

## **Oracle® Database Appliance**

Using Oracle WebLogic Server on Oracle Database Appliance

Release 12.1.3

**E56821-01**

September 2014

This document describes how to provision Oracle WebLogic Server on Oracle Database Appliance release 12.1.3.

Oracle Database Appliance Using Oracle WebLogic Server on Oracle Database Appliance, Release 12.1.3

E56821-01

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# Preface

Oracle Database Appliance is a pre-built and ready-to-use clustered database system, that Oracle has optimized to make Oracle Database Appliance easy to deploy, operate, and manage. By integrating hardware and software, Oracle Database Appliance eliminates the complexities of non-integrated, manually assembled solutions. Oracle Database Appliance reduces deployment time from weeks or months to just a few hours, while preventing configuration and setup errors that often result in sub-optimal, hard-to-manage database environments.

The process for installing WebLogic Server and configuring virtual machines, WebLogic domains and clusters on Oracle Database Appliance has also been simplified compared to installation and configuration on industry-standard hardware, dramatically reducing the time needed for provisioning a domain.

## Audience

This document is intended for Oracle Database Appliance administrators who are responsible for the initial WebLogic Server configuration and for initiating the process to provision a WebLogic domain. This document is also intended for WebLogic Server administrators who are responsible for administering WebLogic domains after they have been provisioned.

This document assumes that you are familiar with Oracle Database Appliance and Oracle Virtual Machine technology.

## Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc>.

### Access to Oracle Support

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## Related Documents

The following documents are published in the Oracle Database Appliance online documentation library at

<http://www.oracle.com/pls/topic/lookup?ctx=dba21>

- *Oracle Database Appliance Setup Poster*
- *Oracle Database Appliance Getting Started Guide*
- *Oracle Database Appliance Release Notes for Linux x86-64*
- *Oracle Database Appliance Owner's Guide*
- *Oracle Database Appliance Service Manual*
- *Oracle Database Appliance Safety and Compliance Guide*
- *Oracle Database Appliance Licensing Information*

The following documents, and other WebLogic Server documents, are published in the WebLogic Server 10.3.6, and WebLogic Server 12.1.2 documentation libraries:

- *Administration Console Online Help*
- *WebLogic Server Scripting Tool Command Reference*
- *Oracle WebLogic Scripting Tool*
- *Oracle WebLogic Server Release Notes*

The WebLogic Server 10.3.6 online documentation library is at the following location:

[http://docs.oracle.com/cd/E23943\\_01/wls.htm](http://docs.oracle.com/cd/E23943_01/wls.htm)

The WebLogic Server 12.1.2 online documentation library is at the following location:

<http://docs.oracle.com/middleware/1212/wls/index.html>

The WebLogic Server 12.1.3 online documentation library is at the following location:

<http://docs.oracle.com/middleware/1213/index.html>

Oracle Traffic Director documentation is published in the Oracle Traffic Director online documentation library at the following location:

[http://docs.oracle.com/cd/E23389\\_01/index.htm](http://docs.oracle.com/cd/E23389_01/index.htm)

## Conventions

The following text conventions are used in this document:

<b>Convention</b>	<b>Meaning</b>
<b>boldface</b>	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
<i>italic</i>	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
monospace	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

This chapter provides an overview of using Oracle WebLogic Server on Oracle Database Appliance and describes how to prepare for the WebLogic Server installation.

Oracle Database Appliance is server, storage, and network hardware, combined with network, cluster, and database software and templates. Oracle fully supports all hardware and software components. The hardware and software are engineered together to be simple to configure and maintain, and to be pre-configured for specific database workloads. Oracle Database Appliance is designed to minimize cost, time, and risk in database deployment and maintenance.

Oracle Database Appliance also supports WebLogic Server clusters. By downloading and installing Oracle Virtual Machine (OVM) templates that provide WebLogic Server and Oracle Traffic Director, you can quickly configure and provision highly-available WebLogic domains using the Oracle WebLogic Server Configuration for Oracle Database Appliance utility.

In this configuration

- Both the database and WebLogic Server run on virtual machines (VMs)
- The database has direct access to storage
- WebLogic Server high availability is delivered via clustering, with transaction logs and JMS persistence configured in the database on Oracle Database Appliance. Transaction logs and JMS are configured only if JMS is selected in the configurator.
- The WebLogic Server Administration Console can be used to manage the environment

The following sections are included in this chapter:

- ["Installation Prerequisites"](#)
- ["Hardware Configuration"](#)
- ["Virtual Machine Topology"](#)

## Installation Prerequisites

To use WebLogic Server on Oracle Database Appliance, you must download and install:

- Oracle WebLogic Server Configuration for Oracle Database Appliance utility
- Oracle WebLogic Server on Oracle Database Appliance Kit, either for WebLogic Server 10.3.6 or WebLogic Server 12.1.1 or WebLogic Server 12.1.2 or WebLogic Server 12.1.3

Prior to downloading and installing these items, you must complete the following prerequisite tasks as described in *Oracle Database Appliance Getting Started Guide*. Refer also to the *Oracle Database Appliance Setup* poster:

- connecting all hardware.
- configuring a network to transfer the end-user bundle.
- configuring Oracle Database Appliance using the configuration utility.
- completing Oracle Database Appliance post-installation tasks.

After completing these tasks, see [Chapter 2, "Installation and Configuration,"](#) for instructions on how to download the support files and the Oracle WebLogic Server Configuration for Oracle Database Appliance utility.

## Hardware Configuration

For the hardware specifications for your Oracle Database Appliance, see "Hardware Capacity Specifications" in the *Oracle Database Appliance Getting Started Guide*.

For supported configuration information for WebLogic Server, see the Oracle Fusion Middleware Supported Configurations page on the Oracle Technology Network at:

<http://www.oracle.com/technetwork/middleware/ias/downloads/fusion-certification-100350.html>

## Virtual Machine Topology

The virtual machine topology for using WebLogic Server on Oracle Database Appliance consists of the following components:

- Multiple WebLogic Server Administration Servers VM - one for each domain
- Up to sixteen WebLogic Managed Server VMs
- An Oracle Traffic Director Administration Server VM
- Two Oracle Traffic Director Administrator Node VMs for load balancing



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## Installation and Configuration

This chapter describes how to provision WebLogic Server, including a fronting load balancer, on the Oracle Database Appliance using the Oracle WebLogic Server Configuration for Oracle Database Appliance utility (configuration utility).

The following sections are included in this chapter:

- ["Introduction"](#)
- ["Downloading the OVM Templates and Configuration Utility from Oracle Technology Network"](#)
- ["Installing the OVM Templates"](#)
- ["Using the Configuration Utility"](#)
- ["Configuration Utility Screens"](#)
- ["Silent Provisioning"](#)
- ["Domain Creation and Startup"](#)
- ["Virtual Machine Configuration"](#)

### Introduction

Oracle WebLogic Server on Oracle Database Appliance 2.9.1.0.0 is available on Oracle Database Appliance versions X4-2, X3-2, and V1.

