number for SA z/OS is 5698-SA4.

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 SA z/OS. 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 22 for more information about how to install the program.

You can find information about the physical media for the basic machine-readable materials for SA z/OS in the CBPDO Memo To Users Extension.

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.

<table>
<thead>
<tr>
<th>Name</th>
<th>ORG</th>
<th>REC</th>
<th>LRE</th>
<th>BLK SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMPMCS</td>
<td>SEQ</td>
<td>FB</td>
<td>80</td>
<td>27920</td>
</tr>
<tr>
<td><strong>Base Automation:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IBM.HWRE410.F1</td>
<td>PDS</td>
<td>FB</td>
<td>80</td>
<td>8800</td>
</tr>
<tr>
<td>IBM.HWRE410.F2</td>
<td>PDS</td>
<td>FB</td>
<td>80</td>
<td>8800</td>
</tr>
<tr>
<td>IBM.HWRE410.F3</td>
<td>PDS</td>
<td>U</td>
<td>0</td>
<td>6144</td>
</tr>
<tr>
<td>IBM.HWRE410.F4</td>
<td>PDS</td>
<td>VB</td>
<td>1024</td>
<td>27998</td>
</tr>
<tr>
<td><strong>Extended Automation:</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
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<td>FB</td>
<td>80</td>
<td>8800</td>
</tr>
<tr>
<td>IBM.JWRE41F.F2</td>
<td>PDS</td>
<td>U</td>
<td>0</td>
<td>6144</td>
</tr>
</tbody>
</table>
No optional machine-readable materials are provided for SA z/OS.

### 2.3 Program Publications

The following sections identify the basic publications for SA z/OS.

Figure 2 identifies the basic unlicensed publications for SA z/OS. Those that are in softcopy format publications can be obtained from the IBM Publications Center website at http://www.ibm.com/shop/publications/order/.
You can also access documentation for the SA z/OS V4.1.0 from the IBM Knowledge Center website: http://www.ibm.com/support/knowledgecenter/SSWRCJ_4.1.0/com.ibm.safos.doc_4.1/kc_welcome-444.html

The IBM System Automation for z/OS Customer access portal can be found on this link. It contains information about SA z/OS V4.1.0, IBM Service Management Unite Automation and a link to the download url: https://www-01.ibm.com/support/docview.wss?uid=swg21998121

**Figure 2. Basic Material: Unlicensed Publications**

<table>
<thead>
<tr>
<th>Publication Title</th>
<th>Form Number</th>
<th>Media Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBM System Automation for z/OS Program Directory</td>
<td>GI13-4184</td>
<td>IBM Knowledge Center (see link below)</td>
</tr>
<tr>
<td>IBM System Automation for z/OS Licence Information</td>
<td>GI13-4185</td>
<td>IBM Knowledge Center (see link below)</td>
</tr>
<tr>
<td>IBM System Automation for z/OS Customizing and Programming</td>
<td>SC34-2715</td>
<td>IBM Knowledge Center (see link below)</td>
</tr>
<tr>
<td>IBM System Automation for z/OS Defining Automation Policy</td>
<td>SC34-2717</td>
<td>IBM Knowledge Center (see link below)</td>
</tr>
<tr>
<td>IBM System Automation for z/OS End-to-End Automation</td>
<td>SC34-2750</td>
<td>IBM Knowledge Center (see link below)</td>
</tr>
<tr>
<td>IBM System Automation for z/OS Messages and Codes</td>
<td>SC34-2719</td>
<td>IBM Knowledge Center (see link below)</td>
</tr>
<tr>
<td>IBM System Automation for z/OS Monitoring Agent Configuration and User's Guide</td>
<td>SC34-2751</td>
<td>IBM Knowledge Center (see link below)</td>
</tr>
<tr>
<td>IBM System Automation for z/OS Operator's Commands</td>
<td>SC34-2720</td>
<td>IBM Knowledge Center (see link below)</td>
</tr>
<tr>
<td>IBM System Automation for z/OS Planning and Installation</td>
<td>SC34-2716</td>
<td>IBM Knowledge Center (see link below)</td>
</tr>
<tr>
<td>IBM System Automation for z/OS Product Automation Programmer's Reference and Operator's Guide</td>
<td>SC34-2714</td>
<td>IBM Knowledge Center (see link below)</td>
</tr>
<tr>
<td>IBM System Automation for z/OS Programmer's Reference</td>
<td>SC34-2748</td>
<td>IBM Knowledge Center (see link below)</td>
</tr>
<tr>
<td>IBM System Automation for z/OS TWS Automation Programmer's Reference and Operator's Guide</td>
<td>SC34-2749</td>
<td>IBM Knowledge Center (see link below)</td>
</tr>
<tr>
<td>IBM System Automation for z/OS User's Guide</td>
<td>SC34-2718</td>
<td>IBM Knowledge Center (see link below)</td>
</tr>
<tr>
<td>IBM System Automation for z/OS Service Management Unite Automation Installation and Configuration Guide</td>
<td>SC27-8747</td>
<td>IBM Knowledge Center (see link below)</td>
</tr>
<tr>
<td>Accessing IBM System Automation for z/OS Service Management Unite CD</td>
<td>LCD8-2753</td>
<td>IBM Knowledge Center (see link below)</td>
</tr>
</tbody>
</table>

8 SA z/OS Program Directory
**Note:** The Accessing IBM System Automation for z/OS Service Management Unite CD supplies information for the SA z/OS Customer access portal, as well as the key to access the software download link.

