



**Program Directory for
WebSphere Application Server
for z/OS V5.1**

For CBPDO Installation and ServerPac Reference

Version 5 Release 1 Modification 0

Program Number 5655-I35

for Use with
z/OS V1.2 or higher

Service Updated

Document Date: May 28, 2004

GI11-2825-03

Note!

Before using this information and the product it supports, be sure to read the general information under Appendix B, "Notices" on page 53.

A form for reader's comments appears at the back of this publication. When you send information to IBM, you grant IBM a nonexclusive right to use or distribute the information in any way it believes appropriate without incurring any obligation to you.

© **Copyright International Business Machines Corporation 2001, 2004. All rights reserved.**

Note to U.S. Government Users — Documentation related to restricted rights — Use, duplication or disclosure is subject to restrictions set forth in GSA ADP Schedule Contract with IBM Corp.

Contents

1.0 Introduction	1
1.1 WebSphere Application Server for z/OS V5.1 Description	2
1.2 WebSphere Application Server for z/OS V5.1 FMIDs	2
2.0 Program Materials	3
2.1 Basic Machine-Readable Material	3
2.2 Optional Machine-Readable Material	3
2.3 Program Publications	3
2.3.1 Basic Program Publications	3
2.3.2 Optional Program Publications	4
2.4 Program Source Materials	5
2.5 Publications Useful During Installation	5
3.0 Program Support	7
3.1 Program Services	7
3.2 Preventive Service Planning	7
3.3 Statement of Support Procedures	8
4.0 Program and Service Level Information	9
4.1 Program Level Information	9
4.2 Service Level Information	9
5.0 Installation Requirements and Considerations	11
5.1 Driving System Requirements	11
5.1.1 Machine Requirements	11
5.1.2 Programming Requirements	11
5.2 Target System Requirements	12
5.2.1 Machine Requirements	12
5.2.2 Programming Requirements	12
5.2.2.1 Installation Requisites	12
5.2.2.2 Operational Requisites	13
5.2.2.3 Toleration/Coexistence Requisites	15
5.2.2.4 Incompatibility (Negative) Requisites	15
5.2.3 DASD Storage Requirements	15
5.3 FMIDs Deleted	22
5.4 Special Considerations	22
5.4.1 SMP/E Considerations	23
5.4.2 Selecting Driving System Mountpoints	23
5.4.3 Selecting Target System Mountpoints	24
5.4.4 Removal of Old Java and WebSphere Levels	24
6.0 Installation Instructions	25

6.1	Installing the Application Server	25
6.1.1	SMP/E Considerations for Installing WebSphere Application Server for z/OS V5.1	25
6.1.2	SMP/E CALLLIBS Processing	26
6.1.3	Sample Jobs	27
6.1.4	Allocate SMP/E CSI (Optional)	28
6.1.5	Define New SMP/E TARGET and DLIB Zones (Optional)	29
6.1.6	Perform SMP/E RECEIVE	29
6.1.7	Define Target and Distribution Libraries	29
6.1.8	Set Up HFS Directories	29
6.1.9	Define SMP/E DDDEFs	30
6.1.10	Add Target Zones for Cross-Zone Prerequisite Checking	30
6.1.11	Perform SMP/E APPLY	31
6.1.12	Perform SMP/E ACCEPT	31
6.2	Installing the Java Software Development Kit	32
6.2.1	Mountpoint Considerations for the Java Software Development Kit	32
6.2.2	Sample Jobs	33
6.2.3	Perform SMP/E RECEIVE	34
6.2.4	Define Target and Distribution Libraries	34
6.2.5	Set Up HFS Directories	35
6.2.6	Define SMP/E DDDEFs	35
6.2.7	Perform SMP/E APPLY	36
6.2.8	Perform SMP/E ACCEPT	36
6.3	Installing Websphere for MQ	37
6.3.1	Customizing the MQ Support Installation Jobs	37
6.3.2	Sample Jobs	37
6.3.3	Perform SMP/E RECEIVE	39
6.3.4	Define Target and Distribution Libraries	39
6.3.5	Set Up HFS Directories	40
6.3.6	Define SMP/E DDDEFs	40
6.3.7	Perform SMP/E APPLY	40
6.3.8	Perform SMP/E ACCEPT	41
6.4	Activating WebSphere Application Server for z/OS V5.1	41
6.4.1	Migrating from Previous Releases of WebSphere Application Server	42
6.4.2	Mount the HFS Data Sets on the Target System	42
6.4.3	Activating Application Server	42
6.4.4	Activating Java Software Development Kit	42
6.4.4.1	Update the Environment Path	42
6.4.5	Activating WebSphere MQ for z/OS	43
Appendix A. Customizing the WebSphere MQ for z/OS Installation Jobs		45
A.1.1	Choosing values	45
A.1.1.1	High-level qualifiers	45
A.1.1.2	Volume and unit names	47
A.1.1.3	SMP/E Environment	47
A.1.1.4	HFS	48
A.1.2	Create the installation JCL	48

A.1.2.1 Copy the sample installation JCL	49
A.1.3 Customize the sample installation JCL	49
Appendix B. Notices	53
B.1 Trademarks	54
Reader's Comments	57

Figures

1. Basic Material: Unlicensed Publications	4
2. Basic Material: Other Unlicensed or Licensed Publications	4
3. Optional Material: Other Optional Publications	4
4. Publications Useful During Installation	5
5. PSP Upgrade and Subset ID	7
6. Component IDs	8
7. Driving System Software Requirements	11
8. Mandatory Installation Requisites	13
9. Mandatory Operational Requisites	13
10. Conditional Operational Requisites	14
11. Total DASD Space Required by WebSphere Application Server for z/OS V5.1	15
12. Storage Requirements for SMP/E Work Data Sets	17
13. Storage Requirements for SMP/E Data Sets	17
14. Storage Requirements for WebSphere Application Server for z/OS V5.1 Target Libraries	18
15. WebSphere Application Server for z/OS V5.1 HFS Paths	20
16. Storage Requirements for WebSphere Application Server for z/OS V5.1 Distribution Libraries	20
17. DDDEFs required for CALLLIBs processing	26
18. Sample Installation Jobs	27
19. Sample Installation Jobs	33
20. Sample Installation Jobs	37
21. High-level qualifiers for data set names	45
22. Volume and unit names	47
23. Target and distribution zone names	48
24. Path for WebSphere MQ for z/OS	48

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 V5.1.

The Program Directory contains the following sections:

- 2.0, “Program Materials” on page 3 identifies the basic and optional program materials and documentation for WebSphere Application Server for z/OS V5.1.
- 3.0, “Program Support” on page 7 describes the IBM support available for WebSphere Application Server for z/OS V5.1.
- 4.0, “Program and Service Level Information” on page 9 lists the APARs (program level) and PTFs (service level) incorporated into WebSphere Application Server for z/OS V5.1.
- 5.0, “Installation Requirements and Considerations” on page 11 identifies the resources and considerations required for installing and using WebSphere Application Server for z/OS V5.1.
- 6.0, “Installation Instructions” on page 25 provides detailed installation instructions for WebSphere Application Server for z/OS V5.1. It also describes the procedures for activating the functions of WebSphere Application Server for z/OS V5.1, or refers to appropriate publications.

Before installing WebSphere Application Server for z/OS V5.1, 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 7 tells you how to find any updates to the information and procedures in this Program Directory.

WebSphere Application Server for z/OS V5.1 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 WebSphere Application Server for z/OS V5.1 are included on the CBPDO tape.

Do not use this Program Directory if you are installing WebSphere Application Server for z/OS V5.1 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 WebSphere Application Server for z/OS V5.1 Description

WebSphere Application Server for z/OS V5.1 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 V5.1 includes maintenance release V5.0.2, support for the Software Development Kit for Java Technology Edition 1.4 (SDK 1.4) client container and improvements in Web services interoperability and security, and systems management.

WebSphere Application Server for z/OS V5.1 is designed, as was V5.0, to be equivalent from a programming model perspective with WebSphere Application Server and WebSphere Application Server Network Deployment for multiplatforms.

V5.1 delivers the following functionality:

- Support for SDK 1.4 as the first step toward J2EE 1.4 compliance which can allow enterprises to use Java technology to develop more demanding business applications with less effort and in less time.
- Third-generation support for the Web services standards utilized 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.
- Support for the June 2003 Board Approved Draft of the WS-I Basic Profile 1.0 which can help give developers a head start on interoperating across heterogeneous environments and enterprise boundaries.
- Extensive integration with the z/OS operating system to help leverage the high reliability, strong security, and overall robust qualities of service of the zSeries hardware and z/OS operating system.

1.2 WebSphere Application Server for z/OS V5.1 FMIDs

WebSphere Application Server for z/OS V5.1 consists of the following FMIDs:

H28W510 - WebSphere Application Server for z/OS V5.1
HJVA140 - IBM SDK for z/OS, Java 2 Technology Edition, V1.4 Base Common
HMS5310 - IBM WebSphere MQ for z/OS Base
JMS5311 - IBM WebSphere MQ for z/OS US English ENU
JMS5312 - IBM WebSphere MQ for z/OS Japanese JPN
JMS5313 - IBM WebSphere MQ for z/OS Simplified Chinese CHS
JMS5314 - IBM WebSphere MQ for z/OS Uppercase English ENP
JMS5318 - IBM WebSphere MQ for z/OS Java Support

2.0 Program Materials

An IBM program is identified by a program number. The program number for WebSphere Application Server for z/OS V5.1 is 5655-I35.

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 WebSphere Application Server for z/OS V5.1. 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 25 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 V5.1 can be found in the *CBPDO Memo To Users Extension*.

2.2 Optional Machine-Readable Material

No optional machine-readable materials are provided for WebSphere Application Server for z/OS V5.1.