Oracle WebLogic Server support is provided via Oracle Virtual Machine (OVM) template bundles which are pre-configured for the Oracle Database Appliance environment. Each bundle corresponds to an Oracle WebLogic Server version, either 11g (10.3.6) or 12c (12.1.2 or 12.1.3). Each of these bundles include:

- Oracle Linux 5 Update 8
- Oracle WebLogic Server (10.3.6, 12.1.2, or 12.1.3)
- Oracle Traffic Director 11g (11.1.1.7)
- Oracle WebLogic Server Configuration for Oracle Database Appliance utility

### Downloading the OVM Templates and Configuration Utility from Oracle Technology Network

Oracle WebLogic Server on Oracle Database Appliance 12.1.3.0.0 OVM templates and the configuration utility can also be downloaded from Oracle Technology Network:

<http://www.oracle.com/technetwork/middleware/weblogic-oda/downloads/index.html>

The configuration utility provides an easy way to create and configure WebLogic domains with a choice of single or multiple clusters to serve your business applications, and configure Oracle Traffic Director, a software load balancer that can efficiently balance incoming requests to one of the WebLogic clusters.

Use the following procedure to download the OVM templates and the configuration utility. The configuration utility can be run on a local Windows, MacOS, or Linux client to create and save the configuration file for later use.

To download and install an updated configuration utility on a Windows or Linux client and on the Oracle Database Appliance:

1. Open a Web browser and access the following URL:

<http://www.oracle.com/technetwork/middleware/weblogic-oda/downloads/index.html>

2. In the Oracle WebLogic Server on Oracle Database Appliance section, right-click on the links and save the OVM templates and the Oracle WebLogic Server Configuration for Oracle Database Appliance utility file to any location on your Windows or Linux client machine.
3. Extract the file to any location on the client machine.
4. Copy the downloaded `tar.gz` file from the client to any location on the ODA\_BASE domain of Node 0 using the following `scp` command:

```
scp filename root@ip_address:dest_dir
```

Replace *filename* with the name of the downloaded file, and replace *ip\_address* with the IP address of ODA\_BASE of Node 0 and replace *dest\_dir* with the destination directory.

5. Extract the file to any directory on ODA\_BASE.

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**Note:** When downloading an updated configuration utility to replace an existing one, Oracle recommends that you extract the updated files to the same directory as the original to avoid having multiple versions of the utility on the system.

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For information on how to run the configuration utility, see "[Using the Configuration Utility](#)."

## Installing the OVM Templates

After completing the download, perform the following steps to install the WebLogic Server and Oracle Traffic Director OVM templates:

1. Extract the downloaded ZIP files to any location on the local client. After extraction, the following files are located in the directory, where *version* is either 1036, 1212, or 12.1.3:

```
WLS_version_VMT.tar.gz
OTD_11117_VMT.tar.gz
WLS_ODA_Configurator_12.1.3.0.0.tar.gz
```

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**Note:** You cannot upgrade from one version of Oracle WebLogic Server to another without re-provisioning. If you begin provisioning using Oracle WebLogic Server 12.1.2, you cannot automatically upgrade to Oracle WebLogic Server 12.1.3 without re-provisioning. You must download the 12.1.3 template and re-provision using the 12.1.3 template. Make sure you download the template with the appropriate Oracle WebLogic Server version.

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2. Use `scp` to transfer the two template archives from the client to the `/OVS/staging` directory of Domain-0 on Node 0.

```
scp WLS_version_VMT.tar.gz root@ip_address:/OVS/staging
```

```
scp OTD_11117_VMT_tar.gz root@ip_address:/OVS/staging
```

Replace *ip\_address* with the IP address of Domain-0 on Node 0.

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**Note:** For information about the architecture of the Oracle Database Appliance virtualized platform, see "Deploying Oracle Software on Oracle Database Appliance Virtualized Platform" in *Oracle Database Appliance Getting Started Guide*.

Do not extract the WLS and OTD `tar.gz` files.

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3. Transfer the configuration utility file `WLS_ODA_Configurator_12.1.3.0.0.tar.gz` to any location on the `ODA_BASE` domain on Node 0:

```
scp WLS_ODA_Configurator_12.1.3.0.0.tar.gz root@ip_address:dest_dir
```

Replace *ip\_address* with the IP address of the `ODA_BASE` domain on Node 0. Replace *dest\_dir* with the destination directory.

4. Use `ssh` to log in as the root user to the `ODA_BASE` domain on Node 0, switch to the directory where you stored the configuration utility file, and extract the configuration utility file to any directory on the `ODA_BASE` domain of Node 0.

See "[Using the Configuration Utility](#)" for information on how to run the configuration utility.

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**Note:** If you want to run the configuration utility to create a configuration file on the local client, extract `WLS_ODA_Configurator_version.tar.gz` to any directory on the local client.

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## Using the Configuration Utility

You can use either of the following methods to create a WebLogic domain configuration using configuration utility:

- Download the configuration utility to a Windows, MacOS, or Linux client, and run the configuration utility on the client to create a configuration file. You can then copy the Configuration file to the Oracle Database Appliance at a later time, and run the configuration utility again to load the file and provision WebLogic Server Domains after you have downloaded the WebLogic Server and Oracle Traffic Directory software to the appliance.

- After you have downloaded the WebLogic Server OVM templates to the Oracle Database Appliance, run the configuration utility directly on the Oracle Database Appliance to create a new configuration file (or load an existing configuration file) and provision WebLogic domains on Oracle Database Appliance.

## Collecting the Required Configuration Information

Prior to running the configuration utility, collect the following network configuration information:

- Hostnames and IP addresses to use for the WebLogic Server Administration Server VMs.
- Hostname and IP address to use for each WebLogic Server Managed Server VM. Depending on the number of domains and the cluster size you choose, you will need two to sixteen of each.
- Virtual IP addresses to use for the Oracle Traffic Directory load balancer, if you choose to provision a load balancer. With expanded multi domain/cluster configuration with WebLogic Server, the number of Virtual IP addresses for load balancer increases where each WebLogic Server domain requires a unique VIP address and each cluster in that domain requires a unique port.
- Hostname and IP address to use for the Oracle Traffic Directory Administration Server VM.
- Two hostnames and IP addresses to use for the two Oracle Traffic Directory Admin Node VMs.
- If you need to create an additional data source for use by your application, you need the following information. The data source must be for an Oracle database that is running on this Oracle Database Appliance.
  - The JNDI name (data source name) for the data source
  - The Oracle database service name
  - The schema username and password to be used to connect the database

## Resource Requirements

Before provisioning the WebLogic domains, you must ensure that you have enough CPU and memory resources available for the size of the cluster that you want to create.

Table 2–1 shows the total resource availability.

**Table 2–1 Total Resource Availability**

Resources	V1	X3-2	X4-2
Total Cores	24	32	48
Total vCPUs	48	64	96
Total RAM (in GB)	192	512	512

The sizing of the total number of cores includes the following components:

- [Sizing ODA\\_Base](#)
- [Sizing for Oracle WebLogic Server Installation](#)
- [Sizing for Oracle Traffic Director](#)

## Sizing ODA\_Base

Note that the database that you create on Oracle Database Appliance uses some of the available machine resources. If the database is large, the machine resources that are available for your Managed Server cluster will be significantly smaller, thus impacting performance.

