

Installation Overview

IBM WebSphere Application Server Version 6.0

This document describes the WebSphere Application Server Version 6.0 (WAS 6.0) CDs you have received from SAS and the general workflow for using them on your mid-tier for the SAS 9.1.3 platform.

This document is not intended to be a detailed WAS reference source, but should contain enough information to get you started. This document is not a problem diagnosis guide. For that purpose, you should consult a WAS administrator who has in-depth knowledge of WebSphere and the mid-tier environment.

Currently, SAS 9.1.3 supports three WebSphere platforms: Windows, AIX, and Solaris.

CDs in Package

Windows

If you plan to run your mid-tier on Windows, you should have received these two CDs:

1. **WebSphere Application Server Network Deployment (Windows) Version 6.0** – referred to as *WAS Base* and *WAS ND*, a fully functional J2EE 1.4 certified application server. This CD contains WAS Base and WAS ND, the IBM HTTP Server powered by Apache Version 6.0 – referred to as *IHS*, a suitable JDK to run the WAS `launchpad.bat` installer, Application Client for WebSphere Application Client Version 6 – typically used to create clients for accessing Enterprise Java Bean (EJB) programs running on WAS, and Web server plugins for WebSphere Application Server Version 6 – used to install the web server plugins that operate with WAS.
2. **WebSphere Edge Components and IBM HTTP Server for Windows Version 6.0** – referred to as *Edge Components* and extends WAS ND by providing Load Balancer and Caching Proxy components. In addition, IHS 6.0 and the Web server plugins for WebSphere Application Server Version 6 are included again.

AIX

If you plan to run your mid-tier on AIX, you should have received these two CDs:

1. **WebSphere Application Server Network Deployment (AIX) Version 6.0** – referred to as *WAS Base* and *WAS ND*, a fully functional J2EE 1.4 certified application server. This CD contains WAS Base and WAS ND, the IBM HTTP Server powered by Apache Version 6.0 – referred to as *IHS*, a suitable JDK to run the WAS `launchpad.sh` installer, Application Client for WebSphere Application Client Version 6 – typically used to create clients for accessing Enterprise Java Bean (EJB) programs running on WAS, and Web server plugins for WebSphere Application Server Version 6 – used to install the web server plugins that operate with WAS.

2. **WebSphere Edge Components and IBM HTTP Server for AIX Version 6.0** – referred to as *Edge Components* and extends WAS ND by providing Load Balancer and Caching Proxy components. In addition, IHS 6.0 and the Web server plugins for WebSphere Application Server Version 6 are included again.

Solaris

If you will be running your mid-tier on Solaris, you should have received these two CDs:

1. **WebSphere Application Server Network Deployment (Solaris) Version 6.0** – referred to as *WAS Base* and *WAS ND*, a fully functional J2EE 1.4 certified application server. This CD contains WAS Base and WAS ND, the IBM HTTP Server powered by Apache Version 6.0 – referred to as *IHS*, a suitable JDK to run the WAS `launchpad.sh` installer, Application Client for WebSphere Application Client Version 6 – typically used to create clients for accessing Enterprise Java Bean (EJB) programs running on WAS, and Web server plugins for WebSphere Application Server Version 6 – used to install the web server plugins that operate with WAS.
2. **WebSphere Edge Components and IBM HTTP Server for Solaris Version 6.0** – referred to as *Edge Components* and extends WAS ND by providing Load Balancer and Caching Proxy components. In addition, IHS 6.0 and the Web server plugins for WebSphere Application Server Version 6 are included again.

What Should You Install?

At a minimum, WAS Base (which runs the supported SAS applications) must be installed. WAS Base includes the default messaging provider to provide messaging support. This feature will probably be used, unless you already have the external IBM WebSphere MQ product.

The provided web server, IHS 6.0, is not required because the application server can be directly accessed using its internal HTTP server port. Typically in production environments, application servers are front-ended by web servers. This configuration permits the use of firewalls, DMZs, load balancing, caching, off-loading the serving of static content, etc. In this case, the web server requires a WAS plugin to communicate with the WebSphere Application Server. WAS provides the capability to generate plug-ins for multiple HTTP web server products, e.g., IHS, Microsoft IIS and Apache.

