



Program Directory for WebSphere Application Server for z/OS V6.1.0

Version 6 Release 1 Modification 0

Program Number 5655-N01

for Use with
z/OS V1.6 or higher

Service Updated

Document Date: June 30, 2006

GI11-2825-05

Note!

Before using this information and the product it supports, be sure to read the general information under Appendix A, "Notices" on page 40.

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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 WebSphere Application Server for z/OS V6.1.0.

The Program Directory contains the following sections:

- 2.0, “Program Materials” on page 5 identifies the basic and optional program materials and documentation for WebSphere Application Server for z/OS V6.1.0.
- 3.0, “Program Support” on page 10 describes the IBM support available for WebSphere Application Server for z/OS V6.1.0.
- 4.0, “Program and Service Level Information” on page 12 lists the APARs (program level) and PTFs (service level) incorporated into WebSphere Application Server for z/OS V6.1.0.
- 5.0, “Installation Requirements and Considerations” on page 13 identifies the resources and considerations required for installing and using WebSphere Application Server for z/OS V6.1.0.
- 6.0, “Installation Instructions” on page 27 provides detailed installation instructions for WebSphere Application Server for z/OS V6.1.0 and WebSphere Application Server for z/OS V6.1.0 Optional Materials.
- 7.1, “Activating WebSphere Application Server” on page 38 describes how to prepare for the activation of WebSphere Application Server for z/OS V6.1.0 and WebSphere Application Server for z/OS V6.1.0 Optional Materials and provides links to complete activation documentation.

Before installing WebSphere Application Server for z/OS V6.1.0, 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 10 tells you how to find any updates to the information and procedures in this Program Directory.

WebSphere Application Server for z/OS V6.1.0 is supplied in a Custom-Built Product Delivery Offering (CBPDO, 5751-CS3). The Program Directory, which you are reading, is provided in softcopy form on the CBPDO tape provided with your order. Your CBPDO contains a softcopy preventive service planning (PSP) upgrade for this product. All service and HOLDDATA for WebSphere Application Server for z/OS V6.1.0 are included on the CBPDO tape.

Do not use this Program Directory if you are installing WebSphere Application Server for z/OS V6.1.0 with a SystemPac or ServerPac. When using one of these offerings, use the jobs and documentation that is supplied with the offering. This documentation may point you to specific sections of the Program Directory as required.

1.1 WebSphere Application Server for z/OS V6.1.0 Description

WebSphere Application Server for z/OS V6.1.0 is a comprehensive, sophisticated, Java 2 Enterprise Edition (J2EE) and Web Services technology-based application platform specifically designed to leverage the qualities of service inherent in the z/OS operating system. WebSphere Application Server for z/OS V6.1.0 includes maintenance release V6.0.x, support for the Software Development Kit for Java Technology Edition 1.5 (SDK 1.5) client container and improvements in Web Services interoperability and security, and systems management.

WebSphere Application Server for z/OS V6.1.0 is designed for full Java 2 Platform, Enterprise Edition (J2EE) V1.4 compatibility and support for Java 2 Platform, Standard Edition (J2SE) 5.0. WebSphere Application Server for z/OS V6.1.0 delivers flexibility and power across the broadest range of customer IT environments. For customers who need to rapidly develop and deploy secure, portable applications that run on a multitude of server and desktop systems, WebSphere Application Server for z/OS V6.1.0 is the premier platform.

WebSphere Application Server for z/OS V6.1.0 is the foundation of the WebSphere software platform, and a key building block for a Service Oriented Architecture (SOA). As the leading J2EE 1.4 and Web Services application platform, WebSphere Application Server for z/OS V6.1.0 delivers a high performance transaction engine that can help to build, run, integrate and manage dynamic, and on demand business applications.

WebSphere Application Server for z/OS V6.1.0 is designed to be equivalent, from a programming model perspective, with WebSphere Application Server and WebSphere Application Server Network Deployment for multiplatforms.

WebSphere Application Server for z/OS V6.1.0 provides a J2EE 1.4-compatible application server optimized to leverage the Qualities of Service inherent to the System z hardware and the z/OS operating system. With this release, WebSphere Application Server for z/OS V6.1.0 meets the goal of common code with the WebSphere Application Server portfolio of products. V6.1.0 helps to leverage the transactional capabilities, scalability, availability, and reliability for which System z products are known and also provides ease-of-use enhancements.

V6.1.0 delivers the following functionality:

- Full J2SE 5.0 support across all offerings, providing increased application programmer productivity and unbeatable performance.
- Support for key Web Services standards, providing faster parsing and caching technologies, application portability between vendors, and much more.
- Session Initiation Protocol (SIP) Servlet support, to extend application reach across features such as chat/instant messaging and video conferencing.
- New options in the areas of systems management, administrative commands, messaging, and installation, to ensure more productive and less error-prone environments.

- Security enhancements, providing better ease-of-use and continued peace-of-mind.
- Tools like the new Automation Toolkit and Console Command Assistant to improve the developer's experience.
- Improved high availability and performance, to ensure you can handle the highest loads, in the toughest environments.
- Tighter integration across the IBM software portfolio and additional serviceability, deployment and self-help enhancements, to improve the ecosystem surrounding your applications and their respective application servers.
- Support to aid movement to a more common configuration using distributed channel framework.
- Delivery of a workstation (Windows or Linux) based profile management tool for z/OS while keeping the ISPF dialog for compatibility.
- Enhancements to the WebSphere Application Server for z/OS V6.1.0 process to prepare for 64-bit addressing mode on z/OS. 64-bit addressing mode provides the ability to increase the JVM heap to sizes larger than the practical limit of 1GB of storage.

This ability of WebSphere Application Server for z/OS V6.1.0 to run in 64-bit addressing mode is supplied by a new load module library, SBBGLOAD, which is shipped in this release; it contains 64-bit product code, which is not currently enabled. The new library must be APF authorized, and is added to server procedure JCL and scripts during customization. Additional logic is added to the cataloged procedures generated during customization to enable the product to run in 64-bit addressing mode in the future. WebSphere Application Server for z/OS 64-bit support will be enabled at a later date.

- Continued compliance with J2EE 1.4, which enables an enterprise to use Java technology to develop more demanding business applications with less effort and less time.
- Web Services Notification (WS-N) to standardize the way Web services interact, using "notifications" or "events" and can be thought of as providing a Publish/Subscribe model for Web Services. WS-N helps align Java and non-Java environments and helps form the basis for event driven architectures built using Web Services
- Web Services Interoperability Basic Security Profile (WS-I BSP) to standardize the use of Web Services Security standards and technology in the development of interoperable Web Services.
- Web Services Security (WS-Security) enhancements to offer the start of security interoperability among application server vendors and thus help ensure more portable applications.
- Web Services Business Agreement (WS-BA) to standardize the way transactions are rolled back in a multi-phase commit process. This helps eliminate database locks by establishing trust boundaries between enterprises. Applications, as opposed to databases, can control rollbacks, giving customers more direct control of interactions.
- Performance improvements that include:
 - Faster parsing technology, SOAP/JMS enhancements (to caching and text messaging) and changes to SOAP with Attachments API for Java (SAAJ).

