Program Directory for

IBM Tivoli System Automation for z/OS

V3.1.0

Program Number 5698-SA3

FMIDs HWRE310, JWRE31C, JWRE31I, JWRE311, JWRE312

for Use with
z/OS Version 1 Release 4 or later

Document Date: September 2005

GI11-2691-00

Note!

Before using this information and the product it supports, be sure to read the general information under Appendix B, “Notices” on page 33.

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1.0 Introduction

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

The Program Directory contains the following sections:

- 2.0, “Program Materials” on page 5 identifies the basic and optional program materials and documentation for SA for z/OS.
- 3.0, “Program Support” on page 9 describes the IBM support available for SA for z/OS.
- 4.0, “Program and Service Level Information” on page 11 lists the APARs (program level) and PTFs (service level) incorporated into SA for z/OS.
- 5.0, “Installation Requirements and Considerations” on page 15 identifies the resources and considerations required for installing and using SA for z/OS.
- 6.0, “Installation Instructions” on page 23 provides detailed installation instructions for SA for z/OS. It also describes the procedures for activating the functions of SA for z/OS, or refers to appropriate publications.

Before installing SA for z/OS, read the *CBPDO Memo To Users* and the *CBPDO Memo To Users Extension* that were supplied with this program in softcopy form as well as this Program Directory and then keep them for future reference. Section 3.2, “Preventive Service Planning” on page 9 tells you how to find any updates to the information and procedures in this Program Directory.

SA for z/OS is supplied in a Custom-Built Product Delivery Offering (CBPDO, 5751-CS3). The Program Directory is provided in softcopy form on the CBPDO tape which is identical to the hardcopy form provided with your order. Your CBPDO contains a softcopy preventive service planning (PSP) upgrade for this product. All service and HOLDDATA for SA for z/OS are included on the CBPDO tape.

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

1.1 SA for z/OS Description

IBM Tivoli System Automation for z/OS (SA for z/OS) is a NetView-based application that provides you with a single point of control for a full range of systems management functions. SA for z/OS functions include the monitoring, control, and automation of a large range of system elements spanning both the hardware and software resources of your enterprise in a sysplex wide scope.

In detail it provides:

- Powerful and flexible cluster-wide policy that reduces complexity, implementation time, coding and support effort
- Comprehensive Parallel Sysplex management and automation functions including single system image, single point of control, and unique Parallel Sysplex application automation
- Policy-based e-business automation that can start, stop, monitor, and recover z/OS traditional as well as UNIX applications and resources
- Integration with Tivoli enterprise solutions including network management
- Easy to use graphical user interface
- Comprehensive "canned" automation for IMS, CICS, TWS, DB2, SAP and WebSphere

Following is a summary of the enhancements made in SA for z/OS V3.1

- CANDLE OMEGAMON Integration
  - SA for z/OS can establish direct VTAM communications with the four 'classic' OMEGAMONs (OMEGAMON for MVS, OMEGAMON for CICS, OMEGAMON for IMS and OMEGAMON II for DB2). These VTAM links enable SA for z/OS to directly receive OMEGAMON exceptions and to react to these exceptions accordingly by means of user written 'reaction' routines. The installation can then act on these exception alerts by running execs or issuing commands, including issuing commands back to the host OMEGAMON.
  - By means of policy definitions you can instruct System Automation to query a particular OMEGAMON at regular intervals for an exception and then take an action when the exception occurs.
  - You can use the interface to send OMEGAMON commands and receive the responses in SA for z/OS.
  - The SA concept of the monitoring resource to provide health information about the resource is extended to provide exception data from the corresponding OMEGAMON.
- With the new E2E Adapter and SA for z/OS plug-in, SA for z/OS can be plugged in as a first level automation technology into System Automation for Enterprise.
- The integration with GDPS has been improved. With the new predefined GDPS environment, the installation and setup time for SA for z/OS has been significantly reduced.
- Dialog improvements
  - A new function is introduced to process mass updates of Application definitions.
  - A new function is introduced to define new applications in a file and to create them by reading this file into the PDB.
  - The delete function has been made easier.
  - The import function has been improved. Now you can
    - import multiple objects in one step,
    - rename the objects with the import and
    - import of entire application groups including links.
  - Captured messages limit can now also be defined for subsystems and MVSESA resources.
  - Auto Operators definitions has been consolidated.
  - Multiple users write access to system definitions is now possible.