WAS ND is optional but it does provide added functionality—management of multiple application servers from a single administrative console and support for clustering and scalability. The management functionality may be exploited immediately, but the concepts of cells, nodes, and servers must be understood to take full advantage of the clustering and scalability capabilities of WAS ND. These more complicated environments require greater expertise to build, trouble-shoot and maintain.

The Edge Components are optional and work in conjunction with WAS ND to provide scalability. Again, someone with expertise in these areas is needed to fully utilize the features of these products.

Some SAS program clients are dependent on the WAS Application Client. Installation instructions for SAS clients will indicate this dependency. Please note that the WAS Application Client should be installed on the Windows machine where the client will run rather than on the mid-tier application server.

IHS is optional and can be installed at any time. If desired, more recent versions of IHS than the one bundled on the WAS ND CD are available from IBM. Check the IBM IHS home page for details:

<http://www.ibm.com/software/webservers/httpservers/>

Note: *The WAS 6.0 product must be brought to maintenance levels on which SAS applications have been formally tested. Therefore, IBM WAS Fix Packs must be applied. Instructions for installation of these Fix Packs can be found here:*

<http://support.sas.com/documentation/configuration/thirdpartysupport/v913sp4/thirdparty913sp4.html#Websphere6Fixes>

Before You Install

There are a few items you need to be aware of before you install WAS.

System Requirements

Insure your mid-tier hardware and software meet minimum system requirements for WAS. See <http://www.ibm.com/software/webservers/appserv/was/requirements/>

Follow the links for the detailed software and hardware requirements and choose those under "Version 6.0 Application Server."

IBM WebSphere Application Server information

There are many good IBM WebSphere Application Server information links available. Here are the most important ones:

- The WebSphere Application Server Version 6.0 Information Center refers to many good online sources for WAS. It is located at:
<http://publib.boulder.ibm.com/infocenter/wasinfo/v6r0/index.jsp>
- The WebSphere Application Server Version 6.0 Library can be found at:
<http://www.ibm.com/software/webservers/appserv/was/library/library60.html>
- *The WebSphere Application Server V6 System Management & Configuration Handbook* describes how to configure a WebSphere Application Server V6 runtime environment, to package and deploy Web applications, and to perform ongoing management of the WebSphere environment. The handbook can be found at:
<http://publib-b.boulder.ibm.com/abstracts/sg246451.html?Open>

Platform-Specific Instructions

Before you attempt to install WAS, it is important to read the platform-specific instructions, especially when installing on UNIX platforms. You can find platform-specific sections in the WAS Information Center listed above. Here are pre-installation information links for the three supported platforms:

- The Windows section can be found at:
http://publib.boulder.ibm.com/infocenter/wasinfo/v6r0/index.jsp?topic=/com.ibm.websphere.base.doc/info/aes/ae/tins_winsetup.html
- The AIX section can be found at:
http://publib.boulder.ibm.com/infocenter/wasinfo/v6r0/index.jsp?topic=/com.ibm.websphere.base.doc/info/aes/ae/tins_instbaseaix.html
- The Solaris section can be found at:
http://publib.boulder.ibm.com/infocenter/wasinfo/v6r0/index.jsp?topic=/com.ibm.websphere.base.doc/info/aes/ae/tins_instbasesol.html

As mentioned above, refer to the *WebSphere Application Server V6 System Management & Configuration Handbook* for complete planning, configuration, deployment, and management of your WAS installation. The general outline for this work flow is as follows:

1. **UNIX only:** To make use of the default messaging provider feature in WAS, refer to the *WebSphere Application Server V6 System Management & Configuration Handbook* found at: <http://publib-b.boulder.ibm.com/abstracts/sg246451.html>
2. Start the Installation Wizard by invoking `launchpad.bat` for Windows or `launchpad.sh` for UNIX and select **Launch the installation wizard for the WebSphere Application Server Network Deployment**.

