Sun GlassFish Enterprise Server v3 Troubleshooting Guide

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Preface

This guide describes common problems that you might encounter when using Sun GlassFish™ Enterprise Server v3 and how to solve them.

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

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.

The following topics are addressed here:

- "Enterprise Server Documentation Set" on page 7
- "Related Documentation" on page 9
- "Typographic Conventions" on page 10
- "Symbol Conventions" on page 10
- "Default Paths and File Names" on page 11
- "Documentation, Support, and Training" on page 12
- "Searching Sun Product Documentation" on page 12
- "Third-Party Web Site References" on page 12
- "Sun Welcomes Your Comments" on page 12

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
Release Notes	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.
Quick Start Guide	Explains how to get started with the Enterprise Server product.
Installation Guide	Explains how to install the software and its components.
Upgrade Guide	Explains how to upgrade to the latest version of Enterprise Server. This guide also describes differences between adjacent product releases and configuration options that can result in incompatibility with the product specifications.
Administration Guide	Explains how to configure, monitor, and manage Enterprise Server subsystems and components from the command line by using the `asadmin(1M)` utility. Instructions for performing these tasks from the Administration Console are provided in the Administration Console online help.
Application Deployment Guide	Explains how to assemble and deploy applications to the Enterprise Server and provides information about deployment descriptors.
Your First Cup: An Introduction to the Java EE Platform	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.
Application Development Guide	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.
Add-On Component Development Guide	Explains how to use published interfaces of Enterprise Server to develop add-on components for Enterprise Server. This document explains how to perform *only* those tasks that ensure that the add-on component is suitable for Enterprise Server.
Embedded Server Guide	Explains how to run applications in embedded Enterprise Server and to develop applications in which Enterprise Server is embedded.
Scripting Framework Guide	Explains how to develop scripting applications in languages such as Ruby on Rails and Groovy on Grails for deployment to Enterprise Server.
Troubleshooting Guide	Describes common problems that you might encounter when using Enterprise Server and how to solve them.

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

Book Title	Description
Error Message Reference	Describes error messages that you might encounter when using Enterprise Server.
Reference Manual	Provides reference information in man page format for Enterprise Server administration commands, utility commands, and related concepts.
Domain File Format Reference	Describes the format of the Enterprise Server configuration file, `domain.xml`.
Java EE 6 Tutorial, Volume I	Explains how to use Java EE 6 platform technologies and APIs to develop Java EE applications.
Message Queue Release Notes	Describes new features, compatibility issues, and existing bugs for Sun GlassFish Message Queue.
Message Queue Administration Guide	Explains how to set up and manage a Sun GlassFish Message Queue messaging system.
Message Queue Developer's Guide for JMX Clients	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).
System Virtualization Support in Sun Java System Products	Summarizes Sun support for Sun Java System products when used in conjunction with system virtualization products and features.

Related Documentation

The Java EE 6 Tutorial, Volume II (`https://www.sun.com/offers/details/java_ee6_tutorial.xml`) contains all the topics in *Java EE 6 Tutorial, Volume I* and adds advanced topics, additional technologies, and case studies. The document is available to registered users of Enterprise Server.

Javadoc™ tool reference documentation for packages that are provided with Enterprise Server is available as follows:

- The API specification for version 6 of Java EE is located at `http://java.sun.com/javaee/6/docs/api/`.
- The API specification for Enterprise Server v3, including Java EE 6 platform packages and nonplatform packages that are specific to the Enterprise Server product, is located at: `https://glassfish.dev.java.net/nonav/docs/v3/api/`.

Additionally, the following resources might be useful:

- The Java EE Specifications (`http://java.sun.com/javaee/technologies/index.jsp`)
- The Java EE Blueprints (`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).

Typographic Conventions

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

TABLE P–2 Typographic Conventions

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

Symbol Conventions

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

TABLE P–3 Symbol Conventions

Symbol	Description	Example	Meaning
`[ ]`	Contains optional arguments and command options.	`ls [-l]`	The `-l` option is not required.
`{ | }`	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.

TABLE P–3 Symbol Conventions *(Continued)*

Symbol	Description	Example	Meaning
`${ }`	Indicates a variable reference.	`${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.

Default Paths and File Names

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

TABLE P–4 Default Paths and File Names

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

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/`)

Searching Sun Product Documentation

Besides searching Sun product documentation from the docs.sun.com[SM] web site, you can use a search engine by typing the following syntax in the search field:

search-term `site:docs.sun.com`

For example, to search for "broker," type the following:

```
broker site:docs.sun.com
```

To include other Sun web sites in your search (for example, java.sun.com, www.sun.com, and developers.sun.com), use `sun.com` in place of `docs.sun.com` in the search field.

