

Oracle® Fusion Middleware

Installation and Administration Guide for Oracle Exalytics
In-Memory Machine

Exalytics X2-4 Release 1 (1.0)

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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, Exalytics X2-4 Release 1 (1.0)

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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.

This guide applies to:

- Oracle Exalytics X2-4 Release 1 (1.0.0.0), also known as Release 11.1.1.6.0
- Oracle Exalytics X2-4 Release 1 Patchset 1 (1.0.0.1)
- Oracle Exalytics X2-4 Release 1 Patchset 2 (1.0.0.2)

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

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Related Documentation and Other Resources

See the Oracle Business Intelligence documentation library for a list of related Oracle Business Intelligence documents.

In addition, go to the Oracle Learning Library for Oracle Business Intelligence-related online training resources.

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

This preface describes the new features and certifications for the components of the Oracle Exalytics In-Memory Machine.

This preface includes the following topics:

- [New Features in Oracle Exalytics Release 1 Patchset 2 \(1.0.0.2\)](#)
- [New Features in Oracle Exalytics Release 1 Patchset 1 \(1.0.0.1\)](#)
- [Oracle Exalytics Release 1](#)

New Features in Oracle Exalytics Release 1 Patchset 2 (1.0.0.2)

This section includes the following topics:

- [Oracle Exalytics Release 1 Patchset 2 Installed on Oracle Exalytics Release 1 Patchset 1](#)
- [Oracle Exalytics Release 1 Patchset 2 Installed on Oracle Exalytics Release 1](#)

Oracle Exalytics Release 1 Patchset 2 Installed on Oracle Exalytics Release 1 Patchset 1

Oracle Exalytics Release 1 Patchset 2 contains no new features, but does include a number of bug fixes for the components that comprise Oracle Exalytics. These bug fixes are described in the component-specific ReadMe files.

Oracle Exalytics Release 1 Patchset 2 Installed on Oracle Exalytics Release 1

If you are installing Oracle Exalytics Release 1 Patchset 2 on Oracle Exalytics Release 1, note that Oracle Exalytics Release 1 Patchset 2 includes the new features in Oracle Exalytics Release 1 Patchset 1. For detailed information about the new features and additional certifications in Oracle Exalytics Release 1 Patchset 1, see [Section 7.2.3, "New Features in the Oracle Exalytics Release 1 Patchset 1."](#)

New Features in Oracle Exalytics Release 1 Patchset 1 (1.0.0.1)

New features in Oracle Exalytics Release 1 Patchset 1 (1.0.0.1) include the following:

- New features and additional certifications for the following components:
 - Oracle Business Intelligence Enterprise Edition
 - Oracle TimesTen In-Memory Database
 - Oracle Essbase

- Oracle Enterprise Performance Management System
- Oracle Endeca
- Storage Area Network
- Auto Service Request Software
- Oracle Data Integrator
- Oracle GoldenGate for Oracle TimesTen

For detailed information about the new features and additional certifications, see [Chapter 7.2.3, "New Features in the Oracle Exalytics Release 1 Patchset 1."](#)

- Information about configuring an Exalytics Machine for virtualization was added to *Oracle Fusion Middleware Installation and Administration Guide for Oracle Exalytics In-Memory Machine* (E24076-06).

For detailed information about configuring an Exalytics Machine for virtualization, see [Chapter 2, "Configuring Exalytics Machines for Virtualization."](#)

Oracle Exalytics Release 1

The Oracle Exalytics In-Memory Machine is released, along with this guide.

Part I

Installation

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

- [Chapter 1, "Installation Overview"](#)
- [Chapter 2, "Configuring Exalytics Machines for Virtualization"](#)
- [Chapter 3, "Installing Software on the Exalytics Machine"](#)
- [Chapter 4, "Postinstallation Tasks"](#)
- [Chapter 5, "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.

If you plan to configure the Exalytics Machine for virtualization, see [Chapter 2, "Configuring Exalytics Machines for Virtualization."](#)

If you plan to install the software on an Exalytics Machine, see [Chapter 3, "Installing Software on the Exalytics Machine."](#)

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 sections:

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

1.1 Installable Components

Oracle Exalytics comprises a number of core and optional components that are installed to work together in an optimized manner.

This section includes the following topics:

- [Section 1.1.1, "Core Components"](#)
- [Section 1.1.2, "Optional Components"](#)

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*.

1.1.1 Core Components

The core components include the following:

- Oracle Business Intelligence Enterprise Edition
For more information, see "Installable Products" in *Oracle Fusion Middleware Installation Guide for Oracle Business Intelligence*.
- (If present) Oracle Essbase, installed using the Oracle Hyperion Enterprise Performance Management System Installer
- Oracle TimesTen In-Memory Database
- Oracle Exalytics Base Image
Oracle Exalytics-specific version of Oracle Enterprise Linux pre-installed on the Exalytics Machine.
- Oracle Exalytics Configuration Utility

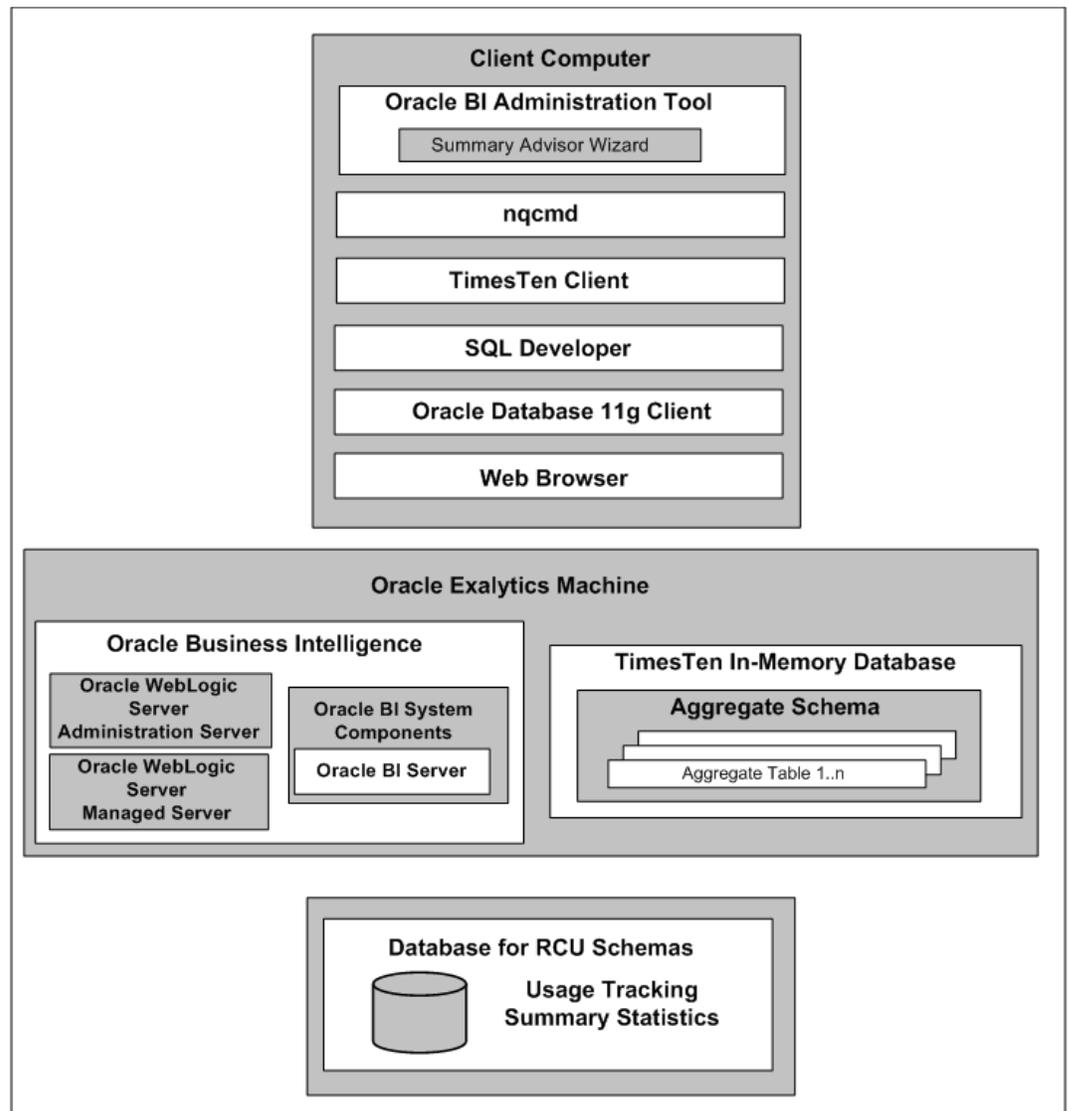
1.1.2 Optional Components

The optional components include other software (for example, Oracle Endeca) that can be installed on the Exalytics Machine, as detailed in the *Oracle Exalytics Certification Matrix*.

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 Oracle 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>

Configuring Exalytics Machines for Virtualization

This chapter describes the tasks to perform when configuring an Exalytics Machine for virtualization. The tasks include deploying Oracle Virtual Machine Server (Oracle VM Server) on the Exalytics Machine, configuring Oracle VM Server with Oracle Virtual Machine Manager (Oracle VM Manager), and deploying VM templates.

This chapter includes the following sections:

- [Section 2.1, "Before You Virtualize an Exalytics Machine"](#)
- [Section 2.2, "Configuring an Exalytics Machine for Virtualization"](#)
- [Section 2.3, "Installing and Configuring Exalytics Software on Virtual Machines"](#)

2.1 Before You Virtualize an Exalytics Machine

Before you virtualize an Exalytics Machine, review the following sections:

- [Section 2.1.1, "Documents to Review"](#)
- [Section 2.1.2, "Prerequisites for Configuring Exalytics Machines for Virtualization"](#)
- [Section 2.1.3, "Reconfiguring Existing RAID Configurations on the Exalytics Machine"](#)

2.1.1 Documents to Review

As you prepare to virtualize an Exalytics Machine, do the following:

- Review the *Oracle VM Release Notes*, to ensure that you understand the differences between Oracle Virtual Machine and its documented functionality, and any other issues that apply to the current release.
- Review *Oracle VM Installation and Upgrade Guide for Release 3.0.3* and *Oracle VM User's Guide for Release 3.0.3* to ensure that you understand how to install and configure Oracle Virtual Machine Server, set up networking, and create virtual machines.
- Review *Oracle Exalytics In-Memory Machine Owner's Guide* to ensure that you have properly configured and commissioned the Exalytics Machine in your data center.

2.1.2 Prerequisites for Configuring Exalytics Machines for Virtualization

The following prerequisites must be met before you can virtualize an Exalytics Machine:

- The new Exalytics Machine has been racked and mounted in a data center.
- Oracle Integrated Lights Out Manager (ILOM), is configured to be accessible from the network using the web interface.
- All networking information such as host name, IP address, subnet, gateway, and DNS are available.
- Spare, unassigned IP addresses are available for the server pool and for each virtual machine deployed on the Exalytics Machine.
- A Linux environment is available to install Oracle VM Manager.
- A database server is available to install Oracle VM Manager schemas.
- You have access to the internet from a computer (not necessarily the Exalytics Machine) to download required software.

For information about hardware and software specifications, see *Oracle VM Installation and Upgrade Guide for Release 3.0.3*.

2.1.3 Reconfiguring Existing RAID Configurations on the Exalytics Machine

The Exalytics Machine comprises six hard disks, each having a capacity of 600GB. Two disks are configured as RAID1 and four disks are configured as RAID5. To optimize the use of the disk space, you must reconfigure the RAID1 and RAID5 configurations on the Exalytics Machine. Reconfigure RAID1 so that it consists of two virtual drives of 100GB and 457GB, and RAID5 consists of the remaining drives.

To reconfigure existing RAID configurations on the Exalytics Machine:

1. Restart the Exalytics Machine.
2. Press **Ctrl+Y** and enter RAID CLI (Command Line Interface) as the Exalytics Machine is restarting.

Note: The "Copyright LSI Logic Corporation" displays during the restart sequence when it is possible to enter the RAID CLI. Observe the screen carefully as the message displays for a very short time. This avoids restarting the machine again.

3. Enter the following MegaRAID command to delete the existing RAID configuration:


```
# -CfgLdDel -LALL -a0
```
4. Enter the following command to create a RAID1 partition with two virtual disks of size 100GB and 457GB:


```
# -CfgLdAdd -r1[252:0, 252:1] WB Direct NoCachedBadBBU -sz102400 -sz467968 -a0
```
5. Enter the following command to create a RAID5 partition with the remaining disks:


```
# -CfgLdAdd -r5[252:2, 252:3, 252:4, 252:5] WB Direct NoCachedBadBBU -a0
```
6. Perform an action to restart the Exalytics Machine:
 - In ILOM 3.0.14.20, select **ILOM**, then **Remote Control**, then **Remote Power Control**, and then **Power Cycle**.

- In ILOM 3.1.2.24, select **ILOM**, then **Host Management**, and then **Power Cycle**.

The Exalytics Machine restarts.

2.2 Configuring an Exalytics Machine for Virtualization

This section includes the following topics:

- [Section 2.2.1, "Installing and Configuring Oracle VM Server"](#)
- [Section 2.2.2, "Installing and Configuring Oracle VM Manager"](#)

2.2.1 Installing and Configuring Oracle VM Server

This section includes the following topics:

- [Section 2.2.1.1, "Installing Oracle VM Server"](#)
- [Section 2.2.1.2, "Configuring the Network on Oracle VM Server"](#)
- [Section 2.2.1.3, "Pinning Dom0 CPU"](#)

2.2.1.1 Installing Oracle VM Server

Oracle VM Server is a managed virtualization environment providing a secure, server-based platform for running virtual machines. Before you can create a virtual machine you must first install Oracle VM Server on the Exalytics Machine.

