Oracle® Communications Converged Application Server

Installation Guide

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Oracle Communications Converged Application Server Installation Guide, Release 4.0

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CHAPTER 1

Oracle Communications Converged Application Server Quick-Start

Installation

This document summarizes the tasks required to install and configure a multiple-server installation of Oracle Communications Converged Application Server. This document contains the following sections:

- "Supported Platforms" on page 1-2
- "Obtaining the Installation Program" on page 1-2
- "Products Included in the Installation Program" on page 1-2
- "Selecting the Components To Install" on page 1-2
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Supported Platforms

For complete details about the hardware and software configurations supported by Oracle Communications Converged Application Server, see Supported Platforms in the *Technical Product Description*. This document describes supported operating systems, load balancers, database configurations, and other tools and configurations.

Obtaining the Installation Program

Oracle makes the installation program available via Web distribution as well as DVD, which is available when you obtain the physical product media. Use the following link to obtain the installation program from the Web:

`http://www.oracle.com/technology/software/index.html`

Products Included in the Installation Program

The WebLogic Server installation program provides the ability to install the following products:

- WebLogic Server
- Workshop for WebLogic

The installation program also allows you to selectively install one or more subcomponents of each of these product offerings, explained in "Selecting the Components To Install" on page 1-2. In addition, depending on your operating system platform, the installation program also makes the JRockit or Sun JDKs available for installation as well.

Selecting the Components To Install

The installation program gives you the option to install the WebLogic Communications Server product and the core WebLogic Server product, upon which WebLogic Communications Server is based. In addition, when installing these products, you have the option of selecting specific product subcomponents to install. Depending on your needs, installing only the subcomponents

you need can help you minimize run-time resource requirements, and potentially start-up times as well.

WebLogic Communications Server enables you to select two product components:

- **WebLogic Communications Server**—Installs the core required components for WebLogic Communications Server, including the SIP Servlet container and Diameter functionality.
- **WebLogic Communications Server Examples**—Installs optional example applications that you can compile and deploy to a new domain. These examples are not installed by default.

See also WebLogic Server Product Components You May Select for Installation in the Oracle WebLogic Server documentation for information about core WebLogic Server components.

Overview of Installation Steps

The quick-start installation involves performing the following steps:

- "Step 1: Install Oracle Communications Converged Application Server on All Machines" on page 1-4. In this step, you use the Oracle installation program to copy the Oracle Communications Converged Application Server product onto all server machines that will host a Oracle Communications Converged Application Server instance.
- "Step 2: Create an Administrative Domain" on page 1-14. In this step, you create the administrative domain that will contain all of the servers and clusters in your Oracle Communications Converged Application Server installation.
- "Step 3: Configure Server Instances and Clusters" on page 1-16. In this step, you create and configure servers and clusters in the Oracle Communications Converged Application Server domain.
- "Step 4: Configure SIP Data Tier Partitions" on page 1-18. In this step, you define which server instances participate in the Oracle Communications Converged Application Server SIP data tier, and define the SIP data tier partitions in which each server participates.
- "Step 5: Start the Administration Server and Managed Servers" on page 1-20. In this step, you boot the Administration Server and then boot all other Managed Servers in your installation.

Step 1: Install Oracle Communications Converged Application Server on All Machines

The Oracle Communications Converged Application Server software must be available on all server machines that will run a Oracle Communications Converged Application Server instance. Follow these steps for the Administration Server machine and for all other machines that will run a Managed Server:

1. Execute the installation program for your operating system. To execute the Linux binary installation program:

   ```
   chmod a+x ./owlcs1013_linux32.bin
   ```

   ```
   ./owlcs1013_linux32.bin
   ```

   (Substitute the appropriate filename for the installation program you have obtained.)