Third-Party Web Site References

Third-party URLs are referenced in this document and provide additional, related information.

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◆ ◆ ◆ CHAPTER 1

Overview of Enterprise Server Troubleshooting

This chapter describes some of the tools, methods, and resources available for troubleshooting Sun GlassFish™ Enterprise Server v3. Guidelines for evaluating and investigating a problem are provided.

This chapter contains the following sections:

- "Identifying the Problem" on page 13
- "Troubleshooting Tools" on page 18
- "Where to Go for More Information" on page 20
- "Enterprise Server Support" on page 20

Identifying the Problem

Application servers are typically deployed in complex operating environments and involve many technologies, products, and tools. Understanding and diagnosing problems in enterprise software with many components performing many tasks can be a challenge. This section describes how to get started , and contains the following topics:

- "First Steps" on page 13
- "Gathering Information" on page 15
- "Examining Log Files" on page 17
- "Monitoring the System" on page 18

First Steps

Sometimes the most obvious solutions are overlooked. As you begin your investigation, try the following steps first.

Verify System Requirements and Configuration

Ensure that your system meets the requirements listed in "Hardware and Software Requirements" in *Sun GlassFish Enterprise Server v3 Release Notes*. Problems are likely to arise if you attempt to install on a platform that is not supported or on a system that in some other way does not meet release requirements. Also see "Known Issues" in *Sun GlassFish Enterprise Server v3 Release Notes* for known issues related to installation.

Enterprise Server v3 requires JDK™ release 6. The minimum (and certified) version of the JDK that is required for Enterprise Server depends on the operating system:

- For supported operating systems *except* Mac OS, the minimum required version is 1.6.0_17.
- For the Mac OS X operating system, the minimum required version is 1.6.0_15.

If necessary, download and install the required JDK software.

On Solaris, Linux, and Windows systems, JDK software is available from the Java SE downloads page (`http://java.sun.com/javase/downloads/index.jsp`).

For Mac OS X systems, Enterprise Server uses the JDK that is part of the Macintosh operating system. If necessary, obtain the required JDK version from the Mac OS X Updates site (`http://www.apple.com/downloads/macosx/apple/macosx_updates/`).

Also ensure that the `JAVA_HOME` environment variable on your system points to the JDK installation directory and not the Java Runtime Environment (JRE) software.

Set `JAVA_HOME` and `$JAVA_HOME/bin` in the `PATH` to point to the supported JDK version.

Review Known Issues

Your problem might be related to a known issue for the release. Refer to the *Sun GlassFish Enterprise Server v3 Release Notes* for the latest information regarding known issues and possible workarounds. Also search the GlassFish Issue Tracker at `https://glassfish.dev.java.net/servlets/ProjectIssues`.

Search the Product Documentation

Enterprise Server includes complete product documentation. Search the documentation to see if your problem is addressed. Documentation is available at `http://docs.sun.com/coll/1343.9`. See "Enterprise Server Documentation Set" on page 7 for the books in the documentation set and a description of their contents. Also see the Administration Console online help for detailed information about performing administrative tasks using the graphical interface.

The following books will be especially helpful for troubleshooting:

- *Sun GlassFish Enterprise Server v3 Release Notes*, which provides the latest information regarding known issues and possible workarounds.

- *Sun GlassFish Enterprise Server v3 Error Message Reference*, which lists error messages you might encounter when using Enterprise Server.

Use the product documentation to learn more about Enterprise Server v3. The more you know about the product the easier it might be to figure out why something isn't working.

Search the GlassFish Mailing Lists and Forums

Lists and forums are extremely helpful resources, and are accessed as follows:

- GlassFish mailing lists (start with *users@glassfish.dev.java.net* and search the archives): `http://glassfish.dev.java.net/servlets/ProjectMailingListList`
- GlassFish user forum: `http://forums.java.net/jive/forum.jspa?forumID=56`
- Other GlassFish forums: `http://forums.java.net/jive/category.jspa?categoryID=58`

Search the SunSolve Knowledgebase

SunSolve℠ is Sun's informational and patch database service with a browseable directory of all publicly available Sun Microsystems support documents. SunSolve is available at `http://sunsolve.sun.com`. Additional resources are also available for customers with support contracts.

