Program Directory for
IBM Tivoli System Automation for z/OS

V3.5.0
Program Number 5698-SA3

FMIDs HWRE350/JWRE35F/JWRE35C/JWRE35I/JWRE351/HWRE35D/HKAH35T

for Use with
z/OS Version 1 Release 12 or later

All FMIDs Service Updated September 2015

Document Date: October 2015

GI11-2719-01
Note

Before using this information and the product it supports, be sure to read the general information under 7.0, “Notices” on page 39.

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

The Program Directory contains the following sections:

- 2.0, “Program Materials” on page 8 identifies the basic program materials and documentation for SA z/OS.
- 3.0, “Program Support” on page 12 describes the IBM support available for SA z/OS.
- 4.0, “Program and Service Level Information” on page 14 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 19 identifies the resources and considerations that are required for installing and using SA z/OS.
- 6.0, “Installation Instructions” on page 28 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 12 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 Tivoli 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 I/O, 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, RODM, ACF/VTAM, DB2, CICS, IMS, OMEGAMON, TBSM, and TWS. 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 NetView Management Console (NMC) resource status information that is stored in the Resource Object Data Manager (RODM), and update the health status information that is displayed on the Tivoli Enterprise Portal (TEP) via the IBM Tivoli Monitoring infrastructure.

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 I/O-Operations

I/O operations provides a single point of control for managing connectivity in your active I/O configurations. It takes an active role in detecting unusual I/O conditions and lets you view and change paths between a processor and an input/output device, which can involve using dynamic switching: the enterprise systems connection (ESCON) or fiber channel connection (FICON) switch. I/O operations changes paths by letting you control channels, ports, switches, control units, and input/output devices. You can do this through an operator console or API.
1.2 What is New in SA z/OS V3.5

The following subsections highlight the capabilities that come with SA z/OS in this new release. Refer to System Automation for z/OS Planning & Installation (SC34-2716) for further details about the new capabilities provided with SA z/OS V3.5

1.2.1 Configuration assistant

The configuration assistant allows you to quickly configure System Automation for z/OS in a single-system and multi-system environment by using lab-proven best practices configuration settings for NetView for z/OS and System Automation for z/OS. Using a single options file, the configuration assistant generates all artifacts required to run the product, from data set allocation, to generating SYS1.PARMLIB and SYS1.PROCLIB members, populating the NetView DSIPARM, up to security definitions for the z/OS Security Server to protect your automation environment. Thereby it avoids manual tasks required in the past to customize install and configuration jobs and avoids duplicate user input. A verification utility furthermore can validate that all prerequisites are fulfilled after the configuration is completed.

1.2.2 Role based security

System Automation for z/OS simplifies and improves the already existing security of the automation environment by consequently using roles with associated command and resource authorization levels. Users must be authorized to issue a command and to update a resource, before that resource's status can be changed by that command. With System Automation for z/OS V3.5, also third-party security checking is introduced for those users who access the product from TSO, from a batch job or by using OSLC web services. To simplify the definition effort, in combination with the configuration assistant, most of the z/OS Security Server profiles and resource definition commands can be generated automatically and saved in a data set member.

1.2.3 Integration with IBM Tivoli Monitoring products

System Automation for z/OS improves the integration with IBM Tivoli Monitoring in multiple ways:

- The integration between System Automation for z/OS and IBM Tivoli OMEGAMON is further intensified by providing an out-of-the-box scenario for suppressing looping address spaces. Leveraging OMEGAMON XE for z/OS, looping address spaces are identified and policy is used to decide what courses of action (for example, STOP, RESET, DIAG, WARN, ...) should be taken and under what circumstances. This support helps to increase the availability of your system, increases the productive usage of CPU capacity and hence improves the overall service level.

- Captured messages can now be reported immediately as situations on the Tivoli Enterprise Portal (TEP) for selected automation resources using System Automation for z/OS Monitoring Agent.

- The System Automation for z/OS Monitoring Agent now supports the IBM Tivoli Monitoring self-describing-agent feature that allows to automatically install all support files on the monitoring server, the portal server and the portal itself and hence contributes to lower cost of ownership and less downtime of your monitoring components.
• Several attribute groups collected by the System Automation for z/OS Monitoring Agent have been enhanced to correspond with the latest level of System Automation 3270-based commands. This includes information about run modes and pacing gates.

1.2.4 Hardware automation
The following enhancements are provided:

• System Automation for z/OS tolerates the latest mainframe hardware generation, the IBM zEnterprise EC12. Furthermore, it allows the administrator to designate a target system as a zAware logical partition in the automation policy and allows the operator to activate and deactivate that logical partition like any other logical partition on the processor.