   To launch the generic JAR file installation:

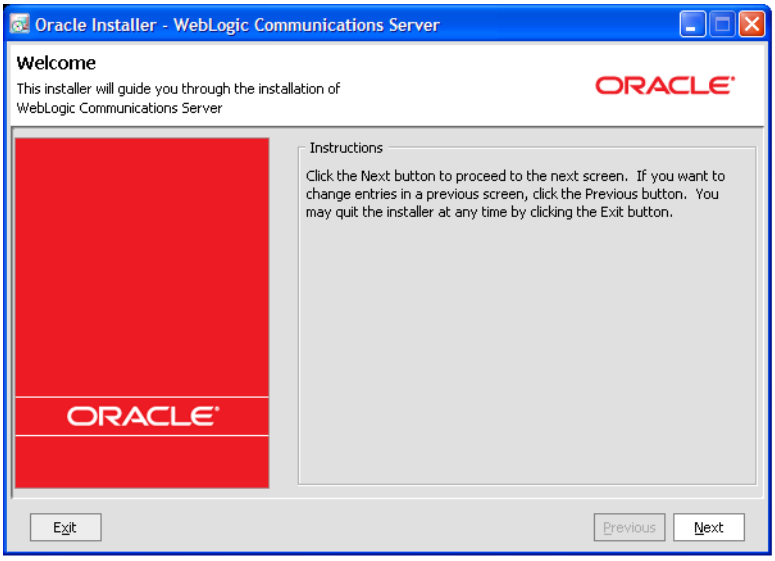
   a. Ensure that the path to the `bin` directory of a supported Java VM is part of your `PATH` environment variable.

   b. Launch the generic installer with:

      ```
      java -jar ./owlcs1013_generic.jar
      ```

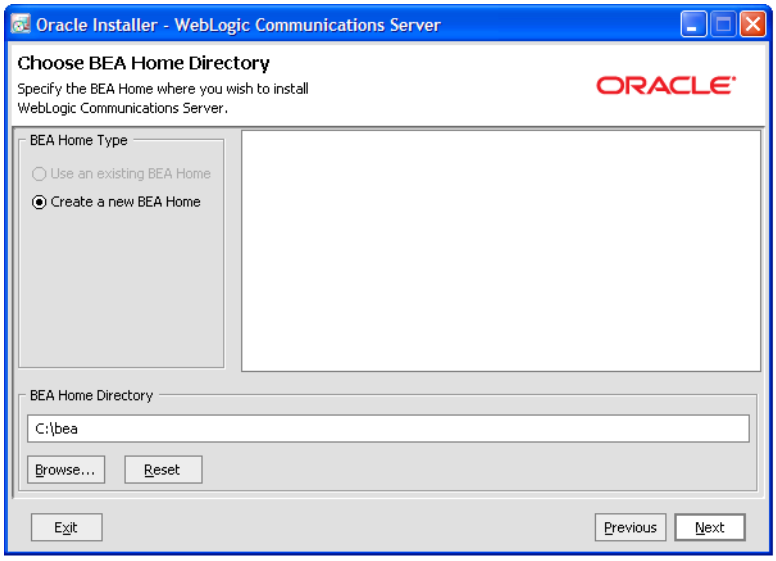
   The Welcome screen appears as shown in Figure 1-1.

Figure 1-1 Welcome screen



2. Click Next to continue.
3. Choose a directory on your machine into which the WebLogic Communications Server and WebLogic Server software will be installed. This directory is called the BEA Home directory, as shown in Figure 1-2.