### 2.3.1 Optional Program Publications

No optional publications are provided for SA z/OS.

### 2.4 Program Source Materials

No program source materials or viewable program listings are provided for SA z/OS.

### 2.5 Publications Useful During Installation

You might want to use the publications listed in Figure 3 during the installation of SA z/OS.

<table>
<thead>
<tr>
<th>Publication Title</th>
<th>Form Number</th>
<th>Media Format</th>
</tr>
</thead>
</table>
3.0 Program Support

This section describes the IBM support available for SA z/OS.

3.1 Program Services

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

3.2 Preventive Service Planning

Before you install SA z/OS, 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 28 for a sample APPLY command.

If you obtained SA z/OS as part of a CBPDO, HOLDDATA is included.

If the CBPDO for SA z/OS 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:


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 SA z/OS are included in Figure 4.

<table>
<thead>
<tr>
<th>UPGRADE</th>
<th>SUBSET</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HWRE410</td>
<td>HWRE410</td>
<td>SA z/OS Base</td>
</tr>
<tr>
<td>HWRE410</td>
<td>JWRE41F</td>
<td>SA z/OS Extended</td>
</tr>
<tr>
<td>HWRE410</td>
<td>JWRE41C</td>
<td>SA z/OS CICS Automation</td>
</tr>
<tr>
<td>HWRE410</td>
<td>JWRE41I</td>
<td>SA z/OS IMS Automation</td>
</tr>
<tr>
<td>HWRE410</td>
<td>JWRE41I</td>
<td>SA z/OS Kanji Support</td>
</tr>
</tbody>
</table>
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 5 on page 11 identifies the component IDs (COMPID) for SA z/OS.

<table>
<thead>
<tr>
<th>FMID</th>
<th>COMPID</th>
<th>Component Name</th>
<th>RETAIN Release</th>
</tr>
</thead>
<tbody>
<tr>
<td>HWRE410</td>
<td>5698SA300</td>
<td>SA z/OS Base Automation</td>
<td>410</td>
</tr>
<tr>
<td>JWRE41F</td>
<td>5698SA300</td>
<td>SA z/OS Extension</td>
<td>41F</td>
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<tr>
<td>JWRE41C</td>
<td>5698SA300</td>
<td>SA z/OS CICS Automation</td>
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<td>JWRE41I</td>
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<td>SA z/OS IMS Automation</td>
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</tr>
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<td>JWRE411</td>
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<td>SA z/OS Base Automation JPN</td>
<td>411</td>
</tr>
<tr>
<td>HKAH35T</td>
<td>5698SA300</td>
<td>SA z/OS Monitoring Agent and TEP Support</td>
<td>350</td>
</tr>
</tbody>
</table>
4.0 Program and Service Level Information

This section identifies the program and relevant service levels of SA z/OS. 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 APAR fixes against previous releases of SA z/OS closed until February 2017 have been incorporated into this release.

4.2 Service Level Information

No PTFs against this release of SA z/OS have been incorporated into the product package.

Frequently check the SA z/OS 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 SA z/OS. 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 SA z/OS.

5.1.1 Machine Requirements

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

5.1.2 Programming Requirements
5.2 Target System Requirements

This section describes the environment of the target system required to install and use SA z/OS.

SA z/OS 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 7. Target System Mandatory Installation Requisites

<table>
<thead>
<tr>
<th>Program Number</th>
<th>Product Name</th>
<th>Minimum VRM</th>
<th>Minimum Service Level</th>
<th>Included in the shipped product?</th>
</tr>
</thead>
<tbody>
<tr>
<td>5650-ZOS</td>
<td>z/OS</td>
<td>V02.01.00 or higher</td>
<td>N/A</td>
<td>No</td>
</tr>
<tr>
<td>5697-NV6</td>
<td>Tivoli NetView for z/OS</td>
<td>V6.2.1 or higher</td>
<td>See note 1 below</td>
<td>No</td>
</tr>
</tbody>
</table>

Any one of the following:

Note:

1. The following service level is required depending on what version of Tivoli NetView for z/OS is used:
   - For NetView V6.2.1, no additional service is required.
2. 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. These products are specified as IF REQs.