To install Oracle VM Server:

1. Navigate to the Oracle Software Delivery Cloud web site at the following link:
<http://edelivery.oracle.com>
2. Download the Oracle Exalytics Base Image 2.0.1.1.0 for Exalytics Oracle VM x86-64 to a local directory.
3. On the Exalytics Machine, connect and log on to Oracle Integrated Lights Out Manager (ILOM).
4. Perform an action:
 - In ILOM 3.0.14.20, select **Remote Control**, then **Redirection**, then **Launch Redirection**, and then **Launch Remote Control**.
 - In ILOM 3.1.2.24, select **Remote Control**, then **Redirection**, then **Storage Redirection**, and then **Launch Service**.

The ILOM remote console is displayed.
5. From the menu bar, select **Devices** and then **CD-ROM Image** to link the Oracle VM Server image as a remote virtual CD-ROM in ILOM.
6. Perform an action to restart the machine:
 - In ILOM 3.0.14.20, select **ILOM**, then **Remote Control**, then **Remote Power Control**, and then **Power Cycle**.
 - In ILOM 3.1.2.24, select **ILOM**, then **Host Management**, and then **Power Cycle**.
7. Perform an action:
 - In ILOM 3.0.14.20, select **Remote Control**, then **Host Control**, and then **Next Boot Device**.

- In ILOM 3.1.2.24, select **Host Management**, then **Host Control**, and then **Next Boot Device**.

The setting for the Next Boot Device is displayed.

8. Perform the following steps to move CD-ROM to the top of the BOOT menu:
 - a. In the Next Boot Device list, select **CD-ROM**.
 - b. Click **Save**.
9. Perform an action:
 - In ILOM 3.0.14.20, select **ILOM**, then **Remote Control**, then **Remote Power Control**, and then **Power Cycle**.
 - In ILOM 3.1.2.24, select **ILOM**, then **Host Management**, and then **Power Cycle**.

The Exalytics Machine restarts and displays the Oracle VM Server screen.

10. Press **Enter** to install Oracle VM Server.

The Oracle VM Server is installed on the Exalytics Machine. After Oracle VM Server is installed, the Exalytics Machine restarts automatically.

11. From the menu bar, select **Devices**, and then deselect **CD-ROM Image**.

12. From the menu bar, select **Devices**, and then **Save as host defaults**.

13. Perform an action:

- In ILOM 3.0.14.20, select **ILOM**, then **Remote Control**, then **Remote Power Control**, and then **Power Cycle**.
- In ILOM 3.1.2.24, select **ILOM**, then **Host Management**, and then **Power Cycle**.

The Exalytics Machine is ready for configuration.

14. Log on to Oracle VM Server, and enter the following command to inspect the RAID configuration:

```
/opt/MegaRAID/MegaCli/MegaCli64 -LDinfo -LALL -aALL
```

2.2.1.2 Configuring the Network on Oracle VM Server

Before configuring the network, ensure that the Exalytics network configuration is complete.

Note: Because you can use Exalogic scripts, you are prompted to enter details of the Exalogic machine after you restart the Exalytics Machine.

To configure the network on Oracle VM Server:

After the Exalytics Machine restarts, perform the following actions:

1. Enter "I" to access the interactive mode.
2. At the prompt, enter the following information:
 - a. Enter 3 for Full Rack and confirm your entry.
 - b. Enter 1 for Node Index.

- c. Enter an IP address for the Infiniband interface. If the Infiniband is not configured, enter a network configuration that does not conflict with existing networks. For example, enter 192.168.21.112.
- d. Enter a netmask address for the Infiniband interface. If the Infiniband is not configured, enter a network configuration that does not conflict with existing networks. For example, enter 255.255.255.0.
- e. Enter the system IP address for the ethernet bond0.
- f. Enter the bond0 netmask and gateway addresses.
- g. Enter the host name.
- h. Enter the domain.

The Exalytics Machine restarts automatically.

2.2.1.3 Pinning Dom0 CPU

To ensure performance of the Exalytics Machine, pin or bind Dom0 CPU.

To pin Dom0 CPU:

1. Navigate to the `/etc/xen` directory.
2. Edit the file `xend-config.sxp` to set the following:


```
(dom0-cpus 10)
```
3. Restart the Exalytics Machine.

2.2.2 Installing and Configuring Oracle VM Manager

Oracle VM Manager provides a graphical user interface to manage Oracle VM Servers, virtual machines, and resources. You use Oracle VM Manager to create virtual machines and server pools, import VM templates, and manage networks and storage.

This section includes the following topics:

- [Section 2.2.2.1, "Installing Oracle VM Manager"](#)
- [Section 2.2.2.2, "Discovering Oracle VM Servers"](#)
- [Section 2.2.2.3, "Creating Virtual Network Interface Controllers"](#)
- [Section 2.2.2.4, "Creating Server Pools and Adding a Server"](#)
- [Section 2.2.2.5, "Creating an Exalytics Repository"](#)
- [Section 2.2.2.6, "Creating Virtual Machines"](#)
- [Section 2.2.2.7, "Maintaining Virtual Machines"](#)

2.2.2.1 Installing Oracle VM Manager

Oracle recommends that you install Oracle VM Manager on a separate machine than the Exalytics Machine, preferably colocated geographically within Oracle VM Server.

To install Oracle VM Manager:

1. Download the Oracle VM Manager 3.0.3 installer (Part Number V29653-01) from the Oracle Software Delivery Cloud web site at the following link:

<http://edelivery.oracle.com/oraclevm>
2. Download the Oracle VM Manager patch 3.0.3.369 from My Oracle Support (Oracle_VM_Manager_13614645).

3. Install Oracle VM Manager. For instructions, see Chapter 3, "Installing Oracle VM Manager" in *Oracle VM Installation and Upgrade Guide for Release 3.0.3*.
4. Apply patch 3.0.3.369 to the Oracle VM Manager installation.

2.2.2.2 Discovering Oracle VM Servers

Adding Oracle VM Servers to your Oracle VM Manager environment is known as discovering Oracle VM Servers. Discovering servers is the first step to configuring the virtualization environment.

To discover Oracle VM Servers:

1. Connect to Oracle VM Manager.
2. In the left pane, select **Hardware**.
3. From the menu bar, select **Actions**, and then **Discover** to display the Discover Servers dialog.
4. Enter the following information for the server:
 - a. IP Address.
 - b. Oracle VM Agent Port. The default port number is 8899.
 - c. Oracle VM Agent Password. The default password is "oracle".
5. Click **OK**.

Oracle VM Server and its details, including number of processors, IP address, processor speed, RAM, networking ports and configuration are discovered and added to the Unassigned Servers folder.

For more information, see "Chapter 6, Managing Server Pools" in *Oracle VM User's Guide for Release 3.0.3*.

2.2.2.3 Creating Virtual Network Interface Controllers

A Virtual Network Interface Controller (VNIC) is used by virtual machines as network cards. You create virtual network interfaces by defining a range of MAC addresses to use for each VNIC. Each MAC address corresponds with a single virtual Network Interface Controller (NIC), which is used by a virtual machine.

To create Virtual Network Interface Controllers:

1. Log on to Oracle VM Manager.
2. From the menu bar, select **Tools**, and then **VNIC Manager**.
The MAC selector panel is displayed.
3. Click **Next** to retrieve the next available MAC addresses.
4. Select the number of addresses that you want to create, and click **Generate**.

Note: Select the number of addresses that corresponds to the number of virtual machines you are deploying.

The VNICs are created and listed in the Virtual NIC table.

5. Click **Close**.

For more information, see "Chapter 7, Managing Virtual Machines" in *Oracle VM User's Guide for Release 3.0.3*.

2.2.2.4 Creating Server Pools and Adding a Server

A server pool consists of at least one Oracle VM Server. If you find a server pool does not have sufficient resources, such as CPU or memory, to run the virtual machines, you can expand the server pool by adding more Oracle VM Servers.

Before creating a server pool, you must have:

- An IP address for the server pool
- An IP address for each virtual machine
- The password to access the Oracle VM Agent installed on Oracle VM Server

For information on creating server pools and adding servers, see "Chapter 6, Managing Server Pools" in *Oracle VM User's Guide for Release 3.0.3*.

Note: When creating a server pool, you must deselect the Activate Cluster option.

2.2.2.5 Creating an Exalytics Repository

A repository stores Oracle VM resources, such as virtual machines, templates for creating virtual machines, virtual machine assemblies, and so on. You use Oracle VM Manager to create and configure Exalytics repositories, and to present the repositories to Oracle VM Servers.

Note: Oracle recommends that you create a repository on each physical disk available. Use the smaller repository to store Oracle VM templates and cloned virtual machines and the larger repository to store virtual disks that are assigned to the virtual machines.

To create an Exalytics repository:

1. Log on to Oracle VM Manager.
2. In the left pane, select **Home**, and then **Server Pools**.
3. Select the **Repositories** tab.
4. Select **Create** to display the Create a Data Repository dialog.
5. Perform the following actions:
 - a. In the Repository Name field, enter the name for the repository.
 - b. For Repository Location, select **Physical Disk** and click **Search**.
 - c. From the drop-down list, select a local storage array and select the smaller of the two storage disks.
 - d. Click **OK**.
 - e. Select the server pool for the repository.
 - f. Click **Next**.

The new repository is available to be presented to Oracle VM Server. To enable your Oracle VM Server to use the repository, you must present the repository to Oracle VM Server.

6. Select and move Oracle VM Server from the *Servers* field to the *Present to Server(s)* field and click **Finish**.

The repository is listed in the Repository tab.

For more information, see "Chapter 4, Managing Storage" in *Oracle VM User's Guide for Release 3.0.3*.

2.2.2.6 Creating Virtual Machines

You use virtual templates to create virtual machines. The process of creating a virtual machine from a template is known as cloning. Before you create virtual machines, ensure that you have the following resources available:

- A server pool
- An Oracle VM Server
- VM templates

The process of creating virtual machines from templates consists of the following steps:

- [Section 2.2.2.6.1, "Downloading VM Templates"](#)
- [Section 2.2.2.6.2, "Importing VM Templates into Oracle VM Server"](#)
- [Section 2.2.2.6.3, "Creating Virtual Machines from VM Templates"](#)

2.2.2.6.1 Downloading VM Templates

To download VM templates:

1. Navigate to the Oracle Software Delivery Cloud web site at the following link:
<http://edelivery.oracle.com>
2. Download the Exalytics Oracle VM Template 2.0.1.1.0 for Exalytics Oracle VM x86-64 and save it on a web server.

2.2.2.6.2 Importing VM Templates into Oracle VM Server

After downloading the templates, you import them into Oracle VM Server.

To import VM templates into Oracle VM Server:

1. Log on to Oracle VM Server.
2. In the left pane, select **Home**, and then **Server Pools**.
3. Select the **Templates** tab.
4. Click **Import Template** to display the Import Template dialog.
5. Select the repository and Oracle VM Server and enter the URL or FTP server to the VM template that you downloaded on the web server.
6. Click **OK** to import the VM template.

2.2.2.6.3 Creating Virtual Machines from VM Templates

After importing the template in Oracle VM Server, you use the template to create a virtual machine.

Note: Oracle recommends that you use Oracle VM Manager to create virtual disks of the sizes required for your system on the larger repository. Associate these virtual disks with the virtual machines deployed on your system. These virtual disks provide enough storage for installing the Exalytics software and the various files associated with the Exalytics Machine.

To create virtual machines from a VM template:

1. Log on to Oracle VM Server.
2. In the left pane, select **Home**, and then **Server Pools**.
3. Select the **Templates** tab.
4. Select the template to clone, and click **Clone Virtual Machine or Template** to display the Clone Virtual Machine or Template dialog.
5. Perform the following actions:
 - a. For Select Clone Type, select **Simple Clone**.
 - b. For Target Clone Type, select **Virtual Machine**.
 - c. Enter a name and description for the virtual machine.
 - d. In the Target Server Pool list, select a server pool.
6. Click **OK**.

The virtual machine is created and is ready to be configured.

For more information, see "Chapter 7, Managing Virtual Machines" in *Oracle VM User's Guide for Release 3.0.3*.

2.2.2.7 Maintaining Virtual Machines

This section includes the following topics:

- [Section 2.2.2.7.1, "Configuring and Starting a Virtual Machine"](#)
- [Section 2.2.2.7.2, "Configuring a Network on a Virtual Machine"](#)
- [Section 2.2.2.7.3, "Configuring SWAP on a Virtual Machine"](#)

2.2.2.7.1 Configuring and Starting a Virtual Machine

You start a virtual machine from Oracle VM Manager.

To configure and start a virtual machine:

1. Log on to Oracle VM Manager.
2. In the left pane, select **Home**.
3. Select the server pool on which the virtual machine resides.
4. Right-click the virtual machine and select **Edit**.

The Modify Virtual Machine screen is displayed.

5. Select the **Configuration** tab.
6. Select the necessary configuration for the virtual machine, and click **OK**.
7. Select the **Networks** tab.

8. Select and assign a VNIC to the virtual machine, and click **OK**.
9. Select the **Disks** tab.
10. Select and allocate the virtual disk to the virtual machine.
11. Right-click the virtual machine and select **Start**.

The virtual machine starts.

For more information, see "Chapter 7, Managing Virtual Machines" in *Oracle VM User's Guide for Release 3.0.3*.

2.2.2.7.2 Configuring a Network on a Virtual Machine

After starting a virtual machine, you then configure the network on the virtual machine to enable it to access the network.

To configure a network on the virtual machine:

1. Log on to Oracle VM Server.
2. Enter the following command:

```
xm list
```

The Domain-0 and UUID number for the virtual machine are displayed.
3. Execute the following command:

```
xm console <UUID_NUMBER_FOR_VIRTUAL_MACHINE>
```

The console of the virtual machine is displayed.
4. Log in as root user with default password "ovsroot".
5. Enter the following command:

```
system-config-network
```
6. Edit the eth0 device by entering the following information:
 - IP addresses
 - Netmask
 - Gateway
 - DNS settings
7. Click **Save and Quit**.
8. Run the following command to reload the network configuration:

```
service network reload
```
9. Edit the `/etc/hosts` file to add the machine name and IP address.