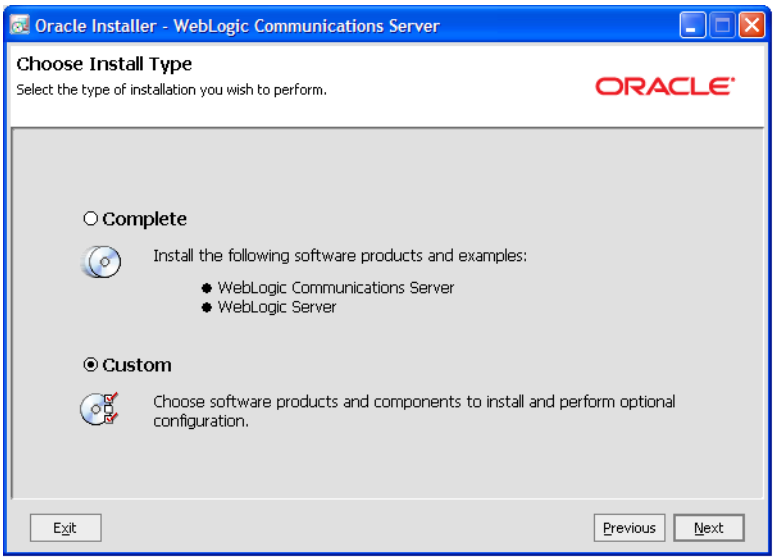
Figure 1-2 Choose home directory



If you have an existing directory into which one or more Oracle WebLogic products have been installed, that directory is selected by default. You may use that directory, or click **Create a new BEA Home** to specify a new directory to be created for the installation. By default, the BEA Home directory is named **bea**.

4. Click Next.
5. The installation program displays a window in which you are prompted to perform a complete or a custom installation, as shown in Figure 1-3.

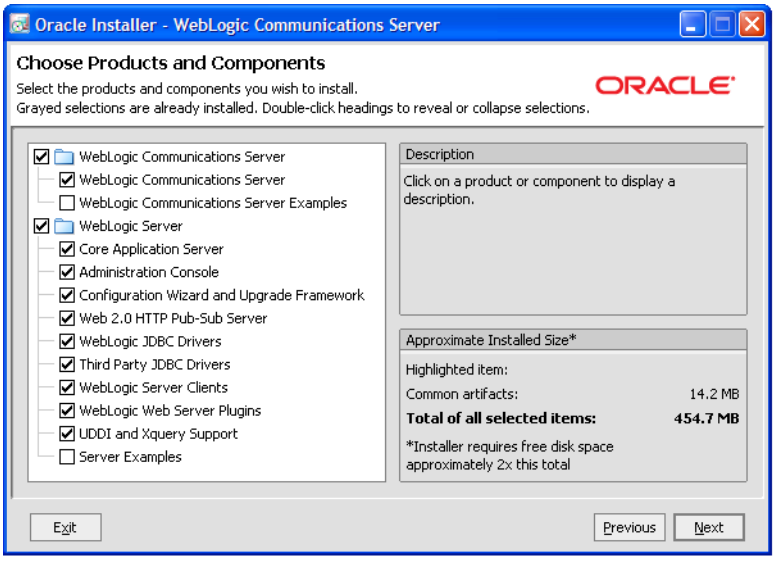
Figure 1-3 Choose install type



Select either Complete or Custom, and click Next. The steps that follow show a Custom installation.

6. If you select a Custom installation, the installer prompts you to select products and product components, as shown in Figure 1-4. By default, all components of WebLogic Communications Server and WebLogic Server are selected, except for examples.

Figure 1-4 Choose products and components

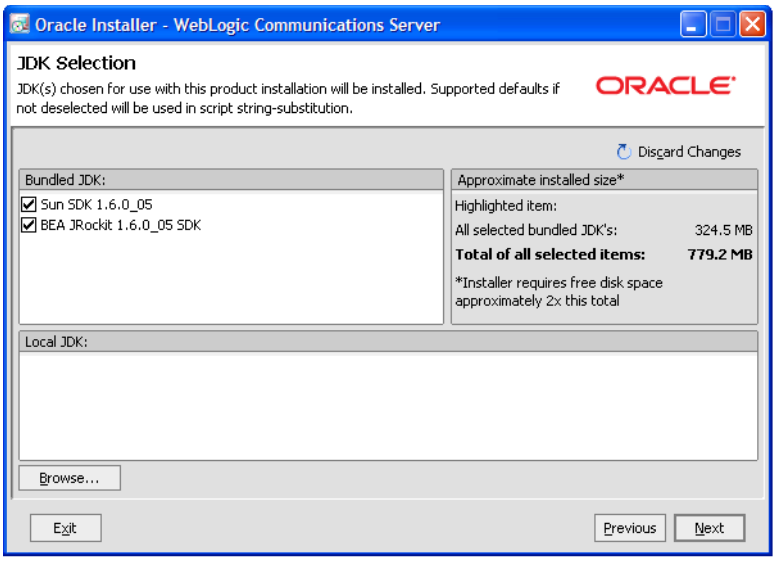


Select or deselect components as necessary, then click Next.