- Customization tools that allow the customization file system to be created as either an hierarchical file system (HFS) or a zSeries file system (zFS). The zFS file system has significant performance advantages.
- Web Services Reliable Messaging (WS-RM) to provide a generic and open model for ensuring reliable message delivery for Web Services.
- Third-generation support for the Web Services standards used to help transform and integrate business designs and business processes while helping to ensure business continuity through better integration with key partners, suppliers, and customers.
- Extensive integration with the z/OS operating system to help leverage the high reliability, strong security, and overall robust qualities of service of the System z hardware and z/OS operating system.

1.2 WebSphere Application Server for z/OS V6.1.0 FMIDs

WebSphere Application Server for z/OS V6.1.0 consists of the following FMIDs:

H28W610 - WebSphere Application Server for z/OS V6.1.0

JIWO610 - WebSphere Application Server for z/OS V6.1.0 Optional Materials

Note!

The Java Software Development Kit is now shipped, installed and serviced as part of WebSphere Application Server. There is no longer a separate FMID for the SDK. This makes the WebSphere Application Server for z/OS product independent of any other SDK installed on the same z/OS systems.

2.0 Program Materials

An IBM program is identified by a program number. The program number for WebSphere Application Server for z/OS V6.1.0 is 5655-N01.

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 Optional Machine-Readable Materials are installed under and serviced by a separate FMID and not required for the product to function.

The program announcement material describes the features supported by WebSphere Application Server for z/OS V6.1.0. 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 6.1, “Installing the WebSphere Application Server for z/OS” on page 27 for more information about how to install the program.

Information about the physical tape for the Basic Machine-Readable Materials for WebSphere Application Server for z/OS V6.1.0 can be found in the *CBPDO Memo To Users Extension*.

In addition to the materials on tape there are CDRoms and DVDs shipped in the box.

These materials are shipped on either CDs or DVDs depending upon what was requested in your order. The function shipped includes:

- **WebSphere Application Server Supplements**
 - Data Direct Driver (Windows only)
 - IBM Support Assistance
 - Application Client
 - IBM HTTP Server
 - Web server plug-in
- **WebSphere Application Server Toolkit**
- **Additional software intended to be run on on non-z/OS platforms**, including:
 - Edge Components
 - IBM Rational Application Developer, trial edition (to ship post-GA)
 - IBM Tivoli Access Manager

The CDs and DVDs are grouped into kits and shipped as follows:

Note: Some software that are shipped in operating system specific packages on CDs are shipped in program specific packages on DVD because those DVDs contain software for multiple operating systems.

- **DVD Kit Numbers**

- LK4T-1420-00 - Optional Material for Windows
- LK4T-1421-00 - Optional Material for AIX
- LK4T-1422-00 - Optional Material for HP-UX
- LK4T-1423-00 - Optional Material for Linux
- LK4T-1426-00 - Optional Material for Solaris
- LCD8-0509-00 - Rational Agent Controller
- LCD8-0510-00 - Tivoli Access Manager
- LCD8-0235-00 - Application Server Toolkit (to ship post-GA)

- **CD Kit Numbers**

- LK4T-0125-00 - Optional Material for Windows
- LK4T-1411-00 - Optional Material for AIX
- LK4T-1412-00 - Optional Material for HP-UX
- LK4T-1413-00 - Optional Material for Linux
- LK4T-1414-00 - Optional Material for Solaris
- LCD8-0243-00 - Rational Agent Controller

See the appropriate articles in the WebSphere Application Server Information Center for installation and use of these CDs.

2.2 Optional Machine-Readable Material

With this version of WebSphere Application Server a second FMID (JIWO610) is being supplied to hold optional materials. These components will be delivered through the service stream into a separate file system in separate directories within the file system. The install process for JIWO610 creates the product file system. Each of the optional offerings will have install steps to create its own install structure under the directory created in this file system.

2.3 Program Publications

The following sections identify the basic and optional publications for WebSphere Application Server for z/OS V6.1.0. Please note the main documentation distribution medium for WebSphere Application Server for z/OS V6.1.0 is the Information Center, which can be accessed via the WebSphere Application Server for z/OS V6.1.0 product documentation page at <http://www.ibm.com/software/webservers/appserv/was/library/>

In addition to the Information Center, WebSphere Application Server for z/OS V6.1.0 product documentation is available in PDF format at the same URL.

Once at the URL:

- Click the tab for the WebSphere Application Server for z/OS V6.1.0 release (identified as V6.1.x)
- Click "SHOW" under WebSphere Application Server- z/OS to see what product information is listed.
- Then click the appropriate hyperlink to access specific information:
 - online documentation (information center)
 - downloadable documentation (PDF)
 - License information
 - Release notes
 - Information on supported hardware and software

2.3.1 Basic Program Publications

Figure 1 identifies the basic unlicensed program publications for WebSphere Application Server for z/OS V6.1.0.

<i>Figure 1. Basic Material: Unlicensed Publications</i>	
Publication Title	Form Number
Program Directory for WebSphere Application Server for z/OS V6.1.0	GI11-2825-05
License Information WebSphere Application Server for z/OS V6.1.0	GA22-7908-04
Carefully read the WebSphere for z/OS V6.1.0 IBM International Program License Agreement #GA22-7908, a copy of which will be provided to you with the order (Hardcopy or Electronic format); the License Agreement may contain terms that supersede the licensed terms included with this program component.	

Figure 2 identifies the basic unlicensed or licensed publications that are not available in hardcopy form, but are available through the internet or other media for WebSphere Application Server for z/OS V6.1.0.

All of the documents listed in Figure 2 are available for download at the WebSphere Application Server for z/OS V6.1.0 Library page:

<http://www.ibm.com/software/webservers/appserv/was/library/>

See section 2.3, "Program Publications" on page 6 for specific details about accessing the WebSphere Application Server for z/OS V6.1.0 library.

<i>Figure 2 (Page 1 of 2). Basic Material: Other Unlicensed or Licensed Publications</i>		
Publication Title	Form Number	How Available
WebSphere Application Server for z/OS V6.1.0 Installing your application serving environment	GA22-7957	Library page

Figure 2 (Page 2 of 2). Basic Material: Other Unlicensed or Licensed Publications

Publication Title	Form Number	How Available
WebSphere Application Server for z/OS V6.1.0 Migrating, coexisting, and interoperating	SA23-2207	Library page
WebSphere Application Server for z/OS V6.1.0 Setting up the application serving environment	GA22-7958	Library page
WebSphere Application Server for z/OS V6.1.0 Developing and deploying applications	SA22-7959	Library page
WebSphere Application Server for z/OS V6.1.0 Securing applications and their environment	SA22-7961	Library page
WebSphere Application Server for z/OS V6.1.0 Administering applications and their environment	GA22-7962	Library page
WebSphere Application Server for z/OS V6.1.0 Using the administrative clients	SA23-2208	Library page
WebSphere Application Server for z/OS V6.1.0 Securing applications and their environment	SA22-7961	Library page
WebSphere Application Server for z/OS V6.1.0 Tuning guide	SA22-7963	Library page
WebSphere Application Server for z/OS V6.1.0 Troubleshooting and support	GA22-7964	Library page

2.3.2 Optional Program Publications

Figure 3. Optional Material: Other Optional Publications

Publication Title	Form Number	How Available
WebSphere Product Family Overview and Architecture	SG24-6963-02	Red book website www.redbooks.ibm.com

2.4 Program Source Materials

Samples of source materials are provided in the WebSphere Application Server for z/OS V6.1.0 information center for the purpose of illustration.

2.5 Publications Useful During Installation

The publications listed in Figure 4 on page 9 may be useful during the installation of WebSphere Application Server for z/OS V6.1.0. 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>.

