

Oracle® Fusion Middleware

Installation and Administration Guide for Oracle Exalytics
In-Memory Machine

Exalytics Software Release 1.0.0.3 for Exalytics X2-4 and X3-4

E39709-03

September 2013

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 Software Release 1.0.0.3 for Exalytics X2-4 and X3-4

E39709-03

Copyright © 2011, 2013, Oracle and/or its affiliates. All rights reserved.

Primary Author: Guriqpal Gill

Contributing Authors: Christine Jacobs, Andy Page

Contributors: Oracle Business Intelligence development, product management, and quality assurance teams

This software and related documentation are provided under a license agreement containing restrictions on use and disclosure and are protected by intellectual property laws. Except as expressly permitted in your license agreement or allowed by law, you may not use, copy, reproduce, translate, broadcast, modify, license, transmit, distribute, exhibit, perform, publish, or display any part, in any form, or by any means. Reverse engineering, disassembly, or decompilation of this software, unless required by law for interoperability, is prohibited.

The information contained herein is subject to change without notice and is not warranted to be error-free. If you find any errors, please report them to us in writing.

If this is software or related documentation that is delivered to the U.S. Government or anyone licensing it on behalf of the U.S. Government, the following notice is applicable:

U.S. GOVERNMENT END USERS: Oracle programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, delivered to U.S. Government end users are "commercial computer software" pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, use, duplication, disclosure, modification, and adaptation of the programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, shall be subject to license terms and license restrictions applicable to the programs. No other rights are granted to the U.S. Government.

This software or hardware is developed for general use in a variety of information management applications. It is not developed or intended for use in any inherently dangerous applications, including applications that may create a risk of personal injury. If you use this software or hardware in dangerous applications, then you shall be responsible to take all appropriate fail-safe, backup, redundancy, and other measures to ensure its safe use. Oracle Corporation and its affiliates disclaim any liability for any damages caused by use of this software or hardware in dangerous applications.

Oracle and Java are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners.

Intel and Intel Xeon are trademarks or registered trademarks of Intel Corporation. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. AMD, Opteron, the AMD logo, and the AMD Opteron logo are trademarks or registered trademarks of Advanced Micro Devices. UNIX is a registered trademark of The Open Group.

This software or hardware and documentation may provide access to or information on content, products, and services from third parties. Oracle Corporation and its affiliates are not responsible for and expressly disclaim all warranties of any kind with respect to third-party content, products, and services. Oracle Corporation and its affiliates will not be responsible for any loss, costs, or damages incurred due to your access to or use of third-party content, products, or services.

Contents

Preface	ix
Audience	ix
Documentation Accessibility	ix
Related Documentation and Other Resources	x
Conventions	x
 New Features for Exalytics Machine	xi
New Features in Oracle Exalytics Release 1 Patchset 3 (1.0.0.3)	xi
New Features in Oracle Exalytics Release 1 Patchset 2 (1.0.0.2)	xi
New Features in Oracle Exalytics Release 1 Patchset 1 (1.0.0.1)	xii
Oracle Exalytics Release 1	xii
 Part I Installation	
 1 Installation Overview	
1.1 Installable Components	1-1
1.1.1 Core Components	1-2
1.1.2 Optional Components	1-2
1.2 Oracle Exalytics Architecture	1-2
1.3 System Requirements and Certification	1-3
 2 Configuring Exalytics Machines for Virtualization	
2.1 Before You Virtualize an Exalytics Machine	2-1
2.1.1 Documents to Review	2-1
2.1.2 Prerequisites for Configuring Exalytics Machines for Virtualization	2-2
2.1.3 Removing Existing Partitions	2-2
2.1.4 Reconfiguring Existing RAID Configurations on the Exalytics Machine	2-3
2.1.4.1 Reconfiguring Existing RAID Configurations on the X2-4 Exalytics Machine	2-3
2.1.4.2 Reconfiguring Existing RAID Configurations on the X3-4 Exalytics Machine	2-3
2.1.4.3 Resetting RAID Configuration (Optional)	2-4
2.2 Configuring an Exalytics Machine for Virtualization	2-5
2.2.1 Installing and Configuring Oracle VM Server	2-5
2.2.1.1 For Existing Customers on Oracle VM Server 3.0.3	2-5
2.2.1.2 For New Customers	2-5

2.2.1.2.1	Installing Oracle VM Server 3.0.3 (Base Image 2.0.1.1)	2-5
2.2.1.2.2	Configuring the Network on Oracle VM Server	2-6
2.2.1.2.3	Upgrading Oracle VM Server 3.0.3 to Oracle VM Server 3.2.4	2-7
2.2.1.2.4	Pinning Dom0 CPU	2-7
2.2.2	Installing and Configuring Oracle VM Manager 3.2.4	2-7
2.2.2.1	For Existing Customers on Oracle VM Manager 3.0.3	2-7
2.2.2.2	For New Customers	2-7
2.2.2.2.1	Installing Oracle VM Manager 3.2.1	2-8
2.2.2.2.2	Upgrading Oracle VM Manager 3.2.1 to Oracle VM Manager 3.2.4	2-8
2.2.2.2.3	Discovering Oracle VM Servers	2-8
2.2.2.2.4	Creating Virtual Network Interface Controllers	2-9
2.2.2.2.5	Creating Server Pools and Adding a Server	2-9
2.2.2.2.6	Creating an Exalytics Repository	2-9
2.2.3	Creating Virtual Machines	2-10
2.2.3.1	Downloading VM Templates	2-10
2.2.3.2	Importing VM Templates into Oracle VM Manager	2-11
2.2.3.3	Creating Virtual Machines from VM Templates	2-11
2.2.4	Maintaining Virtual Machines	2-12
2.2.4.1	Viewing Virtual Machine Information and Events	2-12
2.2.4.2	Configuring and Starting a Virtual Machine	2-13
2.2.4.3	Configuring a Network on a Virtual Machine	2-13
2.2.4.4	Configuring SWAP on a Virtual Machine	2-14
2.3	Installing and Configuring Exalytics Software on Virtual Machines	2-14
2.3.1	Prerequisites to Installing and Configuring Exalytics Software on Virtual Machines	2-15
2.3.2	Installing and Configuring Exalytics Software on Virtual Machines	2-15
2.3.2.1	Creating and Mounting a /u01 Partition	2-15
2.3.2.2	Modifying Oracle User and Granting Permissions	2-16
2.3.2.3	Installing Oracle Business Intelligence and Oracle TimesTen	2-17
2.3.2.4	Installing Oracle Essbase	2-17

3 Installing Software on the Exalytics Machine

3.1	Before You Install Software on the Exalytics Machine	3-1
3.1.1	Documents to Review	3-1
3.1.2	Prerequisites for Installing on the Exalytics Machine	3-2
3.2	Verifying Configuration of the Exalytics Machine	3-2
3.2.1	Verifying Exalytics Software and Storage Configurations	3-2
3.2.2	Verifying Exalytics Image Information	3-3
3.3	Installing the Software	3-3
3.3.1	Step 1: Creating the User, Group, and Password on the Operating System	3-4
3.3.2	Step 2: Creating the Inventory for Oracle TimesTen	3-4
3.3.3	Step 3: Setting Resource Limits for Oracle TimesTen	3-4
3.3.4	Step 4: Creating and Mounting a /u01 Partition	3-5
3.3.5	Step 5: Downloading Oracle Files into the Directory Structure	3-6
3.3.6	Step 6: Staging the Middleware Home	3-7
3.3.7	Step 7: Creating the Database Schemas	3-7
3.3.8	Step 8: Installing WebLogic Server	3-7

3.3.9	Step 9: Performing a Software Only Install	3-8
3.3.10	Step 10: Creating a New Oracle BI Enterprise Edition Instance	3-9
3.3.11	Step 11: Editing the Properties File	3-10
3.3.12	Step 12: Verifying the Checklist	3-11
3.3.13	Step 13: Running the Script	3-11
3.3.14	Step 14: Verifying the Installation	3-12
3.4	Troubleshooting the Installation and Configuration Processes	3-12
3.4.1	Resolving Issues with the Installation	3-12
3.4.2	Viewing Log Files	3-13
3.4.3	Reinstalling Software on the Exalytics Machine	3-13
3.4.4	Manually Setting the HardwareAcceleration MBean Attribute	3-13
3.4.5	Configuring Exalytics Operating System to Change Capacity On Demand	3-14
3.4.6	For More Information	3-15

4 Postinstallation Tasks

4.1	Installing and Deinstalling Oracle Business Intelligence Client Tools	4-1
4.2	Creating the boot.properties File	4-2
4.3	Starting and Stopping Components on the Exalytics Machine	4-2
4.4	Running the Daemon Configuration Scripts for Oracle TimesTen	4-2
4.5	Configuring Memory Settings on the Server	4-3
4.5.1	Configuring Large Pages at the Kernel Level	4-3
4.5.2	Configuring Large Pages for Oracle TimesTen In-Memory Databases	4-3
4.5.3	Increasing PermSize on Existing Oracle TimesTen In-Memory Databases	4-4
4.6	Instantiating the Oracle TimesTen In-Memory Database	4-4
4.7	Configuring the ODBC Connection from Oracle Business Intelligence to Oracle TimesTen	4-5
4.8	Mapping Instances of Oracle TimesTen into the Physical Layer of the Oracle BI Repository	4-7
4.9	Installing and Configuring BI Composer for Oracle BI EE	4-7
4.10	Creating a DSN for IBM DB2 or Microsoft SQL Server	4-7
4.11	Configuring IBM DB2 to Support Multibyte Data	4-7
4.12	Configuring Sample Reports for Oracle BI Publisher	4-8
4.13	Changing the Default Password for SampleAppLite.rpd	4-8
4.14	Adding the ORACLEHARDWAREACCELERATION TRUE Parameter for Essbase	4-8
4.15	Enabling Bursting Optimization for BI Publisher	4-9