Note: WebLogic Communications Server requires the underlying WebLogic Server component in order to function. At a minimum, select the WebLogic Server Core Application Server and Administration Console components in addition to the WebLogic Communications Server component.

7. On Windows and Linux platforms, as well as select Sun platforms, you have the option to select either or both the Sun or JRockit JDKs, as shown in Figure 1-5. (This window is not displayed by the generic installer.)

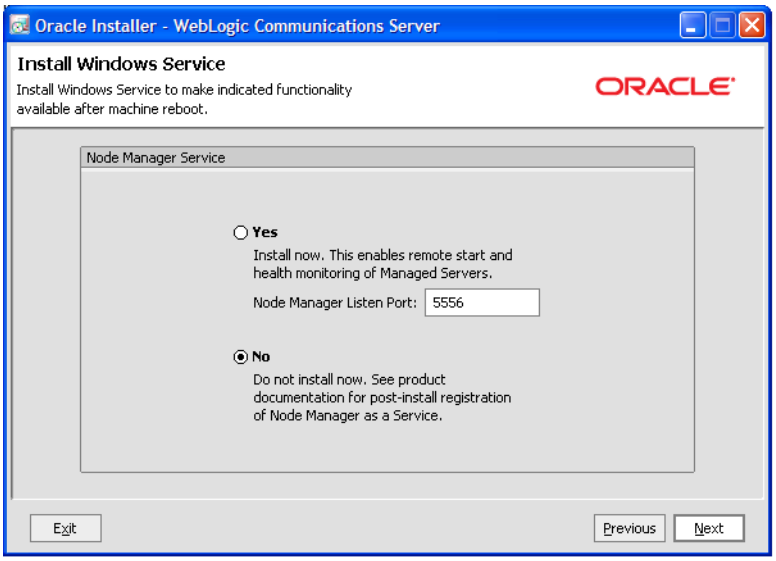
Figure 1-5 Choose JDKs



Select one or both JDKs or, if you have a suitable Java Runtime installed on your machine, deselect both JDKs. Click Next to continue.

8. On Windows platforms, you have the option to install the Node Manager as a windows service, as shown in Figure 1-6.

Figure 1-6 Choose Node Manager installation (Windows)



Node Manager is a WebLogic Server utility that enables you to start, shut down, and restart Administration Server and Managed Server instances from a remote location. Although Node Manager is optional, it is recommended if your WebLogic Server environment hosts applications with high availability requirements.

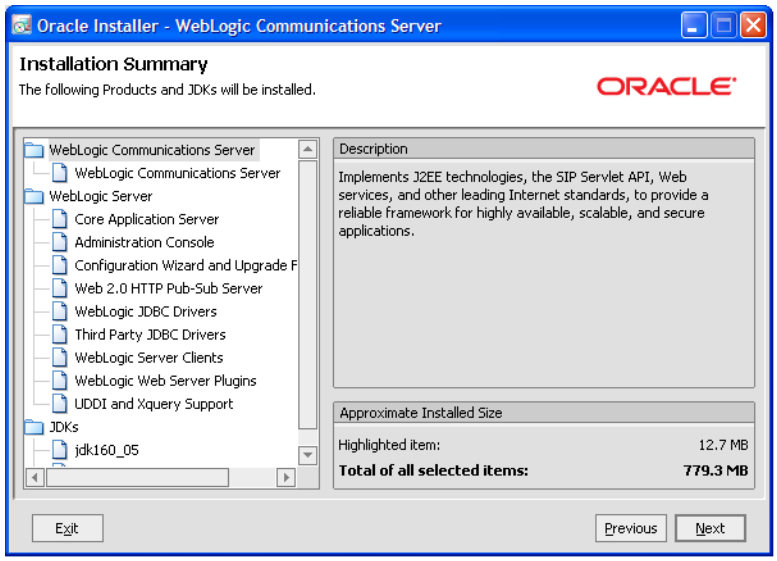
Select Yes or No, then click Continue.