• System Automation for z/OS allows you to use SNMPv3 as the protocol between the Processor Operations focal point and the Hardware Management Console or the Support Element. With SNMPv3, the data from and to the hardware is sent in encrypted format.

• The LPAR scope feature allows you to improve the performance for initializing a particular processor. Rather than retrieving specific information for all logical partitions of a processor, only those logical partitions are processed which are defined as target systems for the processor in the automation policy. This can reduce the overall initialization time considerably.

• System Automation for z/OS can recognize priority messages, for example synchronous WTORs issued from the operating system and can also reply to such messages with the priority indication set.

• zEnterprise BladeCenter Extension support has been enhanced to allow switching the Ensemble Hardware Management Console from the primary to the alternate.

1.2.5 Application pacing
Certain high CPU intensive workloads can dominate the system during start or stop times. System Automation for z/OS introduces therefore pacing gates that allow you to throttle the number of such workloads that can be started or stopped concurrently.

1.2.6 Customization Dialog enhancements
The following enhancements are provided:

• Concurrent edit and browse - The Customization Dialog has been enhanced to allow access to the policy in browse mode, either in the scope of the complete policy, in the scope of a particular entry type, or for one particular entry only. Browsing and editing concurrently by multiple users or in split screen is now possible as well as concurrent browse and policy built.

• The command processing for NetView restart, configuration refresh or timer processing has been simplified by introducing the new start up phases REFRESHSTART and ANYSTART. This avoids in particular the duplicate definitions of commands that must be issued whenever NetView is recycled and after the application became available.

• Any command can be entered in mixed case and the length of the command entry field in the Customization Dialog has been increased to allow administrators to enter longer commands directly into the policy and thus avoid writing scripts.
• Further enhanced easy message management capabilities provide enhanced automation table syntax checking and allow you to control in a more granular way what is being generated for MPF, the automation table and for the message revision table.

• All changes of the automation policy are now completely logged by the Customization Dialog to provide a complete audit trail and change reference.

• More and enhanced best practices policies provide a less complex z/OS base configuration, include support for the Tivoli OMEGAMON manager, DB2’s administrative task scheduler, IMS Connect, SAP server and JES2 network server.

• Enables user-defined categories and subcategories for application definitions.

• Supports flat file export and import for processors, in particular of the Processor Info policy and also to export policies in batch.

1.2.7 Job log monitoring for JES3
Messages that are written to the JES job log or into another data set in the JES SPOOL are now also available for automation, regardless of what Job Entry Subsystem, JES2 or JES3, is being used.

1.2.8 Enterprise SDF status monitoring support
The Status Display Facility (SDF) supports now identical component names at the lowest tree level as long as this level does not immediately follow the root level to enable enterprise-wide comparisons, for example status per system or status per sysplex, on the SDF panel. In addition, the display capabilities of SDF have been enhanced such that the title line of a panel body can be placed anywhere in the panel. Finally, the sort order of the rows within a body can be changed from status priority to alphanumerical content in a cell both, in ascending and descending order.

1.2.9 Enhanced XCF communication
System Automation for z/OS has been enhanced to enable XCF communication within the physical sysplex, beyond the scope of the SAplex. Commands and their responses targeted to a system outside of the current SAplex but within the physical sysplex can now be sent using XCF and do not require NetView RMTCMD.

1.2.10 IPL complete notification support
To let installations monitor the progress of an IPL, System Automation for z/OS allows the administrator to set a time limit and to mark those resources representative for a complete IPL. When the system is started initially, the observed status of these resources is monitored and System Automation for z/OS reports the status of the IPL when all resources became available before the time limit. It would also report the status at the time limit, when some resources are still not available. And optionally, System Automation for z/OS issues a final completion message, even after the time limit has expired, based on a new automation option.
1.2.11 Relational Database Services (INGRDS) enhancements
The Relational Data Services (RDS) have been improved for better performance for insert, update and archiving of tables. In addition, new functions have been introduced to enable mass inserts or mass updates and similar capabilities for import and export. RDS can now also be used with volatile RDS tables, if no persistent data repository is available.

1.2.12 GDPS Active-Active support for multiple consistency groups
System Automation for z/OS provides a new subtower GDPSSAT for the GDPS Satellite component that is targeted for GDPS Active-Active environments in support of graceful switch and multiple consistency group support.