5 Deinstalling Software on the Exalytics Machine

Part II System Management

6 System Management (Configuration, Diagnostics, and Monitoring)

7 Patching

7.1	About Patching Oracle Exalytics	7-1
7.1.1	About Oracle Exalytics Version Stripes	7-2
7.1.2	About the Different Types of Oracle Exalytics Patches	7-3

7.1.2.1	About Oracle Exalytics Patchsets	7-3
7.1.2.2	About Oracle Exalytics Certified Component Patches	7-3
7.1.2.3	About Oracle Exalytics Component One-Off Patches	7-4
7.2	Applying the Oracle Exalytics Release 1 Patchset 1 (1.0.0.1)	7-4
7.2.1	About the Oracle Exalytics Release 1 Patchset 1	7-4
7.2.2	Who Should Install the Oracle Exalytics Release 1 Patchset 1?	7-4
7.2.3	New Features in the Oracle Exalytics Release 1 Patchset 1	7-5
7.2.3.1	Oracle Business Intelligence Enterprise Edition	7-5
7.2.3.2	Oracle TimesTen In-Memory Database	7-5
7.2.3.3	Oracle Essbase	7-6
7.2.3.4	Oracle Enterprise Performance Management System	7-6
7.2.3.5	Oracle Endeca	7-6
7.2.3.6	Storage Area Network	7-7
7.2.3.7	Auto Service Request Software	7-7
7.2.3.8	Oracle Data Integrator	7-7
7.2.3.9	Oracle GoldenGate for Oracle TimesTen	7-7
7.2.4	Guidelines for Installing the Oracle Exalytics Release 1 Patchset 1	7-7
7.2.5	Installing the Oracle Exalytics Release 1 Patchset 1	7-8
7.2.6	Postinstallation Instructions for the Oracle Exalytics Release 1 Patchset 1	7-11
7.2.6.1	Oracle TimesTen In-Memory Database	7-11
7.2.6.1.1	Configuring Oracle TimesTen Checkpoint Frequency	7-11
7.2.6.1.2	Other Postinstallation Steps	7-12
7.2.6.2	Oracle Business Intelligence Enterprise Edition	7-12
7.2.6.2.1	Edit the opmn.xml File	7-12
7.2.6.2.2	Reinstall Oracle Business Intelligence Client Installer	7-13
7.2.7	Deinstallation Instructions for the Oracle Exalytics Release 1 Patchset 1	7-13
7.2.8	Bugs Fixed by the Oracle Exalytics Release 1 Patchset 1	7-13
7.2.9	Known Bugs with the Oracle Exalytics Release 1 Patchset 1	7-13
7.3	Applying the Oracle Exalytics Release 1 Patchset 2 (1.0.0.2)	7-13
7.3.1	About the Oracle Exalytics Release 1 Patchset 2	7-13
7.3.2	Who Should Install the Oracle Exalytics Release 1 Patchset 2?	7-14
7.3.3	New Features in the Oracle Exalytics Release 1 Patchset 2	7-14
7.3.3.1	Oracle Exalytics Release 1 Patchset 2 Installed on Oracle Exalytics Release 1 Patchset 1	7-14
7.3.3.2	Oracle Exalytics Release 1 Patchset 2 Installed on Oracle Exalytics Release 1 ...	7-14
7.3.4	Guidelines for Installing the Oracle Exalytics Release 1 Patchset 2	7-14
7.3.5	Installing the Oracle Exalytics Release 1 Patchset 2	7-15
7.3.5.1	Step 1: Upgrade Firmware	7-15
7.3.5.2	Step 2: Run the Oracle Exalytics Base Image 1.0.0.4 In-Place Upgrade Script ...	7-16
7.3.5.3	Step 3: Download and Install the Oracle Exalytics X2-4 Configuration Utilities v 1.0.0.5	7-17
7.3.5.4	Step 4: Configure ASR	7-18
7.3.5.5	Step 5: Configure Exalytics Host for Enterprise Manager Cloud Control Discovery	7-19
7.3.5.6	Step 6: Download and Install Oracle BI EE 11.1.1.6.5	7-19
7.3.5.7	Step 7: Download and Install Oracle TimesTen 11.2.2.4.1	7-19
7.3.5.8	Step 8: Download and Install Oracle Essbase 11.1.2.2.000, Patchset 11.1.2.2.101	7-20

7.3.6	Postinstallation Instructions for the Oracle Exalytics Release 1 Patchset 2	7-21
7.3.6.1	Oracle TimesTen In-Memory Database	7-21
7.3.6.1.1	Configure Oracle TimesTen Checkpoint Frequency	7-21
7.3.6.1.2	Other Postinstallation Steps	7-21
7.3.6.2	Oracle Business Intelligence Enterprise Edition	7-22
7.3.6.2.1	Edit the opmn.xml File	7-22
7.3.6.2.2	Reinstall Oracle Business Intelligence Client Installer	7-22
7.3.7	Deinstallation Instructions for the Oracle Exalytics Release 1 Patchset 2	7-22
7.3.8	Bugs Fixed by the Oracle Exalytics Release 1 Patchset 2	7-23
7.3.9	Known Bugs with the Oracle Exalytics Release 1 Patchset 2	7-23
7.4	Applying the Oracle Exalytics Release 1 Patchset 3 (1.0.0.3)	7-23
7.4.1	About the Oracle Exalytics Release 1 Patchset 3	7-23
7.4.2	Who Should Install the Oracle Exalytics Release 1 Patchset 3?	7-24
7.4.3	New Features in the Oracle Exalytics Release 1 Patchset 3	7-24
7.4.3.1	Oracle Exalytics Base Image 1.0.0.5	7-24
7.4.3.2	Oracle Business Intelligence Enterprise Edition	7-24
7.4.3.3	Oracle TimesTen for Exalytics	7-25
7.4.3.4	Oracle Essbase	7-25
7.4.3.5	Oracle Virtual Machine Upgrade to 3.2.4	7-26
7.4.4	Applying the Oracle Exalytics Release 1 Patchset 3	7-26
7.4.4.1	Applying Oracle Exalytics Release 1 Patchset 3 (1.0.0.3) on an Exalytics Machine	7-26
7.4.4.1.1	Guidelines for Installing the Oracle Exalytics Release 1 Patchset 3	7-26
7.4.4.1.2	Installing the Oracle Exalytics Release 1 Patchset 3	7-27
7.4.4.2	Applying Oracle Exalytics Release 1 Patchset 3 (1.0.0.3.1) on an Exalytics Machine Configured for Virtualization	7-33
7.4.4.2.1	Prerequisites for Applying Oracle Exalytics Release 1 Patchset 3 on an Exalytics Machine Configured for Virtualization	7-33
7.4.4.2.2	Upgrading Oracle Exalytics for Oracle VM 3.0.3 to Oracle VM 3.2.4	7-33
7.4.4.2.3	Installing and Configuring Flash on an Exalytics Machine Configured for Virtualization	7-36
7.4.4.2.4	Installing Software on the Exalytics Machine Configured for Virtualization	7-39
7.4.5	Postinstallation Instructions for the Oracle Exalytics Release 1 Patchset 3	7-40
7.4.5.1	Oracle TimesTen In-Memory Database	7-40
7.4.5.1.1	Configure Oracle TimesTen Checkpoint Frequency	7-40
7.4.5.1.2	Other Postinstallation Steps	7-40
7.4.5.2	Oracle Business Intelligence Enterprise Edition	7-41
7.4.5.2.1	Edit the opmn.xml File	7-41
7.4.5.2.2	Reinstall Oracle Business Intelligence Client Installer	7-41
7.4.6	Deinstallation Instructions for the Oracle Exalytics Release 1 Patchset 3	7-42
7.4.7	Bugs Fixed by the Oracle Exalytics Release 1 Patchset 3	7-42
7.4.8	Known Bugs with the Oracle Exalytics Release 1 Patchset 3	7-42
7.5	Configuring Flash and Replacing a Defective Flash Card on an Exalytics Machine	7-42
7.5.1	License to Receive Open Source Code	7-42
7.5.2	Prerequisites for Configuring Flash	7-43
7.5.3	Configuring Flash	7-43
7.5.4	Replacing a Defective Flash Card	7-47

8 Deploying Oracle Exalytics for High Availability

8.1	Requirements for High Availability	8-1
8.2	Diagram of High Availability	8-1
8.3	Configuring for High Availability	8-2
8.3.1	Step 1: Preparing the First Exalytics Machine	8-3
8.3.2	Step 2: Preparing the Second Exalytics Machine	8-3
8.3.3	Step 3: Installing Oracle WebLogic Server	8-3
8.3.4	Step 4: Installing Oracle Business Intelligence	8-3
8.3.5	Step 5: Scaling Out the Existing BI Domain	8-4
8.3.6	Step 6: Installing and Configuring Oracle TimesTen	8-4
8.3.7	Step 7: Scaling Out System Components to the Second Exalytics Machine	8-6
8.3.8	Step 8: Configuring Shared Storage for Persistent Stores	8-6
8.3.9	Step 9: Configuring the Front-End Load Balancer	8-7
8.4	Troubleshooting the Highly Available Deployment	8-7
8.4.1	Connection Issues with the Oracle BI Server and Oracle TimesTen	8-7
8.4.2	Client Installer Cannot Locate the Driver for Oracle TimesTen	8-8
8.4.3	Oracle BI Server Does Not Fail Over to the Instance of Oracle TimesTen	8-8
8.4.4	Aggregates Are Not Present in Second Instance	8-8

9 Backup and Recovery

10 Disaster Recovery

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)
- Oracle Exalytics X2-4 and X3-4 Release 1 Patchset 3 (1.0.0.3)

Audience

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

Documentation Accessibility

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

Access to Oracle Support

Oracle customers have access to electronic support through My Oracle Support. For information, visit

<http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info> or visit <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs> if you are hearing impaired.