Plan your ODA\_BASE size on the basis of your requirement. [Table 2-2](#) shows the ODA\_BASE sizes and their corresponding vCPUs and memory.

**Table 2-2 Core Count and RAM Size for selecting ODA\_BASE**

Core Count (per node)	vCPUs	RAM Size (in Gigabytes)
2	4	32
4	8	64
6	12	96
8	16	128
10	20	160
12	24	192
14	28	224
16	32	244
24	48	244

You can have a maximum of 44 deployment cores for use by Oracle WebLogic Server and Oracle Traffic Director if you select the smallest ODA\_BASE size of 2 cores per node.

## Sizing for Oracle WebLogic Server Installation

Each Oracle WebLogic Server domain adds 1 Admin Server. Two vCPUs are used for each Admin Server and four vCPUs are used for each Managed Server. The maximum number of Managed Servers allowed for one domain is 13 in X3-2 and 16 in X4-2 if you configure only one domain. If you need more than one domain, the number of Managed Servers comes down accordingly.

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**Note:** Oracle WebLogic Server on Oracle Database Appliance version 12.1.3.0.0.0 requires only one Admin Server to create a domain. You can provision a domain without adding Managed Servers. However, to configure a load balancer such as Oracle Traffic Director, you need to add Managed Servers.

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## Sizing for Oracle Traffic Director

If you want to provision a load balancer, Oracle Traffic Director needs 10 VCPUs:

- One Admin Server - 2 vCPUs or one core
- Two Admin Nodes - 4 vCPUs each which equals to 8 vCPUs or 4 cores

## Planning Your Deployment Cores

While running the configuration utility, you must select the number of **Planned Deployment Cores**.

Decide the number of cores for ODA\_BASE before determining the Planned Deployment Cores. Use the following formulae to determine your Planned Deployment Cores.

**Table 2-3 Planning your Deployment Cores**

Cores	V1	X3-2	X4-2
Available Cores	Total number of cores (24) - ODA_BASE Cores	Total number of cores (32) - ODA_BASE Cores	Total number of cores (48) - ODA_BASE Cores
Planned Deployment Cores	Cores for WLS provisioning + 5 Cores for OTD (if selected)	Cores for WLS provisioning + 5 Cores for OTD (if selected)	Cores for WLS provisioning + 5 Cores for OTD (if selected)
Cores per domain for Oracle WebLogic Server	2 Cores for Admin Server + 2 Cores for each Managed Server	2 Cores for Admin Server + 4 Cores for each Managed Server	2 Cores for Admin Server + 4 Cores for each Managed Server

**Note:** The following examples take into consideration Oracle Database Appliance X4-2 only.

### Example 1 Smallest Possible Deployment

To plan the smallest possible deployment in an ODA X4-2 machine:

1. Determine your ODA\_BASE size. If you want to select the smallest size, you can select 2 cores per node or a total of 4 cores.

Available cores = Total Number of Cores - ODA\_BASE Cores = 48-4 = 44

Use this information to make sure your Planned Deployment Cores fall within this range of remaining cores.

2. Determine the cores for WLS provisioning:

If you select one domain:

One Admin Server uses 2 vCPUs or 1 core.

3. Determine if you want a load balancer

If you choose to provision a load balancer, add 5 cores for Oracle Traffic Director with one Admin Server (2 vCPUs or one core) and two Admin Nodes (four vCPUs or two cores each).

4. Calculate the planned deployment cores:

Planned Deployment Cores = 1 core for WLS provisioning + 5 cores for Oracle Traffic Director = 6 cores

If you choose not to provision a load balancer, the smallest Planned Deployment Cores is 1.

### Example 2 Other Possible Deployment

To plan the appropriate possible deployment in an X4-2 machine:

1. Determine your ODA\_BASE size. If you want to select 4 cores per node or a total of 8 cores.

Available cores = Total Number of Cores - ODA\_BASE Cores = 48-8 = 40

Use this information to make sure your Planned Deployment Cores fall within this range of remaining cores.

2. Determine the cores for WLS provisioning:  
 If you select two domains with the four Managed Servers in each:  
 Admin Servers uses  $2*2=4$  vCPUs or 2 cores  
 Managed Servers use  $8*4=32$  vCPUs or 16 cores  
 Total WLS cores =  $16+2=18$  cores
3. Determine if you want a load balancer  
 If you choose to provision a load balancer, add 5 cores for Oracle Traffic Director with one Admin Server (2 vCPUs or one core) and two Admin Nodes (four vCPUs or two cores each).
4. Calculate the planned deployment cores:  
 Planned Deployment Cores = 18 cores for WLS provisioning + 5 cores for Oracle Traffic Director = 23 cores  
 If you choose not to provision a load balancer, the Planned Deployment Cores is 18.

## Running the Configuration Utility Offline

To create a configuration file on a Windows or Linux client for later use on Oracle Database Appliance:

1. Change to the directory where you downloaded and extracted the configuration utility files.
2. Enter the following command to start the configuration utility:  

```
config.bat (Windows)
```

```
./config.sh (Linux or Mac OSX)
```

If you want to load an existing configuration file, include the path to the file name in the command, for example:

```
./config.sh /config/myconfig.properties
```
3. Configure the WebLogic Server domain as described in "[Configuration Utility Screens](#)." On the Summary screen, click **Save** to save the configuration to a file.

## Running the Configuration Utility on Oracle Database Appliance

Prior to running configuration utility on Oracle Database Appliance:

- ensure that the Java bin directory is set in the classpath. JDK 1.6 is the minimum required JDK.
- either launch XWindows or redirect the display on ODA\_BASE of Node 0.

If you have already created a configuration file on a client as described in the previous section and you want to use that file to provision the WebLogic Server domains, ensure that you have already copied the file to the Oracle Database Appliance.

To run the configuration utility on the Oracle Database Appliance:

1. Use SSH to log in as root to ODA\_BASE of Node 0 of the Oracle Database Appliance:

```
ssh root@ip_address
```

Replace *ip\_address* with the IP address of ODA\_BASE of Node 0.

2. Change to the directory where you extracted the configuration utility files.
3. Enter the following command:

```
./config.sh config_file
```

Replace *config\_file* with the path and filename of the saved configuration file. Alternatively, you can omit this parameter and browse to the file from the Welcome screen.

To continue with the Configuration utility, refer to the section, "[Configuration Utility Screens](#)".

To install and provision in silent mode, see "[Silent Provisioning](#)".

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**Note:** Oracle WebLogic Server on Oracle Database Appliance version 12.1.3.0.0.0 uses the `--snap` option to provision the domains instantly. This feature clones the templates instantly and completes the provisioning process faster.

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## Configuration Utility Screens

After starting the configuration utility, enter the details in the following screens.

### Welcome

From this screen, you can create a new configuration or load an existing configuration from a previously saved file.

#### Create a New Configuration

To create a new configuration, click **Next**. You can save the configuration later on the [Summary](#) screen.

#### Load an Existing Configuration

Click **Browse** to select and load an existing configuration file, which will be used to populate all fields on the subsequent screens.