Gathering Information

Troubleshooting and analysis require information. The more information you have the easier it is to classify a problem and search for its solution. Detailed information will also be necessary should you need to contact others for support, either through a community mailing list or through more formal Sun support channels.

For general information about gathering data, also refer to *Sun Gathering Debug Data for Sun Java System Application Server*. The document pertains to previous versions of Enterprise Server but much of the information is generic enough that it might still be helpful.

As you continue your investigation, consider the following questions.

When Does the Problem Occur?

- What do the logs show? What kind of error message are you getting? For more information about logs, see "Examining Log Files" on page 17. Logs are a good place to start your troubleshooting.
- What are you trying to do when the problem occurs and how are you doing it? What is the sequence of events?
- Does the problem occur every time you perform the same type of operation, or does it seem random? Can you reproduce the issue?

- Have other events or problems occurred that could possibly be related, such as web sessions closing early, exceptions being thrown in your own application logic, components not being correctly deployed or undeployed?

What Is Your Environment?

- What version of Enterprise Server are you using? What operating system and version? What JDK version? Many problems are caused simply because system requirements for the release are not met. Refer to the *Sun GlassFish Enterprise Server v3 Release Notes* for the latest information regarding system requirements, and make sure your system meets those requirements.
- What resources does your system have, such as memory, disk, and swap space? If system memory is an issue, look for ways to optimize your configuration and consider taking other actions such as adding memory or decreasing system load.
- Have any patches been applied? If so, what are the product and operating system patch numbers?
- What other products and technologies are installed and being used in the installation?
- How many application servers, web servers, and directory servers are installed? What are the products and versions?
- How is the web server connected to Enterprise Server? On the same system?
- How is Enterprise Server connected to the directory server?
- What JDBC driver is being used to access the database?

What Is Your System Configuration?

- What are your settings?
- On which port is Enterprise Server v3 configured — the default or something else?
- What defaults were changed during installation and what are the values?
- What other settings were changed from the defaults and what are their values?
- What are the parameters related to JVM heap, stack, and garbage collection set to?
- What are the JVM options?
- What is the permgen size? `OutOfMemoryError:PermGen space` errors are common and indicate that you need to increase the permanent generation space available.
- Is SSL enabled?
- What are your network settings (proxy, firewall, and so on)? What happens if you disable your firewall and attempt the task?

What Is Different?

- What is different that could have provoked the problem or triggered the event? Was something new added or changed? Have any new applications been deployed? If changes have been made recently, consider backing them out and seeing what happens — does the problem still occur?
- Was the feature or functionality working correctly at one time? If so, what changed or happened between then and now?
- Is this working on another system? If so, what is different about that environment?

Examining Log Files

Logging is one of your most important troubleshooting tools. It is the process by which Enterprise Server captures data about events that occur during server operation, such as configuration errors, security failures, or server malfunction. This data is recorded in a log file, and is usually your first source of information when Enterprise Server problems occur. The primary purpose of log files is to provide troubleshooting information. Analyzing the log files can help determine the health of the server and identify problem areas.

By default all Enterprise Server log information is captured in the `server.log` file, typically located in *domain-dir*`/logs`. You can view logging information by using the Administration Console or the `asadmin` utility. You can also open the `server.log` file in a text editor and search for the module that you are interested in.

For information about using the Administration Console log viewer and logging functions, see the Administration Console online help. For information about viewing logging information from the command line, see "Viewing Log Information" in *Sun GlassFish Enterprise Server v3 Administration Guide*.

Logging is configured by editing the `logging.properties` file, located by default in the same directory as the `domain.xml` file, typically *domain-dir*`/config`. Logging can also be configured using the Administration Console.

Log levels such as `SEVERE`, `WARNING`, `INFO`, `CONFIG`, and others can be set to provide different types and amounts of information. The default setting is `INFO`. Each Enterprise Server module has its own logger, and each logger has its own namespace. Log levels can be set globally for all loggers, or individually for module-specific loggers.

For complete details about logging see Chapter 7, "Administering the Logging Service," in *Sun GlassFish Enterprise Server v3 Administration Guide*.

Monitoring the System

Monitoring is another helpful tool. It is the process of reviewing the statistics of a system to improve performance or solve problems. By monitoring the state of various components and services deployed in Enterprise Server you can identify performance bottlenecks, predict failures, perform root cause analysis, and ensure that everything is functioning as expected. For more information about monitoring, including JConsole information, see Chapter 8, "Administering the Monitoring Service," in *Sun GlassFish Enterprise Server v3 Administration Guide*.