Related Documentation and Other Resources

See the Oracle Business Intelligence 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 3 \(1.0.0.3\)](#)
- [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 3 (1.0.0.3)

New features in Oracle Exalytics Release 1 Patchset 3 (1.0.0.3) include the following:

- New Features for the following components:
 - Oracle Exalytics Base Image 1.0.0.5
 - Oracle Business Intelligence Enterprise Edition
 - Oracle TimesTen In-Memory Database
 - Oracle Essbase
 - Oracle Virtual Machine Upgrade to 3.2.4

For detailed information about the new features, see [Section 7.4.3, "New Features in the Oracle Exalytics Release 1 Patchset 3."](#)

- Information about installing and configuring Flash on a virtual Exalytics Machine was added to *Oracle Fusion Middleware Installation and Administration Guide for Oracle Exalytics In-Memory Machine* (E39709-02).

For detailed information about configuring Flash on a virtual Exalytics Machine, see [Section 7.4.4.2.3, "Installing and Configuring Flash on an Exalytics Machine Configured for Virtualization."](#)

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:

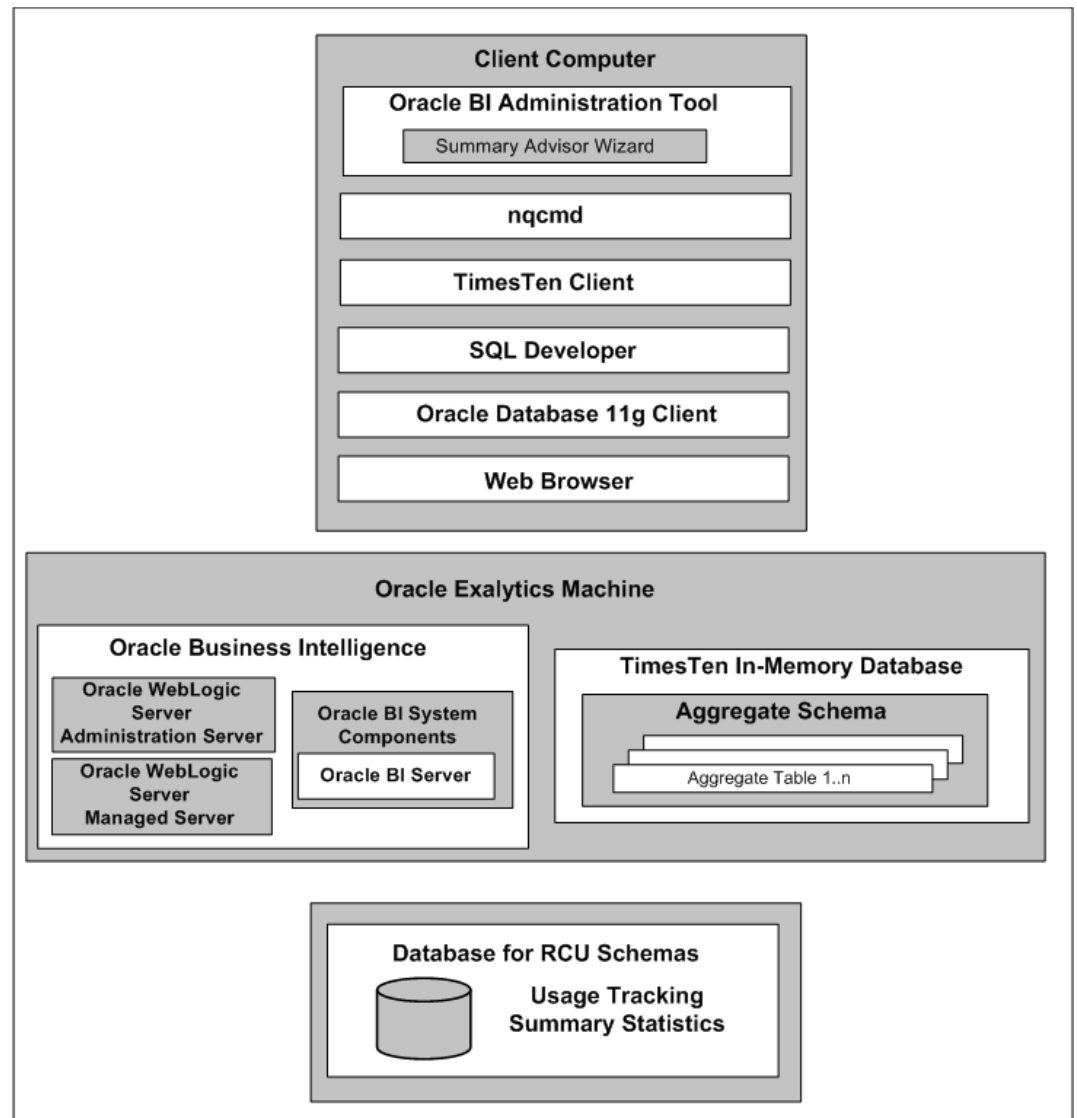
- Oracle Business Intelligence Enterprise Edition
For more information, see "Installable Products" in *Oracle Fusion Middleware Installation Guide for Oracle Business Intelligence*.
- (If present) Oracle Essbase, installed using the Oracle Hyperion Enterprise Performance Management System Installer
- 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 X2-4 and X3-4 Exalytics Machines 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, "Removing Existing Partitions"](#)
- [Section 2.1.4, "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 3.2.1* and *Oracle VM User's Guide for Release 3.2.1* 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) 3.1.2.24 or later, 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 3.2.1*.

2.1.3 Removing Existing Partitions

If required, remove the existing partition on `/dev/sdb` which is mounted to `/u01` from the Exalytics Machine. You cannot create a repository on a Oracle Virtual Machine disk which contains a partition.

Note: Before removing the existing partition, remember to back up all data on `sdb1`.

To remove existing partitions:

1. Log in as the root user, and enter the following command to run the disk partition utility:

```
# parted /dev/sdb
```

The output should look similar to the following:

```
GNU Parted 1.8.1
Using /dev/sdb
Welcome to GNU Parted! Type 'help' to view a list of commands.
```

2. To display the existing partition, enter the following command:

```
# print
```

3. To remove the existing partition, enter the following command:

```
# rm 1
```

4. To confirm that the existing partition has been removed, enter the following command:

```
# print
```

The existing partition is removed.

2.1.4 Reconfiguring Existing RAID Configurations on the Exalytics Machine

This sections consists of the following topics:

- [Section 2.1.4.1, "Reconfiguring Existing RAID Configurations on the X2-4 Exalytics Machine"](#)
- [Section 2.1.4.2, "Reconfiguring Existing RAID Configurations on the X3-4 Exalytics Machine"](#)
- [Section 2.1.4.3, "Resetting RAID Configuration \(Optional\)"](#)

2.1.4.1 Reconfiguring Existing RAID Configurations on the X2-4 Exalytics Machine

The X2-4 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 X2-4 Exalytics Machine:

1. Restart the Exalytics Machine using Integrated Lights Out Manager (ILOM).
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. In ILOM, select **ILOM**, then **Host Management**, and then **Power Cycle**.
The Exalytics Machine restarts.

2.1.4.2 Reconfiguring Existing RAID Configurations on the X3-4 Exalytics Machine

The X3-4 Exalytics Machine comprises 6 hard disks, each having a capacity of 900 GB. 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 657GB, and RAID5 consists of the remaining drives.

To reconfigure existing RAID configurations on the X3-4 Exalytics Machine:

1. Restart the Exalytics Machine using Integrated Lights Out Manager (ILOM).
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 657 GB:

```
# -CfgLdAdd -r1[252:0, 252:1] WB Direct NoCachedBadBBU -sz102400 -sz672768 -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. In ILOM, select **ILOM**, then **Host Management**, and then **Power Cycle**.
The Exalytics Machine restarts.

2.1.4.3 Resetting RAID Configuration (Optional)

If you are on a virtual Exalytics deployment and want to revert back to a nonvirtual Exalytics deployment, you must reset the RAID configuration by performing the following steps:

To reset RAID configuration:

1. Restart the Exalytics Machine using Integrated Lights Out Manager (ILOM).
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 restore the RAID1 partition to an Exalytics deployment:

```
# -CfgLdAdd -r1[252:0, 252:1] WB Direct NoCachedBadBBU -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. In ILOM, 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 3.2.4"](#)
- [Section 2.2.3, "Creating Virtual Machines"](#)
- [Section 2.2.4, "Maintaining Virtual Machines"](#)

2.2.1 Installing and Configuring 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.

This section includes the following topics:

- [Section 2.2.1.1, "For Existing Customers on Oracle VM Server 3.0.3"](#)
- [Section 2.2.1.2, "For New Customers"](#)

2.2.1.1 For Existing Customers on Oracle VM Server 3.0.3

If you are an existing customer running Oracle VM Server 3.0.3, you can upgrade to Oracle VM Server 3.2.4. For instructions, see [Section 7.4.4.2.2, "Upgrading Oracle Exalytics for Oracle VM 3.0.3 to Oracle VM 3.2.4."](#)

2.2.1.2 For New Customers

If you are a new customer, you must install and configure Oracle VM Server 3.0.3 before you can upgrade to Oracle VM Server 3.2.4.

