

For Review Purposes Only

Sun GlassFish Enterprise Server v3 Upgrade Guide



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Preface

This guide explains how to upgrade Java™ EE applications from Sun Java System Application Server 9.1 Update 2 (Developer Profile), Sun GlassFish Enterprise Server v2 Update 2 (Developer Profile), Sun GlassFish Enterprise Server v2.1 (Developer Profile), and Sun GlassFish Enterprise Server v3 Prelude to Sun GlassFish Enterprise Server v3.

Enterprise Server v3 is developed through the GlassFish™ project open-source community at <https://glassfish.dev.java.net/>. The GlassFish project provides a structured process for developing the Enterprise Server platform that makes the new features of the Java EE platform available faster, while maintaining the most important feature of Java EE: compatibility. It enables Java developers to access the Enterprise Server source code and to contribute to the development of the Enterprise Server. The GlassFish project is designed to encourage communication between Sun engineers and the community.

This preface contains information about and conventions for the entire Sun GlassFish Enterprise Server documentation set.

Enterprise Server Documentation Set

The Enterprise Server documentation set describes deployment planning and system installation. The Uniform Resource Locator (URL) for Enterprise Server documentation is <http://docs.sun.com/coll/1343.9>. For an introduction to Enterprise Server, refer to the books in the order in which they are listed in the following table.

TABLE P-1 Books in the Enterprise Server Documentation Set

| Book Title | Description |
|---------------------------|--|
| <i>Release Notes</i> | Provides late-breaking information about the software and the documentation. Includes a comprehensive, table-based summary of the supported hardware, operating system, Java Development Kit (JDK™), and database drivers. |
| <i>Quick Start Guide</i> | Explains how to get started with the Enterprise Server product. |
| <i>Installation Guide</i> | Explains how to install the software and its components. |

TABLE P-1 Books in the Enterprise Server Documentation Set (Continued)

| Book Title | Description |
|--|--|
| <i>Administration Guide</i> | Explains how to configure, monitor, and manage Enterprise Server subsystems and components from the command line by using the <code>asadmin(1M)</code> utility. Instructions for performing these tasks from the Administration Console are provided in the Administration Console online help. |
| <i>Application Deployment Guide</i> | Explains how to assemble and deploy applications to the Enterprise Server and provides information about deployment descriptors. |
| <i>Your First Cup: An Introduction to the Java EE Platform</i> | Provides a short tutorial for beginning Java EE programmers that explains the entire process for developing a simple enterprise application. The sample application is a web application that consists of a component that is based on the Enterprise JavaBeans™ specification, a JAX-RS web service, and a JavaServer™ Faces component for the web front end. |
| <i>Application Development Guide</i> | Explains how to create and implement Java Platform, Enterprise Edition (Java EE platform) applications that are intended to run on the Enterprise Server. These applications follow the open Java standards model for Java EE components and APIs. This guide provides information about developer tools, security, and debugging. |
| <i>Add-On Component Development Guide</i> | Explains how to use published interfaces of Enterprise Server to develop add-on components for Enterprise Server. This document explains how to perform <i>only</i> those tasks that ensure that the add-on component is suitable for Enterprise Server. |
| <i>Scripting Framework Guide</i> | Explains how to develop scripting applications in languages such as Ruby on Rails and Groovy on Grails for deployment to Enterprise Server. |
| <i>Troubleshooting Guide</i> | Describes common problems that you might encounter when using Enterprise Server and how to solve them. |
| <i>Reference Manual</i> | Provides reference information in man page format for Enterprise Server administration commands, utility commands, and related concepts. |
| <i>Java EE 6 Tutorial, Volume I</i> | Explains how to use Java EE 6 platform technologies and APIs to develop Java EE applications. |
| <i>Message Queue Release Notes</i> | Describes new features, compatibility issues, and existing bugs for Sun GlassFish Message Queue. |
| <i>Message Queue Developer's Guide for JMX Clients</i> | Describes the application programming interface in Sun GlassFish Message Queue for programmatically configuring and monitoring Message Queue resources in conformance with the Java Management Extensions (JMX). |
| <i>System Virtualization Support in Sun Java System Products</i> | Summarizes Sun support for Sun Java System products when used in conjunction with system virtualization products and features. |

Related Documentation

A Javadoc™ tool reference for packages that are provided with the Enterprise Server is located at <http://java.sun.com/javaee/6/docs/api/>.