Troubleshooting Tools

Several tools are available that can be used to collect information for troubleshooting purposes. This section provides basic information about some of them, and includes the following:

- "Operating System Utilities" on page 18
- "Stack Traces and Thread Dumps" on page 18
- "VisualVM" on page 19
- "JVM Command-Line Tools" on page 19

Operating System Utilities

Operating system utilities, such as `pkginfo` and `showrev` on Solaris and `rpm` on Linux, are helpful in gathering system information.

The `ps -ef` command provides helpful information about processes that are running, including their process identification numbers (PIDs).

Stack Traces and Thread Dumps

A stack trace is a user-friendly snapshot of the threads and monitors in a Virtual Machine for the Java platform (Java Virtual Machine or JVM™ machine). A thread dump shows what every thread in a JVM is doing at a given time and is useful in debugging. When the application server freezes, hangs, or becomes sluggish for no apparent reason, you should generate and analyze a thread dump.

This section explains how to obtain a thread dump for Enterprise Server. More information about analyzing the information contained in a thread dump can be found in "An Introduction to Java Stack Traces" (`http://java.sun.com/developer/technicalArticles/Programming/Stacktrace`).

▼ To Obtain a Server Thread Dump

- **Type the following command:**

```
asadmin generate-jvm-report --type=thread
```

See Also `generate-jvm-report(1)`

VisualVM

VisualVM is a Java troubleshooting tool that uses various technologies such as `jvmstat`, JMX™, and Attach API to access monitored applications. VisualVM is a tool for visualizing data sources and by default visualizes the following types: applications, hosts, snapshots, core dumps, heap dumps, and thread dumps. These data sources are visualized in VisualVM so that they can be monitored for the purposes of analysis, management, and troubleshooting. VisualVM is commonly used to detect memory leaks.

VisualVM has a GlassFish plugin that enhances monitoring of hosted applications by adding specialized overview, a tab for monitoring the HTTP Service, and the ability to visually select and monitor any of the deployed web applications. You can experiment with VisualVM troubleshooting capabilities, but note that various features depend on the Java versions used in the client and server. Depending on your configuration, you might only get parts of the VisualVM features. For more information about VisualVM, see `https://visualvm.dev.java.net`.

JVM Command-Line Tools

JVM command-line tools can be used to provide valuable information about hung Java processes or Java core dumps. These tools include the following:

- `jstack`: Prints Java stack traces of Java threads for a given Java process or core file or a remote debug server.
- `jinfo`: Prints Java configuration information for a given Java process or core file or a remote debug server.
- `jmap`: Prints shared object memory maps or heap memory details for a given process or core file or a remote debug server.
- `jsadebugd`: Attaches to a Java process or core file and acts as a debug server. Remote clients such as `jstack`, `jmap`, and `jinfo` can attach to the server using Java Remote Invocation Method (RMI).
- `jhat`: Enables Java heap dumps to be browsed using a web browser.
- `jstat`: Displays performance statistics for an instrumented HotSpot JVM.

- `jps`: Lists the instrumented HotSpot JVMs on the target system

Where to Go for More Information

These resources were mentioned throughout this chapter and are provided again here for easy reference.

- Release Notes: *Sun GlassFish Enterprise Server v3 Release Notes*
- Error messages: *Sun GlassFish Enterprise Server v3 Error Message Reference*
- Documentation collection: `http://docs.sun.com/coll/1343.9`
- SunSolve knowledgebase: `http://sunsolve.sun.com`
- Mailing lists and forums: See "Search the GlassFish Mailing Lists and Forums" on page 15 for details about accessing lists and forums.
- Technical Note: *Sun Gathering Debug Data for Sun Java System Application Server*
- GlassFish community site: `http://glassfish.org`
- GlassFish wiki: `http://wiki.glassfish.java.net/Wiki.jsp?page=PlanForGlassFishV3`

Enterprise Server Support

Support subscriptions are available and provide a broad range of support and services to help you get the most out of Enterprise Server. For more information, visit `http://www.sun.com/service/applicationserversubscriptions`.