2.3 Program Publications

The following sections identify the basic and optional publications for WebSphere Application Server for z/OS V5.1. Please note the main documentation distribution medium for WebSphere Application Server for z/OS V5.1 is the InfoCenter, which can be accessed via the WebSphere Application Server for z/OS V5.1 product documentation page at http://www.ibm.com/software/webservers/appserv/zos_os390/library/.

In addition to the InfoCenter, WebSphere Application Server for z/OS V5.1 product documentation is available in PDF format at the same URL.

2.3.1 Basic Program Publications

Figure 1 identifies the basic unlicensed program publications for WebSphere Application Server for z/OS V5.1. Downloadable copies of these publications are available on the WebSphere Application Server for z/OS V5.1 Library site. Please see http://www.ibm.com/software/webservers/appserv/zos_os390/library/ to access the product documentation.

<i>Figure 1. Basic Material: Unlicensed Publications</i>	
Publication Title	Form Number
Program Directory for WebSphere Application Server for z/OS V5.1	GI11-2825
License Information WebSphere Application Server for z/OS V5.1	GA22-7908
International License agreement for Evaluation of Programs	GA22-7988

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 V5.1.

All of the documents listed in Figure 2 are available for download at the WebSphere Application Server for z/OS V5.1 Library page: http://www.ibm.com/software/webserver/appserv/zos_os390/library/

<i>Figure 2. Basic Material: Other Unlicensed or Licensed Publications</i>		
Publication Title	Form Number	How Available
WebSphere Application Server for z/OS V5.1: Getting Started	GA22-7957	Library page
WebSphere Application Server for z/OS V5.1: Servers and Environment	GA22-7958	Library page
WebSphere Application Server for z/OS V5.1: Resources	SA22-7960	Library page
WebSphere Application Server for z/OS V5.1: Applications	SA22-7959	Library page
WebSphere Application Server for z/OS V5.1: System Administration	GA22-7962	Library page
WebSphere Application Server for z/OS V5.1: Security	SA22-7961	Library page
WebSphere Application Server for z/OS V5.1: Monitoring and Tuning Performance	SA22-7963	Library page
WebSphere Application Server for z/OS V5.1: Problem Determination	GA22-7964	Library page

2.3.2 Optional Program Publications

Additional documentation can be found on the IBM Redbooks site at: <http://www.redbooks.ibm.com/>.

<i>Figure 3. Optional Material: Other Optional Publications</i>		
Publication Title	Form Number	How Available
WebSphere Application Server V5 Architecture	REDP-3721	Redbooks Website

2.4 Program Source Materials

No program source materials or viewable program listings are provided for WebSphere Application Server for z/OS V5.1.

2.5 Publications Useful During Installation

The publications listed in Figure 4 may be useful during the installation of WebSphere Application Server for z/OS V5.1. 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>

<i>Figure 4. Publications Useful During Installation</i>	
Publication Title	Form Number
<i>IBM SMP/E for z/OS and OS/390 User's Guide</i>	SA22-7773
<i>IBM SMP/E for z/OS and OS/390 Commands</i>	SA22-7771
<i>IBM SMP/E for z/OS and OS/390 Reference</i>	SA22-7772
<i>IBM SMP/E for z/OS and OS/390 Messages, Codes, and Diagnosis</i>	GA22-7770
<i>WebSphere MQ for z/OS System Setup Guide</i>	SC34-6052
<i>z/OS MVS JCL Reference</i>	SA22-7597
<i>z/OS System Codes</i>	SA22-7626

3.0 Program Support

This section describes the IBM support available for WebSphere Application Server for z/OS V5.1.

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 V5.1, you should review the current Preventive Service Planning (PSP) information. If you obtained WebSphere Application Server for z/OS V5.1 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 V5.1 is more than two weeks old when you install it, you should contact the IBM Support Center or use S/390 SoftwareXcel to obtain the current "PSP Bucket".

For program support, access the Software Support web site at <http://www-3.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 WebSphere Application Server for z/OS V5.1 are:

Figure 5. PSP Upgrade and Subset ID

UPGRADE	SUBSET	Description
WASAS510	H28W510	WebSphere Application Server for z/OS V5.1
JAVAS390	HJVA140	IBM SDK for z/OS, V1.4
MQMESA	HMS5310	IBM WebSphere MQ for z/OS Base
MQMESA	JMS5311	IBM WebSphere MQ for z/OS US English ENU
MQMESA	JMS5312	IBM WebSphere MQ for z/OS Japanese JPN
MQMESA	JMS5313	IBM WebSphere MQ for z/OS Simplified Chinese CHS
MQMESA	JMS5314	IBM WebSphere MQ for z/OS Uppercase English ENP
MQMESA	JMS5318	IBM WebSphere MQ for z/OS Java Support

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 8 identifies the component IDs (COMPID) for WebSphere Application Server for z/OS V5.1.

<i>Figure 6. Component IDs</i>			
FMID	COMPID	Component Name	RETAIN Release
H28W510	5655I3500	WebSphere Application Server for z/OS V5.1	510
H28W510	5655I3501	WebSphere Application Client	510
H28W510	5655I3505	WEMPS for z/OS	510
H28W510	5655I3506	WebSphere Tool Kit	510
HJVA140	5648-C9800	IBM SDK for z/OS, Java 2 Technology Edition, V1.4 Base Common	140
HJVA140	5648-C9801	IBM SDK for z/OS, Java 2 Technology Edition, V1.4	140
HMS5310	5655F1000	IBM WebSphere MQ for z/OS Base	310
JMS5311	5655F1000	IBM WebSphere MQ for z/OS US English ENU	311
JMS5312	5655F1000	IBM WebSphere MQ for z/OS Japanese JPN	312
JMS5313	5655F1000	IBM WebSphere MQ for z/OS Simplified Chinese CHS	313
JMS5314	5655F1000	IBM WebSphere MQ for z/OS Uppercase English ENP	314
JMS5318	5655F1000	IBM WebSphere MQ for z/OS Java Support	318

4.0 Program and Service Level Information

This section identifies the program and any relevant service levels of WebSphere Application Server for z/OS V5.1. 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 V5.0 for z/OS service as of Service Level W502004 (PTF UQ86037) has been incorporated into WebSphere Application Server for z/OS V5.1

4.2 Service Level Information

No PTFs against this release of WebSphere Application Server for z/OS V5.1 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 V5.1. 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 WebSphere Application Server for z/OS V5.1.

5.1.1 Machine Requirements

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

5.1.2 Programming Requirements

<i>Figure 7. Driving System Software Requirements</i>	
Program Number	Product Name and Minimum VRM/Service Level
5694-A01	z/OS V1.2 or later, and the following APARs (LE) PQ82905, PQ70450, and OA01707
5655-G52	z/OS.e V1.3 or later, and the following APAR (LE) PQ82905 and OA01707

Notes:

1. UNIX must be up in full function mode on your driving system so that the utilities are available for the Shell Script support.
2. Before installing WebSphere Application Server for z/OS V5.1, you must ensure that the target system's HFS is available (OMVS active and the target file systems mounted) for processing.
3. An SMP/E utility entry for the binder is required. You can specify any of these program names in the UTILITY entry: IEWLINK, HEWL, LINKEDIT, or HEWLH096. (The linkage editor which uses the names HEWLKED, HEWLF064, IEWLF440, and IEWLF128 cannot be used.)
4. The following installation jobs, as well as the SMP/E APPLY job, should be run under a userid with UID(0), or with a userid with read access to the BPX.SUPERUSER resource in the RACF facility class. This installation userid must also have read access to the facility class resources BPX.FILEATTR.PROGCTL, BPX.FILEATTR.APF, and BPX.FILEATTR.SHARELIB.
 - AJVISMKD
 - BBOISMKD
 - CSQ8JMKJ

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 V5.1.

WebSphere Application Server for z/OS V5.1 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.

<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 V1.2 or later, and the following APARs (LE) PQ82905, PQ70450, and AO01707
5655-G52	z/OS.e V1.3 or later, and the following apar (LE) PQ82905 and AO01707

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 V5.1 has no conditional installation requisites.

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.

<i>Figure 9 (Page 1 of 2). Mandatory Operational Requisites</i>	
Program Number	Product Name and Minimum VRM/Service Level
5655-I56	IBM SDK for z/OS JAVA(TM) 2 Technology Edition (included with this product) with APAR PQ86689
Any one of the following:	
5694-A01	z/OS V1.2 or later with SAF enabled security package, such as Security Server (priced optional feature) enabled, with APARs/PTFs: OA01707/UA03865, OW50074/UW87312, PQ82905/UQ84922, PQ84939/UQ85855, PQ70450/UQ77341, OA06613/UA09241, PQ78683/UQ81416, PQ78055/UQ81417
5694-A01	z/OS V1.3 with SAF enabled security package, such as Security Server (priced optional feature) with APARs/PTFs: OA01707/UA03866, OW50074/UW87313, PQ82905/UQ84923, PQ84939/UQ85856, OA06613/UA09242
5655-G52	z/OS.e V1.3 with SAF enabled security package, such as Security Server (priced optional feature) with APARs/PTFs: OA01707/UA03866, OW50074/UW87313, PQ82905/UQ84923, PQ84939/UQ85856, OA06613/UA09242
5694-A01	z/OS V1.4 with SAF enabled security package, such as Security Server (priced optional feature) with APARs/PTFs: OA01707/UA03867, PQ82905/UQ84924, PQ84939/UQ85857, OA06613/UA09243

Figure 9 (Page 2 of 2). Mandatory Operational Requisites

Program Number	Product Name and Minimum VRM/Service Level
5655-G52	z/OS.e V1.4 with SAF enabled security package, such as Security Server (priced optional feature) with APARs/PTFs: OA01707/UA03867, PQ82905/UQ84924, PQ84939/UQ85857, OA06613/UA09243
5694-A01	z/OS V1.5 with SAF enabled security package, such as Security Server (priced optional feature) with APARs/PTFs: PQ84939/UQ85858, OA06613/UA09244
5655-G52	z/OS.e V1.5 with SAF enabled security package, such as Security Server (priced optional feature) with APARs/PTFs: PQ84939/UQ85858, OA06613/UA09244

Note: The JAVA website contains a list of APARs that are required for JAVA to run.
<http://www.ibm.com/servers/eserver/zseries/software/java/prereqs14.html>

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
5655-147	CICS CTS V1.3 or later	Required if your application environment uses CICS Transaction Server.
5655-147	CICS TG V5.1 or later	Required if your application environment accesses CICS Transaction Server through the CICS Transaction Gateway (TG).
5655-C56	IMS V8 or later	Required if you application environment accesses IMS through Java DataBase Connectivity (JDBC) or through IBM Connect/Connector for Java.
5675-DB2	DB2 V7 or later, and APAR PQ86525 Use of DB2 requires licensed utilities from IBM or equivalent 5687-E98 DB2 Utilities Suite, or equivalent, is recommended, in addition to DB2.	Web Services UDDI and Session in memory for Web container Required to use Web Services UDDI and Session in memory for Web container or if your application environment accesses DB2 through Java DataBase Connectivity (JDBC) or through IBM Connection/Connector for Java.