9. On Windows platforms, you have the option to install menu item shortcuts for all users or only the local user, as shown in Figure 1-7. Select an option, then click Continue.

Figure 1-7 Choose shortcut location

10. The Installation Summary displays a list of the components you selected for installation, along with the approximate amount of disk space to be used by the selected components once installation is complete. See Figure 1-8

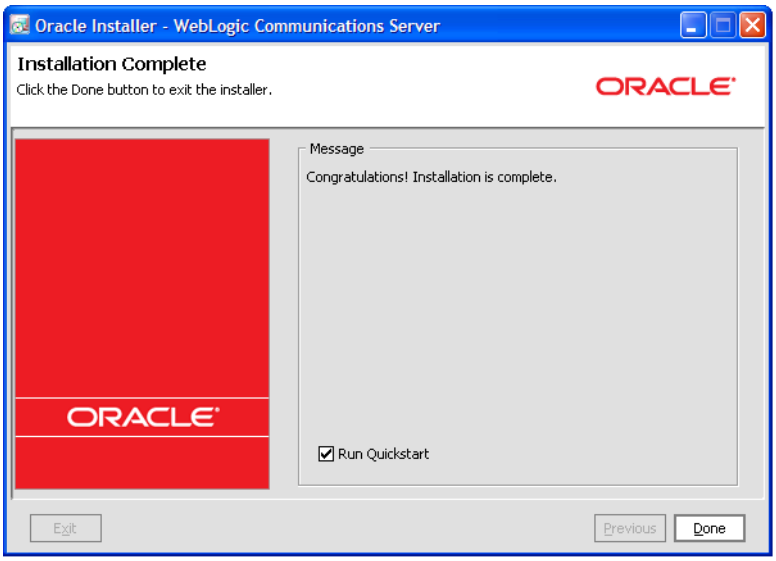
Figure 1-8 Acknowledge installation summary



Review the Installation Summary and click Continue to begin the installation.

11. The installation program copies the required products and components to the selected directories. When finished, the program gives the option to start the Quickstart application, as shown in Figure 1-9