◆ ◆ ◆ CHAPTER 2

Specific Issues

This chapter lists problems that you might encounter when using Sun GlassFish Enterprise Server v3. The following topics are addressed:

- "Cannot Access Local Server (`http://localhost:8080`)" on page 21
- "Cannot Access Remote Server" on page 23
- "Cannot Access the Administration Console" on page 24
- "Cannot Access a Server Application" on page 25
- "Administrator User Name or Password Not Known" on page 26
- "Experience Issues Related to the JDK" on page 26
- "Server Will Not Start on Windows (Port Conflict)" on page 27
- "Two Server Instances Bind to Same Port on Windows" on page 28
- "Cannot Produce a JVM Thread Dump After Server Crash" on page 28
- "Issues Related to Applications" on page 29
- "Issues Related to `asadmin`" on page 29
- "Issues Related to Installation" on page 30
- "Issues Related to Security" on page 31

Cannot Access Local Server (`http://localhost:8080`)

When this error occurs, check the following:

- "Did the Server Start?" on page 22
- "Was the Server Started at the Expected Port?" on page 22
- "Is a Personal Firewall Enabled?" on page 23

Did the Server Start?

Description

If the console window is still open, the expected message indicates that the default domain was started successfully.

If the console window is already closed, check for messages in the log file:

as-install`/domains/domain1/logs/server.log`

If startup was successful, the expected message is similar to that on the console, and appears at the end of the log file.

For more information about starting a domain, see "Starting and Stopping a Domain" in *Sun GlassFish Enterprise Server v3 Administration Guide*. To easily determine if a domain is running, use the `asadmin list-domains` command.

Was the Server Started at the Expected Port?

Description

The server might be running at a different port number than expected, either because it was intentionally installed there, or because another server was already running on the default port when the server was installed.

▼ To Determine Which Port Number the Server Is Using

1. **Examine the server's configuration file:**

   as-install`/domains/domain1/config/domain.xml`

2. **Find the `network-listener` element.**

3. **Inspect the value of the `port` attribute.**

   Be sure to enter the correct port number when invoking the server.

Note – The server's default port number is `8080`, however, there are a number of ways in which the expected value can change:

- A different port number was specified during installation.
- A previous installation exists.

Is a Personal Firewall Enabled?

Issues might result when personal firewalls are enabled. Disable your personal firewall and see if the server access problem still exists.

Cannot Access Remote Server

When attempting to open the start page of Enterprise Server, the initial screen does not appear.

When this error occurs, check the following:

- "Is the Server Available Locally?" on page 23
- "Is the Proxy Setting Causing a Problem?" on page 24

Is the Server Available Locally?

Description

If the server cannot be accessed from the web, but it is running locally, then the server is actually running.

Solution

Verify that the server is running locally.

▼ To Verify That the Server Is Running Locally

1. **Log on to the host where the server is running.**
2. **Go to the local web page. For example, if `8080` is the default port, go to:**

   ```
   http://localhost:8080/
   ```

   If the start page does appear, the web connection is encountering a problem that prevents accessing the server remotely. If the start page does not appear, see "Did the Server Start?" on page 22.

Is the Proxy Setting Causing a Problem?

Description

The server should be accessible directly from the host on which it is running (`localhost`); for example, using the default port `8080`:

```
http://localhost:8080/
```

Solution

A server instance running on `localhost` might not be accessible if the server host machine is connected to the web through a proxy. To solve this problem, do one of the following:

- Set the browser to bypass the proxy server when accessing `localhost`. Refer to the browser's help system for information about how to do this.
- Use the fully-qualified host name or IP address of your system; for example:

  ```
  http://myhost.mydomain.com:8080/
  ```

- Create an entry in the system's hosts file (for example, pointing `127.0.0.1` to `localhost`; `127.0.0.1` is not proxied).

Note – To determine the host name for the `localhost` machine, type `hostname` at the command prompt.

Cannot Access the Administration Console

The Administration Console provides a graphical interface for administrative functions. If the Administration Console is not accessible, check the following:

- "Is the Application Server Running?" on page 24
- "Is the Administration Console Running on the Expected Port?" on page 25

For more information about the Administration Console, see "Administration Console" in *Sun GlassFish Enterprise Server v3 Administration Guide*.

Is the Application Server Running?

Description

The server must be running before the Administration Console can be accessed.

Solution

Review the information in "Did the Server Start?" on page 22 to determine if the server is running.

Is the Administration Console Running on the Expected Port?

Description

The default port number for the Administration Console is 4848. However, it could be running on a different port number than expected, either because it was intentionally installed there, or because that port was in use when the server was started.

Solution

Refer to "Was the Server Started at the Expected Port?" on page 22 for guidelines on verifying the port on which the Administration Console is running. Be sure to enter the correct port number and HTTP protocol when invoking the Administration Console.

