## **Oracle® Endeca Server**

Installation Guide

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# Preface

Oracle® Endeca Server is the core search-analytical database. It organizes complex and varied data from disparate source systems into a faceted data model that is extremely flexible and reduces the need for up-front data modeling. This highly-scalable server enables users to explore data in an unconstrained and impromptu manner and to rapidly address new questions that inevitably follow every new insight.

# About this guide

This guide contains installation instructions for setting up Oracle Endeca Server on Windows and Linux.

The guide assumes that you are familiar with Oracle WebLogic Server concepts.

## Who should use this guide

This guide is intended for system administrators installing Oracle Endeca Server on Windows or Linux.

## Conventions used in this guide

The following conventions are used in this document.

## **Typographic conventions**

This table describes the typographic conventions used when formatting text in this document.

Туреface	Meaning	
User Interface Elements	This formatting is used for graphical user interface elements such as pages, dialog boxes, buttons, and fields.	
Code Sample	This formatting is used for sample code phrases within a paragraph.	
Variable	This formatting is used for variable values. For variables within a code sample, the formatting is <i>Variable</i> .	
File Path	This formatting is used for file names and paths.	

## Symbol conventions

This table describes the symbol conventions used in this document.

Symbol	Description	Example	Meaning
>	The right angle bracket, or greater-than sign, indicates menu item selections in a graphic user interface.	File > New > Project	From the File menu, choose New, then from the New submenu, choose Project.

## Path variable conventions

This table describes the path variable conventions used in this document.

Path variable	Meaning
\$MW_HOME	Indicates the absolute path to your Oracle Middleware home directory, which is the root directory for your WebLogic installation.
\$DOMAIN_HOME	Indicates the absolute path to your WebLogic domain home directory. For example, if endeca_server_domain is the name of your WebLogic domain, then the \$DOMAIN_HOME value would be the \$MW_HOME/user_projects/domains/endeca_server_domain directory.
\$ENDECA_HOME	Indicates the absolute path to your Oracle Endeca Server home directory, which is the root directory for your Endeca Server installation.

## **Contacting Oracle Customer Support**

Oracle Endeca Customer Support provides registered users with important information regarding Oracle Endeca software, implementation questions, product and solution help, as well as overall news and updates.

You can contact Oracle Endeca Customer Support through Oracle's Support portal, My Oracle Support at *https://support.oracle.com*.



# Chapter 1 Before You Install

This section provides information you should know before starting your installation of the Oracle Endeca Server.

About the Oracle Endeca Server software package Required Oracle products About the Endeca Server integration with the WebLogic Server Hardware requirements Supported operating systems Disk space requirements Downloading the software

## About the Oracle Endeca Server software package

The Oracle Endeca Server software provides the query engine that serves as the foundation for all front-end applications utilizing it.

The software includes the Oracle Endeca Server, which is the management facility for administering the Endeca data domains. Front-end applications built on top of the Oracle Endeca Server can answer end-user queries and provide business analytics information to the front-application's users.



**Note:** The term Oracle Endeca Server is used in two related contexts: On the one hand, it is the name of the entire software package for the server. On the other hand, the Oracle Endeca Server is the management facility for administering your data domains.

The Oracle Endeca Server lets you administer your Endeca data domains. The Endeca data domain is where the source data records are stored after being loaded from your ETL client. With the Oracle Endeca Server, some of the operations you can perform are:

- Create an Endeca data domain, including assigning a name that will later be used to access and manage it.
- Stop and start Endeca data domains.
- View the status of any Endeca data domain.
- Update the spelling dictionary for a specific data domain.

In addition, the Oracle Endeca Server constantly monitors the status of the running Endeca data domains and will automatically restart them (for example, if one crashes).

As the query engine, the Dgraph process of the Oracle Endeca Server uses proprietary data structures and algorithms that allow it to provide real-time responses to client requests issued to the data domain that is

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running on the server. The Dgraph process receives client requests via the application tier, queries the data files, and returns the results.

Each Endeca data domain contains a set of versioned Web services for loading, configuring, and querying the data. These Web services, together with the Bulk Load Interface, provide the interfaces to the Oracle Endeca Server.

## About the Endeca Server cluster and the data domain cluster

A data domain cluster is composed of a set of nodes (Dgraph processes) all of which can serve query requests. If the data domain cluster is not read-only, one node is identified as the leader node; all other nodes are follower nodes. For read-only data domain clusters, all nodes serve as follower nodes. One copy of the index for the data domain is shared and used by all nodes. The Cluster Coordinator provides communication between the nodes in the data domain cluster. It also notifies the follower nodes about index updates and updates to the configuration.

If one of the data domain cluster nodes fails, queries continue to be processed by other nodes. A data domain cluster also provides increased throughput by the Oracle Endeca Server. By adding Endeca Server instances to an Endeca Server cluster that is hosting the data domain cluster, you can spread the query load across multiple Oracle Endeca Servers without the need to increase storage requirements at the same rate. Endeca Server instances can be added or removed dynamically, without having to stop the data domain cluster.

In the development environment, you can start with a single Oracle Endeca Server that is hosting a data domain (this is essentially a one-node data domain cluster). You can then expand your single instance implementation by adding more Endeca Server instances and expanding the data domain to utilize those instances. When you move to a production environment, you can duplicate a multi-node data domain cluster that you built in the development environment.

For information on installing and deploying an Endeca Server cluster, see the section in this guide.

For more information on the Endeca Server cluster and the data domain cluster, see the Oracle Endeca Server Cluster Guide.

# **Required Oracle products**

An Endeca Server installation requires the WebLogic Server, ADF Runtime, and JDK products.

## Oracle WebLogic Server requirement

The supported version of Oracle WebLogic Server is 10.3.6, which is part of the WebLogic Server 11g product. This version is available in the **Oracle WebLogic Server Previous Releases** section of this page: *http://www.oracle.com/technetwork/middleware/ias/downloads/wls-main-097127.html* 

Note that this page provides a number of Oracle WebLogic Server 10.3.6 versions. However, the only supported version is the **Generic** version that is listed under the **Additional Platforms** column, as shown in this cropped illustration of the download page:

Oracle WebLogic S	erver Previous Re	eases		
Note: This table includes li question, and links to Web To use WebLogic Server w plafforms, use the WebLog installers do not include a Please refer to the Readm	nks to WebLogic Server in Logic Server generic inst ith 64-bit JVM's on Linux a jic Server generic installe JVM/JDK. For instructions e for important informatio	nstallers that include 3 allers that can be use and Solaris or to use V r listed under "Addition on using the generic n to help you get starte	32-bit JVMs for the plat d on any supported pla VLS on other supporte nal Platforms". The ger installers, see this do ed downloading,	form in liform. d neric cument.
installing, and configuring	your Oracle Fusion Middle	eware software.		
	Microsoft Windows (32-bit JVM)	(32-bit JVM)	Solaris (32-bit JVM)	Additional Platforms (For 64-bit JVM Support, See Note Above)
Oracle WebLogic Server 10.3.6	See all files 🖃			
Oracle WebLogic Server 11gR1 (10.3.6) + Coherence + OEPE - Package Installer	x86: 1.5 GB File1	x86: 1.5 GB File1		Mac OS X: 1.7 GB File1
Oracle WebLogic Server 11gR1 (10.3.6) + Coherence - Package Installer	x86: 820 MB File1	x86: 831 MB File1	SPARC: 783 MB File1	Generic: 1 GB File1

The Generic version is used because it is a platform-agnostic installer (i.e., can be used on both Linux and Windows platforms) and also because it allows you to use a 64-bit JVM. The 64-bit JVM is required for the Oracle Endeca Server.

If you have an Oracle account, you can download the Generic installer as follows:

- 1. Click the Accept License Agreement radio button at the top of the page.
- 2. Click the **File1** link in the Generic cell.
- 3. If you are not already logged in, sign in (on the Sign In page) with your Oracle username and password.
- 4. Click Save File on the download dialog.

As a result, the wls\_generic.jar installer is downloaded to your machine. To run this installer, follow the installation instructions in *Installing WebLogic Server on page 17*.

## **Oracle ADF Runtime requirement**

After installing WebLogic Server, you must install version 11.1.1.6 of the Oracle ADF (Application Development Framework) Runtime package. The ADF Runtime installer is available at this page: http://www.oracle.com/technetwork/developer-tools/adf/downloads/index.html

The location of the **Application Development Runtime** download link is shown below in this cropped version of the Oracle ADF download page.



If you have an Oracle account, you can download the ADF Runtime installer as follows:

- 1. Click the Accept License Agreement radio button at the top of the page.
- 2. In the Application Development Runtime section, select 11.1.1.6 and click the Download File button.
- 3. If you are not already logged in, sign in (on the Sign In page) with your Oracle username and password.
- 4. Click Save File on the download dialog.

As a result, the ofm\_appdev\_11.1.1.6.0\_disk1\_lof1.zip file is downloaded to your machine. To run this installer, follow the installation instructions in *Installing Oracle ADF Runtime package on page 28*.

#### Sun Java 6 JDK requirement

During the WebLogic installation procedure (and later during the WebLogic domain creation procedure), you are prompted for a JDK (Java Development Kit). The JDK provides the JRE (Java run-time environment) needed by the installation program to run. The JDK must be Java version 6 (also called 1.6).

While some WebLogic Server installers include a bundled JDK, the Generic installation program (wls\_generic.jar) does not have a bundled JDK. Therefore, you must already have a JDK available that you can specify during the installation procedure.

The recommended JDK is Version 6 of the Oracle Sun SE (Standard Edition) Development Kit. This JDK is available from the **Java SE Development Kit 6u43** section of this web page: http://www.oracle.com/technetwork/java/javasebusiness/downloads/java-archive-downloads-javase6-419409.html

Java SE Development Kit 6u43         You must accept the Oracle Binary Code License Agreement for Java SE to download this software.         Accept License Agreement         O Accept License Agreement		
Product / File Description	File Size	Download
Linux x86	65.43 MB	👱 jdk-6u43-linux-i586-rpm.bin
Linux x86	68.45 MB	🛓 jdk-6u43-linux-i586.bin
Linux x64	65.65 MB	
Linux x64	68.7 MB	jdk-6u43-linux-x64.bin
Solaris x86	68.35 MB	🛓 jdk-6u43-solaris-i586.sh
Solaris x86 (SVR4 package)	119.92 MB	🛓 jdk-6u43-solaris-i586.tar.Z
Solaris x64	8.45 MB	jdk-6u43-solaris-x64.sh
Solaris x64 (SVR4 package)	12.17 MB	jdk-6u43-solaris-x64.tar.Z
Solaris SPARC	73.35 MB	jdk-6u43-solaris-sparc.sh
Solaris SPARC (SVR4 package)	124.72 MB	jdk-6u43-solaris-sparc.tar.Z
Solaris SPARC 64-bit	12.14 MB	jdk-6u43-solaris-sparcv9.sh
Solaris SPARC 64-bit (SVR4 package)	15.44 MB	jdk-6u43-solaris-sparcv9.tar.Z
Windows x86	69.76 MB	jdk-6u43-windows-i586.exe
Windows x64	59.83 MB	jdk-6u43-windows-x64.exe
Linux Intel Itanium	53.95 MB	🛓 jdk-6u43-linux-ia64-rpm.bin
Linux Intel Itanium	60.65 MB	👱 jdk-6u43-linux-ia64.bin
Windows Intel Itanium	57.89 MB	보 jdk-6u43-windows-ia64.exe
Back to top		

You should download the 64-bit version appropriate for your platform:

- Linux: the Linux x64 product
- Windows: the Windows x64 product



#### Important:

When installing the Sun JDK package, make sure that you install it in a directory path that does not have spaces. For example, the default destination path on Windows is:

C:\Program Files\Java\jdk1.6.0\_43

Because the space in "Program Files" will cause problems with the ADF and Endeca Server installers, you must change the destination path to a directory similar to this example:

C:\Java\jdk1.6.0\_43

The JDK screen for the destination folder path should look like this:

J <sub>Java</sub> (TM	I) SE Development Kit 6 Update 43 (64-	bit)	
لي Javar	Change Current Destination Folder Browse to the destination folder.		ORACLE
Look in:	16 -		
🧰 jo	lk1.6.0_43		- 🗈 💣
<u>F</u> older r	name:		
C:\Jav	a\jdk1.6.0_43\		
		ОК	Cancel

Make sure you specify this path to the -jreLoc flag of the ADF and Endeca Server installers and also when prompted for a JDK in an installation screen.

# About the Endeca Server integration with the WebLogic Server

The Endeca Server is a J2EE application that runs in a J2EE container in the Oracle WebLogic Server. The Endeca Server uses WebLogic 11g (10.3.6), and Application Development Framework 11g (11.1.1.6). This topic discusses the integration in detail.

The Endeca Server software exposes almost all of its APIs as SOAP web services. Starting with the Endeca Server version 7.5.0, those web services are implemented using the Oracle WebLogic Server 11g (WebLogic Server version 10.3.6), inside a hosted web application called the Endeca Server.

The Endeca Server delegates most of its actual query processing to its own internal component, the Dgraph, which is external to the WebLogic Server, is not Java-based, and must be running in each active Endeca Server instance.

For single-node development environments, you can deploy the Endeca Server instance in the single Admin Server in the WebLogic Server. In the Endeca Server cluster, all Endeca Server instances must be running on the Managed Servers only.



**Important:** This Installation Guide relies on those components that are available in the WebLogic Server installation under the Oracle Restricted Use License. If your site already has access to the fuller version of the WebLogic Server, additional components may be available to you. However, the instructions in this guide do not guarantee that any other components of the WebLogic Server can be

used with the Endeca Server. Additionally, certain components, such as the Enterprise Manager, are not discussed in this guide.

#### How the WebLogic Server is used

The Endeca Server application hosted in the WebLogic domain utilizes the following features of the WebLogic Server and Application Development Framework (this list is not guaranteed to be exhaustive):

- The Java Required Files (JRF). The JRF template is used for the domain configuration of the Oracle WebLogic Server targeted for using it with the Endeca Server. (This template is used automatically when you create an Endeca Server domain in the WebLogic Server.)
- The WebLogic deployment tools. You use the Configuration Wizard for creating a WebLogic domain for JRF and the Endeca Server. The Endeca Server uses the Administration Console and WLST (the WebLogic Server Scripting Tool) for starting and stopping the Managed Servers hosting the Endeca Server instances.
- The WebLogic Server security features, for ensuring security of the Endeca Server processing, interfaces, and data.