2.2.2.7.3 Configuring SWAP on a Virtual Machine

When the virtual machine first restarts, it may not have the swap correctly configured. If needed, configure the swap correctly.

To configure SWAP on the virtual machine:

1. Ensure that the last line of the file `/etc/fstab` reads as follows:

```
LABEL=SWAP-VM    swap          swap defaults    0 0
```
2. If the first entry in the file `/etc/fstab` reads as `LABEL=SWAP-hda3`, edit the file to read as:

```
LABEL=SWAP-VM
```

3. To make the swap device available, run the following command:

```
swapon-a
```

4. To confirm that swap is configured, run the following command:

```
swapon-s
```

2.3 Installing and Configuring Exalytics Software on Virtual Machines

The process of installing Exalytics software on virtual machines is identical to installing the software on the Exalytics Machine, except that the virtual machines cannot access the entire Exalytics memory. Keep in mind this limitation when setting kernel parameters related to shared memory or creating huge pages.

You install Oracle Business Intelligence and Oracle TimesTen on one virtual machine, and Oracle Essbase (if deployed) on the second virtual machine.

This section consists of the following topics:

- [Section 2.3.1, "Prerequisites to Installing and Configuring Exalytics Software on Virtual Machines"](#)
- [Section 2.3.2, "Installing and Configuring Exalytics Software on Virtual Machines"](#)

2.3.1 Prerequisites to Installing and Configuring Exalytics Software on Virtual Machines

The following prerequisites must be met before installing the Exalytics software on the virtual machines:

- You have created a virtual machine. If deploying Oracle Essbase, you have created two virtual machines.
- You have created a virtual disk on RAID5 and associated it with the virtual machines.

2.3.2 Installing and Configuring Exalytics Software on Virtual Machines

This section consists of the following topics:

- [Section 2.3.2.1, "Creating and Mounting a /u01 Partition"](#)
- [Section 2.3.2.2, "Modifying Oracle User and Granting Permissions"](#)
- [Section 2.3.2.3, "Installing Oracle Business Intelligence and Oracle TimesTen"](#)
- [Section 2.3.2.4, "Installing Oracle Essbase"](#)

2.3.2.1 Creating and Mounting a /u01 Partition

Before you can install the Exalytics software, you create and mount a /u01 partition on the virtual disk.

To create and mount a /u01 partition:

After logging in as the root user, configure the /u01 directory on the virtual disk using commands such as the following ones:

1. To create a partition, enter the following commands:

```
parted /dev/xvdb
```

```
GNU Parted 1.8.1
Using /dev/xvdb
Welcome to GNU Parted! Type 'help' to view a list of commands.
(parted) mklabel msdos
(parted) mkpart primary 0 1600GB
(parted) print
```

```
Model: Xen Virtual Block Device (xvd)
Disk /dev/xvdb: 1600GB
Sector size (logical/physical): 512B/512B
Partition Table: msdos
```

Number	Start	End	Size	Type	File system	Flags
1	32.3kB	1600GB	1600GB	primary		

```
(parted) quit
```

2. To create logical volume, enter the following commands:

```
lvm pvcreate /dev/xvdb1
Physical volume "/dev/xvdb1" successfully created
```

```
lvm vgcreate VolGroup01 /dev/xvdb1
Volume group "VolGroup01" successfully created
```

3. To view free extents on VolGroup01, enter the following commands:

```
vgs -o +vg_free_count,vg_extent_count
VG          #PV #LV #SN Attr   VSize  VFree   Free     Ext
VolGroup01  1  0  0  wz--n- 1.46T  1.46T  381469  381469
lvm lvcreate --extents 381469 --name LogVol100 VolGroup01
```

```
Logical volume "LogVol100" created
```

4. To create a file system, enter the following command:

```
mkfs.ext3 /dev/VolGroup01/LogVol100
```

5. Add the following line to the /etc/fstab file:

```
/dev/VolGroup01/LogVol100 /u01          ext3    defaults
0 0
```

6. To mount the directory, enter the following commands:

```
mkdir /u01
mount /u01
```

7. Verify that the partition has been created by entering the following command:

```
df -lh
```

2.3.2.2 Modifying Oracle User and Granting Permissions

The VM template contains "oracle" as the operating system user name. Associate the user name with the "oinstall" group and create a password for it.

To modify Oracle user and grant permissions:

Perform the following actions as root:

1. Enter the following commands to associate the user name "oracle" with the group "oinstall" and to create a password:

```
groupadd oinstall
usermod -g oinstall oracle
passwd oracle
```

2. Enter the following commands to grant permissions to the /u01 drive where the software is to be installed:

```
chown oracle:oinstall /u01
chmod 775 /u01
```

3. Start the VNC Server on the virtual machine.

2.3.2.3 Installing Oracle Business Intelligence and Oracle TimesTen

To install Oracle Business Intelligence and Oracle TimesTen:

1. Connect to a virtual machine.
2. Download the following required software installers from the Media Pack for Oracle Exalytics under Oracle Business Intelligence software for Linux X86-64 on Oracle Software Delivery Cloud at the following location:

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

- Oracle BI Enterprise Edition Release 11.1.1.6.0
 - Repository Creation Utility that corresponds with the appropriate Oracle BI EE Release
 - Oracle WebLogic Server Release 10.3.6
3. Download Oracle TimesTen 11.2.2.3 from the Media Pack for Oracle Exalytics under Oracle Business Intelligence software for Linux X86-64 on Oracle Software Delivery Cloud at the following location:

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

For detailed instructions on how to install Oracle Business Intelligence and Oracle TimesTen, see [Chapter 3, "Installing Software on the Exalytics Machine."](#)

2.3.2.4 Installing Oracle Essbase

If deploying Oracle Essbase, install Oracle Essbase on a separate virtual machine.

To install Oracle Essbase:

1. Connect to a virtual machine.
2. Navigate to the Oracle Software Delivery Cloud web site at the following link:

<http://edelivery.oracle.com>

3. For Product Pack, select **Oracle Enterprise Performance System**.
4. For Platform, select **Linux x86-64**.
5. Click **Go**.
6. Select and download **Oracle Enterprise Performance Management System Media Pack 11.1.2.2.0 for Linux x86-64**
7. Download Oracle Essbase, which includes the following:
 - System Configurator
 - Foundation Services
 - Essbase and Static Content
8. Unzip the zip files to the MW_HOME directory.
9. Navigate to the folder where you unzipped the files (MW_HOME), and run the following command to install Oracle Essbase:

```
./installTool.sh
```
10. Navigate to MW_HOME/EPMSys11R1/common/config/11.1.2.0.
11. Run the following command to create a domain:

```
./configtool.sh
```

For more information, see *Oracle Enterprise Performance Management System Installation and Configuration Guide Release 11.1.2.2* at the following location:

http://docs.oracle.com/cd/E17236_01/epm.1112/epm_install_1112200.pdf

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 Oracle TimesTen and configuring the two software components to communicate with each other.

This chapter includes the following sections:

- [Section 3.1, "Before You Install Software on the Exalytics Machine"](#)
- [Section 3.2, "Installing the Software"](#)
- [Section 3.3, "Troubleshooting the Installation and Configuration Processes"](#)

3.1 Before You Install Software on the Exalytics Machine

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

- [Section 3.1.1, "Documents to Review"](#)
- [Section 3.1.2, "Prerequisites for Installing on the Exalytics Machine"](#)

3.1.1 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*, 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 Oracle TimesTen and its documented functionality, and any other issues that apply to the current release.
- Review *Oracle Exalytics In-Memory Machine Owner's Guide* 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.

3.1.2 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.

3.2 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 Oracle 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 3.2.1, "Step 1: Creating the User and Group on the Operating System"](#)
- [Section 3.2.2, "Step 2: Creating the Inventory for Oracle TimesTen"](#)
- [Section 3.2.3, "Step 3: Setting Resource Limits for Oracle TimesTen"](#)
- [Section 3.2.4, "Step 4: Creating and Mounting a /u01 Partition"](#)
- [Section 3.2.5, "Step 5: Downloading Oracle Files into the Directory Structure"](#)
- [Section 3.2.6, "Step 6: Creating the Database Schemas"](#)
- [Section 3.2.7, "Step 7: Editing the Properties File"](#)
- [Section 3.2.8, "Step 8: Preparing to Run the Installation Scripts"](#)
- [Section 3.2.9, "Step 9: Verifying the Checklist"](#)
- [Section 3.2.10, "Step 10: Running the Scripts"](#)
- [Section 3.2.11, "Step 11: Verifying the Installation"](#)

3.2.1 Step 1: Creating the User and Group on the Operating System

On the operating system, create a user with a name such as "oracle" and an appropriate password and a group with a name such as "oinstall". The following are sample commands for creating this user and group:

```
groupadd oinstall
useradd -g oinstall oracle
```

The procedures throughout this section assume a user named "oracle" and a group named "oinstall".

3.2.2 Step 2: Creating the Inventory for Oracle TimesTen

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

```
mkdir /etc/TimesTen
chmod 770 /etc/TimesTen
chgrp oinstall /etc/TimesTen
touch /etc/TimesTen/instance_info
chmod 770 /etc/TimesTen/instance_info
chgrp oinstall /etc/TimesTen/instance_info
```

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

3.2.3 Step 3: Setting Resource Limits for Oracle TimesTen

To set the resource limits for Oracle TimesTen:

1. Make the following changes and additions to the /etc/security/limits.conf file:

```
*      hard nfile 131072
*      soft nfile 131072
*      hard memlock unlimited
*      soft memlock unlimited
*      hard core unlimited
*      soft core unlimited
*      hard nproc 131072
*      soft nproc 131072
```

2. Make the following shared memory kernel settings in the /etc/sysctl.conf file:

```
kernel.shmmax = 1099511627776
kernel.shmall = 4294967296
kernel.shmmni = 4096
```

3. Make the following settings for semaphores in the /etc/sysctl.conf file:

```
kernel.sem = 2048 64000 256 64
```

4. Reboot the machine or run the following command as the root user:

```
/sbin/sysctl -p
```

3.2.4 Step 4: Creating and Mounting a /u01 Partition

Before you can install the Exalytics software, you create and mount a /u01 partition on the machine.

To create and mount a /u01 partition:

After logging in as the root user, configure the /u01 directory on the hard disk using commands such as the following ones:

1. To create a partition, enter the following commands:

```
# parted /dev/sdb

(parted) mklabel msdos
(parted) mkpart
```

```

Primary/extended? Primary
File system type? [ext2]? ext3
Start? 0
End? 1797GB
(parted) quit

```

2. To create a file system, enter the following command:

```
# mkfs.ext3 /dev/sdb1
```

3. Add the following line to the `/etc/fstab` file:

```
/dev/sdb1          /u01  ext3          defaults 1 2
```

4. To create and mount a `/u01` directory, enter the following commands:

```
# mkdir /u01
# mount /dev/sdb1 /u01
```

5. Restart the computer.
6. Verify that the partition has been created by entering the following command:

```
df -lh
```

Note: Check permissions for the "oracle" user. If you cannot write to the `/u01` directory, then enter the following commands to change permissions:

```
chown oracle:oinstall /u01
chmod 775 /u01
```

3.2.5 Step 5: 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 and patches for Oracle Exalytics under Oracle Business Intelligence software for Linux X86-64 on Oracle Software Delivery Cloud at the following location:

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

- Oracle BI Enterprise Edition Release 11g
- Repository Creation Utility that corresponds with the appropriate Oracle BI EE Release
- Oracle TimesTen Release 11g
- Oracle WebLogic Server Release 10g

For information about downloading and applying the latest Oracle Exalytics patch, see [Chapter 7, "Patching."](#)

2. As the user who owns the installation of the Oracle 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 file with a name such as `wls1036_linux64.bin` into this directory. If the file is not executable, then use a command such as the following 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 3.3, "Troubleshooting the Installation and Configuration Processes."](#)

- `/u01/app/oracle/product/fmw`

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.

3.2.6 Step 6: 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://docs.oracle.com/html/E18558_01/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*.

3.2.7 Step 7: 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 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.ini
```

Avoid manually editing the `staticports.ini` file.

- Ensure that the file system includes an empty directory to be used as the `bim.mw.home` directory in the properties file below.
- 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, wlserver_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=/u01/app/oracle/product/fmw
```

```

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=EX111111_BIPLATFORM
bim.db.bi.schema.pwd=welcme1
bim.db.mds.schema.user=EX111111_MDS
bim.db.mds.schema.pwd=welcme1

#####
# [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=welcme1
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

```

3.2.8 Step 8: 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/JDK/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 "oinstall".