Cannot Access a Server Application

If a particular application cannot be accessed through Enterprise Server, check the following:

- "Is the Application Server Running?" on page 25
- "Was Application Deployment Successful?" on page 26

Is the Application Server Running?

Description

If Enterprise Server is not running, applications are not accessible.

Solution

Review the information in "Did the Server Start?" on page 22 to determine if the server is running. The server must be running before a server application can be accessed.

Was Application Deployment Successful?

Description

An application must be successfully deployed before it can be accessed.

Solution

Verify that the application was successfully deployed. There are several ways to do this:

- Check the server's log file for related entries:

  as-install`/domains/domain1/server.log`

- Use the `asadmin list-applications` command to determine which applications are deployed.
- View the Applications page in the Administration Console, accessed by clicking the Applications node.

For more information about deploying applications, see Chapter 2, "Deploying Applications," in *Sun GlassFish Enterprise Server v3 Application Deployment Guide*. Also see the Administration Console online help.

Administrator User Name or Password Not Known

If you have forgotten the administrator user name, you can find it by inspecting the *as-install*`/domains/`*domain-name*`/config/admin-keyfile` file, where *domain-name* is the name of the domain. In the default domain, `domain1`, the file to inspect is *as-install*`/domains/domain1/config/admin-keyfile`. For a different domain, substitute its name in the path.

If you have forgotten the administrator password, one solution is to create a new domain with the admin username and password that you want, then copy the entry from the `config/admin-keyfile` file in that new domain to the other domain.

Experience Issues Related to the JDK

Description

You experience JDK-related issues in a variety of circumstances.

Solution

Enterprise Server v3 requires JDK 6, so check your system for that dependency.

The minimum (and certified) version of the JDK software that is required for Enterprise Server depends on the operating system:

- For supported operating systems *except* Mac OS, the minimum required version is 1.6.0_17.
- For the Mac OS X operating system, the minimum required version is 1.6.0_15.

Ensure that the required JDK software is installed and that the `JAVA_HOME` environment variable points to the JDK installation directory, not the Java Runtime Environment (JRE™) software.

Set `JAVA_HOME` and `$JAVA_HOME/bin` in the `PATH` to point to the supported JDK version.

Server Will Not Start on Windows (Port Conflict)

If a message similar to the following is displayed when starting Enterprise Server on Microsoft Windows, a server port conflict has occurred:

```
Address already in use
```

This error occurs when another application is running on the Enterprise Server port (default `8080`), or because a previous instance of Enterprise Server did not shut down cleanly.

You might also check the following:

- "Is Another Application Running on the Server's Port?" on page 27
- "Has an Ungraceful Shutdown Occurred on a Previously Running Server?" on page 27

Is Another Application Running on the Server's Port?

If another application is using the server's port, stop the other application, then restart Enterprise Server.

Has an Ungraceful Shutdown Occurred on a Previously Running Server?

Use the `asadmin stop-domain` command to stop the server, or explicitly kill the Java process and then restart Enterprise Server.

Two Server Instances Bind to Same Port on Windows

Description

This problem occurs on Windows XP systems with Enterprise Server software, and is due to a known Windows security flaw rather than a problem with Enterprise Server itself.

The problem occurs when two or more instances of Enterprise Server are created using the same port number for the `instanceport` option; for example:

```
asadmin create-domain -adminport 5001 options -instanceport 6001 domain
asadmin create-domain -adminport 5002 options -instanceport 6001 domain
```

When the two domains are started on a UNIX or Linux system, a port conflict error is thrown and the second instance fails to start. However, when the two domains are started on Windows XP, no error is thrown, both server instances start, but only the first instance is accessible at the specified port. When that first server instance is subsequently shut down, the second instance then becomes accessible. Moreover, when both instances are running, the Windows `netstat` command only reports the first instance.

Solution

Be sure to use unique port numbers for all server instances on Windows systems.

Cannot Produce a JVM Thread Dump After Server Crash

Description

If Enterprise Server crashes, the server dumps a core file and, by default, restarts with the `-Xrs` flag, which prevents the dump of a JVM thread dump.

Solution

▼ To Obtain a Server Thread Dump

- **Type the following command:**

```
asadmin generate-jvm-report --type=thread
```

See Also `generate-jvm-report(1)`

Issues Related to Applications

Cannot Undeploy or Redeploy Application With Open Streams to jar Files (Windows)

Description

On Windows systems, after running an application, subsequent attempts to undeploy it or redeploy it throw exceptions about the server being unable to delete a file or rename a directory.