Figure 8. Target System Conditional Installation Requisites

<table>
<thead>
<tr>
<th>Program Number</th>
<th>Product Name</th>
<th>Minimum VRM</th>
<th>Minimum Svc Lvl to satisfy these APARs</th>
<th>Function for which this is a Req’t</th>
<th>Included in the shipped product?</th>
</tr>
</thead>
<tbody>
<tr>
<td>5635-A04</td>
<td>IBM IMS</td>
<td>V13.1 or higher</td>
<td>N/A</td>
<td>IMS Automation</td>
<td>No</td>
</tr>
<tr>
<td>5655-Y04</td>
<td>IBM CICS Transaction Server</td>
<td>V4.1 or higher</td>
<td>N/A</td>
<td>CICS Automation</td>
<td>No</td>
</tr>
</tbody>
</table>

Any one of the following:

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.
Conditional operational requisites identify products that are not required for this product to operate its basic functions but are required at run time for this product to operate specific functions. These products are specified as IF REQs.

### Figure 9. Target System Mandatory Operational Requisites

<table>
<thead>
<tr>
<th>Program Number</th>
<th>Product Name and Minimum VRM/Service Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>5650-ZOS</td>
<td>z/OS V02.01.00 or higher</td>
</tr>
<tr>
<td>5697-NV6</td>
<td>Tivoli NetView for z/OS V6.2.1 or higher</td>
</tr>
</tbody>
</table>

Any one of the following:

### Figure 10. Target System Conditional Operational Requisites

<table>
<thead>
<tr>
<th>Program Number</th>
<th>Product Name and Minimum VRM/Service Level</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>5739-A05</td>
<td>zVM V5.4 or higher</td>
<td>ProcOps VM Second Level Systems Support</td>
</tr>
<tr>
<td>5698-A79</td>
<td>IBM Tivoli Monitoring Services V6.3.0 or higher</td>
<td>Tivoli Enterprise Portal Support</td>
</tr>
</tbody>
</table>

Notes:

1. If you compile the SA z/OS V4.1.0 REXX command lists, the IBM Compiler for SAA REXX/370 R4 (or higher) is needed.

#### 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.

#### 5.2.2.4 Incompatibility (Negative) Requisites

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

#### 5.2.3 DASD Storage Requirements

SA z/OS libraries can reside on all supported DASD types.

Figure 11 lists the total space that is required for each type of library.
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 27.

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.

---

**Figure 11. Total DASD Space Required by SA z/OS**

<table>
<thead>
<tr>
<th>Library Type</th>
<th>Total Space Required in 3390 Trks</th>
<th>File System Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target</td>
<td>2858 (3990 tracks)</td>
<td></td>
</tr>
<tr>
<td>Distribution</td>
<td>2707 (3990 tracks)</td>
<td></td>
</tr>
<tr>
<td>File System(s)</td>
<td>13 MBytes</td>
<td>zFS or HFS</td>
</tr>
</tbody>
</table>
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.

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.
   - These data sets can be in the LNKLST.
   - These data sets are not required to be APF-authorized.

The following figures describe the target and distribution libraries and file system paths required to install SA z/OS. The storage requirements of SA z/OS 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.

<table>
<thead>
<tr>
<th>Library DDNAME</th>
<th>Member Type</th>
<th>Target Type</th>
<th>Target Volume</th>
<th>REC</th>
<th>LOC</th>
<th>No. of Trks</th>
<th>No. of Blks</th>
</tr>
</thead>
<tbody>
<tr>
<td>SINGIMAP</td>
<td>Data</td>
<td>ANY</td>
<td>U</td>
<td>PDS</td>
<td>VB</td>
<td>1024</td>
<td>4</td>
</tr>
<tr>
<td>SINGIMSG</td>
<td>MSG</td>
<td>ANY</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td>80</td>
<td>17</td>
</tr>
<tr>
<td>SINGINST</td>
<td>SAMP</td>
<td>ANY</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td>80</td>
<td>8</td>
</tr>
<tr>
<td>SINGIPDB</td>
<td>Data</td>
<td>ANY</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td>80</td>
<td>172</td>
</tr>
<tr>
<td>SINGIPNL</td>
<td>PNL</td>
<td>ANY</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td>80</td>
<td>175</td>
</tr>
<tr>
<td>SINGIREX</td>
<td>EXEC</td>
<td>ANY</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td>80</td>
<td>307</td>
</tr>
<tr>
<td>SINGISKL</td>
<td>SKEL</td>
<td>ANY</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td>80</td>
<td>13</td>
</tr>
<tr>
<td>SINGITBL</td>
<td>Table</td>
<td>ANY</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td>80</td>
<td>28</td>
</tr>
<tr>
<td>SINGJMSG</td>
<td>MSG</td>
<td>ANY</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td>80</td>
<td>8</td>
</tr>
<tr>
<td>SINGJPNL</td>
<td>PNL</td>
<td>ANY</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td>80</td>
<td>371</td>
</tr>
<tr>
<td>SINGMOD1</td>
<td>LMOD</td>
<td>ANY</td>
<td>U</td>
<td>PDS</td>
<td>U</td>
<td>0</td>
<td>1694</td>
</tr>
<tr>
<td>SINGMOD2</td>
<td>LMOD</td>
<td>ANY</td>
<td>U</td>
<td>PDS</td>
<td>U</td>
<td>0</td>
<td>33</td>
</tr>
<tr>
<td>SINGMOD3</td>
<td>LMOD</td>
<td>ANY</td>
<td>U</td>
<td>PDS</td>
<td>U</td>
<td>0</td>
<td>6</td>
</tr>
</tbody>
</table>
### Figure 12. Storage Requirements for SA z/OS Target Libraries