- The Sample Policy database has been reorganized to ease the definition of user policies. It now consist of a Base policy and multiple Add-On policies, each providing a sample configuration for a certain product.
- Easy Message Management enhancements
  - There are more messages in the SA provided automation table.
  - Internal message id registration is done automatically for CICS and IMS.
  - Additional documentation is provided to support the migration from existing automation tables to EMM.
- The NMC function has been enhanced to allow profile ingnmcpr.txt to be distributed from a central point (NMC server) to attached NMC clients.
- A new INGMOVE command is introduced to ease the moving of sysplex application groups.
- A new INGSTR command is introduced to support the new XCF function of reallocating structures to desired locations.
- A new ISQIPSWT command is introduced to support the adapter switch of a CPC SE in case of an adapter failure.
- The AOCTRACE command has been enhanced to gather message attributes for a particular message without disturbing automation.
- The DISPINFO command has been enhanced to display more information from CICS, IMS and VTAM.
- The DISPSYS command has been enhanced to show the messages captured for MVS components.
- The ACF command has been enhanced to allow reload of automation tables and to check automation agent configuration data for consistency.
- The INGGROUP command has been enhanced to invoke installation exit AOFEXC13 to allow the installation to check if the issuer of the command is authorized to perform the action.
- The INGINFO command has been enhanced to display the values of user variables.
- The INGLIST command has been enhanced to support a new parameter MEMBERS to display the members of the specified resources.
- The INGREQ command has been enhanced to not only request the start or stop of a resource but also remove such a previously made request.
- The INGVTAM command has been enhanced to now cover also the automation of the IMS Applid.
- Two new user exits AOFEXX02 and AOFEXX03 have been introduced to control whether or not status change notification should be forwarded to SDF or NMC.

1.2 SA for z/OS FMIDs

SA for z/OS consists of the following FMIDs:

HWRE310
JWRE31C
JWRE31I
JWRE311
JWRE312

Note: JWRE311 is the Japanese NLS FMID.

2.0 Program Materials

An IBM program is identified by a program number and feature numbers. The program number for SA for z/OS is 5698-SA3 and the feature numbers are 5802 and 5812.

Basic Machine-Readable Materials are materials that are supplied under the base license and feature numbers, and are required for the use of the product. Optional Machine-Readable Materials are orderable under separate feature numbers, and are not required for the product to function.

The program announcement material describes the features supported by SA for 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 magnetic tape or downloadable files. It is installed using SMP/E, and is in SMP/E RELFILE format. See 6.0, “Installation Instructions” on page 23 for more information about how to install the program.

Figure 1. Basic Material: Program Tape

Medium	Feature Number	Physical Volume	External Label	VOLSER
3480 cart	5802	1	SA for z/OS V3.1	WRE310
3480 cart	5812	1	SA for z/OS V3.1 JPN	WRE310

Figure 2 describes the program file content for SA for z/OS.

Notes:

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

Figure 2. Program File Content

Name	ORG	RECFM	LRECL	BLK SIZE
SMPMCS	PS	FB	80	6400
Base Automation:				
IBM.HWRE310.F1	PO	FB	80	8800
IBM.HWRE310.F2	PO	FB	80	8800
IBM.HWRE310.F3	PO	FB	80	8800
IBM.HWRE310.F4	PO	FB	80	8800
IBM.HWRE310.F5	PO	U	0	6144
IBM.HWRE310.F6	PO	VB	1024	27998
CICS AUTO:				
IBM.JWRE31C.F1	PO	FB	80	8800
IBM.JWRE31C.F2	PO	U	0	6144
IBM.JWRE31C.F3	PO	FB	80	8800
IMS AUTO:				
IBM.JWRE31I.F1	PO	FB	80	8800
IBM.JWRE31I.F2	PO	U	0	6144
Base Automation JPN:				
IBM.JWRE311.F1	PO	FB	80	8800
UCE:				
IBM.JWRE312.F1	PO	FB	80	8800
IBM.JWRE312.F2	PO	U	0	6144

2.2 Optional Machine-Readable Material

No optional machine-readable materials are provided for SA for z/OS.

2.3 Program Publications

The following sections identify the basic and optional publications for SA for z/OS as well as for SA for z/OS CICS Automation, SA for z/OS IMS Automation and SA z/OS TWS Automation.

2.3.1 Basic Program Publications

Figure 3 on page 7 identifies the basic unlicensed program publications for SA for z/OS. One copy of each of these publications is included when you order the basic materials for SA for z/OS. For additional copies, contact your IBM representative.