On Windows systems, an application may use `getClass().getResource` or `getResourceAsStream` methods to locate a resource inside the application, particularly in `jar` files that are in the application or accessible to it. If the streams remain open, subsequent attempts to redeploy or undeploy the application can fail. In addition, the Java runtime by default caches streams to `jar` files for performance reasons.

Solution

Be sure to close streams opened by your applications. Also, if an application needs to be redeployed or undeployed repeatedly, and also needs to obtain a resource from a `jar` file using `getResource` or `getResourceAsStream`, consider using `getClass().getResource`, which returns a URL object, then invoke the `url.setUseCaches` method to turn off caching for that `jar` file, and use `url.getInputStream()` to obtain the stream.

Although turning off caching for access to the `jar` file can slow performance, this approach does allow the application to be undeployed or redeployed. Note also that if the `getClass().getResourceAsStream` method is used instead, then the `jar` file in which the resource is located is cached (this is the default Java runtime setting) and remains open until the server is stopped.

Issues Related to asadmin

asadmin start-domain Command Fails

The command `asadmin start-domain` fails with the following error:

```
There is more than one domain...
```

Description

When issued with no arguments, the command `asadmin start-domain` fails.

This error occurs when there is more than one domain in the domains directory, none of them is named `domain1`, and no domain is specified with the `start-domain` command.

Solution

Specify the domain when issuing the `start-domain` command:

`asadmin start-domain` *domain-name*

For example:

```
asadmin start-domain mycustomdomain
```

Cannot Stop Domain Using `asadmin stop-domain`

Description

You cannot stop the domain using the `asadmin stop-domain` command.

Solution

Look for error messages that display in the console when you issue the command.

Search the `server.log` file for error messages related to your inability to stop the domain.

Issues Related to Installation

Installation Hangs During Update Tool Configuration

Description

Installation hangs more than five minutes during Update Tool configuration.

Solution

Cancel the installation and run the installation program again, but this time deselect the Install Update Tool check box. Update Tool can be installed later from *as-install*`/bin/`. For more information about Update Tool, see "Update Tool" in *Sun GlassFish Enterprise Server v3 Administration Guide*. For general information about Enterprise Serverinstallation, see the *Sun GlassFish Enterprise Server v3 Installation Guide*.

Note – Update Tool differs from Upgrade Tool, which is used to migrate the configuration and deployed applications from an earlier version of Enterprise Server to the current version. For more information about Upgrade Tool and upgrading, see the *Sun GlassFish Enterprise Server v3 Upgrade Guide*.

Enterprise Server Components Not Removed During Uninstallation

Description

Not all Enterprise Server directories are automatically removed by the uninstallation program. Some directories and files remain after uninstalling.

Solution

Examine the remaining directories and remove any files or directories that you do not want, including hidden directories prefixed with a dot. It is safe to remove uninstallation and installation log files after you have examined them.

For information related to uninstallation, see Chapter 2, "Uninstalling Sun GlassFish Enterprise Server v3," in *Sun GlassFish Enterprise Server v3 Installation Guide*.

Issues Related to Security

`java.security.AccessControlException`: Access Denied Error

Description

The following error occurs from an application client, or appears in the `server.log` file:

```
java.security.AccessControlException: access denied
(java.util.PropertyPermission name write...)
```

There is a permissions issue in the policy files. Either the `client.policy` file for the application client or the `server.policy` file for server side components does not have permission to set the property.

Solution

Add the permission in `client.policy` (for the application client), or in `server.policy` (for web modules) for the application that needs to set the property. By default, applications only have read permission for properties.

For example, to grant read/write permission for all files in the codebase directory, add or append the following to `client.policy` or `server.policy`:

```
grant codeBase "file:/.../build/sparc_SunOS/sec/-" {
   permission java.util.PropertyPermission "*", "read,write";
 };
```

Mutual Authentication Not Working With the Application Client

Description

This failure can occur when the keystore and truststore properties are not set properly.