The Endeca Server does not utilize the following features of the WebLogic Server (this list is not exhaustive):

- The WebLogic Server message catalog and the default Java Logging API are not used for logging from the Endeca Server. Instead, the Endeca Server uses the Oracle Diagnostic Logging (ODL). Note that any messages from the WebLogic domain itself (and not the Endeca Server application running inside it) utilize the default message catalog and the Java Logging API from the WebLogic Server.
- The WebLogic Server JDBC modules or resources are not used in the Endeca Server package (as they
  are not required).
- The WebLogic Server clusters are not used by the Endeca Server for load balancing and request routing. Instead, the Endeca Server cluster accepts requests on any Endeca Server instance, and utilizes its own routing service. Depending on the deployment strategy, an external load balancer can also be used.



**Important:** For performance and troubleshooting purposes, it is preferable to dedicate a WebLogic domain to hosting only the Endeca Server Java application. In this case, the endeca-server root context is used in the URL pointing to any of the WebLogic Server instances hosting the Endeca Server application.

## Hardware requirements

The Oracle Endeca Server has the following hardware requirements.



**Note:** In this guide, the term "x64" refers to any processor compatible with the AMD64/EM64T architecture. You might need to upgrade your hardware, depending on the data you are processing. All run-time code must fit entirely in RAM. Likewise, hard disk capacity must be sufficient based on the size of your data set. Please contact your Oracle representative if you need more information on sizing your hardware.

#### Windows and Linux on x64

Minimum hardware requirements:

• x64 processor, minimum 1.8 GHz

- At least 3 GB of RAM, depending on the size of the application data set
- 80 GB hard drive, depending on the size of the application data set

Recommended hardware requirements:

- x64 3.0+ GHz processors; Intel Xeon (including Nehalem) or AMD Opteron processors are recommended
- 8 GB of RAM or more, depending on the size of the application data set
- High performance network-attached storage (for example, attached via a dedicated iSCSI or fibre channel network), or high performance locally-attached RAID storage (for example, a RAID 6 or RAID 0+1 array with battery-backed write caching, operating on 72GB or 146 GB spindles at 10k or 15k RPM spindle speed)
- Gigabit Ethernet

## Hardware requirements for running an Endeca Server cluster

These requirements exist:

- Shared file system. All Endeca Server instances deployed on Managed Servers in the WebLogic domain must have write access to a shared file system on which the index for the data domains will be stored. This shared file system is also used by the Cluster Coordinator services that must be running in the Endeca Server cluster.
- Load balancer. Even though, in an Endeca Server cluster, you can issue queries to any WebLogic Server instance hosting one of the Endeca Server instances (and it will be routed accordingly to the designated data domain hosted in this Endeca Server cluster), in most production deployments, it is still desirable to configure an external load balancer between your front-end application and an Endeca Server cluster. For more information load balancing and routing of requests in the Endeca Server cluster, see the Oracle Endeca Server Cluster Guide.

For detailed information about prerequisites and for instructions about deploying a cluster, see *Installing and Deploying an Endeca Server Cluster on page 61*.

## Supported operating systems

The Oracle Endeca Server supports the following 64-bit operating systems running on servers with x64 capabilities:

Operating System	Description
Oracle Linux 5	Only the Red Hat Compatible Kernel is supported.
Linux RHEL 5	<ul> <li>Red Hat Enterprise Linux Server (version 5 for x64) running on x64 processors.</li> <li>Red Hat Enterprise Linux Advanced Platform (version 5 for x64) running on x64 processors.</li> <li>For best performance on Red Hat Linux version 5 (Server and Advanced), Oracle recommends the latest version of RHEL 5.</li> </ul>
Windows 2008	Windows Server 2008 R2 Enterprise running on x64 processors.

#### **Notes**

Windows 7 is not supported for production deployment, but operates sufficiently to enable training and smallscale staging and development work.

Windows XP is not supported.

We recommend turning off hyper-threading for machines on which the Dgraph is running. Because of the way the Dgraph works, it is actually detrimental to cache performance to use hyper-threading.

## **Disk space requirements**

Ensure that adequate disk space is available before installing the Oracle Endeca Server software.

The three products have the following disk sizes after installation:

- Oracle WebLogic Server: 425 MB
- Oracle Application Development Runtime: 1024 MB
- Oracle Endeca Server: 475 MB

Therefore, the total disk size of the entire installation is approximately 1.9 GB.

Each of the three installation programs uses a temporary directory into which they extract the files necessary to install the software on the target system. During the installation process, your temporary directory must contain sufficient space to accommodate these files. As a rule of thumb, the files in the temporary directory require approximately 2.5 times the space that is ultimately required for each installation.

By default, the installation programs use these temporary directories:

- Windows platforms: directory referenced by the TMP system variable.
- UNIX platforms: system-dependent temporary directory.

## Downloading the software

The Oracle Endeca Server software modules are downloaded from the Oracle Software Delivery Cloud.

To download the Oracle Endeca Server software:

- 1. Log in to https://edelivery.oracle.com.
- 2. Accept the terms and restrictions.
- 3. On the **Media Pack Search** page:
  - (a) From the Select a Product Pack drop-down list, select Oracle Endeca.
  - (b) From the **Platform** drop-down list, select either **Microsoft Windows x64 (64-bit)** or **Linux x86-64**.
  - (c) Click Go.

The list of media packs for the selected product and platform is displayed.

- 4. Select the media pack for your platform and then click **Continue**:
  - Windows: Oracle Endeca Server (7.5.1.1) Media Pack for Microsoft Windows x64 (64-bit)
  - Linux: Oracle Endeca Server (7.5.1.1) Media Pack for Linux x86-64

- 5. On the **Download** page, click **Download** next to the name of package for your platform:
  - Oracle Endeca Server (7.5.1) for Microsoft Windows x64 (64-bit)
  - Oracle Endeca Server (7.5.1) for Linux x86-64

Each package contains a ZIP file with the Oracle Endeca Server installer, which is documented in *Installing Oracle Endeca Server on page 38*.

- 6. You should also download these two packages:
  - Oracle Endeca Server (7.5.1) Sample Data contains the Oracle Endeca Server sample data set (documented in Using the SH sample data on page 86).
  - Oracle Endeca Server (7.5.1) Documentation contains a ZIP file which has this guide, The Oracle Endeca Server Migration Guide, the Oracle Endeca Server Licensing Guide, and the release notes for Oracle Endeca Server.

The complete documentation set for Endeca Server is available for online viewing or downloading at: http://www.oracle.com/technetwork/middleware/endecaserver/documentation/endeca-documentation-1721979.html



## Chapter 2

# Installing WebLogic Server and Application Developer Runtime

This section contains instructions for installing the Oracle WebLogic Server and the Oracle Application Developer Runtime products.

Installing WebLogic Server

Installing Oracle ADF Runtime package

## Installing WebLogic Server

This topic provides a brief description of how to install Oracle WebLogic Server, which is the Web server container in which the Endeca Server application is hosted.

This topic describes the installation of Oracle WebLogic Server 10.3.6, which is part of the WebLogic Server 11g product. This procedure applies to the Generic version of the installer (the installer file is named wls1036\_generic.jar).



Note: When installing WebLogic Server on Linux, do not run the installation program as the root user.

Before starting this procedure, make sure that you have downloaded these two components:

- 1. The Generic version of the WebLogic Server installer, as described in Oracle WebLogic Server requirement on page 8.
- 2. The Java 6 version of the Oracle Sun Java SE JDK, as described in *Sun Java 6 JDK requirement on page 10*.

Note that this procedure will install the minimum Oracle products needed to run Oracle Endeca Server. For example, it will not install the Oracle Coherence product, even though it is included in the installation package.

The installation instructions in this topic are a distillation of the complete instructions in the Oracle Installation Guide for Oracle WebLogic Server, which is available online at: http://docs.oracle.com/cd/E23943\_01/doc.1111/e14142/toc.htm

These distilled instructions concentrate on installing only those WebLogic Server components that are mandatory for an Endeca Server environment.

To install WebLogic Server:

- 1. Make sure that you have installed the Java 6 version of the Oracle Sun SE 6 JDK on the machine on which you are installing WebLogic Server.
- 2. From a command prompt, navigate to the directory where the wls1036\_generic.jar installer file is stored.

3. Launch the installer in Graphical Mode with this command: java - jar wls1036\_generic.jar

When the installer runs, it displays the installation wizard's **Welcome** screen.

4. At the **Welcome** screen, click **Next**.



- 5. At the Choose Middleware Home Directory screen, do the following:
  - (a) Select Create a new Middleware Home.
  - (b) In the Middleware Home Directory field, enter the name of the Middleware home directory. (This will be the \$MW\_HOME directory of your installation.) You can either accept the default location or enter another one. The Oracle Middleware Home Directory name may only contain alphanumeric , hyphen (-) , dot (.), and underscore (\_) characters, and it must begin with an alphanumeric character.

(c) When you have finished, click Next.

I Oracle Installer - WebLogic 10.3.6.0	
Choose Middleware Home Directory Specify the Middleware Home where you wish to install WebLogic 10.3.6.0.	ORACLE
Middleware Home Type Use an existing Middleware Home  Create a new Middleware Home	
Middleware Home Directory C:\Oracle\Middleware	
Browse Reset	
Exit	Previous Next

- At the Register for Security Updates screen, enter your support details if you want to receive security updates and then click Next. If you do not want to receive security updates, (or if your machine has no Internet access), you can bypass the screen as follows:
  - (a) Click Next without entering an email address.
  - (b) At the Email Address Not Specified pop-up, click Yes.
  - (c) At the Are You Sure? prompt, click Yes.

(d) In the Connection Failed dialog, click the I wish to remain uninformed of security issues in my configuration or the machine has no Internet access checkbox and then click Continue.

tiate confi	juration manager.	
	Connection failed	
🔽 I wist	If necessary, specify proxy server information. Otherw your network connection.	vise click Cancel and check
_	Proxy Server:	
_	Proxy Port:	
_	Use authentication	
_	Proxy Username:	
_	Proxy Password:	
	If this machine has no internet connection, select the cl Continue.	heckbox below and click
	I wish to remain uninformed of security issues in my configuration or this machine has no Internet access	5.

7. At the Choose Install Type, select Custom and click Next.



- 8. At the **Choose Products and Components** screen, leave only these products checked and click **Next**:
  - (a) Core Application Server
  - (b) Administration Console
  - (c) Configuration Wizard and Upgrade Framework

(d) Evaluation Database (needed only if the EID Provisioning Service will be installed on this WebLogic instance)

ayed selections are already installed. uble-click headings to reveal or collapse selections.	ORACLE'
🗹 🛅 WebLogic Server	Description
<ul> <li>Core Application Server</li> <li>Administration Console</li> <li>Configuration Wizard and Upgrade Frameworl</li> <li>Web 2.0 HTTP Pub-Sub Server</li> <li>WebLogic SCA</li> <li>WebLogic JDBC Drivers</li> <li>Third Party JDBC Drivers</li> </ul>	Implements JEE technologies, Web services, and other leading Internet standards, to provide a reliable framework for highly available, scalable, and secure applications.
WebLogic Server Clients	Approximate Installed Size*
WebLogic Web Server Plugins	Highlighted item: 671.4 ME
UDDI and Xquery Support	Common artifacts: 50.1 ME
Evaluation Database	Total of all selected items: 467.4 ME
Oracle Coherence	*Installer requires free disk space approximately 2x this total

- 9. At the JDK Selection screen, do the following:
  - (a) Click the **Browse** button in the **Local JDK** pane.
  - (b) Browse to a local directory that contains the Oracle Java 6 JDK and select it. (The JDK will appear in the **Local JDK** pane with a checked box next to it.)

## (c) Click Next.

🚭 Oracle Installer - WebLogic 10.3.6.0	
JDK Selection JDK(s) chosen will be installed. Defaults will be used in script string-substitution if installed.	ORACLE
	💍 Discard Changes
Bundled JDK:	Approximate installed size*
	Highlighted item:         All selected bundled JDK's:       0.0 KE         Total of all selected items:       467.4 ME         *Installer requires free disk space approximately 2x this total
Local JDK:	
Sun SDK 1.6.0_43 (C:\Java\jdk1.6.0_43)           Browse	
E <u>x</u> it	Previous Next

10. At the **Choose Product Installation Directories** screen, enter the name of the WebLogic Server installation directory. You can either accept the default installation directory or browse to another one. Then click **Next**.

noose Product Installation Directories ovide the directories where you wish to install ebLogic 10.3.6.0.	ORACLE
	💍 Discard Changes
Middleware Home Directory	
C:\Oracle\Middleware	
Product Installation Directories	
The Product Home might contain shared utilities and any products or co are not set. WebLogic Server:	mponents for which unique directories
The Product Home might contain shared utilities and any products or co are not set. WebLogic Server: C:\Oracle\Middleware\wlserver_10.3	prowse

11. At the Install Windows Service screen, leave the No button selected and click Next.

Note that you may not get this screen. It is typically displayed if all these conditions are true: you have Administrator privileges, you are performing an initial installation, you are installing on Windows, and you are performing a Custom installation.

Install Windows Service to	ervice make indicated functionality	ORACLE
available after machine rel	poot.	
Node Manager	Service	
	Yes Install now. This enables remote start and health monitoring of Managed Servers.	
	Node Manager Listen Port: 5556	
	No Do not install now. See product documentation for post-install registration of Node Manager as a Service.	
Evit		Drawieurs Mexit

12. At the **Choose Shortcut Location** screen, select the **Start Menu** folder in which to create Oracle shortcuts and then click **Next**.

Note that you may not get this screen. It is typically displayed if all these conditions are true: you have Administrator privileges, you are performing an initial installation, you are installing on Windows, and you are performing a Custom installation.



13. At the Installation Summary screen, verify that you are installing the correct products, and click Next.

😡 Oracle Installer - WebLogic 10.3.6.0		
Installation Summary The following Products and JDKs will be installed.	C	DRACLE
🛅 WebLogic Server	Description	
Core Application Server Administration Console Configuration Wizard and Upgrade Fram Evaluation Database	Implements JEE technologies, Web services Internet standards, to provide a reliable fra available, scalable, and secure applications.	, and other leading imework for highly
	Approximate Installed Size	
	Highlighted item:	671.4 MB
	Total of all selected items:	467.5 MB
E <u>x</u> it		Previous Next

14. At the **Installation Complete** screen, de-select **Run Quickstart** and click **Done** to exit the installer. Note that you can run the Quickstart application later.

Oracle Installer - WebLogic 10.3.6.0		
Installation Complete Click the Done button to exit the installer.		ORACLE
	Message Congratulations! Installation is complete.	
ORACLE	🗌 Run Quickstart	
Exit		Previous Done

On Windows, an **Oracle WebLogic** shortcut is created in the **Start Menu**. One of the sub-entries in this shortcut is to the WebLogic Server documentation.

The next step is to install the Oracle Application Development Framework Runtime package.