Additionally, the following resources might be useful:

- The [Java EE Specifications](http://java.sun.com/javaee/technologies/index.jsp) (<http://java.sun.com/javaee/technologies/index.jsp>)
- The [Java EE Blueprints](http://java.sun.com/reference/blueprints/index.html) (<http://java.sun.com/reference/blueprints/index.html>)

For information about creating enterprise applications in the NetBeans™ Integrated Development Environment (IDE), see <http://www.netbeans.org/kb/60/index.html>.

For information about the Java DB for use with the Enterprise Server, see <http://developers.sun.com/javadb/>.

The sample applications demonstrate a broad range of Java EE technologies. The samples are bundled with the Java EE Software Development Kit (SDK).

Default Paths and File Names

The following table describes the default paths and file names that are used in this book.

TABLE P-2 Default Paths and File Names

| Placeholder | Description | Default Value |
|--------------------------|---|---|
| <i>as-install</i> | Represents the base installation directory for Enterprise Server. In configuration files, <i>as-install</i> is represented as follows: <code>\${com.sun.aas.installRoot}</code> | Installations on the Solaris™ operating system, Linux operating system, and Mac operating system: <i>user's-home-directory/glassfishv3/glassfish</i> Windows, all installations: <i>SystemDrive:\glassfishv3\glassfish</i> |
| <i>as-install-parent</i> | Represents the parent of the base installation directory for Enterprise Server. | Installations on the Solaris operating system, Linux operating system, and Mac operating system: <i>user's-home-directory/glassfishv3</i> Windows, all installations: <i>SystemDrive:\glassfishv3</i> |
| <i>domain-root-dir</i> | Represents the directory in which a domain is created by default. | <i>as-install/domains/</i> |

TABLE P-2 Default Paths and File Names (Continued)

| Placeholder | Description | Default Value |
|-------------------|---|------------------------------------|
| <i>domain-dir</i> | Represents the directory in which a domain's configuration is stored. In configuration files, <i>domain-dir</i> is represented as follows: \${com.sun.aas.instanceRoot} | <i>domain-root-dir/domain-name</i> |

Typographic Conventions

The following table describes the typographic changes that are used in this book.

TABLE P-3 Typographic Conventions

| Typeface | Meaning | Example |
|------------------|---|---|
| AaBbCc123 | The names of commands, files, and directories, and onscreen computer output | Edit your <code>.login</code> file. Use <code>ls -a</code> to list all files. <code>machine_name% you have mail.</code> |
| AaBbCc123 | What you type, contrasted with onscreen computer output | <code>machine_name% su</code> Password: |
| <i>AaBbCc123</i> | A placeholder to be replaced with a real name or value | The command to remove a file is <code>rm filename</code> . |
| <i>AaBbCc123</i> | Book titles, new terms, and terms to be emphasized (note that some emphasized items appear bold online) | Read Chapter 6 in the <i>User's Guide</i> . A <i>cache</i> is a copy that is stored locally. Do <i>not</i> save the file. |

Symbol Conventions

The following table explains symbols that might be used in this book.