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 V5.1 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 V5.1 has no negative requisites.

5.2.3 DASD Storage Requirements

WebSphere Application Server for z/OS V5.1 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.

<i>Figure 11. Total DASD Space Required by WebSphere Application Server for z/OS V5.1</i>		
Library Type	Total Space Required (3390 Tracks)	Component
Target	4000	WebSphere Application Server
Target	3	Java Software Development Kit
Target	2168	WebSphere for MQ
Distribution	13900	WebSphere Application Server
Distribution	1500	Java Software Development Kit
Distribution	2700	WebSphere for MQ
HFS	15300	WebSphere Application Server
HFS	3600	Java Software Development Kit
HFS	300	WebSphere for MQ

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 6.1.7, "Define Target and Distribution Libraries" on page 29.

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 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	9999	100
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	8000	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 V5.1. The storage requirements of WebSphere Application Server for z/OS V5.1 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 14 (Page 1 of 2). Storage Requirements for WebSphere Application Server for z/OS V5.1 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
SAJVSMP1	Sample	TVOL2	U	PDS	FB	80	3	2
SBBOCLIB	Clist	TVOL1	U	PDS	FB	80	51	5
SBBODSD	DATA	TVOL2	U	PDSE	FB	80	60	-
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	-
SBBLOAD	LMOD	TVOL1	U	PDSE	U	0	1467	-
SBBOLPA	LMOD	TVOL1	U	PDSE	U	0	21	-
SBBOMAC	MACRO	TVOL2	U	PDS	VB	255	10	5
SBBOMIG	LMOD	TVOL1	U	PDSE	U	0	41	-
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
SBBOPJPN	Panel	TVOL1	U	PDS	FB	80	17	10
SBBOPLIB	Panel	TVOL1	U	PDS	FB	80	22	10
SBBOSLB2	SKEL	TVOL1	U	PDS	VB	255	14	5
SBBOSLIB	SKEL	TVOL1	U	PDS	FB	80	25	10
SCSQANLC	LMOD	TVOL1	U	PDS	U	0	18	10
SCSQANLE	LMOD	TVOL1	U	PDS	U	0	14	7
SCSQANLK	LMOD	TVOL1	U	PDS	U	0	19	10
SCSQANLU	LMOD	TVOL1	U	PDS	U	0	14	7
SCSQASMS	Sample	TVOL2	U	PDS	FB	80	14	3
SCSQAUTH	LMOD	TVOL1	U	PDS	U	0	867	525
SCSQC370	Macro	TVOL2	U	PDS	FB	80	25	3
SCSQC37S	Sample	TVOL2	U	PDS	FB	80	63	3
SCSQCICS	LMOD	TVOL1	U	PDS	U	0	57	15
SCSQCOBC	Macro	TVOL2	U	PDS	FB	80	24	4
SCSQDEFS	Data	TVOL2	U	PDS	FB	80	33	3
SCSQEXEC	CLIST	TVOL1	U	PDS	FB	80	25	3

Figure 14 (Page 2 of 2). Storage Requirements for WebSphere Application Server for z/OS V5.1 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
SCSQINST	PROC	TVOL1	U	PDS	FB	80	20	3
SCSQLINK	LMOD	TVOL1	U	PDS	U	0	4	3
SCSQLOAD	LMOD	TVOL1	U	PDS	U	0	272	21
SCSQMACS	Macro	TVOL2	U	PDS	FB	80	39	4
SCSQMSGC	Message	TVOL1	U	PDS	FB	80	8	3
SCSQMSGE	Message	TVOL1	U	PDS	FB	80	8	3
SCSQMSGK	Message	TVOL1	U	PDS	FB	80	8	3
SCSQMSGU	Message	TVOL1	U	PDS	FB	80	8	3
SCSQMVR1	LMOD	TVOL1	U	PDSE	U	0	135	N/A
SCSQMVR2	LMOD	TVOL1	U	PDSE	U	0	93	N/A
SCSQPLIC	Macro	TVOL2	U	PDS	FB	80	18	3
SCSQPNLA	Panel	TVOL1	U	PDS	FB	80	8	4
SCSQPNLC	Panel	TVOL1	U	PDS	FB	80	50	130
SCSQPNLE	Panel	TVOL1	U	PDS	FB	80	56	147
SCSQPNLK	Panel	TVOL1	U	PDS	FB	80	56	148
SCSQPNLU	Panel	TVOL1	U	PDS	FB	80	55	147
SCSQPROC	PROC	TVOL2	U	PDS	FB	80	2	3
SCSQSNLC	LMOD	TVOL1	U	PDS	U	0	2	3
SCSQSNLE	LMOD	TVOL1	U	PDS	U	0	2	3
SCSQSNLK	LMOD	TVOL1	U	PDS	U	0	2	3
SCSQSNLU	LMOD	TVOL1	U	PDS	U	0	2	3
SCSQTBLC	Table	TVOL2	U	PDS	FB	80	2	3
SCSQTBLE	Table	TVOL2	U	PDS	FB	80	2	3
SCSQTBK	Table	TVOL2	U	PDS	FB	80	2	3
SCSQTBLU	Table	TVOL2	U	PDS	FB	80	2	3

Figure 15. WebSphere Application Server for z/OS V5.1 HFS Paths

DDNAME	T Y P E	Path Name
SAJVJ14	X	/usr/lpp/java/J1.4/IBM
SBBOBIN1	N	/usr/lpp/zWebSphere/V5R1M0/bin/IBM/
SBBOEXP1	N	/usr/lpp/zWebSphere/V5R1M0/lib/IBM/
SBBOANT	N	/usr/lpp/zWebSphere/V5R1M0/IBM/
SCSQOJS	X	/usr/lpp/mqm/V5R3M1/IBM/

Figure 16 (Page 1 of 2). Storage Requirements for WebSphere Application Server for z/OS V5.1 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
AAJVHFS	U	PDS	VB	256	1813	2
AAJVSMPI	U	PDS	FB	80	3	2
ABBOANT	U	PDS	VB	255	7191	150
ABBOCLIB	U	PDS	FB	80	14	5
ABBOEXEC	U	PDS	VB	255	10	5
ABBOEXP	U	PDS	FB	80	41	5
ABBOINC	U	PDS	VB	255	876	5
ABBOJCL	U	PDS	FB	80	10	5
ABBOMJPN	U	PDS	FB	80	10	5
ABBOMAC	U	PDS	VB	255	10	5
ABBOMLIB	U	PDS	FB	80	10	5
ABBOMSG	U	PDS	VB	255	10	5
ABBOOBJ	U	PDSE	U	0	1271	-
ABBOPJPN	U	PDS	FB	80	17	10
ABBOPLIB	U	PDS	FB	80	25	10
ABBOSLB2	U	PDS	VB	255	14	5
ABBOSLIB	U	PDS	FB	80	25	10
ACSQASMS	U	PDS	FB	80	14	3
ACSQC370	U	PDS	FB	80	25	3

Figure 16 (Page 2 of 2). Storage Requirements for WebSphere Application Server for z/OS V5.1 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
ACSQC37S	U	PDS	FB	80	63	3
ACSQCOBC	U	PDS	FB	80	24	4
ACSQDEFS	U	PDS	FB	80	33	3
ACSQEXEC	U	PDS	FB	80	25	3
ACSQINST	U	PDS	FB	80	20	3
ACSQMACS	U	PDS	FB	80	39	4
ACSQMOD	U	PDS	U	00	1653	N/A
ACSQMSGC	U	PDS	FB	80	8	3
ACSQMSGE	U	PDS	FB	80	8	3
ACSQMSGK	U	PDS	FB	80	8	3
ACSQMSGU	U	PDS	FB	80	8	3
ACSQOJSH	U	PDS	VB	130	1	1
ACSQOJTR	U	PDS	VB	32000	350	1
ACSQPLIC	U	PDS	FB	80	13	3
ACSQPNLA	U	PDS	FB	80	8	4
ACSQPNLC	U	PDS	FB	80	50	130
ACSQPNLE	U	PDS	FB	80	56	147
ACSQPNLK	U	PDS	FB	80	56	148
ACSQPNLU	U	PDS	FB	80	55	147
ACSQPROC	U	PDS	FB	80	33	6
ACSQTBLC	U	PDS	FB	80	2	3
ACSQTBLE	U	PDS	FB	80	2	3
ACSQTBLK	U	PDS	FB	80	2	3
ACSQTBLU	U	PDS	FB	80	2	3

Notes:

1. IBM recommends the following Distribution Library Data Set secondary allocation:
 - ABBOANT 1000 tracks
 - ABBOINC 200 tracks
2. WebSphere Application Server for z/OS V5.1 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 V5.1 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 V5.1 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 V5.1 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)

The IBM Software Development Kit for z/OS Java 2 Technology Edition, Version 1.4, which is included as part of WebSphere Application Server for z/OS V5.1, 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. (Note that SDK 1.4.1 is a service level of SDK 1.4, shipped as a service PTF.)