- 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=oinstall
```

Note: Use care when editing the oraInst.loc file. In particular, avoid including any extra spaces at the end of the directory name that you specify for inventory_loc. If you include any spaces, then you might notice what appears to be two inventory directories created with the same name. You also might encounter an error message about permissions when running the installation scripts.

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

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

3.2.9 Step 9: 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.

3.2.10 Step 10: Running the Scripts

To run the scripts:

1. Log in to the Exalytics Machine as the user that you created in [Section 3.2.1, "Step 1: Creating the User and Group 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 3.2.8, "Step 8: 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 3.2.7, "Step 7: 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 3.3.4, "Manually Setting the HardwareAcceleration MBean Attribute."](#)
- Install Oracle TimesTen.
- Make configuration changes in the opmn.xml file to point to the Oracle TimesTen libraries.
- Configure the sys.odbc.ini file for Oracle TimesTen and the odbc.ini file for Oracle Business Intelligence with DSN details for Oracle TimesTen.

3.2.11 Step 11: 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`

3.3 Troubleshooting the Installation and Configuration Processes

This section provides the following information on troubleshooting:

- [Section 3.3.1, "Resolving Issues with the Installation"](#)
- [Section 3.3.2, "Viewing Log Files"](#)
- [Section 3.3.3, "Reinstalling Software on the Exalytics Machine"](#)
- [Section 3.3.4, "Manually Setting the HardwareAcceleration MBean Attribute"](#)
- [Section 3.3.5, "For More Information"](#)

3.3.1 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 Oracle 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 3.2.7, "Step 7: 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.

3.3.2 Viewing Log Files

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

3.3.3 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 5, "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 schemas.
4. Delete the /etc/TimesTen/* files.
5. Return to this chapter and follow the installation instructions again.

3.3.4 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 NQSCfg.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.

3.3.5 For More Information

For additional information, see the following:

- [Section 8.4, "Troubleshooting the Highly Available Deployment."](#)
- "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 8, "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 sections:

- [Section 4.1, "Installing and Deinstalling Oracle Business Intelligence Client Tools"](#)
- [Section 4.2, "Creating the boot.properties File"](#)
- [Section 4.3, "Starting and Stopping Components on the Exalytics Machine"](#)
- [Section 4.4, "Running the Daemon Configuration Scripts for Oracle TimesTen"](#)
- [Section 4.5, "Configuring Memory Settings on the Server"](#)
- [Section 4.6, "Instantiating the Oracle TimesTen In-Memory Database"](#)
- [Section 4.7, "Configuring the ODBC Connection from Oracle Business Intelligence to Oracle TimesTen"](#)
- [Section 4.8, "Mapping Instances of Oracle TimesTen into the Physical Layer of the Oracle BI Repository"](#)
- [Section 4.9, "Installing and Configuring BI Composer for Oracle BI EE"](#)
- [Section 4.10, "Creating a DSN for IBM DB2 or Microsoft SQL Server"](#)
- [Section 4.11, "Configuring IBM DB2 to Support Multibyte Data"](#)
- [Section 4.12, "Configuring Sample Reports for Oracle BI Publisher"](#)
- [Section 4.13, "Changing the Default Password for SampleAppLite.rpd"](#)

4.1 Installing and Deinstalling 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 Deinstalling Oracle Business Intelligence Client Tools" in *Oracle Fusion Middleware Installation Guide for Oracle Business Intelligence*.

4.2 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*.

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

4.4 Running the Daemon Configuration Scripts for Oracle TimesTen

Perform this task on each computer in the cluster.

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

```
/u01/app/oracle/product/TimesTen/tt1122/bin/setuproot -install
```

4.5 Configuring Memory Settings on the Server

Perform this task on each computer in the cluster.

When you configure memory settings, keep the following in mind:

- If an Oracle TimesTen In-Memory Database larger than 256GB is required, then you must configure and use large pages.
See "Large pages" in *Oracle TimesTen In-Memory Database Installation Guide* for additional information on defining the Oracle TimesTen In-Memory Database in the DSN and on editing the `limits.conf` file for kernel parameters and semaphores.
- The largest recommended size for a Oracle TimesTen In-Memory Database on a single machine is a total of 800GB, which includes the values for the `PermSize` and `TempSize` attributes.

Note: Increasing large page settings for more memory will result in other applications (Oracle BI EE, Oracle Essbase) unable to allocate memory. Exceeding more than 80% of the physical memory is not recommended. Depending on how much more `PermSize` memory is required, you can transfer memory from the `TempSize`.

4.5.1 Configuring Large Pages at the Kernel Level

You can configure and activate the number of large pages by setting the `nr_hugepages` parameter in the `/etc/sysctl.conf` file. For an 800GB Oracle TimesTen In-Memory Database, you must specify greater than 410122 pages to create an 800GB store based on the following calculation:

```
(PermSize + TempSize + LogBufMB + 20) / hugepage_size      [All in bytes]
(400*1024*1024*1024) + (400*1024*1024*1024) + (1024*1024*1024) + (20*1024*1024) =
860088172544
860088172544 / (2 * 1024 * 1024) = 410122
```

For example, to allow for spare capacity, modify the following setting in the `/etc/sysctl.conf` file:

```
vm.nr_hugepages = 410200
```

then either restart the machine or run the following command as the root user:

```
/sbin/sysctl -p
```

4.5.2 Configuring Large Pages for Oracle TimesTen In-Memory Databases

You can configure large pages for the Oracle TimesTen In-Memory Database by editing the following file:

```
/u01/app/oracle/product/TimesTen/tt1122/info/ttendaemon.options
```

and adding the following line:

```
-linuxLargePageAlignment 2
```

4.5.3 Increasing PermSize on Existing Oracle TimesTen In-Memory Databases

After configuring large pages for the Oracle TimesTen In-Memory Database, you can increase the `PermSize` on existing Oracle TimesTen In-Memory Databases.

To increase PermSize on existing Oracle TimesTen In-Memory Databases:

1. Disconnect all applications, including Oracle BI EE, from the Oracle TimesTen In-Memory Database.

2. If needed, change the RAM policy from inUse to Manual.
3. Unload the RAM memory from the Oracle TimesTen In-Memory Database by executing the following command:

```
ttAdmin- ramunload <Your_TT_DSN>
```

For example:

```
ttAdmin- ramunload TT_AGGR_STORE
```

4. Modify the *timesten-install-dir/info/sys.odbc.ini* file in the Oracle TimesTen In-Memory Database to increase the PermSize.
5. Reload the RAM memory in the Oracle TimesTen In-Memory Database, by executing the following command:

```
ttAdmin- ramload <Your_TT_DSN>
```

For example:

```
ttAdmin- ramload TT_AGGR_STORE
```

6. Reconnect all applications, including Oracle BI EE, to the Oracle TimesTen In-Memory Database.

For more information, see the "Oracle TimesTen In-Memory Database". The link to "Oracle TimesTen In-Memory Database Documentation" is available on the Oracle Exalytics Documentation Library.

4.6 Instantiating the Oracle TimesTen In-Memory Database

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

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

```
/u01/app/oracle/product/TimesTen/tt1122/info
```

The semi-automated installation scripts automatically update the sys.odbc.ini file for Oracle 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=/u01/app/oracle/product/TimesTen/tt1122/lib/libtten.so
DataStore=/u01/app/oracle/product/aggregate_store/tt_aggr_store
LogDir=/u01/app/oracle/product/aggregate_store/logs
DatabaseCharacterSet=AL32UTF8
ConnectionCharacterSet=AL32UTF8
LogFileSize=1024
LogBufMB=1024
LogBufParallelism=16
Preallocate=0
PermSize=25000
TempSize=25000
MemoryLock=4
CkptFrequency=30
CkptLogVolume=0
```

```
CkptRate=20
PrivateCommands=1
RecoveryThreads=40
```

This DSN supports an Oracle 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:

```
/u01/app/oracle/product/aggregate_store
/u01/app/oracle/product/aggregate_store/logs
```

On computers other than the first one in the cluster, manually edit the sys.odbc.ini file for Oracle 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.odbc.ini file.

The Oracle 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 /u01/app/oracle/product/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 Oracle 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 Oracle TimesTen instance that is used for aggregate storage. This tool can allow you to easily view the contents of the Oracle TimesTen In-Memory Database and to create a dummy table that facilitates the mapping of the Oracle TimesTen schema into the physical layer of the repository for Oracle Business Intelligence.

4.7 Configuring the ODBC Connection from Oracle Business Intelligence to Oracle 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 Oracle TimesTen spans computer boundaries and the remote Oracle TimesTen server can be configured as part of the DSN. You create the DSN for the two Oracle 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 = /u01/app/oracle/product/TimesTen/tt1122/lib/libttclient.so
TTC_SERVER_DSN = TT_AGGR_STORE
TTC_SERVER = <tt_hostname>
TTC_TIMEOUT = 0
```

Define the DSN Servers for Oracle 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 Oracle TimesTen instance on each computer and ensuring that each instance is aware of the Oracle TimesTen instance on the other computer. You edit the `odbc.ini` file for Oracle Business Intelligence to contain references to both Oracle 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 = /u01/app/oracle/product/TimesTen/tt1122/lib/libttclient.so
TTC_SERVER_DSN = TT_AGGR_STORE
TTC_SERVER = <tt_hostname1>
TTC_TIMEOUT = 0

[TT_AGGR_STORE2]
Driver = /u01/app/oracle/product/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
```

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

You must map all instances of Oracle TimesTen into the Physical layer of the Oracle BI repository. To map the instances, 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 an Oracle 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 Oracle 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*

4.9 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*.

4.10 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*.

4.11 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*.

4.12 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*.

4.13 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 Oracle Technology Network:

<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 Oracle TimesTen and Oracle Business Intelligence, as described in the following list:

- Deinstallation for Oracle 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 6, "System Management \(Configuration, Diagnostics, and Monitoring\)"](#)
- [Chapter 7, "Patching"](#)
- [Chapter 8, "Deploying Oracle Exalytics for High Availability"](#)
- [Chapter 9, "Backup and Recovery"](#)
- [Chapter 10, "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 the Oracle 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.
- Oracle TimesTen — For information on managing Oracle 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 User's Guide* for Oracle Enterprise Manager Cloud Control

This chapter provides information on applying patches to the software on the Exalytics Machine.

This chapter includes the following sections:

- [Section 7.1, "About Patching Oracle Exalytics"](#)
- [Section 7.2, "Applying the Oracle Exalytics Release 1 Patchset 1 \(1.0.0.1\)"](#)
- [Section 7.3, "Applying the Oracle Exalytics Release 1 Patchset 2 \(1.0.0.2\)"](#)

7.1 About Patching Oracle Exalytics

Oracle Exalytics is an engineered system that comprises a number hardware and software components that you can patch independently. These components are designed to work together in an optimized manner.

For the purposes of patching, the software components for Oracle Exalytics include:

- Core Components
 - Oracle Business Intelligence Enterprise Edition
 - (If present) Oracle Essbase, installed using the Oracle Hyperion Enterprise Performance Management System Installer
 - Oracle TimesTen In-Memory Database for Exalytics
 - Oracle Exalytics Base Image
 - Oracle Exalytics Configuration Utility
- Optional Components
 - Other software (for example, Oracle Endeca) that can be installed on the Exalytics Machine, as detailed in *Oracle Exalytics Certification Matrix* at the following location:
<http://www.oracle.com/technetwork/middleware/ias/downloads/fusion-certification-100350.html>

Note: Because Oracle Exalytics patches are cumulative, you only have to apply the latest patch to incorporate all changes for your installation.

Periodically, Oracle releases comprehensive and well-tested Oracle Exalytics patches to ensure that Exalytics Machines continue to perform optimally.

Note: Do not apply individual component specific patches on the Exalytics Machine unless instructed to do so by Oracle Support. For more information, see *Oracle Exalytics Certification Matrix*.

For more detailed information about patching Oracle Exalytics, see:

- [Section 7.1.1, "About Oracle Exalytics Version Stripes"](#)
- [Section 7.1.2, "About the Different Types of Oracle Exalytics Patches"](#)

7.1.1 About Oracle Exalytics Version Stripes

A version stripe for Oracle Exalytics represents a specific set of versions of core components for Oracle Exalytics that have been tested together, and subsequently released together as an Oracle Exalytics Patchset.

shows a hypothetical version stripe across example versions of a subset of Oracle Exalytics core components.

Figure 7-1 Sample Version Stripe for Components of the Exalytics Machine

Oracle Business Intelligence	Oracle TimesTen	Oracle WebLogic Server	Oracle Essbase
11.1.1.6.0	11.2.2.0	10.3.5	11.1.2.1
11.1.1.6.1	11.2.2.1	10.3.6	11.1.1.4
11.1.1.6.2	11.2.2.2		11.1.2.2.101
11.1.1.6.5	11.2.2.4.1		

The core components of Oracle Exalytics in a version stripe must be deployed together, as part of an Oracle Exalytics Patchset. The optional components for Oracle Exalytics are certified against one or more version stripes of Oracle Exalytics, and can be patched independently. For more information, see *Oracle Exalytics Certification Matrix* at the following location:

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

Oracle regularly delivers new version stripes for Oracle Exalytics as Oracle Exalytics Patchsets, typically every three months. For more information, see [Section 7.1.2.1, "About Oracle Exalytics Patchsets."](#)

7.1.2 About the Different Types of Oracle Exalytics Patches

There are three different types of patches for Oracle Exalytics, as described in the following sections:

- [Section 7.1.2.1, "About Oracle Exalytics Patchsets"](#)
- [Section 7.1.2.2, "About Oracle Exalytics Certified Component Patches"](#)
- [Section 7.1.2.3, "About Oracle Exalytics Component One-Off Patches"](#)

7.1.2.1 About Oracle Exalytics Patchsets

An Oracle Exalytics Patchset is a version stripe of the core components for Oracle Exalytics. All the patches in an Oracle Exalytics Patchset must be applied together.

Oracle Exalytics Patchsets are delivered regularly, typically every three months.

For each core component, an Oracle Exalytics Patchset might contain one of the following:

- A new major version of the component
- A patch to the existing version of the component
- No update to the component

Every Oracle Exalytics Patchset is accompanied by a Patchset ReadMe file in the Oracle Exalytics Documentation Library. The Patchset ReadMe file provides instructions to apply the Patchset.

All the core component updates in an Oracle Exalytics Patchset must be applied successfully. If one core component update is not applied successfully, then all the updates must be rolled back.

Note that Oracle Advanced Customer Support (ACS) Services will have already applied the latest Oracle Exalytics Patchset to newly delivered Exalytics Machines.

7.1.2.2 About Oracle Exalytics Certified Component Patches

An Oracle Exalytics Certified Component Patch is a patch of an individual Oracle Exalytics component.

An Oracle Exalytics Certified Component Patch is:

- Released between the regularly scheduled Oracle Exalytics Patchsets
- Certified for use with Oracle Exalytics
- Included in the next Oracle Exalytics Patchset

For example, a patch for Oracle BI EE might be released shortly after an Oracle Exalytics Patchset. The Oracle BI EE patch might include an important fix that Oracle Exalytics customers are likely to want before the next scheduled Oracle Exalytics Patchset. In this situation, the Oracle BI EE patch might be certified for use with Oracle Exalytics and added to *Oracle Exalytics Certification Matrix* at the following location:

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

The customer is responsible for applying an Oracle Exalytics Certified Component Patch by following the instructions in the appropriate ReadMe file.