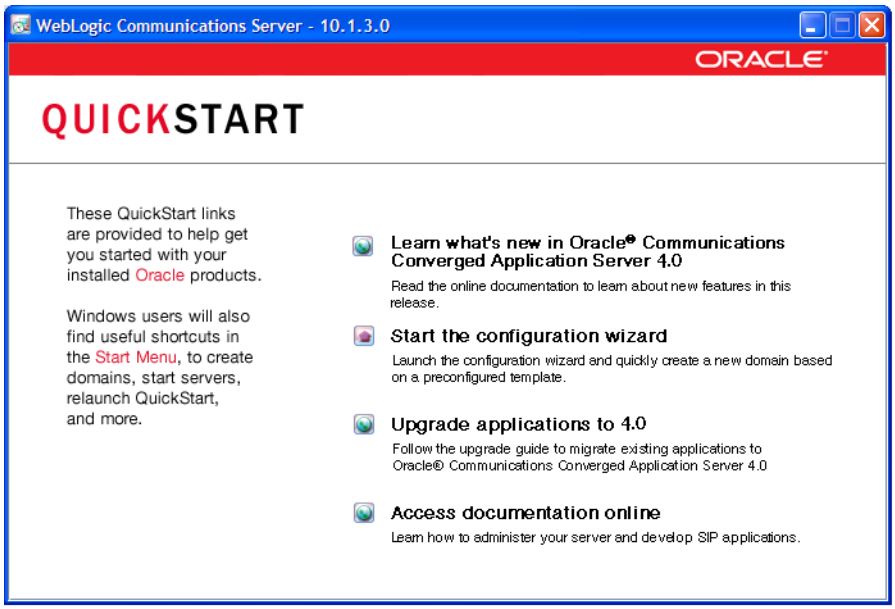
Figure 1-9 Installation complete



Select or deselect the Run Quickstart option, and click Done to exit the installer.

12. If you chose to run the Quickstart application, the application loads and displays the window shown in Figure 1-10

Figure 1-10 Quickstart application



Select an option from the Quickstart application or click the close box to exit.

Step 2: Create an Administrative Domain

All related Oracle Communications Converged Application Server instances must be members of the same administrative domain. The Configuration Wizard provided with Oracle Communications Converged Application Server contains several templates to help you create different types of domains. The templates are provides as JAR files in the

WLSS_HOME/common/templates/domains directory. Table 1-1 describes the available templates.

Table 1-1 Oracle Communications Converged Application Server Domain Templates

Template Name	Description
diameterdomain.jar	Creates a multiple-server domain consisting of a Diameter Sh client node, a Diameter relay node, and a Diameter HSS simulator.
geo1domain.jar	Creates a primary Oracle Communications Converged Application Server site having that replicates call state data to the engine tier servers created in geo2domain.jar using geographic redundancy features.
geo2domain.jar	Creates a secondary site that replicates call state data from the domain created with geo1domain.jar.
replicateddomain.jar	Creates a new template domain having two SIP data tier server instances, an engine tier server instance, and an Administration Server instance. Select this template for any multiple-server Oracle Communications Converged Application Server installation; you can modify this basic domain to add or remove servers as necessary.
sipserverdomain.jar	Creates an empty single-server domain that you can use for developing your own applications.

Follow these steps to install a new Oracle Communications Converged Application Server domain:

1. Access the server machine that will be used as the Administration Server. The domain directory and associated files for the domain will remain on the Administration Server machine. Other servers in the Oracle Communications Converged Application Server installation (SIP data tier and engine tier servers) will obtain their configuration by connecting to the Administration Server at boot time.
2. Start the Configuration Wizard application:

   ```
   cd ~/bea/wlserver_10.3/common/bin
   ./config.sh
   ```

3. Accept the default selection, Create a new WebLogic domain, and click Next.
4. Select Base this domain on an existing template, and click Browse to display the Select a Template dialog.
5. Select the template named `replicateddomain.jar`, and click OK.
6. Click Next.
7. Enter the username and password for the Administrator of the new domain, and click Next.
8. Select a JDK to use, and click Next.
9. Select No to keep the settings defined in the source template file, and click Next. Alternately, select Yes if you want to customize server names, cluster names, machine names, or configured Java EE resources.
10. Complete any optional screens, and click Create to create the domain.

Step 3: Configure Server Instances and Clusters

The Oracle Communications Converged Application Server instances you intend to use must be created within a single administrative domain, and servers in the engine and SIP data tiers should be arranged into clusters to simplify deployment and management. If you used the Configuration Wizard to create a replicated Oracle Communications Converged Application Server domain, the domain is automatically created with default engine tier servers and SIP data tier servers arranged into clusters; you can modify this configuration to match the number of servers you want to use in your domain. See "Modifying the Default Replicated Domain" on page 1-17.

If you used the Configuration Wizard with the `sipserverdomain.jar` template, only a single server is configured. You will need to create engine and SIP data tier servers and clusters by hand.

WARNING: When you configure a domain with multiple engine and SIP data tier servers, you must accurately synchronize all server system clocks to a common time source (to within one or two milliseconds) in order for the SIP protocol stack to function properly. See Configuring NTP for Accurate SIP Timers in the *Configuration Guide* for more information.