## Installing Oracle ADF Runtime package

This topic describes how to install the ADF (Application Development Framework) Runtime 11.1.1.6 product, which contains the JRF on which the Endeca Server package depends.

This topic assumes that you have:

- Installed Oracle WebLogic Server 10.3.6.
- Downloaded the Oracle ADF (Application Development Framework) Runtime 11.1.1.6 product installer, as described on *Oracle ADF Runtime requirement on page 9*.



**Important:** The installation instructions in this topic are a distillation of the complete instructions in the *Oracle Fusion Middleware Installation Guide for Application Developer*. The complete instructions provide detailed information about installing the software, such as system requirements. The complete instructions are available online at: <a href="http://docs.oracle.com/cd/E23943\_01/doc.1111/e14827/toc.htm">http://docs.oracle.com/cd/E23943\_01/doc.1111/e14827/toc.htm</a>

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Note: Before proceeding to install Oracle ADF Runtime on Linux, ensure you:

- Do not run the installation program as the root user.
- Have an X-Windows (X11) environment. The installer requires that your monitor must be configured to display at least 256 colors.

To install Oracle ADF Runtime:

- Unpack the ADF ZIP package.
   As a result, you will see a *readme.htm* file and two sub-directories named Disk1 and Disk2.
- 2. From a command prompt, change to the Disk1 directory and run the installer:
  - For Linux, use this command:
    - ./runInstaller -jreLoc <jre\_location>
  - For Windows, use this command:

```
setup.exe -jreLoc <jre_location>
```

For both commands, *jre\_location* is the full path to the location of a Java 6 JDK directory on your system. Note that the path cannot contain spaces. For example:

setup.exe -jreLoc c:\java\jdk1.6.0\_43

3. If you are installing on a Linux system and this is the first time any Oracle product is being installed on your system with the Oracle Universal Installer, you will be asked to provide the location of an inventory directory. This is the location where the installer will set up subdirectories and maintain inventory data for each Oracle product that is installed on this system. Follow the directions on the screen.

- X Oracle Fusion Middleware 11q Application Developer Installation - Step 1 of 8  $\circ$ g Welcome FUSION MIDDLEWARE Welcome 0 \* Welcome to the Oracle Fusion Middleware 11g Application Developer Installer Install Software Updates version 11.1.1.6.0. Prerequisite Checks This installer can be used to install a new Oracle Application Developer Oracle Installation Location Home, or to patch an existing Oracle Application Developer Oracle Home. Application Server If you are installing a new Oracle home: Installation Summary · Make sure you have installed a supported version of Oracle WebLogic Installation Progress Server 11g or IBM WebSphere. . If the products you are installing require database schemas, make sure Installation Complete you have created these schemas in your database. For more information, see the Oracle Fusion Middleware Installation Planning Guide. -Copyright (c) 1999, 2011, Oracle and/or its affiliates. All rights reserved. < Back Next > Cancel Help Elapsed Time: 0m 19s
- 4. At the Welcome screen, read the information and click Next.

5. At the **Install Software Updates** screen, either select **Skip Software Updates** or search for updates. Then click **Next**.

This procedure assumes that you selected the **Skip Software Updates** option. Keep in mind that you can search for software updates after you finish all the installation steps.

Install Software Up	odates
Welcome	Skip Software Updates
My Oracle Support Update	Search My Oracle Support for Updates
Prerequisite Checks	Us <u>e</u> r Name:
Installation Location	Password:
Application Server	Proxy Settings Test Connection
	Search Local Directory for Lindates
Installation Summary	
Installation Progress	Search For Updates
Installation Complete	
	Allows user to search for and download software updates from My Oracle Support using My Oracle Support Account user name and password.Click "Test Connection" to test the credentials.
	Allows user to search for and download software updates from My Oracle Support using My Oracle Support Account user name and password.Click "Test Connection" to test the credentials.

6. At the **Prerequisite Checks** screen, wait until the installation process passes all the necessary checks. It is important that the WebLogic Server passes its "number of file descriptors" check that is part of this step. If everything passes the checks, click **Next**.

Prerequisite Che	cks			<u>e</u> 118
Welcome	Selection	Check Checking operating system certification	Progress 100%	Status
Prerequisite Checks	1	Checking physical memory	100%	1
Installation Summary Installation Progress Installation Complete		Ab	ort <u>R</u> etry	Continue
	⊕ ✓ C ⊕ ✓ C	hecking operating system certification hecking physical memory		

7. At the **Specify Installation Location** screen, verify that the Oracle Middleware Home directory is the location to where you installed the WebLogic software. Then click **Next**.

Specify Installatio	n Location	GRACLE 118
Welcome         Skip Software Updates         Prerequisite Checks         Installation Location         Application Server         Installation Summary         Installation Progress         Installation Complete	Oracle <u>M</u> iddleware Home: <u>O</u> racle Home Directory:	C:\Oracle\Middleware Browse oracle_common
	The Oracle home will be create given name.	d under the Oracle Middleware Home location with the

Application Serve	
<u>Welcome</u> <u>Skip Software Updates</u> <u>Prerequisite Checks</u> <u>Installation Location</u> <u>Application Server</u> Installation Summary     Installation Progress     Installation Complete	WebLogic Server     WebSphere     Application Server Location     C:\Oracle\Middleware     Browse
Help	WLS installation detected, WebLogic Server support available in this Middleware Home.

8. At the Application Server screen, select WebLogic Server and click Next.

9. At the **Installation Summary** screen, verify the installation details and click **Install**.

The **Installation Progress** screen shows the progress. When it finishes, the screen should look like this:

Installation Sumr	nary ORACLE 118
Welcome         Skip Software Updates         Prerequisite Checks         Installation Location         Application Server         Installation Summary         Installation Progress         Installation Complete	Install Oracle Application Developer         Directory Details         Middleware Home Location: C:\Oracle\Middleware         Oracle Home Location: C:\Oracle\Middleware\oracle_common         Application Server Type: WebLogic Server         Application Server Location: C:\Oracle\Middleware         Poisk Space         Required: 1080 MB         Available: 376755 MB         Oracle Enterprise Manager
	To change this configuration before installing, select the topic you want to change in the pane on the left. To install this configuration, select Install.

- -X Oracle Fusion Middleware 11g Application Developer Installation - Step 7 of 8 g OR, Installation Progress FUSION MIDDLEWARE weicome . Progress Skip Software Updates 100% Prerequisite Checks Completed .. Install Log C:\Program Files\Oracle\Inventory\logs\install2013-01-02\_01-35-21PM.log Installation Location Application Server Installation Successful. Starting execution of post install scripts Installation Summary Execution of post install scripts completed Installation Progress -4 . **Oracle Fusion Middleware Extreme** Productivity ORACLE Next > Cancel Help Elapsed Time: 19m 4s
- 10. At the Installation Progress screen, click Next when the installation progress has completed.
11. At the Installation Complete screen, click Finish to exit the installer.

Before exiting the installer, you have the option of first saving the installation details to a disk file.

Installation Com	olete
Welcome     Skip Software Updates     Prerequisite Checks     Installation Location     Application Server     Installation Summary     Installation Progress     Installation Complete	Install Oracle Application Developer Directory Details Middleware Home Location: C:\Oracle\Middleware Oracle Home Location: C:\Oracle\Middleware\oracle_common Application Server Type: WebLogic Server Application Server Location: C:\Oracle\Middleware Oracle Home Size: 1020 MB Available: 375270 MB Oracle Enterprise Manager Save Installation Details: Save Oracle Application Developer installation completed successfully
Help	< <u>B</u> ack <u>N</u> ext > <u>Einish</u> Cancel

On Windows, two shortcuts are created in the **Start Menu**: **Oracle Application Developer 11g** and **Oracle Common Home 11g**.

The next step is to install Oracle Endeca Server.



# Chapter 3

# Installing Endeca Server on a Single Machine

This section contains instructions for installing the Oracle Endeca Server on a single machine.

Installing Oracle Endeca Server Creating the WebLogic domain for Endeca Server Creating SSL certificates Verifying the Endeca Server deployment Silent installation on Windows and Linux

# **Installing Oracle Endeca Server**

This topic describes how to install the Oracle Endeca Server package.

Before you install Endeca Server, both Oracle WebLogic Server and the Application Developer Framework Runtime must be installed on the machine.

The order of installation for Oracle Endeca Server is:

- 1. Run the Endeca Server installer.
- 2. Create a WebLogic domain for the Endeca Server application. (If you are deploying an Endeca Server cluster, this step is needed only when you install on the machine that will become the Admin Server in the WebLogic domain created for the Endeca Server.)
- 3. Run the post-installation script to create SSL certificates (if you installed in a secure mode), and generate SSL certificates in your browser. (If you are deploying an Endeca Server cluster, this step needs to be completed on the Admin Server only and before you clone this server to create Managed Servers.)
- 4. Verify that the Endeca Server application is correctly deployed in WebLogic Server.

Note the following about the Endeca Server installation:

- The Endeca Cluster Coordinator software is installed as part of the package.
- You can install Endeca Server in either secure (SSL) or non-secure mode. Secure mode is highly recommended for production deployments, while non-secure installations can be used for development environments.
- When installing Endeca Server on Linux, do not run the installation program as the root user.
- You must have an X-Windows (X11) environment on Linux. The installer requires that your monitor must be configured to display at least 256 colors.

To install Oracle Endeca Server:

1. Unpack the Endeca Server ZIP file to a temporary directory.

As a result, you will see an endecaserver directory, which has a Disk1 sub-directory.

- 2. From a command prompt, change to the Disk1 directory and run the installer:
  - For Linux, use this command:
    - ./runInstaller -jreLoc <jre\_location>
  - For Windows, use this command:

setup.exe -jreLoc <jre\_location>

For both commands, *jre\_location* is the full path to the location of a Sun Java SE 6 SDK directory on your system. Note that the path cannot contain spaces. For example on Windows:

setup.exe -jreLoc c:\java\jdk1.6.0\_43

When the installer runs, it displays the installation wizard's **Welcome** screen.

3. At the Welcome screen, read the information and click Next.



4. At the **Prerequisite Checks** screen, click **Next** if everything passes the checks.

P	rerequisite Che	cks	-0		<u>e</u> ware <b>11</b>
	Welcome	Selection	Check	Progress	Status
	Prerequisite Checks	V	Checking operating system certification	100%	1
	Installation Location	V	Checking physical memory	100%	~
	Select Deploy Mode				
	Installation Summary				
	Installation Progress				
	Installation Progress Installation Complete				
	Installation Progress		Ab	ort Retry	Continue
	Installation Progress		Ab	ort <u>R</u> etry	Continue
	Installation Progress		Ab hecking operating system certification hecking physical memory	ort <u>R</u> etry	Continue

- 5. At the **Specify Installation Location** screen, do the following:
  - (a) In the **Oracle Middleware Home** field, verify the name of the Oracle Middleware home directory. You can either accept the default location or browse to another location.
  - (b) In the Oracle Home Directory field, enter the name of the Endeca Server home directory. (This will be the root directory of the Endeca Server installation.) You can either accept the default name or enter a new name. The Endeca Server Home directory name may only contain alphanumeric , hyphen (-) , dot (.), and underscore (\_) characters, and it must begin with an alphanumeric character.

(c) When you have finished, click Next.

Oracle Endeca Server installation Specify Installation	wizard - Step 3 of 7		
	Oracle <u>M</u> iddleware Home: <u>O</u> racle Home Directory:	C:\Oracle\Middleware EndecaServer7.5.1_1	Browse
Help	The Oracle home will be create given name.	d under the Oracle Middleware I < <u>B</u> ack <u>N</u> ext >	Home location with the

6. At the **Select Deploy Mode** screen, either leave the **YES** checkbox checked (to deploy Endeca Server in an SSL mode) or uncheck it (for a non-SSL mode). Then click **Next**.

Oracle Endeca Server installa	tion wizard - Step 4 of 7	
Select Deploy M	ode	FUSION MIDDLEWARE 118
Welcome     Prerequisite Checks     Installation Location     Select Deploy Mode     Installation Summary     Installation Progress     Installation Complete	Do you want to deploy Endeca Server in a security YES	ure mode?
Help	secure mode for production.	k <u>N</u> ext > <u>Einish</u> Cancel Elapsed Time: 3m 32s

At the Installation Summary screen, verify the installation details and click Install.
 Note that the Save button allows you to save a Response File for silent-mode installations.

Oracle Endeca Server installation wizard - Step 5 of 7 ORAC g Installation Summary FUSION MIDDLEWARE Welcome Install Oracle Endeca Server - Directory Details Prerequisite Checks Middleware Home Location: C:\Oracle\Middleware Installation Location Oracle Home Location: C:\Oracle\Middleware\EndecaServer7.5.1\_1 Select Deploy Mode Disk Space Required: 1000 MB Installation Summary Available: 249958 MB Installation Progress - Applications Installation Complete Oracle Endeca Server Save Response File: Save To change this configuration before installing, select the topic you want to change in the pane on the left. To install this configuration, select Install. < Back Install Cancel Help Elapsed Time: 4m 17s 8. At the Installation Progress screen, click Next when the installation progress has completed.



9. At the Installation Complete screen, click Finish to exit the installation wizard.

Before exiting the installation wizard, you have the option of first saving the installation details to a disk file.

	olete
Welcome     Prerequisite Checks     Installation Location     Select Deploy Mode     Installation Summary     Installation Progress     Installation Complete	Install Oracle Endeca Server Directory Details Middleware Home Location: C:\Oracle\Middleware Oracle Home Location: C:\Oracle\Middleware\EndecaServer7.5.1_1 Disk Space Oracle Home Size: 470 MB Available: 249478 MB E Applications Oracle Endeca Server Save Installation Details: Save Oracle Endeca Server installation completed successfully
Help	Eack Next > Einish Cancel     Elansed Time: 7m 1

When the installation finishes, the Endeca Server files and directories are written to the Oracle Home Location (as indicated in the **Installation Complete** screen).

The next step is to create a WebLogic domain for the Oracle Endeca Server application.



**Note:** If you are deploying the Endeca Server cluster, then the step for creating a WebLogic domain should occur on the machine that is going to serve as the Admin Server in your WebLogic domain. That is, on those machines that will become the Managed Servers, you do not need to create a WebLogic domain since it has already been created on the machine serving as the Admin Server.

# Creating the WebLogic domain for Endeca Server

You must create a WebLogic domain for the Endeca Server application to run in.

The prerequisites to this task are that WebLogic Server, Application Development Framework Runtime, and Endeca Server must be installed. Note that WebLogic Server does not have to be running for this procedure.

For single-machine development environments, you can deploy the Endeca Server instance in the single Admin Server in the WebLogic domain. You can later use this WebLogic domain when you expand your deployment to an Endeca Server cluster.