Note: Softcopies of all of the manuals can be found on the homepage of IBM Tivoli System Automation for z/OS: http://www.ibm.com/servers/eserver/zseries/software/sa/bkserv/

Figure 3. Basic Material: Unlicensed Publications

Publication Title	Form Number
IBM Tivoli System Automation for z/OS Customizing and Programming	SC33-8260
IBM Tivoli System Automation for z/OS Planning and Installation	SC33-8261
IBM Tivoli System Automation for z/OS Defining Automation Policy	SC33-8262
IBM Tivoli System Automation for z/OS User's Guide	SC33-8263
IBM Tivoli System Automation for z/OS Messages and Codes	SC33-8264
IBM Tivoli System Automation for z/OS Operator's Commands	SC33-8265
IBM Tivoli System Automation for z/OS Programmer's Reference	SC33-8266
IBM Tivoli System Automation for z/OS Program Directory	GI11-2691
System Automation for z/OS CICS Automation Programmer's Reference and Operator's Guide	SC33-8267
System Automation for z/OS IMS Automation Programmer's Reference and Operator's Guide	SC33-8268
System Automation for z/OS TWS Automation Programmer's Reference and Operator's Guide	SC33-8269

The SA for z/OS product manuals and all other Tivoli product manuals can be found at the Tivoli Information Center URL listed below:
http://publib.boulder.ibm.com/tividd/td/tdprodlist.html

The SA for z/OS Program Directory, along with other Tivoli Program Directories can be found by following links to the product from the support web site listed below:
http://www.ibm.com/software/sysmgmt/products/support/

2.3.2 Optional Program Publications

No optional publications are provided for SA for z/OS as well as for SA for z/OS CICS Automation, SA for z/OS IMS Automation and SA z/OS TWS Automation.

2.4 Program Source Materials

Customers with access to View Program Listings (VPL), such as through S/390 SoftwareXcel, can use the VPL facility for online viewing of available program listings. Those customers without access to VPL can contact their IBM representative.

2.5 Publications Useful During Installation

The publications listed in Figure 4 may be useful during the installation of SA for z/OS. To order copies, contact your IBM representative or visit the IBM Publications Center on the World Wide Web at: http://www.ibm.com/shop/publications/order

Figure 4. Publications Useful During Installation

Publication Title	Form Number
IBM SMP/E for z/OS and OS/390 User's Guide	SA22-7773
IBM SMP/E for z/OS and OS/390 Commands	SA22-7771
IBM SMP/E for z/OS and OS/390 Reference	SA22-7772
IBM SMP/E for z/OS and OS/390 Messages, Codes, and Diagnosis	GA22-7770

3.0 Program Support

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

3.1 Program Services

Contact your IBM and/or Tivoli representative for specific information about available program services. You can find information in the "IBM Software Support Guide" at the following Web site: http://www.ibm.com/software/sysmgmt/products/support/.

The handbook provides information about how to contact Customer Support, depending on the severity of your problem, and the following information:

- Registration and eligibility
- Telephone numbers and e-mail addresses, depending on the country in which you are located
- What information you should gather before contact support

3.2 Preventive Service Planning

Before installing SA for z/OS, you should review the current Preventive Service Planning (PSP) information. If you obtained SA for z/OS as part of a CBPDO, there is HOLDDATA and PSP information included on the CBPDO.

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

For program support, access the Software Support web site at http://www.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 for z/OS are:

Figure 5. PSP Upgrade and Subset ID

UPGRADE	SUBSET	Description
HWRE310	HWRE310	SA for z/OS
HWRE310	JWRE31C	SA for z/OS CICS Automation
HWRE310	JWRE31I	SA for z/OS IMS Automation
HWRE310	JWRE311	Japanese SA for z/OS
HWRE310	JWRE312	Upper-case English SA for z/OS

3.3 Statement of Support Procedures

Report any difficulties you have using this program to your IBM Support Center. If an APAR is required, the Support Center will provide the address to which any needed documentation can be sent.

Figure 6 on page 10 identifies the component IDs (COMPID) for SA for z/OS.

Figure 6. Component IDs

FMID	COMPID	Component Name	RETAIN Release
HWRE310	5698SA300	SA z/OS Base Automation	310
JWRE31C	5698SA300	SA z/OS CICS AUTO	31C
JWRE31I	5698SA300	SA z/OS IMS AUTO	31I
JWRE311	5698SA300	SA z/OS Base Automation JPN	311
JWRE312	5698SA300	SA z/OS UCE	312

4.0 Program and Service Level Information

This section identifies the program and any relevant service levels of SA for z/OS. The program level refers to the APAR fixes incorporated into the program. The service level refers to the PTFs incorporated into the program.