You can also access these publications online at:

<http://www.ibm.com/servers/eserver/zseries/zos/bkserv/>

At this URL, click on "Publication titles, filenames, form numbers" Then enter the form number of the publication.

<i>Figure 4. Publications Useful During Installation</i>	
Publication Title	Form Number
<i>IBM SMP/E for z/OS Commands</i>	SA22-7771-05
<i>IBM SMP/E for z/OS Messages, Codes, and Diagnosis</i>	GA22-7770-05
<i>IBM SMP/E for z/OS Reference</i>	SA22-7772-05
<i>IBM SMP/E for z/OS User's Guide</i>	SA22-7773-05
<i>IBM Software Delivery Standard Packaging Rules for z/OS-Based Products</i>	SC23-3695-10
<i>z/OS MVS JCL Reference</i>	SA22-7597-08
<i>z/OS System Codes</i>	SA22-7626-10

3.0 Program Support

This section describes the IBM support available for WebSphere Application Server for z/OS V6.1.0.

3.1 Program Services

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

3.2 Preventive Service Planning

Before installing WebSphere Application Server for z/OS V6.1.0, you should review the current Preventive Service Planning (PSP) information. If you obtained WebSphere Application Server for z/OS V6.1.0 as part of a CBPDO, there is HOLDDATA and PSP information included on the CBPDO.

If the CBPDO for WebSphere Application Server for z/OS V6.1.0 is more than two weeks old when you install it, you should retrieve and read the current Preventive Service Planning "bucket" (PSP bucket) before installing the product or applying service. Current PSP buckets for WebSphere Application Server for z/OS can be obtained by:

- Calling the support center to order them.
- Using SoftwareXcel to download them.
- Pointing your web browser to

www.ibm.com/software/webservers/appserv/zos_os390/support/

Then under the heading "Other Valuable Resources" and title "Planning Resources", clicking on the link, [Preventive Service Planning \(PSP\) Buckets](#) to access the applicable PSP upgrade.

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 WebSphere Application Server for z/OS V6.1.0 are:

Figure 5. PSP Upgrade and Subset ID

UPGRADE	SUBSET	Description
WASAS610	H28W610	WebSphere Application Server for z/OS V6.1.0
WASAS610	JIWO610	WebSphere Application Server for z/OS V6.1.0 Optional Materials

3.3 Statement of Support Procedures

Report any difficulties you have using this program to your IBM Support Center. For technical support assistance visit

<http://www.ibm.com/support>

and perform a search on the symptoms you are experiencing with this program.

Be sure to collect symptom information about the error condition. You can go here:

<http://www.ibm.com/support/docview.wss?rs=404&context=SSEQTP&uid=swg21176043>

to read about what symptom information to collect for WebSphere Application Server for z/OS V6.1.0. Then you can contact your IBM software support center at 1-800-IBM-SERV (800-426-7378), selecting option #2 for software assistance to resolve your problem. If an APAR is required, the Support Center will provide the address (or FTP site) to which any needed documentation can be sent.

Figure 6 identifies the component IDs (COMPID) for WebSphere Application Server for z/OS V6.1.0.

<i>Figure 6. Component IDs</i>			
FMID	COMPID	Component Name	RETAIN Release
H28W610	5655I3500	WebSphere Application Server for z/OS V6.1.0	610
JIWO610	5655I3509	Install Samples	610
JIWO610	----	Optional Materials delivered in this FMID will receive unique COMPIDs at the time of their delivery.	610

4.0 Program and Service Level Information

This section identifies the program and any relevant service levels of WebSphere Application Server for z/OS V6.1.0. 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

All applicable WebSphere Application Server V6.0.1 for z/OS service as of Service Level (Fix Pack) 6.0.2.10 of WebSphere Application Server V6.0.1 for z/OS has been incorporated into WebSphere Application Server for z/OS V6.1.0.

4.2 Service Level Information

No PTFs against this release of WebSphere Application Server for z/OS V6.1.0 have been incorporated into the product tape.

5.0 Installation Requirements and Considerations

The following sections identify the system requirements for installing and activating WebSphere Application Server for z/OS V6.1.0. 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.

Although not applicable to WebSphere Application Server for z/OS V6.1.0, 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 WebSphere Application Server for z/OS V6.1.0.

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
EITHER 5694-A01 or 5655-G52:	
5694-A01	z/OS V1.6 with PTFs to satisfy APARs OA06613, OA11519, OA11699, or later z/OS Unix System Services and the hierarchical file system (HFS) or zSeries File System (zFS)
5655-G52	z/OS.e V1.6 with PTFs to satisfy APARs OA06613, OA11519, OA11699, or later z/OS Unix System Services and the hierarchical file system (HFS) or zSeries File System (zFS)
5655-I56	Java 2 Technology Edition SDK 1.4 or higher
5655-G44	IBM SMP/E for z/OS V3.3 with PTFs to satisfy APARs IO00462 and IR54653, or later

WebSphere Application Server for z/OS V6.1.0 installs in the z/OS (Z038) SREL.

Notes:

1. Because WebSphere Application Server uses the SDK as part of the SMP/E processing, you must configure the driving system to have SDK 1.4 or higher.
You can download a free copy of Java SDK 1.3 at
www.ibm.com/servers/eserver/zseries/software/java/getsdk13.html
This SDK is different than the imbedded SDK mentioned in the following notes.
2. Unix must be up in full function mode on your driving system so that the utilities are available for the Shell Script support.
3. Before installing WebSphere Application Server for z/OS V6.1.0, you must ensure that the target system's HFS is available (OMVS active and the target file systems mounted) for processing.
4. The following installation jobs should be run under a userid with the authority to mount file systems and modify Unix System Services files. This installation userid must also have read access to the facility class resources BPX.FILEATTR.PROGCTL, BPX.FILEATTR.APF, and BPX.FILEATTR.SHARELIB.
 - For FMID - H28W610
 - BBOISMKD

- BBOAPPLY (or other SMP/E APPLY job)
- For FMID - JIWO610
 - IWOISMKD
 - IWOAPPLY (or other SMP/E APPLY job)

See 6.1, “Installing the WebSphere Application Server for z/OS” on page 27 for a detailed listing of installation user ID requirements.

5.2 Target System Requirements

This section describes the environment of the target system required to customize and use WebSphere Application Server for z/OS V6.1.0.

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; these requisites include products specified as PREs or REQs.

<i>Figure 8. Mandatory Installation Requisites</i>	
Program Number	Product Name and Minimum VRM/Service Level
Any one of the following:	
5694-A01	z/OS V1.6 with PTFs to satisfy APARs OA06613, OA11519, OA11699, or later z/OS Unix System Services and the hierachical file system (HFS) or zSeries File System (zFS)
5655-G52	z/OS.e V1.6 with PTFs to satisfy APARs OA06613, OA11519, OA11699, or later z/OS Unix System Services and the hierachical file system (HFS) or zSeries File System (zFS)

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.

WebSphere Application Server for z/OS V6.1.0 has **no** conditional installation requisites.

5.2.2.2 Operational Requisites: An operational requisite is one of the following:

- 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.