TABLE P-4 Symbol Conventions

| Symbol | Description | Example | Meaning |
|--------|--|----------------------|---|
| [] | Contains optional arguments and command options. | <code>ls [-l]</code> | The <code>-l</code> option is not required. |

TABLE P-4 Symbol Conventions (Continued)

| Symbol | Description | Example | Meaning |
|--------|--|------------------------|--|
| { } | Contains a set of choices for a required command option. | -d {y n} | The -d option requires that you use either the y argument or the n argument. |
| \${ } | Indicates a variable reference. | \${com.sun.javaRoot} | References the value of the com.sun.javaRoot variable. |
| - | Joins simultaneous multiple keystrokes. | Control-A | Press the Control key while you press the A key. |
| + | Joins consecutive multiple keystrokes. | Ctrl+A+N | Press the Control key, release it, and then press the subsequent keys. |
| → | Indicates menu item selection in a graphical user interface. | File → New → Templates | From the File menu, choose New. From the New submenu, choose Templates. |

Documentation, Support, and Training

The Sun web site provides information about the following additional resources:

- Documentation (<http://www.sun.com/documentation/>)
- Support (<http://www.sun.com/support/>)
- Training (<http://www.sun.com/training/>)



1

CHAPTER 1

Application Server Compatibility Issues

Sun GlassFish Enterprise Server v3 is binary compatible with Sun Java System Application Server 9.1 Update 2 (Developer Profile) and with Sun GlassFish Enterprise Server v2 Update 2 (Developer Profile), v2.1 (Developer Profile), and v3 Prelude. Java applications that run on Sun Java System Application Server 9.1 Update 2 (Developer Profile) or on Sun GlassFish Enterprise Server v2 Update 2 (Developer Profile), v2.1 (Developer Profile), or v3 Prelude, also work on Sun GlassFish Enterprise Server v3 except for the incompatibilities listed in this chapter.

The topics in this chapter discuss incompatibilities in the following areas:

- “Application Client Interoperability” on page 13
- “Command Line Interface: The `asadmin` Command” on page 14

Application Client Interoperability

The Java EE 6 platform specification imposes stricter requirements than Java EE 5 did on which JAR files can be visible to various modules within an EAR file. In particular, application clients must not have access to EJB JAR files or other JAR files in the EAR file unless they use a `Class-Path` header in the manifest file, or unless references use the standard Java SE mechanisms (extensions, for example), or use the Java EE `library-directory` mechanism. Deployed Java EE 5 applications that are upgraded to Enterprise Server v3 will have the `compatibility` property set to v2 and will run without change on Enterprise Server v3. You may, however, want to consider modifying the applications to conform to Java EE 6 requirements.

If your upgrade includes a deployed application with an application client, you will need to retrieve the client stubs using Enterprise Server v3 in order to run the client. Use the `asadmin get-client-stubs` command.

**Remark 1–1
Reviewer**

The above I've checked out. About the next 2 paragraphs I have no idea. Do you? When I tried to run an old app client (created with GF v2) for a deployed app I'd brought over, I got an "Invalid or corrupt jarfile" error, but after I ran `get-client-stubs` it worked fine. That **might** be due to an RMI-IIOP incompatibility, or it might not.

Application clients use EJBs, web services, or other enterprise components that are in the application server (on the server side). The application client and the application server must use the same version and implementation of the RMI-IIOP protocol. Enterprise Server v3 does not support communication between different versions of the protocol implementation. You cannot run application clients with one version of the application server runtime with a server that has a different version. Most often, this would happen if you upgraded the server but had not upgraded all the application client installations.

You can use the Java Web Start support to distribute and launch the application client. If the runtime on the server has changed since the end-user last used the application client, Java Web Start automatically retrieves the updated runtime. Java Web Start enables you to keep the clients and servers synchronized and using the same runtime.

Command Line Interface: The `asadmin` Command

The following sections describe changes to the command line utility `asadmin`:

- “`asadmin` Subcommands” on page 14
- “Deprecated and Unsupported Options” on page 15

For more information about the `asadmin` commands, see the *Sun GlassFish Enterprise Server v3 Reference Manual*.

`asadmin` Subcommands

Subcommands are backward compatible except as noted below.

