

Oracle® Fusion Middleware

Installation and Administration Guide for Oracle Exalytics
In-Memory Machine

11g Release 1 (11.1.1)

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Explains how to install and manage Oracle Business Intelligence products (including Oracle BI Enterprise Edition and Oracle BI Publisher) on Oracle Exalytics In-Memory Machine. Includes how to monitor and administer an Oracle Business Intelligence system.

Oracle Fusion Middleware Installation and Administration Guide for Oracle Exalytics In-Memory Machine, 11g Release 1 (11.1.1)

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Preface

The Oracle Business Intelligence Foundation Suite is a complete, open, and integrated solution for all enterprise business intelligence needs, including reporting, ad hoc queries, OLAP, dashboards, scorecards, and what-if analysis. The Oracle Business Intelligence Foundation Suite includes Oracle Business Intelligence Enterprise Edition.

Oracle Business Intelligence Enterprise Edition (Oracle BI EE) is a comprehensive set of enterprise business intelligence tools and infrastructure, including a scalable and efficient query and analysis server, an ad-hoc query and analysis tool, interactive dashboards, proactive intelligence and alerts, and an enterprise reporting engine.

The components of Oracle BI EE share a common service-oriented architecture, data access services, analytic and calculation infrastructure, metadata management services, semantic business model, security model and user preferences, and administration tools. Oracle BI EE provides scalability and performance with data-source specific optimized request generation, optimized data access, advanced calculation, intelligent caching services, and clustering.

This guide contains information about installing and administering the Oracle Exalytics In-Memory Machine. The guide includes topics on installing, upgrading, and maintaining the Exalytics Machine.

Audience

This document is intended for installation engineers and middle-tier administrators who are responsible for managing Oracle Business Intelligence processes, upgrading, and installing.

Documentation Accessibility

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

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Related Documents

For more information, see the following documents in the Oracle Business Intelligence Enterprise Edition 11g Release 1 (11.1.1) documentation set:

- The Oracle Business Intelligence chapter in the *Oracle Fusion Middleware Release Notes* for your platform
- *Oracle Fusion Middleware Installation Guide for Oracle Business Intelligence*
- *Oracle Fusion Middleware Upgrade Guide for Oracle Business Intelligence*
- *Oracle Fusion Middleware Enterprise Deployment Guide for Oracle Business Intelligence*
- *Oracle Fusion Middleware System Administrator's Guide for Oracle Business Intelligence Enterprise Edition*
- *Oracle Fusion Middleware Metadata Repository Builder's Guide for Oracle Business Intelligence Enterprise Edition*
- *Oracle Fusion Middleware Security Guide for Oracle Business Intelligence Enterprise Edition*
- *Oracle Fusion Middleware User's Guide for Oracle Business Intelligence Enterprise Edition*

Conventions

The following text conventions are used in this document:

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

New Features for Exalytics Machine

The Oracle Exalytics In-Memory Machine is new for Oracle BI Enterprise Edition 11g Release 11.1.1.6, as is this guide.

Part I

Installation

That part describes how to install. It contains the following chapters:

- [Chapter 1, "Installation Overview"](#)
- [Chapter 2, "Installing Software on the Exalytics Machine"](#)
- [Chapter 3, "Postinstallation Tasks"](#)
- [Chapter 4, "Deinstalling Software on the Exalytics Machine"](#)

Installation Overview

This chapter provides an overview of installing software on the Oracle Exalytics In-Memory Machine. The Exalytics Machine is an engineered solution that includes a memory-centric hardware platform, proven in-memory technology from Oracle TimesTen, and an optimized version of Oracle Business Intelligence Foundation Suite functionality.

The Exalytics Machine enables Oracle Business Intelligence software users to gain quick insight, make better decisions, and take immediate actions. For system administrators, the pre-engineered system simplifies the process of configuring and maintaining an enterprise-level, high-performance Oracle Business Intelligence implementation. It eliminates the risks associated with procuring, deploying, maintaining, and tuning the system infrastructure from multiple vendors. Oracle's technology is designed to scale seamlessly from small workgroup installations to large scale enterprise Business Intelligence deployments.

The term "Oracle Business Intelligence" is used throughout this guide to collectively refer to Oracle BI Enterprise Edition and Oracle BI Publisher. In cases where a description or instruction specifically applies to one of these products, the individual product's name is used instead.

This chapter includes the following topics:

- [Section 1.1, "Installable Products"](#)
- [Section 1.2, "Oracle Exalytics Architecture"](#)
- [Section 1.3, "System Requirements and Certification"](#)

1.1 Installable Products

For information, see "Installable Products" in *Oracle Fusion Middleware Installation Guide for Oracle Business Intelligence*.

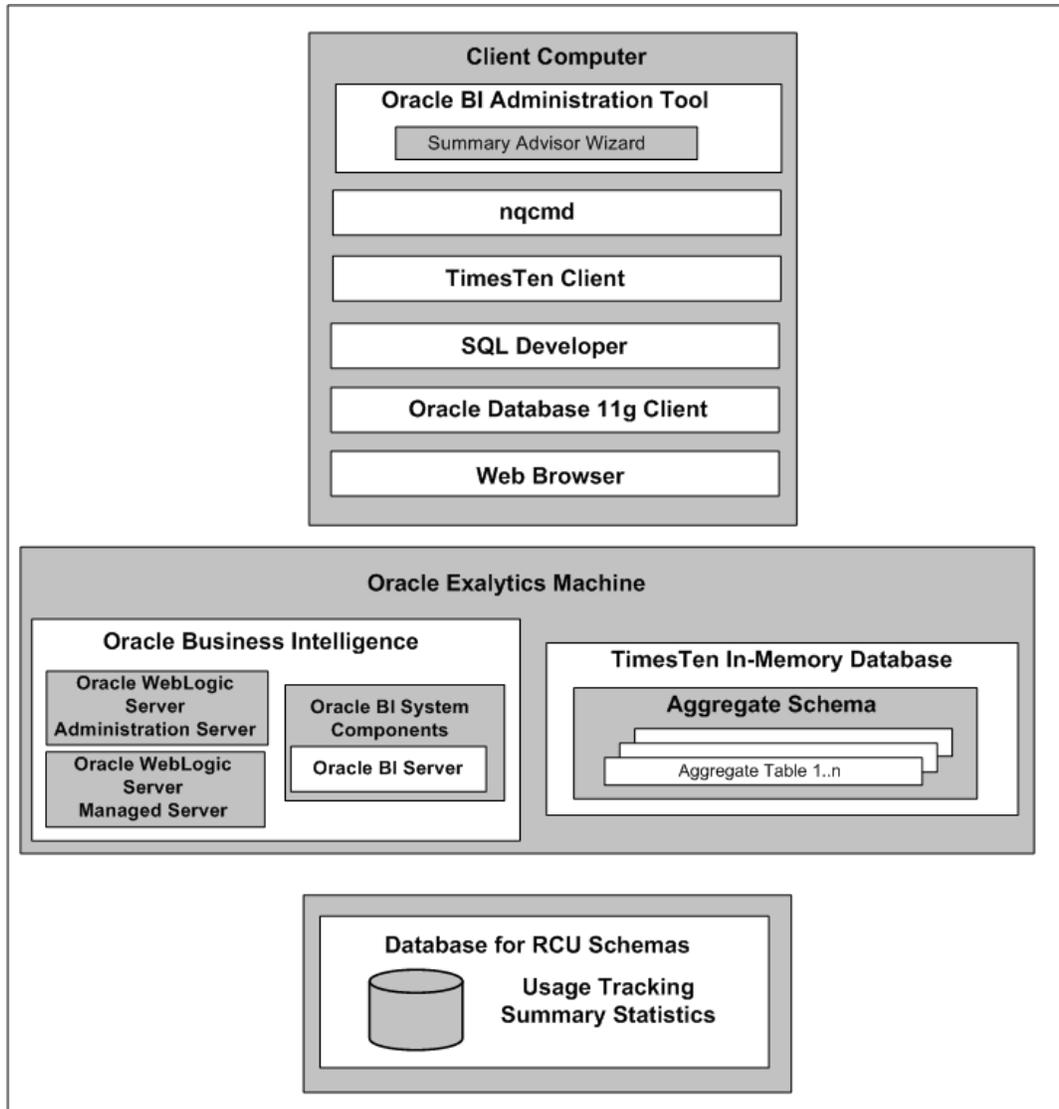
In addition, note the following:

- Oracle Real-Time Decisions is not available for installation on the Exalytics Machine.
- This guide does not provide information on installing Essbase on the Exalytics Machine using the Oracle Hyperion Enterprise Performance Management System Installer. For information about using the EPM System Installer to install Essbase, see *Oracle Hyperion Enterprise Performance Management System Installation and Configuration Guide*.