To create a WebLogic domain for the Endeca Server application:

- 1. From a command prompt, change to the directory that contains the Configuration Wizard start-up program:
  - For Linux: \$MW\_HOME/wlserver\_10.3/common/bin
  - For Windows: \$MW\_HOME\wlserver\_10.3\common\bin
- 2. Run the command to start the Configuration Wizard:
  - For Linux: ./config.sh
  - For Windows: config.cmd

The Configuration Wizard Welcome screen is displayed.

3. At the Configuration Wizard's **Welcome** screen, select **Create a new WebLogic domain** and click **Next**.

Fusion Middleware Configuration Wizard		
Welcome	ORAC	CLE.
Create a new WebLogic domain		
Create a WebLogic domain in your projects directory.		
O Extend an existing WebLogic domain		
Use this option to add new components to an existing domain and modify configuration settings.		
Exit Help	Previous	Next

4. At the Select Domain Source screen, select Oracle Endeca Server (note that this also automatically selects Oracle JRF). Then click Next.



5. At the **Specify Domain Name and Location** screen, specify the domain name (such as endeca\_server\_domain) and keep the default domain location. Then click **Next**.

Fusion Middleware Configuration Wizard	
Specify Domain Name and Location	ORACLE
Enter the name and location for the domain:	
Domain name:       endeca_server_domain         Domain location:       C:\Oracle\Middleware\user_projects\domains         Browse	
	Previous Next

6. At the **Configure Administrator User Name and Password** screen, enter the name and password you want to use for the administrator. Optionally, you can enter a description. Then click **Next**.

You will be using this name and password to start the WebLogic Server. Note that the password has a minimum length of eight characters.

Fusion Middleware Configure	ration Wizard	
Configure Administrato	r User Name and Password	ORACLE
🚺 Discard Changes		
*Name:	ES_Admin	
*User password:	*****	
*Confirm user password:	******	
Description:	This user is the default administrator.	
	·	
Exit Help		Previous Next

- 7. At the **Configure Server Start Mode and JDK** screen, do the following:
  - (a) In the WebLogic Domain Startup Mode pane, select Production Mode.
  - (b) In the **JDK Selection** pane, click **Available JDKs** and select the **Sun SDK**. (Note that if the Sun JDK is not displayed in this pane, click the **Other JDK** button and browse for the Sun JDK home.)

### (c) Click Next.

Fusion Middleware Configuration Wizard		
Configure Server Start Mode and JDK		ORACLE
Before putting your domain into production, make sure tha Production Environment' in the WebLogic Server document WebLogic Domain Startup Mode	at the production environment is secure. For more information, see lation.	the topic 'Securing a
<ul> <li>Development Mode</li> <li>Utilize boot.properties for username and password and poll for applications to deploy.</li> <li>Sun JDK recommended for better startup performance during iterative development.</li> </ul>	Available JDKs Sun SDK 1.6.0_43 @ C:\Java\jdk1.6.0_43	
Production Mode     Require the entry of a username and     password and do not poll for     applications to deploy.     WebLogic JRockit JDK recommended for     better runtime performance and     management.	O Other JDK Location:	Browse
		Previous Next

8. At the **Select Optional Configuration** screen, do not select any optional configurations and click **Next**.



- Fusion Middleware Configuration Wizard - 0 🔀 **Configuration Summary** ORACLE' Click on an item in the Domain Summary pane on the left to inspect its attributes in the Domain Summary Details pane below. You can make limited adjustments by clicking Previous to return to a Summary View: prior panel. If everything is satisfactory, click Create. Deployment Ŧ 👕 endeca\_server\_domain (C:\Oracle\Middleware\user\_| 🔺 Details 🖻 🫅 Server Attribute Value 🖻 🚞 AdminServer Name Basic WebLogic Server Domain E Service Description Create a basic WebLogic Server domain without installing sample app 😑 🛅 Shutdown Class Author Oracle Corporation 🗋 JOC-Shutdown Location C:\Oracle\Middleware\wlserver\_10.3\common\templates\domains\wls DMSShutdown 😑 🛅 Startup Class Name Oracle Endeca Server Required for domains using Endeca Server libraries Description ]] JRF Startup Class Author Oracle Corporation ] JPS Startup Class Location DDL-Startup AWT Application Context Startur Name Oracle JRF JMX Framework Startup Class Description Required for Fusion Middleware Components and applications built us Web Services Startup Class Author Oracle Corporation 🗋 JOC-Startup Location C:\Oracle\Middleware\oracle\_common\common\templates\application DMS-Startup Name Oracle BI-ADF Runtime E WLDF System Resource Description Required for domains using BI-ADF runtime libraries \* 🗋 Module-FMWDFW w 1 4 4 • Exit Help Previous ⊆reate
- 9. At the **Configuration Summary** screen, click **Create** to create the domain.

10. At the **Creating Domain** screen, the message "Domain Created Successfully!" signifies the end of the create process (as shown in the example below). Click **Done** to exit the Configuration Wizard.



As a result, the WebLogic domain is created with a WebLogic Server port of 7001.

The next step depends on whether you installed Endeca Server in secure (SSL) mode and on whether you are installing and deploying the Endeca Server cluster:

• For secure mode, start WebLogic Server and run the generate\_ssl\_keys utility, as described in the next topic. After that, you can verify the Endeca Server deployment.



• For non-secure mode, start WebLogic Server and verify the Endeca Server deployment.

# **Creating SSL certificates**

This topic describes how to generate certificates if your Endeca Server deployment is installed in secure (SSL) mode.

The pre-requisite to this task is that you must have installed Endeca Server in SSL mode.

There are specific versions of the generate\_ssl\_keys utility for each operating system:

- Linux: generate\_ssl\_keys.sh
- Windows:generate\_ssl\_keys.bat

The utility is located in the <code>\$DOMAIN\_HOME/EndecaServer/bin</code> directory. For more information on the generate\_ssl\_keys utility, see the Oracle Endeca Server Security Guide.



**Important:** If you are deploying an Endeca Server cluster, make sure to generate SSL certificates after you have installed the Endeca Server on the Admin Server and before you have cloned the Admin Server to create Managed Servers.

To generate SSL certificates:

- 1. Start the Admin Server for the Endeca Server domain.
- 2. From a command prompt, change to the \$DOMAIN\_HOME/EndecaServer/bin directory.
- 3. Run the generate\_ssl\_keys utility with a valid WebLogic administrator name (the --username flag), administrator password (the --password flag), and a strong passphrase for the keys (the -- sslPassphrase flag). For example:

generate\_ssl\_keys --username ES\_Admin --password welcomel --sslPassphrase thx1138

A successful procedure is indicated when you see a message that ends as follows:

```
The following non-dynamic attribute(s) have been changed on MBeans that require server re-start:
MBean Changed : com.bea:Name=AdminServer,Type=SSL,Server=AdminServer Attributes changed : HostnameVerificationIgnored, JSSEEnabled
```

Activation completed

Done! Your WLS server(s) may need to be restarted for all changes to take effect.

4. Stop and then re-start the WebLogic Server.

The generate\_ssl\_keys utility:

- Creates the SSL certificates in the \$DOMAIN\_HOME/config/ssl directory.
- Updates the EndecaServer.properties and EndecaCmd.properties files (in the \$DOMAIN\_HOME/config directory) with the pathnames of the key files.
- Enables the SSL Listen Port of 7002 in WebLogic Server, and sets 7002 as the port on which Endeca Server is started.

The next task is to import the PKCS12 certificate into your browser.

Keep in mind that when issuing Endeca Server commands, you should use the SSL version of the endecacmd script, which resides by default in the <code>\$DOMAIN\_HOME/EndecaServer/bin</code> directory.

Configuring SSL certificates in your browser

### Configuring SSL certificates in your browser

This topic describes how to import a PKCS12 certificate in your browser.

As a pre-requisite to this task, you must have generated the SSL certificates with the generate\_ssl\_keys utility.

One reason to import the certificate is if you want to use the Dgraph URL operations. Note that this procedure is for the Firefox browser; because the import procedure varies according to the browser, refer to the browser's help for details for your browser.

To configure the SSL certificates in Firefox:

- 1. Open Firefox.
- 2. From the Tools menu, select **Options**.

The Options dialog is displayed.

3. In the Options dialog box, click the **Advanced** icon.

Options							×
General	Tabs	Content	Applications	Privacy	Security	Sync	ر Advanced
General Netw	vork Up	date Encry	ption				
Protocols	SL <u>3</u> .0			Use TLS	<u>1</u> .0		
Certificate When a se	s erver reg	uests my pe	rsonal certificate	2			
Select	one aut	omatically	🔘 Ask me eve	ery t <u>i</u> me			
View Cer	tificate <u>s</u>	Revoca	tion Lists	alidation	Security	Devices	
				ОК	Cance		Help

- Select the View Certificates tab. The Certificate Manager dialog is displayed.
- 5. In the Certificate Manager dialog box:
  - (a) Select the Your Certificates tab.
  - (b) Click Import.
  - (c) In the Certificate File to Import dialog, browse to **esClientCert.p12** (located in the \$DOMAIN\_HOME\config\ssl directory) and select it.
  - (d) In the Password Entry Dialog box, enter the certificate password with "clientkey" appended to it and click **OK**. For example, if "endeca" was the password you specified when you generated the keys, enter **endecaclientkey** in the field.

- (e) You will see an Alert message that informs you that the certificate was successfully restored. Click **OK** to close the message.
- (f) Click **OK** to close the Certificate Manager dialog.
- 6. Click **OK** to close the Options dialog.

Keep in mind that your must use the HTTPS protocol when accessing Endeca Server pages in secure mode.

# Verifying the Endeca Server deployment

After installing the Oracle WebLogic Server and Endeca Server products, you should verify that the Endeca Server application was correctly deployed.

To verify the Endeca Server application deployment:

1. Start the Admin Server for the Endeca Server domain.

The start-up procedure should ask you for the administrator user name and password that you specified when you created the WebLogic domain.

2. From your browser, access the Administration Server console with this syntax:

http://admin\_server\_host:admin\_server\_port/console

For example:

http://localhost:7001/console

- 3. At the Administration Console login screen, log in with the administrator user name and password.
- 4. In the **Domain Structure** pane, click **Deployments** (in the endeca\_server\_domain tree).



5. In the **Deployments** table, check the **oracle.endecaserver** Web application. Its State should be "Active" and its Health should be "OK", as in this abbreviated example:

ontrol	Monitoring				
This pag applicati and usin To instal	e displays a list of Java EE applications a ons and modules can be started, stoppe ig the controls on this page. Il a new application or module for deploy <b>nize this table</b>	and stand-alone application modules the ed, updated (redeployed), or deleted f ment to targets in this domain, click th	nat have b rom the de e Install be	een installed to this dom omain by first selecting t utton.	ain. Installed he application name
Deployi	ments				
Install	Update Delete Start ~	Stop ~		Showing 11 to 20	of 26 Previous   Nex
Na	ame 🙈	State	Health	Туре	Deployment Order
	oracle.adf.desktopintegration.model(1.	0,11.1.1.2.0) Active		Library	100
	oracle.adf.management(1.0,11.1.1.2.0	)) Active		Library	100
	oracle.bi.adf.model.slib(1.0,11.1.1.2.0	) Active		Library	100
	oracle.bi.adf.view.slib(1.0,11.1.1.2.0)	Active		Library	100
	oracle.bi.adf.webcenter.slib(1.0,11.1.1	1.2.0) Active		Library	100
	oracle.bi.composer(11.1.1,0.1)	Active		Library	100
	oracle.bi.jbips(11.1.1,0.1)	Active		Library	100
	oracle.dconfig-infra(11,11,1.1.1.0)	Active		Library	100
<b>V E</b>	oracle.endecaserver (1.0,7.5.1.0.0	) Active	🖋 ок	Enterprise Application	100
	oracle.jrf.system.filter	Active		Library	100
			-		

The next step is to verify the Endeca Server application installation by creating an Endeca data domain.

# Silent installation on Windows and Linux

The Endeca Server installer's silent mode is useful if you want to add the installation of the Endeca Server to your own install script, or push out the installation on multiple machines.

Silent-mode installation is a way of setting installation configurations only once and then using those configurations to duplicate the installation on many machines. During installation in silent mode, the installation program reads the settings for your configuration from a file that you create before beginning the installation. The installation program does not display any configuration options during the installation process. Silent-mode installation works on both Windows and Linux systems.

When you are running the installation program in silent mode, keep in mind the following considerations:

- Silent-mode installation requires the same amount of temporary disk space and uses the same temporary storage directories as a standard installation. The installation program does not alert you if there is not enough space in the temporary directory.
- A silent-mode installation takes the same amount of time as a standard installation.
- At the beginning of a silent-mode installation, an initial installation program window or message is displayed briefly, indicating that the installation has started. Brief messages are displayed to indicate that the installation is in progress.

A prerequisite is that you have created a response file via the installer GUI or via a template.

### Creating the response file from the GUI

You can created a response file by first running the Endeca Server install GUI, then clicking **Save** on the **Installation Summary** screen:

Installation Summ	nary	FUSION MIDDLEWARE
<ul> <li><u>Welcome</u></li> <li><u>Prerequisite Checks</u></li> <li><u>Installation Location</u></li> <li><u>Select Deploy Mode</u></li> <li><b>Installation Summary</b></li> <li>Installation Progress</li> <li>Installation Complete</li> </ul>	Install Oracle Endeca Server         Directory Details         Middleware Home Location: C:\Oracle\M         Oracle Home Location: C:\Oracle\M         Poisk Space         Required: 1000 MB         Available: 249958 MB         Oracle Endeca Server         Save Response File:         Save         To change this configuration before installing, pane on the left.         To install this configuration, select Install.	acle\Middleware Aiddleware\EndecaServer7.5.1_1 select the topic you want to change in the
Help	< <u>B</u>	ack Next > Install Cancel

You will be prompted for a name and location where you want to create this response file. After it is created, you can use it exactly as-is to replicate the installation on other systems.

### Creating the response file from a template

A response file template (named sampleResponse.rsp) is available in the Endeca Server installer package. After you unpack the installer ZIP file, the sampleResponse.rsp template will be in the endecaserver/Disk1/stage/Response directory.

Open the template with a text editor and set these fields:

- ORACLE\_HOME is the absolute path of the Endeca Server home directory.
- BEA HOME is the absolute path of an existing Middleware home directory.
- ENDECA\_ENABLE\_SSL determines whether Endeca Server is installed in secure (SSL) mode (a setting of true) or not (a setting of false).