<table>
<thead>
<tr>
<th>Library DDNAME</th>
<th>Member Type</th>
<th>Target Type</th>
<th>Volume</th>
<th>REC No.</th>
<th>TE No.</th>
<th>No. of Trks</th>
<th>No. of Blks</th>
</tr>
</thead>
<tbody>
<tr>
<td>SINGMSGV</td>
<td>MSG</td>
<td>ANY</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td>80</td>
<td>2</td>
</tr>
<tr>
<td>SINGNMSGG</td>
<td>MSG</td>
<td>ANY</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td>80</td>
<td>29</td>
</tr>
<tr>
<td>SINGNPNL</td>
<td>PNL</td>
<td>ANY</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td>80</td>
<td>451</td>
</tr>
<tr>
<td>SINGNPRM</td>
<td>Data</td>
<td>ANY</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td>80</td>
<td>2</td>
</tr>
<tr>
<td>SINGNREX</td>
<td>EXEC</td>
<td>ANY</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td>80</td>
<td>46</td>
</tr>
<tr>
<td>SINGOBJV</td>
<td>OBJ</td>
<td>ANY</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td>80</td>
<td>2</td>
</tr>
<tr>
<td>SINGREXV</td>
<td>EXEC</td>
<td>ANY</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td>80</td>
<td>11</td>
</tr>
<tr>
<td>SINGSAMP</td>
<td>SAMP</td>
<td>ANY</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td>80</td>
<td>119</td>
</tr>
<tr>
<td>SINGTREX</td>
<td>EXEC</td>
<td>ANY</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td>80</td>
<td>13</td>
</tr>
<tr>
<td>TKANCUS</td>
<td>Data</td>
<td>ANY</td>
<td>S</td>
<td>PDS</td>
<td>FB</td>
<td>80</td>
<td>2000</td>
</tr>
<tr>
<td>TKANDATV</td>
<td>Data</td>
<td>ANY</td>
<td>S</td>
<td>PDS</td>
<td>VB</td>
<td>6160</td>
<td>300</td>
</tr>
<tr>
<td>TKANMODL</td>
<td>LMOD</td>
<td>ANY</td>
<td>S</td>
<td>PDS</td>
<td>U</td>
<td>0</td>
<td>3300</td>
</tr>
<tr>
<td>TKANPAR</td>
<td>Data</td>
<td>ANY</td>
<td>S</td>
<td>PDS</td>
<td>FB</td>
<td>80</td>
<td>30</td>
</tr>
<tr>
<td>TKANPKGI</td>
<td>Data</td>
<td>ANY</td>
<td>S</td>
<td>PDS</td>
<td>FB</td>
<td>80</td>
<td>200</td>
</tr>
</tbody>
</table>

### Figure 13. SA z/OS File System Paths

<table>
<thead>
<tr>
<th>DDNAME</th>
<th>TYPE</th>
<th>Path Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>SINGACFG</td>
<td>X</td>
<td>/usr/lpp/ing/adapter/config/IBM/</td>
</tr>
<tr>
<td>SINGALIB</td>
<td>X</td>
<td>/usr/lpp/ing/adapter/lib/IBM/</td>
</tr>
<tr>
<td>SINGASCR</td>
<td>X</td>
<td>/usr/lpp/ing/adapter/IBM/</td>
</tr>
<tr>
<td>SINGDCFG</td>
<td>N</td>
<td>/usr/lpp/ing/dist/TEC/IBM/</td>
</tr>
<tr>
<td>SINGICFG</td>
<td>N</td>
<td>/usr/lpp/ing/dist/TDI/IBM/</td>
</tr>
<tr>
<td>SINGOSCR</td>
<td>N</td>
<td>/usr/lpp/ing/dist/OMNIbus/IBM/</td>
</tr>
<tr>
<td>SINGSCFG</td>
<td>X</td>
<td>/usr/lpp/ing/SAP/IBM/</td>
</tr>
<tr>
<td>SINGULIB</td>
<td>X</td>
<td>/usr/lpp/ing/ussauto/lib/IBM/</td>
</tr>
</tbody>
</table>
### Figure 14. Storage Requirements for SA z/OS Distribution Libraries