4.1 Program Level Information

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

- FIN APARs against previous releases

  OA10273
  OA10675
  OA10682

- FMID HKYS300

OA07443	OA08912	OA09887
OA07715	OA08968	OA09894
OA07762	OA08969	OA09964
OA07797	OA08970	OA09976
OA07986	OA08982	OA09982
OA08043	OA09032	OA10059
OA08154	OA09035	OA10137
OA08160	OA09077	OA10260
OA08166	OA09199	OA10337
OA08224	OA09246	OA10359
OA08276	OA09338	OA10397
OA08464	OA09349	OA10448
OA08499	OA09363	OA10467
OA08524	OA09364	OA10475
OA08540	OA09386	OA10564
OA08572	OA09552	OA10598
OA08638	OA09555	OA10619
OA08647	OA09660	OA10640
OA08709	OA09674	OA10658
OA08730	OA09838	OA10690
OA08816	OA09870	OA10784
OA08910	OA09880	OA10820
OA08911	OA09886	OA10824

OA10889
OA10958
OA11008
OA11015
OA11154
OA11263
OA11309
OA11323
OA11512
OA11523
OA11531
OA11674
OA11808
OA11856
OA11857
OA11942
OA11983
OA12122
OA12127
OA12394
OA12396
OA12509
OA12568
OA12609

- FMID JKYS301

  OA08455

- FMID JKYS302

  OA07797
  OA08043
  OA08540
  OA08572
  OA08638
  OA11309
  OA11974

- FMID JKYS303

  OA07293
  OA07443
  OA07520
  OA07531
  OA07762
  OA07797
  OA07816
  OA07912
  OA07923
  OA07980
  OA07986
  OA08016
  OA08043
  OA08047
  OA08152
  OA08154
  OA08165
  OA08177
  OA08224
  OA08370
  OA08455
  OA08464
  OA08516
  OA08524
  OA08540
  OA08572
  OA08608
  OA08638
  OA08647
  OA08660
  OA08730
  OA08738
  OA08770
  OA08808
  OA08881
  OA08900
  OA08906
  OA08911
  OA08912
  OA08965
  OA08969
  OA08970
  OA08982
  OA09011
  OA09032
  OA09035
  OA09053
  OA09077
  OA09110
  OA09126
  OA09154
  OA09247
  OA09290
  OA09324
  OA09330
  OA09338
  OA09349
  OA09350
  OA09363
  OA09369
  OA09374
  OA09386
  OA09396

OA09445	OA10397	OA11323
OA09674	OA10452	OA11393
OA09725	OA10453	OA11409
OA09810	OA10543	OA11470
OA09833	OA10578	OA11491
OA09838	OA10605	OA11523
OA09859	OA10619	OA11529
OA09882	OA10636	OA11531
OA09885	OA10645	OA11540
OA09886	OA10658	OA11599
OA09887	OA10690	OA11692
OA09894	OA10709	OA11716
OA09932	OA10807	OA11765
OA09944	OA10866	OA11822
OA09961	OA10929	OA11885
OA09964	OA11008	OA11949
OA09976	OA11017	OA11974
OA09982	OA11032	OA11979
OA10026	OA11047	OA11995
OA10078	OA11078	OA12144
OA10096	OA11081	OA12282
OA10133	OA11106	OA12329
OA10196	OA11154	OA12381
OA10241	OA11194	OA12396
OA10260	OA11203	OA12426
OA10281	OA11236	OA12609
OA10308	OA11285	OA12629
OA10309	OA11309	OA12726

- FMID JKYS304

OA07797	OA08499	OA09077
OA08043	OA08572	OA11154
OA08154	OA08638	OA11674

4.2 Service Level Information

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

5.0 Installation Requirements and Considerations

The following sections identify the system requirements for installing and activating SA for z/OS. The following terminology is used:

- *Driving system*: the system used to install the program.
- *Target system*: the system on which the program is installed.

In many cases, the same system can be used as both a driving system and a target system. However, you may want to set up a clone of your system to use as a target system by making a separate IPL-able copy of the running system. The clone should include copies of all system libraries that SMP/E updates, copies of the SMP/E CSI data sets that describe the system libraries, and your PARMLIB and PROCLIB.

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

- When installing a new level of a product that is already installed, the new product will delete the old one. By installing onto a separate target system, you can test the new product while still keeping the old one in production.
- When installing a product that shares libraries or load modules with other products, the installation can disrupt the other products. Installing onto a test system or clone will allow you to assess these impacts without disrupting your production system.

5.1 Driving System Requirements

This section describes the environment of the driving system required to install SA for 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

Figure 7. Driving System Software Requirements

Program Number	Product Name and Minimum VRM/Service Level
Any **one** of the following:	
5694-A01	z/OS V1.4.0 or later
5655-G44	IBM SMP/E for z/OS and OS/390 V3.2.0 or later

5.2 Target System Requirements

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

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

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

SA for z/OS has no mandatory installation requisites.