#### Sample response file for Linux:

#DO NOT CHANGE THIS. Response File Version=1.0.0.0.0

[GENERIC]

[ENGINE]

#Provide the Oracle Home location. The location has to be the immediate child under the # specified Middleware Home location. The Oracle Home directory name may only contain # alphanumeric , hyphen (-) , dot (.) and underscore (\_) characters, and it must begin # with an alphanumeric character. The total length has to be less than or equal to 128 # characters. The location has to be an empty directory or a valid SOA Oracle Home. ORACLE\_HOME=/home/middleware/EndecaServer7.5.1\_1

#Provide existing Middleware Home location.
BEA\_HOME=/home/middleware

#Provide true to enable SSL for deploy Endeca Server. ENDECA\_ENABLE\_SSL=true

[SYSTEM] [APPLICATIONS] [RELATIONSHIPS]

#### Sample response file for Windows:

[ENGINE]

#DO NOT CHANGE THIS. Response File Version=1.0.0.0.0

[GENERIC]

#Provide the Oracle Home location. The location has to be the immediate child under the # specified Middleware Home location. The Oracle Home directory name may only contain # alphanumeric , hyphen (-) , dot (.) and underscore (\_) characters, and it must begin # with an alphanumeric character. The total length has to be less than or equal to 128 # characters. The location has to be an empty directory or a valid SOA Oracle Home. ORACLE\_HOME=C:\Oracle\Middleware\EndecaServer7.5.1\_1

#Provide existing Middleware Home location. BEA\_HOME=C:\Oracle\Middleware

#Provide true to enable SSL for deploy Endeca Server. ENDECA\_ENABLE\_SSL=true [SYSTEM] [APPLICATIONS] [RELATIONSHIPS]

Running the silent installer

### Running the silent installer

This topic describes how to run the Endeca Server silent installer from a command prompt.

The prerequisites to this task are:

- 1. Both Oracle WebLogic Server and the Application Developer Framework Runtime must be installed on the machine.
- 2. You must have created the response file.

This procedure assumes that you are running the silent installer from a command line. However, you can run it from a batch file or script.

To install silently on either Windows or Linux:

- 1. From a command prompt, navigate to the directory where you downloaded the Endeca Server installer.
- 2. Run the installer (either setup.exe for Windows or runInstaller for Linux) in silent mode with these flags:
  - -silent Specifies a silent-mode operation.
  - -response <path-to-response file> Specifies the response file and path to use.
  - -jreLoc <path-to-JRE> Specifies the path where the Java Runtime Environment is installed.

Note that the paths should not contain spaces. The following is an example on a Windows machine:

setup -silent -response c:\ES\_install\ResponseFile -jreLoc c:\java\jdk1.6.0\_43

A successful installation will end with this message:

The installation of Oracle Endeca Server Top Level completed successfully.

The silent installer creates a log of the installation process under the name *yyyy-mm-dd\_hh-mm-ssXM*.log (where *XM* is either AM or PM). For example:

2013-02-14\_03-29-39PM.log

The logs directory (named logs on Windows and log on Linux) is stored in the Oracle Inventory directory. On Linux systems, if you do not know the location of your Oracle Inventory directory, you can find it in the etc/oraInst.loc file. On Windows, the default location for the inventory directory is C:\Program Files\Oracle\Inventory\logs.



# Chapter 4

# Installing and Deploying an Endeca Server Cluster

This section discusses how to install and deploy an Endeca Server cluster that consists of multiple Endeca Server instances hosted by multiple Managed Servers in a WebLogic domain.

Before you install and deploy a cluster

Cluster installation and deployment tasks

# Before you install and deploy a cluster

This section outlines the WebLogic Server requirements, as well as file system and load balancer requirements for deploying data domains in an Endeca Server cluster.

An Endeca Server cluster hosting one or more data domains can be deployed on either Windows or Linux. You cannot create an Endeca Server cluster in which some Endeca Server instances are running on Windows while other instances are running on Linux.

For a full listing of specific supported platforms, see Supported operating systems on page 14.

WebLogic domain requirements Load balancer requirements Cluster Coordinator requirements Shared file system requirements

### WebLogic domain requirements

The Endeca Server application runs in a WebLogic domain.

The following requirements exist for the Endeca Server cluster to be deployed in the WebLogic domain:

• Which servers in the WebLogic domain should host the Endeca Server application. In a development environment, a single-machine deployment of Endeca Server can run on an Admin Server in the WebLogic domain. In production settings, however, the Endeca Server cluster with more than one Endeca Server instance must be deployed on WebLogic Server Managed Servers only.

The Admin Server in this case does not host the Endeca Server instance (although the Endeca Server should be installed on the Admin Server to facilitate the Endeca Server cluster deployment and to generate SSL certificates for it). If the Admin Server itself is hosted on the same machine as one of the Managed Servers, the Endeca Server instance can run on that Managed Server. See *Cluster deployment diagram on page 65*.

 How the WebLogic domain is used. Although it is possible to share the WebLogic container with other applications, for performance and troubleshooting purposes it is recommended to dedicate the WebLogic domain to the Endeca Server application.

In addition, for information on how the Endeca Server software utilizes WebLogic Server, see *About the Endeca Server integration with the WebLogic Server on page 12.* 

### Load balancer requirements

In most production deployments, it is desirable to configure an external load balancer in front of the Endeca Server cluster hosting one or more data domain clusters. This topic discusses the considerations for this load balancer.

For the load balancer, the following considerations apply:

• Include host names and ports of all Oracle Endeca Server nodes in the load balancer configuration.

If you add Endeca Server nodes to the cluster, you must update the configuration of the load balancer with the host names and ports of the added nodes.

• You may optionally configure the load balancer to use session affinity. In this case, all queries from a given session are sent to the same Endeca Server node. This allows the Oracle Endeca Server to use its cache to avoid redundant processing of related queries.

Configuring session affinity also helps minimize consistency problems as updates propagate from the leader to the follower nodes in the data domain cluster (if you are not using outer transactions to run updates).

In addition, the Endeca Server cluster utilizes its own routing service, which also utilizes session affinity. The routing service recognizes requests sent from the same client and sends them to the same Endeca Server node that processed previous requests from the same client. (This assumes that the Endeca Server node is still hosting the Dgraph node for that data domain that can process the current request; otherwise, the request is sent to a different Endeca Server node.)

### **Cluster Coordinator requirements**

The Cluster Coordinator service of the Endeca Server cluster must be running on an odd number of machines (with a minimum of three) on which the Endeca Server cluster is running.

The Cluster Coordinator service is installed as part of the Endeca Server. However, in an Endeca Server cluster, its service is required to run on at least three (or any other odd number greater than three) machines, to ensure increased availability of the Endeca Server cluster services, including services for its data domains.

As a result of this requirement, the instructions in this section imply that you will be initially installing and deploying an Endeca Server cluster on three machines, and that on each of these machines, both the Endeca Server and the Cluster Coordinator services will be running.



**Note:** While it is possible to run a cluster of one on a single machine, or a cluster of two, these Endeca Server clusters do not provide increased availability features, such as automatic leader election for the Endeca data domains.

If after initially deploying a three-machine cluster you would like to extend it, you can add another machine to the WebLogic domain. For the fourth machine, the Cluster Coordinator services should not be running. However, if you add a fifth machine, you can then run the Cluster Coordinator on either three of the five

machines, or on all five machines. Both of these configurations will satisfy the Cluster Coordinator requirements for the Endeca Server cluster.

For full information on the Cluster Coordinator, its functions and requirements, see the Oracle Endeca Server Cluster Guide.

### Shared file system requirements

This topic describes the requirements for the shared file system in an Endeca Server cluster.

• Access to a shared file system. Provision a shared file system on which the index for the data domains will be stored. When you install and deploy the Endeca Server cluster and start the data domain, all machines hosting the Endeca Server nodes must have full (read/write) access to this shared file system.

On Windows, it is recommended to utilize a file system that uses the CIFS (also known as SMB) protocol. On Linux, it is recommended to use NFS.

- File system size. You can start a data domain cluster with a single Dgraph node that serves both as the leader and a follower node. As you add additional follower nodes, file system size requirements (as measured by the high-water mark parameters for shared storage) increase modestly and do not increase proportionally to the number of follower nodes in any data domain.
- File system performance. For each data domain cluster hosted in an Endeca Server cluster, the index files are stored on remote shared disks. The index files are accessed at the startup of a data domain cluster, during data and configuration updates, and for answering queries. For regular query processing, the Endeca Server takes advantage of its cache. For updates, in a multi-node data domain cluster, all nodes are accessing the index on remote storage at the same time (the leader node writes updates to the index, but all follower nodes need to acquire read-only access to this updated index). This coordinated access may affect performance for the network or shared file system, especially when large updates are accessed for the first time.

File system options. Typically, the Endeca Server cluster performs write operations from the Endeca Server instance hosting the leader node for a given data domain. It performs read operations from the Endeca Server instances hosting follower nodes in the data domain.

To tune the file system performance, you may choose the file system configuration options to suit this pattern. In particular, mounting with noatime configuration on Linux will eliminate the cost of frequent access-time file system updates from the follower data domain nodes, and thus improve file system performance. Particular file system types may have further options suited to this pattern of usage.

# **Cluster installation and deployment tasks**

This section includes a diagram of the cluster deployment, outlines a high-level cluster installation and deployment procedure, and provides detailed tasks for the installation and deployment of an Endeca Server cluster.

Cluster deployment diagram High-level installation and deployment procedure Step1: Installing required software on multiple machines Step 2: Creating Admin Server, generating SSL certificates, and cloning Managed Servers Step 3: Adjusting the cluster configuration Step 4: Packing the WebLogic domain

Step 5: Unpacking the WebLogic domain on Managed Servers Step 6: Changing the deployment targets and starting servers

### Cluster deployment diagram

The following diagram illustrates a WebLogic domain with one Admin server and three Managed Servers, in which an Endeca Server cluster is deployed on its Managed Servers.



**Important:** Starting from this topic, all tasks describing the installation and deployment of the Endeca Server cluster use the sample names and ports from this diagram.



In this diagram:

• Three machines with the names host1, host2, and host3 are used for the Endeca Server cluster deployment.



**Note:** Even though, in the development environment, you can deploy an Endeca Server application in a single Admin Server, the Endeca Server cluster should be deployed on Managed Servers in the WebLogic domain, with Admin Server managing the WebLogic domain but not running an instance of the Endeca Server.

- On each of the host machines, the WebLogic Server, the Application Developer Runtime, and the Endeca Server software is installed.
- On host1, the WebLogic domain is created for the Endeca Server deployment. This WebLogic domain will eventually include one Admin Server and three Managed Servers:
  - The WebLogic Admin Server is configured on host1. The listen port for the Admin Server is configured in this example as either 7001 (for a non-secure Endeca Server installation), or 7002 (for a secure Endeca Server installation with SSL).

• Three WebLogic Managed Servers are configured: Managed-1 on host1, Managed-2 on host2, and Managed-3 on host3. The listen port for the Managed Servers is configured to be the same on all three host machines; in this example, it is shown to be either 7003 (for the Endeca Server installation that is not secure), or 7004, (for the secure Endeca Server installation with SSL). Note that in this example, Managed-1 runs on the same host as the Admin Server for the WebLogic domain.



**Important:** For the Endeca Server cluster to run, all listen ports for the Managed Servers must be the same on each host machine running a Managed Server. This also means that if any of the Managed Servers is sharing a machine with the Admin Server, the Admin Server ports must differ from the Managed Server ports.

- The Endeca Server application is deployed on the Managed Servers (and not on the Admin Server).
- The Cluster Coordinator service of the Endeca Server is also configured to run on all three Managed Servers running the Endeca Server. (This is a requirement of the Endeca Server cluster. For a full description of this requirement, see the *Oracle Endeca Server Cluster Guide*.)

### High-level installation and deployment procedure

This topic lists high-level tasks required for the installation and deployment of the Endeca Server cluster.

This procedure (and the subsequent topics that discuss each task in detail) are based on the following assumptions:

- The procedures are described for Linux. For Windows, the procedures are similar, with path names that use backward slashes and scripts that end with .cmd.
- The procedures use the \$DOMAIN\_HOME variable to indicate the location of the WebLogic domain created for the Endeca Server. For example, if endeca\_server\_domain is the name of your WebLogic domain for the Endeca Server, then the default path to it on Linux is:

Oracle/Middleware/user\_projects/domains/endeca\_server\_domain

- The procedures use the port numbers, host names, and server names as displayed in the cluster deployment diagram. See *Cluster deployment diagram on page 65*. You can use your own port numbers and host and server names, as long as port numbers satisfy the deployment requirements for the Endeca Server cluster. These requirements are included in the tasks in this section.
- The procedures assume secure installation (with SSL) of the Oracle Endeca Server. Options for the unsecured installation are included in parenthesis.



**Note:** This procedure provides a high-level overview of all tasks. The topics that follow this procedure include detailed steps for each task. Therefore, read this procedure first to understand the entire deployment process, and then use the subsequent topics to perform the required steps.

To install and deploy an Endeca Server cluster, perform the following high-level tasks:

1. On three separate machines (host1, host2, host3 in the diagram), install WebLogic Server 10.3.6, ADF Runtime, and Endeca Server. On host1, deploy a WebLogic domain with the Endeca Server application in it.

For instructions, see *Step1: Installing required software on multiple machines on page 67.* As a result of this step, you should have the required software installed on three machines, and an Admin Server configured in the WebLogic domain that is created for the Endeca Server application.

2. On the Admin Server running on host1, generate SSL certificates for the Endeca Server and create three Managed Servers.

For instructions, see *Step 2: Creating Admin Server, generating SSL certificates, and cloning Managed Servers on page 68.* 

3. Modify EndecaServer.properties and EndecaCmd.properties.

For instructions, see Step 3: Adjusting the cluster configuration on page 72.

4. Stop the Admin Server and pack the WebLogic domain, using the pack.\* script.

This creates the WebLogic domain template. For instructions, see *Step 4: Packing the WebLogic domain on page 74*.

5. On the Managed Server machines host2 and host3, unpack the WebLogic domain using the template you have created.

For instructions, see Step 5: Unpacking the WebLogic domain on Managed Servers on page 74.

6. Restart the Admin Server and change the targets for the Endeca Server application's deployment from the Admin Server to three Managed Servers. On the Managed Server machines host1, host2 and host3, start the Managed Server.

For instructions, see Step 6: Changing the deployment targets and starting servers on page 75.

7. Verify the deployment. For instructions, see *Verifying a cluster installation and deployment on page* 82.

### Step1: Installing required software on multiple machines

As a first step in the cluster deployment, install WebLogic Server, ADF Runtime, and Endeca Server on each of the three machines on which you will be initially deploying an Endeca Server Cluster.

Before you start the installation, ensure that, on each of the machines:

- The JDK is installed (you will need to point to its location).
- Write access is provided to the shared file system on which the indexes for the data domains will be stored.

For a full list of software requirements, see Required Oracle products on page 8.