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 V5.1

5.4.1 SMP/E Considerations

We recommend that you install WebSphere Application Server for z/OS V5.1 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 V5.1 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 (DELWAS4).  
++VER(Z038) DELETE(  
    H28W400 /* WebSphere Application Server 4.0 */  
).
```

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 V5.1 on the driving system, the target HFS file systems must be mounted at the following mountpoints:

- /-PathPrefix-/usr/lpp/java/J1.4
- /-PathPrefix-/usr/lpp/zWebSphere/V5R1M0
- /-PathPrefix-/usr/lpp/mqm/V5R3M1

where /-PathPrefix- is an HFS path prefix such as /SERVICE or /WAS51. 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 V5.1 on the target system, the target HFS file systems must be mounted at the following mountpoints:

- A Java SDK mountpoint, normally /usr/lpp/java/J1.4
- A WebSphere mountpoint, normally /usr/lpp/zWebSphere/V5R1M0
- An MQSeries Java Support mountpoint, normally /usr/lpp/mqm/V5R3M1

If you already have a copy of Java SDK 1.4.1 at the required maintenance level for WebSphere Application Server for z/OS V5.1, you can continue to use the existing version or install the Java SDK 1.4.1 shipped with WebSphere Application Server for z/OS V5.1 and replace your existing Java SDK 1.4.1 with it.

If you have a copy of the WebSphere MQSeries product at the required maintenance level for WebSphere Application Server for z/OS V5.1, you can continue to use the existing version (if your existing version is a "full function" WebSphere MQSeries) or replace it with the WebSphere MQSeries Java support HFS installed as part of WebSphere Application Server for z/OS V5.1 (if your existing version is a "reduced function" WebSphere MQSeries).

Note: WebSphere Application Server for z/OS V5.1 also uses a "customization HFS" for each server node; by default, the initial customization HFS is mounted at /WebSphere/V5R1M0. Data in this HFS is **not** compatible with releases of WebSphere prior to WebSphere Application Server for z/OS V5.0. Do not attempt to reuse a customization HFS from WebSphere Application Server V3.02, V4.0, or V4.0.1 with WebSphere Application Server for z/OS V5.0 or V5.1.

5.4.4 Removal of Old Java and WebSphere Levels

Java applications written to use older versions of Java (for example, those prior to SDK 1.4.0 or 1.4.1) may not run properly with the Java SDK contained in WebSphere Application Server for z/OS V5.1. Information on incompatibilities between older levels of Java and Java SDK 1.4.1 can be found on the web at: <http://www.ibm.com/servers/eserver/zseries/software/java/>.

The old Java SDK level(s) should be maintained until all applications dependent on them have been migrated to the new SDK.

WebSphere Application Server versions prior to WebSphere Application Server for z/OS V5.1 should be maintained until all applications have been migrated to Version 5.1.

6.0 Installation Instructions

This chapter describes the installation method and the step-by-step procedures to install and to activate the functions of WebSphere Application Server for z/OS V5.1, including the Java Software Development Kit and "reduced function" Websphere for MQ support that are shipped with WebSphere Application Server for z/OS V5.1.

This release of WebSphere Application Server for z/OS V5.1 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: The three components of WebSphere Application Server for z/OS V5.1 can be installed into new or existing SMP/E zones. The three components can be installed into separate SMP/E zones if desired.

6.1 Installing the Application Server

The Application Server component of WebSphere Application Server for z/OS V5.1 contains the actual server code for WebSphere Application Server.

Note: All installation steps must be run from a userid that is defined to Unix Systems Services, and has the following attributes

- UID(0) or READ access or higher to the BPX.SUPERUSER facility class.
- READ access or higher to the BPX.FILEATTR.PROGCTL and BPX.FILEATTR.APF and BPX.FILEATTR.SHARELIB facility classes.

6.1.1 SMP/E Considerations for Installing WebSphere Application Server for z/OS V5.1

We recommend that you install WebSphere Application Server for z/OS V5.1 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.H28W510.F1, which is loaded during SMP/E processing; see Figure 18 on page 27 for a list of sample jobs.

Note: If you choose to install WebSphere Application Server for z/OS V5.1 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 23 for more information.

6.1.2 SMP/E CALLIBS Processing

WebSphere Application Server for z/OS V5.1 uses the CALLIBS function provided in SMP/E to resolve external references during installation. When WebSphere Application Server for z/OS V5.1 is installed, jobs BBODDDEF (for the Application Server) and CSQ8DDDF (for MQSeries) create DDDEFs for the following call libraries. Make sure these DDDEFs point to the corresponding data sets for your z/OS target system.

Figure 17 lists the common DDDEFs needed by WebSphere and MQSeries for CALLIBS processing.

<i>Figure 17. DDDEFs required for CALLIBS processing</i>			
DDDEFs	Element of OS/390 or z/OS Product	Req'd by Application Server	Req'd by MQSeries
CSSLIB	BCP callable services	X	X
SCEEBND2	Language Environment	X	
SCEECPP	Language Environment	X	X
SCEELIB	Language Environment	X	
SCEELKED	Language Environment	X	X
SCEELKEX	Language Environment	X	
SCEEOBJ	Language Environment	X	
SCEESPC	Language Environment	X	X
SCLBSID	C/C++ IBM Open Class Library	X	
SCSFMOD0	Cryptographic Services ICSF	X	
SEZACMTX	Communications Server		X
SGLDHCLI	Security Server LDAP Server	X	
SGSKHFS	Cryptographic Services System SSL	X	X
SIMWSA	IBM HTTP Server	X	

Notes:

1. The DDDEFs above are used only to resolve the link-edit for WebSphere Application Server for z/OS V5.1 using CALLLIBS. These data sets are not updated during the installation of WebSphere Application Server for z/OS V5.1.
2. SCEERUN must be in the system link list or in the STEPLIB of the APPLY and ACCEPT jobs for the installation to be successful.

WebSphere Application Server for z/OS V5.1 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 *OS/390 SMP/E Reference* for more information about the SYSLIB concatenation.

6.1.3 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 V5.1 elements have been provided.

Figure 18 lists the sample jobs for the Application Server component of WebSphere Application Server for z/OS V5.1.

<i>Figure 18. Sample Installation Jobs</i>			
Job Name	Job Type	Description	RELFILE
BBOCSICR	Setup	Sample job to create an SMP/E global zone	IBM.H28W510.F1
BBOZNCRT	Setup	Sample job to create SMP/E target and distribution zones	IBM.H28W510.F1
BBOXZDEF	Setup	Sample job to add additional target zone definitions for cross-zone prerequisite checking	IBM.H28W510.F1
BBOALLOC	ALLOCATE	Sample job to allocate target and distribution libraries for Application Server	IBM.H28W510.F1
BBOISMKD	MKDIR	Sample job to invoke the supplied BBOMKDIR EXEC to allocate HFS paths for Application Server	IBM.H28W510.F1
BBODDDEF	DDDEF	Sample job to define SMP/E DDDEFs for Application Server	IBM.H28W510.F1
BBOAPPLY	APPLY	Sample job to apply base and maintenance	IBM.H28W510.F1
BBOACCEP	ACCEPT	Sample job to accept base and maintenance	IBM.H28W510.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.H28W510.F1,UNIT=tunit,
// VOL=SER=volser,LABEL=(x,SL),
// DISP=(OLD,KEEP)
//FILEIN DD DSN=IBM.H28W510.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.H28W510.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.

6.1.4 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 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 V5.1. 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 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.

6.1.6 Perform SMP/E RECEIVE

Receive function SYSMODS and service for the WebSphere Application Server for z/OS V5.1 elements by running the RCVPDO job. 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 V5.1 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.

To receive service for the Application Server component of WebSphere Application Server for z/OS V5.1 select FMID H28W510.

If you are installing the Java Software Development Kit and/or "reduced function" Websphere for MQ component of WebSphere Application Server for z/OS V5.1 into the same SMP/E global zone as the Application Server component, you can include their FMIDs in the RCVPDO job. If you are not installing these components, or are installing them into different SMP/E zones, be sure to omit their FMIDs in the RCVPDO job. See sections 6.2.3, "Perform SMP/E RECEIVE" on page 34 (for Java Software Development Kit) and 6.3.3, "Perform SMP/E RECEIVE" on page 39 (for Websphere for MQ) for the appropriate FMIDs for these components.

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 the Application Server component.

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 Application Server component HFS and create the HFS target directories needed to install the Application Server component.

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 V5.1 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.

Run the customized sample job BBOISMKD under a userid that is UID(0), or has read access to the BPX.SUPERUSER resource in the RACF facility class. The userid also needs read access to the BPX.FILEATTR.PROGCTL and BPX.FILEATTR.APF facility class resources.

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 Application Server HFS is mounted at `-PathPrefix-/usr/lpp/zWebSphere/V5R1M0`.

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. Make sure the call library DDDEFs point to the corresponding data sets for your z/OS target system.

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

6.1.10 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, IMS, and full-function MQ) 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 V5.1.

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.

6.1.11 Perform SMP/E APPLY

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

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 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.

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 and Messages from APPLY:

Possible warning messages include:

- IEW2480W A711 EXTERNAL SYMBOL xxxxx OF TYPE LD WAS ALREADY DEFINED AS A SYMBOL OF TYPE LD IN SECTION xxxxx.
- IEW2482W A712 THE ORIGINAL DEFINITION WAS IN A MODULE IDENTIFIED BY DDNAME xxxxxx. THE DUPLICATE DEFINITION IS IN SECTION xxxxxxxx IN A MODULE IDENTIFIED BY DDNAME xxxxxxxx.
- IEW2454W 9203 SYMBOL xxxxxxxx UNRESOLVED. NO AUTOCALL (NCAL) SPECIFIED. NAME SPACE=3.
- IEW2650I 5102 MODULE ENTRY NOT PROVIDED. ENTRY DEFAULTS TO SECTION xxxxxxxx.

You will receive a return code of 0 or 4 if this job runs correctly.

6.1.12 Perform SMP/E ACCEPT

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

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).

Before using SMP/E to load new distribution libraries, you should 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.

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

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 Java Software Development Kit

The Java Software Development Kit component of WebSphere Application Server for z/OS V5.1 is identical to the separately distributed Java SDK 1.4.1. If you have already installed Java at the 1.4.1 level, you do NOT need to reinstall it now. However, make sure that the minimum Java service level listed in the Application Server PSP bucket is installed.

Note: All installation steps must be run from a userid that is defined to UnixSystems Services, and has the following attributes

- UID(0) or READ access or higher to the BPX.SUPERUSER facility class.
- READ access or higher to the BPX.FILEATTR.PROGCTL and BPX.FILEATTR.APF and BPX.FILEATTR.SHARELIB facility classes.

6.2.1 Mountpoint Considerations for the Java Software Development Kit

By default, the Java SDK 1.4.1 will reside in `/usr/lpp/java/J1.4`. We recommend that you allocate a new HFS for the Java SDK 1.4.1 and mount it at the version-specific mountpoint `/usr/lpp/java/J1.4`. This will allow you to have several versions of the Java SDK mounted concurrently, each at its own version-specific mountpoint.

Note: Previous versions of the SDK assumed a default directory of `/usr/lpp/java/IBM/J1.x`. The `/IBM` level is no longer used by default in Java SDK 1.4.1 and later.

If you have already installed a previous version of the Java SDK, you may have an HFS mounted at `/usr/lpp/java`. In this case, you must either:

1. Install the new Java SDK into the same HFS; OR
2. Create a J1.4 subdirectory within the previous Java SDK's HFS, and mount the new version's HFS there; OR
3. Create a copy of the `/IBM` portion of the `/usr/lpp/java` directory tree and mount it at `/usr/lpp/java/IBM`.

We recommend the third method, as it allows independent maintenance and management of the different Java SDK versions.

Example

Suppose you have an existing copy of Java SDK 1.3.1 in an HFS data set, named WAS.V401.JAVA.HFS, mounted at /usr/lpp/java. In this case, the HFS likely contains the following directories:

```
IBM
IBM/J1.3
IBM/J1.3/* (such as bin, lib, and so on)
```

Make a copy of this HFS and mount the new HFS data set at a temporary mountpoint such as /service. Then issue the following commands to move everything under the IBM subdirectory to the top level of the new HFS data set:

```
cd /service
mv IBM/* .
```

Upon entering the command `ls -l /service`, you should see the contents of the old IBM subdirectory; the IBM subdirectory itself should now be empty. In this case, you can delete the old IBM subdirectory:

```
rm -R IBM
```

Now unmount the old HFS from /usr/lpp/java, and create a new IBM subdirectory in /usr/lpp/java:

```
mkdir /usr/lpp/java/IBM
```

Mount the new HFS at /usr/lpp/java/IBM, make sure permissions are correct, and you are done. You can now install the Java SDK 1.4.1 at its default directory location without conflicting with your old version of the Java SDK.

6.2.2 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 V5.1 elements have been provided. After RECEIVE processing, the jobs can be found in the SMPTLIB data sets. Copy the sample jobs to a work data set for editing. Each sample job contains comments with specific instructions for customization.

Figure 19 lists the sample jobs for the Java Software Development Kit component of WebSphere Application Server for z/OS V5.1.

<i>Figure 19 (Page 1 of 2). Sample Installation Jobs</i>			
Job Name	Job Type	Description	RELFILE
AJVALLOC	ALLOCATE	Sample job to allocate target and distribution libraries for Java Software Development Kit	IBM.HJVA140.F2
AJVISHFS	ALLOCATE	Sample job to allocate a new HFS data set for Java Software Development Kit	IBM.HJVA140.F2

Figure 19 (Page 2 of 2). Sample Installation Jobs

Job Name	Job Type	Description	RELFILE
AJVISMKD	MKDIR	Sample job to invoke the supplied AJVMKDIR EXEC to allocate HFS paths for Java Software Development Kit	IBM.HJVA140.F2
AJVDDDEF	DDDEF	Sample job to define SMP/E DDDEFs for Java Software Development Kit	IBM.HJVA140.F2
AJVAPP	APPLY	Sample job to apply base and maintenance	IBM.HJVA140.F2
AJVACC	ACCEPT	Sample job to accept base and maintenance	IBM.HJVA140.F2

6.2.3 Perform SMP/E RECEIVE

Receive function sysmods and service for the WebSphere Application Server for z/OS V5.1 elements by running the RCVPDO job. For more information, refer to 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 V5.1 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.

To receive the Java Software Development Kit component of WebSphere Application Server for z/OS V5.1 select FMID **HJVA140**, as well.

You can install the Java Software Development Kit component of WebSphere Application Server for z/OS V5.1 into the same SMP/E global zone as the Application Server component, or into a different SMP/E zone.

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

6.2.4 Define Target and Distribution Libraries

Customize and run the AJVALLOC sample job to define target and distribution libraries for the Java Software Development Kit component.

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.

6.2.5 Set Up HFS Directories

If you are installing the Java Software Development Kit into a new HFS, customize and run sample job AJVISHFS to allocate the new HFS.

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

Mount the new HFS at `-PathPrefix-/usr/lpp/java/J1.4`. You may need to create intermediate subdirectories, or relocate an existing Java SDK; see section 6.2.1, “Mountpoint Considerations for the Java Software Development Kit” on page 32 for more information.

Customize the sample job AJVISMKD to create the HFS target directories needed to install the Java Software Development Kit.

Important!

The AJVISMKD and AJVDDDEF 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 V5.1 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 AJVISMKD 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 AJVISMKD job for further information.

Run the customized sample job AJVISMKD under a userid that is UID(0), or has read access to the BPX.SUPERUSER resource in the RACF facility class. The userid also needs reach access to the BPX.FILEATTR.PROGCTL and BPX.FILEATTR.APF facility class resources.

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

Verify that the Java Software Development Kit HFS is mounted at `-PathPrefix-/usr/lpp/java/J1.4` or (if an existing HFS is being used) that this directory exists and includes an IBM subdirectory.

6.2.6 Define SMP/E DDDEFs

Customize and run the sample job AJVDDDEF 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.

6.2.7 Perform SMP/E APPLY

Customize and run the sample job AJVAPP to perform an SMP/E APPLY CHECK of the Java Software Development Kit base and service.

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 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.

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

6.2.8 Perform SMP/E ACCEPT

Customize and run the sample job AJVACC to perform an SMP/E ACCEPT CHECK of the Java Software Development Kit base and service.

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).

Before using SMP/E to load new distribution libraries, you should 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.

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

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.

6.3 Installing Websphere for MQ

The "reduced function" component of WebSphere Application Server for z/OS V5.1 contains support for J2EE-compliant JMS application messaging, usable only within WebSphere Application Server for z/OS. If you will not be using this function, **or** if you have a full version of WebSphere MQ Version 5.3.1 installed, you do not need to perform the steps in this section.

6.3.1 Customizing the MQ Support Installation Jobs

WebSphere Application Server for z/OS V5.1 uses elements of Websphere for MQ for z/OS to provide integrated messaging support. You can choose either a pre-existing installation of Websphere for MQ for z/OS to provide this support, or to install the Websphere for MQ for z/OS provided with WebSphere Application Server V5.1.

If you choose to install the Websphere for MQ for z/OS provided with WebSphere Application Server for z/OS V5.1, there are two methods for customizing the sample install jobs found in Figure 20.

- Batch update method - read Appendix A, "Customizing the WebSphere MQ for z/OS Installation Jobs" on page 45, and perform the steps described to customize the "CSQ8xxxx" jobs mentioned in the following sections before proceeding with the installation.
- Manual update method - when you get to Figure 20, customize the "CSQ8xxxx" jobs by following the comments in the job. You will need to add a job card.

6.3.2 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 V5.1 elements have been provided. After RECEIVE processing, the jobs can be found in the SMPMLIB data sets. Copy the sample jobs to a work data set for editing. Each sample job contains comments with specific instructions for customizat0n.

Figure 20 lists the sample jobs for the Websphere for MQ component of WebSphere Application Server for z/OS V5.1.

Job Name	Job Type	Description	RELFILE
CSQ8ALOC	ALLOCATE	Sample job to allocate target and distribution libraries for IBM WebSphere MQ for z/OS Simplified Chinese CHS	IBM.HMS5310.F2
CSQ8ALOE	ALLOCATE	Sample job to allocate target and distribution libraries for IBM WebSphere MQ for z/OS Base and IBM WebSphere MQ for z/OS US English ENU	IBM.HMS5310.F2

Figure 20 (Page 2 of 2). Sample Installation Jobs

Job Name	Job Type	Description	RELFILE
CSQ8ALOK	ALLOCATE	Sample job to allocate target and distribution libraries for IBM WebSphere MQ for z/OS Japanese JPN	IBM.HMS5310.F2
CSQ8ALOU	ALLOCATE	Sample job to allocate target and distribution libraries for IBM WebSphere MQ for z/OS Uppercase English ENP	IBM.HMS5310.F2
CSQ8JALO	ALLOCATE	Sample job to allocate libraries for MQSeries JMS feature	IBM.HMS5310.F2
CSQ8JMKJ	MKDIR	Sample job to create the HFS path forMQSeries JMS feature	IBM.HMS5310.F2
CSQ8DDDF	DDDEF	Sample job to define target and distribution libraries for MQ Series	IBM.HMS5310.F2
CSQ8JDDD	DDDEF	Sample job to define libraries for MQSeries JMS feature	IBM.HMS5310.F2
CSQ8APLY	APPLY	Sample job to apply base and maintenance	IBM.HMS5310.F2
CSQ8ACPT	ACCEPT	Sample job to accept base and maintenance	IBM.HMS5310.F2

Customizing installation jobs:

1. If required, customized version of "CSQ8xxx" jobs can be found in "THQ.TCSQINST", once the steps in Appendix A, "Customizing the WebSphere MQ for z/OS Installation Jobs" on page 45 have been completed.
2. Before running the CSQ8JMKJ job, ensure that the CSQ8JMCR exec is in the same dataset. The CSQ8MJK job expects the CSQJMCR exec to be in the same dataset during execution.
3. You will need to edit the CSQ8DDDF job and comment out the CHGPATH step, and the ADD DDDEF statements for the following DDNAMES:

HFS PATHS: SCSQOBIN, SCSQODOC, SCSQODOE, SCSQODOK, SCSQODOU, SCSQONLC, SCSQONLE, SCSQONLK, SCSQONLU, SCSQOSMP

Distribution Libraries: ACSQOBIN, ACSQODOC, ACSQODOE, ACSQODOK, ACSQODOU, ACSQONLC, ACSQONLE, ACSQONLK, ACSQONLU, ACSQOSMP

The DDDEFS belong to the Internet Gateway feature (FMID JMS5316), which is not shipped with WebSphere Application Server for z/OS V5.1.

More instructions on sample job customization are found in Appendix A, "Customizing the WebSphere MQ for z/OS Installation Jobs" on page 45.

6.3.3 Perform SMP/E RECEIVE

Receive function sysmods and service for the WebSphere Application Server for z/OS V5.1 elements by running the RCVPDO job. For more information, refer to 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 V5.1 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.

To receive the "reduced function" Websphere for MQ component of WebSphere Application Server for z/OS V5.1 select FMIDs **HMS5310**, **JMS5311**, and **JMS5318**. If additional national language support is required, select **JMS5312** (Japanese), **JMS5313**(Chinese), and/or **JMS5314** (Uppercase English), as well.

You can install the "reduced function" Websphere for MQ component of WebSphere Application Server for z/OS V5.1 into the same SMP/E global zone as the Application Server component, or into a different SMP/E zone. In the sample jobs, the data set name of the SMP/E global zone to be used is specified as **#globalsci**.

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

6.3.4 Define Target and Distribution Libraries

Run the customized CSQ8ALOE sample job to define target and distribution libraries for the Websphere for MQ component.

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

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

Run the customized sample job CSQ8JALO to allocate data sets for the WebSphere MQ JMS feature.

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

If you will be making use of National Language Support, run the appropriate customized NLS job(s): CSQ8ALOC for Chinese, CSQ8ALOK for Korean, and/or CSQ8ALOU for Uppercase English.

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

6.3.5 Set Up HFS Directories

If you are installing the "reduced function" Websphere for MQ into a new HFS, allocate the HFS (minimum of 20 cylinders of 3390 DASD space, or equivalent) and mount it at -PathPrefix-/usr/lpp/mqm/V5R3M1. You may need to create intermediate subdirectories.

Run the customized sample job CSQ8JMKJ to create the HFS target directories needed to install the Websphere for MQ Java Support subdirectory.

The customized sample job CSQ8JMKJ must be run under a userid that is UID(0), or has read access to the BPX.SUPERUSER resource in the RACF facility class. The userid also needs read access to the BPX.FILEATTR.PROGCTL and BPX.FILEATTR.APF facility class resources.

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

Verify the Websphere for MQ Java Support HFS is mounted at -PathPrefix-/usr/lpp/mqm/V5R3M1.

6.3.6 Define SMP/E DDDEFs

Run the customized sample job CSQ8DDDF to create SMP/E DDDEFs for target and distribution data sets and directories. Make sure the call library DDDEFs point to the corresponding data sets for your z/OS target system. See 6.1.2, "SMP/E CALLLIBS Processing" on page 26 for more information. **If you are installing into the same SMP/E target zones as the Application Server component, remove from the CSQ8DDDF job any DDDEFs that have already been created by BBODDDEF.**

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

Run the customized sample job CSQ8JDDD to create SMP/E DDDEFs for WebSphere MQ Java Support 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.

6.3.7 Perform SMP/E APPLY

Run the customized sample job CSQ8APLY to perform an SMP/E APPLY CHECK of the "reduced function" Websphere for MQ base and service.

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 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.

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

6.3.8 Perform SMP/E ACCEPT

Run the customized sample job CSQ8ACPT to perform an SMP/E ACCEPT CHECK of the "reduced function" Websphere for MQ base and service.

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).

Before using SMP/E to load new distribution libraries, you should 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.

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

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.

6.4 Activating WebSphere Application Server for z/OS V5.1

WebSphere Application Server for z/OS V5.1 must be configured once SMP/E installation is complete. See *WebSphere Application Server for z/OS Version 5.1: Getting Started*, GA22-7957 for more information. This book, along with further information from the WebSphere InfoCenter, can be found at: http://www.ibm.com/software/webservers/appserv/zos_os390/library.

6.4.1 Migrating from Previous Releases of WebSphere Application Server

For migration information, see the WebSphere Application Server for z/OS InfoCenter, which is accessible via the library Web site http://www.ibm.com/software/webservers/appserv/zos_os390/library.html.

6.4.2 Mount the HFS Data Sets 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 24, for assistance in selecting these 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('your.java.hfs') MOUNTPOINT('/usr/lpp/java/J1.4') TYPE(HFS) MODE(READ)
MOUNT FILESYSTEM('hlq.SBBOHFS') MOUNTPOINT('/usr/lpp/zWebSphere/V5R1M0') TYPE(HFS) MODE(READ)
MOUNT FILESYSTEM('your.mqjms.hfs') MOUNTPOINT('/usr/lpp/mqm/V5R3M1') TYPE(HFS) MODE(READ)
```