<table>
<thead>
<tr>
<th>Library DNAME</th>
<th>TYPE</th>
<th>OPTIONS</th>
<th>REPOS</th>
<th>LOCATION</th>
<th>No. of 3390 Trks</th>
<th>No. of DIR Blks</th>
</tr>
</thead>
<tbody>
<tr>
<td>AINGHFSV</td>
<td>U</td>
<td>PDS</td>
<td>VB</td>
<td></td>
<td>1024</td>
<td>256</td>
</tr>
<tr>
<td>AINGIMAP</td>
<td>U</td>
<td>PDS</td>
<td>VB</td>
<td></td>
<td>1024</td>
<td>4</td>
</tr>
<tr>
<td>AINGIMSG</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td></td>
<td>80</td>
<td>17</td>
</tr>
<tr>
<td>AINGINST</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td></td>
<td>80</td>
<td>2</td>
</tr>
<tr>
<td>AINGIPDB</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td></td>
<td>80</td>
<td>172</td>
</tr>
<tr>
<td>AINGIPNL</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td></td>
<td>80</td>
<td>175</td>
</tr>
<tr>
<td>AINGIREX</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td></td>
<td>80</td>
<td>307</td>
</tr>
<tr>
<td>AINGISKL</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td></td>
<td>80</td>
<td>13</td>
</tr>
<tr>
<td>AINGITBL</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td></td>
<td>80</td>
<td>28</td>
</tr>
<tr>
<td>AINGJMSG</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td></td>
<td>80</td>
<td>8</td>
</tr>
<tr>
<td>AINGJPNL</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td></td>
<td>80</td>
<td>371</td>
</tr>
<tr>
<td>AINGMOD1</td>
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<td>PDS</td>
<td>U</td>
<td></td>
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<td>1205</td>
</tr>
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<td>2</td>
</tr>
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<td>PDS</td>
<td>FB</td>
<td></td>
<td>80</td>
<td>29</td>
</tr>
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<td>AINGNPNL</td>
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<td>PDS</td>
<td>FB</td>
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<td>80</td>
<td>451</td>
</tr>
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<td>PDS</td>
<td>FB</td>
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<td>2</td>
</tr>
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<td>PDS</td>
<td>FB</td>
<td></td>
<td>80</td>
<td>46</td>
</tr>
<tr>
<td>AINGNREX</td>
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<td>PDS</td>
<td>FB</td>
<td></td>
<td>80</td>
<td>1646</td>
</tr>
<tr>
<td>AINGOBJV</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td></td>
<td>80</td>
<td>2</td>
</tr>
<tr>
<td>AINGREXV</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td></td>
<td>80</td>
<td>11</td>
</tr>
<tr>
<td>AINGSAMP</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td></td>
<td>80</td>
<td>119</td>
</tr>
<tr>
<td>AINGTREX</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td></td>
<td>80</td>
<td>13</td>
</tr>
<tr>
<td>DKANCUS</td>
<td>S</td>
<td>PDS</td>
<td>FB</td>
<td></td>
<td>80</td>
<td>2000</td>
</tr>
<tr>
<td>DKANDATV</td>
<td>S</td>
<td>PDS</td>
<td>VB</td>
<td></td>
<td>6160</td>
<td>300</td>
</tr>
<tr>
<td>DKANMODL</td>
<td>S</td>
<td>PDS</td>
<td>U</td>
<td></td>
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<td>3300</td>
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<tr>
<td>DKANPAR</td>
<td>S</td>
<td>PDS</td>
<td>FB</td>
<td></td>
<td>80</td>
<td>30</td>
</tr>
<tr>
<td>DKANPKGI</td>
<td>S</td>
<td>PDS</td>
<td>FB</td>
<td></td>
<td>80</td>
<td>200</td>
</tr>
</tbody>
</table>

**Note:** Data sets AINGJMSG and AINGJPNL are for Japanese data only and remain empty if JWRE411 is not installed.
5.3 FMIDs Deleted

Installing SA z/OS 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 migrating from the previous release of the SA z/OS, the SMP/E installation process does not delete the I/O Operations Component with FMID HWRE35D. If you do not need the Component, delete the FMID manually.

If you do not want to delete these FMIDs at this time, install SA z/OS 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

SA z/OS 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 SA z/OS.

Please note the following points:

- If you want to install SA z/OS 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 SA z/OS

6.1.1 SMP/E Considerations for Installing SA z/OS

Use the SMP/E RECEIVE, APPLY, and ACCEPT commands to install this release of SA z/OS.

6.1.2 SMP/E Options Subentry Values

The recommended values for certain SMP/E CSI subentries are shown in Figure 15. 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.

<table>
<thead>
<tr>
<th>Subentry</th>
<th>Value</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSSPACE</td>
<td>1600,400,1000</td>
<td>Size of largest file</td>
</tr>
<tr>
<td>PEMAX</td>
<td>SMP/E Default</td>
<td>IBM recommends using the SMP/E default for PEMAX.</td>
</tr>
</tbody>
</table>

6.1.3 SMP/E CALLLIBS Processing

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

- CSSLIB

For NetView
- CNMLINK
- NVULIB

For ISPF, shipped with z/OS
- SISPLOAD

For LE Libraries for PL/I, C and C++
- SCEECPP
- SCEELIB
- SCEELKED
- SCEELKEX
- SCEEOBJ
- SIBMCALL

For CICS V4.1 or higher
- SDFHLOAD

For IMS 13.1 or higher
- SDFSRESL

**Note:** CALLLIBS uses the previous DDDEFs only to resolve the link-edit for SA z/OS. These data sets are not updated during the installation of SA z/OS.