When you install the required software, only run the installers, but do not run the WebLogic domain configuration wizard.

To install the required software, on each machine:

- Install WebLogic Server in a secure mode. See Installing WebLogic Server on page 17.
- 2. Install ADF Runtime package.

See Installing Oracle ADF Runtime package on page 28.

Install the Endeca Server in a secure mode.
 See Installing Oracle Endeca Server on page 38.

As a result of this task, you should have three machines on which the required software is installed, but the WebLogic Server is not yet running. Next, you need to create the Admin Server and the WebLogic domain for the Endeca Server application.

# Step 2: Creating Admin Server, generating SSL certificates, and cloning Managed Servers

In this step, on the machine known in the diagram as host1, you deploy a WebLogic domain with the Endeca Server application in it, start the Admin Server, generate SSL certificates on it, and then create three Managed Servers.

It is assumed that on all three machines, the required software is already installed but the WebLogic Server has not been started.

To create an Admin Server, generate SSL certificates for the Endeca Server on it, and create Managed Servers, do the following:

1. Create a WebLogic domain for the Endeca Server.

See Creating the WebLogic domain for Endeca Server on page 45.

This procedure assumes that you have created a WebLogic domain endeca\_server\_domain. Once you create this domain, the only machine that is currently configured in it becomes the Admin Server.

2. Start the Admin Server. On host1, go to \$DOMAIN\_HOME/<domain\_name>/bin, and run:

startWebLogic.sh

3. Generate SSL certificates for the Endeca Server on the Admin Server. See *Creating SSL certificates* on page 54.

This step is required only if you have installed the Endeca Server in a secure mode with SSL (this is assumed by this procedure and the subsequent instructions).



**Note:** if you previously installed the Endeca Server software on a single machine, the Endeca Server Java application may have been deployed on the Admin Server. This is a valid configuration for single-machine deployments. However, in the Endeca Server cluster deployment, even though you initially start the Endeca Server Java application on the Admin Server to generate the SSL certificates for it, the Endeca Server should be eventually started on Managed Servers only — this will be evident in the final steps of the entire deployment procedure for the Endeca Server cluster.

- 4. Create the first Managed Server:
  - (a) Access the Administration Console: http://host1:7001/console.
  - (b) Select Lock & Edit.
  - (c) Go to Environment>Servers and select the Admin Server.

The **Clone** option is activated.

endeca_domain2	-	Summary of Servers					
Environment     Servers     Clusters     Wirtual Hosts		Configuration Control	ver that runs in its own Java Virtual	Machine (JVM) and has its o	wn configuration.		
Goherence Servers     Coherence Clusters     Machines		This page summarizes each server that h	nas been configured in the current V	/ebLogic Server domain.			
Work Managers     Startup and Shutdown Classes     "-Deployments     "-Services     "-Services     Services		© Customize this table Servers (Filtered - More Columns t	Exist)				
How do I		New Clone Delete					Showing 1 to 1 of 1
Create Managed Servers		🔽 Name 🚕	Cluster	Machine	State	Health	Listen Port
Clone Servers     Delete Managed Servers		AdminServer(admin)			RUNNING	✓ ок	7001
Delete the Administration Server		New Clone Delete					Showing 1 to 1 of 1

(d) Click Clone.

The next window opens.

(e) Change the Server Name (this is the Managed Server name) to Managed-1.

(f) Change the Server Listen Port to be 7003, leave the other fields unchanged, and click OK. 

Configuration editing is enabled. Future changes will automatically be activated as you modify, add or delete items in this domain.	Clone a Server	
Domain Structure		
endeca_domain2	Server Identity You have elected to clone the server * Indicates required fields	named AdminServer.
Migratable Targets	What would you like to name your new	server?
Coherence Clusters Machines	* Server Name:	Managed-1
Work Managers     Startup and Shutdown Classes	Where will this server listen for incomin	g connections?
Services     Services     Services	Server Listen Address:	
How do I	Server Listen Port:	7003
Create Managed Servers     Configure default network connections	OK Cancel	

The server named Managed-1 is created, but its SSL Listen Port must be enabled and specified.

(g) Click Managed-1 to edit it, and in the edit screen, check SSL Listen Port Enabled, change SSL Listen Port to 7004, leave other options unchanged, and click Save.

Environment Servers	Save	
Clusters Virtual Hosts Migratable Targets	Use this page to configure general feat	ures of this server such as default network communications.
Coherence Servers Coherence Clusters	Name:	Managed-1
Wachines Work Managers Startup and Shutdown Classes	₫ Machine:	(None) 💌
Services     Security Realms	de Cluster:	(Stand-Alone)
How do I	Elisten Address:	
Configure default network connections     Create and configure machines     Configure clusters	🔽 Listen Port Enabled	
Start and stop servers     Configure WLDF diagnostic volume	Listen Port:	7003
System Status	SSL Listen Port Enabled	
Health of Running Servers Failed (0)	55L Listen Port:	7004
Critical (0) Overloaded (0) Warning (0)	🗍 🕂 Client Cert Proxy Enabled	
OK (1)	Java Compiler:	javac
		m

Proceed to create two more Managed Servers.

5. Create Managed-2. Go to Environment>Servers, click Managed-1 and select Clone.

server is ar his page sur	instance of WebLog marizes each server	ic Server that runs in il that has been configu	ts own Java Virtual M red in the current W	lachine (JVM) and has i ebLogic Server domain	ts own configurati	on.
Customize ervers (Fil New	this table tered - More Colu lone Delete	mns Exist)			Showing	g 1 to 2 of 2 Previous   Ne:
Customize ervers (Fil New C Name	this table tered - More Colur Ione Delete	mns Exist)	Machine	State	Showing	1 to 2 of 2 Previous   Ne:
Customize ervers (Fil New C Name Admins	this table tered - More Colu Clone Delete © erver(admin)	mns Exist) Cluster	Machine	State RUNNING	Showing Health & OK	1 to 2 of 2 Previous   Ne: Listen Port 7001

- 6. Change the server name to be Managed-2, and its Listen Port to be 7003.
- 7. In the edit screen for this server, verify that the **SSL Listen Port** for it is already enabled and listed as 7004.
- 8. Save the changes.
- 9. Create Managed-3 by repeating steps 5 8 for it, changing the name to Managed-3, and keeping the ports the same as for Managed-1 and Managed-2.



**Important:** For the Endeca Server cluster to work, the ports on all three Managed Servers should be the same. Additionally, if one of the Managed Servers shares the machine with an Admin Server (as in the example diagram used in this procedure), then the ports for the Admin Server (7001, 7002) should be different from the ports for the Managed Servers (7003, 7004).

As a result, on host1, you should have created a WebLogic domain for the securely installed Endeca Server, in which four servers are configured: one Admin Server and three Managed Servers. One of the Managed Servers, Managed-1, is configured to run on the same machine as the Admin Server (host1). Note also that while the Admin Server is running on host1, the Managed Servers are created but not running yet.

The next steps involve using pack.\* and unpack.\* scripts to create a WebLogic Server template based on this configuration, and deploying it on two of the three Managed Servers, on host2 and host3. (There is no need to unpack the domain template on host1 because it already contains the configuration for this WebLogic domain.)

### Step 3: Adjusting the cluster configuration

In order for the Endeca Server cluster to run, two of its configuration files should be configured to list the Managed Servers, the location of the shared file system, and the listen ports for the Managed Servers on which the Endeca Server instances will be running.

The files that you need to modify are:

- EndecaServer.properties
- EndecaCmd.properties

To locate these files, on host1, go to the \$DOMAIN\_HOME/config directory.

### Changing settings in EndecaServer.properties

Change the configuration of this file to include the listen port of all three Managed Servers, their host names (for the Cluster Coordinator), and the location of the shared file system.

To modify EndecaServer.properties:

- 1. Go to \$DOMAIN\_HOME/config, and open the EndecaServer.properties file in a text editor.
- 2. Modify the file as follows:
  - endeca-cluster-coordinator-hosts must contain comma-separated host names of all three Managed Servers: host1, host2, and host3, in this example. If a machine is set up with a fully qualified domain name, (such as, host1.us.oracle.com), the machine name in EndecaServer.properties must also be the same fully qualified domain name. However, if the machine name was configured as host1, you can use this name in EndecaServer.properties.
    - Note: If you will later expand the Endeca Server cluster, by adding machines to the WebLogic domain, you should include their host names in this list based on the following requirement the total number of these machines should be an odd number that is equal to or greater than three. For example, if you will be adding a fourth machine, its host name should not be added to this list. If you will be adding a fifth machine, you can optionally leave the list to contain three host names, or include all five host names both configurations will satisfy the Cluster Coordinator requirement for the Endeca Server cluster.
  - endeca-data-dir and endeca-offline-dir should point to the directories on a shared file system to which all three hosts have write access. The file paths should use forward slashes (even if you are installing on Windows).
  - endeca-cluster-coordinator-dataDir should also point to another directory on this shared file system. The file paths should use forward slashes (even if you are installing on Windows).
  - endeca-webserver-port should be 7004 (this assumes that you installed the Endeca Server in a secure mode). For a non-secure installation, this port should be 7003. (You can use another port number, as long as the port is either the same as an SSL-enabled port configured for the Managed Servers, or their Listen Port, and as long as the port number is not in the endeca-dsport range as shown in the example in this topic.)
- 3. Leave the other settings unchanged and save the file.
As a result of this task, you have configured the Cluster Coordinator of the Endeca Server cluster to run on at least three machines hosting the Endeca Server instances. This is a requirement that ensures increased availability of the Endeca Server cluster and its data domain services. You have also configured the Endeca Server cluster to host all indexes for its data domains on a shared file system (without this requirement, the Endeca Server cluster will not run).

#### Example

The following example illustrates the required settings in EndecaServer.properties:

```
endeca-require-https=true
endeca-runtime-basedir=C:/Oracle/Middleware/EndecaServer</version>/endeca-server
endeca-data-dir=Q:/data_dir
endeca-offline-dir=Q:/offline_data_dir
endeca-logs-dir=C:/Oracle/Middleware/user_projects/domains/endeca_server_domain/EndecaServer/logs
endeca-dgraph-install=C:/Oracle/Middleware/EndecaServer<version>/endeca-server/dgraph
endeca-webserver-port=7004
endeca-ds-port-min=7012
endeca-ds-port-max=8012
endeca-ds-cert-file=C:/Oracle/Middleware/user_projects/domains/endeca_server_domain/config/ssl
/dgraphCert.pem
endeca-ds-ca-file=C:/Oracle/Middleware/user_projects/domains/endeca_server_domain/config/ssl
/dgraphCA.pem
endeca-secure-mode=true
endeca-cluster-coordinator-dir=C:/Oracle/Middleware/EndecaServer</version>/endeca-server
/cluster-coordinator
endeca-cluster-coordinator-hosts=host1,host2,host3
endeca-cluster-coordinator-clientPort=2181
endeca-cluster-coordinator-tickTime=2000
end eca-cluster-coordinator-initLimit=10
endeca-cluster-coordinator-syncLimit=5
endeca-cluster-coordinator-dataDir=Q:/cc_data_dir
endeca-cluster-coordinator-dataLogDir=C:/Oracle/Middleware/user_projects/domains/endeca_server_domain
/EndecaServer/data
endeca-cluster-coordinator-serverPort=3181
endeca-cluster-coordinator-leaderPort=4181
endeca-cluster-coordinator-maxClientCnxns=0
endeca-cluster-coordinator-minSessionTimeout=4000
endeca-cluster-coordinator-maxSessionTimeout=180000
```

In this example, the Q drive indicates the location of the shared file system.



**Important:** This drive, under the same letter, should exist on all three of the Managed Server machines that will be running the Endeca Server application (in other words, the contents of EndecaServer.properties must be identical on all Endeca Server nodes in the cluster.

### Changing settings in EndecaCmd.properties

This topic describes how to change the WebLogic Managed Server port in EndecaCmd.properties.

This task assumes that you have installed Endeca Server in a secure mode and have run the script to generate SSL certificates.

To modify EndecaCmd.properties:

- 1. Go to \$DOMAIN\_HOME/config, and open the EndecaCmd.properties file in a text editor.
- 2. Change the port to be the port of your Managed Server pool. For the secure Endeca Server installation, the port should be 7004. (For an unsecured installation, the port is 7003.)
- 3. Leave the other settings unchanged and save the file.

#### Example

The following example illustrates the required settings in EndecaCmd.properties:

```
host=host1
port=7004
root=/endeca-server
keystore=C:/Oracle/Middleware/user_projects/domains/endeca_server_domain/config/ssl
/endecaServerClientCert.ks
truststore=C:/Oracle/Middleware/user_projects/domains/endeca_server_domain/config/ssl
/endecaServerTrustStore.ks
ssl=true
```

In this example, the Endeca Server is installed in a secure mode and the port 7004 is used for communication with Managed Servers on which Endeca Server application will be running as a cluster. This port should be the same port as the one you configured as the SSL-enabled Listen Port for your Managed Servers.

In the next steps, you can pack and unpack the WebLogic domain that includes these settings.

# Step 4: Packing the WebLogic domain

To pack the WebLogic domain, use the pack. \* and unpack. \* scripts of the WebLogic Server.

For information on these scripts, see http://docs.oracle.com/cd/E23943\_01/web.1111/e14144/tasks.htm.

To create the WebLogic domain template:

1. Stop the WebLogic Server on the Admin Server. Use the Admin Console, or, on host1, go to \$DOMAIN\_HOME/bin, and run:

stopWebLogic.sh

2. On host1, run the pack. \* script:

```
$ORACLE_HOME/Middleware/wlserver_10.3/common/bin/pack.sh
-managed=true
-domain=$DOMAIN_HOME
-template=/tmp/endeca_server_template.jar
-template_name="Endeca Server"
```

The script creates the WebLogic domain template.

You will use this template to unpack the WebLogic domain on host2 and host3.

# Step 5: Unpacking the WebLogic domain on Managed Servers

Before you can start the Managed Servers, unpack the WebLogic domain template on the machines that do not yet contain the WebLogic domain's configuration.

As a prerequisite to this task, make sure that the template you created previously with the pack.\* script is copied to host2 and host3. In this procedure, it is assumed that the file is copied to C:/tmp directory on each of these machines.

You will unpack the WebLogic domain on host2 and host3 only (two of the three machines hosting Managed Servers), because the third Managed Server resides on host1, together with the Admin Server, and can access the WebLogic domain configuration on this machine.



**Important:** The paths and the domain names on the Managed Servers should be the same as the ones used on the Admin Server. For example, if you packed the domain that was located in the C: drive, you should unpack it also into the C: drive, replicating the entire path you used on the Admin Server.