You will probably want to add these mounts to your BPXPRMxx members in parmlib to ensure that these data sets are always mounted. When, at a later date, you need to perform service on the WebSphere Application Server for z/OS V5.1 product:

- Temporarily unmount the HFS data sets.
- Mount 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 mountpoint.
- Remount them at the production mountpoints.

6.4.3 Activating Application Server

WebSphere Application Server for z/OS Version 5.1: Getting Started, GA22-7957 contains the step-by-step procedures to activate the functions of Application Server.

6.4.4 Activating Java Software Development Kit

There are no further actions required to activate Java Software Development Kit other than the actions documented in this program directory.

6.4.4.1 Update the Environment Path

Java Software Development Kit is invoked as a command under the UNIX System Services shell. The path environment variable must be updated to point to the Java executables so that the command will be found. This can be done with the following shell command:


```
export PATH=/usr/lpp/java/J1.4/bin:$PATH
```

The export command references the default path into which Java Software Development Kit was installed. If you changed the default path, change the export command accordingly.

Alternatively, you can add the Java Software Development Kit path to the system path variable contained in `/etc/profile`.

Java SDK 1.4.1 is not entirely compatible with previous versions of the Java SDK. If you already have a Java SDK in your default system path, you may not wish to make Java SDK 1.4.1 the default, at least initially. See 5.4, “Special Considerations” on page 22 for pointers to Java product migration information.

Once the path environment variable has been set, you can enter the following shell commands:

```
java
```

```
java -version
```

Java Software Development Kit is successfully installed if the `java` command responds with a summary of available options, and the `version` option responds with the current version of the Java Software Development Kit code.

6.4.5 Activating WebSphere MQ for z/OS

The "reduced function" WebSphere for z/OS shipped with WebSphere Application Server for z/OS V5.1 is customized and activated as part of WebSphere base application server setup. See *WebSphere Application Server for z/OS Version 5.1: Getting Started*, GA22-7957 for more information.

Appendix A. Customizing the WebSphere MQ for z/OS Installation Jobs

The following sections lead you through customizing the WebSphere MQ for z/OS installation jobs which have names like CSQ8xxxx.

The process is to:

- Choose values for data set names appropriate for your site's standards.
- Copy the unmodified sample jobs into **dhq.UCSQINST**.
- Edit **dhq.UCSQINST** member CSQ8SYSW, the global customization job, filling in the values you have chosen.
- Submit CSQ8SYSW, which will perform the customizing of all the other CSQ8xxxx jobs you will need to complete your installation of WebSphere MQ for z/OS, placing the customized sample jobs into **thq.TCSQINST**.
- Inspect customized sample jobs in your **thq.TCSQINST** data set and use them to install WebSphere for z/OS.

A.1.1 Choosing values

A.1.1.1 High-level qualifiers

Use Figure 21 to plan the high-level qualifiers for the WebSphere MQ for z/OS data sets.

Figure 21 (Page 1 of 2). High-level qualifiers for data set names

Parameter name in the sample JCL provided	Default value	Assigned value	Description
CSSQUAL	SYS1		High-level qualifiers for the OS/390 callable service library CSSLIB
DHLQUAL	MQ.DLIB		High-level qualifiers for the WebSphere MQ for z/OS distribution data sets
DHQ	DHQ		High-level qualifiers for the UCSQINST data set into which the installation JCL will be loaded from tape
LEQUAL	PP.ADLE370		High-level qualifiers for the Language Environment target libraries

Figure 21 (Page 2 of 2). High-level qualifiers for data set names

Parameter name in the sample JCL provided	Default value	Assigned value	Description
MACQUAL	SYS1		High-level qualifier for the SYS1.MACLIB library This library is referenced during definition of the SMP/E global zone to initialize the VSAM CLUSTER as an SMP/E CSI.
PATHPREFIX	/usr/lpp/mqm/V5R3M1		Install path for the IBM WebSphere MQ for z/OS Java Support
SHLQUAL	MQ.SMPE		High-level qualifiers for the new SMP/E data sets that you are going to use to install WebSphere MQ for z/OS If you are going to install into existing data sets, this name is already defined.
TCPQUAL	PP.TCPIP		High-level qualifiers for the IBM TCP/IP target libraries
SSLPREFIX			Any prefix required on the driver system for the /usr/lpp/gskssl directory Installation will use /SSLPREFIX/usr/lpp/gskssl.
THFSPATH			Not required
THLQUAL	MQ.TLIB		High-level qualifiers for the WebSphere MQ for z/OS target data sets
THQ	THQ		High-level qualifiers for the TCSQINST data set into which the customized installation JCL will be placed
Note: If required, DHQ can be the same as DHLQUAL, and THQ can be the same as THLQUAL.			