1.2 Oracle Exalytics Architecture

Figure 1–1 contains a diagram of the architecture for the Exalytics Machine. The Exalytics Machine includes software for the TimesTen In-Memory Database, Oracle Business Intelligence, and the Administration Server and Managed Server for Oracle WebLogic Server. The Exalytics Machine is connected to a client computer on which the Oracle BI Administration Tool runs, including the Summary Advisor wizard. Another computer holds the database on which schemas that are created with the Repository Creation Utility reside, including usage tracking summary statistics.

Figure 1–1 Oracle Exalytics Architecture



1.3 System Requirements and Certification

This guide provides specific information about system requirements and software versions that the Exalytics Machine uses. For information about the client computer that you use with the Exalytics Machine, refer to the system requirements and certification documentation for information about hardware and software

requirements, platforms, databases, and other information. Both of these documents are available on Oracle Technology Network (OTN).

- The system requirements document covers information such as hardware and software requirements, minimum disk space and memory requirements, and required system libraries, packages, or patches:

<http://www.oracle.com/technetwork/middleware/ias/downloads/fusion-requirements-100147.html>

- The certification document covers supported installation types, platforms, operating systems, databases, JDKs, and third-party products:

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

Installing Software on the Exalytics Machine

This chapter describes how to install software on the Exalytics Machine. The installation scripts provide a semi-automated way of creating a single-node Oracle Exalytics system by installing Oracle Business Intelligence and TimesTen and configuring the two software components to communicate with each other.

This chapter includes the following topics:

- [Section 2.1, "Before You Install Software on the Exalytics Machine"](#)
- [Section 2.2, "Installing the Software"](#)
- [Section 2.3, "Troubleshooting the Installation and Configuration Processes"](#)

2.1 Before You Install Software on the Exalytics Machine

Before you install software on the Exalytics Machine, review the following sections:

- [Section 2.1.1, "Documents to Review"](#)
- [Section 2.1.2, "Prerequisites for Installing on the Exalytics Machine"](#)

2.1.1 Documents to Review

As you prepare to install software on the Exalytics Machine, do the following:

- Review the Oracle Business Intelligence chapter in the *Oracle Fusion Middleware Release Notes* for the Linux x86-64 platform, to ensure that you understand the differences between Oracle Business Intelligence and its documented functionality, and any other issues that apply to the current release.
- Review the *Oracle TimesTen In-Memory Database Release Notes* to ensure that you understand the differences between TimesTen and its documented functionality, and any other issues that apply to the current release.
- Review *Oracle Fusion Middleware Owner's Guide for Oracle Exalytics In-Memory Machine for Linux x86-64* to ensure that you have properly configured and commissioned the Exalytics Machine in your data center.
- Review [Chapter 1, "Installation Overview"](#) to ensure that you understand the options and architecture related to installing software on the Exalytics Machine.

2.1.2 Prerequisites for Installing on the Exalytics Machine

The following prerequisites must be met before installing Oracle Business Intelligence on the Exalytics Machine:

- The Exalytics Machine has been racked and mounted in a data center.

- The Exalytics Machine is configured with the base operating system at the factory. If you need assistance, then Oracle provides Advanced Customer Services for installing software on the Exalytics Machine.
- The network configuration script has been run and the computer is accessible from the network.
- A supported database is available (but not on Oracle Exalytics) and accessible from the Exalytics Machine to host the schemas that are required by the software installation and that you create as part of the installation process. Ensure that the database is running during the installation and that the database is not hardened for security purposes. Installing Oracle Business Intelligence against a hardened database is not supported.

For information about hardened databases, see *Oracle Database Vault Administrator's Guide*.

- You have access to the internet from a computer (not necessarily the Exalytics Machine) to download required packages.

2.2 Installing the Software

Installing software on the Exalytics Machine involves a combination of manual steps and automated scripts. The installation scripts provide a semi-automated way of creating a single-node Oracle Exalytics system by installing Oracle BI EE (a Software-Only Installation) and TimesTen In-Memory Database and configuring the two software components to communicate with each other.

When you perform this process, see "Software Only Install" in *Oracle Fusion Middleware Installation Guide for Oracle Business Intelligence* for information.

The steps in the process are:

- [Section 2.2.1, "Step 1: Creating the User on the Operating System"](#)
- [Section 2.2.2, "Step 2: Creating the Inventory for TimesTen"](#)
- [Section 2.2.3, "Step 3: Downloading Oracle Files into the Directory Structure"](#)
- [Section 2.2.4, "Step 4: Creating the Database Schemas"](#)
- [Section 2.2.5, "Step 5: Editing the Properties File"](#)
- [Section 2.2.6, "Step 6: Preparing to Run the Installation Scripts"](#)
- [Section 2.2.7, "Step 7: Verifying the Checklist"](#)
- [Section 2.2.8, "Step 8: Running the Scripts"](#)
- [Section 2.2.9, "Step 9: Verifying the Installation"](#)

2.2.1 Step 1: Creating the User on the Operating System

On the operating system, create a user with a name such as "oracle" and an appropriate password. The procedures throughout this section assume both a user and a group named "oracle".

2.2.2 Step 2: Creating the Inventory for TimesTen

Create the inventory for TimesTen after you log in as the root user by entering the following commands:

```
mkdir /etc/TimesTen
```

```

chmod 770 /etc/TimesTen
chgrp oracle /etc/TimesTen
touch /etc/TimesTen/instance_info
chmod 770 /etc/TimesTen/instance_info
chgrp oracle /etc/TimesTen/instance_info

```

Ensure that the group who runs the script has write access to the /etc/TimesTen directory.

2.2.3 Step 3: Downloading Oracle Files into the Directory Structure

To download files into the directory structure:

1. Download the following required software installers from the Media Pack for Oracle Exalytics under Oracle Business Intelligence software for Linux X86-64 on Oracle eDelivery at the following location:

<http://edelivery.oracle.com/>

- Oracle BI Enterprise Edition 11g Release 11.1.1.6
 - Repository Creation Utility that corresponds with Oracle BI EE Release 11.1.1.6
 - TimesTen Release 11.2.2.2
 - Oracle WebLogic Server 10g Release 10.3.6
2. As the user who owns the installation of the Exalytics software, create a directory structure such as the following for staging the software installation programs, if the user name is "oracle" and the home directory is /home/oracle:

- /home/oracle/EXALYTICS_RCU

Copy the rcuHome.zip file for the Repository Creation Utility (RCU) into this directory and unzip it.

- /home/oracle/EXALYTICS_INSTALLERS/bi

Copy the Oracle BI EE installation ZIP files into this directory and unzip them using the following command. The -q parameter reduces the number of lines of output that are sent to the console.

```
unzip -q '*.zip'
```

The unzip process creates a subdirectory called bishiphome that contains subdirectories with names of Disk1 through Disk5.

- /home/oracle/EXALYTICS_INSTALLERS/tt

Copy the TimesTen for Exalytics distribution file into this directory and do not unzip it. The file has an extension such as .zip or .tar.gz. The installation scripts work with a file of either extension.

- /home/oracle/EXALYTICS_INSTALLERS/wls

Obtain the ZIP file for Oracle WebLogic Server on 64-bit Linux and extract the wls1036_linux64.bin file into this directory. If the file is not executable, then use the following command to allow it to be executed:

```
chmod +x wls1036_linux64.bin
```

- /home/oracle/EXALYTICS_INSTALL_LOG

The installation scripts use this directory for storing the log files from the installation. You use these log files for troubleshooting, as described in [Section 2.3, "Troubleshooting the Installation and Configuration Processes."](#)

- /home/oracle/EXALYTICS_MWHOME
The installation scripts use this directory as the target directory for the Oracle BI EE installation, which is known as the Middleware Home. In this guide, this directory is referred to as EXALYTICS_MWHOME.
- /home/oracle/EXALYTICS_INSTALL_TEMP
The installation scripts use this directory for storing temporary files.

2.2.4 Step 4: Creating the Database Schemas

Follow the instructions in the "Create Database Schemas Using the Repository Creation Utility (RCU)" section in *Oracle Fusion Middleware Installation Guide for Oracle Business Intelligence*.

