



Sun GlassFish Communications Server 1.5 Quick Start Guide



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Preface

This Quick Start Guide provides basic procedures to start the server, deploy an application, and set up load balancing and failover.

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

Sun GlassFish Communications Server Documentation Set

TABLE P-1 Books in the Communications Server Documentation Set

Book Title	Description
<i>Documentation Center</i>	Communications Server documentation topics organized by task and subject.
<i>Release Notes</i>	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>	How to get started with the Communications Server product.
<i>Installation Guide</i>	Installing the software and its components.
<i>Application Deployment Guide</i>	Deployment of applications and application components to the Communications Server. Includes information about deployment descriptors.
<i>Developer's Guide</i>	Creating and implementing Java Platform, Enterprise Edition (Java EE platform) applications intended to run on the Communications Server that follow the open Java standards model for Java EE components and APIs. Includes information about developer tools, security, debugging, and creating lifecycle modules.
<i>Java EE 5 Tutorial</i>	Using Java EE 5 platform technologies and APIs to develop Java EE applications.
<i>Java WSIT Tutorial</i>	Developing web applications using the Web Service Interoperability Technologies (WSIT). Describes how, when, and why to use the WSIT technologies and the features and options that each technology supports.
<i>Administration Guide</i>	System administration for the Communications Server, including configuration, monitoring, security, resource management, and web services management.

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

Book Title	Description
<i>High Availability Administration Guide</i>	Setting up clusters, working with node agents, and using load balancers.
<i>Administration Reference</i>	Editing the Communications Server configuration file, <code>domain.xml</code> .
<i>Performance Tuning Guide</i>	Tuning the Communications Server to improve performance.
<i>Reference Manual</i>	Utility commands available with the Communications Server; written in man page style. Includes the <code>asadmin</code> command line interface.

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 Communications Server.	Solaris™ and Linux installations, non-root user: <i>user's-home-directory/SUNWappserver</i> Solaris and Linux installations, root user: <i>/opt/SUNWappserver</i> Windows, all installations: <i>SystemDrive:\Sun\AppServer</i>
<i>domain-root-dir</i>	Represents the directory containing all domains.	All installations: <i>as-install/domains/</i>
<i>domain-dir</i>	Represents the directory for a domain. In configuration files, you might see <i>domain-dir</i> represented as follows: <code>\${com.sun.aas.instanceRoot}</code>	<i>domain-root-dir/domain-dir</i>
<i>instance-dir</i>	Represents the directory for a server instance.	<i>domain-dir/instance-dir</i>
<i>samples-dir</i>	Represents the directory containing sample applications.	<i>as-install/samples</i>
<i>docs-dir</i>	Represents the directory containing documentation.	<i>as-install/docs</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 <i>rm filename</i> .
<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> . <i>A 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.
{ }	Contains a set of choices for a required command option.	<code>-d {y n}</code>	The <code>-d</code> option requires that you use either the <code>y</code> argument or the <code>n</code> argument.
`\${ }	Indicates a variable reference.	<code>\${com.sun.javaRoot}</code>	References the value of the <code>com.sun.javaRoot</code> 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.

TABLE P-4 Symbol Conventions (Continued)

Symbol	Description	Example	Meaning
→	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/>)

Third-Party Web Site References

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

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Quick Start for Basic Features

Welcome to the *Quick Start Guide*. This guide provides a set of sample procedures that you can use to get started with the Communications Server.

Before using the procedures in this document you must have already installed the GlassFish Communications Server software.

This section contains the following topics:

- “Getting Started” on page 9
- “Administration Tools” on page 16
- “Where to Go Next” on page 18

Getting Started

This topic provides instructions for the following basic tasks: starting the Domain Administration Server (DAS), logging into the Admin Console, examining the log files, and starting the node agent. The steps are presented in the order that you should complete them.

- “To Start the Domain on Solaris and Linux” on page 10
- “To Start the Domain on Windows” on page 10
- “To Log On to the Admin Console” on page 11
- “To View the Domain Administration Server Log File” on page 13
- “To Start the Node Agent” on page 14
- “To Add Cluster Support to a Domain” on page 15
- “To Start the Bundled Java DB Server” on page 16

▼ To Start the Domain on Solaris and Linux

To start the Domain Administration Server, start the default domain, domain1.

- 1 **Add the *as-install/bin/* directory to the PATH environment variable.**
- 2 **Start the server by entering this command:**

```
asadmin start-domain domain1
```

When you are prompted for the user, admin password, and the master password, enter your user name and the passwords that you provided during installation. The default admin user name is admin and the password is adminadmin. The default master password is changeit.

When the start up process is complete, the following message appears:

```
Domain domain1 started
```

Each domain has a corresponding profile: cluster or developer. domain1 is created with the default profile, which is defined in the AS_ADMIN_PROFILE variable defined in the asadminenv.conf file. For more information on profiles see the “Usage Profiles” in *Sun GlassFish Communications Server 1.5 Administration Guide*. If domain1 was created with developer profile, when you log in to the Admin Console, you cannot use features such as clustering and node agents. To use clusters and server instances, use the create-domain command to create a domain with cluster profile. For information on creating domains, type asadmin create-domain --help or see [create-domain\(1\)](#).

▼ To Start the Domain on Windows

To start the Domain Administration Server, start the default domain, domain1.

- 1 **From the Explorer window or desktop, right click My Computer.**
- 2 **Choose Properties to display the System Properties dialog.**
- 3 **Click the Advanced tab.**
- 4 **Click Environment Variables.**
- 5 **In the User variables section:**
 - **If a PATH variable exists, verify that *as-install\bin* exists in the path: *as-install\bin*; *other_entries*. If *as-install\bin* does not exist in the PATH variable, add it.**
 - **If a PATH variable is not present, click New. In Variable Name, type PATH. In Variable Value, type the path to the server's bin directory: *as-install\bin*. Click OK to commit the change.**

- 6 **Add a new environment variable `AS_ADMIN_USER` and set it to the Administrative User Name that you assigned during installation.**
- 7 **Click OK to commit the change and close the remaining open windows.**
- 8 **Start the Communications Server by clicking the Start Admin Server option within the Programs menu.**
- 9 **When a command prompt window opens to prompt you for the user name and the admin password, enter the passwords that you provided during installation.**

When you are prompted for the user, admin password, and the master password, enter your user name and the passwords that you provided during installation. The default admin user name is `admin` and the password is `adminadmin`. The default master password is `changeit`.