If these high-level qualifiers do not already exist, you must define them to RACF, or any other security product you are using, and have ALIAS definitions in the master catalog.

The TSO userid used to install or service WebSphere MQ for z/OS requires RACF ALTER access to these high-level qualifiers. See the *WebSphere MQ for z/OS System Setup Guide* (Figure 4 on page 5) for details of the security authorization required for running WebSphere MQ for z/OS.

If you are going to use the Spool Display and Search Facility (SDSF) to look at the output from the installation jobs, you must have authorization to use the prefix CSQ8* to view them, or you must customize

the names of the jobs to use a prefix to which you are authorized. This can be done using the JCPREF option in CSQ8SYSJ as described in A.1.3, “Customize the sample installation JCL” on page 49.

A.1.1.2 Volume and unit names

Plan the volume and unit names shown in Figure 22. These are used by the supplied sample JCL during the installation of WebSphere MQ for z/OS. You must decide where you are going to install the product, taking into account the space requirements (see Figure 16 on page 20 and Figure 14 on page 17), and how frequently the data sets are going to be accessed.

<i>Figure 22. Volume and unit names</i>			
Parameter Name in the Sample Jobs	Values Required	Value Specified	Description
SMPVOL	VOLSER and unit type		SMP/E data set volume if installing into new SMP/E data sets Also used for temporary libraries
TARVOL	VOLSER		WebSphere MQ for z/OS target data set volume
DISVOL	VOLSER		WebSphere MQ for z/OS distribution data set volume
DISKUNIT	Unit type		Type of disk unit for target and distribution data set volumes
TAPEUNIT	Tape unit type		Unit type of the tape drive used to read the WebSphere MQ for z/OS tapes
Notes:			
<ol style="list-style-type: none"> 1. You can use esoteric values such as SYSDA or SYSALLDA for the unit type of TARVOL and DISVOL by substituting a period (.) for the VOLSER in the customization step in section A.1.3, “Customize the sample installation JCL” on page 49. 2. SMPVOL must have both the VOLSER and the unit type specified. 			

A.1.1.3 SMP/E Environment

You must also decide whether to install WebSphere MQ for z/OS into a new or existing SMP/E environment. Remember that installing a new release of WebSphere MQ for z/OS into the same SMP/E zones as an existing release will cause the earlier level to be deleted from both the SMP/E zones and the existing release data sets.

If you are going to install into the same SMP/E zones, then to preserve your current release while you install and test the new release, you should copy the existing release data sets into data sets with different names. Do not rename or delete the current data sets because they need to be available to SMP/E for delete processing during the installation of the new release. If they are not available, the APPLY and ACCEPT steps will fail with a return code of 12. After running a successful ACCEPT of the WebSphere MQ for z/OS products, the previous release data sets are no longer required and can be deleted when testing of the new release has been completed.

If you use existing SMP/E data sets, you need to know the names of your target zone and distribution zone, and the data set name of your global CSI.

You must also decide upon the names for the SMP/E zones.

<i>Figure 23. Target and distribution zone names</i>			
Parameter Name in the Sample Jobs	Default Value	Assigned Value	Description
DZNAME	DZONE		The name of your distribution zone
GZONECSI	NEW		The data set name of your global zone CSI
LETZN	LETZN		The name of the target zone in which Language Environment is installed
OS390TZN	OS390TZN		The name of the target zone in which OS/390 callable services are installed
TCPTZN	TCPTZN		The name of the target zone in which IBM TCP/IP is installed.
TZNAME	TZONE		The name of your target zone
Note: If you are using the LINK command, and Language Environment, IBM TCP/IP, and OS/390 callable services are installed in the same SMP/E target zone, LETZN, TCPTZN, and OS390TZN must all be set to the same value.			

A.1.1.4 HFS

The WebSphere MQ for z/OS installs into the HFS in Unix System Services. By default, code is installed under the path /usr/lpp/mqm/V5R3M1.

If you choose to change this default behavior, then modify the **PATHPREFIX** value in CSQ8SYSW.

<i>Figure 24. Path for WebSphere MQ for z/OS</i>		
Default value	Assigned Value	Description
/usr/lpp/mqm/V5R3M1		The path for WebSphere MQ for z/OS

A.1.2 Create the installation JCL

This section describes how to customize the **CSQ8xxxx** jobs for your environment.

A.1.2.1 Copy the sample installation JCL

Copy the installation jobs from the SMPTLIB into a work data set, **dhq.UCSQINST**, by submitting the job below:

1. Type in the following JCL, substituting the values you have chosen for **dhq**, **filevol** and **dasdvol** into the JCL, and adding job statement information if required. **IBM** is the high-level qualifier specified as the DSPREFIX value in the SMPTLIB DDDEF or the OPTIONS entry of the global zone.

```
//OFFTAPE JOB
//TALLOD EXEC PGM=IEBCOPY,REGION=1024K
//SYSPRINT DD SYSOUT=*
//IN      DD DSN=IBM.HMS5310.F2,
//        UNIT=SYSALLDA,
//        VOL=SER=filevol,
//        DISP=OLD
//OUT     DD DSN=dhq.UCSQINST,
//        DCB=(LRECL=80,RECFM=FB,BLKSIZE=8800),
//        SPACE=(CYL,(1,1,20)),
//        VOL=SER=dasdvol,UNIT=SYSALLDA,
//        DISP=(NEW,CATLG)
//SYSUT3  DD SPACE=(TRK,(5)),UNIT=SYSALLDA
//SYSUT4  DD SPACE=(TRK,(5)),UNIT=SYSALLDA
//SYSIN   DD *
        COPY INDD=IN,OUTDD=OUT
/*
//
```

2. Run the above job to copy the samples. The job should finish with a return code of 0.

If the return code is not 0, check the job output carefully to ensure that the sample jobs have been copied correctly. If the sample jobs have not been copied correctly, correct any errors found, and re-submit the job.

You have now copied all the sample jobs into the data set **dhq.UCSQINST**.

The next step is to customize the sample jobs for your system.

A.1.3 Customize the sample installation JCL

To customize the sample installation JCL, use the customization job CSQ8SYSW provided with WebSphere MQ for z/OS.

"Reduced Function" form

You are installing a "reduced function" form of the WebSphere MQ supplied as part of a WebSphere Application Server, so you will need to edit the customization job CSQ8SYSW.

CSQ8SYSW is set up to customize only those jobs required for the installation of a "reduced function" form of WebSphere MQ.

If you use CSQ8SYSW, you can customize the sample jobs by adding the names you chose in section A.1.1.1, "High-level qualifiers" on page 45, to CSQ8SYSW in **dhq.UCSQINST** and running this job.

We recommend that you customize all the installation jobs together, although you might not need some of them until later.

CSQ8SYSW calls a CLIST to copy and edit the sample jobs from **dhq.UCSQINST** to **thq.TCSQINST**. If **thq.TCSQINST** does not exist, it is created by CSQ8SYSW. Full instructions for modifying CSQ8SYSW are included in its comments. Where selections are to be made, this is usually done by removing the leading asterisk.

The following rules apply when updating CSQ8SYSW:

- Enter values in the correct case (uppercase for everything except SLLPREFIX, THFSPATH, and PATHPREFIX, which can contain lowercase letters).
- The keywords in the JCL can appear in any order and start in any column, as long as they are the first non-blank characters on a line and are within columns 1 through 72.
- If you place a non-blank character before a keyword, the line is treated as a comment. Use an asterisk as the non-blank character to avoid accidentally forming a valid keyword.
- Do not delete lines in CSQ8SYSW because you might need them in the future. If they do not apply, comment them out by placing an asterisk at the beginning of the unwanted lines.

Use your usual editor to update CSQ8SYSW in **dhq.UCSQINST** as follows:

1. Change the job statement at the top of CSQ8SYSW to match the requirements of your enterprise. If you need to code a 'TIME=' parameter on your JCL, a value of 10 minutes CPU time is enough to run CSQ8SYSW.
2. Customize the JCL statements in Section 2 of CSQ8SYSW with the names you have chosen for DHQ and THQ. Replace the variable DHQ for the SYSPROC and MINPUT lines, and the variable THQ for the MOUTPUT line.
3. Select the features you want (none of the features are mutually exclusive):
 - a. Because you are installing a "reduced function" form of WebSphere MQ, some features are not available for installation and the leading asterisk should not be removed from the corresponding feature in CSQ8SYSW.
 - b. The base, U.S. English (mixed case), and JMS Java Support FMIDS must always be installed; do **not** change this.

The following tokens are used in CSQ8SYSW:

MQM

Base product

MQMNL US ENGLISH

U.S. English (mixed case) language feature

MQMNL JAPANESE

Optional Japanese language feature

MQMNL SIMPLIFIED CHINESE

Optional simplified Chinese language feature

MQMNL UPPERCASE ENGLISH

Optional U.S. English (uppercase) language feature

JMS Java Support

WebSphere MQ for z/OS

4. Choose which sample jobs you want to customize. CSQ8SYSW is supplied with only those jobs selected which are appropriate for the features supplied with WebSphere Application Server.

You can change this default behavior, if required, by 'commenting out' the select statements with an asterisk in column 1.