If you created a configuration file on a remote machine and then transferred the file to Oracle Database Appliance, navigate to the directory where you stored the file and select it.

#### Machine Type

If you run the configuration utility to create or edit a configuration file on a remote machine, ensure that the machine type selection matches the type of the target machine. The options on the configurator depend on the Oracle Database Appliance machine selected.

After loading the configuration file, click **Next** to continue.

### General Information

Provide the following information. Click **Next** to continue.



**Planned Deployment Cores**

Select the number of **Planned Deployment Cores** from the drop down list. The number of planned deployment cores now accounts for the cores available on both the ODA nodes.

**Current Core Usage**

Displays the number of deployment cores used currently.

- **Oracle Database Appliance X4-2 and X3-2:** This field shows 5 by default as it is the smallest possible planned deployment cores.
- **Oracle Database Appliance V1:** This field shows 3 by default as it is the smallest possible planned deployment cores.

This field will be updated as you select OTD and choose the number of Oracle WebLogic Server domains, clusters, and managed servers.

**Network Information**

Provide the following network information. Enter the IP addresses for the respective entries.

**Choose Networks to Use**

- **Oracle Database Appliance X4-2 and X3-2:** Eth1 and Eth2 networks will be available for use. Select one or both of the networks for use.

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**Note:** If you select Eth1 or Eth2 or both, the provided network information must match with the information on `oda_base` configured on Eth1 or Eth2 or both.

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- **Oracle Database Appliance V1:** Eth1 and Eth4 networks will be available for use. Select one or both of networks for use.

**Network CIDR for Eth $n$  VMs**

Provide the netmask for the subnet to which the IP addresses belong.

**Gateway for Eth $n$  VMs**

Provide the IP address for the gateway to your network.

**NTP Server**

Provide the IP address for the NTP server for your installation.

**Load Balancer Information**

Select whether you want to provision a fronting load balancer for the Oracle WebLogic Server cluster instances. The WebLogic domain must be clustered if you select to provision a load balancer.

The Oracle VM Template archive for OTD must be present in the `/OVS/Staging` directory of Domain-0 on Node 0 for the provisioning process to complete successfully.

**Domains**

Provide the following information. Click **Next** to continue.

**WebLogic Version**

Select the Oracle WebLogic Server version to provision on the Oracle Database Appliance.

The Oracle VM Template archive corresponding to the selected version must be present in the /OVS/staging directory of Domain-0 on Node 0 for the provisioning process to complete successfully.

**Number of Domains**

From the drop down list, select the number of domains.

**Domain Name**

Enter the name for the Oracle WebLogic Server Domain. Domain names can consist of only alphanumeric characters, underscores (\_), and hyphens (-). The domain name must be unique and contain at least one alphabetic character and must start with a letter, and can be a maximum of 23 characters long.

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**Note:** While naming the domains, make sure that a domain name is not a substring of another domain name as it might result in parsing errors. For example, Domain1 and Domain2 are accepted domain names while Domain and Domain1 will result in errors.

---

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**Number of Managed Servers**

From the drop down list, select the number of managed servers you want to create in the domain.

**Number of Clusters**

From the drop down list, select the number of clusters for the domain.

**Cluster Sizing**

Select the number of Managed Servers that you want to create in the clusters. For example, a cluster sizing of 3/2 means that the first cluster has three Managed Servers and the second cluster has two Managed Servers.

If OTD is selected, cluster size must be greater than zero. The configurator will not allow a cluster size of zero when OTD is selected.

Once the domain is provisioned, you will not be able to add additional Managed Server instances.

**Network**

Select the network interface that you want to use for the Oracle WebLogic Server virtual machines. The selection will be limited to the networks chosen on the Network Information screen.

- **Oracle Database Appliance X4-2 and X3-2:** eth1(bond0) is a fiber-optic 10GbE interface for public network access. eth2(xbond0) is a fiber-optic 10GbE interface.
- **Oracle Database Appliance V1:** eth1(bond0) is a 1GbE interface for public network access. eth4(xbond0) is a fiber-optic 10GbE interface.

Note that the same network interface cannot be mapped to multiple sub networks, so care must be taken while providing the network information for Oracle WebLogic Server, Oracle Traffic Director, and Oracle Database tiers on the machine.

Ensure that your network switch and cables can support the GbE speed that you select. All network addresses are bonded to ensure redundancy and throughput.

**Netmask**

The netmask details that you entered in the General Information screen will appear here.

**Gateway**

The gateway details you entered in the General Information screen will appear here.

**Port**

Provide the port details for network connectivity. 7001 is selected by default.

**Admin Host Name**

Specify the hostname<sup>[1]</sup> for the Oracle WebLogic Server Administration Server.

**Admin IP**

Specify the IP address<sup>[2]</sup> for the Oracle WebLogic Server Administration Server.

**User Name**

This is a pre-populated field and the default value is root.

**Password**

Enter the password to use for the Oracle WebLogic Server administration user (system) and the operating system user (oracle) for the virtual machines that are running Oracle WebLogic Server.

Press Enter or tab to view the password confirmation screen.

The currently selected domain and the managed server utilization will be displayed after you enter all the domain details.

[1]: All hostnames must conform to the RFC 952 standard. The network domain that is configured for database provisioning is used to form the fully qualified domain names (FQDN) for the hostnames.

[2]: Only IPV4 format addresses are supported.

**Cluster Name**

This is a read-only field displaying cluster names that are created as Cluster-1, Cluster-2, and so on.

**Managed Server Count**

The number of Managed Servers depends on the value you selected for the cluster size in the [Domains](#) table.

**Host Name**

For each of the Managed Server virtual machines, specify the host name of the Managed Server.

**IP**

For each of the Managed Server virtual machines, specify the IP address.

**Cluster**

This is a read-only field displaying cluster names.

**Admin VM**

If you want the Managed Server to be co-located with the Administration Server, click the check box corresponding to the Managed Server. Note that only one Managed Server can be co-located with the Administration Server. If you select a Managed Server, the previous selection will be deselected. Note that it is optional to have your Administration Server co-located with Managed Server.

If the Managed Server is co-located with the Administration Server, the Managed Server will be assigned port 7010 as it needs to be different from the Administration Server port. If port 7010 is selected for the Administration Server, Managed Server will be assigned 7001.

**JMS Distributed Destinations with DB Store**

Select this option to configure JMS Distributed Destinations. If selected, sample JMS Distributed Queue and Topic backed by a highly persistent store are created and targeted to the Oracle WebLogic Server clusters.

See Best Practices for JMS Beginners and Advanced Users for additional information on JMS Distributed Destinations.

If selected, a screen for collecting JMS Distributed Destination information is displayed. You can configure JMS Distributed Destinations for select domains.

**JDBC Data Source**

Select this option to create a Data Source that can be used by applications deployed to the WebLogic Server cluster. The Data Source must be for an Oracle Database that is running on the same Oracle Database Appliance machine.

If selected, a screen for collecting Data Source configuration is displayed. You can create Data Sources for select domains.

**Coherence Cluster Configuration**

Select this option to enable Coherence Cluster Configuration for the domains.