### 6.1.4 Sample Jobs

The following sample installation jobs are provided as part of the product to help you install SA z/OS:

<table>
<thead>
<tr>
<th>Job Name</th>
<th>Job Type</th>
<th>Description</th>
<th>RELFILE</th>
</tr>
</thead>
<tbody>
<tr>
<td>INGALLOC</td>
<td>ALLOCATE</td>
<td>Sample job to allocate target and distribution libraries</td>
<td>IBM.JWRE41F.F3</td>
</tr>
<tr>
<td>KAHALLOC</td>
<td>ALLOCATE</td>
<td>Sample job to allocate target and distribution libraries for Monitoring Agent and TEP support</td>
<td>IBM.HKAH35T.F2</td>
</tr>
<tr>
<td>INGISFS</td>
<td>ALLOMZFS</td>
<td>Sample job to allocate and mount the zFS file system</td>
<td>IBM.JWRE41F.F3</td>
</tr>
<tr>
<td>INGISMKD</td>
<td>MKDIR</td>
<td>Sample job to invoke the supplied INGMKDIR EXEC to allocate file system paths</td>
<td>IBM.JWRE41F.F3</td>
</tr>
<tr>
<td>INGDDDEF</td>
<td>DDDEF</td>
<td>Sample job to define SMP/E DDDEFs</td>
<td>IBM.JWRE41F.F3</td>
</tr>
<tr>
<td>KAHDDDEF</td>
<td>DDDEF</td>
<td>Sample job to define SMP/E DDDEFs for Monitoring Agent and TEP support</td>
<td>IBM.HKAH35T.F2</td>
</tr>
<tr>
<td>INGDDDCL</td>
<td>DDDEF</td>
<td>Sample job to define prerequisite product DDDEFs</td>
<td>IBM.JWRE41F.F3</td>
</tr>
</tbody>
</table>
You can access the sample installation jobs by performing an SMP/E RECEIVE (refer to 6.1.5, “Perform SMP/E RECEIVE” on page 25) then copy the jobs from the RELFILES to a work data set for editing and submission. See Figure 16 on page 23 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.

```
//STEP1 EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=/c5197
//TAPEIN DD DSN=IBM.JWRE41F.F3,UNIT=tunit, VOL=SER=WRE41/zerodot,LABEL=(x,SL), DISP=(OLD,KEEP)
//FILEIN DD DSN=IBM.JWRE41F.F3,UNIT=SYSALLDA,DISP=SHR, VOL=SER=filevol
//OUT DD DSNAME=jcl-library-name, DISP=(NEW,CATLG,DELETE), VOL=SER=dasdvol,UNIT=SYSALLDA, SPACE=(TRK,(5,2,2))
//SYSUT3 DD UNIT=SYSALLDA,SPACE=(CYL,(1,1))
//SYSIN DD *
 COPY INDD=xxxxIN,OUTDD=OUT
 SELECT MEMBER=(INGALLOC,INGISFS,INGISMKD,INGDDDEF)
 SELECT MEMBER=(INGDDDCL,INGAPPLY,INGACCPT)
/*
```

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

**TAPEIN:**
- `tunit` is the unit value 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.JWRE41F.F3 on the tape.

**FILEIN:**
- `filevol` is the volume serial of the DASD device where the downloaded files reside.

**OUT:**

<table>
<thead>
<tr>
<th>Job Name</th>
<th>Job Type</th>
<th>Description</th>
<th>RELFILE</th>
</tr>
</thead>
<tbody>
<tr>
<td>INGAPPLY</td>
<td>APPLY</td>
<td>Sample APPLY job</td>
<td>IBM.JWRE41F.F3</td>
</tr>
<tr>
<td>KAHAPPLY</td>
<td>APPLY</td>
<td>Sample APPLY job for Monitoring Agent and TEP support</td>
<td>IBM.HKAH35T.F2</td>
</tr>
<tr>
<td>INGACCPT</td>
<td>ACCEPT</td>
<td>Sample ACCEPT job</td>
<td>IBM.JWRE41F.F3</td>
</tr>
<tr>
<td>KAHACCPT</td>
<td>ACCEPT</td>
<td>Sample ACCEPT job for Monitoring Agent and TEP support</td>
<td>IBM.HKAH35T.F2</td>
</tr>
</tbody>
</table>
**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.