1.2.13 Tailorable 3270 panels
All tabular panels with horizontal scrolling capabilities, for example INGLIST, can now be tailored by the operators. It is possible to denote fixed and floating columns, to hide columns, to determine the order of the columns and to specify the sort order for one or multiple columns. This together with colored status fields in INGAMS and IDSPMTR help to increase the usability of the panels.

1.2.14 UP status delay
Some applications report themselves as being fully available even though some startup activities are still going on in the background. In order to avoid that the UP status triggers further Automation Manager activities prematurely due to relationships, System Automation for z/OS introduces a new field for applications that can be used to delay the true UP status by a user-defined time.

1.2.15 Config refresh monitoring
System Automation for z/OS has been enhanced to monitor the progress of a configuration refresh using INGAMS. It leverages the new SDF capability that allows you to compare the same status descriptor for several systems. In the product provided sample panel, SDF visualizes when a configuration refresh is in progress, when an error happened, or when the refresh process has successfully finished.

1.2.16 New exit AOFEXC25
This exit allows installations to be informed about new, changed or deleted APL, APG and MTR resources detected during a configuration refresh using INGAMS. Administrators can use the exit to have a better understanding of the changes and may prevent the immediate activation of the changes. This is especially helpful when the automation policy can be updated any time but configuration changes are done not very often.

1.2.17 Serviceability enhancements using NVINFO
NetView for z/OS V6.2 has introduced the command NVINFO that prints important serviceability information into the netlog and optionally produces a dump of the NetView address space. System Automation for z/OS provides a plug-in invoked by NVINFO when the SA tower is set to include also important serviceability information from an System Automation point of view.
1.3 SA z/OS FMIDs

SA z/OS consists of the following FMIDs:

- HWRE350
- JWRE35F
- JWRE35C
- JWRE35I
- JWRE351
- HKAH35T
- HWRE35D

**Note:** HKAH35T can be installed in a CSI different from where the other SA z/OS V3.5 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-SA3.

Basic Machine-Readable Materials are materials that are supplied under the base license and feature numbers, and are required for the use of the product.

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 28 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.

Figure 1 describes the program file content for SA z/OS.

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.

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### Figure 1 (Page 2 of 2). Program File Content

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2.2 Optional Machine-Readable Material

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. Publications can be accessed at the IBM Publications Center website at http://www.ibm.com/shop/publications/order.

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<td>IBM Tivoli 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 Tivoli System Automation for z/OS Planning &amp; Installation</td>
<td>SC34-2716</td>
<td>IBM Knowledge Center (see link below)</td>
</tr>
<tr>
<td>IBM Tivoli 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 Tivoli System Automation for z/OS Programmer's Reference</td>
<td>SC34-2721</td>
<td>IBM Knowledge Center (see link below)</td>
</tr>
<tr>
<td>IBM Tivoli System Automation for z/OS TWS Automation Programmer's Reference</td>
<td>SC34-2722</td>
<td>IBM Knowledge Center (see link below)</td>
</tr>
<tr>
<td>IBM Tivoli System Automation for z/OS User's Guide</td>
<td>SC34-2718</td>
<td>IBM Knowledge Center (see link below)</td>
</tr>
</tbody>
</table>
The SA z/OS product manuals and other Cloud & Smarter Infrastructure (C&SI) product manuals can be found at the IBM Knowledge Center URL listed below:

http://www-01.ibm.com/support/knowledgecenter/

### 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>
<tbody>
<tr>
<td>IBM SMP/E for z/OS Messages, Codes, and Diagnosis</td>
<td>GA22-7770</td>
<td><a href="http://www.ibm.com/shop/publications/order/">http://www.ibm.com/shop/publications/order/</a></td>
</tr>
</tbody>
</table>

Program Materials 11
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 35 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>HWRE350</td>
<td>HWRE350/1538</td>
<td>SA z/OS Base</td>
</tr>
<tr>
<td>HWRE350</td>
<td>JWRE35F/1538</td>
<td>SA z/OS Extended</td>
</tr>
<tr>
<td>HWRE350</td>
<td>JWRE35C/1538</td>
<td>SA z/OS CICS Automation</td>
</tr>
<tr>
<td>HWRE350</td>
<td>JWRE35I/1538</td>
<td>SA z/OS IMS Automation</td>
</tr>
<tr>
<td>HWRE350</td>
<td>JWRE351/1538</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 identifies the component IDs (COMPID) for SA z/OS.