**JMS Distributed Destinations with DB Persistent Store**

Provide the following information for the database that will be used for JMS. Note that the information is only for connecting to an Oracle Database instance running on the same ODA machine. Click **Next** to continue.

This screen appears only if you selected the JMS Distribution Destinations option in the Domain screen.

**WebLogic Domain**

Click the check box corresponding to the WebLogic Domain to enable JMS Distributed Destinations on this domain. Click **Select All** to enable JMS Distributed Destinations on all domains. Click **Deselect All** to deselect all the domains that are already selected. Click **Replicate First Domain Values** to use the information entered in the first domain for the other domains.

**Service Name**

Enter the Database service name.

**Database User Name**

Specify the user name to log in to the database.

**Password**

Specify the password to log in to the database.

**JDBC Data Source Configuration**

Use this screen to configure a JDBC Data Source for use by applications deployed to the Oracle WebLogic Server cluster. Note that the Data Source is only for connecting to an Oracle Database instance running on the same ODA machine.

This screen appears only if you selected the JDBC Data Source Configuration option in the Domain screen.

**WebLogic Domain**

Click the check box corresponding to the WebLogic Domain to enable JDBC Data Source configuration on this domain. Click **Select All** to configure JDBC Data Sources for all domains. Click **Deselect All** to deselect all the domains that are already selected. Click **Replicate First Domain Values** to use the information entered in the first domain for the other domains.

**Data Source Type**

Select whether the data source is a WebLogic multi data source, GridLink data source, or Generic data source.

For RAC database, you can select either GridLink or Multi Data Source.

For RACOne node, you can use only GridLink Data Source.

For Enterprise Edition database, you can use only a Generic Data Source.

**JNDI Name**

Enter the JNDI name that you want to use for the data source.

**Service Name**

Enter the Oracle Database service name.

**Database User Name and Password**

Enter a valid user name for accessing the database schema. Enter the password for the specified user name.

**Support Global Transactions**

Select this option to enable global transactions on the data source. For more information about global transactions, see:

- "Using Multi Data Sources with Global Transactions" in *Configuring and Managing JDBC Data Sources for Oracle WebLogic Server* (WebLogic Server 10.3.6)
- "Using Multi Data Sources with Global Transactions" in *Using Multi Data Sources with Oracle RAC* (WebLogic Server 12.1.2)
- "Using Multi Data Sources with Global Transactions" in *Using Multi Data Sources with Oracle RAC* (WebLogic Server 12.1.3)

## Coherence Cluster Configuration

Provide the following details of the coherence clusters.

### Filter displayed servers

Click **All** to view the six coherence servers. Click on the corresponding server number to view and edit its details.

### WebLogic Domain

Click the check box corresponding to the WebLogic Domain to enable Coherence Clusters on this domain. Click **Select All** to enable Coherence Clusters on all domains. Click **Deselect All** to deselect all the domains that are already selected.

### Host Name *n*

Enter the host name of the Managed Server to enable Coherence Cluster. Each selected domain requires six coherence servers. Provide the host names for each of the six servers.

### IP *n*

Enter the IP address corresponding to the host name of the Managed Servers. Provide the IP addresses for each of the six servers.

## Load Balancer Configuration

Provide the following information.

### Networking

Provide the following network details.

#### Network Interface

Select the network interface that you want to use for the Oracle Traffic Director (OTD) virtual machines.

- **Oracle Database Appliance X4-2 and X3-2:** **eth1**(bond0) is a fiber-optic 10GbE interface for public network access. **eth2**(xbond0) is a fiber-optic 10GbE interface.
- **Oracle Database Appliance V1:** **eth1**(bond0) is a 1GbE interface for public network access. **eth4**(xbond0) is a fiber-optic 10GbE interface.

Ensure that your network switch and cables can support the GbE speed that you select. All network addresses are bonded to ensure redundancy and throughput.

#### Admin Server VM

Specify the Hostname<sup>[1]</sup> and IP Address<sup>[2]</sup> for the OTD Administration Server virtual machine.

#### Admin Node *n* VM

For each of the Admin Node virtual machines, specify the Hostname<sup>[1]</sup> and IP Address<sup>[2]</sup>.

#### Netmask

Displays the netmask details entered in the General Information screen.

**Gateway**

Displays the gateway details entered in the General Information screen.

**Security**

Provide the following credentials.

**User Name/Password**

Enter the password to use for OTD administrator user (`admin`) and the operating system users (`root`, `oracle`) for the virtual machines that are running OTD.

Press Enter or tab to view the password confirmation screen.

**Load Balancer Listeners for WebLogic Domain**

Provide the following information.

**Domain**

Lists the domains created in earlier screens.

**OTD Virtual IP**

Enter the public IP address<sup>[2]</sup> for the OTD instances linked to the selected domain. For each domain, enter a unique virtual IP address.

OTD instances will be configured in an Active-Passive configuration to ensure highly available traffic routing and load-balancing service for your enterprise applications and services. OTD has the ability to fail over on this virtual IP, thus providing high availability of the back-end applications that are deployed on Oracle WebLogic clusters.

For more information, see [http://docs.oracle.com/cd/E23389\\_01/doc.11116/e21036/ha001.htm#CHDJGDJG](http://docs.oracle.com/cd/E23389_01/doc.11116/e21036/ha001.htm#CHDJGDJG) in *Oracle® Traffic Director Administrator's Guide*.

**OTD Port for First WebLogic Cluster**

This is the listen port for the OTD instances linked to the first cluster of the domain. Clients can connect using the virtual IP address on this port.

Specify a single port for each domain which acts as the starting port. All subsequent clusters will be assigned port+1 value.

Every cluster within a domain must be assigned a unique port. You cannot duplicate ports within the same domain. However, you can use the same port across multiple domains as each domain has a unique virtual IP address to differentiate the clusters.

[1]: All hostnames must conform to the RFC 952 standard. The network domain that is configured for database provisioning is used to form the fully qualified domain names (FQDN) for the hostnames.

[2]: Only IPV4 format addresses are supported.

**Summary**

Review the configuration summary to ensure that it is accurate.

If you are running the utility on a local machine to generate a configuration file, or if you are running on the Oracle Database Appliance and you intend to use this configuration file to provision later, click **Save** and save the configuration file before

exiting the utility. If you need to change the configuration, click **Back** to return to earlier screens. Click **Close** after saving to exit the utility.

Click **Cancel** to close without provisioning Oracle WebLogic Server or saving a configuration file.

If you are running Oracle Database Appliance Configuration Utility for WebLogic Server on an Oracle Database Appliance, and you want to proceed immediately with the provisioning, click **Install**.

The provisioning process clones, configures, and starts the needed virtual machines and the corresponding servers within them.

When provisioning process is complete, the Oracle WebLogic Administration Server and Managed Servers (along with Node Managers) are up and running. If a load balancer is configured, Oracle Traffic Director Administration Server and instances are also ready for use.

## Silent Provisioning

To run the configuration in silent mode without using the Configuration utility, you can perform silent provisioning.

To perform silent provisioning:

1. Use SSH to log in as `root` to `ODA_BASE` of Node 0 of the Oracle Database Appliance:

```
ssh root@ip_address
```

Replace `ip_address` with the IP address of `ODA_BASE` of Node 0.