The following subcommand is deprecated.

- `deploydir` (use `deploy` instead)

In Enterprise Server v3, it is recommended that utility options of the `asadmin` command precede the subcommand. Utility options are options that control the behavior of the `asadmin` utility, as distinguished from subcommand options. Use of the following options after the subcommand is deprecated.

- `--host`
- `--port`
- `--user`
- `--passwordfile`

- `--terse`
- `--secure`
- `--echo`
- `--interactive`

Deprecated and Unsupported Options

Options in [Table 1-1](#) are deprecated or no longer supported.

TABLE 1-1 Deprecated and Unsupported `asadmin` Options

| Option | Deprecated or Unsupported in Subcommands |
|--------------------------------|--|
| <code>--defaultvs</code> | Deprecated for the <code>create-http-listener</code> subcommand. |
| <code>--httplisteners</code> | Deprecated for the <code>create-virtual-server</code> subcommand. Use <code>--networklisteners</code> instead. |
| <code>--acceptlang</code> | Unsupported for the <code>create-virtual-server</code> subcommand. |
| <code>--acls</code> | Unsupported for the <code>create-virtual-server</code> subcommand. |
| <code>--adminpassword</code> | Unsupported for all relevant subcommands. Use <code>--passwordfile</code> instead. |
| <code>--blockingenabled</code> | Unsupported for the <code>create-http-listener</code> subcommand. |
| <code>--configfile</code> | Unsupported for the <code>create-virtual-server</code> subcommand. |
| <code>--defaultobj</code> | Unsupported for the <code>create-virtual-server</code> subcommand. |
| <code>--domain</code> | Unsupported for the <code>stop-domain</code> subcommand. |
| <code>--instance</code> | Unsupported for all remote subcommands. Use <code>--target</code> instead. |
| <code>--mime</code> | Unsupported for the <code>create-virtual-server</code> subcommand. |
| <code>--password</code> | Unsupported for all remote subcommands. Use <code>--passwordfile</code> instead. |
| <code>--path</code> | Unsupported for the <code>create-domain</code> subcommand. Use <code>--domaindir</code> instead. |
| <code>--resourcetype</code> | Unsupported for all relevant subcommands. Use <code>--restype</code> instead. |
| <code>--target</code> | Unsupported at this release for all subcommands. |

◆ ◆ ◆ **2** C H A P T E R 2

Upgrading an Application Server Installation

The Upgrade Tool, which is bundled with Enterprise Server v3, replicates the configuration of a previously installed server in the target installation. The Upgrade Tool assists in upgrading the configuration and applications from an earlier version of the Application Server or Enterprise Server to Enterprise Server v3. To view a list of the older versions from which you can upgrade, see [Table 2–1](#)

This chapter discusses the following topics:

- “Upgrade Overview” on page 17
- “Performing an Upgrade” on page 19
- “Correcting Potential Upgrade Problems” on page 22

Upgrade Overview

[Table 2–1](#) shows supported upgrade paths.

TABLE 2–1 Supported Upgrade Paths

| Source Installation | Enterprise Server v3 |
|---|----------------------|
| Application Server 9.1 Update 2 (Developer Profile) | Supported. |
| Sun GlassFish Enterprise Server v2 Update 2 (Developer Profile) | Supported. |
| Sun GlassFish Enterprise Server v2.1 (Developer Profile) | Supported. |
| Sun GlassFish Enterprise Server v3 Prelude | Supported. |

Note – Enterprise Server v3 does not support clustering. Therefore, upgrading from the Enterprise Profile is not supported.

Upgrade Tool Interfaces

You can use the tool through the command-line interface (CLI) or the GUI.