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

Figure 8. Conditional Installation Requisites

Program Number	Product Name and Minimum VRM/Service Level	Function
5655-C56	IBM IMS V8.1 or later	For IMS automation
5697-E93	IBM CICS Transaction Server V2.3 or later	For CICS automation

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

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

Figure 9. Mandatory Operational Requisites	
Program Number	**Product Name and Minimum VRM/Service Level**
5697-B82	Tivoli NetView V1.4 or later
5694-A01	z/OS V1.4 or later

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

Figure 10. Conditional Operational Requisites		
Program Number	**Product Name and Minimum VRM/Service Level**	**Function**
5655-F10	WebSphere MQ for z/OS V5.3.1 or later	For automation functions
5697-B82	Tivoli NetView for OS/390 V1.4	• NetView Management Console Server and Client for Topology Manager functions • NetView Management Console 3270 for NMC workstation
5739-A03	z/VM V4.3 or later	ProcOps VM Second Level Systems Support

5.2.2.3 Toleration/Coexistence Requisites: A toleration/coexistence requisite is defined as a product which must be present on a sharing system. These systems can be other systems in a multisystem environment (not necessarily sysplex), a shared DASD environment (such as test and production), or systems that reuse the same DASD at different time intervals.

SA for z/OS has no toleration/coexistence requisites.

5.2.2.4 Incompatibility (Negative) Requisites: A negative requisite identifies products which must *not* be installed on the same system as this product.

SA for z/OS has no negative requisites.

5.2.3 DASD Storage Requirements

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

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

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

Library Type	Total Space Required
Target	3554 (3390 tracks)
Distribution	3419 (3390 tracks)
HFS	10 MB

Notes:

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

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

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

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

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

   For more information on the names and sizes of the required data sets, please refer to 6.1.6, “Allocate SMP/E Target and Distribution Libraries” on page 26.

3. Abbreviations used for the HFS Path type are:

   N New path, created by this product.
   X Path created by this product, but may already exist from a previous release.
   P Previously existing path, created by another product.

4. All target and distribution libraries listed have the following attributes:

   - The default name of the data set may be changed.
   - The default block size of the data set may be changed.
   - The data set may be merged with another data set that has equivalent characteristics.
   - The data set may be either a PDS or a PDSE.

5. All target libraries listed have the following attributes:
   - The data set may be SMS-managed.
   - It is not required for the data set to be SMS-managed.
   - It is not required for the data set to reside on the IPL volume.
   - The values in the "Member Type" column are not necessarily the actual SMP/E element types identified in the SMPMCS.
6. All target libraries listed which contain load modules have the following attributes:
   - The data set may be in the LPA.
   - It is not required for the data set to be in the LPA.
   - The data set may be in the LNKLST.
   - It is not required for the data set to be APF-authorized.

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

Note: The data in these tables should be used when determining which libraries can be merged into common data sets. In addition, since some ALIAS names may not be unique, ensure that no naming conflicts will be introduced before merging libraries.

Figure 12 (Page 1 of 2). Storage Requirements for SA for z/OS Target Libraries

Library DDNAME	Member Type	Target Volume	TYPE	ORG	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks
SINGIMSG	MSG	ANY	U	PO	FB	80	16	6
SINGINST	SAMP	ANY	U	PO	FB	80	6	2
SINGIPDB	Data	ANY	U	PO	FB	80	151	2
SINGIPNL	PNL	ANY	U	PO	FB	80	240	65
SINGIREX	EXEC	ANY	U	PO	FB	80	212	23
SINGISKL	SKEL	ANY	U	PO	FB	80	17	12
SINGITBL	Table	ANY	U	PO	FB	80	24	2
SINGJMSG	MSG	ANY	U	PO	FB	80	24	21
SINGJPNL	PNL	ANY	U	PO	FB	80	222	48
SINGJPWS	Data	ANY	U	PO	FB	80	21	2
SINGMOD1	LMOD	ANY	U	PO	U	0	1015	51
SINGMOD2	LMOD	ANY	U	PO	U	0	31	10
SINGMOD3	LMOD	ANY	U	PO	U	0	6	5
SINGMSGV	MSG	ANY	U	PO	FB	80	2	2

Figure 12 (Page 2 of 2). Storage Requirements for SA for z/OS Target Libraries

Library DDNAME	Member Type	Target Volume	TYPE	ORG	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks
SINGNMSG	MSG	ANY	U	PO	FB	80	24	21
SINGNPNL	PNL	ANY	U	PO	FB	80	252	48
SINGNPRF	Data	ANY	U	PO	FB	80	2	2
SINGNPRM	Data	ANY	U	PO	FB	80	141	6
SINGNREX	EXEC	ANY	U	PO	FB	80	1034	68
SINGOBJV	OBJ	ANY	U	PO	FB	80	2	2
SINGPWS1	Data	ANY	U	PO	FB	80	21	2
SINGREXV	EXEC	ANY	U	PO	FB	80	6	2
SINGSAMP	SAMP	ANY	U	PO	FB	80	51	11
SINGSRC	Source	ANY	U	PO	FB	80	34	2