Solution

Set the following properties on the JVM:

```
javax.net.ssl.keyStore=
<keystore-file-path>;javax.net.ssl.trustStore=<truststore-file-path>
```

To use the application client, set the environment variable `VMARGS` to the following value:

```
-Djavax.net.ssl.keyStore=${admin.domain.dir}/${admin.domain}/config/keystore.jks
-Djavax.net.ssl.trustStore=${admin.domain.dir}/${admin.domain}/config/cacerts.jks
```

◆ ◆ ◆ CHAPTER 3

Frequently Asked Questions

This chapter lists a few of the Frequently Asked Questions (FAQs) related to Sun GlassFish Enterprise Server v3. For the latest FAQs, see the GlassFish wiki at `http://wiki.glassfish.java.net/Wiki.jsp?page=GlassFishFAQIndex`.

This chapter contains the following:

- "Administration FAQs" on page 33
- "Application FAQs" on page 34
- "Eclipse FAQs" on page 34
- "Extensibility FAQs" on page 35
- "Java Persistence FAQs" on page 35
- "Update Tool FAQs" on page 36

Administration FAQs

Which `asadmin` Commands are Supported?

Use `asadmin list-commands` to determine which commands are supported and available for use. For related information, see Appendix A, "Subcommands for the asadmin Utility," in *Sun GlassFish Enterprise Server v3 Administration Guide*.

Application FAQs

How Do I Debug Applications?

See Chapter 4, "Debugging Applications," in *Sun GlassFish Enterprise Server v3 Application Development Guide*.

How Do I Change Application Permissions?

See "Changing Permissions for an Application" in *Sun GlassFish Enterprise Server v3 Application Development Guide*.

What Are the Restrictions and Optimizations for Session Beans?

See "Session Bean Restrictions and Optimizations" in *Sun GlassFish Enterprise Server v3 Application Development Guide*.

Eclipse FAQs

Where Can I Find More Information About Eclipse and Enterprise Server Integration?

Eclipse is a development environment that provides a framework, tools, and runtime for deploying and managing software. The GlassFish plugin for Eclipse provides important changes to better support Enterprise Server and to provide optimal redeployment of web applications. For more information, see the GlassFish Plugins page: `https://glassfishplugins.dev.java.net`.

Extensibility FAQs

How Do I Develop Add-On Components?

See the *Sun GlassFish Enterprise Server v3 Add-On Component Development Guide* for complete details.

How Do I Add Containers?

Enterprise Server has a highly modular architecture that enables you to add new types of containers that handle many application types, not just Java EE. Enterprise Server defines a service provider interface (SPI), which container developers implement. The Enterprise Server framework then invokes the container's implementation of the SPI to detect, deploy, and manage applications of the new type.

For more information, see Chapter 5, "Adding Container Capabilities," in *Sun GlassFish Enterprise Server v3 Add-On Component Development Guide*.

How Do I Extend the Administration Console?

See Chapter 3, "Extending the Administration Console," in *Sun GlassFish Enterprise Server v3 Add-On Component Development Guide*.

Java Persistence FAQs

What Are the Restrictions and Optimizations for the Java Persistence API?

See "Restrictions and Optimizations" in *Sun GlassFish Enterprise Server v3 Application Development Guide*.

Update Tool FAQs

How Do I Use Update Tool to Extend My Enterprise Server Installation?

Enterprise Server provides an administrative tool called Update Tool that enables you to install updates and add-on components to your existing Enterprise Server installation.

Update Tool can be accessed as a standalone graphical tool from the command line (using the `updatetool` command from *as-install-parent*`/bin`), or as a browser-based graphical tool from the Administration Console (using the Update Tool node). For more information about Update Tool, see "Update Tool" in *Sun GlassFish Enterprise Server v3 Administration Guide*.

Note – To update or remove installed components, you must use the standalone graphical Update Tool, not the Administration Console Update Tool.

A command-line interface is also available for Update Tool. This interface uses the `pkg` command and enables you to perform most of the tasks provided by the standalone graphical version. For more information about the `pkg` command, see Chapter 10, "Extending Enterprise Server," in *Sun GlassFish Enterprise Server v3 Administration Guide*.

Note – Update Tool differs from Upgrade Tool, which is used to migrate the configuration and deployed applications from an earlier version of Enterprise Server to the current version. For more information about Upgrade Tool and upgrading, see the *Sun GlassFish Enterprise Server v3 Upgrade Guide*.

How Do I Turn Off the Notifier?

Update Tool provides automatic notifications of available updates after installation. These notifications can be turned off if desired.

▼ To Turn Off the Notifier

1. **Launch the standalone graphical tool using the `updatetool` command:**

   as-install-parent`/bin/updatetool`

2. **Click Preferences.**

3. **Click the Updates tab.**

4 **Deselect Automatically Check for Updates and click OK.**

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