Modifying the Default Replicated Domain

The default replicated Oracle Communications Converged Application Server domain is preconfigured with five separate servers and two clusters.

Table 1-2 Summary of the Default Replicated Domain

Server	Cluster	Description
AdminServer	n/a	The Administration Server, AdminServer, is used only for administration. This server is not a member of either cluster, and it does not process SIP requests.
engine1	BEA_ENGINE_TIER_CLUST	The two engine tier servers, engine1 and engine2, can be used for hosting SIP applications and processing SIP messages.
engine2	BEA_ENGINE_TIER_CLUST	
replica1	BEA_DATA_TIER_CLUST	The two SIP data tier servers, replica1 and replica2, are members of the same SIP data tier partition. Each server manages the same copy of the application call state and can act as a backup should the other server fail.
replica2	BEA_DATA_TIER_CLUST	

You may want to modify the default replicated domain if you want to add, remove, or rename servers in either of the clusters, or to configure the network settings of individual server instances. To modify the default configuration:

1. Access the server machine that will be used as the Administration Server. The domain directory and associated files for the domain will remain on the Administration Server machine. Other servers in the Oracle Communications Converged Application Server installation (SIP data tier and engine tier servers) will obtain their configuration by connecting to the Administration Server at boot time.
2. Start the Administration Server:

   ```
   cd c:\bea\user_projects\domains\replicated
   ```

   ```
   startWebLogic.cmd
   ```
3. Access the Administration Console by pointing a browser to http://localhost:7001/console
4. Login to the Administration Console using the administrator username and password.
5. Click Lock & Edit.

6. To add a new engine or SIP data tier server:
   a. Select the Environment->Servers node in the left pane.
   b. Select the name of a server in the list, then click Clone. To add an engine tier server, clone the engine1 server instance. To add a SIP data tier server, clone either replica1 or replica2.
   c. Enter a new name for the cloned server.
   d. Enter the **Listen Address** and **Listen Port** of the remote Managed Server machine on which the server will run.
   e. Click OK.
7. To delete an existing engine or SIP data tier server:
   a. Select the Environment->Servers node in the left pane.
   b. Select the name of a server in the list, then click delete.
   c. Click Yes to delete the server configuration.
8. To change a server's network listen address or port or other properties:
   a. Select the Environment->Servers node in the left pane.
   b. Click the name of the server you want to modify.
   c. On the Configuration->General tab, modify the **Name**, **Listen Address**, or **Listen Port** entries as necessary.
   d. Click Save to apply your changes.
9. Click Activate Changes to apply your changes to the configuration.

Note: These quick-start instructions assume each managed server listens on a single network address. If you intend to run servers on multi-homed server hardware, or if you want to configure secure SIP transport protocols, see *Configuring Network Resources*.

Step 4: Configure SIP Data Tier Partitions

In the previous section you organized the SIP data tier servers into a cluster for administration purposes. You must also configure the `datatier.xml` file to define how SIP data tier servers are used to manage SIP application call state for your installation.

The SIP data tier cluster can be arranged into one or more *partitions*. A partition consists of one or more SIP data tier server instances that manage the same portion of the concurrent call state data. In a single-server Oracle Communications Converged Application Server installation, or in a two-server installation where one server resides in the engine tier and one resides in the SIP data tier, all call state data is maintained in a single partition. Multiple partitions are required when the size of the concurrent call state exceeds the maximum size that can be managed by a single server instance. In most cases, the amount of call state that can be managed by a server corresponds to the Java Virtual Machine limit of approximately 1.6GB per server.

Additional servers can also be added *within the same partition* to manage copies of the call state data. When multiple servers are part of the same partition, each server manages a copy of the same portion of the call data, referred to as a *replica* of the call state. If any server in a partition fails or cannot be contacted due to a network failure, another replica in the same partition can supply the call state data to the engine tier.