Note – If you do not find the Start Admin Server option in your menu, open the Windows Command Prompt and type the following command: `asadmin start-domain domain1`

When the startup process has completed, you see an additional message:

```
Domain domain1 started.
Press any key to continue ...
```

Each domain has a corresponding profile: `cluster`, or `developer`. `domain1` is created with the default profile, which is defined in the `AS_ADMIN_PROFILE` variable defined in the `asadminenv.conf` file. For more information on profiles see the “Usage Profiles” in *Sun GlassFish Communications Server 1.5 Administration Guide*. If `domain1` was created with developer profile, when you log in to the Admin Console, you cannot use features such as clustering and node agents. To use clusters and server instances, use the `create-domain` command to create a domain with cluster profile. For information on creating domains, type `asadmin create-domain --help` or see [create-domain\(1\)](#).

- 10 **Press a key to close the message window.**

▼ To Log On to the Admin Console

The Admin Console is a browser interface that simplifies a variety of administration and configuration tasks. It is commonly used to:

- Deploy and undeploy applications
- Enable, disable, and manage applications
- Configure resources and other server settings
- Select and view log files

For further information about using the Admin Console, consult the online help or the *Sun GlassFish Communications Server 1.5 Administration Guide*.

1 Open a browser, and type this URL in your browser:

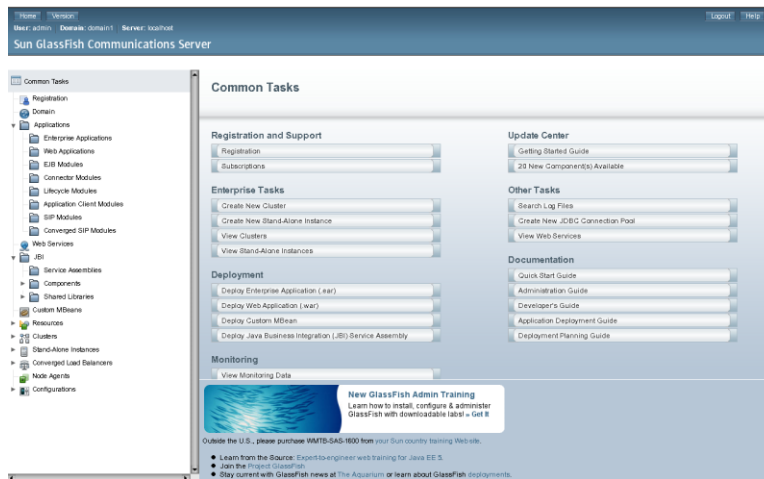
`http://hostname:4848`

If the browser is on a different system than the server, replace the *hostname* variable with the hostname or IP address of the system that the Domain Administration Server is running on.

4848 is the Admin Console's default port number. If you changed the port number during the installation or if you have created a domain with another port number, use that number instead.

Note – If a popup window appears with a message such as Website Certified by an Unknown Authority, click OK.

This message appears because your browser does not recognize the self-signed certificate that the Domain Administration Server uses to service the Admin Console over the secure transmission protocol.

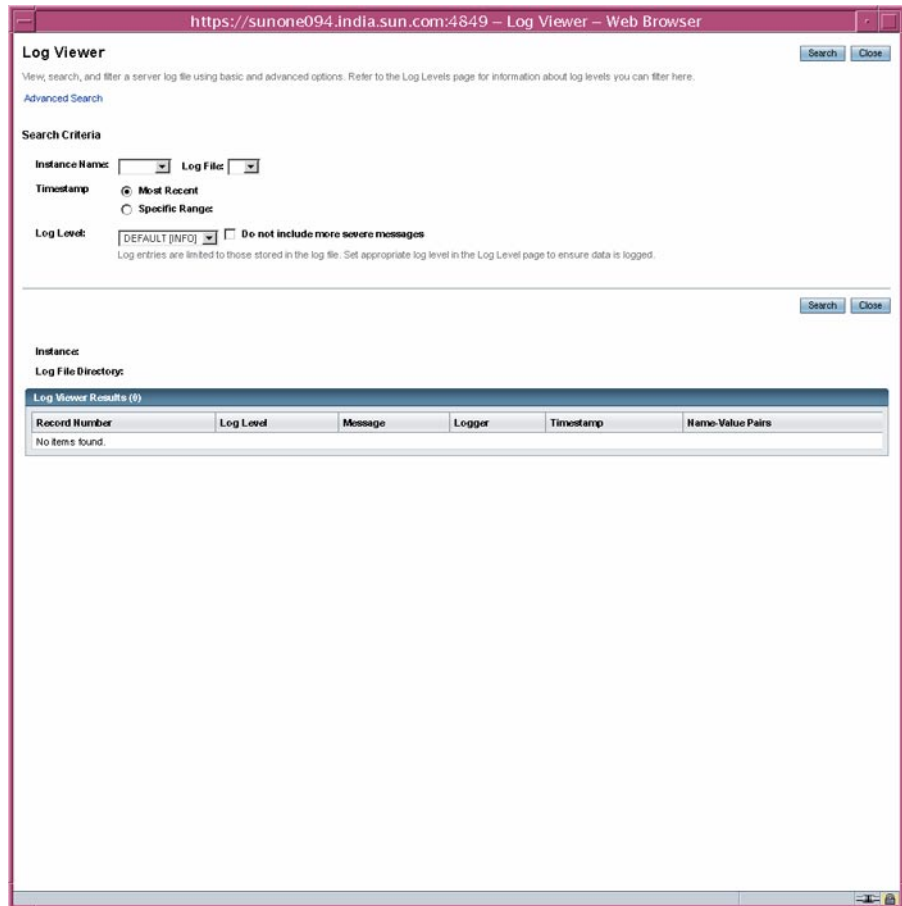
2 When the Log in window appears, enter the admin user name and password.**3 Click Login.**

In the left pane, select what you want to manage from the tree provided. In the right pane, various administrative tasks are listed under the Common Tasks heading.

▼ To View the Domain Administration Server Log File

Communications Server instances and the Domain Administration Server produce annotated logs on the file system. By default, all errors, warnings or useful informative messages are logged.

- 1 From the Common Tasks list in the right pane, click Search Log Files to launch a new browser window for Log Viewer.



- 2 In the Log Viewer window, select “server” from the Instance Name drop-down list and click Search.

The Domain Administration Server’s recent log file entries are displayed.

- 3 **Scan the messages and look for any WARNING or SEVERE messages indicating that problems were encountered during server startup.**

You can close Log Viewer at any time. After you create clusters and deploy applications, examine log files if any of the operations failed. Use Log Viewer to view the log files of any running Communications Server instance in the domain.