<i>Figure 9. Mandatory Operational Requisites</i>	
Program Number	Product Name and Minimum VRM/Service Level
Any one of the following:	
5694-A01	z/OS V1.6 with PTFs to satisfy APARs OA06613, OA11519, OA11699, or later
5655-G52	z/OS.e V1.6 with PTFs to satisfy APARs OA06613, OA11519, OA11699, or later

The following z/OS elements, features, and components must be installed, enabled, and configured:

- z/OS Unix System Services and the hierarchical file system (HFS) or the zSeries File System (zFS)
- eNetwork Communications Server (TCP/IP) or equivalent of the HFS for one or more configuration file systems(s).

- Resource recovery services (RRS)
- System logger
- Security Server (RACF) or equivalent SAF security management product

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.

<i>Figure 10 (Page 1 of 2). Conditional Operational Requisites</i>		
Program Number	Product Name and Minimum VRM/Service Level	Function
5694-A01 or 5655-G52	PTFs for 64 bit enablement, required by JDK V5 UQ88825 UQ88986 UQ90946 UQ91768 UQ92626 UA12453 UA13606 UQ89754 UQ90077 UQ90822	64 bit enablement, required by JDK V5
5694-A01 or 5655-G52	HTTP Server for z/OS	
5655-147	CICS TS V2.2 or later	Required if your application environment uses CICS Transaction Server.
5697-E93	CICS TG V6.0	Required if your application environment accesses CICS TS through the CICS Transaction Gateway (CICS TG) See www.ibm.com/cics/ctg for more information.
5655-C56 or 5655-J38	IMS V8 or later	Required if your application environment accesses IMS through Java DataBase Connectivity (JDBC) or through IBM Connect/Connector for Java.

Figure 10 (Page 2 of 2). Conditional Operational Requisites

Program Number	Product Name and Minimum VRM/Service Level	Function
5675-DB2	DB2 V7.1 or later DB2 V7.1 and APARs PQ84404, PQ86525, PQ89043, PQ80841, UQ88238, PQ88082, PQ87786 UQ86911 PTFs for DB2 V7.1 UK01565, UQ89338, UQ86911, UQ91761, UQ85607, UQ88238, UQ92167 DB2 V8.1 and APARs PK00615, PQ84577, PQ87786, PQ88082, UQ86912, PTF(UK01566) PTFs for DB2 V8.1 UK01566, UQ86912, UQ91762, UQ88239, UQ92168, UQ85537	Required if your application environment uses a DB2 database. Required to use Web Services UDDI and session persistence for Web container or if your application environment accesses DB2 through Java DataBase Connectivity (JDBC) or through IBM Connection/Connector for Java. Use of DB2 requires licensed utilities from IBM or equivalent 5687-E98 DB2 Utilities Suite, or equivalent, is recommended, in addition to DB2.

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.

WebSphere Application Server for z/OS V6.1.0 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.

WebSphere Application Server for z/OS V6.1.0 has **no** negative requisites.

5.2.3 DASD Storage Requirements

WebSphere Application Server for z/OS V6.1.0 libraries can reside on all z/OS or z/OS.e supported DASD types.

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

Figure 11 (Page 1 of 2). Total DASD Space Required by WebSphere Application Server for z/OS V6.1.0

Library Type	Total Space Required (3390 Tracks)	Component
Target	1850	WebSphere Application Server (H28W610)
Distribution	18555	WebSphere Application Server (H28W610)
HFS	28050	WebSphere Application Server (H28W610)

Figure 11 (Page 2 of 2). Total DASD Space Required by WebSphere Application Server for z/OS V6.1.0

Library Type	Total Space Required (3390 Tracks)	Component
Target	20	WebSphere Application Server for z/OS V6.1.0 Optional Materials (JIWO610)
Distribution	30	WebSphere Application Server for z/OS V6.1.0 Optional Materials (JIWO610)
HFS	27000	WebSphere Application Server for z/OS V6.1.0 Optional Materials (JIWO610) Note: The install process provides an estimated size, but the actual space needed for this file system entirely depends on the size and number of optional items you decide to install. The file system may be allocated smaller now and made larger as needed.

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 that apply to WebSphere Application Server for z/OS V6.1.0 and WebSphere Application Server for z/OS V6.1.0 Optional Materials, please refer to Figure 14 on page 21 and Figure 16 on page 22.

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 a PDS or PDSE, unless PDSE is explicitly specified.

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. Some target libraries must be APF-authorized; some target libraries or library members must be placed in the LPA or LINKLST. See the customization instructions for details.

Figure 12. Storage Requirements for SMP/E Work Data Sets

Library DDNAME	T Y P E	O R G	R E C F M	L R E C L	No. of 3390 Trks	No. of DIR Blks
SMPWRK1	E	PDS	FB	80	120	10
SMPWRK2	E	PDS	FB	80	30	10
SMPWRK3	E	PDS	FB	80	9500	150
SMPWRK4	E	PDS	FB	80	80	10
SMPWRK6	E	PDS	FB	80	20000	200
SYSUT1	E	SEQ	--	--	7500	0
SYSUT2	E	SEQ	--	--	30	0
SYSUT3	E	SEQ	--	--	30	0
SYSUT4	E	SEQ	--	--	30	0

If the table indicates that the SMPLTS data set must be a PDSE, but, your existing SMPLTS is a PDS, you will need to allocate a new PDSE and copy you existing SMPLTS into it and then change the SMPLTS DDDEF entry to indicate the new PDSE data set.

Figure 13. Storage Requirements for SMP/E Data Sets

Library DDNAME	T Y P E	O R G	R E C F M	L R E C L	No. of 3390 Trks	No. of DIR Blks
SMPLTS	E	PDSE	U	0	6535	-
SMPMTS	E	PDS	FB	80	15	80
SMPPTS	E	PDS	FB	80	24000	80
SMPSCDS	E	PDS	FB	80	15	80
SMPSTS	E	PDS	FB	80	15	80

The following figures describe the target and distribution libraries and HFS paths required to install WebSphere Application Server for z/OS V6.1.0.

Note: WebSphere Application Server for z/OS target data sets should not be merged together, or merged with data sets containing other products. The ISPF customization dialog requires that all dialog data sets for aWebSphere Application Server for z/OS release have the same high level qualifier(s), and the shipped low level qualifiers.

Figure 14 (Page 1 of 2). Storage Requirements for WebSphere Application Server for z/OS V6.1.0 Target Libraries

Library DDNAME	Member Type	Target Volume	T Y P E	O R G	R E C F M	L R E C L	No. of 3390 Trks	No. of DIR Blks
SBBGLOAD	LMOD	TVOL1	U	PDSE	U	0	801	-
SBBOCLIB	Clist	TVOL1	U	PDS	FB	80	18	5
SBBOEXEC	EXEC	TVOL1	U	PDS	VB	255	10	5
SBBOJCL	Sample	TVOL2	U	PDS	FB	80	10	5
SBBOLD2	LMOD	TVOL1	U	PDSE	U	0	10	-
SBBOLOAD	LMOD	TVOL1	U	PDSE	U	0	801	-
SBBOLPA	LMOD	TVOL1	U	PDSE	U	0	10	-
SBBOMAC	MACRO	TVOL2	U	PDS	FB	80	10	5
SBBOMIG	LMOD	TVOL1	U	PDSE	U	0	48	-
SBBOMJPN	Message	TVOL1	U	PDS	FB	80	10	5
SBBOMLIB	Message	TVOL1	U	PDS	FB	80	10	5
SBBOMSG	Message	TVOL1	U	PDS	VB	255	10	5