<table>
<thead>
<tr>
<th>FMIID</th>
<th>COMPID</th>
<th>Component Name</th>
<th>RETAIN Release</th>
</tr>
</thead>
<tbody>
<tr>
<td>HWRE350</td>
<td>5698SA300</td>
<td>SA z/OS Base Automation</td>
<td>350</td>
</tr>
<tr>
<td>JWRE35F</td>
<td>5698SA300</td>
<td>SA z/OS Extension</td>
<td>35F</td>
</tr>
<tr>
<td>JWRE35C</td>
<td>5698SA300</td>
<td>SA z/OS CICS Automation</td>
<td>35C</td>
</tr>
<tr>
<td>JWRE35I</td>
<td>5698SA300</td>
<td>SA z/OS IMS Automation</td>
<td>35I</td>
</tr>
<tr>
<td>JWRE351</td>
<td>5698SA300</td>
<td>SA z/OS Base Automation JPN</td>
<td>351</td>
</tr>
<tr>
<td>HKAH35T</td>
<td>5698SA300</td>
<td>SA z/OS Monitoring Agent and TEP Support</td>
<td>350</td>
</tr>
<tr>
<td>HWRE35D</td>
<td>5698SA300</td>
<td>SA z/OS I/O Operations 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

The following APAR fixes against previous releases of SA z/OS have been incorporated into this release. They are listed by FMID.

- **FMID HWRE350 (SA z/OS Base)**

<table>
<thead>
<tr>
<th>OA39193</th>
<th>OA40117</th>
<th>OA40907</th>
<th>OA41711</th>
<th>OA42778</th>
</tr>
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<tbody>
<tr>
<td>OA39280</td>
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<td>OA40909</td>
<td>OA41730</td>
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<td>OA39329</td>
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<td>OA40993</td>
<td>OA41877</td>
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<td>OA41015</td>
<td>OA41900</td>
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<td>OA40251</td>
<td>OA41037</td>
<td>OA41901</td>
<td>OA42878</td>
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<td>OA39528</td>
<td>OA40278</td>
<td>OA41088</td>
<td>OA41911</td>
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<td>OA39539</td>
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<td>OA41096</td>
<td>OA41944</td>
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<td>OA41960</td>
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<td>OA42287</td>
<td>OA43122</td>
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<td>OA42409</td>
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<td>OA42413</td>
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<td>OA42415</td>
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<td>OA42556</td>
<td>OA43378</td>
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<td>OA40809</td>
<td>OA41671</td>
<td>OA42760</td>
<td>OA43481</td>
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<tr>
<td>OA40096</td>
<td>OA40865</td>
<td>OA41695</td>
<td>OA42766</td>
<td>OA43527</td>
</tr>
</tbody>
</table>
• FMID JWRE35C (SA z/OS CICS Automation)

OA40918

• FMID JWRE35I (SA z/OS IMS Automation)

OA39461
OA41984

• FMID JWRE351 (SA z/OS Kanji Support)

OA39193 OA40955 OA42413 OA43147 OA43964
OA39461 OA41251 OA42556 OA43222 OA43973
OA39539 OA41494 OA42593 OA43477 OA44202
OA39830 OA41548 OA42760 OA43534 OA44246
OA40007 OA41601 OA42803 OA43571 OA44698
OA40397 OA41749 OA42829 OA43884 OA44912
OA40909 OA41901 OA43039 OA43925 OA45435

• FMID HKAH35T (SA z/OS Monitoring Agent and TEP Support)

OA39647
OA43571
The following APAR fixes against this release of SA z/OS have been incorporated into this release. They are listed by FMID.

- FMID HWRE350 (SA z/OS Base)
  
  | OA45008 | OA46321 | OA46877 | OA47344 | OA47740 |
  | OA45686 | OA46355 | OA46949 | OA47365 | OA47778 |
  | OA45697 | OA46352 | OA46975 | OA47393 | OA47894 |
  | OA45851 | OA46418 | OA46987 | OA47397 | OA47905 |
  | OA45929 | OA46426 | OA47003 | OA47423 | OA48011 |
  | OA46041 | OA46450 | OA47031 | OA47432 | OA48126 |
  | OA46045 | OA46453 | OA47079 | OA47504 | OA48160 |
  | OA46071 | OA46483 | OA47112 | OA47516 | OA48171 |
  | OA46073 | OA46560 | OA47167 | OA47525 | OA48183 |
  | OA46079 | OA46592 | OA47182 | OA47557 | OA48256 |
  | OA46141 | OA46644 | OA47189 | OA47576 | OA48284 |
  | OA46145 | OA46645 | OA47190 | OA47581 | OA48319 |
  | OA46166 | OA46646 | OA47221 | OA47599 | OA48467 |
  | OA46168 | OA46674 | OA47256 | OA47635 | OA48472 |
  | OA46242 | OA46692 | OA47266 | OA47646 | OA48549 |
  | OA46259 | OA46841 | OA47280 | OA47651 | OA48824 |
  | OA46269 | OA46847 | OA47310 | OA47697 | OA48831 |
  | OA46317 | OA46859 | OA47319 |        |        |