Note that Oracle Advanced Customer Support (ACS) Services will not have applied Oracle Exalytics Certified Component Patches to newly delivered Exalytics Machines.

7.1.2.3 About Oracle Exalytics Component One-Off Patches

An Oracle Exalytics Component One-off Patch is a customer-specific patch that is provided by Oracle to fix particular bugs at specific customer sites. Oracle does not make Oracle Exalytics Component One-off Patches generally available.

The customer is responsible for applying an Oracle Exalytics Component One-off Patch by following the instructions in the appropriate ReadMe file.

Note that Oracle Advanced Customer Support (ACS) Services will not have applied Oracle Exalytics Component One-off Patches to newly delivered Exalytics Machines.

7.2 Applying the Oracle Exalytics Release 1 Patchset 1 (1.0.0.1)

This section is effectively the ReadMe file for the Oracle Exalytics Release 1 Patchset 1 and contains the following topics:

- [Section 7.2.1, "About the Oracle Exalytics Release 1 Patchset 1"](#)
- [Section 7.2.2, "Who Should Install the Oracle Exalytics Release 1 Patchset 1?"](#)
- [Section 7.2.3, "New Features in the Oracle Exalytics Release 1 Patchset 1"](#)
- [Section 7.2.4, "Guidelines for Installing the Oracle Exalytics Release 1 Patchset 1"](#)
- [Section 7.2.5, "Installing the Oracle Exalytics Release 1 Patchset 1"](#)
- [Section 7.2.6, "Postinstallation Instructions"](#)
- [Section 7.2.7, "Deinstallation Instructions"](#)
- [Section 7.2.8, "Bugs Fixed by this Patch"](#)
- [Section 7.2.9, "Known Bugs with this Patch"](#)

7.2.1 About the Oracle Exalytics Release 1 Patchset 1

The Oracle Exalytics Release 1 Patchset 1 comprises patches for the core components and specific software versions that are listed in [Table 7–1](#).

Table 7–1 Core Components and Supported Versions in Oracle Exalytics Patchset 1

Core Component	Supported Version
Oracle Business Intelligence Enterprise Edition	11.1.1.6.2 BP1
Oracle TimesTen In-Memory Database for Exalytics	11.2.2.3.0
Oracle Essbase	11.1.2.2.100
Oracle Exalytics X-24 Base Image	1.0.0.3.1
Oracle Exalytics X-24 Configuration Utility	1.0.0.4

For the latest information on the supported versions, see *Oracle Exalytics Certification Matrix* at the following location:

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

7.2.2 Who Should Install the Oracle Exalytics Release 1 Patchset 1?

The Patchset is available for all Oracle Exalytics customers.

7.2.3 New Features in the Oracle Exalytics Release 1 Patchset 1

The Oracle Exalytics Release 1 Patchset 1 includes additional certifications and enhancements for the components that are described in the following sections:

- [Section 7.2.3.1, "Oracle Business Intelligence Enterprise Edition"](#)
- [Section 7.2.3.2, "Oracle TimesTen In-Memory Database"](#)
- [Section 7.2.3.3, "Oracle Essbase"](#)
- [Section 7.2.3.4, "Oracle Enterprise Performance Management System"](#)
- [Section 7.2.3.5, "Oracle Endeca"](#)

- [Section 7.2.3.6, "Storage Area Network"](#)
- [Section 7.2.3.7, "Auto Service Request Software"](#)
- [Section 7.2.3.8, "Oracle Data Integrator"](#)
- [Section 7.2.3.9, "Oracle GoldenGate for Oracle TimesTen"](#)

7.2.3.1 Oracle Business Intelligence Enterprise Edition

Oracle BI EE includes numerous enhancements for the 11.1.1.6.2 BP1 patch.

Enhancements to Oracle BI EE that are most relevant for the Oracle Exalytics Release 1 Patchset 1 include the following:

- **Model Checker:** Use the Model Check Manager to check for modeling problems that might affect Oracle BI Summary Advisor and the aggregate persistence engine. For information, see *Oracle Fusion Middleware Metadata Repository Builder's Guide for Oracle Business Intelligence Enterprise Edition*.
- **Enhanced Performance with Summary Advisor:** For certain queries, Summary Advisor uses row counts (cardinality) estimates rather than actual count queries. For information, see the Oracle Business Intelligence chapter in *Oracle Fusion Middleware Release Notes*.
- **Aggregate data size optimized in Oracle TimesTen:** To reduce data size in Oracle TimesTen and improve performance, data types in Oracle BI EE are optimally mapped in Oracle TimesTen. For information, see *Oracle Fusion Middleware Metadata Repository Builder's Guide for Oracle Business Intelligence Enterprise Edition*.
- **Improved aggregate data load performance in Oracle TimesTen:** To improve data load performance, Oracle BI EE contains two element variables, ORACLE_BI_TT_DISABLE_REDO_LOGGING and ORACLE_BI_TT_PARALLEL_INDEX_CREATION that disables redo logs in Oracle TimesTen database and creates indexes in parallel, respectively. For information, see the Oracle Business Intelligence chapter in *Oracle Fusion Middleware Release Notes*.
- **Trellis views:** Trellis views provide optimal layout and controls for high-density data and analysis. For an overview of functionality and deployment, see *Oracle Fusion Middleware User's Guide for Oracle Business Intelligence Enterprise Edition*.

7.2.3.2 Oracle TimesTen In-Memory Database

SQL functions in Oracle TimesTen are optimized for better performance. For information, see the "Oracle TimesTen In-Memory Database" documentation at the following link:

<http://www.oracle.com/technetwork/products/timesten/documentation/index.html>

The link to the "Oracle TimesTen In-Memory Database" documentation is also available from the Oracle Exalytics Documentation library.

7.2.3.3 Oracle Essbase

For information on using new Essbase features such as block storage performance enhancements, see the following:

- The "Oracle Essbase New Features Release 11.1.2.2" document at the following location:

http://docs.oracle.com/cd/E26232_01/doc.11122/esb_new_features/esb_new_features.html

- *Oracle Enterprise Performance Management System Installation and Configuration Guide Release 11.1.2.2* at the following location:

http://docs.oracle.com/cd/E17236_01/epm.1112/epm_install_1112200.pdf

7.2.3.4 Oracle Enterprise Performance Management System

With Oracle Enterprise Performance Management System Release 11.1.2.2, Oracle Hyperion Planning is supported on the Oracle Exalytics Release 1 Patchset 1. You can install the following components on the Exalytics Machine:

- Oracle Essbase Server
- Oracle Essbase Administration Services
- Oracle Essbase Studio Server
- Oracle HTTP Server
- Oracle Hyperion Enterprise Performance Management Workspace
- Oracle Hyperion Calculation Manager
- Oracle Hyperion Financial Reporting
- Oracle Hyperion Planning
- Oracle Hyperion Provider Services
- Oracle Hyperion Shared Services
- Oracle Hyperion Web Analysis

For a complete list of certified Oracle Enterprise Performance Management System components on the Exalytics Machine, see *Oracle Exalytics Certification Matrix* at the following location:

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

7.2.3.5 Oracle Endeca

Both Oracle Endeca Information Discovery and Oracle Endeca Server are certified to run on the Exalytics Machine. Key parts of Oracle's extensive range of business analytics products and solutions, these components are designed to help customers make smarter and faster decisions. For more information, see *Oracle Exalytics Certification Matrix* at the following location:

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

Also see "Oracle Endeca Information Discovery" documentation, the link to which is available from the Oracle Exalytics Documentation Library.

7.2.3.6 Storage Area Network

For better storage performance, the Exalytics Machine can connect to Storage Area Network (SAN). For more information, see "Storage Configuration" in *Oracle Exalytics In-Memory Machine Owner's Guide*.

7.2.3.7 Auto Service Request Software

A set of scripts can detect hard drive failure and send notification to Auto Service Request (ASR). For more information, see "Installing Auto Service Request Software" in *Oracle Exalytics In-Memory Machine Owner's Guide*.

7.2.3.8 Oracle Data Integrator

Oracle Data Integrator is certified for use with Oracle TimesTen when Oracle TimesTen is running on the Exalytics Machine. Note that Oracle Data Integrator cannot be installed on the Exalytics Machine. You must install Oracle Data Integrator on a separate server. For more information on what you can install on the Exalytics machine, see *Oracle Exalytics Certification Matrix* at the following location:

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

7.2.3.9 Oracle GoldenGate for Oracle TimesTen

Oracle GoldenGate for Oracle TimesTen is certified to update Oracle TimesTen when Oracle TimesTen is running on the Exalytics Machine. Note that Oracle GoldenGate cannot be installed on the Exalytics Machine. You must install Oracle GoldenGate on a separate server. For information on what you can install on the Exalytics machine, see *Oracle Exalytics Certification Matrix* at the following location:

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

7.2.4 Guidelines for Installing the Oracle Exalytics Release 1 Patchset 1

Review the following guidelines before installing the Patchset:

- Before applying the patches that are included in the Patchset, ensure that you back up your current installation, configuration files, and any user-specific artifacts.
- When applying the patch on a virtualized environment, do not patch the following:
 - Auto Service Request (ASR) included in the Exalytics Configuration Utility
 - Oracle Exalytics X2-4 Base Image
- If you have installed Oracle Enterprise Performance Management components on the Exalytics machine, stop all Enterprise Performance Management services before applying the patch. Also, ensure that you start all services after applying the patch. For more information, see "Chapter 12, Starting and Stopping EPM System Products" in *Oracle Enterprise Performance Management System Installation and Configuration Guide Release 11.1.2.2* at the following location:

http://docs.oracle.com/cd/E17236_01/epm.1112/epm_install_1112200.pdf
- Delete aggregates in Oracle TimesTen using the nqcmd utility. For more information, see "Creating and Persisting Aggregates for Oracle BI Server Queries" in *Oracle Fusion Middleware Metadata Repository Builder's Guide for Oracle Business Intelligence Enterprise Edition*.
- Patches for the core components of Oracle Exalytics in the Patchset have been tested to work together. Oracle highly recommends that you apply or roll back all core component patches together. Do not apply or rollback individual patches to different core components (such as Oracle BI EE, Oracle Essbase (if installed), and Oracle TimesTen).

- For late-breaking information, see *Oracle Exalytics Release Notes*.

7.2.5 Installing the Oracle Exalytics Release 1 Patchset 1

To install the Oracle Exalytics Patchset:

1. Download and install Oracle Exalytics X2-4 Base Image Patch (v 1.0.0.3.1) on Linux x86-64.

Note: The base image patch is required to support ASR on the Exalytics Machine.

To download and install the Oracle Exalytics base image patch, perform the following steps:

- a. Download patch 14301728 - Exalytics Patchset 1 (v 1.0.0.1.0) Base Image Patch (v 1.0.0.3.1) on Linux X86-64 from the Oracle Support web site.

The patch contains the p14301728_10000_Linux-x86-64.zip file.

- b. Unzip the zip file into a temporary folder.

The zip file contains the text and rpm (RPM Package Manager) files that are listed in [Table 7-2](#).

Table 7-2 Text and RPM Files in the Oracle Exalytics Base Image Zip File

File Name	Notes
ReadMe.txt	File with install instructions
ReadMe_1.1.5-Linux.txt	Service Tag related
ST_1.1.5 ReleaseNotes-Linux.txt	Service Tag related
ST_SLA.txt	Service Tag related
ST_SLA_multi.txt	Service Tag related
hwreg_ReleaseNotes_v1.1.5.txt	Service Tag related
sun-hardware-reg-1.0.0-1.i386.rpm	Service Tag related rpm
sun-servicetag-1.1.5-1.i386.rpm	Service Tag related rpm
httpd-2.2.3-43.0.1.el5.x86_64.rpm	ASR scripts related rpm
lsscsi-0.17-3.el5.x86_64.rpm	ASR scripts related rpm
mod_perl-2.0.4-6.el5.x86_64.rpm	ASR scripts related rpm
perl-BSD-Resource-1.28-1.fc6.1.x86_64.rpm	ASR scripts related rpm

- c. Execute the following commands as a root user to install the rpm files:

```
rpm -i httpd-2.2.3-43.0.1.el5.x86_64.rpm
rpm -i lsscsi-0.17-3.el5.x86_64.rpm
rpm -i perl-BSD-Resource-1.28-1.fc6.1.x86_64.rpm
rpm -i mod_perl-2.0.4-6.el5.x86_64.rpm
rpm -i sun-servicetag-1.1.5-1.i386.rpm
rpm -i sun-hardware-reg-1.0.0-1.i386.rpm
```

2. Download and install Oracle BI EE 11.1.1.6.2 BP1 patch.

To apply the Oracle BI EE 11.1.1.6.2 BP1 Patchset to an Oracle BI EE 11.1.1.6.0 installation, see the instructions in the ReadMe file for patch 14223977 (the first patch of the Oracle BI EE 11.1.1.6.2 BP1 Patchset).

3. Download and install Oracle TimesTen 11.2.2.3 for the Oracle Exalytics Release 1 Patchset 1.

During the installation of Oracle TimesTen, answer "Yes" to the question: Would you like to upgrade this instance?

Also, ensure that you do not delete existing files. For example, during the installation, answer "No" to the following questions:

- Would you also like to remove all files in /home/oracle/EXALYTICS_MWHOME/./TimesTen/tt1122/network/admin/samples?
- Would you like to replace the existing cluster.oracle.ini file?
- Would you like to replace the existing /home/oracle/EXALYTICS_MWHOME/./TimesTen/tt1122/info/sys.odbc.ini file?
- Would you also like to remove all files in /home/oracle/EXALYTICS_MWHOME/./TimesTen/tt1122/info?

For more information, see "Performing an in-place database upgrade" and "Performing an offline upgrade" in *Oracle TimesTen In-Memory Database Installation Guide*.

4. If Oracle Essbase is deployed, then download and install Oracle Essbase 11.1.2.2.000, Patchset 11.1.2.2.100 from the Oracle Software Delivery Cloud web site.