Figure 14 (Page 2 of 2). Storage Requirements for WebSphere Application Server for z/OS V6.1.0 Target Libraries

Library DDNAME	Member Type	Target Volume	T Y P E	O R G	R E C F M	L R E C L	No. of 3390 Trks	No. of DIR Blks
SBBOPJPN	Panel	TVOL1	U	PDS	FB	80	24	10
SBBOPLIB	Panel	TVOL1	U	PDS	FB	80	26	10
SBBOSLB2	SKEL	TVOL1	U	PDS	VB	255	10	5
SBBOSLIB	SKEL	TVOL1	U	PDS	FB	80	35	10
SIWOEXEC	EXEC	TVOL1	U	PDS	VB	255	10	5
SIWOJCL	Sample	TVOL2	U	PDS	FB	80	10	5

Figure 15. WebSphere Application Server for z/OS V6.1.0 HFS Paths

DDNAME	T Y P E	Path Name
SBBOANT	N	/usr/lpp/zWebSphere/V6R1/IBM/
SBBOBIN1	N	/usr/lpp/zWebSphere/V6R1/bin/IBM/
SBBOEBCD	N	/usr/lpp/zWebSphere/V6R1/IBM/
SBBOEXP1	N	/usr/lpp/zWebSphere/V6R1/lib/IBM/
SBBOJAR	N	/usr/lpp/zWebSphere/V6R1/IBM/
SBBOZAR	N	/usr/lpp/zWebSphere/V6R1/IBM/
SIWOBIN1	N	/usr/lpp/zWebSphere_OM/V6R1/IBM/

Figure 16 (Page 1 of 2). Storage Requirements for WebSphere Application Server for z/OS V6.1.0 Distribution Libraries

Library DDNAME	T Y P E	O R G	R E C F M	L R E C L	No. of 3390 Trks	No. of DIR Blks
ABBGLOAD	U	PDSE	U	0	801	-
ABBOANT	U	PDS	VB	255	4388	550
ABBOCLIB	U	PDS	FB	80	20	10
ABBOEBCD	N	PDS	VB	31000	31	25

Figure 16 (Page 2 of 2). Storage Requirements for WebSphere Application Server for z/OS V6.1.0 Distribution Libraries

Library DDNAME	T Y P E	O R G	R E C F M	L R E C L	No. of 3390 Trks	No. of DIR Blks
ABBOEXEC	U	PDS	VB	255	10	5
ABBOINC	U	PDS	VB	255	51	5
ABBOJAR	U	PDS	VB	255	10502	50
ABBOJCL	U	PDS	FB	80	10	5
ABBOLD2	U	PDSE	U	0	34	-
ABBOLOAD	U	PDSE	U	0	867	-
ABBOLPA	U	PDSE	U	0	34	-
ABBOMIG	U	PDSE	U	0	51	-
ABBOMJPN	U	PDS	FB	80	10	5
ABBOMAC	U	PDS	FB	80	10	5
ABBOMLIB	U	PDS	FB	80	10	5
ABBOMSG	U	PDS	VB	255	10	5
ABBOPJPN	U	PDS	FB	80	21	10
ABBOPLIB	U	PDS	FB	80	27	10
ABBOSLB2	U	PDS	VB	255	12	5
ABBOSLIB	U	PDS	FB	80	38	10
ABBOZAR	U	PDS	VB	255	1626	10
AIWOEXEC	U	PDS	VB	255	10	5
AIWOINC	U	PDS	VB	255	10	5
AIWOJCL	U	PDS	FB	80	10	5

WebSphere Application Server for z/OS V6.1.0 will require several thousand additional tracks (3390) for run-time data sets; the amount of space depends on the application server structure to be used, the applications to be run and the amount of data storage the applications will require.

5.3 FMIDs Deleted

Installing WebSphere Application Server for z/OS V6.1.0 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 WebSphere Application Server for z/OS V6.1.0 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

WebSphere Application Server for z/OS V6.1.0 is a functional successor to the following products:

- WebSphere Application Server Version 3.02 Standard Edition (5655-A98)
- WebSphere Application Server Version 3.02 Enterprise Edition (5655-A98)
- WebSphere Application Server Version 3.5 Standard Edition (5655-A98)
- WebSphere Application Server Version 4.0 for z/OS and OS/390 (5655-F31)
- WebSphere Application Server Version 4.0.1 for z/OS and OS/390 (5655-F31)
- WebSphere Application Server Version 5.0 for z/OS (5655-I35)
- WebSphere Application Server Version 5.1 for z/OS (5655-I35)
- WebSphere Application Server Version 6.0.1 for z/OS (5655-N01)

NOTE!

Only migration from WebSphere Application Server Version 5.0.2 for z/OS and up is supported. See 7.1.3, “Migrating from Previous Releases of WebSphere Application Server” on page 39 for more information migrating.

The IBM Software Development Kit for z/OS Java 2 Technology Edition, Version 1.5, which is included as part of WebSphere Application Server for z/OS V6.1.0, is a functional successor to various Java products from IBM, including those shipped with previous releases of WebSphere Application Server for z/OS and OS/390.

If you have previously installed any of these products, you should take the following considerations into account when installing WebSphere Application Server for z/OS V6.1.0.

5.4.1 SMP/E Considerations

We recommend that you install WebSphere Application Server for z/OS V6.1.0 into a new set of SMP/E zones, including SMPCSI, target, distribution, and HFS data sets, to allow independent maintenance of WebSphere, z/OS, and other subsystems. This program directory provides sample jobs and instructions to create such an SMP/E environment.

If you install WebSphere Application Server for z/OS V6.1.0 into SMP/E target and distribution zones which contains a previous WebSphere Application Server release, you should completely remove the old release from the target and distribution zones **before** installing the new release. This can be done by receiving, applying, and accepting a "dummy sysmod" such as the following:

```
++FUNCTION (DELWAS5) .
++VER(Z038) DELETE(
    H28W510 /* WebSphere Application Server 5.1.0 */
).
```

This will remove the old WebSphere release from target and distribution libraries as well as from the SMPCSI; therefore, you may wish to make copies of these libraries before applying the sysmod above. Once the old WebSphere release has been deleted, remove any DDDEFs for the old release from the target and distribution zones, and install the new WebSphere release with new target and distribution data sets, using the instructions in this program directory.

5.4.2 Selecting Driving System Mountpoints

During installation of WebSphere Application Server for z/OS V6.1.0 on the driving system, the target HFS file system must be mounted at the following mountpoints:

For WebSphere Application Server for z/OS V6.1.0

-PathPrefix-/usr/lpp/zWebSphere/V6R1

For WebSphere Application Server for z/OS V6.1.0 Optional Materials

-PathPrefix-/usr/lpp/zWebSphere_OM/V6R1

where -PathPrefix- is an HFS path prefix such as /SERVICE or /WAS61. Use of a path prefix allows maintenance to be applied to a copy of the WebSphere HFS data sets without disturbing the production HFS data sets. For more information on the use of an HFS path prefix during product maintenance, see the Unix System Services Planning book for your release of z/OS.

Care must be taken that maintenance is applied to the proper HFS. Be sure to verify that the correct HFS is mounted at your service mountpoint(s) whenever maintenance is applied.