- FMID JWRE35C (SA z/OS CICS Automation)
  
  OA47484
  OA48477

- FMID JWRE35I (SA z/OS IMS Automation)
  
  OA47726

- FMID JWRE351 (SA z/OS Kanji Support)
  
  | OA45929 | OA46321 | OA46674 | OA47280 | OA47646 |
  | OA46166 | OA46560 | OA47266 | OA47393 | OA48011 |

- FMID HKAH35T (SA z/OS Monitoring Agent and TEP Support)
  
  OA45929
4.2 Service Level Information

PTFs containing APAR fixes against this release of SA z/OS have been incorporated into this product package. For a list of included PTFs, examine the ++VER statement in the product's SMPMCS.

The following product was updated to a new service level by Software Manufacturing.

Product  IBM Tivoli System Automation for z/OS

Date  September, 2015

The program FMID(s) were updated to a new service level and were assigned a new SOURCEID.

<table>
<thead>
<tr>
<th>FMID</th>
<th>SOURCEID</th>
</tr>
</thead>
<tbody>
<tr>
<td>HWRE350</td>
<td>SMC1538</td>
</tr>
<tr>
<td>JWRE35F</td>
<td>SMC1538</td>
</tr>
<tr>
<td>JWRE35C</td>
<td>SMC1538</td>
</tr>
<tr>
<td>JWRE35I</td>
<td>SMC1538</td>
</tr>
<tr>
<td>JWRE351</td>
<td>SMC1538</td>
</tr>
<tr>
<td>HKAH35T</td>
<td>UA75304</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>FMID</th>
<th>SOURCEID</th>
</tr>
</thead>
<tbody>
<tr>
<td>HWRE35D</td>
<td>SMC1538</td>
</tr>
<tr>
<td>HKAH35T</td>
<td>SMC1538</td>
</tr>
</tbody>
</table>
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
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.

SA z/OS is partially installed into a file system, either HFS or zFS. Before installing SA z/OS, 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 system data sets must be mounted on the driving system.

If you plan to install SA z/OS 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 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.
Note:

1. The following service level is required depending on what version of Tivoli NetView for z/OS is used:
   - For NetView V6.1, OA44787 is required.
   - For NetView V6.2, OA44787 and OA44789 are required.
   - 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.

<table>
<thead>
<tr>
<th>Program Number</th>
<th>Product Name</th>
<th>Minimum VRM</th>
<th>Minimum Service Level will satisfy these APARs</th>
<th>Included in the shipped product?</th>
</tr>
</thead>
<tbody>
<tr>
<td>5694-A01</td>
<td>z/OS</td>
<td>V01.12.00 or higher</td>
<td>N/A</td>
<td>No</td>
</tr>
<tr>
<td>5650-ZOS</td>
<td>z/OS</td>
<td>V02.01.00</td>
<td>N/A</td>
<td>No</td>
</tr>
<tr>
<td>5697-NV6</td>
<td>Tivoli NetView for z/OS</td>
<td>V6.1 or higher</td>
<td>See note 1 below</td>
<td>No</td>
</tr>
</tbody>
</table>

Figure 8. Target System Mandatory 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-A02</td>
<td>IBM IMS</td>
<td>V11.1 or higher</td>
<td>N/A</td>
<td>IMS Automation</td>
<td>No</td>
</tr>
<tr>
<td>5655-M15</td>
<td>IBM CICS Transaction Server</td>
<td>V3.1 or higher</td>
<td>N/A</td>
<td>CICS Automation</td>
<td>No</td>
</tr>
</tbody>
</table>

Figure 9. Target System 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. These products are specified as PREs or REQs.

<table>
<thead>
<tr>
<th>Program Number</th>
<th>Product Name and Minimum VRM/Service Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>5694-A01</td>
<td>z/OS V01.12.00 or higher / OA41282</td>
</tr>
<tr>
<td>5697-NV6</td>
<td>Tivoli NetView for z/OS V6.1 or higher</td>
</tr>
</tbody>
</table>

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.