▼ To Start the Node Agent

A *node agent* is a lightweight process running on each machine that participates in an administrative domain. The node agent is responsible for starting and stopping server instances on the host. It also communicates with the Domain Administration Server to create new instances.

Note – You can use node agents only on domains with the cluster profile . If you are running only a developer domain, you need to create a domain with cluster profile before you can create and use node agents. For information on creating domains, type `asadmin create-domain --help` or see the `create-domain(1)` man page.

One node agent is needed on a machine for each administrative domain that the machine belongs to. A default node agent called *hostname* may be created during installation. If not, create a node agent, using the `create-node-agent(1)` command.

- 1 **In a terminal window, type this command:**

```
asadmin start-node-agent nodeagentname
```

Replace the variable *nodeagentname* with the name of the node agent you created. If your default domain on port 4848 (`domain1`) is not running on cluster profile , use the `--port` option to specify the port of the cluster domain.

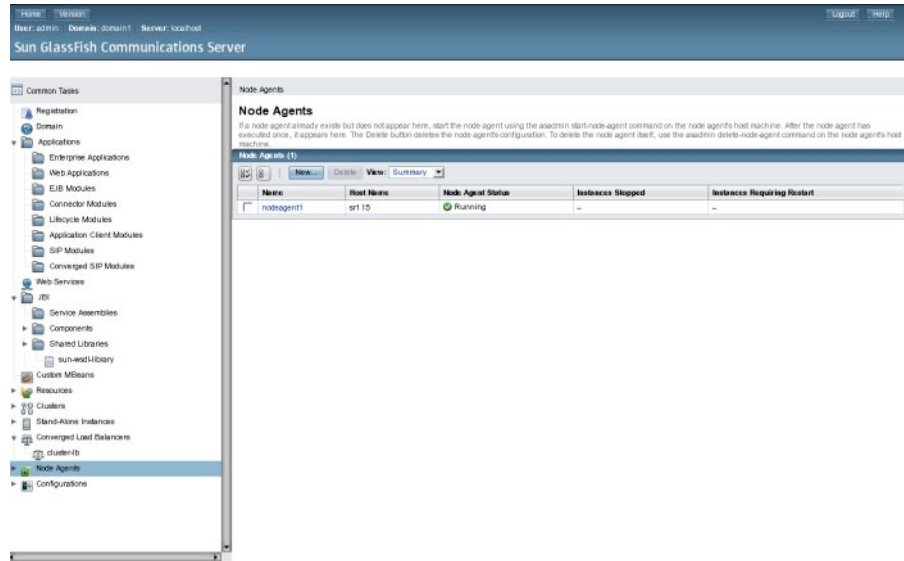
- 2 **When you are prompted, provide the master password.**

The node agent starts and connects with the Domain Administration Server.

Note – Ensure that the Domain Administration Server is running before you start the node agent. Check the `server.log` file of a cluster instance to identify problems related to starting node agents or cluster instances.

If you have problems while starting a node agent or a cluster on Windows, see the [Sun GlassFish Communications Server 1.5 Release Notes](#) for possible solutions to the problem.

After the node agent has been started once, you can view it in the Admin Console.



Next Steps In this section you started the Domain Administration Server and confirmed that it is running. You also logged in to the Admin Console and used the Log Viewer. You started the node agent. You can stop the Quick Start trail here if you do not wish to continue, or you can go on to the next section.

▼ To Add Cluster Support to a Domain

You can use the Admin Console add cluster support to a developer domain.

- 1 Log on to the Admin Console. For instructions, see [“To Log On to the Admin Console” on page 11](#).
- 2 From the left pane, click Application Server.
- 3 Click the Add Cluster Support button in the General tab.
- 4 The Add Cluster Support page appears. Review the information on this page and click OK.
- 5 In the Restart Required Page, click the Stop Instance button to stop the domain.
- 6 Log in to the machine where the domain is installed and run the following command:
`as-install/bin/asadmin list-domains`. Verify that the domain was stopped.
- 7 Run the following command: `as-install/bin/asadmin start-domain <domain-name>`
The restarted domain supports clustering.

More Information Troubleshooting

If the restarted domain does not show clustering capabilities, stop the domain, reboot the machine on which the domain is installed, and restart the domain as shown in step 7.

▼ To Start the Bundled Java DB Server

The Communications Server includes a bundled Java DB server. To start it, use the following procedure:

- 1 Make sure that you are logged in as the user that installed the database.**
- 2 Run `asadmin start-database`.**

For more information on the `start-database` command, see the [start-database\(1\)](#) man page.

Administration Tools

To enable administrators to manage server instances and clusters running on multiple hosts, Communications Server provides these tools:

- The Admin Console, a browser-based graphical user interface (GUI). You can launch the Admin console by opening `http://hostname:4848` in your browser.
- Command-line tools, such as the `asadmin` utility. See [Table 1-1](#) for the complete list of command-line tools. The `asadmin` utility is at `as-install/bin`.
- Programmatic Java Management Extensions (JMX™) APIs

These tools connect to a server called the *Domain Administration Server*, a specially designated instance that intermediates in all administrative tasks. The Domain Administration Server (DAS) provides a single secure interface for validating and executing administrative commands regardless of which interface is used.

A *domain* is a collection of configuration data, deployed applications, and machines with a designated administrator. The domain definition describes and can control the operation of several applications, stand-alone instances, and clusters, potentially spread over multiple machines. When the DAS is installed, a default domain called *domain1* is always installed. You work with the default domain in this guide.

Communications Server offers a variety of command-line tools for performing administrative functions, in addition to the Admin Console. To launch a tool, type the name of the tool in a command window. [Table 1-1](#) lists tools by name in the first column and describes them in the second column.