Figure 13. SA for z/OS HFS Paths

DDNAME	TYPE	Path Name
SINGACFG	N	/usr/lpp/ing/adapter/config/IBM/
SINGADAT	N	/usr/lpp/ing/adapter/data/IBM/
SINGALIB	N	/usr/lpp/ing/adapter/lib/IBM/
SINGASCR	N	/usr/lpp/ing/adapter/IBM/
SINGASSL	N	/usr/lpp/ing/adapter/ssl/IBM/
SINGULIB	N	/usr/lpp/ing/ussauto/lib/IBM/
SINGUSCR	N	/usr/lpp/ing/ussauto/IBM/

Figure 14 (Page 1 of 2). Storage Requirements for SA for z/OS Distribution Libraries

Library DDNAME	TYPE	ORG	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks
AINGHFSV	U	PO	VB	1024	101	4
AINGIMSG	U	PO	FB	80	16	6

Figure 14 (Page 2 of 2). Storage Requirements for SA for z/OS Distribution Libraries

Library DDNAME	TYPE	ORG	RECFM	LRECL	No. of 3390 Trks	No. of DIR Blks
AINGINST	U	PO	FB	80	6	2
AINGIPDB	U	PO	FB	80	151	2
AINGIPNL	U	PO	FB	80	240	65
AINGIREX	U	PO	FB	80	212	23
AINGISKL	U	PO	FB	80	17	12
AINGITBL	U	PO	FB	80	24	2
AINGJMSG	U	PO	FB	80	24	21
AINGJPNL	U	PO	FB	80	222	48
AINGJPWS	U	PO	FB	80	21	2
AINGMOD1	U	PO	U	0	814	200
AINGMSGV	U	PO	FB	80	2	2
AINGNMSG	U	PO	FB	80	24	21
AINGNPNL	U	PO	FB	80	252	48
AINGNPRF	U	PO	FB	80	2	2
AINGNPRM	U	PO	FB	80	141	6
AINGNREX	U	PO	FB	80	1034	68
AINGOBJV	U	PO	FB	80	2	2
AINGPWS1	U	PO	FB	80	21	2
AINGREXV	U	PO	FB	80	6	2
AINGSAMP	U	PO	FB	80	51	11
AINGSRC	U	PO	FB	80	34	2

Note: Data sets AINGJMSG, AINGJPNL and AINGJPWS are for Japanese data only and remain empty if JWRE311 is not installed.

5.3 FMIDs Deleted

Installing SA for z/OS may result in the deletion of other FMIDs. To see what FMIDs will be deleted, examine the ++VER statement in the product's SMPMCS.

If you do not wish to delete these FMIDs at this time, you must install SA for z/OS into separate SMP/E target and distribution zones.

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

5.4 Special Considerations

SA for 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 for z/OS.

Please note the following:

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

6.1 Installing SA for z/OS

The product tape contains SA z/OS Base Automation, SA z/OS CICS AUTO, SA z/OS IMS AUTO, SA z/OS Base Automation JPN and SA z/OS UCE.

The FMIDs are:

- HWRE310 - SA z/OS Base Automation (including TWS automation)
- JWRE31C - SA z/OS CICS AUTO
- JWRE31I - SA z/OS IMS AUTO
- JWRE311 - SA z/OS Base Automation JPN
- JWRE312 - SA z/OS UCE

JWRE311 needs only to be installed if you want Japanese NLS.
JWRE312 needs only to be installed if you want I/O Operations upper-case English messages.

Note: The dependency structure of the FMIDs is as follows:

1. JWRE31C is dependent on HWRE310.
2. JWRE31I is dependent on HWRE310.
3. JWRE311 is dependent on HWRE310.
4. JWRE312 is dependent on HWRE310.

6.1.1 SMP/E Considerations for Installing SA for z/OS

This release of SA for z/OS is installed using the SMP/E RECEIVE, APPLY, and ACCEPT commands. The SMP/E dialogs may be used to accomplish the SMP/E installation steps.

6.1.2 SMP/E Options Subentry Values

The recommended values for some SMP/E CSI subentries are shown in Figure 15 on page 24. Use of values lower than these may result in failures in the installation process. DSSPACE is a subentry in the GLOBAL options entry. PEMAX is a subentry of the GENERAL entry in the GLOBAL options entry. Refer to the SMP/E manuals for instructions on updating the global zone.

Figure 15. SMP/E Options Subentry Values

SUB-ENTRY	Value	Comment
DSSPACE	1200,1200,500	Size of largest file.
PEMAX	SMP/E Default	IBM recommends using the SMP/E default for PEMAX.