This section includes the following topics:

- [Section 2.2.1.2.1, "Installing Oracle VM Server 3.0.3 \(Base Image 2.0.1.1\)"](#)
- [Section 2.2.1.2.2, "Configuring the Network on Oracle VM Server"](#)
- [Section 2.2.1.2.3, "Upgrading Oracle VM Server 3.0.3 to Oracle VM Server 3.2.4"](#)
- [Section 2.2.1.2.4, "Pinning Dom0 CPU"](#)

2.2.1.2.1 Installing Oracle VM Server 3.0.3 (Base Image 2.0.1.1) To install Oracle VM Server 3.0.3:

1. Download and save the Oracle Exalytics Base Image 2.0.1.1.0 for Exalytics Oracle VM x86-64 (Part Number V34491-01), by performing the following steps:
 - a. Navigate to the Oracle Software Delivery Cloud web site at the following link:
<http://edelivery.oracle.com>
 - b. In the Select a Product Pack list, select **Oracle Business Intelligence**.
 - c. In the Platform list, select **Linux X86-64**.

- d. Click **Go**.
- e. Select **Oracle Exalytics Software Media Pack for Linux x86-64 Release: 1.0.0.3.0**.
- f. Click **Continue**.
- g. Download Oracle Exalytics Base Image 2.0.1.1.0 for Exalytics Oracle VM x86-64 Part Number: V34491-01.
The base image contains the Oracle VM Server 3.0.3.
- h. Save it to a local directory.
2. On the Exalytics Machine, connect and log on to Oracle Integrated Lights Out Manager (ILOM).
3. In ILOM, select **Remote Control**, then **Redirection**, then **Storage Redirection**, and then **Launch Service**.
The ILOM remote console is displayed.
4. 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.
5. Perform the following action to restart the machine:
 - In ILOM, select **ILOM**, then **Host Management**, and then **Power Cycle**.
6. In ILOM, select **Host Management**, then **Host Control**, and then **Next Boot Device**.
The setting for the Next Boot Device is displayed.
7. 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**.
8. In ILOM, select **ILOM**, then **Host Management**, and then **Power Cycle**.
The Exalytics Machine restarts and displays the Oracle VM Server screen.
9. 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.
10. From the menu bar, select **Devices**, and then deselect **CD-ROM Image**.
11. From the menu bar, select **Devices**, and then **Save as host defaults**.
12. In ILOM, select **ILOM**, then **Host Management**, and then **Power Cycle**.
The Exalytics Machine is ready for configuration.
13. Log on to Oracle VM Server, and enter the following command to inspect the RAID configuration:

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

2.2.1.2.2 Configuring the Network on Oracle VM Server Before configuring the network, ensure that the Exalytics network configuration is complete.

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.

2.2.1.2.3 Upgrading Oracle VM Server 3.0.3 to Oracle VM Server 3.2.4 To upgrade Oracle VM Server 3.0.3 to Oracle VM Server 3.2.4, see [Section 7.4.4.2.2, "Upgrading Oracle Exalytics for Oracle VM 3.0.3 to Oracle VM 3.2.4."](#)

2.2.1.2.4 Pinning Dom0 CPU If required, 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 3.2.4

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 sections:

- [Section 2.2.2.1, "For Existing Customers on Oracle VM Manager 3.0.3"](#)
- [Section 2.2.2.2, "For New Customers"](#)

2.2.2.1 For Existing Customers on Oracle VM Manager 3.0.3

If you are an existing customer running Oracle VM Manager 3.0.3, you can upgrade to Oracle VM Manager 3.2.4. For instructions, see [Section 7.4.4.2.2, "Upgrading Oracle Exalytics for Oracle VM 3.0.3 to Oracle VM 3.2.4."](#)

2.2.2.2 For New Customers

If you are a new customer, you must first install Oracle VM Manager 3.2.1 and then upgrade to Oracle VM Manager 3.2.4.

This section includes the following topics:

- [Section 2.2.2.2.1, "Installing Oracle VM Manager 3.2.1"](#)

- [Section 2.2.2.2.2, "Upgrading Oracle VM Manager 3.2.1 to Oracle VM Manager 3.2.4"](#)
- [Section 2.2.2.2.3, "Discovering Oracle VM Servers"](#)
- [Section 2.2.2.2.4, "Creating Virtual Network Interface Controllers"](#)
- [Section 2.2.2.2.5, "Creating Server Pools and Adding a Server"](#)
- [Section 2.2.2.2.6, "Creating an Exalytics Repository"](#)

2.2.2.2.1 Installing Oracle VM Manager 3.2.1 Oracle recommends that you install Oracle VM Manager on a separate machine than the Exalytics Machine, preferably colocated geographically within Oracle VM Server.

Note: Oracle also recommends that you use the same release version of Oracle VM Manager and Oracle VM Server.

To install Oracle VM Manager 3.2.1:

1. Download Oracle VM Manager 3.2.1 (Part Number V36286-01) from the Oracle Software Delivery Cloud web site at the following link:
<http://edelivery.oracle.com/oraclevm>
2. Install Oracle VM Manager 3.2.1. For instructions, see Chapter 4, "Installing Oracle VM Manager" in *Oracle VM Installation and Upgrade Guide for Release 3.2.1*.

2.2.2.2.2 Upgrading Oracle VM Manager 3.2.1 to Oracle VM Manager 3.2.4 To upgrade Oracle VM Manager 3.2.1 to Oracle VM Manager 3.2.4 (or a later release version in the Oracle VM Manager 3.2.x series) navigate to My Oracle Support, download patch number 16410417, and follow the readme instructions for upgrading Oracle VM Manager.

2.2.2.2.3 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. Select the **Servers and VMs** tab.
3. In the left pane, right-click **Server Pools**, and then select **Discover Servers**.

The Discover Dialog box is displayed.

4. Enter the following information for the server:
 - a. Oracle VM Agent Port. The default port number is 8899.
 - b. Oracle VM Agent Password. The default password is "oracle".
 - c. IP Address.
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, Server Pools" in *Oracle VM User's Guide for Release 3.2.1*.

2.2.2.2.4 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. Select the **Servers and VMs** tab.
3. In the left pane, right-click **Server Pools**, and then select **Create VNICs**.
The MAC selector panel is displayed.
4. Click **Next** to retrieve the next available MAC addresses.
5. Select the number of addresses that you want to create, and click **Create**.

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.

6. Click **Close**.

For more information, see "Chapter 7, Managing Virtual Machines" in *Oracle VM User's Guide for Release 3.2.1*.

2.2.2.2.5 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, Server Pools" in *Oracle VM User's Guide for Release 3.2.1*.

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

2.2.2.2.6 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.

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.

You use Oracle VM Manager to create and configure Exalytics repositories, and to present the repositories to Oracle VM Servers.

To create an Exalytics repository:

1. Log on to Oracle VM Manager.
2. Select the **Repositories** tab.
3. In the toolbar, click **Create New Repository** to display the Create a Data Repository dialog.
4. 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.

5. 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 3.2.1*.

2.2.3 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 2.2.3.1, "Downloading VM Templates"](#)
- [Section 2.2.3.2, "Importing VM Templates into Oracle VM Manager"](#)
- [Section 2.2.3.3, "Creating Virtual Machines from VM Templates"](#)

2.2.3.1 Downloading VM Templates

To download VM templates:

1. Download and save the Exalytics Oracle VM Template 2.0.1.1.0 for Exalytics Oracle VM x86-64, by performing the following steps:
 - a. Navigate to the Oracle Software Delivery Cloud web site at the following link:

<http://edelivery.oracle.com>

- b. In the Select a Product Pack list, select **Oracle Business Intelligence**.
- c. In the Platform list, select **Linux X86-64**.
- d. Click **Go**.
- e. Select **Oracle Exalytics Software Media Pack for Linux x86-64 Release: 1.0.0.3.0**.
- f. Click **Continue**.
- g. Download the Oracle Exalytics Oracle VM Template 2.0.1.1.0 for Exalytics Oracle VM x86-64, Part Number: V34468-01.
- h. Save it on a web server.

2.2.3.2 Importing VM Templates into Oracle VM Manager

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

To import VM templates into Oracle VM Manager:

1. Log on to Oracle VM Manager.
2. Select the **Repositories** tab.
3. In the left pane, select the Repository in which you want to store the template.
4. Select **VM Templates**.
5. In the toolbar, click **Import VM Template** to display the Import VM Template dialog.
6. Select the Oracle VM Server and enter the URL or FTP server to the VM template that you downloaded on the web server.
7. Click **OK** to import the VM template.

2.2.3.3 Creating Virtual Machines from VM Templates

After importing the template in Oracle VM Manager, 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 Manager.
2. Select the **Servers and VMs** tab.
3. In the left pane toolbar, click **Create Virtual Machine**.
The Create Virtual Machine dialog is displayed.
4. Select **Clone from an existing VM Template**.
5. Perform the following actions:

- a. In the Clone Count list, select the number of machines you want to clone.
 - b. In the Repository list, select a repository for the machine.
 - c. In the VM Template list, select the VM template from which you want to create the virtual machine.
 - d. Enter a name for the virtual machine.
 - e. In the Server Pool list, select a server pool.
 - f. Enter a description for the virtual machine.
6. Click **Finish**.

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 3.2.1*.

2.2.4 Maintaining Virtual Machines

This section includes the following topics:

- [Section 2.2.4.1, "Viewing Virtual Machine Information and Events"](#)
- [Section 2.2.4.2, "Configuring and Starting a Virtual Machine"](#)
- [Section 2.2.4.3, "Configuring a Network on a Virtual Machine"](#)
- [Section 2.2.4.4, "Configuring SWAP on a Virtual Machine"](#)

2.2.4.1 Viewing Virtual Machine Information and Events

You can view virtual machine details and jobs associated with the virtual machine.