You must first create required Oracle Business Intelligence schemas in a database (note that the database must not be hardened). You use a tool called the Repository Creation Utility (RCU) to create these schemas with the appropriate permissions and data.

Before you begin using RCU, review the "Repository Creation Utility (RCU) Requirements" section in the Oracle Fusion Middleware System Requirements document:

http://www.oracle.com/technetwork/software/products/ias/files/fusion_requirements.htm

This section contains important information about your system and component-specific database requirements that should be met before you run RCU.

Ensure that you record the following details, because you use them later in the installation process:

- The database connection details in the following form:
host-name:port-number:service-name
- The names and passwords of the schemas that you create, which have names such as *prefix_BIPLATFORM* and *prefix_MDS*.

2.2.5 Step 5: Editing the Properties File

Edit carefully the properties file that contains values that the installation scripts use. The file is named `bim-setup.properties` and is stored in the following directory:

`/home/oracle/EXALYTICS_INSTALLERS/bi/bishiphome/Disk1/bimachine/scripts`

Keep the following points in mind as you edit the file:

- Ensure that you use proper spelling and capitalization in the lines of the file.
- The file contains comments that provide details on how to edit the values to be appropriate for your system.
- In the file, specify the port numbers that you want to use for the Administration Server and the Managed Server using the `bim.bi.wls.admin.port` and `bim.bi.wls.managed.port` properties. Before specifying the port numbers in the file, ensure that the ports are empty and unoccupied. The installation scripts pass values from the `bim-setup.properties` file to the `staticports.ini` file.

The `staticports.ini` file is located in the following directory:

```
/home/oracle/EXALYTICS_
INSTALLERS/bi/bishiphome/Disk1/bimachine/scripts/templates/staticports.in
i
```

Avoid manually editing the staticports.ini file.

- Ensure that the file system does not include a bim.mw.home directory.
- In this release, the root directory on the system does not need subdirectories for the Repository Creation Utility or for patches.
- For information on the connect strings that you use for the schemas that you created with RCU, see "Specifying a Database Connect String" in *Oracle Fusion Middleware Installation Guide for Oracle Business Intelligence*.

The following is the contents of the properties file:

```
#####
# Exalytics Machine Properties
#####

#####
[Generic properties to be used across all the Oracle Products]
#bim.installers.root=The directory should contain following directories [bi, rcu,
tt, wls, patches].
#bim.mw.home=This directory has all the Oracle Software binaries installed such as
bi, wlsrserver_10.3, tt and so on.
#The directory of bim.mw.home should be a mounted drive so that Oracle bits can be
moved to shared storage later for scale out.
#bim.temp.dir=This directory is used for Oracle Software
installation/configuration.
#bim.orainst.loc=The location of oraInst.loc to use. If not set, /etc/oraInst.loc
assumed.

#####
bim.installers.root=/home/oracle/EXALYTICS_INSTALLERS
bim.mw.home=/home/oracle/EXALYTICS_MWHOME
bim.temp.dir=/home/oracle/EXALYTICS_INSTALL_TEMP
bim.orainst.loc=/etc/oraInst.loc

#####
# [RCU/BI specific properties]
#bim.db.connectionstring=Oracle Database connection string in the format of
hostname:port:service
#bim.db.bi.schema.user=Schema User for BIPLATFORM
#bim.db.bi.schema.pwd=Password for the bim.db.bi.schema.user
#bim.db.mds.schema.user=Schema User for MDS
#bim.db.mds.schema.pwd=Password for the bim.db.mds.schema.user
#####

#bim.db.type=Database type. Specify one of ORACLE, SQLSERVER or IBMDB2. The
default is ORACLE.
bim.db.type=
bim.db.connectionstring=IP-address
bim.db.bi.schema.user=EX11111_BIPLATFORM
bim.db.bi.schema.pwd=welcome1
bim.db.mds.schema.user=EX11111_MDS
bim.db.mds.schema.pwd=welcome1

#####
# [BI specific properties]
#bim.bi.domain.host=
```

```

#bim.bi.domain.admin.user=
#bim.bi.domain.admin.pwd=
#bim.bi.wls.admin.port=
#bim.bi.wls.managed.port=

#####
bim.bi.domain.host=host-name
bim.bi.domain.admin.user=biadmin
bim.bi.domain.admin.pwd=welcome1
bim.bi.wls.admin.port=7001
bim.bi.wls.managed.port=9704

#####
# [etc properties]
#bim.install.log.dir=The location of log files being generated during
installation.

#####
bim.install.log.dir=/home/oracle/EXALYTICS_INSTALL_LOG

```

2.2.6 Step 6: Preparing to Run the Installation Scripts

To prepare to run the installation scripts:

1. Download the Apache Ant software, which the installation scripts require. You can download Release 1.8.2 of Ant using the ".zip" archive from the following location:

<http://ant.apache.org>

2. Install the Apache Ant software by simply unzipping the files to a directory with a name such as /home/oracle/ANT/apache-ant-1.8.2.
3. Configure the ANT_HOME and PATH environment variables for the shell that is used to call the Oracle Exalytics installation scripts, as shown in the following sample commands. Start a shell (such as csh), set the appropriate environment variables, and remain in that same shell session to enter all the other commands that are related to the installation process.

```

setenv ANT_HOME /home/oracle/ANT/apache-ant-1.8.2
setenv PATH $ANT_HOME/bin:$PATH

```

4. Download the Java Developer's Kit (JDK), which the installation scripts require. You can download JDK 6 Update 29 for Linux 64-bit from the following location:

<http://www.oracle.com/technetwork/java/javase/downloads/index.html>

5. Copy the JDK distribution installer to a directory with a name such as:

/home/oracle/JDK

Install the JDK by entering a command such as the following:

```
./jdk-6u29-linux-x64.bin
```

This command creates a directory with a name such as the following:

/home/oracle/jdk1.6.0_29

6. In the same shell session in which you created the environment variables for Apache Ant, configure the JAVA_HOME and PATH variables for the JDK, as shown in the following example:

```
setenv JAVA_HOME /home/oracle/JDK/jdk1.6.0_29
setenv PATH $JAVA_HOME/bin:$PATH
```

7. The Oracle inventory directory is used by the installation program to keep track of all Oracle products installed on the computers running. The inventory directory is stored in a file called oraInst.loc (on UNIX and Linux). Create the inventory for the Oracle Universal Installer for Oracle Business Intelligence using the following steps. In these steps, the assumption is that the Oracle Inventory exists in the /home/oracle/oraInventory directory and that the group of the user installing the software and owning the location where the software is installed is named "oracle".

- a. Log in as the root user in the same shell session in which you created the environment variables.

- b. Enter the following commands:

```
cd /etc
touch oraInst.loc
```

- c. Using a text editor, add the following lines to the oraInst.loc file, if the group that you use is named "oracle":

```
inventory_loc=/home/oracle/oraInventory
inst_group=oracle
```

- d. Save the oraInst.loc file.

- e. Enter the following commands in the same shell session to have the "oracle" group become the owner of the oraInst.loc file:

```
chown oracle:oracle oraInst.loc
chmod 664 oraInst.loc
```

2.2.7 Step 7: Verifying the Checklist

Before running the scripts, ensure that you verify the items in the following checklist:

- You created the inventories in the /etc directory and the oraInventory directory in the /home/oracle directory (if the user name is named "oracle").
- You created the appropriate schemas with the Repository Creation Utility, and the database that contains them is available.
- You created the appropriate directory structures and downloaded and unzipped the appropriate files within those structures.
- You set the installer files (such as for Oracle WebLogic Server) to have the executable permissions where required. (This permission was not automatically applied when you copied the files into the directory structures.)
- You carefully edited the properties file for the script and ensured that it contains no errors.
- You installed the ANT and JDK components and properly set their environment variables.

2.2.8 Step 8: Running the Scripts

To run the scripts:

1. Log in to the Exalytics Machine as the user that you created in [Section 2.2.1, "Step 1: Creating the User on the Operating System."](#)

2. Change to the directory that contains the Oracle Exalytics software, such as the following one:

```
/home/oracle/EXALYTICS_INSTALLERS/bi/bishiphome/Disk1/bimachine
```

3. Using the same shell session that you used in [Section 2.2.6, "Step 6: Preparing to Run the Installation Scripts,"](#) run the main installation script, which is named `setup.sh`, using a command such as the following one:

```
./setup.sh /home/oracle/EXALYTICS_INSTALLERS/bi/bishiphome/Disk1/bimachine/scripts/bim-setup.properties
```

You can store the properties file in any directory when you update it as specified in [Section 2.2.5, "Step 5: Editing the Properties File"](#) and specify the full path name when you run the installation script.