To unpack the WebLogic domain:

1. On host2 and host3, run the following command:

```
$ORACLE_HOME/Middleware/wlserver_10.3/common/bin/unpack.sh
-domain=$DOMAIN_HOME
-template=/tmp/endeca_server_template.jar
```

where <*domain\_name*> is the name of the WebLogic domain you initially created on the Admin Server, such as endeca\_domain.



**Note:** When the script runs, it may notify you that duplicate Server listen ports exist in your WebLogic domain configuration. You can ignore this warning.

When the script runs successfully, the WebLogic domain's configuration is transferred to the machines on which you will start the Managed Servers.

2. On each machine, go to \$DOMAIN\_HOME/config, and verify the contents of
EndecaServer.properties and EndecaCmd.properties.

It should be the same as you configured on the Admin Server.



Note: You may notice that on all machines, including on host2, and on host3, the host name listed in EndecaCmd.properties is host1. This is expected — it indicates that you can later run endeca-cmd from \$DOMAIN\_HOME/EndecaServer/bin on the Admin Server (host1).

Now you are ready to start the Admin Server and all three Managed Servers.

# Step 6: Changing the deployment targets and starting servers

In this step, you change the deployment targets from the Admin Server to Managed Servers and start all servers in the WebLogic domain for the Endeca Server.

Starting the WebLogic Server on which the Endeca Server application is deployed automatically starts the Endeca Server. You can first start the Admin Server, change the deployment targets for the Endeca Server application, and then start the Managed Servers.

To change the deployment targets and start the servers:

1. Start the Admin Server. On host1, go to \$DOMAIN\_HOME/bin, and run:

startWebLogic.sh

Note: You may notice messages about the Cluster Coordinator failing to establish a connection to other machines running its service. These messages are expected and can be ignored. They indicate that the Cluster Coordinator is attempting to establish its quorum, but only one out of three configured Cluster Coordinator services are running at the moment. The messages will stop after you deploy two more Managed Servers that are running the Cluster Coordinator services.

2. Change the deployment targets. In the Administration Console, go to **Deployments**, click the application oracle.endecaserver, click the **Targets** tab, select **Component** (this selects both Endeca Server items under it), then select **Change Targets**:

changes will automatically be activated as you modify, add or delete items in this domain.	Settings fo	Settings for oracle.endecaserver(1.0,7.5.1.0.0)								
modely, and or adject items in this domain.	Overview	Deployment Plan	Configuration	Security	Targets	Control	Testing	Monitoring	Notes	
Domain Structure										
endeca_domain2	Use this page to specify the WebLogic Server instances and clusters to which you want to deploy this Enterprise application. These settings determine where the application is deployed at server startup time. Target Assignments									
Coherence Servers	Change	Targets							Showing 1 to	1 of 1 Previous   Next
Coherence Clusters	🔽 Cor	mponent 🗠			Туре			Current T	argets	
···Work Managers		oracle.endecaserver(	(1.0,7.5.1.0.0)		Enterpri	se Applicati	on	Managed-1	,Managed-2,Ma	naged-3
Startup and Shutdown Classes		lendeca-server			WEBAPP			Managed-1	,Managed-2,Ma	inaged-3
B-Services	Change	Targets							Showing 1 to	1 of 1 Previous   Next

3. In the **Change Targets Assistant** screen, change targets from the Admin Server to Managed Servers and select **Yes**.

Change Contex	Home Log Out Preferences Record Help	Welcome, endeca Connected to: endeca domain2
View changes and restarts	Home >Summary of Environment >Summary of Deployments >oracle.endecaserver(1.0.7.5.1.0.0	)) >Summary of Servers >Server-0 >Summary of
Configuration editing is enabled. Future changes will automatically be activated as you modify, add or delete items in this domain.	Servers >Managed-1 >Summary of Servers >Summary of Depoyments >eracle.endecaserver Change Targets Assistant	(1.0,7.5.1.0.0)
Jomain Structure	Yey No.	
endeca_domain2	You have chosen to retarget the deployments named oracle.endecaserver(1.0,7.5.1.0.0) to continue, or No to cancel.	),/endeca-server. Select the desired targets, and click Yes
	Servers	
	Servers	
Clusters Virtual Hosts Migratable Targets Coherence Servers Coherence Clusters 	Servers  AdminServer  Managed-1	
Clusters Virtual Hosts Migratable Targets Coherence Cenvers Coherence Clusters Machines Work Manages 	Servers       AdminServer       Managed-1       Managed-2	

4. Start the Managed Servers.

On host2 and host3, the unpack.\* script created scripts to start Managed Servers with the names you specified. You can run:

\$DOMAIN\_HOME/bin start<Managed\_Server\_name>.sh

For example, once in this directory, you can run:

start Managed-2.sh



**Note:** If you use this method, the correlation of the Managed Server name and the machine host name on which it should be started is not enforced by the WebLogic Server scripts. Therefore, be careful to start Managed-2 on host2, and Managed-3 on host3.

On host1, which was not deployed with the unpack.\* command, the start <<u>Managed\_Server\_name</u>>.\* is not created. Therefore, use the following command to start the Managed Server in this case:

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\$DOMAIN\_HOME
/bin startManagedWeblogic.sh <managed\_server\_name> <admin\_server\_url> <WebLogic Server
console password>

Note that you can also use this command on each machine hosting a Managed Server, instead of the start <<u>Managed\_Server\_name</u>>.\*.

Once the commands run successfully, you should see the state of the Managed Servers change to RUNNING.

5. Verify the deployment of the WebLogic domain. Go to the **Servers** section of the Administration Console and check the state of the Managed Servers.

After you have successfully installed and deployed an Endeca Server cluster, you can verify its status. You can also optionally add additional machines to its WebLogic domain (so that you can start additional Endeca Server instances), and, if you have previously created an Endeca Server data domain in the Endeca Server installed on a single machine, you can migrate this data domain to the Endeca Server cluster.

For information on all these tasks, see Verifying a cluster installation and deployment on page 82.



This section contains post-installation tasks, including how to uninstall Oracle Endeca Server.

Package contents and directory structure List of Web services and their versions Verifying a single-machine installation Verifying a cluster installation and deployment Additional cluster tasks Increasing Linux file descriptors Using the SH sample data

# Package contents and directory structure

The Oracle Endeca Server installation creates the following directory structure.

### Endeca Server root directory

The default name of the root directory for the Oracle Endeca Server is EndecaServer7.5.1\_1. (This root directory may be referred to as \$ENDECA\_HOME in the documentation set for the Endeca Server.) The root directory is typically installed in the Oracle Middleware directory.

The Endeca Server root directory contains files and software modules when initially installed:

Directory	Contents
root directory	The release notes (README.txt), the Oracle Endeca Server Licensing Guide, and the version.txt file.
apis	The directories for the Oracle Endeca Server API Reference (the /doc directory), the Java client examples for sending queries to the Oracle Endeca Server (the /examples directory), the WSDL and XSD documents for each Web service packaged with the Oracle Endeca Server (the /web- services directory), and the JAR file representing the packaged Bulk Ingest interface.
endeca-cmd	The JAR for the endeca-cmd command-line interface, as well as the non- SSL version of the command script that calls the Oracle Endeca Server commands. Also, the lib directory contains utilities used for the various commands.

Directory	Contents
endeca-server	The EAR (Enterprise ARchive) file for the Endeca Server application.
endeca-server/cluster- coordinator	Software directory for the Cluster Coordinator.
endeca-server/conf	Configuration files used by the generate_ssl_keys script.
endeca-server/dgraph	Software directory for the Dgraph process.
cfgtoollogs, common, diagnostics, install, inventory, OPatch, oui	Directories for Oracle-related software.

#### **Endeca Server domain directories**

These directories and files are added when you create a WebLogic domain for the Endeca Server. They reside in either the \$DOMAIN\_HOME/EndecaServer directory, or the \$DOMAIN\_HOME/config directory. The variable \$DOMAIN\_HOME refers to the root of your Endeca domain; for example, if "endeca\_server\_domain" is the name of your domain, then the default path on Windows is:

C:\Oracle\Middleware\user\_projects\domains\endeca\_server\_domain

**Note:** The paths for these directories in this table represent the defaults that may be overridden for a particular installation. For example, <code>\$DOMAIN\_HOME/EndecaServer/offline</code> is the default offline directory you should be using if you have installed an Endeca Server on a single machine. However, it may be overwritten with your own location (which is required if you are installing and deploying an Endeca Server cluster).

Endeca Server Domain Directory	Contents
\$DOMAIN_HOME/EndecaServer/bin	SSL version of the endeca-cmd utility for Endeca commands; Linux and Windows versions of the generate_ssl_keys script.
\$DOMAIN_HOME/EndecaServer/data	The default directory for storing the data files for an Endeca data domain. This directory is not intended to be used by the data domain administrators.
\$DOMAIN_HOME/EndecaServer/lib	SSL-certificate creation script that is called by the generate_ssl_keys script.
<pre>\$DOMAIN_HOME/EndecaServer/logs</pre>	The logs directory for the Endeca data domains.
\$DOMAIN_HOME/EndecaServer/offline	Default location into which the export-dd Endeca Server command exports the index of a specified Endeca data domain.

Endeca Server Domain Directory	Contents
\$DOMAIN_HOME/config	Two configuration files are added to the root of the config directory: EndecaServer.properties configuration file for Endeca Server and EndecaCmd.properties configuration file for the SSL version of the endeca-cmd utility. Both files are described in the Oracle Endeca Server Administrator's Guide.
\$DOMAIN_HOME/config/ssl	Location into which the generate_ssl_keys script stores the SSL key files it generates. Note that the ssl directory is not created until you run this script.

# List of Web services and their versions

Once you install the Oracle Endeca Server and create a data domain in it, you can use the packaged Web services with the specified versions for each of them, to send requests.

The WSDL and XSD documents for the following Web services are installed in the \$ENDECA\_HOME/apis/web-services directory of your installation:

- Data Ingest Web Service 2.0, ingest (documented in the Oracle Endeca Server Data Loading Guide)
- Configuration Web Service 2.0, config (documented in the Oracle Endeca Server Developer's Guide)
- Conversation Web Service 2.0, conversation (documented in the Oracle Endeca Server Developer's *Guide*)
- Transaction Web Service 2.0, transaction (documented in the Oracle Endeca Server Developer's *Guide*)

In addition to these Web services, additional Web services are available with the Oracle Endeca Server:

- Entity Configuration Web Service 2.0, sconfig (documented in the Oracle Endeca Server Developer's Guide)
- Manage Web Service 1.0, manage (documented in the Oracle Endeca Server Cluster Guide)
- Cluster Web Service 1.0, cluster (documented in the Oracle Endeca Server Cluster Guide)
- LQL Parser Web Service 2.0, lql\_parser, used by the Conversation Web Service to parse Endeca Query Language queries and filters.



**Note:** Each Web service is versioned with the major and minor version numbers listed in its WSDL document. If you are planning to use Web service calls directly or use client-side code created with stubs generated from a web service, ensure that you use a supported version of the Web service. For detailed information on Web service versions, see a section in the *Oracle Endeca Server Developer's Guide*.

The Bulk Load Interface is also installed in the \$ENDECA\_HOME/apis directory of your installation. Together with the Data Ingest Web Service, the Bulk Load Interface loads the records into the Oracle Endeca Server. For more information on this interface, see the *Oracle Endeca Server Data Loading Guide*.

# Verifying a single-machine installation

To verify the single-machine Endeca Server installation, you can create an Endeca data domain.

It is assumed that in a single-machine Endeca Server installation, you can deploy the Endeca Server application in an Admin Server of the WebLogic domain.



**Note:** The instructions in this topic are based on Windows. If you installed on Linux, the steps will be similar, though you will need to substitute paths.

To test that the installation succeeded, perform the following steps:

1. Log into the WebLogic Administration Console and verify that the **oracle.endecaserver** Web application has a State of "Active" in the Administration Console.

You can also verify that the Endeca Server is running by using this URL in your browser to bring up the WSDL for the Manage Web service: http://localhost:7001/endeca-server/ws/manage?wsdl

If Endeca Server is running in SSL mode, use this URL: https://localhost:7002/endeca-server/ws/manage?wsdl

- 2. Open a command prompt.
- 3. Navigate to one of these directories, depending on whether Endeca Server is running in SSL mode:
  - Non-SSL mode: C:\Oracle\Middleware\EndecaServer7.5.1\_1\endeca-cmd
  - SSL mode: C:\Oracle\Middleware\user\_projects\domains\endeca\_server\_domain\EndecaSer ver\bin
- 4. Use this command to create and start an empty Endeca data domain named "test" (you can use another name if you wish):

endeca-cmd create-dd test

5. Use this command to verify that the Endeca data domain is running:

endeca-cmd get-dd-health test

The Endeca data domain is fully running if you see an output similar to this in the command prompt window:

```
Data domain: test
Leader Node Health:
Hostname: Web007
Port: 7001
Protocol: HTTP
Is available
Follower Nodes Health:
Detail:[]
```

The "Is available" line indicates that the Dgraph is up and running. If you installed in secure (SSL) mode, the Port will be 7002 and the Protocol will be HTTPS.

You can use the endeca-cmd --help command to print out the usage for the various commands.

For detailed information on the Oracle Endeca Server and its commands, see the Oracle Endeca Server Administrator's Guide.

# Verifying a cluster installation and deployment

Use the Administration Console of the WebLogic Server to verify the state of the WebLogic domain running the Endeca Server cluster on three of its Managed Servers.

Before you access the Administration Console, start the Admin Server of the WebLogic domain created for the Endeca Server.

To verify the Endeca Server cluster deployment:

- 1. Open the Administration Console: http://<admin\_server\_host>:port/console
- 2. In the left-hand pane's section Domain Structure, select Environment, then select Servers.

The Administration Console displays the state of all servers in your WebLogic domain for the Endeca Server.

3. Select **Domain Structure>Deployments**. From the list, select the Endeca Server application, and then select the **Monitoring** tab.

# Additional cluster tasks

After you have verified the cluster deployment, you can create a data domain, extend the Endeca Server cluster, or import a data domain into the cluster.

Creating a data domain in the Endeca Server cluster

Adding Endeca Server instances to the cluster

Importing a data domain into a cluster

# Creating a data domain in the Endeca Server cluster

This task describes how to create an Endeca data domain after you have deployed an Endeca Server cluster.

Before you start, verify the status of the Endeca Server cluster by going to the Admin Server on host1, navigating to \$DOMAIN\_HOME/EndecaServer/bin (if you installed the Endeca Server in a secure mode), and running:

endeca-cmd list-nodes --password <sslPassphrase>

where *<sslPassphrase>* is the password you specified when running the script to generate SSL certificates for the Endeca Server. The command should return a list of host names for all Managed Servers on which the Endeca Server application is running as an Endeca Server cluster.