Similarly, you can copy the sample installation jobs for the Monitoring Agent and TEP support:

```
//STEP2 EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=/c5197
//TAPEIN DD DSN=IBM.HKAH35T.F2,UNIT=tunit,
//      VOL=SER=volser,LABEL=(x,SL),
//      DISP=(OLD,KEEP)
//FILEIN DD DSN=IBM.HKAH35T.F2,UNIT=SYSALLDA,DISP=SHR,
//      VOL=SER=filevol
//OUT DD DSNAME=jcl-library-name-tep,
//      DISP=(NEW,CATLG,DELETE),
//      VOL=SER=dasdvol,UNIT=SYSALLDA,
//      SPACE=(TRK,(5,2,2))
//SYSUT3 DD UNIT=SYSALLDA,SPACE=(CYL,(1,1))
//SYSIN DD *
COPY INDD=xxxxIN,OUTDD=OUT
SELECT MEMBER=(KAHALLOC,KAHDDDEF,KAHAPPLY,KAHACCPT)
/```

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

**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.HKAH35T.F2 on the tape.

**FILEIN:**
- **filevol** is the volume serial of the DASD device where the downloaded files reside.

**OUT:**
- **jcl-library-name-tep** 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.

### 6.1.5 Perform SMP/E RECEIVE

If you have obtained SA z/OS as part of a CBPDO, use the RCVPDO job in the CBPDO RIMLIB data set to receive the SA z/OS FMIDs, service, and HOLDDATA that are included on the CBPDO package. For more information, see the documentation that is included in the CBPDO sample job to perform the SMP/E RECEIVE for SA z/OS.

Replace **smpe.global.csi** and **tunit** below with a value appropriate for your system. Add job card as necessary and update SMPCSI with the appropriate data set.
//JOB1 JOB ...
//RECVSAL EXEC PGM=GIMSMP,REGION=4096K
//SMPCSI DD DSN=smpe.global.csi,DISP=SHR
//SMPPTFIN DD DSN=SMPMCS,DISP=(OLD,KEEP),
//         VOL=SER=WRE410,LABEL=(x,SL),
//         UNIT=(tunit,,DEFER)
//SMPHOLD DD DUMMY
//SMPCNTL DD *
SET BOUNDARY(GLOBAL) .
RECEIVE S(HWRE410,JWRE41F,JWRE41C,JWRE41I,JWRE41I) .
/

SMPCSI:             
smpe.global.csi is the DSN value for the CSI.

SMPPTFIN:          
  x is the tape file number that indicates the location of the data set name on the tape.
  tunit is the unit value that matches the product package.

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

Similarly, for the Monitoring Agent and TEP support:
It is recommended to install the SA z/OS TEP support (FMID HKAH35T) into the CSI of the TEP installation.

Replace smpe.itm.csi and tunit below with a value appropriate for your system.

//JOB2 JOB ...
//RECVKAH EXEC PGM=GIMSMP,REGION=4096K
//SMPCSI DD DSN=smpe.itm.csi,DISP=SHR
//SMPPTFIN DD DSN=SMPMCS,DISP=(OLD,KEEP),
//         VOL=SER=volser,LABEL=(x,SL),
//         UNIT=(tunit,,DEFER)
//SMPHOLD DD DUMMY
//SMPCNTL DD *
SET BOUNDARY(GLOBAL) .
RECEIVE S(HKAH35T) .
/

SMPCSI:             
smpe.global.csi is the DSN value for the CSI.

SMPPTFIN:          
  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.
  tunit is the unit value that matches the product package.

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

1. Edit and submit sample job INGALLOC to allocate the SMP/E target and distribution libraries for SA z/OS. Consult the instructions in the sample job for more information.

   **Expected Return Codes and Messages:** The INGALLOC job is considered successful if you receive a return code of 0.

2. Edit and submit sample job KAHALLOC to allocate the SMP/E target and distribution libraries for SA z/OS Monitoring Agent and TEP support. Consult the instructions in the sample job for more information.

   **Expected Return Codes and Messages:** The KAHALLOC job is considered successful if you receive a return code of 0.

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 INGISMKD 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 SA z/OS into a file system that is zFS.

If you plan to install SA z/OS into a new HFS or zFS file system, you must create the mountpoint and mount the new file system to the driving system for SA z/OS.

The recommended mountpoint is `/usr/lpp/ing`.

1. To allocate and mount the new file system data set of the target system on the driving system, use sample job INGISFS:

   Edit and submit sample job INGISFS. Consult the instructions in the sample job for more information.

   **Expected Return Codes and Messages:** The INGISFS job is considered successful if you receive a return code of 0.

2. To allocate the HFS or zFS paths for SA z/OS, use sample job INGISMKD:

   Edit and submit sample job INGISMKD. 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:** The INGISMKD job is considered successful if you receive a return code of 0.
6.1.8 Create DDDEF Entries

1. Edit and submit sample job INGDDDEF to create DDDEF entries for the SMP/E target and distribution libraries for SA z/OS. Consult the instructions in the sample job for more information.

**Expected Return Codes and Messages:** The INGDDDEF job is considered successful if you receive a return code of 0. However, if some or all of these DDDEF entries already exist, then the job will complete with a return code of 8. You will have to examine the output and determine whether or not the existing entries should be replaced. You can change the ‘ADD’ to ‘REP’ in this job to replace existing entries.

2. Job INGDDDCL defines the DDDEFs, for the SA z/OS prerequisite product libraries, to SMP/E. These DDDEFs are used by the SMP/E CALLLIB function during installation.

   Edit sample job INGDDDCL. Consult the instructions in the sample job for more information and submit sample job INGDDDCL.

   If the prerequisite products are installed in the same SMP/E CSI zones as SA z/OS, the DDDEFs may already be defined. Edit the job to comment out the libraries that are already defined.

   **Expected Return Codes and Messages:** INGDDDCL will complete with message GIM35601E and a return code of 8 if a DDDEF entry already exists. Otherwise, INGDDDCL should complete with a return code of 0.

3. Edit and submit sample job KAHDDEDEF to create DDDEF entries for the SMP/E target and distribution libraries for SA z/OS Monitoring Agent and TEP Support. Consult the instructions in the sample job for more information.

   **Expected Return Codes and Messages:** The KAHDDEDEF job is considered successful if you receive a return code of 0.

6.1.9 Perform SMP/E APPLY

1. Ensure that you have the latest HOLDDATA; then edit and submit sample job INGAPPLY to perform an SMP/E APPLY CHECK for SA z/OS. 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)).
   ```