2. Change to the directory where you extracted the configuration utility files.
3. Enter the following command:

```
./config.sh --silent config_file
```

Replace `config_file` with the path and filename of the properties file.

## Domain Creation and Startup

After completing the configuration, clicking **Install** initiates the domain creation process.

The domain creation process clones, configures, and starts the needed virtual machines and the corresponding servers within them.

When the creation process is complete, the Oracle WebLogic Administration Server and Managed Servers (along with Node Managers) are up and running. If a load balancer is configured, Oracle Traffic Director Administration Server and instances are also ready for use.

To avoid a single point of failure with a physical node, the virtual machines are spread across the both physical nodes (Node 0 and Node 1).



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**Notes:** At initial provisioning, the domain is configured for Production mode. When you change the domain to Development mode, you must restart the WebLogic servers.

Once provisioning is complete, you must allocate CPUs to each node based on the number of CPUs you have licensed. Refer to the next section, "[CPU Allocation](#)," for more information.

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## CPU Allocation

For Oracle WebLogic Server configured on Oracle Database Appliance, cores are already created during the provisioning process.

After creating the domain, all VMs are using the CPUs from the default-unpinned-pool. Based on the number of cores you have licensed, you must configure the virtual machines to ensure that only the licensed number cores are used by the provisioned WebLogic Server and OTD VMs. The simplest approach is to allocate half of the available cores to each node and configure the WebLogic Server and OTD VMs on a given node to use the cores from that node's CPU pool. See the example later in this section.

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**Note:** There are many ways to allocate the available CPU resources. For example, you could create a separate CPU pool for each VM. You could also allocate the CPU resources unevenly, for example, if you have 10 licensed cores, allocate one to be shared by both Administration Servers, one for each OTD VMs, and seven for the WebLogic Managed Server VMs. The example in this section describes the simplest approach.

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For example, if you have licensed 8 cores, perform the following steps to allocate six cores to each node and configure the VMs on each node to use these CPU pools:

1. Use the following command to create CPU pools on each node (in this example, `wlsCpuPool` is the pool name; you can substitute any pool name you want to use):

```
oakcli create cpupool wlsCpuPool -numcpu 8 -node 0
oakcli create cpupool wlsCpuPool -numcpu 8 -node 1
```

2. For each WebLogic Server and OTD VM, enter the following command to configure the VM to use the CPU pool.

```
oakcli configure vm vm_name -cpupool wlsCpuPool
```

After executing this command, you need to restart each VM for the change to take effect.

3. For each VM, enter the following commands to restart the VMs:

```
oakcli stop vm vm_name
oakcli start vm vm_name
```

## Virtual Machine Configuration

This section describes the virtual machine (VM) configuration of the WebLogic domain. It contains the following sections:

- ["VM Naming Conventions"](#)
- ["VM Resource Allocation"](#)
- ["VM Disk Structure"](#)
- ["Accessing VMs"](#)

## VM Naming Conventions

The WebLogic Administration Server and Managed Server VM names, as well as the Oracle Traffic Director (OTD) VM names, are based on the physical host number on which the VM resides, the domain name, the cluster name, and in the case of Managed Servers, the Managed Server number. WebLogic Server VM names are prefixed by `WLS_`, while the OTD VM names are prefixed by `OTD_`.

The VM name of the WebLogic Administration Server is as follows:

```
WL_<DomainName>_AS
```

For example:

```
WL_Domain1_AS  
WL_Domain2_AS
```

The VM name of each Managed Server is as follows, where # is the number of the VM with regard to the cluster:

```
WLS_<DomainName>_C<cluster#>_MS_<MS#>
```

For example:

```
WL_Domain1_C2_MS_3  
WL_Domain2_C1_MS_4
```

The number of Managed Servers is reset per domain. For example, if you have 2 domains of 4 Managed Servers each, you have 8 total Managed Servers. The VMs will be ordered 1-4 for domain1, then 1-4 again for domain2. The VMs can be differentiated by the domain name part of the VM name.

The VM name of each Coherence Server is as follows, where # is the number of coherence server.

```
COH_<Domain Name>_DATA_<MS#>
```

For example:

```
COH_Default_Domain_DATA_3  
COH_Default_Domain_DATA_4  
COH_Default_Domain_DATA_5  
COH_Default_Domain_DATA_6  
COH_Default_Domain_DATA_7  
COH_Default_Domain_DATA_8
```

The number at the end of the VM name continues from the number of Managed Servers for the domain. If you have one cluster with two Managed Servers, the first Coherence Server VM will end in 3 and the final Coherence Server VM will end in 8. If there are 12 Managed Servers in a cluster, the Coherence Server range will be from 13 to 18.

The VM name of the OTD Administration Server is as follows:

```
OTD_<firstdomainname>_AdminServer
```

The VM name of each OTD server is as follows, where # is the number of the VM:

OTD\_firstdomainname\_AdminNode\_#

Table 2–4 shows the VM names for the Administration Server and Managed Servers in a domain called mydomain with four WebLogic Managed Servers.

**Table 2–4 Example Virtual Machine Names**

VM	Physical Host	VM Name
WebLogic Administration Server	0	WL_Domain1_AS
WebLogic Managed Server n	0	WL_Domain1_C1_MS_n
OTD Administration Server	1	OTD_mydomain_AdminServer
OTD AdminNode 1	0	OTD_mydomain_AdminNode_1
OTD AdminNode 2	1	OTD_mydomain_AdminNode_2
Coherence Server 1 - 3	0	COH_Domain1_DATA_n
Coherence Server 4 - 6	1	COH_Domain1_DATA_n

The examples of VM names in a cluster are as follows:

- OTD\_a\_Domain1-1213\_AdminNode\_1
- OTD\_a\_Domain1-1213\_AdminNode\_2
- OTD\_a\_Domain1-1213\_AdminServer
- WL\_a\_Domain-1213\_AS
- WL\_a\_Domain-1213\_C1\_MS\_1
- WL\_a\_Domain-1213\_C1\_MS\_2
- WL\_a\_Domain-1213\_C2\_MS\_3
- WL\_a\_Domain-1213\_C2\_MS\_4
- COH\_a\_Domain\_DATA\_5
- COH\_a\_Domain\_DATA\_6
- COH\_a\_Domain\_DATA\_7
- COH\_a\_Domain\_DATA\_8
- COH\_a\_Domain\_DATA\_9
- COH\_a\_Domain\_DATA\_10
- WL\_b\_Domain-1213\_AS
- WL\_b\_Domain-1213\_C1\_MS\_1
- WL\_b\_Domain-1213\_C1\_MS\_2
- COH\_b\_Domain\_DATA\_3
- COH\_b\_Domain\_DATA\_4
- COH\_b\_Domain\_DATA\_5
- COH\_b\_Domain\_DATA\_6
- COH\_b\_Domain\_DATA\_7
- COH\_b\_Domain\_DATA\_8
- WL\_c\_Domain-1213\_AS

- WL\_c\_Domain-1213\_C1\_MS\_1
- WL\_c\_Domain-1213\_C1\_MS\_2
- COH\_c\_Domain\_DATA\_3
- COH\_c\_Domain\_DATA\_4
- COH\_c\_Domain\_DATA\_5
- COH\_c\_Domain\_DATA\_6
- COH\_c\_Domain\_DATA\_7
- COH\_c\_Domain\_DATA\_8

## VM Resource Allocation

Each VM hosts its own Oracle Enterprise Linux operating system in addition to any installed applications, such as WebLogic Server.