6.1.3 SMP/E CALLLIBS Processing

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

For NetView TME V1.4 or later

- CNMLINK
- NVULIB

For ISPF, shipped with z/OS

- SISPLOAD

For LE Libraries for PL/I, C and C++

- SCEELKED
- SCEESPC
- SIBMCALL

For CICS V2.2 or later

- SDFHLOAD

For IMS V7.1 or later

- SDFSRESL

Note: The DDDEFs above are used only to resolve the link-edit for SA for z/OS using CALLLIBS. These data sets are not updated during the installation of SA for z/OS.

6.1.4 Sample Jobs

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

Figure 16. Sample Installation Jobs

Job Name	Job Type	Description	RELFILE
INGALLOC	ALLOCATE	Sample job to allocate target and distribution libraries	IBM.HWRE310.F4
INGISMKD	MKDIR	Sample job to allocate HFS paths	IBM.HWRE310.F4
INGDDDEF	DDDEF	Sample job to define SMP/E DDDEFs	IBM.HWRE310.F4
INGDDDCL	DDDEF	Sample job to define prerequisite product DDDEFS	IBM.HWRE310.F4
INGAPPLY	APPLY	Sample APPLY job	IBM.HWRE310.F4
INGACCPT	ACCEPT	Sample ACCEPT job	IBM.HWRE310.F4

You can access the sample installation jobs by performing an SMP/E RECEIVE and then copying the jobs from the relfiles to a work data set for editing and submission. See Figure 16 on page 24 to find the appropriate relfile data set.

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

```
//STEP1    EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=*
//TAPEIN   DD DSN=IBM.HWRE310.F4,
//         UNIT=tunit,VOL=SER=WRE310,
//         LABEL=(5,SL),DISP=(OLD,KEEP)
//FILEIN   DD DSN=IBM.HWRE310.F4,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,INGISMKD,INGDDDEF)
    SELECT MEMBER=(INGDDDCL,INGAPPLY,INGACCPT)
/*
```

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

If using TAPEIN:

tunit is the unit value matching the product tape.

If using FILEIN

filevol is the volume serial of the DASD device where the downloaded files reside.

OUT

jcl-library-name is the name of the output data set where the sample jobs will be stored.
dasdvol is the volume serial of the DASD device where the output data set will reside.

SYSIN
xxxxIN is either TAPEIN or FILEIN depending on your input DD statement.

6.1.5 Perform SMP/E RECEIVE

Having obtained SA for z/OS as part of a CBPDO, use the RCVPDO job found in the CBPDO RIMLIB data set to RECEIVE the SA for z/OS FMIDs as well as any service, HOLDDATA, or preventive service planning (PSP) information included on the CBPDO tape. For more information, refer to the documentation included with the CBPDO.

You can also choose to edit and submit the following sample job to perform the SMP/E RECEIVE for SA for z/OS.

Replace *smpe.global.csi* and *tape* below with a value appropriate for your system. Add job card as necessary and update SMPCSI with the appropriate data set.

```
//JOB1      JOB ...
//RECEIVE   EXEC PGM=GIMSMP,REGION=4096K
//SMPCSI    DD  DSN=smpe.global.csi,DISP=SHR
//SMPPTFIN  DD DSN=SMPMCS,DISP=(OLD,KEEP),
//             VOL=SER=WRE310,LABEL=(1,SL),
//             UNIT=(tape,,DEFER)
//SMPHOLD   DD DUMMY
//SMPCNTL   DD *
   SET BOUNDARY(GLOBAL).
   RECEIVE S(HWRE310,JWRE31C,JWRE31I,JWRE311,JWRE312).
/*
```

Expected Return Codes and Messages: 0.

6.1.6 Allocate SMP/E Target and Distribution Libraries

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

Expected Return Codes and Messages: 0.

6.1.7 Allocate HFS Paths

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

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

Expected Return Codes and Messages: 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 for z/OS. Consult the instructions in the sample job for more information.

   Expected Return Codes and Messages: This job should complete with a return code 0. However, if some or all of these DDDEF entries already exist, then the job will complete with a return code 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 for 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 for 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.

6.1.9 Perform SMP/E APPLY

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

At this point you must decide which format of SA for z/OS I/O Operations operator console messages you want to use.

Mixed-case US English	is included in the base. No action is required for this selection.
Japanese	is supplied for installations which must to use Japanese NLS. It is installed by doing an APPLY of the dependent feature JWRE311.
Upper-case US English	is supplied for installations which must print the console log on an upper-case-only printer. It is installed by doing an APPLY of the dependent feature JWRE312.