- a. Navigate to the Oracle Software Delivery Cloud web site at the following link:

<http://edelivery.oracle.com>

- b. For Product Pack, select **Oracle Enterprise Performance System**.

- c. For Platform, select **Linux x86-64**.

- d. Click **Go**.

- e. Select and download **Oracle Enterprise Performance Management System (11.1.2.2.0) Media Pack for Linux x86-64**.

The 11.1.2.2.0 media pack contains Oracle Essbase 11.1.2.2.100.

To install Oracle Essbase on the Oracle Exalytics Release 1 Patchset 1, see the installation instructions in the Oracle Enterprise Performance Management System ReadMe file for installation and configuration at the following location:

http://docs.oracle.com/cd/E17236_01/epm.1112/epm_1112200_readme.pdf

5. Download and install the Oracle Exalytics X2-4 Configuration Utilities v 1.0.0.4.

To download and install the Oracle Exalytics Configuration utility patch and ASR utility, perform the following actions:

- a. Download and install Oracle Exalytics X2-4 Configuration Utilities v 1.0.0.4 Exalytics Media Pack under Oracle Business Intelligence for Linux x86-64 platform, from Oracle Software Delivery Cloud web site at the following link:

<http://edelivery.oracle.com>

- b. Unzip the file into a temporary directory.

The zip file contains the files that are listed in [Table 7-3](#).

Table 7-3 Files in the Oracle Exalytics Configuration Utility Zip File

File Name	Notes
configure_network_for_exalytics.sh	Oracle Exalytics network configuration script
SUN-HW-TRAP-MIB.mib	ASR (Auto Service Request) on Oracle Exalytics
bda_mon_hw_asr.pl	ASR mail script on Oracle Exalytics
common_subs.pm	ASR on Oracle Exalytics
setup_asr_ilom.pl	ASR on Oracle Exalytics

- c. Copy the file `configure_network_for_exalytics.sh` to an appropriate destination, such as `/opt/exalytics`.

Note: Before copying the file, ensure that you back up the existing file as `configure_network_for_exalytics.sh_V1` first.

- d. Oracle Exalytics network configuration script is executed directly to configure the network.

No rpm files are required.

6. Complete the following steps to configure ASR. You must first install the rpm files from the `p14301728_10000_Linux-x86-64.zip` file.

- a. Create a directory using a command such as the following:

```
mkdir -p /opt/exalytics/asr
```

- b. Copy the following files into the new directory from the directory where you previously extracted them.

```
bda_mon_hw_asr.pl
```

```
setup_asr_ilom.pl
```

```
common_subs.pm
```

```
SUN-HW-TRAP-MIB.mib
```

- c. Add the following line to the `/etc/inittab` file:

```
emh1:345:respawn:/opt/exalytics/asr/bda_mon_hw_asr.pl -server
```

- d. Execute the following commands to add executive permissions on the pl script:

```
chmod +x setup_asr_ilom.pl
```

```
chmod +x bda_mon_hw_asr.pl
```

- e. At the command line, execute the `init q` command to initialize and start the `bda_mon` server.

- f. Use the client to configure ASR destinations by using the instructions that are available from the following command that you execute from the `/opt/exalytics/asr` directory:

```
./bda_mon_hw_asr.pl -help
```

For more information, see "Installing Auto Service Request Software" in *Oracle Exalytics In-Memory Machine Owner's Guide*.

7.2.6 Postinstallation Instructions

To ensure that Oracle Business Intelligence Enterprise Edition and Oracle TimesTen data type mapping and other optimizations are consistent and can be leveraged, you must complete postinstallation steps for the following Oracle Exalytics components:

- [Section 7.2.6.1, "Oracle TimesTen In-Memory Database"](#)
- [Section 7.2.6.2, "Oracle Business Intelligence Enterprise Edition"](#)

7.2.6.1 Oracle TimesTen In-Memory Database

This section contains the following topics:

- [Section 7.2.6.1.1, "Configuring Oracle TimesTen Checkpoint Frequency"](#)
- [Section 7.2.6.1.2, "Other Postinstallation Steps"](#)

7.2.6.1.1 Configuring Oracle TimesTen Checkpoint Frequency

To ensure Oracle Business Intelligence Enterprise Edition sets the Oracle TimesTen checkpoint frequency, perform the following configuration steps after upgrading Oracle TimesTen In-Memory Database. Failure to perform this configuration may adversely affect Oracle TimesTen performance.

To configure Oracle TimesTen checkpoint frequency:

1. Open the `timesten-install-dir/info/sys.odbc.ini` file.
2. Find the DSN entry for the schema used for Aggregate Persistence.
3. Do one of the following:
 - If you are loading data in Oracle TimesTen database using aggregate persistence, edit the three parameters as follows:
 - `CkptFrequency=-1`
 - `CkptLogVolume=0`
 - `CkptRate=0`
 - If you are loading data in Oracle TimesTen database without using aggregate persistence, use a different server DSN and edit the three parameters as follows:
 - `CkptFrequency=30`
 - `CkptLogVolume=0`
 - `CkptRate=0`

7.2.6.1.2 Other Postinstallation Steps

After upgrading Oracle TimesTen, you must complete the postinstallation steps of re-creating datastores and rebuilding aggregates.

To complete other postinstallation steps in Oracle TimesTen:

1. Re-create existing datastores for Oracle TimesTen.
2. Rebuild aggregates using the `nqcmd` utility. For more information, see "Creating and Persisting Aggregates for Oracle BI Server Queries" in *Oracle Fusion*

Middleware Metadata Repository Builder's Guide for Oracle Business Intelligence Enterprise Edition.

7.2.6.2 Oracle Business Intelligence Enterprise Edition

This section contains the following topics:

- ["Edit the opmn.xml File"](#)
- ["Reinstall Oracle Business Intelligence Client Installer"](#)

7.2.6.2.1 Edit the opmn.xml File For faster aggregation and better performance, Oracle recommends that you edit the opmn.xml file to include the appropriate elements. Ensure that you edit the opmn.xml file on each Exalytics machine that is configured in a highly available clustered environment.

To edit the opmn.xml file to improve aggregation and performance:

1. Open the opmn.xml file (which is located in MW_HOME/instances/instance1/config/OPMN/opmn).
2. Insert the following child elements under `<ias-component id="coreapplication_obis1" inherit-environment="true"><environment>`:
 - a. `<variable id="ORACLE_BI_TT_DISABLE_REDO_LOGGING" value="1"/>`
Creates faster aggregation.
 - b. `<variable id="ORACLE_BI_TT_PARALLEL_INDEX_CREATION" value="1"/>`
Creates indexes in parallel, thereby creating faster aggregation.
 - c. `<variable id="ORACLE_BI_TT_BACKGROUND_CHECKPOINT_INTERVAL" value="5"/>`
This BI Server controlled parameter determines the frequency of Oracle TimesTen datastores that are stored to disk (datastore persistence). The default value is every 10 seconds. The smaller the number of the "value", the more often Oracle TimesTen stores datastores to disk.
3. Stop and start the Notification Server.
 - a. Go to the following directory that contains the OPMN command-line tool:
MW_HOME/instances/instance1/bin
 - b. Run the following command:
`./opmnctl stopall`
Stops OPMN and all Oracle Business Intelligence system components.
 - c. Run the following command:
`./opmnctl startall`
Starts OPMN and all Oracle Business Intelligence system components.

7.2.6.2.2 Reinstall Oracle Business Intelligence Client Installer For information about installing Oracle Business Intelligence Client Tools, see "Installing and Uninstalling Oracle Business Intelligence Client Tools" in *Oracle Fusion Middleware Installation Guide for Oracle Business Intelligence*.

7.2.7 Deinstallation Instructions

If you experience any problems after installing the patch, then Oracle recommends that you roll back all Oracle Exalytics component patches to maintain the version stripe. Do not rollback one or two individual component patches. Instructions for rollback are included in the component-specific ReadMe files.

If you encounter any issues while applying any patch updates, then contact Oracle Support.

7.2.8 Bugs Fixed by this Patch

Bugs fixed for each component in the Oracle Exalytics Patchset are described in the component-specific ReadMe files.

7.2.9 Known Bugs with this Patch

Known bugs with each of the components in the Oracle Exalytics Patchset (if any) are described in the component-specific ReadMe files.

7.3 Applying the Oracle Exalytics Release 1 Patchset 2 (1.0.0.2)

This section is effectively the ReadMe file for the Oracle Exalytics Release 1 Patchset 2 and contains the following topics:

- [Section 7.3.1, "About the Oracle Exalytics Release 1 Patchset 2"](#)
- [Section 7.3.2, "Who Should Install the Oracle Exalytics Release 1 Patchset 2?"](#)
- [Section 7.3.3, "New Features in the Oracle Exalytics Release 1 Patchset 2"](#)
- [Section 7.3.4, "Guidelines for Installing the Oracle Exalytics Release 1 Patchset 2"](#)
- [Section 7.3.5, "Installing the Oracle Exalytics Release 1 Patchset 2"](#)
- [Section 7.2.6, "Postinstallation Instructions"](#)
- [Section 7.2.7, "Deinstallation Instructions"](#)
- [Section 7.2.8, "Bugs Fixed by this Patch"](#)
- [Section 7.2.9, "Known Bugs with this Patch"](#)

7.3.1 About the Oracle Exalytics Release 1 Patchset 2

The Oracle Exalytics Release 1 Patchset 2 comprises patches for the core components and specific software versions that are listed in [Table 7-4](#).

Table 7-4 Core Components and Supported Versions in Oracle Exalytics Patchset 2

Core Component	Supported Version
Oracle Business Intelligence Enterprise Edition	11.1.1.6.5
Oracle TimesTen In-Memory Database for Exalytics	11.2.2.4.1
Oracle Essbase	11.1.2.2.101
Oracle Exalytics Base Image 1.0.0.4 Upgrade Utility	1.0.0.4 Upgrades the base image to 1.0.0.4.
Oracle Exalytics X-24 Configuration Utility	1.0.0.5

For the latest information on the supported versions, see *Oracle Exalytics Certification Matrix* at the following location:

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

7.3.2 Who Should Install the Oracle Exalytics Release 1 Patchset 2?

The Patchset is available for all Oracle Exalytics customers.

7.3.3 New Features in the Oracle Exalytics Release 1 Patchset 2

This section includes the following topics:

- [Section 7.3.3.1, "Oracle Exalytics Release 1 Patchset 2 Installed on Oracle Exalytics Release 1 Patchset 1"](#)
- [Section 7.3.3.2, "Oracle Exalytics Release 1 Patchset 2 Installed on Oracle Exalytics Release 1"](#)

7.3.3.1 Oracle Exalytics Release 1 Patchset 2 Installed on Oracle Exalytics Release 1 Patchset 1

Oracle Exalytics Release 1 Patchset 2 contains no new features, but does include a number of bug fixes for the components that comprise Oracle Exalytics. These bug fixes are described in the component-specific ReadMe files.

7.3.3.2 Oracle Exalytics Release 1 Patchset 2 Installed on Oracle Exalytics Release 1

If you are installing Oracle Exalytics Release 1 Patchset 2 on Oracle Exalytics Release 1, note that the new features in Oracle Exalytics Release 1 Patchset 2 are cumulative; that is, Oracle Exalytics Release 1 Patchset 2 includes the new features in Oracle Exalytics Release 1 Patchset 1. For detailed information about the new features and additional certifications in Oracle Exalytics Release 1 Patchset 1, see [Section 7.2.3, "New Features in the Oracle Exalytics Release 1 Patchset 1."](#)

7.3.4 Guidelines for Installing the Oracle Exalytics Release 1 Patchset 2

Review the following guidelines before installing the Patchset:

- Before applying the patches that are included in the Patchset, ensure that you back up your current installation, configuration files, and any user-specific artifacts, and stop all applicable services.
- When applying the patch on a virtualized environment, do not patch the following:
 - Auto Service Request (ASR) included in the Exalytics Configuration Utility
 - Oracle Exalytics X2-4 Base Image
- If you have installed Oracle Enterprise Performance Management components on the Exalytics machine, stop all Enterprise Performance Management services before applying the patch. Also, ensure that you start all services after applying the patch. For more information, see "Chapter 12, Starting and Stopping EPM System Products" in *Oracle Enterprise Performance Management System Installation and Configuration Guide Release 11.1.2.2* at the following location:

http://docs.oracle.com/cd/E17236_01/epm.1112/epm_install_1112200.pdf

- If you are installing Oracle Exalytics Release 1 Patchset 2 on Oracle Exalytics Release 1, then delete aggregates in Oracle TimesTen using the nqcmd utility. For more information, see "Creating and Persisting Aggregates for Oracle BI Server Queries" in *Oracle Fusion Middleware Metadata Repository Builder's Guide for Oracle Business Intelligence Enterprise Edition*.
- Patches for the core components of Oracle Exalytics in the Patchset have been tested to work together. Oracle highly recommends that you apply or roll back all core component patches together. Do not apply or rollback individual patches to different core components (such as Oracle BI EE, Oracle Essbase (if installed), and Oracle TimesTen).
- For late-breaking information, see *Oracle Exalytics Release Notes*.

7.3.5 Installing the Oracle Exalytics Release 1 Patchset 2

To install Oracle Exalytics Release 1 Patchset 2 on Oracle Exalytics Release 1 or on Oracle Exalytics Release 1 Patchset 1 (1.0.0.1), perform the following steps:

- [Section 7.3.5.1, "Step 1: Upgrade Firmware"](#)
- [Section 7.3.5.2, "Step 2: Run the Oracle Exalytics Base Image 1.0.0.4 In-Place Upgrade Script"](#)
- [Section 7.3.5.3, "Step 3: Download and Install the Oracle Exalytics X2-4 Configuration Utilities v 1.0.0.5"](#)
- [Section 7.3.5.4, "Step 4: Configure ASR"](#)
- [Section 7.3.5.5, "Step 5: Configure Exalytics Host for Enterprise Manager Cloud Control Discovery"](#)
- [Section 7.3.5.6, "Step 6: Download and Install Oracle BI EE 11.1.1.6.5"](#)
- [Section 7.3.5.7, "Step 7: Download and Install Oracle TimesTen 11.2.2.4.1"](#)
- [Section 7.3.5.8, "Step 8: Download and Install Oracle Essbase 11.1.2.2.000, Patchset 11.1.2.2.101"](#)

7.3.5.1 Step 1: Upgrade Firmware

If not already done, upgrade your firmware to 3.1.2.24. Oracle Integrated Lights Out Manager 3.1.2.24 (ILOM) has a new user interface and navigation.