Table 2–5 shows the resources that are provided for each VM.

**Table 2–5 VM Resource Allocation per VM in ODA X3-2 and X4-2**

VM	vCPU	MEM	JVM Heap
OTD Administration Server	2	1 GB	n/a
OTD Administration Instances	4	6 GB	n/a
WebLogic Administration Server	2	2 GB	512 MB
WebLogic Managed Server	4	4 GB	3 GB
Coherence Server	2	6 GB	3 GB

**Note:** In ODA V1, the number of vCPUs allocated is 2 for each VM. In ODA V1, the number of vCPUs allocated for Coherence Server is 1 for each VM.

## VM Disk Structure

Each VM has an operating system disk (4GB total space). In addition to this, there are two additional virtual disks mounted at `/u01` and `/opt/oracle`. The `/u01` mounted disk contains the WebLogic Server domain configuration and OTD instance home, with 7.5GB total space. The `/opt/oracle` mounted disk contains the WebLogic Server and OTD installations

Table 2–6 shows key directory locations.

**Table 2–6 Key Directory Locations**

Directory or File	Location
WebLogic Server home	Oracle WebLogic Server 12.1.2 and 12.1.3 - <code>/opt/oracle/middleware/wlserver</code> Oracle WebLogic Server 10.3.6 - <code>/opt/oracle/middleware/wlserver_&lt;version&gt;</code>
WebLogic Server domain location	<code>/u01/domain_name</code>

**Table 2–6 (Cont.) Key Directory Locations**

<b>Directory or File</b>	<b>Location</b>
WebLogic Server domain log file	/u01/ <i>domain_name</i> /servers/ <i>admin_server_name</i> /logs/ <i>domain_name</i> .log
WebLogic Server server log	/u01/ <i>domain_name</i> /servers/ <i>server_name</i> /logs/ <i>server_name</i> .log
Middleware home	/opt/oracle/middleware
Oracle Traffic Director home	/opt/oracle/trafficdirector
Oracle Traffic Director server instances	/u01/OTDInstanceHome

## Accessing VMs

Once provisioning is complete, the individual VMs can be accessed via `ssh`.

The operating system password of each WebLogic Server VM for `root` is set to the WebLogic Server password that was specified in the **Password** field of the WebLogic VM Information screen of the configuration utility.

The operating system password of each OTD VM for `root` is set to the OTD administrator password that was specified in the **Password** field of the Load Balancer Configuration screen of the configuration utility.

You have the option to change these passwords afterwards.



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# Administering WebLogic Server and Oracle Traffic Director

This chapter describes how to administer WebLogic domains and Oracle Traffic Director instances on Oracle Database Appliance. It also describes restrictions on domains that are running on Oracle Database Appliance.

The initial configuration and provisioning process described in [Chapter 2, "Installation and Configuration,"](#) is intended only to provide a starting point for the WebLogic domain. Once provisioned, you can customize the domain as needed and administer the VMs as you would any other Linux VM. This means that you can transfer configuration and log files to and from the machine as needed, and use the WebLogic Scripting Tool (WLST) and the WebLogic Server Administration Console to customize the domain. Note that there are some restrictions on domain customization, as described in ["Restrictions on Modifying Domains"](#).

## Customizing a WebLogic Domain

After provisioning the domain, you can further customize and manage the domain using WLST or the Administration Console.

## WebLogic Server Administration Console

To access the WebLogic Server Administration Console, open a Web browser and enter the following URL, where *admin-server-ip* and *listen-port* are the IP Address and Listen Port that were configured for the Administration Server on the WebLogic Domain Information screen of the configuration utility:

```
https://admin-server-ip:listen-port/console
```

Log in with the username `system`. The password is the password that was specified on the WebLogic Cluster Settings screen of the configuration utility when you created the domain.

For more information on the Administration Console, reference the following documentation or press F1 while in the Administration Console to access help:

- *Administration Console Online Help* (WebLogic Server 10.3.6) at [http://docs.oracle.com/cd/E23943\\_01/apirefs.1111/e13952/core/index.html](http://docs.oracle.com/cd/E23943_01/apirefs.1111/e13952/core/index.html)
- *Administration Console Online Help* (WebLogic Server 12.1.2) at <http://docs.oracle.com/middleware/1212/wls/index.html>
- *Administration Console Online Help* (WebLogic Server 12.1.3) at <http://docs.oracle.com/middleware/1213/wls/WLACH/core/index.html>

## WLST

You can use WLST in online or offline mode to manage the domain. There are some restrictions, however, on the modifications you can make to the domain. See "[Restrictions on Modifying Domains](#)" for more information.

For online mode, simply connect to the domain's Administration Server using the appropriate public network IP address.

To run WLST scripts in offline mode, `ssh` to the VM that is hosting the Administration Server.

For information about using WLST on WebLogic Server 10.3.6, refer to the following documents:

- *Oracle WebLogic Scripting Tool* at [http://docs.oracle.com/cd/E23943\\_01/web.1111/e13715/toc.htm](http://docs.oracle.com/cd/E23943_01/web.1111/e13715/toc.htm)
- *WebLogic Scripting Tool Command Reference* at [http://docs.oracle.com/cd/E23943\\_01/web.1111/e13813/toc.htm](http://docs.oracle.com/cd/E23943_01/web.1111/e13813/toc.htm)

For information about using WLST on WebLogic Server 12.1.2, refer to the following documents:

- *Oracle WebLogic Scripting Tool* at <http://docs.oracle.com/middleware/1212/wls/WLSTG/index.html>
- *WebLogic Scripting Tool Command Reference* at <http://docs.oracle.com/middleware/1212/wls/WLSTC/index.htm>

For information about using WLST on WebLogic Server 12.1.3, refer to the following documents:

- *Oracle WebLogic Scripting Tool* at <http://docs.oracle.com/middleware/1213/wls/WLSTG/index.html>
- *WebLogic Scripting Tool Command Reference* at <http://docs.oracle.com/middleware/1213/wls/WLSTC/index.html>

## Starting and Stopping Servers

The Administration Server and all Managed Servers are automatically started as part of the provisioning process. Afterwards, you can use standard WebLogic Server procedures to shut down or restart the Administration Server and Managed Server instances.

For more information, see:

- "Starting and Stopping Servers" in *Managing Server Startup and Shutdown for Oracle WebLogic Server* (WebLogic Server 10.3.6)
- "Starting and Stopping Servers" in *Managing Server Startup and Shutdown for Oracle WebLogic Server* (WebLogic Server 12.1.2)
- "Starting and Stopping Servers" in *Managing Server Startup and Shutdown for Oracle WebLogic Server* (WebLogic Server 12.1.3)

## Restrictions on Modifying Domains

Because the WebLogic domain is hosted in a managed, virtualized environment, there are several restrictions that apply when modifying the domain. There is no mechanism in place to enforce these restrictions, and therefore, you must use caution when modifying a WebLogic domain on Oracle Database Appliance.