<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 later</td>
<td>ProcOps VM Second Level Systems Support</td>
</tr>
<tr>
<td>5698-A79</td>
<td>IBM Tivoli Monitoring Services V6.2.3</td>
<td>Tivoli Enterprise Portal Support</td>
</tr>
</tbody>
</table>

Notes:
1. If you compile the SA z/OS V3.5 REXX command lists, the IBM Compiler for SAA REXX/370 R4 (or later) 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.

SA z/OS 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.

SA z/OS has no negative requisites.
5.2.3 DASD Storage Requirements

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

Figure 12 on page 23 lists the total space that is required for each type of library.

<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>3031 (3990 tracks)</td>
<td></td>
</tr>
<tr>
<td>Distribution</td>
<td>2970 (3990 tracks)</td>
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<tr>
<td>File System(s)</td>
<td>12 MBytes</td>
<td>zFS or HFS</td>
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</table>

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 33.

3. Abbreviations used for the file system path type are as follows.

   - **N**: New path, created by this product.
Path created by this product, but might already exist from a previous release.
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.

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.

### Figure 13 (Page 1 of 2). Storage Requirements for SA z/OS Target Libraries

<table>
<thead>
<tr>
<th>Library DDNAME</th>
<th>Member Type</th>
<th>Target Volume</th>
<th>T Y P E R E C M L R E C F Blks</th>
</tr>
</thead>
<tbody>
<tr>
<td>SINGIMAP</td>
<td>Data</td>
<td>ANY U PDS</td>
<td>VB 1024 4 2</td>
</tr>
<tr>
<td>SINGIMSG</td>
<td>MSG</td>
<td>ANY U PDS</td>
<td>FB 80 15 5</td>
</tr>
<tr>
<td>SINGINST</td>
<td>SAMP</td>
<td>ANY U PDS</td>
<td>FB 80 7 2</td>
</tr>
<tr>
<td>SINGIPDB</td>
<td>Data</td>
<td>ANY U PDS</td>
<td>FB 80 161 2</td>
</tr>
<tr>
<td>SINGIPNL</td>
<td>PNL</td>
<td>ANY U PDS</td>
<td>FB 80 217 59</td>
</tr>
<tr>
<td>SINGIREX</td>
<td>EXEC</td>
<td>ANY U PDS</td>
<td>FB 80 316 19</td>
</tr>
<tr>
<td>SINGISKL</td>
<td>SKEL</td>
<td>ANY U PDS</td>
<td>FB 80 12 6</td>
</tr>
<tr>
<td>SINGITBL</td>
<td>Table</td>
<td>ANY U PDS</td>
<td>FB 80 25 3</td>
</tr>
<tr>
<td>SINGJMSG</td>
<td>MSG</td>
<td>ANY U PDS</td>
<td>FB 80 7 2</td>
</tr>
</tbody>
</table>
Figure 13 (Page 2 of 2). Storage Requirements for SA z/OS Target Libraries

<table>
<thead>
<tr>
<th>Library DDNAME</th>
<th>Member Type</th>
<th>Target Volume</th>
<th>Type</th>
<th>O C R E F M</th>
<th>No. of Trks</th>
<th>No. of Blks</th>
</tr>
</thead>
<tbody>
<tr>
<td>SINGJPNL</td>
<td>PNL</td>
<td>ANY</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td>80</td>
</tr>
<tr>
<td>SINGJPWS</td>
<td>Data</td>
<td>ANY</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td>80</td>
</tr>
<tr>
<td>SINGMOD1</td>
<td>LMOD</td>
<td>ANY</td>
<td>U</td>
<td>PDS</td>
<td>U</td>
<td>0</td>
</tr>
<tr>
<td>SINGMOD2</td>
<td>LMOD</td>
<td>ANY</td>
<td>U</td>
<td>PDS</td>
<td>U</td>
<td>0</td>
</tr>
<tr>
<td>SINGMOD3</td>
<td>LMOD</td>
<td>ANY</td>
<td>U</td>
<td>PDS</td>
<td>U</td>
<td>0</td>
</tr>
<tr>
<td>SINGMSGV</td>
<td>MSG</td>
<td>ANY</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td>80</td>
</tr>
<tr>
<td>SINGNMSG</td>
<td>MSG</td>
<td>ANY</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td>80</td>
</tr>
<tr>
<td>SINGNPNL</td>
<td>PNL</td>
<td>ANY</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td>80</td>
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<tr>
<td>SINGNPRM</td>
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<td>U</td>
<td>PDS</td>
<td>FB</td>
<td>80</td>
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<td>SINGNPRF</td>
<td>Data</td>
<td>ANY</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td>80</td>
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<tr>
<td>SINGNREX</td>
<td>EXEC</td>
<td>ANY</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td>80</td>
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<td>SINGOBJV</td>
<td>OBJ</td>
<td>ANY</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td>80</td>
</tr>
<tr>
<td>SINGPWS1</td>
<td>Data</td>
<td>ANY</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td>80</td>
</tr>
<tr>
<td>SINGREXV</td>
<td>EXEC</td>
<td>ANY</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td>80</td>
</tr>
<tr>
<td>SINGSAMP</td>
<td>SAMP</td>
<td>ANY</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td>80</td>
</tr>
<tr>
<td>SINTREX</td>
<td>EXEC</td>
<td>ANY</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td>80</td>
</tr>
<tr>
<td>TKANCUS</td>
<td>Data</td>
<td>ANY</td>
<td>S</td>
<td>PDS</td>
<td>FB</td>
<td>80</td>
</tr>
<tr>
<td>TKANDATV</td>
<td>Data</td>
<td>ANY</td>
<td>S</td>
<td>PDS</td>
<td>VB</td>
<td>6160</td>
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<td>TKANMODL</td>
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<td>PDS</td>
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<td>0</td>
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<tr>
<td>TKANPAR</td>
<td>Data</td>
<td>ANY</td>
<td>S</td>
<td>PDS</td>
<td>FB</td>
<td>80</td>
</tr>
<tr>
<td>TKNPKGI</td>
<td>Data</td>
<td>ANY</td>
<td>S</td>
<td>PDS</td>
<td>FB</td>
<td>80</td>
</tr>
</tbody>
</table>