Note: The installation scripts provide no interactive feedback or output, other than what they write to the log files. To determine when the scripts have completed, watch for the cursor to display in the shell in which you ran the scripts.

The installer scripts for Oracle Exalytics perform the following tasks:

- Install Oracle WebLogic Server.
- Perform a Software-Only Installation of Oracle Business Intelligence.
For information, see "Software Only Install" in *Oracle Fusion Middleware Installation Guide for Oracle Business Intelligence*.
- Create the BI Domain.
- Enable the HardwareAcceleration MBean attribute.
If you must modify the attribute, then you can update it as described in [Section 2.3.4, "Manually Setting the HardwareAcceleration MBean Attribute."](#)
- Install TimesTen.
- Make configuration changes in the `opmn.xml` file to point to the TimesTen libraries.
- Configure the `sys.odbc.ini` file for TimesTen and the `odbc.ini` file for Oracle Business Intelligence with DSN details for TimesTen.

2.2.9 Step 9: Verifying the Installation

To verify that the installation is successful, you open a Web browser and attempt to display the following URLs. If you can display and interact with the pages at the following URLs, then the installation succeeded.

- Oracle BI Enterprise Edition:
`http://server-name:9704/analytics`
- Oracle WebLogic Server Console:
`http://server-name:7001/console`
- Fusion Middleware Control:
`http://server-name:7001/em`

2.3 Troubleshooting the Installation and Configuration Processes

This section provides the following information on troubleshooting:

- [Section 2.3.1, "Resolving Issues with the Installation"](#)
- [Section 2.3.2, "Viewing Log Files"](#)
- [Section 2.3.3, "Reinstalling Software on the Exalytics Machine"](#)
- [Section 2.3.4, "Manually Setting the HardwareAcceleration MBean Attribute"](#)
- [Section 2.3.5, "For More Information"](#)

2.3.1 Resolving Issues with the Installation

If you have any issues installing software on the Exalytics Machine, check the following items:

- Ensure that the database in which you ran the Repository Creation Utility to create the schemas is running.
- Check the contents of the bim-setup.properties file to ensure that all entries are accurate with no misspellings.
- If the installation scripts fail, then perform the following steps:
 1. Deinstall the TimesTen software.
 2. Delete the Middleware Home for Oracle Business Intelligence.
 3. Verify the contents of the bim-setup.properties file, as described in [Section 2.2.5, "Step 5: Editing the Properties File."](#)

During the installation process, certain properties in the bim-setup.properties file (such as those related to passwords) are removed for security reasons. Before attempting to run the installation scripts again, ensure that you edit the file appropriately.

4. Restart the installation process.

2.3.2 Viewing Log Files

After installing the software, you can check the log files for Oracle WebLogic Server, Oracle Business Intelligence, and TimesTen in the /home/oracle/EXALYTICS_INSTALL_LOG and /home/oracle/oraInventory/logs directories. The files have names such as tt_install.log for TimesTen.

Consult the bim-setup.log file in the log directory to see the sequence of steps for the task flows that the installation scripts execute. The detailed log files for Oracle Business Intelligence configuration are stored in the oraInventory location that is specified in the oraInst.loc file.

If you encounter errors during installation and run the scripts multiple times, then you might want to save copies of the log files so that they are not overwritten during each installation attempt. The log files to save are wls_install.log, tt_install.log, and bim-setup.log. You can use one of the following means to save the files:

- Specify a unique directory for the log files using the bim-setup.properties file before you run the installation scripts.
- Store the log files in a compressed file, such as ZIP.
- Create a separate directory or save copies of the log files.

The log files that Oracle Universal Installer creates have unique names that include time stamps, so these files are not overwritten with each installation attempt,

2.3.3 Reinstalling Software on the Exalytics Machine

You might want to reinstall the software. The installer does not allow reinstallation of Oracle Business Intelligence in a directory that contains another Oracle Business Intelligence installation on an Exalytics Machine.

To reinstall Oracle Business Intelligence in the same directory as before:

1. Deinstall the software as described in [Chapter 4, "Deinstalling Software on the Exalytics Machine."](#)
2. Reboot the computer to ensure that if any processes are running, they are stopped.
3. If you used the Repository Creation Utility to create the BISHIPHOME and MDS schemas, then either drop the schemas or use a new prefix to create new schemas.
4. Delete the /etc/TimesTen/* files.
5. Return to this chapter and follow the installation instructions again.

2.3.4 Manually Setting the HardwareAcceleration MBean Attribute

The HardwareAcceleration MBean attribute specifies whether you are using the Exalytics Machine, as described in the following procedure. This MBean attribute is turned on automatically when you run the script to install Oracle Business Intelligence on the Exalytics Machine. The MBean attribute sets the ORACLEHARDWAREACCELERATION parameter in the NQSCConfig.ini file and the OracleHardwareAcceleration element in the instanceconfig.ini file.

To specify the use of the Exalytics Machine using the System MBean Browser:

1. In Fusion Middleware Control, in the Navigator window, expand the WebLogic Domain folder and the bifoundation_domain node.
2. Right-click the **AdminServer** node and select **System MBean Browser**.
3. Expand Application Defined MBeans, then expand oracle.biee.admin, then expand Domain: bifoundation_domain.
4. Lock the domain, as follows:
 - a. Expand BIDomain and select the BIDomain MBean where group=Service.
 - b. Display the Operations tab.
 - c. Click the **lock** link.
5. Display the Attributes tab for the same MBean.
6. Ensure that the HardwareAcceleration attribute is set to **true**.
7. After applying your changes, release the lock on the domain by displaying the Operations tab and clicking one of the commit operations.
8. Restart Oracle Business Intelligence.

2.3.5 For More Information

For additional information, see the following:

- [Section 7.4, "Troubleshooting the Highly Available Deployment."](#)

- Section 4.7, "Troubleshooting the Installation and Configuration Processes of *Oracle Fusion Middleware Installation Guide for Oracle Business Intelligence*

Postinstallation Tasks

This chapter describes tasks to perform after installing software on the Exalytics Machine. The postinstallation tasks vary depending on whether you are deploying on multiple computers, as described in [Chapter 7, "Deploying Oracle Exalytics for High Availability."](#) The tasks include updating files and configuring an ODBC connection.

For a single-node installation, the semi-automated installation scripts perform many of the configuration tasks. For a multiple node system, you must perform the configuration tasks manually. The sections of this chapter indicate on which computers to perform the tasks.

The chapter includes the following topics:

- [Section 3.1, "Installing and Uninstalling Oracle Business Intelligence Client Tools"](#)
- [Section 3.2, "Creating the boot.properties File"](#)
- [Section 3.3, "Starting and Stopping Components on the Exalytics Machine"](#)
- [Section 3.4, "Running the Daemon Configuration Scripts for TimesTen"](#)
- [Section 3.5, "Configuring Memory Settings on the Server"](#)
- [Section 3.6, "Instantiating the TimesTen In-Memory Database"](#)
- [Section 3.7, "Configuring the ODBC Connection from Oracle Business Intelligence to TimesTen"](#)
- [Section 3.8, "Mapping TimesTen Instances into the Physical Layer of the Oracle BI Repository"](#)
- [Section 3.9, "Installing and Configuring BI Composer for Oracle BI EE"](#)
- [Section 3.10, "Creating a DSN for IBM DB2 or Microsoft SQL Server"](#)
- [Section 3.11, "Configuring IBM DB2 to Support Multibyte Data"](#)
- [Section 3.12, "Configuring Sample Reports for Oracle BI Publisher"](#)
- [Section 3.13, "Changing the Default Password for SampleAppLite.rpd"](#)

3.1 Installing and Uninstalling Oracle Business Intelligence Client Tools

Perform this task one time regardless of the number of computers in the cluster.

You must install the Oracle Business Intelligence Administration Tool, Oracle Business Intelligence Job Manager, and Oracle Business Intelligence Catalog Manager on a Windows computer. See "Installing and Uninstalling Oracle Business Intelligence Client Tools" in *Oracle Fusion Middleware Installation Guide for Oracle Business Intelligence*.

3.2 Creating the boot.properties File

Perform this task on each computer in the cluster.

For information on creating the boot.properties file, see "Creating boot.properties for the Administration Server on APPHOST1" in *Oracle Fusion Middleware Enterprise Deployment Guide for Oracle Business Intelligence*.