Before modifying `datatier.xml`, read Configuring SIP Data Tier Partitions and Replicas in the *Configuration Guide* to fully understand the role of the SIP data tier and the format of the `datatier.xml` configuration file.

To modify `datatier.xml` for your domain:

1. Access the Administration Server machine for your domain.
2. Open the `datatier.xml` configuration file with a text editor:

   ```
   cd c:\bea\user_projects\domains\replicated\config\custom
   notepad datatier.xml
   ```

   If you installed the default replicated domain, the `datatier.xml` file contains the entries shown in Listing 1-1, which defines a single partition with two replicas.

Listing 1-1 Default datatier.xml for Replicated Domain

```
<?xml version="1.0" encoding="UTF-8"?>
  <data-tier xmlns="http://www.bea.com/ns/wlcp/wlss/300">
    <partition>
      <name>partition-0</name>
      <server-name>replica1</server-name>
      <server-name>replica2</server-name>
```

```
    </partition>
  </data-tier>
```

3. Edit the file as necessary to configure partitions and server names for your domain.
4. Save your changes and exit the text editor.

Step 5: Start the Administration Server and Managed Servers

To start the fully-configured Oracle Communications Converged Application Server domain, first start the Administration Server, then start individual Managed Servers to connect to the Administration Server. The sections that follow provide server startup instructions.

Starting the Administration Server

To start the Administration Server:

1. Access the Administration Server machine.
2. Move to your domain directory:

   ```
   cd c:\bea\user_projects\domains\replicated
   ```

3. Execute the start script for the Administration Server:

   ```
   startWebLogic.cmd
   ```

Starting Managed Servers

Note: Oracle Communications Converged Application Server start scripts use default values for many JVM parameters that affect performance. For example, JVM garbage collection and heap size parameters may be omitted, or may use values that are acceptable only for evaluation or development purposes. In a production system, you must rigorously profile your applications with different heap size and garbage collection settings in order to realize adequate performance. See Tuning JVM Garbage Collection for Production Deployments in the *Configuration Guide* for suggestions about maximizing JVM performance in a production domain.

To start the Managed Servers in your domain:

1. Access one of the Managed Server machines.

2. Move to a subdirectory from which you will execute the Managed Server instance (creating a new subdirectory if necessary). For example:

   ```
   mkdir c:\myManagedServer
   ```

   ```
   cd c:\myManagedServer
   ```

   Note: The Managed Server machines do not have a domain directory. Instead, they obtain their configuration by connecting to the Administration Server at startup.

3. Execute the Managed Server start script available in the *WL_HOME*\common\bin directory:

   WL_HOME\common\bin\startManagedWebLogic.cmd *server_name admin_url*

   where:

   – *WL_HOME* is the full path to the Oracle 10*g* Release 3 installation directory, and

   – *server_name* is the name of the Managed Server you are starting, and

   – *admin_url* is the url used to access the Administration Server for the domain.

   For example:

   ```
   startManagedWebLogic.cmd replica1 t3://adminhost:7001
   ```

4. Repeat these steps to start other Managed Servers in the domain.

Additional Installation Features

The Oracle WebLogic Server installation program provides additional features you can use, depending on your needs and environment, including the following:

- Choice of installation mode

  This guide shows the graphical-mode installation, the interactive, GUI-based method for installation. Installers also can be run in console mode, which is an interactive, text-based method used from the command line; and silent-mode, which is a non-interactive method that can be run from a script as well as the command line.

- Option to create a detailed installation log

- Uninstallation program

  A separate uninstallation program is included in the BEA Home directory that can be run in graphical, console, or silent mode to remove the WebLogic Server software. This program does not remove any user-created configuration files, application files, or domains.

Complete details about each of these installation features are provided in the *Installation Guide* in the Oracle WebLogic Server documentation. The features can be used with WebLogic Communications Server as well as WebLogic Server.

Where to Go From Here

After booting your domain, you may want to perform further administration procedures such as configuring network resources, enabling logging, or setting up security providers. For more information on these topics, see the *Configuration Guide*.