In general, you should not modify WebLogic Server configuration settings that were initially set during the domain provisioning process unless you know what those settings are doing and you are certain that modifying them will not have any adverse effects on the domain.

The following sections describe specific configuration areas in which you should avoid modifications:

- ["Domain Name"](#)
- ["Cluster Size"](#)
- ["Node Manager"](#)
- ["Data Source"](#)
- ["Creating Multiple Domains and Expanding Existing Domains"](#)

### Domain Name

Some Oracle Database Appliance scripts rely on the ability to identify the associated WebLogic Server domain from the name of a given VM instance. You should therefore not change the name of a domain once the VMs in the domain have been provisioned.

### Cluster Size

Currently, there is no support for adding WebLogic Server server instances to a cluster that has already been provisioned on Oracle Database Appliance.

VMs can, however, be deactivated from a provisioned domain by using the OAKCLI `shutdown` command. After shutting down a VM, you can permanently delete its state using the OAKCLI `delete` command. Deleting a VM results in a permanent loss of that VM from the domain. Note that you must also modify the cluster configuration to remove the server instance cleanly.

For example, to permanently delete a VM named `WLS_mydomain_ManagedServer_8`, enter the following commands:

```
cd /opt/oracle/oak/bin
./oakcli stop vm WLS_mydomain_ManagedServer_8
./oakcli delete vm WLS_mydomain_ManagedServer_8
```

---

---

**Note:** If you want to delete all VMs, use the `cleanup.sh` command instead. See ["Deleting the WebLogic Deployment."](#)

---

---

### Node Manager

In this configuration, Node Manager runs inside of each VM. If a VM shuts down, Node Manager will not be available until the VM comes back up again.

Node Manager is initially configured to use the WebLogic Server demo certificates.

For information on how to install certificates and enable SSL for WebLogic Server, see:

- ["Configuring Identity and Trust" and "Configuring SSL" in \*Oracle Fusion Middleware Securing Oracle WebLogic Server\* \(WebLogic Server 10.3.6\)](#)
- ["Configure keys, certificates, and trusted certificate authorities" in \*Oracle Fusion Middleware Securing Oracle WebLogic Server\* \(WebLogic Server 12.1.2\)](#)
- ["Configure keys, certificates, and trusted certificate authorities" in \*Oracle Fusion Middleware Securing Oracle WebLogic Server\* \(WebLogic Server 12.1.3\)](#)

### Security Certificates

You must log in to each of the WebLogic Server VMs to install CA security certificates on each VM.

### Data Source

Each WebLogic domain contains a data source that is used internally by WebLogic Server for transaction log and JMS persistent storage. Do not modify or delete this data source. Note that this data source exists only if JMS is selected in the Configurator before provisioning.

### Creating Multiple Domains and Expanding Existing Domains

After the initial provisioning, do not run the configuration utility again to create additional domains and clusters until the existing environment is cleaned up.

Oracle also does not support creation of additional WebLogic Server and OTD instances in the domain. Oracle recommends that you do not create additional clusters or Managed Servers in this environment, and that you not add Managed Servers to the existing VMs. These scenarios are not supported.

## Administering Oracle Traffic Director

Oracle Traffic Director is the fronting load balancer in the Oracle WebLogic Server on Oracle Database Appliance configuration. During configuration, you can choose to not configure Oracle Traffic Director.

On Oracle Database Appliance, the OTD Administration Server VM and Admin Node VMs are configured to start automatically at the end of the provisioning.

To administer OTD, log in to the following administration URL, where *ip-address* is the IP address of the OTD Administration VM:

```
https://ip-address:8989/
```

For more information on OTD and OTD administration, see the Oracle Traffic Director 11g (11.1.1.7) library at:

```
http://docs.oracle.com/cd/E23389\_01/index.htm
```

## Starting and Stopping Oracle Traffic Director Server Instances

You can start and stop OTD server instances either from the OTD Administration Console or from a server instance directory in the OTD INSTANCE\_HOME directory. The OTD INSTANCE\_HOME on ODA is:

```
/u01/OTDInstanceHome/
```

For information on how to start and stop OTD server instances, see "Starting, Stopping, and Restarting Oracle Traffic Director Instances" in *Oracle Traffic Director Administrator's Guide*.

## Configuring Security

You must log in to each OTD VM to configure security and install CA security certificates. For information on configuring security and security certificates for OTD, see "Managing Security" in *Oracle Traffic Director Administrator's Guide*.

## Modifying VM Resource Allocations

All VMs that are provisioned for a WebLogic Server domain are allocated with predetermined resources (see "VM Resource Allocation" in Chapter 2). You can use the OAKCLI to modify this resource allocation after the VMs have been provisioned and started.

To modify the resource allocation for a VM:

1. Use the OAKCLI `stop` command to shut down the VM.
2. Use the OAKCLI `configure` command to update the number of virtual CPUs and amount of memory that is allocated for the VM.
3. Use the OAKCLI `start` command to restart the VM.

For example, to change the number of virtual CPUs to 3 and the amount of virtual memory to 4GB for a VM named `WLS_1_mydomain_mycluster_1`, enter the following commands:

```
cd /opt/oracle/oak/bin
./oakcli stop vm WLS_1_mydomain_mycluster_1
./oakcli configure vm WLS_1_mydomain_mycluster_1 -vcpu 3 -memory 4196
./oakcli start vm WLS_1_mydomain_mycluster_1
```

## Managing Access Log Files

To prevent WebLogic Server HTTP access logs and Oracle Traffic Director access logs from filling up drive space, configure the access logs appropriately on each server instance. You can limit the access log file size and the number of log files to retain. For more information, see the following topics:

- "Setting Up HTTP Access Logs" in *Configuring Server Environments for Oracle WebLogic Server* (WebLogic Server 10.3.6)
- "Enable and Configure HTTP Logs" in *Administration Console Online Help* (WebLogic Server 10.3.6)
- "Configuring WebLogic Logging Services" in *Administration Console Online Help* (WebLogic Server 12.1.2)
- "Configuring WebLogic Logging Services" in *Administration Console Online Help* (WebLogic Server 12.1.3)

OTD access logs can be configured for log file rotation (based on time). You can configure the rotated log files to be automatically zipped, deleted, or moved elsewhere. For information about OTD log file locations, see "About the Oracle Traffic Director Logs" in *Oracle Traffic Director Administrator's Guide*. For information about configuring OTD access log rotation see "Configuring Oracle Traffic Director to Rotate Logs Automatically" in *Oracle Traffic Director Administrator's Guide*.

## Deleting the WebLogic Deployment

If you want to delete the existing WebLogic deployment, perform the following steps:

1. Access the directory where you installed the configuration utility.
2. Enter the following command:

```
./cleanup.sh <first_domain_name>
```

After running this command, the entire deployment with all the created domains will be deleted. You cannot delete individual domains. You can then use the configuration utility to create new domains.

For more information, see the README file in the configuration utility directory.