3.3 Starting and Stopping Components on the Exalytics Machine

Perform this task on each computer in the cluster.

After making configuration changes, you stop and start components to enable those changes to take effect.

To stop components on the Exalytics Machine:

1. Log into Fusion Middleware Control and stop all Oracle Business Intelligence system components.
2. Stop Node Manager. Use the `ps` command to find the process identifier, then use the `kill` command to stop Node Manager.
3. Stop OPMN by entering the following commands:

```
cd /home/oracle/EXALYTICS_MWHOME/instances/instance1/bin
./opmn stopall
```
4. Stop the TimesTen Server. See "Running the TimesTen Server" in *Oracle TimesTen In-Memory Database Operations Guide*.

To start components on the Exalytics Machine:

1. Change to the following directory:

```
/EXALYTICS_MWHOME/user_projects/domains/bifoundation_domain
```
2. Enter the command to start Oracle WebLogic Server:

```
nohup ./startWebLogic.sh &
```
3. Use the command line to start Node Manager and OPMN if they are not started.
4. Log into the Oracle WebLogic Server console and start the managed servers.
5. Log into Fusion Middleware Control and verify whether the Oracle Business Intelligence system components are running. If they are not running, then start them.
6. Start the TimesTen Server. See "Running the TimesTen Server" in *Oracle TimesTen In-Memory Database Operations Guide*.

3.4 Running the Daemon Configuration Scripts for TimesTen

Perform this task on each computer in the cluster.

Run the TimesTen daemon configuration scripts as root, using the following command:

```
/home/oracle/TimesTen/tt1122/bin/setuproot.sh -install
```

3.5 Configuring Memory Settings on the Server

Perform this task on each computer in the cluster.

See "Large Pages" in *Oracle TimesTen In-Memory Database Installation Guide* for information on defining the TimesTen In-Memory Database in the DSN and on editing the `limits.conf` file for kernel parameters and semaphores.

3.6 Instantiating the TimesTen In-Memory Database

Perform this task on each computer in the cluster. For the first computer, the installation scripts update the `sys.odbci.ini` file, then you perform the rest of the task manually.

The TimesTen In-Memory Databases are defined using a DSN that is contained in the `sys.odbci.ini` file in the following directory:

```
/home/oracle/TimesTen/tt1122/info
```

The semi-automated installation scripts automatically update the `sys.odbci.ini` file for TimesTen with a default configuration for the in-memory aggregate store for Oracle Exalytics, as shown in the following excerpts from a sample file on an Exalytics Machine:

```
[ODBC Data Sources]
TT_AGGR_STORE=TimesTen 11.2.2 Driver

[TT_AGGR_STORE]
Driver=/home/oracle/TimesTen/tt1122/lib/libtten.so
DataStore=/home/oracle/aggregate_store/tt_aggr_store
LogDir=/home/oracle/aggregate_store/logs
DatabaseCharacterSet=AL32UTF8
ConnectionCharacterSet=AL32UTF8
LogFileSize=1024
LogBufMB=1024
LogBufParallelism=12
Preallocate=0
PermSize=25000
TempSize=25000
MemoryLock=4
CkptFrequency=30
CkptLogVolume=0
CkptRate=20
PrivateCommands=1
RangeIndexType=1
Connections=1024
RecoveryThreads=40
```

This DSN supports a TimesTen In-Memory Database of 25GB with overall memory consumption of approximately 50GB. To support larger in-memory data stores, increase the settings of the `PermSize` and `TempSize` parameters. To support this DSN definition, the semi-automated installation process creates the following directories on the Exalytics Machine:

```
/home/oracle/aggregate_store
/home/oracle/aggregate_store/logs
/home/oracle/aggregate_store/tt_aggr_store
```

On computers other than the first one in the cluster, manually edit the `sys.odbci.ini` file for TimesTen to add the DSN definition. Before instantiating this DSN, remove the comment character (`#`) that the semi-automated scripts included for the lines that define the `DataStore` and `LogDir` parameters in the `sys.odbci.ini` file.

The TimesTen In-Memory Database is instantiated when the first connection is made to the database. Navigate to the bin directory, run the `ttIsql` utility, and create a user (with a name such as "exalytics" and password such as "welcome1") as shown in the following sample commands:

```
cd /home/oracle/TimesTen/tt1122/bin
./ttIsql
connect dsn=TT_AGGR_STORE;
create user exalytics identified by welcome1;
grant create session to exalytics;
grant create table to exalytics;
grant select on SYS.OBJ$ to exalytics;
```

Use the following sample commands to test the connection to the TimesTen In-Memory Database. There are no tables of data yet configured to return.

```
connect "DSN=TT_AGGR_STORE;uid=exalytics";
tables;
exit
```

You can use a tool such as SQL Developer on the client computer, if the Windows TimesTen client drivers that are installed can make a connection to the TimesTen instance that is used for aggregate storage. This tool can allow you to easily view the contents of the TimesTen database and to create a dummy table that facilitates the mapping of the TimesTen schema into the physical layer of the BI repository.

3.7 Configuring the ODBC Connection from Oracle Business Intelligence to TimesTen

Perform this task on each computer in the cluster. The semi-automatic installation scripts perform this task on the first computer.

The Client/Server DSN in TimesTen spans computer boundaries and the remote TimesTen server can be configured as part of the DSN. You create the DSN for the two TimesTen instances by modifying the following file:

```
/EXALYTICS_
MWHOME/instances/instance1/bifoundation/OracleBIApplication/coreapplication
/setup/odbc.ini
```

On the second computer in a cluster, the directory name includes the string "instance2" for the second computer instead of "instance1".

The following provides sample modifications to the file:

```
[ODBC Data Sources]
AnalyticsWeb = Oracle BI Server
Cluster = Oracle BI Server
SSL_Sample = Oracle BI Server
TT_AGGR_STORE = TimesTen 11.2.2 Driver

[TT_AGGR_STORE]
Driver = /home/oracle/TimesTen/tt1122/lib/libttclient.so
TTC_SERVER_DSN = TT_AGGR_STORE
TTC_SERVER = <tt_hostname>
TTC_TIMEOUT = 0
```

Define the DNS Servers for TimesTen by modifying the following file:

```
TimesTen-root-dir/tt1122/info/sys.ttconnect.ini
```

The following provides sample modifications to the file:

```
[tt_hostname]
Description=TimesTen Server
Network_Address=example1.com
TCP_PORT=53397
```

In a multiple node cluster, you achieve high availability of in-memory aggregates by installing a TimesTen instance on each computer and ensuring that each instance is aware of the TimesTen instance on the other computer. You edit the `odbc.ini` file for Oracle Business Intelligence to contain references to both TimesTen instances. A two-node cluster might contain the following configuration details in the `odbc.ini` file on each computer:

```
[ODBC Data Sources]
AnalyticsWeb = Oracle BI Server
Cluster = Oracle BI Server
SSL_Sample = Oracle BI Server
TT_AGGR_STORE1 = TimesTen 11.2.2 Driver
TT_AGGR_STORE2 = TimesTen 11.2.2 Driver

[TT_AGGR_STORE1]
Driver = /home/oracle/TimesTen/tt1122/lib/libttclient.so
TTC_SERVER_DSN = TT_AGGR_STORE
TTC_SERVER = <tt_hostname1>
TTC_TIMEOUT = 0

[TT_AGGR_STORE2]
Driver = /home/oracle/TimesTen/tt1122/lib/libttclient.so
TTC_SERVER_DSN = TT_AGGR_STORE
TTC_SERVER = <tt_hostname2>
TTC_TIMEOUT = 0
```

With this configuration, edit the `sys.ttconnect.ini` in the `/home/oracle/TimesTen/tt1122/info` directory to correspond to the `odbc.ini` file as shown in the following example:

```
[tt_hostname1]
Description=TimesTen Server
Network_Address=<fully qualified hostname>
TCP_PORT=53397

[tt_hostname2]
Description=TimesTen Server
Network_Address=<fully qualified hostname>
TCP_PORT=53397
```

3.8 Mapping TimesTen Instances into the Physical Layer of the Oracle BI Repository

You must map all TimesTen instances into the Physical layer of the Oracle BI repository. To do this, manually create the necessary database, connection pool, and physical schema objects using the Administration Tool. Then, upload the changed repository using the Repository tab of the Deployment page in Fusion Middleware Control.