- To use the Upgrade Tool in GUI mode, issue the `asupgrade` command with no options. See “[To Upgrade by Using the Upgrade Tool Wizard](#)” on page 21 for details.
- To run the Upgrade Tool in CLI mode, invoke the `asupgrade` command with the `-c/- -console` option. If you supply all required arguments when invoking `asupgrade` on the console, the upgrade is performed, and no further input is required. For a complete list of `asupgrade` options, see [Table 2–2](#). If you invoke the tool only with the `-c/- -console` option, the tool enters the interactive CLI mode, where the user is asked for a series of inputs. See “[To Upgrade From the Command Line](#)” on page 20 for more details.

Upgrade Terminology

The following are important terms related to the upgrade process.

Source Domain Directory

The directory of the server domain from which you are upgrading to the new version (for example, `c:/glassfish/domains/domain1`).

Target Domains Root Directory

The directory where domains are created on the server to which you are upgrading (for example, `c:/glassfishv3/glassfish/domains`).

Master Password

The SSL certificate database password used in operations such as Enterprise Server startup. This term refers to the master password of the installation from which you want to upgrade. You need to specify this password if you have changed it from the default value of `changeit`.

Upgrade Tool Functionality

The Upgrade Tool migrates the configuration and deployed applications from an earlier version of the Application Server Enterprise Server to the current version. The Upgrade Tool does not upgrade the binaries of the server. The installer is responsible for upgrading the binaries. Database migrations or conversions are also beyond the scope of this upgrade process.

Note – Before starting the upgrade process, make sure that you stop all domains in the source server (the server from which you are upgrading) and the target server (the server to which you are upgrading).

Migration of Deployed Applications

Application archives (EAR files) and component archives (JAR, WAR, and RAR files) that are deployed in the source server do not require any modification to run on Enterprise Server v3. Components that may have incompatibilities are deployed on Enterprise Server v3 with the `compatibility` property set to v2 and will run without change on Enterprise Server v3. You may, however, want to consider modifying the applications to conform to Java EE 6 requirements..

The Java EE 6 platform specification imposes stricter requirements than Java EE 5 did on which JAR files can be visible to various modules within an EAR file. In particular, application clients must not have access to EJB JAR files or other JAR files in the EAR file unless they use a `Class-Path` header in the manifest file, or unless references use the standard Java SE mechanisms (extensions, for example), or use the Java EE `library-directory` mechanism. Setting this property to v2 removes these Java EE 6 restrictions.

Applications and components that are deployed in the source server are deployed on the target server during the upgrade. Applications that do not deploy successfully on the target server must be deployed manually on the target server by the user.

If a domain contains information about a deployed application and the installed application components do not agree with the configuration information, the configuration is migrated as is without any attempt to reconfigure the incorrect configurations.

Upgrade Verification

An upgrade log records the upgrade activity. The upgrade log file is named `upgrade.log` and is created in the working directory from which the Upgrade Tool is run. Additional information is recorded in the server log of the upgraded domain.

Performing an Upgrade

When you use the Upgrade Tool, the source server and the target server are normally installed on the same machine, but under different install locations. Both server file systems must be accessible from the system on which you perform the upgrade.

The Upgrade Tool upgrades your server configuration and deployed applications.

To perform the upgrade, the user who runs the upgrade needs to have Read permissions for the source and target directories and Write permission for the target directory.

Note – Ensure that you have stopped all domains in the source server before you start the upgrade process.

There are two ways to upgrade your server installation:

- [“To Upgrade From the Command Line” on page 20](#)
- [“To Upgrade by Using the Upgrade Tool Wizard” on page 21](#)

To Upgrade From the Command Line

To run Upgrade Tool in command-line mode, use the `-c` option. You can run the upgrade tool in command-line mode using the following syntax:

```
asupgrade
[--console ]
[--version ]
[--help ]
[--source applicationserver_installation_domaindirectory]
[--target applicationserver_9.1u1_installation]
[--adminuser applicationserver_9.1u1_admin_user_name]
[--passwordfile passwords.txt]
```

[Table 2–2](#) describes the command options in greater detail, including the short form, the long form, and a description.