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

   If you bypass HOLDs during the installation of the FMIDs because fixing PTFs are not yet available, you can be notified when the fixing PTFs are available by using the APAR Status Tracking (AST) function of ServiceLink or the APAR Tracking function of ResourceLink.

2. After you take actions that are indicated by the APPLY CHECK, remove the CHECK operand and run the job again to perform the APPLY.

   **Note:** The GROUPEXTEND operand indicates that SMP/E applies all requisite SYSMODs. The requisite SYSMODS might be applicable to other functions.
**Expected Return Codes and Messages from APPLY CHECK:** You will receive a return code of 0 if this job runs correctly.

**Expected Return Codes and Messages from APPLY (INGAPPLY):** You will receive a return code of 0 if this job runs correctly.

3. If you also want to install the Monitoring Agent and TEP support, edit and submit sample job KAHAPPLY to perform an SMP/E APPLY CHECK for SA z/OS. Consult the instructions in the sample job for more information.

   Proceed in a similar way as described above for sample job INGAPPLY.

**Expected Return Codes and Messages from APPLY (KAHAPPLY):** The KAHAPPLY job is considered successful if you receive a return code of 0.

### 6.1.10 Perform SMP/E ACCEPT

Edit and submit sample job INGACCPT to perform an SMP/E ACCEPT CHECK for SA z/OS. Consult the instructions in the sample job for more information.

To receive the full benefit of the SMP/E Causer SYSMOD Summary Report, do not bypass the PRE, ID, REQ, and IFREQ on the ACCEPT CHECK. The SMP/E root cause analysis identifies the cause of errors but not warnings (SMP/E treats bypassed PRE, ID, REQ, and IFREQ conditions as warnings rather than errors).

Before you use SMP/E to load new distribution libraries, it is recommended that you set the ACCJCLIN indicator in the distribution zone. In this way, you can save the entries that are produced from JCLIN in the distribution zone whenever a SYSMOD that contains inline JCLIN is accepted. For more information about the ACCJCLIN indicator, see the description of inline JCLIN in the SMP/E Commands book for details.

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

**Note:** The GROUPEXTEND operand indicates that SMP/E accepts all requisite SYSMODs. The requisite SYSMODS might be applicable to other functions.

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

If PTFs that contain replacement modules are accepted, SMP/E ACCEPT processing will link-edit or bind the modules into the distribution libraries. During this processing, the Linkage Editor or Binder might issue messages that indicate unresolved external references, which will result in a return code of 4 during the ACCEPT phase. You can ignore these messages, because the distribution libraries are not executable and the unresolved external references do not affect the executable system libraries.

**Expected Return Codes and Messages from ACCEPT (INGACCPT):** You will receive a return code of 0 if this job runs correctly.
If you also want to install the Monitoring Agent and TEP support, edit and submit sample job KAHACCPT to perform an SMP/E ACCEPT CHECK for SA z/OS. Consult the instructions in the sample job for more information.

Proceed in a similar way as described above for sample job INGACCPT.

**Expected Return Codes and Messages from ACCEPT (KAHACCPT):** You will receive a return code of 0 if this job runs correctly.

### 6.1.11 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 SA z/OS, it is recommended that you run REPORT CROSSZONE against the new or updated target and distribution zones. REPORT CROSSZONE requires a global zone with ZONEINDEX entries that describe all the target and distribution libraries to be reported on.

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

### 6.2 Activating SA z/OS

#### 6.2.1 File System Execution

If you mount the file system in which you have installed SA z/OS in read-only mode during execution, then you do not have to take further actions to activate SA z/OS.

#### 6.3 Product Customization

SA z/OS must be customized after the SMP/E installation is completed. See publication *System Automation for z/OS Planning & Installation, SC34-2716* for a description how to setup SA z/OS. Once the customization is complete you can start using the SA z/OS customization dialog to define the policy.

The publication *System Automation for z/OS Operator's Commands (SC34-2720)* contains the necessary information to customize and use SA z/OS.


The publication *System Automation for z/OS End-to-end Automation, SC34-2750* contains the step-by-step instructions to setup the end-to-end adapter for communicating with the System Automation Application Manager, the IBM Service Management Unite Automation and for cross-sysplex operations.
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