TABLE 1-1 Command-Line Tools

Name of Tool	Description
<code>appclient</code>	Launches the Application Client Container and invokes the client application packaged in the application Java archive (JAR) file.
<code>asadmin</code>	Launches the Communications Server administration tool that provides a set of subcommands for configuring the Communications Server software.
<code>asant</code>	Launches the Jakarta Ant tool, so that you can automate repetitive development and deployment tasks.
<code>asapt</code>	Compiles Java sources with Java EE annotations. The tool automatically invokes the <code>wsimport</code> command.
<code>asupgrade</code>	Communications Server administration tool for upgrading the Communications Server software.
<code>capture-schema</code>	Extracts schema information from a database and produces a schema file that the server can use for Container Managed Persistence (CMP).
<code>jspc</code>	Compiles JSP pages.
<code>package-appclient</code>	Packages the application client container libraries and JAR files.
<code>schemagen</code>	Creates a schema file for each namespace referenced in your Java classes.
<code>verifier</code>	Validates the Java EE deployment descriptors with the DTDs. This tool also provides a graphical user interface. To see the GUI, specify the <code>-u</code> option. Some Windows systems launch a driver verifier utility with the same name. To launch the Communications Server verifier, you must be in the <code>as-install/bin</code> directory.
<code>wscompile</code>	Takes the service definition interface and generates the client stubs or server-side skeletons for JAX-RPC; or generates a Web Services Description Language (WSDL) description for the provided interface.
<code>wsdeploy</code>	Generates an implementation-specific, ready-to-deploy WAR file for web services applications that use JAX-RPC.
<code>wsgen</code>	Reads a web service endpoint class and generates all the required artifacts for web service deployment and invocation.
<code>wsimport</code>	Generates JAX-WS portable artifacts, such as service endpoint interfaces (SEIs), services, exception classes mapped from the <code>wsdl:fault</code> and <code>soap:headerfault</code> tags, asynchronous response beans derived from the <code>wsdl:message</code> tag, and JAXB generated value types.
<code>xjc</code>	Transforms, or binds, a source XML schema to a set of JAXB content classes in the Java programming language.

Note –

- To run these command-line tools on Windows, ensure that you have an environment variable called PATH that points to the *as-install/bin/* directory.
 - You can run the `asadmin` subcommands by prefixing `asadmin` with every sub command or by entering the `asadmin` prompt (type `asadmin` and hit Return) in the *as-install/bin/* directory.
-

Where to Go Next

The next steps of the *Quick Start Guide* are available in the following chapters.

- [Chapter 2, “Setting Up a Cluster”](#)
Steps for creating a sample cluster. Skip to the next chapter if you are running a domain with developer profile.
- [Chapter 3, “Deploying an Application”](#)
Steps for deploying a sample web application. If you are using a domain with cluster capabilities, you can perform the steps for deploying an enterprise application to a cluster.

Other resources for learning and using Communications Server are available. They include:

- Product details at [as-install/docs/about.html](#).
- Sample applications at [as-install/samples](#)
- Sample SIP applications at [as-install/samples/sipservlet](#)
- [Sun GlassFish Communications Server 1.5 Release Notes](#)
- [Sun GlassFish Communications Server 1.5 Reference Manual](#) (man pages)
- [Sun GlassFish Communications Server 1.5 Application Deployment Guide](#)
- [The Java EE 5 Tutorial](#)
- [Java BluePrints \(http://java.sun.com/blueprints\)](http://java.sun.com/blueprints) guidelines for the Enterprise

Setting Up a Cluster

This chapter describes how to create and set up clusters. A *cluster* is a group of server instances (typically on multiple hosts) that share the same configurations, resources, and applications. A cluster facilitates load balancing across server instances and high availability through failover. You can create clusters spanning multiple machines and manage them with the help of the node agent process on each machine.

This chapter assumes that you are running a domain with cluster profile. This chapter has the following sections:

- [“Setting Up a Cluster with Converged Load Balancer”](#) on page 19
- [“Creating a Cluster that Spans Multiple Machines”](#) on page 22
- [“Viewing Ports for Clustered Server Instances”](#) on page 26

Setting Up a Cluster with Converged Load Balancer

This section explains how to create a cluster that contains two Communications Server instances and describes how to use the converged load balancer, which is available out-of-the-box with a Communications Server installation. This section assumes that you have installed Communications Server with clustering.

▼ To Set Up a Cluster with Converged Load Balancer

This procedure creates the sample cluster on the same host on which the DAS is running.

Before You Begin It is assumed that you have already started the node agent. When you specify instances during cluster creation, associate the instance with a running node agent for the machine on which you want the instance to run. If the node agent is not running, the instance will not start. Node agent and instance names must be unique across clusters that are created in a domain.

- 1 Log in to the Administration Console at `http://hostname:portnumber` if you have not already done so.**

Replace the *hostname* variable with the name of the system that the Domain Administration Server is running on. Replace *portnumber* with the port number of the cluster domain, `domain1`.

- 2 On the left pane, click the Clusters tab.**
- 3 Communications Server installation creates a default cluster called `default-cluster`, which is associated with a default converged load balancer called `cluster-lb`. Click `default-cluster`. The General Information for this cluster appears.**

Note – In the General tab on the right hand pane, ensure that the Heartbeat Enabled checkbox is selected. You need GMS service to be running to be able to use the converged load balancer.

- 4 On the right pane, click the Instances tab. Click the New button to create two entries to specify two instances for the cluster.**
- 5 Type `instance1`. In the Node Agent field, `nodeagent1` is selected by default.**
- 6 Type `instance2`. In the Node Agent field, `nodeagent1` is selected by default. Click Save.**

Instead of steps 4,5, and 6 you can use the following `asadmin` commands:

- ```
asadmin create-instance --user admin --passwordfile adminpassword.txt --host
hostname -port 4848 --cluster default-cluster --nodeagent nodeagent1
--systemproperties
"JMX_SYSTEM_CONNECTOR_PORT=8687:IIOP_LISTENER_PORT=3330:IIOP_SSL_LISTENER_PORT=4440:IIOP
MUTUALAUTH_PORT=5550:HTTP_LISTENER_PORT=1110:HTTP_SSL_LISTENER_PORT=2220"
instance1
```
- ```
asadmin create-instance --user admin --passwordfile adminpassword.txt --host
hostname -port 4848 --cluster default-cluster --nodeagent nodeagent1
--systemproperties
"JMX_SYSTEM_CONNECTOR_PORT=8688:IIOP_LISTENER_PORT=3331:IIOP_SSL_LISTENER_PORT=4441:IIOP
MUTUALAUTH_PORT=5551:HTTP_LISTENER_PORT=1111:HTTP_SSL_LISTENER_PORT=2221"
instance2
```

- 7 Click Save.**
- 8 Run the following command to enable converged load balancing in `default-cluster`:**
`asadmin enable-converged-lb-server default-cluster`

- 9 From the Converged Load Balancers node in the Admin Console, choose `cluster-lb`, and click the Targets tab. Click the Edit Load Balancer Details link. In the Edit Load Balancer Details page, click to enable the Automatically Apply Changes option and click Save. By default, this option is disabled.