TABLE 2–2 asupgrade Utility Command Options

| Short Form | Long Form | Description |
|-----------------------------|---|---|
| <code>-c</code> | <code>--console</code> | Launches the upgrade command line utility. |
| <code>-V</code> | <code>--version</code> | The version of the Enterprise Server. |
| <code>-h</code> | <code>--help</code> | Displays the arguments for launching the upgrade utility. |
| <code>-s source-path</code> | <code>--source source-path</code> | The installation directory of the older server installation. |
| <code>-t target-path</code> | <code>--target target-path</code> | The domains directory of the Enterprise Server v3 installation. |
| <code>-m mpassword</code> | <code>--masterpassword mpassword</code> | The master password for the source server. |
| <code>-f file-name</code> | <code>--passwordfile file-name</code> | The file containing the admin password and the master password. |

The following example shows how to use the `asupgrade` command-line utility to upgrade an existing Sun GlassFish Enterprise Server v2.1 installation to Enterprise Server v3.

```
asupgrade -c --source /home/glassfish/domains/domain1 --target /home/glassfishv3/glassfish/domains
```

▼ To Upgrade by Using the Upgrade Tool Wizard

If the Upgrade checkbox was selected during the Enterprise Server v3 installation process, the Upgrade Wizard screen automatically displays after the installation completes.

Remark 2-1 Reviewer

Still true?

1 Start the wizard as follows.

- On a UNIX system, change to the *as-install/bin* directory and type `asupgrade`.
- On a Windows system, double-click the `asupgrade.bat` icon in the *as-install/bin* directory.

2 In the Source Domain Directory field, type the domain directory of the existing installation from which to import the configuration, or click Browse.

For example, you might type `c:\glassfish\domains\domain1`.

3 In the Target Domains Root Directory field, type the location of the Enterprise Server v3 installation to which to transfer the configuration, or click Browse.

The default is the full path name of the `domains` directory of your Enterprise Server v3 installation (for example, `c:\glassfishv3\glassfish\domains`).

4 (Optional) Provide the master password of the source application server.

The target domain is created with these credentials.

5 Click Next.

A dialog box informs you that `domain1` already exists in the target directory and asks if you would like to rename it. If you click OK, the directory is renamed `domain1.original`. If `domain1.original` already exists, the directory is named `domain1.original.0`.

6 The Upgrade Results page displays the status of the upgrade operation.

7 Click Finish to exit the Upgrade Tool when the upgrade process is complete.

Next Steps After you complete the upgrade, start the Enterprise Server using the `asadmin start-domain` command. Log in to the Administration Console with the user name and password you used in the older server.

To register your installation of application server from the Administration Console, select the Registration node. For step-by-step instructions on the registration process, click the Help button on the Administration Console.

Visit the URL `http://localhost:8080` to view the `domain-dir/docroot/index.html` file. This file is brought over during the upgrade. You may want to copy the default Enterprise Server v3 file from the `domain1.original/docroot` directory and customize it for your Enterprise Server v3 installation

Correcting Potential Upgrade Problems

This section addresses the following issues that could occur during an upgrade to Enterprise Server v3:

- [“Applications That Use Java DB” on page 22](#)

Applications That Use Java DB

You have deployed applications that use Java DB databases in your previous server installation. You upgrade your existing installation to Enterprise Server v3. You run the `asadmin start-database` command and successfully start Java DB. In this scenario, you could run into problems while trying to run applications that were deployed your previous server installation on Enterprise Server v3 because the instance directory of Java DB in Enterprise Server v3 has changed.

To solve this problem, perform the following steps:

1. After upgrade, start Enterprise Server v3.
2. Use the `asadmin start-database` command with the `--dbhome` option pointing to the older version of Java DB. For example:

```
asadmin start-database --dbhome c:\glassfish\javadb
```

3. Deploy the migrated applications.

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