5.4.3 Selecting Target System Mountpoints

During customization and operation of WebSphere Application Server for z/OS, the WebSphere Application Server for z/OS file system must be mounted on the target system. The default mountpoint is:

```
/usr/lpp/zWebSphere/V6R1
```

If the optional materials are used, then the optional materials file system must also be mounted on the target system. The default mountpoint is:

```
/usr/lpp/zWebSphere_OM/V6R1
```

If you run several releases or service levels of WebSphere Application Server for z/OS concurrently or if you use WebSphere Application Server in a sysplex or multi-system environment, you may need to change these default mountpoints to meet local requirements.

Note: WebSphere Application Server for z/OS V6.1.0 also uses a "customization HFS" for each server node; by default, the initial customization HFS is mounted at /WebSphere/V6R1. Data in this HFS is **not** compatible with releases of WebSphere prior to WebSphere Application Server for z/OS V6.1.0. Do not attempt to reuse a customization HFS from WebSphere Application Server V3.02, V4.0, V4.0.1, V5.0, V5.1, or V6.0.x with WebSphere Application Server for z/OS V6.1.0.

5.4.4 Removal of WebSphere Levels

WebSphere Application Server versions prior to WebSphere Application Server for z/OS V6.1.0 should be maintained until all applications have been migrated to Version 6.1.0.

Refer to the WebSphere Information Center Reference Library for migrating to V6.1.0.

6.0 Installation Instructions

This chapter describes the installation method and the step-by-step procedures to install and activate the functions of WebSphere Application Server for z/OS V6.1.0, including the optional materials.

This release of WebSphere Application Server for z/OS V6.1.0 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.

Note: WebSphere Application Server for z/OS V6.1.0 can be installed into new or existing SMP/E zones.

6.1 Installing the WebSphere Application Server for z/OS

Certain installation steps (as noted below) must be run from a userid that is defined to Unix System Services, and has the following attributes:

- Ability to mount filesystems and modify Unix System Services files any one of the following ways:
 - UID(0) or
 - READ access to the FACILITY class BPX SUPERUSER or
 - CONTROL access to the UNIXPRIV class SUPERUSER FILESYS, UPDATE access to the UNIXPRIV class SUPERUSER.FILESYS.MOUNT, and READ access to the UNIXPRIV class SUPERUSER.FILESYS.CHANGEPERMS. (See the z/OS Unix System Service Planning publication for more information about UNIXPRIV classes.)
- READ access or higher to the BPX.FILEATTR.PROGCTL, BPX.FILEATTR.APF, and BPX.FILEATTR.SHARELIB facility classes.

6.1.1 SMP/E Considerations for Installing WebSphere Application Server for z/OS V6.1.0

We recommend that you install WebSphere Application Server for z/OS V6.1.0 into a new set of SMP/E zones, including target, distribution, and HFS data sets. This allows separate maintenance of z/OS and WebSphere software. Sample jobs BBOCSICR and BBOZNCRT can be customized for your system and used to create a new CSI and SMP/E TARGET and DLIB zones. These jobs can be found in the product RELFILE IBM.H28W610.F1, which is loaded during SMP/E processing; see Figure 17 on page 28 for a list of sample jobs.

Note: If you choose to install WebSphere Application Server for z/OS V6.1.0 into existing SMP/E target and distribution zones, be sure to remove any previous versions of WebSphere Application Server from the zones and remove the previous version's DDDEFs **before** installing the new version. See 5.4.1, “SMP/E Considerations” on page 25 for more information.

WebSphere Application Server for z/OS V6.1.0 installation does not require a DDDEF for SYSLIB; however, SMP/E APPLY processing expects to find one. If necessary, create DDDEFs for SMPMTS and SYS1.MACLIB, and create a SYSLIB DDDEF that points to a concatenation of these two data sets. See *IBM SMP/E for z/OS and OS/390 Reference* for more information about the SYSLIB concatenation.

6.1.2 Sample Jobs

Sample jobs to allocate the target and distribution libraries, set up HFS directories, and create DDDEF entries for the WebSphere Application Server for z/OS V6.1.0 elements have been provided.

Figure 17 lists the sample jobs for WebSphere Application Server for z/OS V6.1.0.

<i>Figure 17. Sample Installation Jobs - H28W610</i>			
Job Name	Job Type	Description	RELFILE
BBOCSICR	Setup	Sample job to create an SMP/E global zone	IBM.H28W610.F1
BBOZNCRT	Setup	Sample job to create SMP/E target and distribution zones	IBM.H28W610.F1
BBOXZDEF	Setup	Sample job to add additional target zone definitions for cross-zone prerequisite checking	IBM.H28W610.F1
BBOALLOC	ALLOCATE	Sample job to allocate target and distribution libraries for Application Server	IBM.H28W610.F1
BBOISMKD	MKDIR	Sample job to invoke the supplied BBOMKDIR EXEC to create HFS paths for Application Server	IBM.H28W610.F1
BBODDDEF	DDDEF	Sample job to define SMP/E DDDEFs for Application Server	IBM.H28W610.F1
BBOAPPLY	APPLY	Sample job to apply base and maintenance	IBM.H28W610.F1
BBOACCEP	ACCEPT	Sample job to accept base and maintenance	IBM.H28W610.F1

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 17 to find the appropriate RELFILE data set.

Each sample job contains comments with specific instructions for customization.