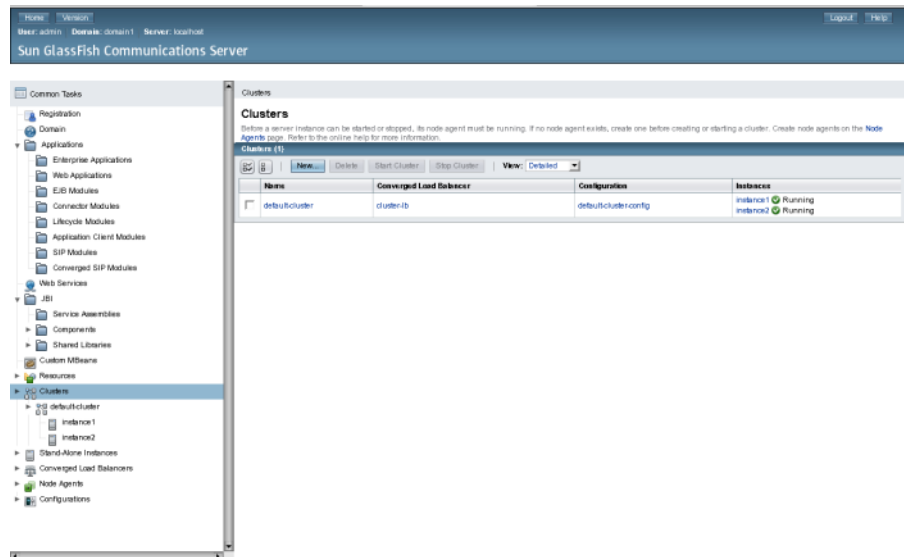
You can also use the `asadmin set` command to set this option to true. For more details, see Chapter 2, “Configuring Converged Load Balancing,” in *Sun GlassFish Communications Server 1.5 High Availability Administration Guide*.

- 10 To start the cluster,

- Click the General tab and click the Start Cluster button.
- Start the cluster and its instances by running the following command:

```
asadmin start-cluster --user admin --passwordfile adminpassword.txt --host
hostname --port 4848 default-cluster
```

The two instances are started by default when you start the cluster. `default-cluster` is associated with a converged load balancer called `cluster-lb`, which is created by default by the Communications Server installation. This figure shows `default-cluster` and two instances running on this cluster.



Creating a Cluster that Spans Multiple Machines

▼ To Create a Cluster With Instances On Different Machines

The following procedure demonstrates how to create a cluster that has two instances, instance3 and instance4, each running on different machines. The two machines are called schumi and sr115. schumi is the machine that is denoted as the administrative node and is called the Domain Administration Server (DAS).

Before You Begin You must have already installed Communications Server on both machines.

1 Create and start a node agent (nodeagent2) on the DAS machine.

Use the following command: `asadmin create-node-agent --user admin --host schumi nodeagent2`

2 Start the node agent on the DAS machine.

Use the following command: `asadmin start-node-agent --user admin --host schumi nodeagent2`. For more information, see [start-node-agent\(1\)](#) command.

3 Create a start a node agent on another machine.

This example uses a second machine called sr115. On the second machine, at the invoke the `asadmin` utility and use the following command: `asadmin create-node-agent --user admin --host schumi nodeagent3`

Note – You need to provide the DAS machine name in the `--host` option.

4 Start the node agent on the second machine.

Use the following command: `asadmin start-node-agent --user admin --host schumi nodeagent3`. For more information, see [start-node-agent\(1\)](#) command.

5 Log in to the Admin Console of the DAS machine at `http://das-machine-name:portnumber`.

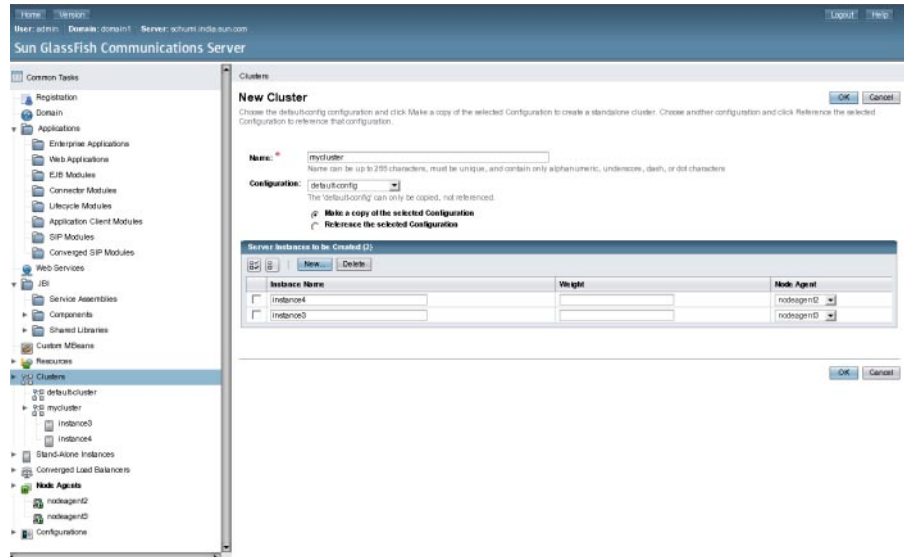
You can see that the two node agents are running if you click Node Agents on the left-hand tree on the Admin Console.

6 On the left pane, click the Clusters tab and click New.

7 Specify a name for the cluster.

This example creates a cluster with the name, `mycluster`.

- 8 In the **Server Instances to be Created** section, click **New**.
- 9 Type the instance name as `instance3` and choose **node agent**, `nodeagent3`.
`nodeagent3` was created on the machine called `sr115` in step 2 of this procedure.
- 10 Type the instance name as `instance4` and choose **node agent**, `nodeagent2`.
`nodeagent2` was created on the DAS machine called `schumi` in step 1 of this procedure.