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

Enhanced HOLDDATA introduced ERROR HOLDs against FMIDs for HIPER APARs. Prior to installing, you should ensure you have the latest Enhanced HOLDDATA (available at URL

http://service.software.ibm.com/holdata/390holddata.html). The FMID(s) should be installed regardless of the status of unresolved HIPERs, however, the software should not be deployed until the unresolved HIPERs have been analyzed to determine applicability.

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

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

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

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

2. To install the FMID(s) as it would have been installed prior to Enhanced HOLDDATA, you can add a BYPASS(HOLDCLASS(HIPER)) operand to the APPLY command. This will allow the FMID to be installed even though there are HIPER ERROR HOLDs against it. Note that not all ERROR HOLDs were bypassed, only the HIPER ERROR HOLDs. After the FMID(s) are installed, the SMP/E REPORT ERRSYSMODS command should be run to identify any missing HIPER maintenance.

   ```
   APPLY S(fmid,fmid,...)
   BYPASS(HOLDCLASS(HIPER))
   other parameters documented in the program directory...
   ```

   This method is the quicker of the two, but requires subsequent review of the REPORT ERRSYSMODS to investigate any HIPERs.

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

Once you have taken any actions indicated by the APPLY CHECK, remove the CHECK operand and run the job again to perform the APPLY.

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

Expected Return Codes and Messages from APPLY CHECK: 0.

Expected Return Codes and Messages from APPLY: 4.

INGAPPLY will complete with messages GIM23903W or GIM23913W (depending on system setup), IEW2646W, IEW2651W, IEW2454W, and a return code 4.

Be aware that SA for z/OS utilizes the SMP/E CALLLIB function. Basically two Link Edits are done. The first Link Edit will have UNRESOLVED REFERENCES. These REFERENCES will be resolved during the second Link Edit.

Note: If both, the FMID HWRE310 and the dependent feature JWRE312 are applied together, 'NOT SEL' messages will be received for HWRE310 CSECTs that are also in the feature FMID and can be ignored.

Note: If HWRE310 is installed without JWRE31C and without JWRE31I, INGAPPLY will complete with message GIM43401W for modules INGPSMSB, INGPSMSG and INGPSMST and a return code 4. These messages can be ignored.

6.1.10 Perform SMP/E ACCEPT

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

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

Once you have taken any actions indicated by the ACCEPT CHECK, remove the CHECK operand and run the job again to perform the ACCEPT.

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

Expected Return Codes and Messages from ACCEPT CHECK: 0.

If PTFs containing replacement modules are being ACCEPTed, SMP/E ACCEPT processing will linkedit/bind the modules into the distribution libraries. During this processing, the Linkage Editor or Binder may issue messages documenting unresolved external references, resulting in a return code of 4 from the ACCEPT step. These messages can be ignored, because the distribution libraries are not executable and the unresolved external references will not affect the executable system libraries.

Expected Return Codes and Messages from ACCEPT: 0.

Note: If both, the FMID HWRE310 and the dependent feature JWRE312 are accepted together, 'NOT SEL' messages will be received for HWRE310 CSECTs that are also in the feature FMID and can be ignored.

6.2 Activating SA for z/OS

The publication *IBM Tivoli System Automation for z/OS User's Guide, SC33-8263* contains the step-by-step procedures to activate the functions of SA for z/OS.

Appendix A. SA for z/OS Install Logic

A.1 SMP/E Modification Control Statements

The SMP/E Modification Control Statements (SMPMCS) for SA for z/OS are contained in the SMPMCS file on the installation tape. The SMPMCS for each FMID in the product will be loaded to the SMPPTS data set, with a member name matching the FMID, when the FMID is SMP/E RECEIVEd. You may browse or print these members using TSO/E, ISPF, or IEBGENER (or IEBPTPCH).

A.2 SMP/E JCLIN

The JCLIN for SA for z/OS is contained in the RELFILEs on the installation tape. These files will be loaded to disk by SMP/E when the product is SMP/E RECEIVEd. You may browse or print these files using TSO/E, ISPF, or IEBGENER (or IEBPTPCH).

The files containing JCLIN are:

FMID HWRE310: DSPREFIX.HWRE310.F1(HWRE310)
FMID JWRE31C: DSPREFIX.JWRE31C.F1(JWRE31C)
FMID JWRE31I: DSPREFIX.JWRE31I.F1(JWRE31I)
FMID JWRE312: DSPREFIX.JWRE312.F1(JWRE312)

Note: The high-level qualifier is the qualifier specified as the DSPREFIX in the SMP/E OPTIONS.

Appendix B. Notices

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

How did you order this product?

___ CBPDO
___ CustomPac
___ ServerPac
___ Independent
___ Other

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

___ Yes
___ No

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

___ Yes

__ No

If yes, how many years? __

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

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