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.H28W610.F1,UNIT=tunit,
// VOL=SER=volser,LABEL=(x,SL),
// DISP=(OLD,KEEP)
//FILEIN DD DSN=IBM.H28W610.F1,UNIT=SYSALLDA,DISP=SHR,
// VOL=SER=filevol
//OUT DD DSNAME=jcl-library-name,
// DISP=(NEW,CATLG,DELETE),
// VOL=SER=dasdvol,UNIT=SYSALLDA,
// SPACE=(TRK,(30,20,5))
//SYSUT3 DD UNIT=SYSALLDA,SPACE=(CYL,(1,1))
//SYSIN DD *
COPY INDD=xxxxIN,OUTDD=OUT
/*

```

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

If using TAPEIN:

tunit is the unit value matching the product tape.

volser is the volume serial matching the product tape.

x is the tape file number where the data set name is on the tape.

(Refer to the documentation provided by CBPDO to see where IBM.H28W610.F1 is on the 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.

6.1.3 Allocate SMP/E CSI (Optional)

If you are using an existing CSI, do not execute this job.

If you are allocating a new SMP/E CSI data set for this install, edit and submit sample job BBOCSICR to allocate the SMP/E CSI data set for WebSphere Application Server for z/OS V6.1.0. Consult the instructions in the sample job for more information.

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

6.1.4 Define New SMP/E TARGET and DLIB Zones (Optional)

Edit and submit sample job BBOZNCRT to define new SMP/E Target and Distribution zones. Consult the instructions in the sample job for more information.

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

6.1.5 Add Target Zones for Cross-Zone Prerequisite Checking

Because the WebSphere Application Server component has a number of maintenance requirements for the target z/OS systems, we recommend that you add the appropriate SMP/E target zones (z/OS, DB2, CICS, and IMS) to the WebSphere Application Server SMP/E global zone. This will allow SMP/E to check each zone for maintenance required by WebSphere Application Server for z/OS V6.1.0.

Customize and run the BBOXZDEF job to add target zones to the global zone which will be used for the SMP/E APPLY and ACCEPT steps below.

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

6.1.6 Perform SMP/E RECEIVE

Receive function SYSMOD and service for the WebSphere Application Server for z/OS V6.1.0 by running the RCVPDO job and specifying FMID **H28W610**. For more information, refer to *MVS CBPDO Memo to User Extension* included with the CBPDO.

The CBPDO contains all non-integrated PTFs for every WebSphere Application Server for z/OS V6.1.0 FMID. (Cumulative service is included in CBPDO orders, so there is no separate cumulative service tape.) Depending on the options selected when you ordered the CBPDO, your order may contain service for other products in your profile.

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

6.1.7 Define Target and Distribution Libraries

Customize and run the BBOALLOC sample job to define target and distribution libraries for WebSphere Application Server for z/OS V6.1.0.

Make sure the data sets are allocated on the desired volumes.

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

6.1.8 Set Up HFS Directories

Customize the sample job BBOISMKD to mount the WebSphere Application Server for z/OS product HFS and create the HFS target directories needed to install WebSphere Application Server for z/OS V6.1.0.

Important!

- The BBOISMKD and BBODDDEF jobs use `-PathPrefix-` to represent a service directory on your driving system. It is assumed that you will be mounting WebSphere Application Server for z/OS V6.1.0 HFS data sets under a service directory that already contains the `/usr` and `/usr/lpp` directories. If you specify a `-PathPrefix-` directory which does not contain `/usr` and `usr/lpp` subdirectories, you must manually create these subdirectories before running the BBOISMKD job. If `-PathPrefix-/usr/lpp` is not a read/write HFS, you will need to manually create some additional subdirectories as well. See the comments in the BBOISMKD job for further information.
- The BBOISMKD job will mount the product HFS and create all product directories in it.

The customized sample job BBOISMKD must be run under a user ID with a number of system privileges; see 6.1, "Installing the WebSphere Application Server for z/OS" on page 27 for a summary of privileges that are needed to run BBOISMKD successfully

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

Check the job output to verify that all directories have been created.

Verify that the product HFS is mounted at

`-PathPrefix-/usr/lpp/zWebSphere/V6R1`

6.1.9 Define SMP/E DDDEFs

Customize and run the sample job BBODDDEF to create SMP/E DDDEFs for target and distribution data sets and directories.

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

6.1.10 Perform SMP/E APPLY

SMP/E apply processing for WebSphere Application Server for z/OS V6.1.0 uses the Java SDK JAR command to extract certain HFS files. In order for the JAR command to run correctly, SMP/E must be running with a fix for APAR IR54653, and the user ID used to run the BBOAPPLY job must have the SDK bin directory in its Unix System Services PATH. This can be accomplished in one of two ways:

1. Add an SDK bin directory containing the JAR command (such as `/usr/lpp/java/IBM/J1.3/bin`) to the PATH variable in `/etc/profile` before running the BBOAPPLY job. For example:

```
PATH=/usr/lpp/java/IBM/J1.3/bin:<rest of PATH>
```

2. Add an SDK bin directory to the PATH variable in a file named `.profile` in the HOME directory for the user ID used in running the BBOAPPLY job.

Test the availability of the JAR command by logging in to the OMVS shell with the user ID that will be used to run the BBOAPPLY job and entering the command "jar"; the JAR command should print its usage

information. See the z/OS Unix System Services User's Guide for information about using /etc/profile and &HOME/.profile scripts.

The SMP/E apply job must be run with a user ID having a number of system privileges; see 6.1, "Installing the WebSphere Application Server for z/OS" on page 27 for a summary of privileges that are needed to run BBOISMKD successfully.

Customize and run the sample job BBOAPPLY to perform an SMP/E APPLY CHECK of the WebSphere Application Server base and service.

To receive the full benefit of the SMP/E Causer SYSMOD Summary Report, do *not* bypass any of 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** (bypassed SYSMODs are treated as warnings, not errors, by SMP/E).

Note: The GROUPEXTEND operand indicates that SMP/E should APPLY all requisite SYSMODS. The requisite SYSMODS may be part of other products; review the APPLY CHECK output carefully before proceeding.

Expected Return Codes and Messages: You will receive a return code of 0 if this job runs correctly (or a return code of 4, if any HOLDs are bypassed).

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

Expected Return Codes from APPLY:

You will receive a return code of 0 if this job runs correctly (or a return code of 4, if any HOLDs are bypassed).

6.1.11 Perform SMP/E ACCEPT

Customize and run the sample job BBOACCEP to perform an SMP/E ACCEPT CHECK of the WebSphere Application Server base and service.

To receive the full benefit of the SMP/E Causer SYSMOD Summary Report, do *not* bypass any of 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** (bypassed SYSMODs are treated as warnings, not errors, by SMP/E).

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

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

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

6.2 Installing the WebSphere Application Server for z/OS V6.1.0 Optional Materials

The optional materials for WebSphere Application Server for z/OS will be shipped as service to the function SYSMOD JIWO610. Follow the instructions in section to install the function SYSMOD and prepare the optional materials HFS.

The WebSphere Application Server for z/OS optional materials must be installed into SMP/E target and distribution zones that contain the WebSphere Application Server for z/OS base product. Install the JIWO610 function SYSMOD (and its service) into the same SMP/E zones used for H28W610.

6.2.1 Sample Jobs

Sample jobs to allocate the target and distribution libraries, set up HFS directories, and create DDDEF entries for the WebSphere Application Server for z/OS V6.1.0 Optional Materials have been provided.

Figure 18 lists the sample jobs for WebSphere Application Server for z/OS V6.1.0 Optional Materials.

<i>Figure 18. Sample Installation Jobs - JIWO610</i>			
Job Name	Job Type	Description	RELFILE
IWOALLOC	ALLOCATE	Sample job to add additional target zone definitions for WebSphere Application Server for z/OS V6.1.0 Optional Materials	IBM.JIWO610.F1
IWOISMKD	MKDIR	Sample job to invoke the supplied IWOMKDIR EXEC to create HFS paths for WebSphere Application Server for z/OS V6.1.0 Optional Materials	IBM.JIWO610.F1
IWODDDEF	DDDEF	Sample job to define SMP/E DDDEFs for WebSphere Application Server for z/OS V6.1.0 Optional Materials	IBM.JIWO610.F1
IWOAPPLY	APPLY	Sample job to apply base and maintenance	IBM.JIWO610.F1
IWOACCEP	ACCEPT	Sample job to accept base and maintenance	IBM.JIWO610.F1

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 18 to find the appropriate RELFILE data set.

Each sample job contains comments with specific instructions for customization.

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.JIWO610.F1,UNIT=tunit,
// VOL=SER=volser,LABEL=(x,SL),
// DISP=(OLD,KEEP)
//FILEIN DD DSN=IBM.JIWO610.F1,UNIT=SYSALLDA,DISP=SHR,
// VOL=SER=filevol
//OUT DD DSNAME=jcl-library-name,
// DISP=(NEW,CATLG,DELETE),
// VOL=SER=dasdvol,UNIT=SYSALLDA,
// SPACE=(TRK,(30,20,5))
//SYSUT3 DD UNIT=SYSALLDA,SPACE=(CYL,(1,1))
//SYSIN DD *
COPY INDD=xxxxIN,OUTDD=OUT
/*
```

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

If using TAPEIN:

tunit is the unit value matching the product tape.

volser is the volume serial matching the product tape.

x is the tape file number where the data set name is on the tape.

Refer to the documentation provided by CBPDO to see where IBM.JIWO610.F1 is on the 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.