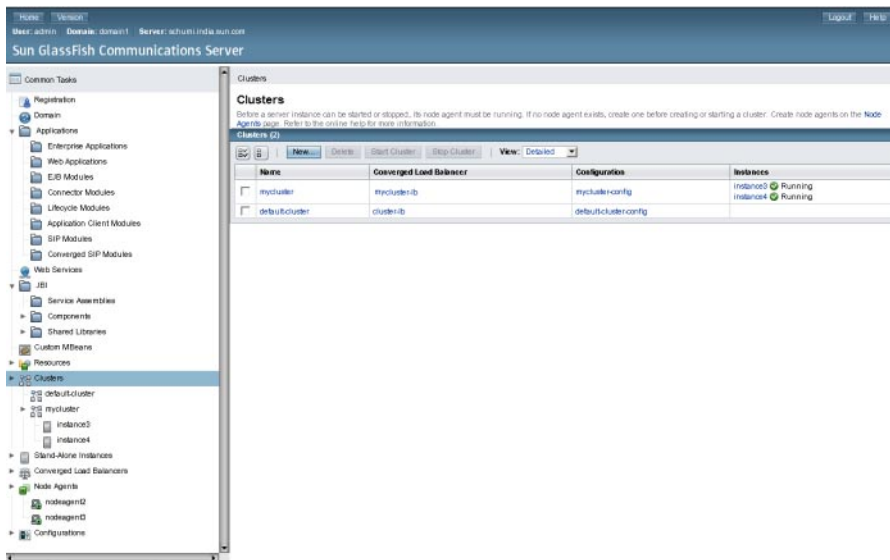


- 11 Click **OK**.
The cluster gets created.
- 12 To create and enable a converged load balancer for this cluster, use the following command:

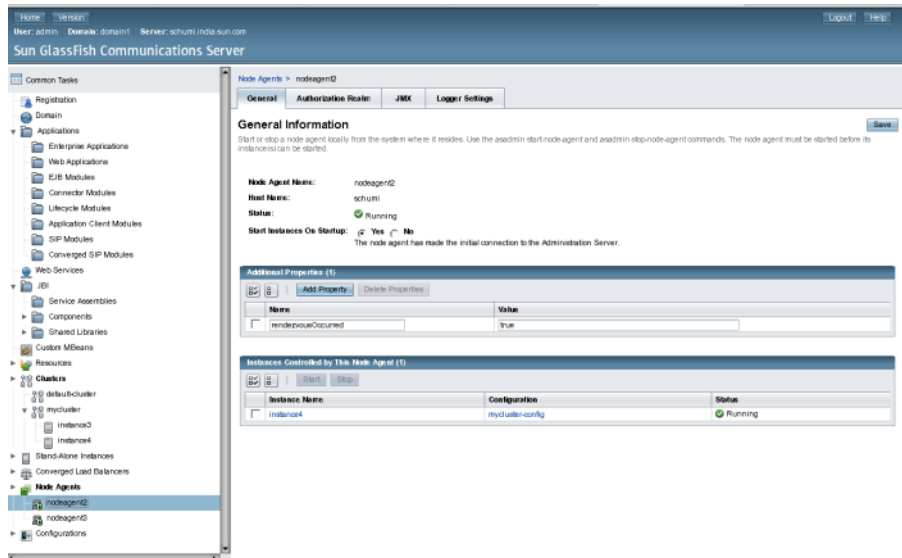
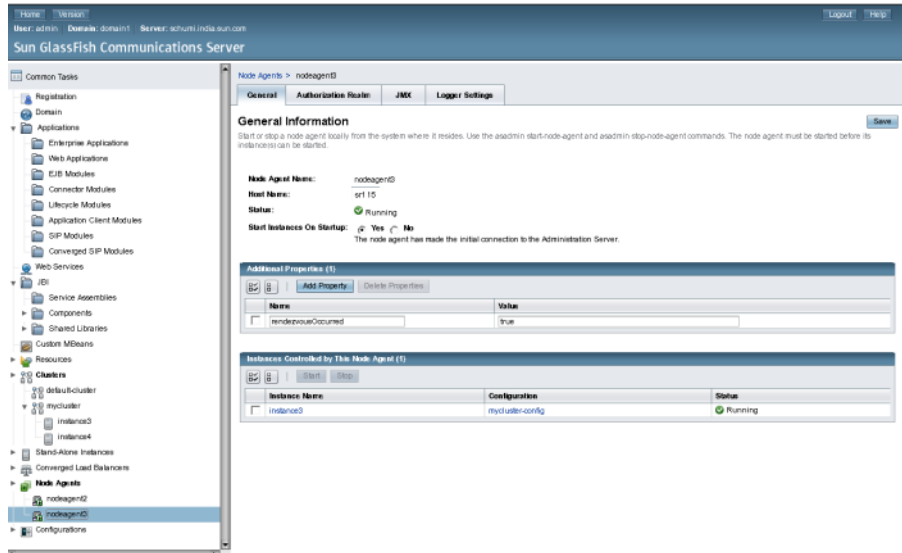
```
asadmin create-converged-lb --user admin --passwordfile pass.txt --configfile clb.xml --autocommit=true --lbenableallinstances=true --target mycluster mycluster-lb
```
- 13 From the **Converged Load Balancers** node in the Admin Console, choose `cluster-lb`, and click the **Targets** tab. Click the **Edit Load Balancer Details** link. In the **Edit Load Balancer Details** page, click to enable the **Automatically Apply Changes** option and click **Save**. By default, this option is disabled.

You can also use the `asadmin set` command to set this option to true. For more details, see [Chapter 2, “Configuring Converged Load Balancing,” in *Sun GlassFish Communications Server 1.5 High Availability Administration Guide*](#).

- 14 In the left pane, click Clusters.
- 15 In the right pane, select the checkbox next to `mycluster` and click the **Start Cluster** button, The cluster and the two instances start.



The two instances in `mycluster` are running on different machines and are controlled by different node agents. You can view the two node agents and see each instance associated with it.



If you deploy an application on mycluster, the application is accessible from two machines.

Viewing Ports for Clustered Server Instances

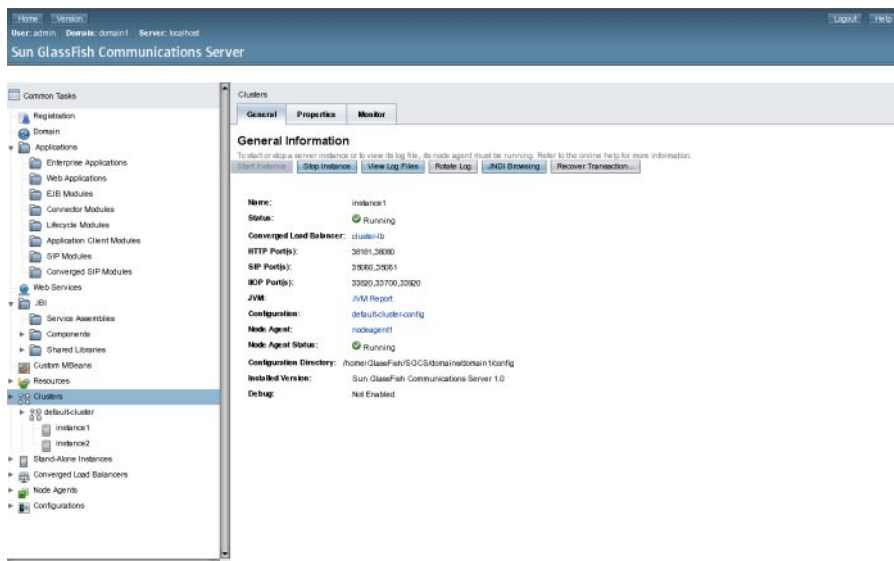
▼ To View Ports for Clustered Server Instances