Important: The endeca-cmd command exists in the \$DOMAIN\_HOME/EndecaServer/bin directory only on host1 which is the Admin Server, so it is important to access this command in this directory only if you are on the machine that is running the Admin Server for the WebLogic domain for Endeca Server (host1 according to the cluster deployment diagram in this guide). This is the recommended way of accessing endeca-cmd if you are running the Endeca Server cluster in a secure mode. Alternatively, if you want to access endeca-cmd on any of the Managed Servers in the Endeca Server cluster, go to the directory

\$ORACLE\_HOME/Middleware/EndecaServer<version>/endeca-cmd. If you run this command from that directory and have installed the Endeca Server in a secure mode, be sure to specify all the

SSL options on the command line. For full information on running the endeca-cmd command, see the Oracle Endeca Server Administrator's Guide.

This procedure assumes you have installed the Endeca Server cluster in a secure mode (SSL-enabled).

To create an Endeca data domain in an Endeca Server cluster:

- 1. On host1 (this is the machine on which the Admin Server of the WebLogic Server created for Endeca Server is running), go to \$DOMAIN\_HOME/EndecaServer/bin.
- 2. Create a new data domain profile for the Endeca data domain which will include a total of two nodes. (Each will be allocated to run on a separate Endeca Server instance.) Run the following command:

```
endeca-cmd put-dd-profile my_two_node_dd_profile
--num-followers 1 --password <sslPassphrase>
```

where my\_two\_node\_dd\_profile is the name of the data domain profile, and sslPassphrase is the password that you specified with the --sslPassphrase flag of the generate\_ssl\_keys utility.

This command creates the data domain profile in which there is one leader node and one follower node in the data domain.

3. Create a data domain using this profile. Run:

```
endeca-cmd create-dd test
--dd-profile-name my_two_node_dd_profile
--password <sslPassphrase>
```

This command creates an Endeca data domain test, based on the previously configured data domain profile. In this data domain, two nodes (Dgraph processes) are running, each on its own Endeca Server instance.

4. Verify the state of the data domain. Run:

```
endeca-cmd get-dd-health test
--password <sslPassphrase>
```

The command returns the following information:

```
Data domain: test
Leader node health:
Hostname: host1
Port: 7004
Protocol: HTTPS
Is available
Follower nodes health:
Hostname: host2
Port: 7004
Protocol: HTTPS
Is available
```

This output indicates that the data domain test runs on two nodes, both of which are available. Note that even though you created this data domain from one machine, it is configured to run two nodes on different Endeca Server instances. You can now access this data domain from any Endeca Server instance machine.

### Adding Endeca Server instances to the cluster

To add another Endeca Server instance to an already deployed Endeca Server cluster, provision an additional WebLogic Managed Server and deploy the Endeca Server domain to this server.

The instructions in this topic assume that you have already deployed an Endeca Server cluster with three Endeca Server instances running on three Managed Servers in the WebLogic domain created for the Endeca Server.

To add another Endeca Server instance to the Endeca Server cluster:

- 1. Install the required software on an additional machine. For instructions, see *Installing WebLogic* Server and Application Developer Runtime on page 16 and Installing Endeca Server on a Single Machine on page 37.
- 2. Ensure that this machine has write access to the same shared file system to which existing Endeca Server machines have access.
- In the WebLogic domain for the Endeca Server, create another Managed Server. For instructions, see Step 2: Creating Admin Server, generating SSL certificates, and cloning Managed Servers on page 68. Do not generate SSL certificates (as it is assumed you have already generated them).
- 4. Create a WebLogic domain template and deploy it on machine that will host the additional Managed Server.

For instructions, see *Step 4: Packing the WebLogic domain on page 74* and *Step 5: Unpacking the WebLogic domain on Managed Servers on page 74.* 

5. (Optional.) Add the host name of this node to the list of host names on which the Cluster Coordinator service must be running, in the EndecaServer.properties file.

If you are adding the fourth Endeca Server node, skip this step. If you are adding the fifth Endeca Server node, you can optionally perform this step. This step is needed to ensure that an odd number (that is equal to or greater than three) of the Endeca Server nodes are also running the Cluster Coordinator service. For instructions, see *Changing settings in EndecaServer.properties on page 72*.

- 6. Specify the directories on the shared file system in the EndecaServer.properties. For instructions, see *Changing settings in EndecaServer.properties on page* 72.
- 7. Start the Managed Server and change the WebLogic domain's deployment targets to include this Managed Server. See *Step 6: Changing the deployment targets and starting servers on page 75.*

Once the additional Managed Server is deployed, the Endeca Server application is started in it. Now you can create data domain profiles that require a greater number of Endeca Server instances; the Endeca data domains that you create using these profiles will be allocated to this additional Endeca Server instance.



**Note:** Existing data domains will not be dynamically adjusted to take advantage of the additional Endeca Server cluster capacity. In other words, to take advantage of the increased capacity, create new data domain profiles, and use them to create new data domains.

### Importing a data domain into a cluster

If you have created an Endeca data domain in a development environment on a single Endeca Server instance, you can export it and import it into an Endeca Server cluster.

This procedure assumes that you have previously created the data domain MyDD on an Endeca Server instance running on a single machine that is hosting an Admin Server of the WebLogic Server. This procedure

also assumes that you have used the same version of the Endeca Server for the single-machine data domain deployment as you are using for the Endeca data domain's deployment in the cluster.

This procedure does not assume a secure installation of the Endeca Server. To run endeca-cmd in a secure mode, use its global options to also specify sslPassphrase on the command line. For information on endeca-cmd, see the Oracle Endeca Server Administrator's Guide.

To import a data domain into a cluster:

1. Export the data domain. On the host machine of your single-machine deployment of the Endeca Server, go to \$ORACLE\_HOME/Middleware/EndecaServer<version>/endeca-cmd and run:

```
endeca-cmd export-dd MyDD --offline-name MyDD_offline
```

This command exports the index of the data domain MyDD to the file MyDD\_offline, located in the offline directory for the data domain.

 Copy the MyDD\_offline file to a location of the data domain's offline directory on a shared file system for the Endeca Server cluster.

To check this location, see the file EndecaServer.properties in the \$DOMAIN\_HOME/config directory. The location is specified in this file similar to the following example:

endeca-offline-dir=Q:/offline\_data\_dir

3. Import the data domain. On the host machine running the Admin Server of the WebLogic Server created for Endeca Server, go to the directory \$DOMAIN\_HOME/EndecaServer/bin and run:

```
endeca-cmd import-dd MyDD --offline-name MyDD_offline --dd-profile-name MyDDProfile
--is-enabled
true
```

where MyDDProfile is the name of the data domain profile you want to use for creating this data domain in an Endeca Server cluster.

4. To verify the data domain is running, run:

endeca-cmd get-dd-health MyDD

# **Increasing Linux file descriptors**

You should increase the number of file descriptors from the 1024 default.

Having a higher number of file descriptors ensures that the WebLogic Server can open sockets under high load and not abort requests coming in from clients.

To increase the number of file descriptors on Linux:

- 1. Edit the /etc/security/limits.conf file.
- 2. Modify the **nofile** limit so that **soft** is 4096 and **hard** is 8192. Either edit existing lines or add these two lines to the file:

*	soft	nofile	4096
*	hard	nofile	8192

The character "\*" is a wildcard that identifies all users.

# Using the SH sample data

A Sales History data set is supplied as a sample data set for an Endeca data domain.

The SH (Sales History) data set is used by a sample company that does a high volume of business. It therefore runs business statistics reports to aid in decision making. Many of these reports are time-based and nonvolatile (that is, they analyze past data trends). The statistics in the SH data set include annual, quarterly, monthly, and weekly sales figures by product. The company also runs reports on distribution channels through which its sales are delivered. When the company runs special promotions on its products, it analyzes the impact of the promotions on sales. It also analyzes sales by geographical area.

The SH data set is ready for use out of the box because the files have already been indexed by the Endeca Server. This eliminates the need to load source records into the Endeca Server.

Before you can use the Endeca data domain configured for the SH data set, place the SH indexed files into the offline directory of the Endeca Server and import them into a newly-created Endeca data domain.

To unpack and use the sample data files:

1. Unpack the sample data ZIP file to a directory of your choice.

A directory named sh\_indexes is created.

- 2. Make sure that both WebLogic Server and the Endeca Server application are up and running.
- 3. Copy the sh\_indexes directory to the Endeca Server's offline directory.

The location of the offline directory is set by the endeca-offline-dir parameter in the Endeca Server configuration file (named EndecaServer.properties located by default in the \$DOMAIN\_HOME/config directory).

4. Use the endeca-cmd import-dd command to create and enable an Endeca data domain, using the sh data files.

You must specify a data domain that is not already in use. For example:

endeca-cmd import-dd sh\_sample --offline-name sh

The Endeca data domain named "sh\_sample" is ready for use.



# Chapter 6 Uninstalling Oracle Endeca Server

This section contains the procedures for uninstalling the Oracle Endeca Server.

Uninstalling Oracle Endeca Server Removing the Endeca Server domain Uninstalling an Endeca Server cluster

# **Uninstalling Oracle Endeca Server**

Follow these steps to uninstall the Oracle Endeca Server from your Linux or Windows machine.

Before you begin the uninstallation process, back up files that you want to retain from the Oracle Endeca Server directory. On Windows, make sure that there no open files in the Oracle Endeca Server directory.

The deinstaller used in this task is located in the <code>\$ENDECA\_HOME/oui/bin</code> directory. For example, the default absolute path on Windows is:

C:\Oracle\Middleware\EndecaServer7.5.1\_1\oui\bin

The deinstaller file is named:

- For Linux: runInstaller
- For Windows: setup.exe



**Important:** Do not confuse this deinstaller with the installer with which you installed Endeca Server (that is, the installer in the endecaserver/Disk1 directory that you unzipped). The file names for both the deinstaller and the installer are the same (runInstaller for Linux and setup.exe for Windows). However, the deinstaller supports the -deinstall option, but not the -install option, while the installer is the opposite (it supports the -install option, but not the -deinstall option).

Also note that this procedure does not delete the Endeca Server domain on the WebLogic Server. Instructions to remove the Endeca Server domain are in the following topic.

To uninstall the Oracle Endeca Server software:

1. Stop the WebLogic Server.

Stopping the server also stops the Endeca Server application and its data domains.

- 2. Open a command prompt and change to the \$ENDECA\_HOME/oui/bin directory.
- 3. Run the deinstaller with this command:
  - For Linux: ./runInstaller -deinstall -jreLoc <jre\_location>

• For Windows: setup.exe -deinstall -jreLoc <jre\_location>

*jre\_location* is the full path to the location of a Java 6 JRE (Java Runtime Environment) on your system. Note that the path cannot contain spaces. For example, on Windows:

setup.exe -deinstall -jreLoc c:\java\jdk1.6.0\_43

When the deinstaller runs, it displays the deinstallation wizard's Welcome screen.

4. Before continuing to the **Welcome** screen, either close the command prompt or change to a directory outside the Endeca Server root directory.

On Windows, for example, the directory (in which the prompt is open) cannot be completely deleted because of the open command window.

5. At the **Welcome** screen, read the information and click **Next**.

Oracle Fusion Middleware 11g	Deinstallation - Step 1 of 4
Welcome	FUSION MIDDLEWARE 118
Welcome     Deinstall Oracle Home     Deinstallation Progress     Deinstallation Complete	Welcome to Oracle Fusion Middleware 11g         You are about to deinstall the applications contained in Oracle Middleware Home.         At any time during the deinstallation, you can view the Release Notes for additional information. Context-sensitive help is available by clicking Help.         Click the Next button to begin deinstallation         Copyright (c) 1999, 2012, Oracle and/or its affiliates. All rights reserved.
Help	< Back Next > Einish Cancel
	Elapsed Time: 6m 48s

6. At the **Deinstall Oracle Home** screen, verify the deinstallation details and click **Deinstall**.

Deinstall Oracle I	
<u>Welcome</u> Deinstall Oracle Home     Deinstallation Progress     Deinstallation Complete	Cracle Home Details     LC:\Oracle\Middleware\EndecaServer7.5.1_1\
	Save Deinstallation Configuration:       Save         Make sure that no Application Server or Process is associated with this         Oracle Home : C:VoracleWiddlewareVEndecaServer7.5.1_1V. Removing an Oracle Home will render the Application Server associated with this Oracle Home unusable

7. At the confirmation warning message, either click **Yes** (to delete the entire Endeca Server home directory) or No (to deinstall but retain the directory).

arning	×
The directory: C:\Orac deinstall. Click on "Yes" to conti Click on "No" to perfor Click on "Cancel" to go	He\Middleware\EndecaServer7.5.0_1 will be deleted after nue. m deinstall without deleting the directory. back to "Inventory Dialog".
	Yes No Cancel

- -37 Oracle Fusion Middleware 11g Deinstallation - Step 4 of 4 g Deinstallation Complete FUSION MIDDLEWARE Welcome Deinstall Oracle Home **Deinstallation Progress** The 11g Oracle Home located at C:\Oracle\Middleware\EndecaServer7.5.1 1\ is deinstalled. **Deinstallation Complete** The Oracle Grid Runs Faster. Costs Less. And Never Breaks You have successfully completed the deinstallation of Oracle Fusion Middleware 11g. ORACLE oracle.com/grid Finish Help Elapsed Time: 3m 49s
- 8. At the **Deinstallation Complete** screen, click **Finish** to exit the wizard.

This procedure does not remove the Endeca Server domain files from WebLogic Server. Therefore, the next step is to remove the Endeca Server domain from WebLogic Server.

# **Removing the Endeca Server domain**

This topic describes how to manually remove the Endeca Server domain from the WebLogic Server.

The Endeca Server un-installer does not remove the Endeca Server domain files from WebLogic Server. Therefore, you must manually remove the Endeca Server domain from WebLogic Server, as described in this procedure. The procedure will assume that endeca\_server\_domain is the name of the Endeca Server domain.

To remove the Endeca Server domain from WebLogic Server:

- 1. Stop the WebLogic Server.
- 2. Using a text editor, open the \$MW\_HOME/domain-registry.xml file and remove the endeca\_server\_domain entry from the file.

```
<?xml version="1.0" encoding="UTF-8"?>
```

```
<domain-registry xmlns="http://xmlns.oracle.com/weblogic/domain-registry">
    <domain location="C:\Oracle\Middleware\user_projects\domains\endeca_server_domain"/>
</domain-registry>
```

3. Delete the \$MW\_HOME/user\_projects/domains/endeca\_server\_domain directory.

# **Uninstalling an Endeca Server cluster**

To uninstall an Endeca Server cluster, follow the steps for uninstalling the Endeca Server instances on each machine, and then remove the Endeca Server domain.

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