Figure 14 (Page 1 of 2). 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>
</tbody>
</table>
### Figure 14 (Page 2 of 2). SA z/OS File System Paths

<table>
<thead>
<tr>
<th>DDNAME</th>
<th>TYPE</th>
<th>Path Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>SINGDCFG</td>
<td>N</td>
<td>/usr/lpp/ing/dist/TEC/IBM/</td>
</tr>
<tr>
<td>SINGDPOL</td>
<td>X</td>
<td>/usr/lpp/ing/doc/policies/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 15 (Page 1 of 2). Storage Requirements for SA z/OS Distribution Libraries

<table>
<thead>
<tr>
<th>Library</th>
<th>DDNAME</th>
<th>TYPE</th>
<th>ORG</th>
<th>REC</th>
<th>LRE</th>
<th>No. of 3390 Trks</th>
<th>No. of DIR Blks</th>
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<tbody>
<tr>
<td>AINGHFSV</td>
<td>U</td>
<td>PDS</td>
<td>VB</td>
<td>1024</td>
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<td>AINGIMAP</td>
<td>U</td>
<td>PDS</td>
<td>VB</td>
<td>1024</td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>AINGIMSG</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td>80</td>
<td>2</td>
<td>15</td>
<td>5</td>
</tr>
<tr>
<td>AINGINST</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td>80</td>
<td>2</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>AINGIPDB</td>
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<td>PDS</td>
<td>FB</td>
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<td>161</td>
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<td>2</td>
</tr>
<tr>
<td>AINGIPNL</td>
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<td>59</td>
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<td>316</td>
<td>19</td>
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<td>AINGISKL</td>
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<td>AINGITBL</td>
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<td>FB</td>
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<td>AINGJMSG</td>
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<td>PDS</td>
<td>FB</td>
<td>80</td>
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<td>7</td>
<td>2</td>
</tr>
<tr>
<td>AINGJPNL</td>
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<td>PDS</td>
<td>FB</td>
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<td>31</td>
<td>324</td>
<td>31</td>
</tr>
<tr>
<td>AINGJPWS</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td>80</td>
<td>2</td>
<td>20</td>
<td>2</td>
</tr>
<tr>
<td>AINGMOD1</td>
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<td>211</td>
<td>1212</td>
<td></td>
</tr>
<tr>
<td>AINGMSGV</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td>80</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>AINGNMSG</td>
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<td>PDS</td>
<td>FB</td>
<td>80</td>
<td>16</td>
<td>28</td>
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</tr>
<tr>
<td>AINGNPNL</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td>80</td>
<td>50</td>
<td>393</td>
<td></td>
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<tr>
<td>AINGNPREF</td>
<td>U</td>
<td>PDS</td>
<td>FB</td>
<td>80</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>AINGNPROM</td>
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<td>PDS</td>
<td>FB</td>
<td>80</td>
<td>5</td>
<td>31</td>
<td></td>
</tr>
</tbody>
</table>
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 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. Additionally, to assist you in doing this, IBM has provided samples to help you create an SMP/E environment at the following url:
  http://www.ibm.com/support/docview.wss?rs=660&context=SSZJDU&uid=swg21066230