6.2.2 Perform SMP/E RECEIVE

Receive function SYSMOD and service for the WebSphere Application Server for z/OS V6.1.0 Optional Materials by running the RCPVDO job and specifying FMID **JIWO610**. See the *MVS CBPDO Memo to User Extension* included with the CBPDO.

The CBPDO contains all non-integrated PTFs for every WebSphere Application Server for z/OS V6.1.0 Optional Materials FMID. (Cumulative service is included in CBPDO orders, so there is no separate cumulative service tape.) Depending on the options selected when you ordered the CBPDO, your order may contain service for other products in your profile.

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

6.2.3 Define Target and Distribution Libraries

Customize and run the IWOALLOC sample job to define target and distribution libraries for the WebSphere Application Server for z/OS V6.1.0 Optional Materials.

Make sure the data sets are allocated on the desired volumes.

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

6.2.4 Set Up HFS Directories

Customize the sample job IWOISMKD to mount the WebSphere Application Server for z/OS optional materials HFS and create the HFS target directories needed to install the WebSphere Application Server for z/OS V6.1.0 Optional Materials component.

Important!

- The IWOISMKD and IWODDDEF jobs use `-PathPrefix-` to represent a service directory on your driving system. It is assumed that you will be mounting WebSphere Application Server for z/OS V6.1.0 Optional Materials HFS data sets under a service directory that already contains the `/usr` and `/usr/lpp` directories. If you specify a `-PathPrefix-` directory which does not contain `/usr` and `usr/lpp` subdirectories, you must manually create these subdirectories before running the IWOISMKD job. If `-PathPrefix-/usr/lpp` is not a read/write HFS, you will need to manually create some additional subdirectories as well. See the comments in the IWOISMKD job for further information.
- The IWOISMKD job will mount the product HFS, create all product directories in it and create the base directory for WebSphere Application Server for z/OS V6.1.0 Optional Materials.

The customized sample job IWOISMKD must be run under a user ID with a number of system privileges; see 6.1, “Installing the WebSphere Application Server for z/OS” on page 27 for a summary of privileges that are needed to run IWOISMKD successfully

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

Check the job output to verify that all directories have been created.

Verify that the product HFS is mounted at

`-PathPrefix-/usr/lpp/zWebSphere_OM/V6R1`

6.2.5 Define SMP/E DDDEFS

Customize and run the sample job IWODDDEF to create SMP/E DDDEFS for target and distribution data sets and directories.

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

6.2.6 Perform SMP/E APPLY

SMP/E apply processing for WebSphere Application Server for z/OS V6.1.0 uses the Java SDK JAR command to extract certain HFS files. In order for the JAR command to run correctly, SMP/E must be running with a fix for APAR IR54653, and the user ID used to run the IWOAPPLY job must have the SDK bin directory in its Unix System Services PATH. This can be accomplished in one of two ways:

1. Add an SDK bin directory containing the JAR command (such as /usr/lpp/java/IBM/J1.3/bin) to the PATH variable in /etc/profile before running the IWOAPPLY job. For example:

```
PATH=/usr/lpp/java/IBM/J1.3/bin:<rest of PATH>
```

2. Add an SDK bin directory to the PATH variable in a file named .profile in the HOME directory for the user ID used in running the IWOAPPLY job.

Test the availability of the JAR command by logging in to the OMVS shell with the user ID that will be used to run the IWOAPPLY job and entering the command "jar"; the JAR command should print its usage information. See the z/OS Unix System Services User's Guide for information about using /etc/profile and &HOME/.profile scripts.

The SMP/E apply job must be run with a user ID having a number of system privileges; see 6.1, "Installing the WebSphere Application Server for z/OS" on page 27 for a summary of privileges that are needed to run IWOISMKD successfully.

Customize and run the sample job IWOAPPLY to perform an SMP/E APPLY CHECK of the WebSphere Application Server for z/OS V6.1.0 Optional Materials. base and service.

To receive the full benefit of the SMP/E Causer SYSMOD Summary Report, do *not* bypass any of 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** (bypassed SYSMODs are treated as warnings, not errors, by SMP/E).

Note: The GROUPEXTEND operand indicates that SMP/E should APPLY all requisite SYSMODS. The requisite SYSMODS may be part of other products; review the APPLY CHECK output carefully before proceeding.

Expected Return Codes and Messages: You will receive a return code of 0 if this job runs correctly (or a return code of 4, if any HOLDS are bypassed).

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

Expected Return Codes from APPLY:

You will receive a return code of 0 if this job runs correctly (or a return code of 4, if any HOLDS are bypassed).

6.2.7 Perform SMP/E ACCEPT

Customize and run the sample job IWOACCEP to perform an SMP/E ACCEPT CHECK of the WebSphere Application Server for z/OS V6.1.0 Optional Materials.

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

To receive the full benefit of the SMP/E Causer SYSMOD Summary Report, do *not* bypass any of 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** (bypassed SYSMODs are treated as warnings, not errors, by SMP/E).

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

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

7.0 Activation Instructions

7.1 Activating WebSphere Application Server

WebSphere Application Server for z/OS V6.1.0 must be configured once SMP/E installation is complete. See *WebSphere Application Server for z/OS V6.1.0 Installing your application serving environment*, GA22-7957 for more information along with additional information from the WebSphere Information Center, which is located at:

<http://www.ibm.com/software/webservers/appserv/was/library/>

7.1.1 Mount the HFS Data Set on the Target System

Before proceeding with activation, unmount the WebSphere Application Server HFS data sets on the driving system, and mount them on the target system at the target system mountpoints. See 5.4.3, “Selecting Target System Mountpoints” on page 26, for assistance in selecting the mountpoints. If you have selected the default mountpoints, you can use the following TSO commands on your target system to mount the HFS data sets:

```
MOUNT FILESYSTEM('hlq.SBBOHFS') MOUNTPOINT('/usr/lpp/zWebSphere/V6R1') TYPE(HFS) MODE(READ)
MOUNT FILESYSTEM('hlq.SIWOHFS') MOUNTPOINT('/usr/lpp/zWebSphere_OM/V6R1') TYPE(HFS) MODE(READ)
```

If you choose not to install the optional materials, omit the mount for the optional materials HFS.

You will probably want to add these mounts to your BPXPRMxx members in parmlib to ensure that these data sets is always mounted. When, at a later date, you need to perform service on the WebSphere Application Server for z/OS V6.1.0 product:

- Temporarily unmount the HFS data sets
- Mount the HFS data sets to be serviced at the service (-PathPrefix-) mountpoints you created for installation.
- Apply the service.
- Unmount the HFS data sets from the service mountpoints.
- Remount at the production mountpoints.

7.1.2 Activating WebSphere Application Server

WebSphere Application Server for z/OS V6.1.0 Installing your application serving environment, GA22-7957 contains the step-by-step procedures to activate the functions of WebSphere Application Server. This information is also available in the WebSphere Application Server for z/OS V6.1.0 information center as topic, **Installing your application serving environment**.

7.1.3 Migrating from Previous Releases of WebSphere Application Server

WebSphere Application Server for z/OS V6.1.0 supports migration from V5.0.2 and later releases.

For migration information, see Topic [Migrating, coexisting, and interoperating in the WebSphere Application Server for z/OS Information Center](#), which is accessible via the library Web site:

<http://www.ibm.com/software/webservers/appserv/was/library/>

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Reader's Comments

Program Directory for WebSphere Application Server for z/OS V6.1.0, June 30, 2006

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

- Yes

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Printed in U.S.A.

G111-2825-05