For information about Oracle Integrated Lights Out Manager (ILOM) consult the Sun Server X2-4 Documentation manuals which are available in the Oracle Exalytics Library at:

http://docs.oracle.com/cd/E27027_01/index.htm

To upgrade firmware:

1. Navigate to My Oracle Support and download patch number 14099616.
The patch zip file contains the ILOM-3_1_2_24_r73820-Sun_Fire_X4470M2.pkg.
2. Extract the zip file into a temporary folder.
3. On the Exalytics Machine, connect and log on to Oracle Integrated Lights Out Manager (ILOM).
4. In ILOM, select **Maintenance**, and then select the **Firm Upgrade** tab.

5. Click **Enter Upgrade Mode**.
6. Click **OK**.
7. Click **Browse**, navigate to the temporary folder, and select the ILOM-3_1_2_24_r73820-Sun_Fire_X4470M2.pkg that you downloaded.
8. Click **Upload**.
9. If not already selected, select **Preserve Existing Configuration**.
10. Click **Start Upgrade**.
11. Click **OK**.

After the upgrade completes successfully, ILOM restarts automatically.

7.3.5.2 Step 2: Run the Oracle Exalytics Base Image 1.0.0.4 In-Place Upgrade Script

You run the upgrade script to upgrade Oracle Exalytics base image to 1.0.0.4.

Note: If you are installing Oracle Exalytics Release 1 Patchset 2 on Oracle Exalytics Release 1 Patchset 1, the script installs new rpms without affecting your existing installation.

To run the Oracle Exalytics Base Image 1.0.0.4 In-Place Upgrade Script:

1. Navigate to My Oracle Support and download patch number 15935265 containing the Oracle Exalytics X2-4 Base Image 1.0.0.4 for Linux X86-84 Upgrade Utility.
2. Unzip the file into a temporary directory.

The Oracle Exalytics X2-4 Base Image 1.0.0.4 for Linux X86-84 Upgrade Utility zip file contains the script file (ex_x2-4_in-place_upgrade_script_patch.zip), text, and rpm (RPM Package Manager) files that are listed in [Table 7-5](#).

Table 7-5 Text and RPM Files in the Oracle Exalytics 1.0.0.4 Upgrade Utility Zip File

File Name	Notes
README.txt	File with install instructions
upgrade.sh	Upgrade script
new_image_files	The following image files for 1.0.0.4 supported_config base_functions
new_rpm files	rpm files in Oracle Exalytics Patchset 1
<ul style="list-style-type: none"> ■ sun-hardware-reg-1.0.0-1.i386.rpm ■ sun-servicetag-1.1.5-1.i386.rpm ■ httpd-2.2.3-43.0.1.el5.x86_64.rpm ■ lsscsi-0.17-3.el5.x86_64.rpm ■ mod_perl-2.0.4-6.el5.x86_64.rpm ■ perl-BSD-Resource-1.28-1.fc6.1.x86_64.rpm 	<ul style="list-style-type: none"> ■ Service Tag related rpm ■ Service Tag related rpm ■ ASR scripts related rpm
new_rpm files exalogic-1.0.0.4-1.0.noarch.rpm	rpm files for Oracle Exalytics base image 1.0.0.4

3. Execute the following commands as a root user from the temporary directory:

```
chmod u+x upgrade.sh
./upgrade.sh 2>&1 | tee -a upgrade.log
```

4. Check rpm versions.
 - a. Execute the following command as a root user:


```
rpm -q httpd perl-BSD-Resource mod_perl lsscsi sun-servicetag
sun-hardware-reg exalogic
```
 - b. Confirm that the output is displayed as follows:


```
httpd-2.2.3-43.0.1.el5
perl-BSD-Resource-1.28-1.fc6.1
mod_perl-2.0.4-6.el5
lsscsi-0.17-3.el5
sun-servicetag-1.1.5-1
sun-hardware-reg-1.0.0-1
exalogic-1.0.0.4-1.0
```
5. Confirm base image version.
 - a. Execute the command `/usr/sbin/imageinfo | grep "Image version"` as a root user.
 - b. Confirm that the output is displayed as follows:


```
Image version: 1.0.0.4.0
```
6. Restart the system to complete the base image upgrade.

7.3.5.3 Step 3: Download and Install the Oracle Exalytics X2-4 Configuration Utilities v 1.0.0.5

To download and install the Oracle Exalytics Configuration utility patch and ASR utility:

1. Download and install Oracle Exalytics X2-4 Configuration Utilities v 1.0.0.5 Exalytics Media Pack under Oracle Business Intelligence for Linux x86-64 platform, from Oracle Software Delivery Cloud web site at the following link:

<http://edelivery.oracle.com>
2. Unzip the file into a temporary directory.

The zip file contains the files that are listed in [Table 7-6](#).

Table 7-6 Files in the Oracle Exalytics Configuration Utility Zip File

File Name	Notes
configure_network_for_exalytics.sh	Oracle Exalytics network configuration script
configure_for_emcc.sh	Oracle Exalytics Enterprise Manager configuration script
SUN-HW-TRAP-MIB.mib	ASR (Auto Service Request) on Oracle Exalytics
bda_mon_hw_asr.pl	ASR main script on Oracle Exalytics
common_subs.pm	ASR on Oracle Exalytics
setup_asr_ilom.pl	ASR on Oracle Exalytics

3. Copy the file `configure_network_for_exalytics.sh` to an appropriate destination, such as `/opt/exalytics`.

Note: Before copying the file, ensure that you back up the existing file as `configure_network_for_exalytics.sh_V1` first.

4. Oracle Exalytics network configuration script is executed directly to configure the network.

No rpm files are required.

7.3.5.4 Step 4: Configure ASR

If you are installing Oracle Exalytics Release 1 Patchset 2 on Oracle Exalytics Release 1, then complete the following steps to configure ASR. ASR requires several rpms, which are installed by the upgrade script.

Note: If you are installing Oracle Exalytics Release 1 Patchset 2 on Oracle Exalytics Release 1 Patchset 1, you can skip this step.

To configure ASR:

1. Create a directory using a command such as the following:

```
mkdir -p /opt/exalytics/asr
```

2. Copy the following files into the new directory from the directory where you previously extracted them:

```
bda_mon_hw_asr.pl
```

```
setup_asr_ilom.pl
```

```
common_subs.pm
```

```
SUN-HW-TRAP-MIB.mib
```

3. Add the following line to the `/etc/inittab` file:

```
emh1:345:respawn:/opt/exalytics/asr/bda_mon_hw_asr.pl -server
```

4. Execute the following commands to add executive permissions on the pl script:

```
chmod +x setup_asr_ilom.pl
```

```
chmod +x bda_mon_hw_asr.pl
```

5. At the command line, execute the `init q` command to initialize and start the `bda_mon` server.

6. Execute the `ps -ef | grep bda` command to ensure that `bda_mon_hw_asr.pl` is running.

7. Use the client to configure ASR destinations by using the instructions that are available from the following command that you execute from the `/opt/exalytics/asr` directory:

```
./bda_mon_hw_asr.pl -help
```

For more information, see "Installing Auto Service Request Software" in *Oracle Exalytics In-Memory Machine Owner's Guide*.

7.3.5.5 Step 5: Configure Exalytics Host for Enterprise Manager Cloud Control Discovery

If Enterprise Manager Cloud Control (EMCC) is deployed, complete the following steps to enable EMCC to identify the Exalytics host:

To configure Exalytics Host for Enterprise Manager Cloud Control Discovery:

1. Log on to Oracle Integrated Lights Out Manager (ILOM) and select **ILOM Administration**, then **Identification**, and then **System Information**. Ensure that the SP System Identifier value is populated with a unique value, such as "Oracle Exalytics X2-2 AK00026925".
2. Log on to the same Oracle Exalytics machine where you extracted the Oracle Exalytics X2-4 Configuration Utilities v 1.0.0.5.
3. Execute the command `chmod +x configure_for_emcc.sh` to grant execute permissions.
4. Execute the following command as a root user to create the file:


```
./configure_for_emcc.sh
```
5. Review the output and ensure that the contents of the `/var/exalytics/info/em-context.info` file correctly displays the system identifier for the Oracle Exalytics machine. The system identifier should be identical to the system identifier you saw in Step 1 of this procedure.

7.3.5.6 Step 6: Download and Install Oracle BI EE 11.1.1.6.5

To apply the Oracle BI EE 11.1.1.6.5 Patchset to an Oracle BI EE 11.1.1.6.x installation, see the instructions in the ReadMe file for patch 14696072 (the first patch of the Oracle BI EE 11.1.1.6.5 Patchset).

You can download the Readme for patch 14696072 from My Oracle Support.

7.3.5.7 Step 7: Download and Install Oracle TimesTen 11.2.2.4.1

Navigate to the Oracle Software Delivery Cloud web site at the following link and download and install Oracle TimesTen 11.2.2.4.1.

<http://edelivery.oracle.com>

Note: If you are installing Oracle Exalytics for the first time, you can install Oracle TimesTen 11.2.2.4.1 instead of applying patches to previous Oracle TimesTen versions.

During the installation of Oracle TimesTen, answer "Yes" to the question: Would you like to upgrade this instance?

Also, ensure that you do not delete existing files. For example, during the installation, answer "No" to the following questions:

- Would you also like to remove all files in `/home/oracle/EXALYTICS_MWHOME/./TimesTen/tt1122/network/admin/samples`?
- Would you like to replace the existing `cluster.oracle.ini` file?
- Would you like to replace the existing `/home/oracle/EXALYTICS_MWHOME/./TimesTen/tt1122/info/sys.odbc.ini` file?

- Would you also like to remove all files in `/home/oracle/EXALYTICS_MWHOME/./TimesTen/tt1122/info`?

For more information, see "Performing an in-place database upgrade" and "Performing an offline upgrade" in *Oracle TimesTen In-Memory Database Installation Guide*.

7.3.5.8 Step 8: Download and Install Oracle Essbase 11.1.2.2.000, Patchset 11.1.2.2.101

If you are deploying Oracle Essbase 11.1.2.2.000, then perform an action:

1. If Oracle Essbase 11.1.2.2.100 is installed, then download and install Patchset 11.1.2.2.101 (Patch number 14400518) from My Oracle Support web site.
2. If Oracle Essbase 11.1.2.2.100 is *not* installed, then download and install Oracle Essbase 11.1.2.2.100 from the Oracle Software Delivery Cloud web site, and then apply Patchset 11.1.2.2.101 (Patch number 14400518).

To download Oracle Essbase 11.1.2.2.100 and 11.1.2.2.101 Patchsets:

- a. Navigate to the Oracle Software Delivery Cloud web site at the following link:
<http://edelivery.oracle.com>
- b. For Product Pack, select **Oracle Enterprise Performance System**.
- c. For Platform, select **Linux x86-64**.
- d. Click **Go**.
- e. Select and download **Oracle Enterprise Performance Management System (11.1.2.2.0) Media Pack for Linux x86-64**.

The 11.1.2.2.0 media pack contains Oracle Essbase 11.1.2.2.100.

- f. Navigate to My Oracle Support and download and install Patchset 11.1.2.2.101 (Patch number 14400518).

To install Oracle Essbase on the Oracle Exalytics Release 1 Patchset 1, see the installation instructions in the Oracle Enterprise Performance Management System ReadMe file for installation and configuration at the following location:

http://docs.oracle.com/cd/E17236_01/epm.1112/epm_1112200_readme.pdf

7.3.6 Postinstallation Instructions

To ensure that Oracle Business Intelligence Enterprise Edition and Oracle TimesTen data type mapping and other optimizations are consistent and can be leveraged, you must complete postinstallation steps for the following Oracle Exalytics components:

- [Section 7.2.6.1, "Oracle TimesTen In-Memory Database"](#)
- [Section 7.2.6.2, "Oracle Business Intelligence Enterprise Edition"](#)

7.3.6.1 Oracle TimesTen In-Memory Database

This section contains the following topics:

- [Section 7.2.6.1.1, "Configuring Oracle TimesTen Checkpoint Frequency"](#)
- [Section 7.2.6.1.2, "Other Postinstallation Steps"](#)

7.3.6.1.1 Configuring Oracle TimesTen Checkpoint Frequency

To ensure Oracle Business Intelligence Enterprise Edition sets the Oracle TimesTen checkpoint frequency, perform the following configuration steps after upgrading Oracle TimesTen In-Memory Database. Failure to perform this configuration may adversely affect Oracle TimesTen performance.

To configure Oracle TimesTen checkpoint frequency:

1. Open the `timesten-install-dir/info/sys.odbc.ini` file.
2. Find the DSN entry for the schema used for Aggregate Persistence.
3. Do one of the following:
 - If you are loading data in Oracle TimesTen database using aggregate persistence, edit the three parameters as follows:
 - `CkptFrequency=-1`
 - `CkptLogVolume=0`
 - `CkptRate=0`
 - If you are loading data in Oracle TimesTen database without using aggregate persistence, use a different server DSN and edit the three parameters as follows:
 - `CkptFrequency=30`
 - `CkptLogVolume=0`
 - `CkptRate=0`

7.3.6.1.2 Other Postinstallation Steps

After upgrading Oracle TimesTen, you must complete the postinstallation steps of re-creating datastores and rebuilding aggregates.