3. The wizard will check your system for prerequisites. If the requirements are met, the wizard will continue with the installation, requesting the installation location and giving you the opportunity to select names for entities such as hostname, nodes, servers, etc. Typically, default entity names are provided, but can be overridden as desired.
4. **Windows only:** You are asked if you want to install the WebSphere Application Server as a service, which is the preferred method. To do so, you will need to be logged into your machine as a local user, not as a network user. That user must also be an administrator.
5. At the end of the installation process, a window indicates “Installation is complete.” For your WAS 6.0 installation to be functional, an application profile must be created. The Profile creation wizard is used to create an application profile, which is required before you begin the Post-Installation Steps below. To proceed, keep the **Launch the Profile creation wizard** option checked and click **finish**.
6. The Profile creation wizard executes. For most window dialogues, you can click **Next** to accept the default names, ports, and directories for the creation of the application profile.
7. When the Profile creation process is complete, proceed to the “Post-Installation Steps” below. In this section, users verify their installation, insure functionality of the Administrative Console, and apply the WAS 6.0 maintenance required to support the SAS products.

Post-Installation Steps

These steps will verify that your WAS installation was successful.

1. Click **Start the server**. If the server has been installed correctly, after a few moments you should see a message similar to the following:

```
Server server1 open for e-business; process id is nnnn.
```
2. Click **Installation Verification**. You should begin to see a series of verification messages, followed by the message

```
Installation Verification is Complete
```
3. Click **Administrative Console**. You will be prompted for a user ID. No ID is actually required, so click **OK**. The WebSphere Administrative Console window will open.
4. In the left-hand pane, a list of items is displayed. Expand **Servers**.
5. Click **Application Servers**. The server should be displayed in the right-hand pane; you will see *server1* listed.
6. Click **Logout** to exit the Administrative Console.
7. After you know that you have a functioning Web Application Server, you should apply the applicable IBM Fix Packs to bring WAS, WAS ND, and the WebSphere Application Client up to the supported service level required for SAS 9.1.3. For instructions, refer to the `readme.txt` on the applicable fix pack.
8. For details about the required fix packs for WAS 6.0 under the “Required WebSphere 6.0 Fixes” heading, please refer to the “Third Party Software for SAS® 9.1.3 Foundation with Service Pack 4” support page at <http://support.sas.com/documentation/configuration/thirdpartysupport/v913sp4/thirdparty913sp4.html#appsrv>

Some General WAS Information

This section contains basic directories and commands for the WAS Base product. The information is from a Windows perspective but can be applied to UNIX accordingly. The section refers to `WAS_HOME`, which is the directory where the application server is installed. On Windows, the default location of `WAS_HOME` is `C:\Program Files\WebSphere\AppServer`.

- On Windows, navigate through **Start**→**Programs**→**IBM WebSphere**→**WAS V6.0 App Server Nodes**→**Profiles**→**AppSrv01** to stop and start the server.
- The default port that the application server listens on is 9080.
- Browse to `http://hostname:9060/ibm/console/` to display the WAS administrative console.
- `C:\WAS_HOME\logs\server1` is where the server logs reside. The main log is `SystemOut.log` but if there are errors, you may want to check `SystemErr.log`. These logs will grow so it is a good practice to delete these on occasion.
- `C:\WAS_HOME\properties` contains WAS property files.
- `C:\WAS_HOME\config` contains many of the configuration files for cells, nodes, servers, and applications.
- `C:\WAS_HOME\bin` is where the WAS commands reside; for Windows they are `.bat` files and for UNIX they are `.sh` files. Below are some of the more common commands you might execute. In these examples, substitute `sh` for `bat` to execute the commands on UNIX. For any command, you can provide the `-h` option to display a short help usage statement.

- | | |
|--|---|
| o <code>startServer.bat server1</code> | starts the server1 application server |
| o <code>stopServer.bat server1</code> | stops the server1 application server |
| o <code>serverStatus.bat -all</code> | shows you the state of your servers |
| o <code>backupConfig.bat</code> | backs up the node configuration to a zip archive file |
| o <code>restoreConfig.bat backup_file</code> | restores the node configuration to the <code>WAS_HOME/config</code> directory structure |

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