You can view the ports numbers and override the default values for the clustered server instance you created in the previous section, “[Setting Up a Cluster with Converged Load Balancer](#)” on [page 19](#). By default, the HTTP ports are 38081 for `instance1` and 38080 for `instance2`. If these ports were busy on your machine when you created these clusters, or if you had already assigned these ports to other instances and clusters, different port numbers were assigned.

To view the port numbers and optionally override the default values, follow these steps:

- 1 In the left pane, expand **Clusters** and click `default-cluster` to display the **General Information** page for clusters.
- 2 Click the **Instances** tab to display `instance1` and `instance2`, the instances that you created.
 - a. Click `instance1` to examine this instance.

The HTTP and HTTPS ports assigned to the instance are displayed in the HTTP Ports field. The SIP and SIPS Ports are displayed in the SIPS field.



Next Steps In this section you have created a simple cluster on a single machine. You can also create clusters spanning multiple machines using the same basic steps (as long as you have the software installed and a node agent running on each machine).

Deploying an Application

This chapter explains how to deploy an application. If you are running a domain with developer profile, see [“Deploying a Sample Web Application” on page 31](#). If you are running a domain with cluster profile, see [“Deploying the Sample Enterprise Application to a Cluster” on page 33](#).

This chapter presents the following sections:

- [“Deploying a Sample SIP Module” on page 29](#)
- [“Deploying a Sample Web Application” on page 31](#)
- [“Deploying the Sample Enterprise Application to a Cluster” on page 33](#)
- [“To Verify Application Deployment” on page 34](#)

Deploying a Sample SIP Module

▼ To Deploy the CallSetup Application Using Admin Console

- 1 Log in to the Admin Console if you have not already done so.
- 2 Start the Java DB database, as explained in the section, [“To Start the Bundled Java DB Server” on page 16](#).
- 3 Click **Converged SIP Modules**.
You can see the list of deployed web applications, if any.
- 4 Click **Deploy**.
- 5 Select the **Local Packaged File or Directory that is Accessible to Application Server** option.

6 Browse to the *as-install/samples/sipservlet/CallSetup/* directory.

Tip – For more details about deploying this sample, see *as-install/samples/sipservlet/CallSetup/CallSetup.html*.

7 Choose *CallSetup.sar*.

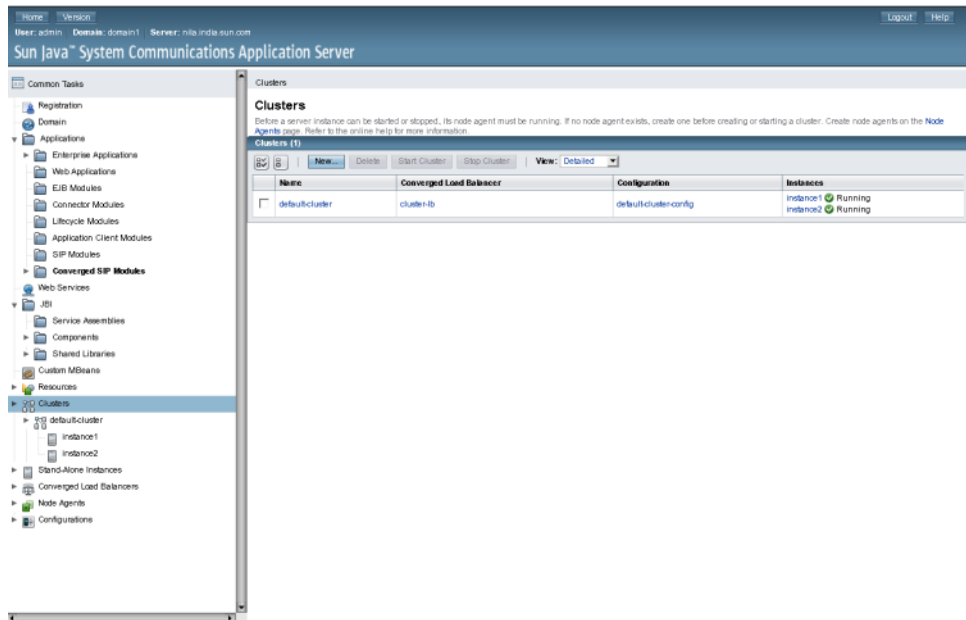
8 If you are running a domain with clustering capabilities, you need to specify a target. In the **Targets section of the page, select *server* from the **Available** list, and click **Add** to move it to the **Selected** list**

9 Click **OK.**

The application appears in the Converged SIP Modules list.

**10 To verify that it was deployed properly, point your browser to the following location:
<http://hostname:HTTPport/CallSetup/>**

The default HTTP port is 8080.



More Information Deploying Applications Using CLI Commands

You can deploy applications using the `asadmin deploy` command. You can also use the `asant` commands for deployment. For detailed information on deploying applications, see the Sun GlassFish Communications Server Application Deployment guide.

Deploying a Sample Web Application

These procedures assume that you are running a domain with developer profile.

▼ To Deploy the Hello Application Using Autodeploy

The Hello application is contained in a Web ARchive (WAR) file in the `samples/quickstart` directory. Packaged applications can also be in the form of a Java ARchive (JAR) or Enterprise ARchive (EAR) file.

Alternatively, you can download this application from

<https://glassfish.dev.java.net/downloads/quickstart/hello.war>.