- 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 16. 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 TCPIP
- SEZADPIL
- SEZACMTX

For CICS V3.1 or later
- SDFHLOAD

For IMS V11.1 or later
- 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>Figure 17 (Page 1 of 2). Sample Installation Jobs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Job Name</strong></td>
</tr>
<tr>
<td>INGALLOC</td>
</tr>
</tbody>
</table>
You can access the sample installation jobs by performing a SMP/E RECEIVE (refer to 6.1.5, “Perform SMP/E RECEIVE” on page 32) then copy the jobs from the RELFILES to a work data set for editing and submission. See Figure 17 on page 29 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.JWRE35F.F3,UNIT=tunit,
//           VOL=SER=volser,LABEL=(x,SL),
//           DISP=(OLD,KEEP)
//FILEIN DD DSN=IBM.JWRE35F.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)
```

Figure 17 (Page 2 of 2). Sample Installation Jobs

<table>
<thead>
<tr>
<th>Job Name</th>
<th>Job Type</th>
<th>Description</th>
<th>RELFILE</th>
</tr>
</thead>
<tbody>
<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.JWRE35F.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.JWRE35F.F3</td>
</tr>
<tr>
<td>INGDDEF</td>
<td>DDDEF</td>
<td>Sample job to define SMP/E DDDEFs</td>
<td>IBM.JWRE35F.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>INGDDBCL</td>
<td>DDDEF</td>
<td>Sample job to define prerequisite product DDDEFs</td>
<td>IBM.JWRE35F.F3</td>
</tr>
<tr>
<td>INGAPPLY</td>
<td>APPLY</td>
<td>Sample APPLY job</td>
<td>IBM.JWRE35F.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.JWRE35F.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>
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.
   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.JWRE35F.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.

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

//STEP2 EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=*
//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))
//SYSEX 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.

You can also choose to edit and submit the following 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
//SMPPFIN DD DSN=SMPMCS,DISP=(OLD,KEEP),
// VOL=SER=volser,LABEL=(x,SL),
// UNIT=(tunit,,DEFER)
//SMPHOLD DD DUMMY
//SMPCNTL DD /c5197

SET BOUNDARY(GLOBAL).
/*

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

SMPPFFIN:
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.

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(HKAH3ST).
/*

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`.

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

1. 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.

Edit and submit sample job INGISMKD to allocate the HFS or zFS paths for SA z/OS. 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 INGDDDLCL 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 INGDDDLCL. Consult the instructions in the sample job for more information and submit sample job INGDDDLCL.

   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:** INGDDDLCL will complete with message GIM35601E and a return code of 8 if a DDDEF entry already exists. Otherwise, INGDDDLCL should complete with a return code of 0.

3. Edit and submit sample job KAHDDEF 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 KAHDDEF 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/c5197)
   FIXCAT(IBM.ProductInstall-RequiredService)
   GROUPEXTEND .

   Some HIPER APARs might not have fixing PTFs available yet. You should analyze the symptom flags for the unresolved HIPER APARs to determine if the reported problem is applicable to your environment and if you should bypass the specific ERROR HOLDs in order to continue the installation of the FMIDs.

   This method requires more initial research, but can provide resolution for all HIPERs that have fixing PTFs available and are not in a PE chain. Unresolved PEs or HIPERs might still exist and require the use of BYPASS.

b. To install the FMIDs without regard for unresolved HIPER APARs, you can add the BYPASS(HOLDCLASS(HIPER)) operand to the APPLY CHECK command. This will allow you to install FMIDs even though one or more unresolved HIPER APARs exist. After the FMIDs are installed, use the SMP/E REPORT ERRSYSMODS command to identify unresolved HIPER APARs and any fixing PTFs.
APPLY S(fmid,fmid,...) CHECK
FORFMID(fmid,fmid,...)
SOURCEID(RSU+)
FIXCAT(IBM.ProductInstall-RequiredService)
GROUPEXTEND
BYPASS(HOLDCLASS(HIPER)).
..any other parameters documented in the program directory

This method is the 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 only 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

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 on 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 describe the various commands that you can use when activating the product.


The publication System Automation for z/OS End-to-end Automation Adapter, SC34-2723 contains the step-by-step instructions to setup the end-to-end adapter for communicating with the System Automation Application Manager.

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.
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