5. Provide job statement information for the sample jobs. You must leave the characters

```
JOB //XXXXXXXX JOB
```

intact and insert your parameters after the second 'JOB' on this line. If your enterprise does not require any additional information on the job statement, you must still leave this line intact. You can also add lines such as /*ROUTE or /*JOBPARM by using the JOB keyword.

You can enter more than one line for your JOB statement. Begin each line with the keyword JOB, followed by at least one blank, and type the text as you would expect to see it in the resulting JCL, including all punctuation such as start of line '/' and end of line commas.

If your enterprise needs a 'TIME=' parameter, you must specify a value large enough to run the SMP/E APPLY step. This can take up to 120 minutes for WebSphere MQ for z/OS.

Below is an example of a JOB statement with some additional information:

```
JOB //XXXXXXXX JOB (ACCOUNT),CLASS=A,MSGLEVEL=(1,1)
```

The following lines show a case where there is so much information added that a continuation statement has been created:

```
JOB //XXXXXXXX JOB (ACCOUNT),CLASS=A,MSGLEVEL=(1,1),
JOB // USER=USERID,NOTIFY=USERID
```

6. You can change the default value of the prefix, 'CSQ8', next to the 'JCPREF' keyword. If you change it to a value that is one to four characters long, the prefix will be concatenated with the last four characters of the JCL member name to form the job name. If you change the prefix to a value that is five to eight characters long, the prefix alone will form the job name.
7. Type the values you have chosen for the WebSphere MQ product high-level qualifiers, where they are different from the defaults.
8. Type the values you have chosen for your system high-level qualifiers, where they are different from the defaults.
9. Type the values you have chosen for your volume serial numbers and unit types, where they are different from the defaults.

To let the system choose the volumes for the target and distribution libraries (TARVOL and DISVOL), change 'VOLSER' to a '!'. (Quotes should not be used in the JCL.) The SMP/E volume and unit type must be changed to an existing volume name and its actual unit type.

10. Type the SMP/E zone names you have chosen if they are different from the defaults. If you use your existing SMP/E data sets, you must customize the names of your target zone, distribution zone, and global CSI data set.

If you intend to let WebSphere MQ for z/OS create a new SMP/E environment, leave the SMP/E information as it is.

Specifying NEW for GZONECSI means that the customization step will add the name SHLQUAL.GLOBAL.CSI for the global zone CSI. If you wish to use a different global zone CSI, you must specify the fully qualified name for GZONECSI.

11. Type the HFS install path for the WebSphere MQ for z/OS, if it is different from the default.
12. Run CSQ8SYSW to customize the jobs in **dhq.UCSQINST**, placing the customized jobs into **thq.TCSQINST**. The job should finish with a return code of 0.

If the return code is not 0, inspect the output to discover what caused the problem. CSQ8SYSW can be run again when the error has been corrected, but running it many times might cause the output data set **thq.TCSQINST** to need compressing.

13. Job customization is now complete. Continue Websphere for MQ installation at 6.3.4, "Define Target and Distribution Libraries" on page 39, using the customized sample jobs in **thq.TCSQINST**.

Notes:

1. The customization process may cause some JCL and data to extend beyond column 71. This may result in truncation of data in some pages, especially if a user-selected value such as an HFS path or data set name is much longer than the default. All customized jobs should be inspected before they are run.

Appendix B. Notices

References in this document to IBM products, programs, or services do not imply that IBM intends to make these available in all countries in which IBM operates. Any reference to an IBM product, program, or service is not intended to state or imply that only IBM's product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe on any of IBM's intellectual property rights may be used instead of the IBM product, program, or service. Evaluation and verification of operation in conjunction with other products, except those expressly designated by IBM, is the user's responsibility.

APAR numbers are provided in this document to assist in locating PTFs that may be required. Ongoing problem reporting may result in additional APARs being created. Therefore, the APAR lists in this document may not be complete. To obtain current service recommendations and to identify current product service requirements, always contact the IBM Customer Support Center or use S/390 SoftwareXcel to obtain the current "PSP Bucket".

IBM may have patents or pending patent applications covering subject matter in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to the

IBM Director of Licensing
IBM Corporation
North Castle Drive
Armonk, New York 10504-1785
USA

For online versions of this book, we authorize you to:

- Copy, modify, and print the documentation contained on the media, for use within your enterprise, provided you reproduce the copyright notice, all warning statements, and other required statements on each copy or partial copy.
- Transfer the original unaltered copy of the documentation when you transfer the related IBM product (which may be either machines you own, or programs, if the program's license terms permit a transfer). You must, at the same time, destroy all other copies of the documentation.

You are responsible for payment of any taxes, including personal property taxes, resulting from this authorization.

THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Some jurisdictions do not allow the exclusion of implied warranties, so the above exclusion may not apply to you.

Your failure to comply with the terms above terminates this authorization. Upon termination, you must destroy your machine readable documentation.

B.1 Trademarks

The following terms are trademarks of the IBM Corporation in the United States or other countries or both:

CBPDO	OS/390	VTAM
DB2	RACF	WebSphere
IBM	RETAIN	z/OS
IBMLink	S/390	z/VM
Language Environment	SP	z/Architecture
MQSeries	SystemPac	zSeries
MVS/ESA		

The following terms are trademarks of other companies as follows:

JAVA	Java and all Java-based trademarks and logos are trademarks or registered trademarks of Sun Microsystems, Inc. in the United States and/or other countries.
UNIX	UNIX is a registered trademark of The Open Group in the United States and other countries.

Reader's Comments

Program Directory for WebSphere Application Server for z/OS V5.1, May 28, 2004

You may use this form to comment about this document, its organization, or subject matter with the understanding that IBM may use or distribute whatever information you supply in any way it believes appropriate without incurring any obligation to you.

For each of the topics below please indicate your satisfaction level by circling your choice from the rating scale. If a statement does not apply, please circle N.

RATING SCALE						
very satisfied	<----->				very dissatisfied	not applicable
1	2	3	4	5	N	

	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

International Business Machines Corporation
Department 55JA, Mail Station P384
2455 South Road
Poughkeepsie, NY 12601-5400
United States of America

FAX Number: (United States & Canada) 1+845+432+9405
FAX Number: (Other Countries):
Your International Access Code +1+845+432+9405

Internet e-mail: wasdoc@us.ibm.com

Communicating Your Comments to IBM

WebSphere Application Server for z/OS V5.1 Version 5 Release 1 Modification 0
z/OS V1.2 or higher

Service Updated

Publication No. GI11-2825-03

If you especially like or dislike anything about this book, please use one of the methods listed below to send your comments to IBM. Whichever method you choose, make sure you send your name, address, and telephone number if you would like a reply.

Feel free to comment on specific errors or omissions, accuracy, organization, subject matter, or completeness of this book. However, the comments you send should pertain to only the information in this manual and the way in which the information is presented. To request additional publications, or to ask questions or make comments about the functions of IBM products or systems, you should talk to your IBM representative or to your IBM authorized remarketer.

When you send comments to IBM, you grant IBM a nonexclusive right to use or distribute your comments in any way it believes appropriate without incurring any obligation to you.

If you are mailing a reader's comment form (RCF) from a country other than the United States, you can give the RCF to the local IBM branch office or IBM representative for postage-paid mailing.

- If you prefer to send comments by mail, use the RCF at the back of this book.
- If you prefer to send comments by FAX, use this number:
 - FAX: (International Access Code)+1+845+432-9405
- If you prefer to send comments electronically, use the following e-mail address:
 - mhvrcfs@us.ibm.com

Make sure to include the following in your note:

- Title and publication number of this book
- Page number or topic to which your comment applies

Optionally, if you include your telephone number, we will be able to respond to your comments by phone.

Reader's Comments — We'd Like to Hear from You

**WebSphere Application Server for z/OS V5.1 Version 5 Release 1 Modification 0
z/OS V1.2 or higher**

Service Updated

Publication No. GI11-2825-03

You may use this form to communicate your comments about this publication, its organization, or subject matter, with the understanding that IBM may use or distribute whatever information you supply in any way it believes appropriate without incurring any obligation to you. Your comments will be sent to the author's department for whatever review and action, if any, are deemed appropriate.

Note: Copies of IBM publications are not stocked at the location to which this form is addressed. Please direct any requests for copies of publications, or for assistance in using your IBM system, to your IBM representative or to the IBM branch office serving your locality.

Today's date: _____

What is your occupation?

Newsletter number of latest Technical Newsletter (if any) concerning this publication:

How did you use this publication?

- | | | | |
|--------------------------|-------------------------------|--------------------------|------------------------|
| <input type="checkbox"/> | As an introduction | <input type="checkbox"/> | As a text (student) |
| <input type="checkbox"/> | As a reference manual | <input type="checkbox"/> | As a text (instructor) |
| <input type="checkbox"/> | For another purpose (explain) | | |

Is there anything you especially like or dislike about the organization, presentation, or writing in this manual? Helpful comments include general usefulness of the book; possible additions, deletions, and clarifications; specific errors and omissions.

Page Number:

Comment:

Name

Address

Company or Organization

Phone No.

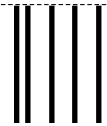


Cut or Fold
Along Line

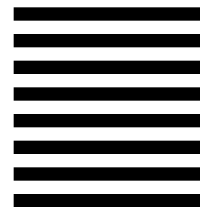
Fold and Tape

Please do not staple

Fold and Tape



NO POSTAGE
NECESSARY
IF MAILED IN THE
UNITED STATES



BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO. 40 ARMONK, NEW YORK

POSTAGE WILL BE PAID BY ADDRESSEE

IBM Corporation
Department 55JA, Mail Station P384
2455 South Road
Poughkeepsie, NY 12601-5400



Fold and Tape

Please do not staple

Fold and Tape

Cut or Fold
Along Line



Printed in U.S.A.

G111-2825-03