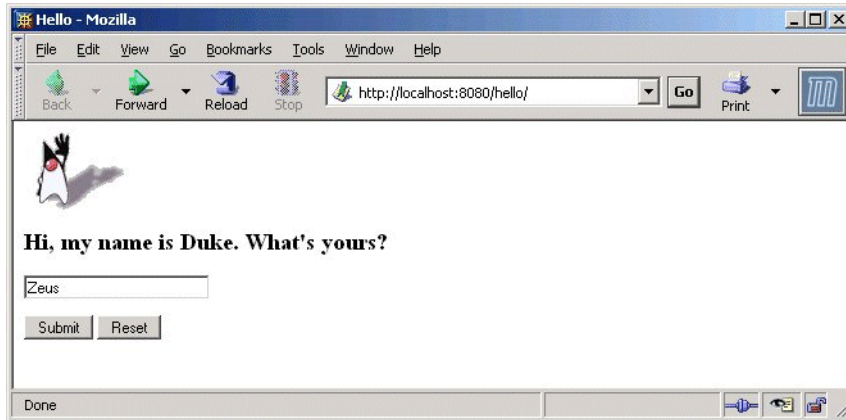
Copying to a domain's autodeploy directory lets you put a pre-packaged application into use immediately, with minimal effort.

- 1 **Find** `as-install/samples/quickstart/hello.war` **or download from** <https://glasfish.dev.java.net/downloads/quickstart/hello.war>.
- 2 **Copy** `hello.war` **to the** `as-install/domains/domain1/autodeploy/` **directory.**

Tip – On Windows, you can create a shortcut to the autodeploy directory on your desktop, and then drag and drop the `hello.war` file onto the shortcut.

When the server has finished deploying the application, it creates a file named `hello.war_deployed` in the autodeploy directory. Depending on the speed of your system, the process can take a few seconds. Until that file appears, a 404-File Not Found error occurs when you try to visit the application page.

- 3 **Access this URL to visit the application page:** `http://hostname:HTTPport/hello`.
You see the application's first page, which prompts you to fill in your name:
- 4 **Type your name and click Submit.**
The application displays a customized response, giving you a personal Hello.



▼ To Deploy the Hello Application Using Admin Console

- 1 Open the Admin Console in a web browser if you have not done so already.
- 2 In the left pane, click the Applications node to expand it.
- 3 Click Web Applications.
You can see the list of deployed web applications, if any.
- 4 Click Deploy.
- 5 You can use the Hello application bundled with the Communications Server or you upload the sample you have downloaded from <https://glasfish.dev.java.net/downloads/quickstart/hello.war>. Do one of the following:
 - Select the option called Local packaged file or directory that is accessible to Application Server and click Browse Files. Navigate to the `as-install/samples/quickstart` directory and select `hello.war`.
- 6 If you have downloaded the Hello application, click Browse in the Packaged File to Upload text box. Navigate to the directory to which you have downloaded the application.
- 7 Click OK.
The application appears in the Web Applications list.
- 8 To verify that it was deployed properly, in the Web Applications page, select the Hello application and click Launch.

More Information Deploying Applications Using CLI Commands

You can deploy applications using the `asadmin deploy` command. You can also use the `asant` commands for deployment. For detailed information on deploying applications see the Sun GlassFish Communications Server Application Deployment guide.

Deploying the Sample Enterprise Application to a Cluster

These procedures assume that you are running a domain with cluster profile. The procedures in this chapter assume that you have already created a cluster called `default-cluster`, as described in [Chapter 2, “Setting Up a Cluster.”](#) This section uses the `clusterjsp` sample application to demonstrate HTTP load balancing capabilities.

▼ To Deploy the Sample Enterprise Application Using Admin Console

- 1 **Open the Admin Console in a web browser if you have not done so already.**
- 2 **Click Common Tasks on the left pane to go to the Common Tasks page, if you are not there already.**
- 3 **On the right pane, under Common Tasks, click Deploy Enterprise Application (.ear).**
- 4 **Select the radio button to the left of the Local packaged file or directory that is accessible from the Application Server option and then click the Choose File... button. Navigate to `as-install/samples/quickstart/clusterjsp/clusterjsp.ear`.**
If you are accessing Communications Server remotely, and if the sample application is accessible from your client machine choose the Packaged file to be uploaded to the server option and click Browse.
- 5 **Click the Availability enabled check box to make your application highly available.**
It is recommended that you set the heap size to a larger value, if you have available memory in your system. For example, `<jvm-options>-Xmx1000m</jvm-options>`
- 6 **In the Targets section of the page, select `mycluster` from the Available list, and click Add to move it to the Selected list.**
- 7 **Click OK.**

The `clusterjsp` application is now deployed to `default-cluster`. Before you launch this application, you need to start the instances in the cluster.

Note – Ensure that you have enabled cookies in your browser before you deploy this application. clusterjsp is a sample application. Please use with caution in a production environment.

More Information Deploying Applications Using CLI Commands

You can deploy applications using the `asadmin deploy` command. See the `deploy man` page in the Reference Manual. You can also use the `asant` commands for deployment. For detailed information on deploying applications see `Deploying Modules and Applications` in the Application Deployment Guide.

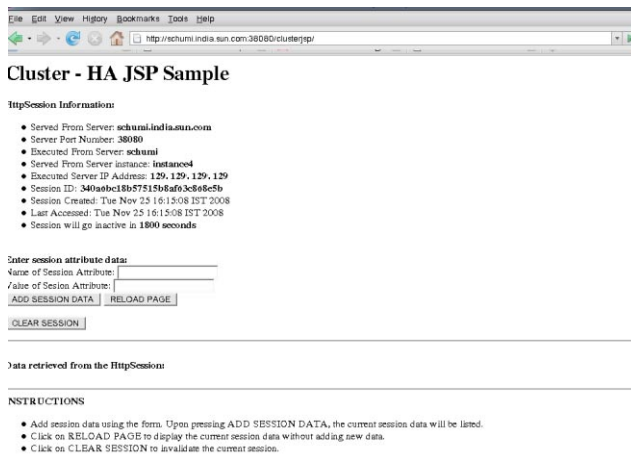
▼ To Verify Application Deployment

1 Type the following URL in your browser:

`http://hostname:port/clusterjsp`

Replace the `hostname` variable with the name of the system that the Domain Admin Server is running on.

Replace the `port` variable with the value of `HTTP-LISTENER-PORT` for `instance4`. This example uses `http://hostname:38081/clusterjsp`.



2 Add some session attribute data.

3 Examine the Session and Host information displayed. For example:

- Executed From Server: *localhost*
- Server Port Number: 38081
- Executed Server IP Address: 198.19.255.255
- Session Created: Tue Aug 23 15:26:07 PDT 2005

4 Add some session data and click the Add to Session button.

5 Repeat this procedure for instance `instance3` by typing this URL in your browser:

`http://hostname:38081/clusterjsp`