When mapping a TimesTen source into the Physical layer of the Oracle BI repository, ensure that the database type and version are set correctly in the **Database** field of the General tab of the Database dialog. You must also ensure that the **Call interface** field

in the General tab of the Connection Pool dialog is set correctly. For example, for TimesTen version 11.2.2., use the ODBC 3.5 call interface.

For more information, see the following:

- "Setting Up Database Objects and Connection Pools" in *Oracle Fusion Middleware Metadata Repository Builder's Guide for Oracle Business Intelligence Enterprise Edition*
- "Configuring Repositories" in *Oracle Fusion Middleware System Administrator's Guide for Oracle Business Intelligence Enterprise Edition*

3.9 Installing and Configuring BI Composer for Oracle BI EE

Perform this task on each computer in the cluster.

See "Installing and Configuring BI Composer for Oracle BI EE" in *Oracle Fusion Middleware Installation Guide for Oracle Business Intelligence*.

3.10 Creating a DSN for IBM DB2 or Microsoft SQL Server

Perform this task one time regardless of the number of computers in the cluster if you use IBM DB2 or Microsoft SQL Server.

See "Creating a DSN for IBM DB2 or Microsoft SQL Server" in *Oracle Fusion Middleware Installation Guide for Oracle Business Intelligence*.

3.11 Configuring IBM DB2 to Support Multibyte Data

Perform this task one time regardless of the number of computers in the cluster if you use IBM DB2.

See "Configuring IBM DB2 to Support Multibyte Data" in *Oracle Fusion Middleware Installation Guide for Oracle Business Intelligence*.

3.12 Configuring Sample Reports for Oracle BI Publisher

Perform this task on each computer in the cluster.

See "Configuring Sample Reports for Oracle BI Publisher" in *Oracle Fusion Middleware Installation Guide for Oracle Business Intelligence*.

3.13 Changing the Default Password for SampleAppLite.rpd

Perform this task once for the domain.

When you install Oracle Business Intelligence, the Oracle Business Intelligence installer automatically installs the SampleAppLite.rpd file with a default repository password of Admin123. If you intend to use the SampleAppLite.rpd file in a production system, then Oracle recommends that you change the default password for security reasons. For complete information on changing the password, see "Changing the Repository Password" in *Oracle Fusion Middleware Metadata Repository Builder's Guide for Oracle Business Intelligence Enterprise Edition*.

You can download the Sample Application (full version) from the following location on OTN:

<http://www.oracle.com/technetwork/middleware/bi-foundation/obiee-samples-167534.html>

Deinstalling Software on the Exalytics Machine

This chapter provides high-level information on deinstalling software on the Exalytics Machine.

On the Exalytics Machine, you perform deinstallation both for TimesTen and Oracle Business Intelligence, as described in the following list:

- Deinstallation for TimesTen is described in "Uninstalling TimesTen on UNIX systems" in *Oracle TimesTen In-Memory Database Installation Guide*.
- Deinstallation for Oracle Business Intelligence is described in "Deinstalling Oracle Business Intelligence" in *Oracle Fusion Middleware Installation Guide for Oracle Business Intelligence*.

Part II

System Management

This part describes system management. It contains the following chapters:

- [Chapter 5, "System Management \(Configuration, Diagnostics, and Monitoring\)"](#)
- [Chapter 6, "Patching"](#)
- [Chapter 7, "Deploying Oracle Exalytics for High Availability"](#)
- [Chapter 8, "Backup and Recovery"](#)
- [Chapter 9, "Disaster Recovery"](#)

System Management (Configuration, Diagnostics, and Monitoring)

This chapter provides high-level information for managing the Exalytics Machine by performing system tasks such as configuration, diagnostics, and monitoring. See the remaining chapters of this part for details on other system management tasks for the Exalytics Machine, such as patching and backup and recovery.

The Exalytics Machine includes hardware and software for Oracle Business Intelligence and for TimesTen In-Memory Database. You manage these pieces as follows:

- Hardware — For information on managing the hardware, see *Oracle Enterprise Manager Ops Center User's Guide*.
- Oracle Business Intelligence — All the Oracle Business Intelligence components on the Exalytics Machine are managed through the same mechanisms as described in *Oracle Fusion Middleware System Administrator's Guide for Oracle Business Intelligence Enterprise Edition*. For example, you use Fusion Middleware Control for configuration, diagnostics, process control, and monitoring.
- TimesTen — For information on managing TimesTen, see the following guides:
 - *Oracle TimesTen In-Memory Database Operations Guide*
 - *Oracle Enterprise Manager System Monitoring Plug-in for Oracle TimesTen In-Memory Database Installation Guide* for Oracle Enterprise Manager Grid Control

This chapter describes how to apply patches to the files on the Exalytics Machine. The patches are delivered periodically as a combined patch that migrates the computer from a supported version stripe across firmware and software to another supported version stripe. The instructions for applying the patch are available with each patch release.

The chapter includes the following topics:

- [Section 6.1, "What Files Can Be Patched?"](#)
- [Section 6.2, "Related Documents on Patching"](#)

6.1 What Files Can Be Patched?

You can apply patches to the following components of the system:

- Firmware
- Operating System
- JRockit
- Oracle WebLogic Server
- Oracle BI EE
- TimesTen In-Memory Database

TimesTen is installed to local disks only. You must perform separate patching on each computer.

6.2 Related Documents on Patching

The following documents provide information on patching:

- "Patching Oracle Business Intelligence Systems" in *Oracle Fusion Middleware System Administrator's Guide for Oracle Business Intelligence Enterprise Edition*.
- *Oracle Fusion Middleware Patching Guide*
- "Moving to a new patch release of TimesTen" in *Oracle TimesTen In-Memory Database Installation Guide*.

Deploying Oracle Exalytics for High Availability

This chapter describes how to horizontally scale out the Exalytics Machine for scalability (high-availability) and performance (load balancing). [Chapter 2](#) describes using the installation scripts for a single computer. For multiple computers (such as a two-node cluster), you use the installation scripts for the first computer, then you install the software manually on other computers, without the use of scripts. After performing the steps in this chapter, see [Chapter 3, "Postinstallation Tasks."](#)

For additional details, see "Deploying Oracle Business Intelligence for High Availability" in *Oracle Fusion Middleware System Administrator's Guide for Oracle Business Intelligence Enterprise Edition*.

The chapter includes the following topics:

- [Section 7.1, "Requirements for High Availability"](#)
- [Section 7.2, "Diagram of High Availability"](#)
- [Section 7.3, "Configuring for High Availability"](#)
- [Section 7.4, "Troubleshooting the Highly Available Deployment"](#)

7.1 Requirements for High Availability

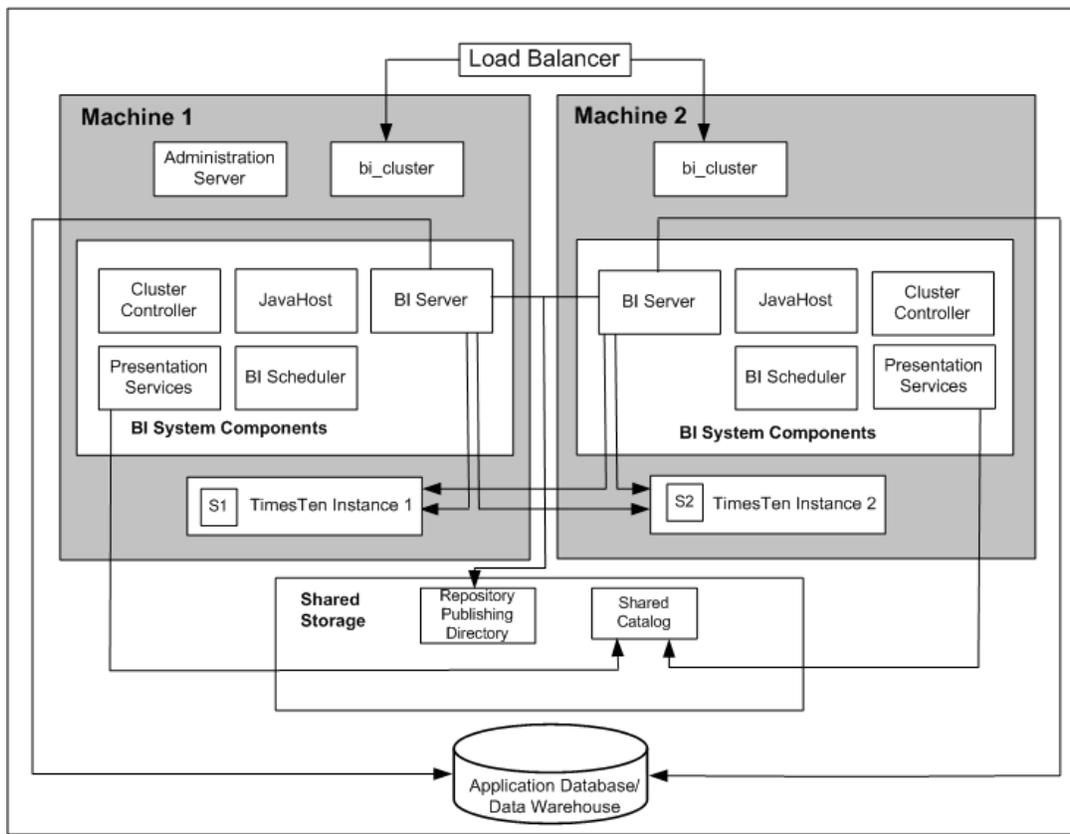
The following are required for a high availability configuration:

- Each computer has an independent TimesTen instance.
- Each computer has an `odbc.ini` file that contains a separate DSN for each TimesTen instance. Each TimesTen DSN uses the client/server mode of connection.
- A BI Server repository can point to one or more physical repositories, but one set of aggregates exists per physical data source. Each physical data source has its own connection pool.

7.2 Diagram of High Availability

[Figure 7-1](#) shows a diagram of high availability for the Exalytics Machine.

Figure 7-1 High-Availability for the Exalytics Machine



7.3 Configuring for High Availability

This section describes the steps for configuring a highly available deployment:

- [Section 7.3.1, "Step 1: Preparing the First Exalytics Machine"](#)
- [Section 7.3.2, "Step 2: Preparing the Second Exalytics Machine"](#)
- [Section 7.3.3, "Step 3: Installing Oracle WebLogic Server"](#)
- [Section 7.3.4, "Step 4: Installing Oracle Business Intelligence"](#)
- [Section 7.3.5, "Step 5: Scaling Out the Existing BI Domain from the First Exalytics Machine"](#)
- [Section 7.3.6, "Step 6: Installing and Configuring TimesTen"](#)
- [Section 7.3.7, "Step 7: Scaling Out System Components to the Second Exalytics Machine"](#)
- [Section 7.3.8, "Step 8: Configuring Shared Storage for Persistent Stores"](#)
- [Section 7.3.9, "Step 9: Configuring the Front-End Load Balancer"](#)

Tip: Because the installation process for the second node involves mostly manual steps using the Oracle Universal Installer, connect to the Exalytics Machine using a tool such as RealVNC remote control software.

7.3.1 Step 1: Preparing the First Exalytics Machine

Install Oracle Exalytics on the first Exalytics Machine using the instructions that are provided in [Part I, "Installation"](#) of this guide before installing on the second Exalytics Machine.

7.3.2 Step 2: Preparing the Second Exalytics Machine

To prepare the second Exalytics Machine:

1. Create the user, as described in [Section 2.2.1, "Step 1: Creating the User on the Operating System."](#)
2. Create the TimesTen inventory, as described in [Section 2.2.2, "Step 2: Creating the Inventory for TimesTen."](#)
3. Create the following directory structure:
 - The location of the Middleware home, which must be the same logical directory name as on the first Exalytics Machine:
`/home/oracle/EXALYTICS_MWHOME`
 - The target directory for the TimesTen installation:
`/home/oracle/TimesTen`
4. Download the files into the directory structure, as described in [Section 2.2.3, "Step 3: Downloading Oracle Files into the Directory Structure."](#) You do not have to download the files for the Repository Creation Utility.

7.3.3 Step 3: Installing Oracle WebLogic Server

Install Oracle WebLogic Server into the following directory, which becomes the Middleware home on the second Exalytics Machine:

```
/home/oracle/EXALYTICS_MWHOME
```

To install Oracle WebLogic Server on the second Exalytics Machine:

1. Run the following command:

```
>./ wls1036_linux64.bin
```
2. Select the custom option in the wizard and deselect **Coherence**, because the component does not need to be installed.

The wizard automatically selects JRockit as the JVM to use, so keep this option selected.
3. When the installation has completed, clear the option to run "quickstart" because this option is not required.

7.3.4 Step 4: Installing Oracle Business Intelligence

To perform a Software Only Install of Oracle Business Intelligence on the second Exalytics Machine:

1. Enter the following commands:

```
cd /home/oracle/EXALYTICS_INSTALLERS/bi/bishiphome/disk1
>./runInstaller
```

2. The first time that you install on the second Exalytics Machine, you are prompted to log in as "root" and to run a script to create the Oracle Inventory. Ensure that the location specified is /home/oracle/oraInventory.
3. Navigate through the pages of the wizard until you can select the option to perform a Software Only Install.
4. On the next page, ensure that the Oracle Middleware Home property is set to the directory where you installed Oracle WebLogic Server.
The Oracle Home directory can be the default of Oracle_BI1.
5. Navigate through the remaining pages of the wizard until the installation is complete.

7.3.5 Step 5: Scaling Out the Existing BI Domain from the First Exalytics Machine

To scale out the BI Domain from the first Exalytics Machine:

1. Enter the following commands:


```
cd /home/oracle/EXALYTICS_MWHOME/Oracle_BI1/bin
>./config.sh
```
2. Navigate through the pages of the wizard and select **Scale Out BI System**.
3. Enter details of the first Exalytics Machine and the directory locations for the installation are populated automatically.
4. Navigate through the remaining pages of the wizard until you can initiate the process by pressing **Configure**.

See "Using the Configuration Assistant to Scale Out the BI System" in *Oracle Fusion Middleware Enterprise Deployment Guide for Oracle Business Intelligence* for information on running the config.sh script.

7.3.6 Step 6: Installing and Configuring TimesTen

To install and configure TimesTen:

1. Enter the following commands:


```
cd /home/oracle/EXALYTICS_INSTALLERS/tt
>./setup.sh
instance name tt1122 [default chosen]
install client/server and data manager [default chosen]
specify particular location for install [3]
enter location [custom location chosen /home/oracle/TimesTen]
create daemon home - [default chosen]
daemon logs - [default chosen]
accept default port no - 53396
restrict access to TT to group oracle? - Yes
enable PL/SQL - yes [default chosen]
TNS_ADMIN - not chosen during install.
port for TT server - 53397
quickstart and doc - no [default chosen]
doc without quickstart - yes [default chosen] - location default
TT replication with clusterware - no - [default chosen]
```
2. Run the TimesTen daemon configuration scripts as root, as described in [Section 3.4, "Running the Daemon Configuration Scripts for TimesTen."](#)
3. On the first Exalytics Machine, configure the BI Server to communicate with either TimesTen instance by creating two DSNs for TimesTen, as described in [Section 3.7,](#)

"Configuring the ODBC Connection from Oracle Business Intelligence to TimesTen."

4. On the second Exalytics Machine, perform the same procedure as in the previous step to create DSNs for TimesTen to configure the connectivity from the second BI Server to either TimesTen instance.
5. Update the opmn.xml file on the second Exalytics Machine to point to the driver location for ODBC for TimesTen by editing the following "variable" elements. The edited text is shown in bold.

```
<variable id="LD_LIBRARY_PATH" value="$ORACLE_
HOME/common/ODBC/Merant/5.3/lib$:ORACLE_HOME/bifoundation/server/bin$:ORACLE_
HOME/bifoundation/web/bin$:ORACLE_
HOME/clients/epm/Essbase/EssbaseRTC/bin$:ORACLE_
HOME/bifoundation/odbc/lib$:ORACLE_INSTANCE$:ORACLE_
HOME/lib:/mydir/TimesTen/tt1122/lib" append="true"/>
<variable id="TIMESTEN_DLL" value="/mydir/TimesTen/tt1122/lib/libttclient.so"/>
```

The opmn.xml file is in the following directory:

\$ORACLE_BASE/bim_instance/BIInstance2/config/OPMN

6. Validate that you can use a TimesTen client/server DSN from the first Exalytics Machine by entering the following commands:

```
cd $ORACLE_INSTANCE/bifoundation/OracleBIApplication/coreapplication/setup/
. ./bi-init.sh (bash shell)
cd Times-Ten-root-dir/tt1122/bin
./ttisqlcs -connstr "uid=oracle;pwd=welcome1;dsn=bim_tt1";
```

These commands use the TimesTen SQL client to connect to the TimesTen server on the first Exalytics Machine and validate that the BI Server can communicate with TimesTen.