To complete other postinstallation steps in Oracle TimesTen:

1. Re-create existing datastores for Oracle TimesTen.
2. If you are installing Oracle Exalytics Release 1 Patchset 2 on Oracle Exalytics Release 1, then rebuild aggregates using the `nqcmd` utility. For more information, see "Creating and Persisting Aggregates for Oracle BI Server Queries" in *Oracle Fusion Middleware Metadata Repository Builder's Guide for Oracle Business Intelligence Enterprise Edition*.

7.3.6.2 Oracle Business Intelligence Enterprise Edition

This section contains the following topics:

- ["Edit the opmn.xml File"](#)
- ["Reinstall Oracle Business Intelligence Client Installer"](#)

7.3.6.2.1 Edit the opmn.xml File For faster aggregation and better performance, Oracle recommends that you edit the `opmn.xml` file to include the appropriate elements. Ensure that you edit the `opmn.xml` file on each Exalytics machine that is configured in a highly available clustered environment.

To edit the opmn.xml file to improve aggregation and performance:

1. Open the `opmn.xml` file (which is located in `MW_HOME/instances/instance1/config/OPMN/opmn`).

2. Insert the following child elements under `<ias-component id="coreapplication_obis1" inherit-environment="true"><environment>`:
 - a. `<variable id="ORACLE_BI_TT_DISABLE_REDO_LOGGING" value="1"/>`
Creates faster aggregation.
 - b. `<variable id="ORACLE_BI_TT_PARALLEL_INDEX_CREATION" value="1"/>`
Creates indexes in parallel, thereby creating faster aggregation.
 - c. `<variable id="ORACLE_BI_TT_BACKGROUND_CHECKPOINT_INTERVAL" value="5"/>`

This BI Server controlled parameter determines the frequency of Oracle TimesTen datastores that are stored to disk (datastore persistence). The default value is every 10 seconds. The smaller the number of the "value", the more often Oracle TimesTen stores datastores to disk.
3. Stop and start the Notification Server.
 - a. Go to the following directory that contains the OPMN command-line tool:
MW_HOME/instances/instance1/bin
 - b. Run the following command:

```
./opmnctl stopall
```

Stops OPMN and all Oracle Business Intelligence system components.
 - c. Run the following command:

```
./opmnctl startall
```

Starts OPMN and all Oracle Business Intelligence system components.

7.3.6.2.2 Reinstall Oracle Business Intelligence Client Installer For information about installing Oracle Business Intelligence Client Tools, see "Installing and Uninstalling Oracle Business Intelligence Client Tools" in *Oracle Fusion Middleware Installation Guide for Oracle Business Intelligence*.

7.3.7 Deinstallation Instructions

If you experience any problems after installing the patch, then Oracle recommends that you roll back all Oracle Exalytics component patches to maintain the version stripe. Do not rollback one or two individual component patches. Instructions for rollback are included in the component-specific ReadMe files.

If you encounter any issues while applying any patch updates, then contact Oracle Support.

7.3.8 Bugs Fixed by this Patch

Bugs fixed for each component in the Oracle Exalytics Patchset are described in the component-specific ReadMe files.

7.3.9 Known Bugs with this Patch

Known bugs with each of the components in the Oracle Exalytics Patchset (if any) are described in the component-specific ReadMe files.

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 3](#) 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 4, "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 sections:

- [Section 8.1, "Requirements for High Availability"](#)
- [Section 8.2, "Diagram of High Availability"](#)
- [Section 8.3, "Configuring for High Availability"](#)
- [Section 8.4, "Troubleshooting the Highly Available Deployment"](#)

8.1 Requirements for High Availability

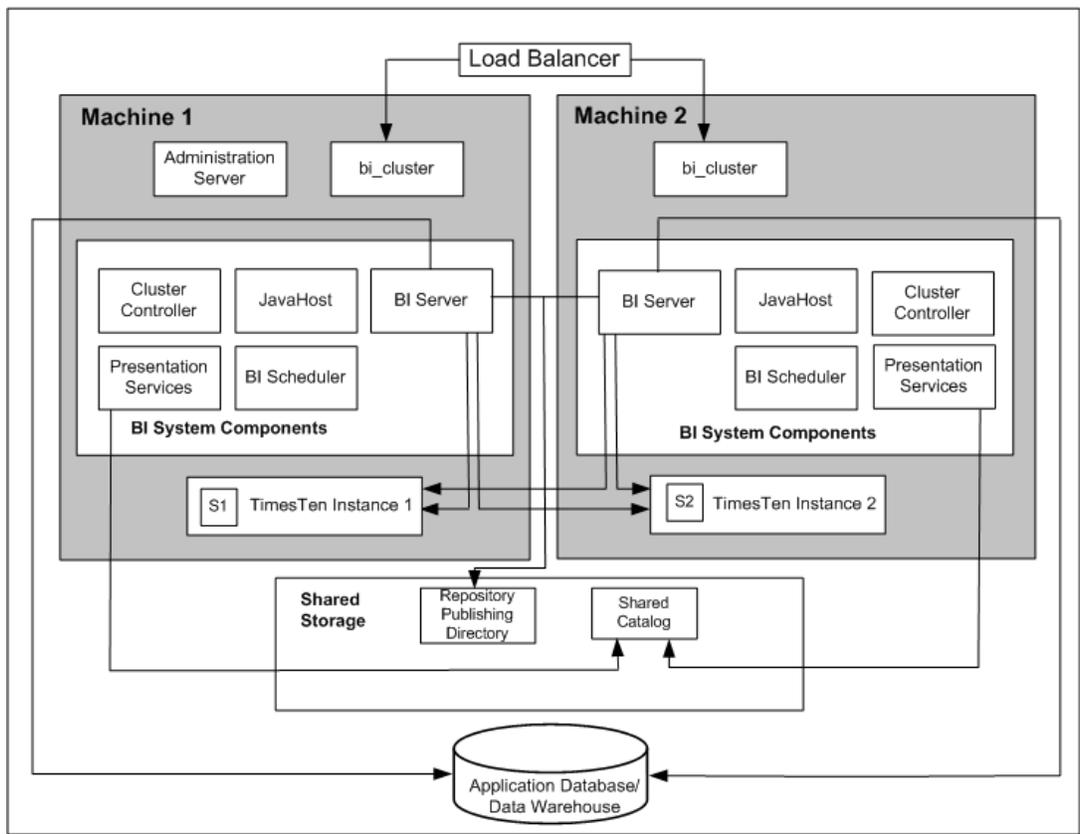
The following are required for a high availability configuration:

- Each computer has an independent instance of Oracle TimesTen.
- Each computer has an `odbc.ini` file that contains a separate DSN for each instance of Oracle TimesTen. Each Oracle 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.

8.2 Diagram of High Availability

[Figure 8-1](#) shows a diagram of high availability for the Exalytics Machine. In certain scenarios, the system might benefit from using Oracle HTTP Server in the web tier.

Figure 8–1 High-Availability for the Exalytics Machine



8.3 Configuring for High Availability

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

- [Section 8.3.1, "Step 1: Preparing the First Exalytics Machine"](#)
- [Section 8.3.2, "Step 2: Preparing the Second Exalytics Machine"](#)
- [Section 8.3.3, "Step 3: Installing Oracle WebLogic Server"](#)
- [Section 8.3.4, "Step 4: Installing Oracle Business Intelligence"](#)
- [Section 8.3.5, "Step 5: Scaling Out the Existing BI Domain"](#)
- [Section 8.3.6, "Step 6: Installing and Configuring Oracle TimesTen"](#)
- [Section 8.3.7, "Step 7: Scaling Out System Components to the Second Exalytics Machine"](#)
- [Section 8.3.8, "Step 8: Configuring Shared Storage for Persistent Stores"](#)
- [Section 8.3.9, "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.

8.3.1 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.

8.3.2 Step 2: Preparing the Second Exalytics Machine

To prepare the second Exalytics Machine:

1. Create the user, as described in [Section 3.2.1, "Step 1: Creating the User and Group on the Operating System."](#)
2. Create the inventory for Oracle TimesTen, as described in [Section 3.2.2, "Step 2: Creating the Inventory for Oracle 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:


```
/u01/app/oracle/product/fmw
```
 - The target directory for the Oracle TimesTen installation:


```
/u01/app/oracle/product/TimesTen
```
4. Download the files into the directory structure, as described in [Section 3.2.5, "Step 5: Downloading Oracle Files into the Directory Structure."](#) You do not have to download the files for the Repository Creation Utility.

8.3.3 Step 3: Installing Oracle WebLogic Server

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

```
/u01/app/oracle/product/fmw
```

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.

8.3.4 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.

8.3.5 Step 5: Scaling Out the Existing BI Domain

You scale out the existing BI domain from the second Exalytics Machine.

To scale out the BI Domain:

1. Log on to the second Exalytics Machine.
2. Enter the following commands:


```
cd /u01/app/oracle/product/fmw/Oracle_BI1/bin
>./config.sh
```
3. Navigate through the pages of the wizard and select **Scale Out BI System**.
4. Enter details of the first Exalytics Machine and the directory locations for the installation are populated automatically.
5. 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.

8.3.6 Step 6: Installing and Configuring Oracle TimesTen

To install and configure Oracle 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 /u01/app/oracle/product/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 daemon configuration scripts for Oracle TimesTen as root, as described in [Section 4.4, "Running the Daemon Configuration Scripts for Oracle TimesTen."](#)
3. On the first Exalytics Machine, configure the BI Server to communicate with either instance of Oracle TimesTen by creating two DSNs for Oracle TimesTen, as described in [Section 4.7, "Configuring the ODBC Connection from Oracle Business Intelligence to Oracle TimesTen."](#)
4. On the second Exalytics Machine, perform the same procedure as in the previous step to create DSNs for Oracle TimesTen to configure the connectivity from the second BI Server to either instance of Oracle TimesTen.
5. Update the opmn.xml file on the second Exalytics Machine to point to the driver location for ODBC for Oracle 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:/u01/app/oracle/product/TimesTen/tt1122/lib" append="true"/>
<variable id="TIMESTEN_DLL"
value="/u01/app/oracle/product/TimesTen/tt1122/lib/libttclient.so"/>
```

The opmn.xml file is in the following directory:

```
/u01/app/oracle/product/fmw/instances/instance2/config/OPMN
```

6. Stop and start the Notification Server (OPMN).
 - a. Go to the following directory that contains the OPMN command-line tool:


```
/u01/app/oracle/product/fmw/instances/instance2/bin
```
 - b. Run the following command:


```
./opmnctl stopall
```

 Stops OPMN and all Oracle Business Intelligence system components.
 - c. Go to the following directory that contains the OPMN command-line tool:


```
/u01/app/oracle/product/fmw/instances/instance2/bin
```
 - d. Run the following command:


```
./opmnctl startall
```

 Starts OPMN and all Oracle Business Intelligence system components.

Starts OPMN and all Oracle Business Intelligence system components.

For more information, see "Using the OPMN Command Line to Start, Stop, Restart, and View the Status of System Components" in *Oracle Fusion Middleware System Administrator's Guide for Oracle Business Intelligence Enterprise Edition*.

7. Validate that you can use a client/server DSN for Oracle TimesTen 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 SQL client for Oracle TimesTen to connect to the Oracle TimesTen server on the first Exalytics Machine and validate that the BI Server can communicate with Oracle TimesTen.

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

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

To configure the communication between Oracle Business Intelligence and Oracle 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.

8.3.8 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*.

8.3.9 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*.

8.4 Troubleshooting the Highly Available Deployment

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

- [Section 8.4.1, "Connection Issues with the Oracle BI Server and Oracle TimesTen"](#)
- [Section 8.4.2, "Client Installer Cannot Locate the Driver for Oracle TimesTen"](#)
- [Section 8.4.3, "Oracle BI Server Does Not Fail Over to the Instance of Oracle TimesTen"](#)
- [Section 8.4.4, "Aggregates Are Not Present in Second Instance"](#)

8.4.1 Connection Issues with the Oracle BI Server and Oracle TimesTen

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

- Verify that the DSNs for Oracle TimesTen are configured correctly in the `odbc.ini` and `opmn.xml` files, as described in the following list:
 - The `odbc.ini` file in the `$ORACLE_INSTANCE/bifoundation/OracleBIApplication/coreapplication/setup` directory has the proper DSNs defined to connect to both instances of Oracle TimesTen, as described in [Section 4.7, "Configuring the ODBC Connection from Oracle Business Intelligence to Oracle TimesTen."](#)
 - The `opmn.xml` file in the `$ORACLE_INSTANCE/config/OPMN/opmn/` directory has the `LD_LIBRARY_PATH` variable set correctly to point to the shared library folder for Oracle TimesTen. The `TIMESTEN_DLL` variable must also be defined correctly, as shown in the following example:

```
<variable id="TIMESTEN_DLL"
value="u01/app/oracle/product/TimesTen/tt1122/lib/libttclient.so"/>
```

- The BI Server must use the ODBC driver for Oracle TimesTen Version 3.5 for connection.

During deployment of a repository, ensure that you use ODBC driver for Oracle TimesTen Version 3.5 for the database connection pool. Without the use of this driver version, the BI Server cannot connect to Oracle TimesTen.

8.4.2 Client Installer Cannot Locate the Driver for Oracle TimesTen

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 Oracle TimesTen to import metadata from a physical table source for Oracle TimesTen. To resolve this issue, set the `TIMESTEN_DLL` environment variable to point explicitly to the driver location for Oracle TimesTen, as shown in the following example:

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

8.4.3 Oracle BI Server Does Not Fail Over to the Instance of Oracle TimesTen

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

8.4.4 Aggregates Are Not Present in Second Instance

You might notice that aggregates that were created on the first instance of Oracle TimesTen are not available on the second instance of Oracle TimesTen. Keep in mind that no automatic replication exists between the Oracle 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 instance of Oracle TimesTen, then you must manually create the same aggregates on the second instance of Oracle TimesTen. You must ensure that you keep the two instances of Oracle TimesTen 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 Oracle 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 Oracle 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 Oracle 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 instances of Oracle TimesTen, 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*.