7. Repeat the previous step for the TimesTen client/server DSN from the second Exalytics Machine.

7.3.7 Step 7: Scaling Out System Components to the Second Exalytics Machine

To configure the communication between Oracle Business Intelligence and TimesTen, you must scale out using Fusion Middleware Control to deploy the required Oracle Business Intelligence system component servers onto the second Exalytics Machine. This scale-out results in entries in the opmn.xml file on the second Exalytics Machine that can then be edited as needed.

To scale out system components to the second Exalytics Machine:

1. Using Fusion Middleware Control, scale out the following system components as described in *Oracle Fusion Middleware System Administrator's Guide for Oracle Business Intelligence Enterprise Edition*:
 - The Oracle BI Server
 - Oracle BI Presentation Services
 - JavaHost

You should also scale out the following single components in the Oracle BI domain as a standby component: the Cluster Controller and the Oracle BI Scheduler.

7.3.8 Step 8: Configuring Shared Storage for Persistent Stores

As part of the process of configuring the Exalytics Machine, you must configure various persistent stores to be located on a shared directory location such as a NAS (network attached storage). The following list outlines those stores and includes link for information on configuring them:

- Repository for the Oracle BI Server. Specify a shared RPD publishing directory in Fusion Middleware Control to propagate online repository changes in a cluster. The master BI Server copies its local repository to this directory when online changes are made. When slave BI Servers start, if the version in the publishing directory is newer, then each slave server copies the version in the shared directory to its local disk.

For information, see "Using Fusion Middleware Control to Upload a Repository and Set the Oracle BI Presentation Catalog Location" in *Oracle Fusion Middleware System Administrator's Guide for Oracle Business Intelligence Enterprise Edition*.

- Oracle BI Presentation Catalog. Each Oracle BI Presentation Services instance loads the catalog from the catalog location that is specified in Fusion Middleware Control. Copy any existing catalogs to shared storage before reconfiguring this location to shared storage.

For information, see "Using Fusion Middleware Control to Upload a Repository and Set the Oracle BI Presentation Catalog Location" in *Oracle Fusion Middleware System Administrator's Guide for Oracle Business Intelligence Enterprise Edition*.

- Global cache. The global cache resides on a shared file system and stores purging events, seeding events (which are often generated by agents), and results sets that are associated with seeding events. Each BI Server maintains its own local query cache for regular queries. The query cache for the BI Server continues to be located on the local node.

For information, see "Using Fusion Middleware Control to Set Global Cache Parameters" in *Oracle Fusion Middleware System Administrator's Guide for Oracle Business Intelligence Enterprise Edition*.

7.3.9 Step 9: Configuring the Front-End Load Balancer

Configure a front-end load balancer, which is properly configured with the Oracle WebLogic Server Cluster Plug-in. For information, see "Configuring High Availability for Oracle Business Intelligence and EPM" in *Oracle Fusion Middleware High Availability Guide*.

7.4 Troubleshooting the Highly Available Deployment

This section contains solutions that are related to a highly available deployment:

- [Section 7.4.1, "Connection Issues with the Oracle BI Server and TimesTen"](#)
- [Section 7.4.2, "Client Installer Cannot Locate TimesTen Driver"](#)
- [Section 7.4.3, "Oracle BI Server Does Not Fail Over to the TimesTen Instance"](#)
- [Section 7.4.4, "Aggregates Are Not Present in Second Instance"](#)

7.4.1 Connection Issues with the Oracle BI Server and TimesTen

You might find that the BI Server cannot connect to TimesTen on either the first or the second node. To resolve this issue, check the following:

- Verify that the TimesTen DSNs are configured correctly in the `odbc.ini` and `opmn.xml` files, as described in the following list:
 - The `odbc.ini` file in the `$ORACLE_INSTANCE/bifoundation/OracleBIApplication/coreapplication/setup` directory has the proper DSNs defined to connect to both TimesTen instances, as described in [Section 3.7, "Configuring the ODBC Connection from Oracle Business Intelligence to TimesTen."](#)
 - The `opmn.xml` file in the `$ORACLE_INSTANCE/config/OPMN/opmn/` directory has the `LD_LIBRARY_PATH` variable set correctly to point to the TimesTen shared library folder. The `TIMESTEN_DLL` variable must also be defined correctly, as shown in the following example:


```
<variable id="TIMESTEN_DLL" value="ORACLE_
BASE/TimesTen/tt1122/lib/libttclient.so" />
```
- The BI Server must use the TimesTen ODBC driver Version 3.5 for connection. During deployment of a repository, ensure that you use TimesTen ODBC driver Version 3.5 for the database connection pool. Without the use of this driver version, the BI Server cannot connect to TimesTen.

7.4.2 Client Installer Cannot Locate TimesTen Driver

After you use the Client Installer to install the Oracle BI Administration Tool on a Windows computer, you might notice that the Administration Tool displays an error message such as the following:

```
Unable to load Times Ten Driver ttclient.dll.
```

This error message indicates that you cannot use the ODBC drivers in TimesTen to import metadata from a TimesTen physical table source. To resolve this issue, set the `TIMESTEN_DLL` environment variable to point explicitly to the TimesTen driver location, as shown in the following example:

```
set TIMESTEN_DLL=C:\TimesTen\tt1122_32\bin\ttclient1122.dll
```

7.4.3 Oracle BI Server Does Not Fail Over to the TimesTen Instance

If the BI Server does not fail over to the second TimesTen instance on the scaled-out node, then ensure that the logical table source (LTS) for the repository has mapped both TimesTen physical data sources. This mapping ensures that at the logical table source level, a mapping exists to both TimesTen instances. If one TimesTen instance is not available, then failover logic for the BI Server at the DSN level tries to connect to the other TimesTen instance.

7.4.4 Aggregates Are Not Present in Second Instance

You might notice that aggregates that were created on the first TimesTen instance are not available on the second TimesTen instance. Keep in mind that no automatic replication exists between the TimesTen instances in the scaled-out deployment. The two instances are distinct and run on different computers but have the same deployed data stores. If you create aggregates using SQL scripts from Oracle BI Summary Advisor or the Aggregate Persistence Wizard on one TimesTen instance, then you must manually create the same aggregates on the second TimesTen instance. You must ensure that you keep the two TimesTen instances synchronized. For information, see "Life Cycle Use Cases for Aggregate Persistence" in *Oracle Fusion Middleware Metadata Repository Builder's Guide for Oracle Business Intelligence Enterprise Edition*.

Backup and Recovery

This chapter provides high-level information to perform backup and recovery on the Exalytics Machine. Backup and recovery refers to the various strategies and procedures involved in guarding against hardware failures and data loss and in reconstructing data should loss occur.

On the Exalytics Machine, you perform backup and recovery both for Oracle Business Intelligence and TimesTen, as described in the following list:

- Backup and recovery for Oracle Business Intelligence is described in "Backup and Recovery Recommendations for Oracle Business Intelligence" in *Oracle Fusion Middleware Administrator's Guide*.
- Backup and recovery for TimesTen is described in "Backing up and restoring a database" in *Oracle TimesTen In-Memory Database Installation Guide*.

In addition, if data was updated since the last backup, then run the aggregate scripts again after recovering the data. For information, see "Using Oracle BI Summary Advisor to Identify Query Candidates for Aggregation" in *Oracle Fusion Middleware Metadata Repository Builder's Guide for Oracle Business Intelligence Enterprise Edition*.

Disaster Recovery

This chapter provides high-level information for configuring for disaster recovery on the Exalytics Machine.

You can find information about disaster recovery in the following sources:

- For Oracle Business Intelligence, see "Recommendations for Oracle Business Intelligence" in *Oracle Fusion Middleware Disaster Recovery Guide*.
- For TimesTen, you must carefully manage the way in which an Oracle BI repository and aggregates are replicated from the main site to the disaster recovery site. You must exactly mirror on the disaster recovery site system the sequence of operations that you apply on the production system for the repository and aggregates, in particular:
 - When a new repository is uploaded to the production system, then the same repository must be uploaded on the disaster recovery site system.
 - When aggregate scripts are run against the production repository and TimesTen instances, then the same aggregate scripts must be run against the disaster recovery site system.

For information, see "Using Oracle BI Summary Advisor to Identify Query Candidates for Aggregation" in *Oracle Fusion Middleware Metadata Repository Builder's Guide for Oracle Business Intelligence Enterprise Edition*.