To view virtual machine information details:

1. Log on to Oracle VM Manager.
2. Select the **Servers and VMs** tab.
3. In the left pane, select the server pool on which the virtual machine resides.
4. From the Perspective list, select **Virtual Machines**.
5. In the Management pane, select a virtual machine.
6. Click the expand arrow to the left of the selected virtual machine.

The following tabs are displayed:

- **Configuration:** Displays general information about the virtual machine, such as the minimum and maximum memory and processors, operating system, domain type, high availability status, and so on.
- **Networks:** Displays networks and VNICs used in the virtual machine.
- **Disks:** Displays virtual and physical disks attached to the virtual machine.

To view virtual machine events:

1. Log on to Oracle VM Manager.
2. Select the **Servers and VMs** tab.
3. In the left pane, select the server pool on which the virtual machine resides.
4. From the Perspective list, select **Virtual Machines**.

5. In the Management pane, select a virtual machine.
6. In the toolbar, click **Display Selected VM Events**.

The Events dialog is displayed.

7. Review the jobs associated with the virtual machine.

For more information, see "Chapter 7, Managing Virtual Machines" in *Oracle VM User's Guide for Release 3.2.1*.

2.2.4.2 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. Select the **Servers and VMs** tab.
3. In the left pane, select the server pool on which the virtual machine resides.
4. From the Perspective list, select **Virtual Machines**.
5. In the Management pane, select a virtual machine, and from the toolbar click the **Edit**.

The Edit Virtual Machine dialog is displayed.

6. Select the **Configuration** tab.
7. Select the necessary configuration for the virtual machine, and click **OK**.
8. Select the **Networks** tab.
9. Select and assign a VNIC to the virtual machine, and click **OK**.
10. Select the **Disks** tab.
11. Select and allocate the virtual disk to the virtual machine.
12. Click **OK**.
13. From the toolbar, click **Start**.

The virtual machine starts.

For more information, see "Chapter 7, Managing Virtual Machines" in *Oracle VM User's Guide for Release 3.2.1*.

2.2.4.3 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.

2.2.4.4 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.
- 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

For detailed instructions on installing 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 11.1.2.3* at the following location:

http://docs.oracle.com/cd/E40248_01/epm.1112/epm_install.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 11.1.1.7.0 and Oracle TimesTen and configuring the two software components to communicate with each other.

Note: For information on installing Oracle Business Intelligence 11.1.1.6.x see, *Installation and Administration Guide for Oracle Exalytics In-Memory Machine, Exalytics X2-4 Release 1 (1.0)*.

This chapter includes the following sections:

- [Section 3.1, "Before You Install Software on the Exalytics Machine"](#)
- [Section 3.2, "Verifying Configuration of the Exalytics Machine"](#)
- [Section 3.3, "Installing the Software"](#)
- [Section 3.4, "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 latest *Oracle Exalytics Release Notes* for any late-breaking information.
- 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 Oracle Exalytics Release 1 Patchset 3 version of the Oracle Exalytics Base Image is running 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.

- Network configuration is complete 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 Verifying Configuration of the Exalytics Machine

Before you install software on the Exalytics Machine, you must run configuration scripts to verify the software and network configurations of the Exalytics Machine.

This section consists of the following topics:

- [Section 3.2.1, "Verifying Exalytics Software and Storage Configurations"](#)
- [Section 3.2.2, "Verifying Exalytics Image Information"](#)

3.2.1 Verifying Exalytics Software and Storage Configurations

You run the `exalytics_CheckSWProfile` script to verify the current supported Exalytics software and storage configurations.

To verify Exalytics software and storage configurations:

1. Log on to the Exalytics Machine.
2. Navigate to the `/opt/exalytics/bin` directory.
3. Enter the following command:

```
./exalytics_CheckSWProfile
```
4. Verify that the output displayed is similar to the following:

```
[SUCCESS].....Has supported operating system
[SUCCESS].....Has supported processor
```

```
[SUCCESS].....Kernel is at the supported version
[SUCCESS].....Has supported kernel architecture
[SUCCESS].....Software is at the supported profile
```

3.2.2 Verifying Exalytics Image Information

You run the `exalytics_imageinfo` script to verify the current Exalytics image and version details.

To verify the Exalytics image information:

1. Log on the Exalytics Machine as a root user.
2. Navigate to the `/opt/exalytics/bin` directory.
3. Enter the following command:
`./exalytics_imageinfo`
4. Verify that the output displayed is similar to the following:

```
Image version      : 1.0.0.5.0
Creation timestamp : DAY-DD-MM-YYYY HR:MIN:SEC -0800
Kernel version     : 2.6.32-100.23.1.el5
```

```
RPM versions:
kernel-2.6.32-100.23.1.el5
exalytics-container-bm-1.0.0.5-xx
exalytics-scripts-1.0.0.5-xx
exalytics-flash-1.0.0.5-xx
```

3.3 Installing the Software

Installing software on the Exalytics Machine involves a combination of manual steps and automated scripts. The manual steps are to install WebLogic and Oracle BI EE while the installation script provides an automated way of installing Oracle TimesTen In-Memory Database and configuring communication with Oracle BI EE (a Software-Only Installation).

The steps in the process are:

- [Section 3.3.1, "Step 1: Creating the User, Group, and Password on the Operating System"](#)
- [Section 3.3.2, "Step 2: Creating the Inventory for Oracle TimesTen"](#)
- [Section 3.3.3, "Step 3: Setting Resource Limits for Oracle TimesTen"](#)
- [Section 3.3.4, "Step 4: Creating and Mounting a /u01 Partition"](#)
- [Section 3.3.5, "Step 5: Downloading Oracle Files into the Directory Structure"](#)
- [Section 3.3.6, "Step 6: Staging the Middleware Home"](#)
- [Section 3.3.7, "Step 7: Creating the Database Schemas"](#)
- [Section 3.3.8, "Step 8: Installing WebLogic Server"](#)
- [Section 3.3.9, "Step 9: Performing a Software Only Install"](#)
- [Section 3.3.10, "Step 10: Creating a New Oracle BI Enterprise Edition Instance"](#)
- [Section 3.3.11, "Step 11: Editing the Properties File"](#)
- [Section 3.3.12, "Step 12: Verifying the Checklist"](#)

- [Section 3.3.13, "Step 13: Running the Script"](#)
- [Section 3.3.14, "Step 14: Verifying the Installation"](#)

3.3.1 Step 1: Creating the User, Group, and Password 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".

3.3.2 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.

3.3.3 Step 3: Setting Resource Limits for Oracle TimesTen

To set the resource limits for Oracle TimesTen:

1. Make the following changes 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
```

2. Make the following additions to the /etc/security/limits.conf file:

```
*      hard nproc 131072
*      soft nproc 131072
```

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

```
kernel.shmmax = 1099511627776
```

Note: The above kernel setting is for an Exalytics Machine with 1 TB of RAM. You can set it higher for Exalytics Machine with more RAM.

4. Add the following shared memory kernel settings in the /etc/sysctl.conf file:

```
kernel.shmmni = 4096
```


5. Add the following settings for semaphores in the `/etc/sysctl.conf` file:

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

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

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

3.3.4 Step 4: Creating and Mounting a /u01 Partition

If required, create and mount a /u01 partition on the machine.

Note: Make the partition equal to the maximum space available on the disk partition.

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
```

3.3.5 Step 5: Downloading Oracle Files into the Directory Structure

Before installing the software you must download the required files into an organized directory structure. Please note that the directory structures detailed in Task 2 below and [Section 3.3.6, "Step 6: Staging the Middleware Home"](#) is not mandatory, but is just an example. You can choose any structure to organize the files.

Note: You must reference the same chosen directory structure in the properties files when editing the install script.

To download files into the directory structure:

1. Log in as "oracle" user.
2. 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."](#)

3. 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 3.4, "Troubleshooting the Installation and Configuration Processes."](#)

- /home/oracle/EXALYTICS_INSTALL_TEMP

The installation scripts use this directory for storing temporary files.

3.3.6 Step 6: Staging the Middleware Home

Create a directory structure such as the following for staging the Middleware Home:

```
/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.

3.3.7 Step 7: 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*.

3.3.8 Step 8: Installing WebLogic Server

If not already installed, install the WebLogic Server.

To install a WebLogic Server:

1. Navigate to the directory where you downloaded the WebLogic Server zip file (/home/oracle/EXALYTICS_INSTALLERS/wls.)
2. If the file is not executable, run the following command:

```
chmod +x wls1036_linux64.bin
```
3. On the Welcome screen, click **Next**.

The Choose Middleware Home Directory is displayed.

4. Select **Create a new Middleware Home** and create a new Middleware home in the `/u01/app/oracle/product/fmw` directory, and click **Next**.

The Register for Security Updates screen is displayed.

5. Specify whether you want to register for security updates, and click **Next**.

The Choose Install screen is displayed.

6. Select **Typical**, and click **Next**.

The Choose Product Installation Directories screen is displayed.

7. Specify the directories in which you want to install the products, and click **Next**.

The Installation Summary screen is displayed.

8. Click **Next**.

The Status screen is displayed.

9. When the installation is complete, click **Next**.

The Installation Complete screen is displayed.

10. If selected, deselect **Run Quickstart**, and then click **Done**.

For more information on installing Oracle WebLogic Server, including custom installations, see *Oracle Fusion Middleware Installation Guide for Oracle WebLogic Server*.

3.3.9 Step 9: Performing a Software Only Install

The Software Only Install type enables you to install Oracle Business Intelligence software binary files in an Oracle home for later configuration.

To perform a Software Only Install:

1. Navigate to the `/home/oracle/EXALYTICS_INSTALLERS/bi/bishiphome/Disk1` directory.
2. Start Oracle Business Intelligence 11g Installer by running the following command:

```
./runInstaller
```

The Specify Inventory directory screen is displayed.

3. If this is your first Oracle installation, perform the following actions:
 - On the Specify Inventory directory screen, specify the location of the inventory directory and the group whose members you want to grant access to the inventory, and click **OK**.
 - Navigate to the location chosen in the previous step (Step 3, first sub-step) and enter the following command as root user:

```
/createCentralInventory.sh
```

Click **OK**.

4. On the Welcome screen, click **Next**.
5. On the Software Updates screen, specify your My Oracle Support information and software update preferences, and click **Next**.
6. On the Select Installation Type screen, select **Software Only Install**, and click **Next**.

7. On the Prerequisite Checks screen, after the prerequisite checks conclude with no errors, click **Next**.
8. On the Specify Installation Location screen, in the **Oracle Middleware Home** field, enter the path `/u01/app/oracle/product/fmw` for the Middleware home directory, and click **Next**.
9. On the Application Server screen, confirm that the application server installed is Oracle WebLogic Server, and click **Next**.
10. On the Security Updates screen, enter your My Oracle Support account information, and then click **Next**.
11. On the Summary screen, Click **Install**.
12. On the Installation Progress screen, monitor the progress of your installation. To stop the installation, click **Cancel**.
13. On the Installation Complete screen, click **Finish** to exit Oracle Business Intelligence 11g Installer.

For more information, see "Software Only Install" in *Oracle Fusion Middleware Installation Guide for Oracle Business Intelligence*.

3.3.10 Step 10: Creating a New Oracle BI Enterprise Edition Instance

After completing the Software Only Install, you must create a new Oracle BI Enterprise Edition (Oracle BI EE) instance using the Configuration Assistant.

To create a new Oracle BI Enterprise Edition instance:

1. Navigate to the `EXALYTICS_MWHOME/Oracle_BI1/bin` directory.
2. Start the Oracle Business Intelligence Configuration Assistant by entering the following command:

```
./config.sh
```
3. On the Welcome screen, click **Next**.
4. On the Prerequisite Checks screen, after the prerequisite checks conclude with no errors, click **Next**.
5. On the Create, Scale Out, or Extend BI System screen, select **Create New BI System**, and then enter the following information:
 - The user name and password for the system administrator for the new Oracle Business Intelligence system
 - The domain name for the new Oracle Business Intelligence system
 Click **Next**.
6. On the Specify Installation Location (Enterprise) screen, review the current Middleware home and other key locations for the new installation, and click **Next**.
7. On the Configure Components screen, all products (including Essbase) are selected by default. Deselect **Real-Time Decisions**, and then click **Next**.

Note: When you configure Oracle BI EE, Oracle BI Publisher is configured automatically. Also, if you want to install Essbase, you must select it now as it's not possible to install Essbase later.

8. On the BIPLATFORM and MDS Schema screens, specify the details of the database schemas you previously created in [Section 3.3.7, "Step 7: Creating the Database Schemas"](#).
9. Click **Next**.
10. On the Configuration Ports screen, click **Auto Port Configuration** or **Specify Ports Using Configuration File**.

If you select the latter option, you must specify a configuration file that contains the custom port values for the Oracle Business Intelligence installation.

Note: The Oracle Business Intelligence Configuration Assistant automatically assigns the Node Manager port (default is 9556), unless you specify the Oracle Business Intelligence ports manually using a configuration file such as staticports.ini.

Click **Next**.

11. On the Security Updates screen, enter your My Oracle Support account information, and then click **Next**.
12. On the Summary screen, click **Configure** to start the configuration process.
13. On the Configuration Progress screen, confirm the configuration completes successfully, and then click **Next**.
14. On the Complete screen, click **Finish** to exit the Oracle Business Intelligence Configuration Assistant.

For more information, see "Configuring Oracle Business Intelligence with the Configuration Assistant" in *Oracle Fusion Middleware Installation Guide for Oracle Business Intelligence*.

3.3.11 Step 11: 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:

/EXALYTICS_MWHOME/Oracle_BI1/bifoundation/exalytics/properties

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.

The following is the contents of the properties file:

```
#####
# BI Machine Properties
#####

#####
[Generic properties to be used across all the Oracle Products]
# [Generic properties to be used across all the Oracle Products]
#bim.tt.installer.root=The directory location where the timesten installer zips
are present
#bim.tt.install.dir=The directory location where the timesten needs to be
installed
```

```
#bim.tt.daemon.port=The daemon port for timesten,if value is not provided default
value of port is used as 53396. For multiple install of timesten this property is
mandatory. The port number specified should be a number between 1024 and 65527.
#bim.tt.server.port=The server port used to configure timesten,if value is not
provided default value of port is used as 53397. For multiple install of timesten
this property is mandatory. The port number specified should be a number between
1024 and 65527.
#bim.tt.instance.name=The instance name for timesten,if value is not provided
default value used is tt1122. For multiple install of timesten this property is
mandatory.
```

```
#####
bim.tt.installer.root=/home/oracle/EXALYTICS_INSTALLERS/tt
bim.tt.install.dir=/u01/TT1
bim.tt.daemon.port=53396
bim.tt.server.port=53397
bim.tt.instance.name=tt1122
```

```
#####
[BI specific properties]
#bim.bi.host=The host name where BI is installed.
#bim.mw.home=This directory location BI Middleware home
#bim.bi.admin.user=The admin username of BI
#bim.bi.wls.admin.port=The port where AdminServer is running of BI
#####

bim.bi.host=<hostname>
bim.mw.home=/u01/INSTANCE1
bim.bi.admin.user=biadmin
bim.bi.wls.admin.port=7001
```

3.3.12 Step 12: Verifying the Checklist

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

- TimesTen install file is present.
- You carefully edited the properties file for the script and ensured that it contains no errors.

3.3.13 Step 13: Running the Script

To run the script:

1. Log in to the Exalytics Machine as the user that you created in [Section 3.3.1, "Step 1: Creating the User, Group, and Password on the Operating System."](#)
2. Change to the directory that contains the Oracle Exalytics software, such as the following one:

```
/EXALYTICS_MWHOME/Oracle_BI1/bifoundation/exalytics
```

3. Start a shell session (such as csh), ensure that the GROUP environment variable is set, then run the main installation script, which is named bim-setup.sh, using a command such as the following one:

```
./bim-setup.sh /EXALYTICS_MWHOME/Oracle_
BI1/bifoundation/exalytics/properties/bim-setup.properties
```

You can store the properties file in any directory when you update it as specified in [Section 3.3.11, "Step 11: Editing the Properties File"](#) and specify the full path name when you run the installation script.

The installer script for Oracle Exalytics performs the following tasks:

- Prompts you to enter the Oracle BI Administration password when it runs.
- Enables the HardwareAcceleration MBean attribute.
If you must modify the attribute, then you can update it as described in [Section 3.4.4, "Manually Setting the HardwareAcceleration MBean Attribute."](#)
- Installs Oracle TimesTen.
- Makes configuration changes in the opmn.xml file to point to the Oracle TimesTen libraries.
- Configures the sys.odbc.ini file for Oracle TimesTen and the odbc.ini file for Oracle Business Intelligence with DSN details for Oracle TimesTen.

3.3.14 Step 14: 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`

3.4 Troubleshooting the Installation and Configuration Processes

This section provides the following information on troubleshooting:

- [Section 3.4.1, "Resolving Issues with the Installation"](#)
- [Section 3.4.2, "Viewing Log Files"](#)
- [Section 3.4.3, "Reinstalling Software on the Exalytics Machine"](#)
- [Section 3.4.4, "Manually Setting the HardwareAcceleration MBean Attribute"](#)
- [Section 3.4.5, "Configuring Exalytics Operating System to Change Capacity On Demand"](#)
- [Section 3.4.6, "For More Information"](#)

3.4.1 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 networking configuration of the machine including the `/etc/hosts` file.
- 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. Verify the contents of the bim-setup.properties file, as described in [Section 3.3.11, "Step 11: Editing the Properties File."](#)
3. Restart the installation process.

3.4.2 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 MW_HOME/Oracle_BI1/bifoundation/exalytics/logs directories. The files have names such as tt_install.log for Oracle TimesTen.

3.4.3 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. To uninstall Oracle TimesTen, enter the following command:
`/u01/app/oracle/product/fmw/./TimesTen/tt1122/bin/setup.sh -uininstall`
5. Delete the /etc/TimesTen/* files.
6. Return to this chapter and follow the installation instructions again.

3.4.4 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.

3.4.5 Configuring Exalytics Operating System to Change Capacity On Demand

Each Oracle Exalytics Machine is configured with four CPUs, each CPU containing ten active processor cores, for a total of forty active processor cores. Of these, 20% are reserved for on-demand use when additional computing processing is needed. For example, you use thirty two cores most of the time and enable the other eight cores only when needed, such as to run reports and queries at quarter end. You can then continue using 80% of the active processors until the next quarter end.

Note: When you change the number of active cores, you do not have to restart the Exalytics Machine.

You use the `exalytics_resourceControl.sh` utility to configure the Oracle Exalytics operating system to change capacity on demand. [Table 3–1](#) shows the parameters for the `exalytics_resourceControl.sh` utility `-capacity_on_demand` command.

Table 3–1 *Parameters for the `exalytics_resourceControl.sh` utility `-capacity_on_demand` command*

Parameter	Description
Display	Displays number of cores currently in use.
Disable	Disables cores that are reserved for additional on-demand processing.
Enable	Enables cores that are reserved for additional on-demand processing.
Update	Enables any number of cores. Can only be used in force mode.

If you do not specify any parameters, the utility displays all capacity on demand arguments. For example, if you navigate to the `/opt/exalytics/bin` directory, and enter the following command:

```
./exalytics_resourceControl.sh
```

The following output is displayed:

```
Usage: ./exalytics_resourceControl.sh [-show | -capacity_on_demand args]
  -show: Displays the number of logical cores active
  -capacity_on_demand [display|disable|enable|update -cores <noOfCoresPerSocket>]
  [-force]
display: displays the number of cores in use.
disable: disables the cores reserved for additional on-demand capacity.
enable: enables the cores reserved for additional on-demand capacity.
update -cores <numCoresPerSocket> -force: can be used in force mode, to enable any
number (min 2) of cores on a socket.
```

To configure Exalytics operating system to change capacity on demand:

1. Log on the Exalytics Machine as a root user.
2. Navigate to the folder `/opt/exalytics/bin` directory.

3. View the existing configuration, by entering the following command:

```
./exalytics_resourceControl.sh -capacity_on_demand display
```

The following output is displayed:

```
[CAPSHOW] Number of cores active per socket: All of 10
```

4. Disable core processors, by entering the following command:

```
./exalytics_resourceControl.sh -capacity_on_demand disable
```

Two core processors per CPU are disabled.

The following output is displayed:

```
[CAPSHOW] Number of cores active per socket: 8 of 10
```

5. Enable core processors, by entering the following command:

```
./exalytics_resourceControl.sh -capacity_on_demand enable
```

Two core processors per CPU are enabled.

The following output is displayed:

```
[CAPSHOW] Number of cores active per socket: All of 10
```

6. Enable a given number (6) of core processors, by entering the following command:

```
./exalytics_resourceControl.sh -capacity_on_demand update -cores 6  
-force
```

Six core processors per CPU are enabled.

The following output is displayed:

```
[CAPSHOW] Number of cores active per socket: 6 of 10
```

Note: After running the utility, you can check the log and trace files in the `/var/log/oracleexa/systemconfig.log` file and `/var/log/oracleexa/resctl` directory respectively.

3.4.6 For More Information

For additional information, see the following:

- "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"](#)
- [Section 4.14, "Adding the ORACLEHARDWAREACCELERATION TRUE Parameter for Essbase"](#)
- [Section 4.15, "Enabling Bursting Optimization for BI Publisher"](#)

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.odbci.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.odbci.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>

4.14 Adding the ORACLEHARDWAREACCELERATION TRUE Parameter for Essbase

If Essbase is installed, you must add the ORACLEHARDWAREACCELERATION TRUE parameter to the essbase.cfg file.

To add the ORACLEHARDWAREACCELERATION TRUE parameter:

1. Open the essbase.cfg file for editing.

The essbase.cfg file is located in:

ORACLE_INSTANCE/Essbase/essbaseserver1/bin/essbase.cfg

2. Edit the essbase.cfg file by adding the following parameter:

ORACLEHARDWAREACCELERATION TRUE

3. Save the file.

4. Stop and restart the Essbase server by performing the following actions:

- a. Log in to Fusion Middleware Control.

For information, see Section 2.2.2, "Logging into Fusion Middleware Control to Manage Oracle Business Intelligence" in *Oracle Fusion Middleware System Administrator's Guide for Oracle Business Intelligence Enterprise Edition*.

- b. Select **Business Intelligence** then **coreapplication**.

- c. Display the Processes page in the Availability tab.

For example, expand Essbase Agents and select essbaseserver1 in the Processes section.

This enables you to start or stop just the Essbase Server process.

- d. Click **Stop Selected** to stop the selected process.
- e. Click **Start Selected** to start the selected process.

4.15 Enabling Bursting Optimization for BI Publisher

Enabling bursting optimization mode for BI Publisher significantly enhances the performance of bursting jobs run through the BI Publisher scheduler.

To enable bursting optimization:

1. Open the `xmldata-server-config.xml` file located at:
DOMAIN_
HOME/config/bipublisher/repository/Admin/Configuration/xmldata-server-config.xml
2. Add the following property and value setting to the file:
`<property name="OPTIMIZE_BURST" value="true" />`
3. Save the `xmldata-server-config.xml`.
4. Restart the BI Publisher application.

To handle high volume jobs (normal scheduled jobs or bursting jobs) configure the system temporary directory and the JMS shared directory in the BI Publisher Administration pages. For best performance configure these temp directories to use RAM disk (for non-clustered environments only) or solid-state drive. For information, see "Setting the System Temporary Directory" and "Configuring the Shared Directory" in the *Oracle Fusion Middleware Administrator's Guide for Oracle Business Intelligence Publisher*.

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 \(1.0.0.2\)"](#)
- [Section 7.4, "Applying the Oracle Exalytics Release 1 Patchset 3 \(1.0.0.3\)"](#)
- [Section 7.5, "Configuring Flash and Replacing a Defective Flash Card on an Exalytics Machine"](#)

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.

[Figure 7–1](#) 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 for the Oracle Exalytics Release 1 Patchset 1"](#)
- [Section 7.2.7, "Deinstallation Instructions for the Oracle Exalytics Release 1 Patchset 1"](#)
- [Section 7.2.8, "Bugs Fixed by the Oracle Exalytics Release 1 Patchset 1"](#)
- [Section 7.2.9, "Known Bugs with the Oracle Exalytics Release 1 Patchset 1"](#)

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 X2-4 Base Image	1.0.0.3.1
Oracle Exalytics X2-4 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 for the Oracle Exalytics Release 1 Patchset 1

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. Enter the following command:
`./opmnctl stopall`
Stops OPMN and all Oracle Business Intelligence system components.
 - c. Enter 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 for the Oracle Exalytics Release 1 Patchset 1

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 the Oracle Exalytics Release 1 Patchset 1

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

7.2.9 Known Bugs with the Oracle Exalytics Release 1 Patchset 1

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 7.3.6, "Postinstallation Instructions for the Oracle Exalytics Release 1 Patchset 2"](#)
- [Section 7.3.7, "Deinstallation Instructions for the Oracle Exalytics Release 1 Patchset 2"](#)
- [Section 7.3.8, "Bugs Fixed by the Oracle Exalytics Release 1 Patchset 2"](#)
- [Section 7.3.9, "Known Bugs with the Oracle Exalytics Release 1 Patchset 2"](#)

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

Table 7–4 (Cont.) Core Components and Supported Versions in Oracle Exalytics

Core Component	Supported Version
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 X86-64 Upgrade Utility.
2. Unzip the file into a temporary directory.

The Oracle Exalytics X2-4 Base Image 1.0.0.4 for Linux X86-64 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

Table 7–5 (Cont.) Text and RPM Files in the Oracle Exalytics 1.0.0.4 Upgrade Utility Zip

File Name	Notes
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 ■ ASR scripts related rpm ■ ASR scripts 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:

- 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 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

How you install Oracle Essbase 11.1.2.2.000, Patchset 11.1.2.2.102 depends on the version of Essbase that is currently installed:

- 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.
- 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 for the Oracle Exalytics Release 1 Patchset 2

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 7.3.6.1, "Oracle TimesTen In-Memory Database"](#)
- [Section 7.3.6.2, "Oracle Business Intelligence Enterprise Edition"](#)

7.3.6.1 Oracle TimesTen In-Memory Database

This section contains the following topics:

- [Section 7.3.6.1.1, "Configure Oracle TimesTen Checkpoint Frequency"](#)
- [Section 7.3.6.1.2, "Other Postinstallation Steps"](#)

7.3.6.1.1 Configure 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:

- [Section 7.3.6.2.1, "Edit the opmn.xml File"](#)
- [Section 7.3.6.2.2, "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. Enter the following command:
`./opmnctl stopall`
Stops OPMN and all Oracle Business Intelligence system components.
 - c. Enter 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 for the Oracle Exalytics Release 1 Patchset 2

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 the Oracle Exalytics Release 1 Patchset 2

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

7.3.9 Known Bugs with the Oracle Exalytics Release 1 Patchset 2

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

7.4 Applying the Oracle Exalytics Release 1 Patchset 3 (1.0.0.3)

This section consists of the following topics:

- [Section 7.4.1, "About the Oracle Exalytics Release 1 Patchset 3"](#)
- [Section 7.4.2, "Who Should Install the Oracle Exalytics Release 1 Patchset 3?"](#)
- [Section 7.4.3, "New Features in the Oracle Exalytics Release 1 Patchset 3"](#)
- [Section 7.4.4, "Applying the Oracle Exalytics Release 1 Patchset 3"](#)
- [Section 7.4.5, "Postinstallation Instructions for the Oracle Exalytics Release 1 Patchset 3"](#)
- [Section 7.4.6, "Deinstallation Instructions for the Oracle Exalytics Release 1 Patchset 3"](#)
- [Section 7.4.7, "Bugs Fixed by the Oracle Exalytics Release 1 Patchset 3"](#)
- [Section 7.4.8, "Known Bugs with the Oracle Exalytics Release 1 Patchset 3"](#)

7.4.1 About the Oracle Exalytics Release 1 Patchset 3

The Oracle Exalytics Release 1 Patchset 3 comprises patches for the core components and specific software versions that are listed in [Table 7-7](#).

Table 7-7 Core Components and Supported Versions in Oracle Exalytics Patchset 3

Core Component	Supported Version
Oracle Business Intelligence Enterprise Edition	11.1.1.7.0
Oracle TimesTen In-Memory Database for Exalytics	11.2.2.5
Oracle Essbase (part of Oracle BI Foundation Suite 11.1.1.7.0)	11.1.2.2.102
Oracle Essbase (part of Oracle Enterprise Performance Management System Release 11.1.2.3)	11.1.2.3.000
Oracle Exalytics Base Image	1.0.0.5
Oracle Exalytics Base Image for Oracle VM	2.0.1.2

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>

7.4.2 Who Should Install the Oracle Exalytics Release 1 Patchset 3?

The Patchset is available for all Oracle Exalytics customers who are currently on Oracle Exalytics Release 1 Patchset 2 (Oracle Exalytics Base Image 1.0.0.4).

Oracle also recommends that all current customers running Exalytics virtualization upgrade to Oracle Exalytics Release 1 Patchset 3 (1.0.0.3.1). For instructions see, [Section 7.4.4.2, "Applying Oracle Exalytics Release 1 Patchset 3 \(1.0.0.3.1\) on an Exalytics Machine Configured for Virtualization."](#)

7.4.3 New Features in the Oracle Exalytics Release 1 Patchset 3

The Oracle Exalytics Release 1 Patchset 3 includes additional certifications and enhancements for the components that are described in the following sections:

- [Section 7.4.3.1, "Oracle Exalytics Base Image 1.0.0.5"](#)
- [Section 7.4.3.2, "Oracle Business Intelligence Enterprise Edition"](#)
- [Section 7.4.3.3, "Oracle TimesTen for Exalytics"](#)
- [Section 7.4.3.4, "Oracle Essbase"](#)
- [Section 7.4.3.5, "Oracle Virtual Machine Upgrade to 3.2.4"](#)

7.4.3.1 Oracle Exalytics Base Image 1.0.0.5

The new Oracle Exalytics base image 1.0.0.5 for Oracle Exalytics Release 1 Patchset 3 consists of following embedded components and features:

- A /u01 partition where you install Oracle software
- Flash drivers
- Oracle Exalytics Configuration Utilities consisting of configuration and ASR scripts. The scripts enable you to perform the following functions:
 - Configure Oracle Exalytics network
 - Configure Oracle Exalytics for Enterprise Manager Cloud Control
 - Enable Capacity on Demand
 - Verify that Exalytics Machine is working as recommended
 - Install Oracle Automatic Service Requests Software

For information on running these scripts, see [Section 3.2, "Verifying Configuration of the Exalytics Machine"](#) and [Section 3.4.5, "Configuring Exalytics Operating System to Change Capacity On Demand."](#)

For information on installing and configuring Oracle Automatic Service Requests Software, see "Installing Auto Service Request (ASR) Software" in *Oracle Exalytics In-Memory Machine Owner's Guide*.

7.4.3.2 Oracle Business Intelligence Enterprise Edition

Oracle BI EE includes numerous enhancements for the 11.1.1.7.0 release.

Enhancements to Oracle BI EE that are most relevant for the Oracle Exalytics Release 1 Patchset 3 include the following:

- Enhanced Summary Advisor Recommendations: Reduces size of Oracle TimesTen aggregates and recommends only those measures that are needed for reports. For information, see *Oracle Fusion Middleware Metadata Repository Builder's Guide for Oracle Business Intelligence Enterprise Edition*.

- Oracle Endeca Server Configuration: Oracle Endeca Server can be configured as a search engine for full text searching. For information, see, "Configuring for Searching with Oracle Endeca Server" in *Oracle Fusion Middleware System Administrator's Guide for Oracle Business Intelligence Enterprise Edition*.
- Model Check Enhancements: You can now check models from the command line using the `validaterpd` utility with the `-L` option. For information, see *Oracle Fusion Middleware Metadata Repository Builder's Guide for Oracle Business Intelligence Enterprise Edition*.
- New procedure to install software on the Exalytics Machine. For information see, [Chapter 3, "Installing Software on the Exalytics Machine."](#)
- BI Publisher Enhanced Bursting on Oracle Exalytics: With the in-memory capabilities of Oracle Exalytics, BI Publisher can generate hundreds of thousands of documents and reports that are personalized for individual recipients. This generation is accomplished with minimal load on the data source - by separating data extraction and document generation and piping document generation to enhance throughput. For information, see [Section 4.15, "Enabling Bursting Optimization for BI Publisher."](#)
- Oracle Financial Management Analytics is now certified to run on Oracle Exalytics.

7.4.3.3 Oracle TimesTen for Exalytics

Enhancements to the Oracle TimesTen that are relevant for the Oracle Exalytics Release 1 Patchset 3 include the following:

- New `ttImportFromOracle` utility for analyzing data in the Oracle Database and importing to TimesTen in Exalytics with recommendations for optimal data types, columnar compression, and indexes.
- Enhanced parallel inserts for compression tables.
- Enhanced `ttLoadFromOracle` utility for reducing data loading time.

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.

7.4.3.4 Oracle Essbase

For information on using new Essbase features such as using runtime substitution variables in calculation scripts, see the following:

- The "Oracle Essbase New Features Release 11.1.2.3" document at the following location:
http://docs.oracle.com/cd/E40248_01/epm.1112/essbase_new_features/essbase_new_features.html
- *Oracle Enterprise Performance Management System Installation and Configuration Guide Release 11.1.2.3* at the following location:
http://docs.oracle.com/cd/E40248_01/epm.1112/epm_install.pdf

7.4.3.5 Oracle Virtual Machine Upgrade to 3.2.4

Oracle Virtual Machine 3.2.4 offers a more stable environment for Exalytics virtualization. For more information, see *Oracle VM User's Guide for Release 3.2.1*.

7.4.4 Applying the Oracle Exalytics Release 1 Patchset 3

This section consists of the following topics:

- [Section 7.4.4.1, "Applying Oracle Exalytics Release 1 Patchset 3 \(1.0.0.3\) on an Exalytics Machine"](#)
- [Section 7.4.4.2, "Applying Oracle Exalytics Release 1 Patchset 3 \(1.0.0.3.1\) on an Exalytics Machine Configured for Virtualization"](#)

7.4.4.1 Applying Oracle Exalytics Release 1 Patchset 3 (1.0.0.3) on an Exalytics Machine

This section contains the following topics:

- [Section 7.4.4.1.1, "Guidelines for Installing the Oracle Exalytics Release 1 Patchset 3"](#)
- [Section 7.4.4.1.2, "Installing the Oracle Exalytics Release 1 Patchset 3"](#)

7.4.4.1.1 Guidelines for Installing the Oracle Exalytics Release 1 Patchset 3 Review the following guidelines before installing the Patchset:

- Before applying the Oracle Exalytics Release 1 Patchset 3, ensure that you back up the existing `configure_network_for_exalytics.sh` file as `configure_network_for_exalytics.sh_PS2`.
- 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 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 11.1.2.3* at the following location:
http://docs.oracle.com/cd/E40248_01/epm.1112/epm_install1.pdf
- When installing Oracle Exalytics Release 1 Patchset 3 on Oracle Exalytics Release 1 Patchset 2, 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*.

7.4.4.1.2 Installing the Oracle Exalytics Release 1 Patchset 3 To install Oracle Exalytics Release 1 Patchset 3 on Oracle Exalytics Release 1 Patchset 2, perform the following steps:

- "Step 1: Upgrade Firmware"
- "Step 2: Create a Yum Repository"
- "Step 3: Run the Oracle Exalytics Base Image 1.0.0.5 Upgrade Script"
- "Step 4: Run the Oracle Exalytics Configuration Utilities Scripts"
- "Step 5: Configure ASR"
- "Step 6: Configure Exalytics Host for Enterprise Manager Cloud Control Discovery"
- "Step 7: Download and Install Oracle BI EE 11.1.1.7.0"
- "Step 8: Download and Install Oracle Timesten 11.2.2.5 for Exalytics"
- "Step 9: Download and Install Oracle Essbase 11.1.2.2.102"

Step 1: Upgrade Firmware

If not already done, upgrade your firmware to 3.1.2.24b. Oracle Integrated Lights Out Manager 3.1.2.24b (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 16404931.
The patch zip file contains the ILOM-3_1_2_24.b_r79266-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.b_r79266-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.

Step 2: Create a Yum Repository

Yum is a software package manager that installs, updates, and removes packages on RPM-based Linux systems. Software available through Yum is kept in Yum repositories, either on a local machine or on a network. Yum repositories enable you to easily add rpm packages to your installation.

Yum is a software package manager that installs, updates, and removes packages on RPM-based Linux systems. Software available through Yum is kept in Yum repositories, either on a local machine or on a network. Yum repositories enable you to easily add rpm packages to your installation.

To create a Yum repository:

1. Navigate to My Oracle Support and download patch number 16915563 that contains the Oracle Exalytics Base Image 1.0.0.5 for Linux X86-64 Upgrade Utility.

The patch contains the `exalytics_upgrade_bm_1.0.0.2_to_1.0.0.5.zip` file.

2. Unzip the file into a temporary (`/tmp`) directory.

The unzipped file contains various rpm (RPM Package Manager) files.

3. Log on to the Exalytics Machine as the root user.

4. To create Yum indexes, enter the following command:

```
# createrepo -d /tmp/exalytics_upgrade_bm_1.0.0.2_to_1.0.0.5/
```

The output should look similar to the following:

```
5/5 - exalogic.tools-1.0.0.5-3.0.exalytics.noarch.rpm
Saving Primary metadata
Saving file lists metadata
Saving other metadata
```

The Yum repository is created. Also, a sub-directory named "repodata" containing Yum databases is created. Make a note of the directory for the Yum repository. You need the directory name later when you run the upgrade script.

Step 3: Run the Oracle Exalytics Base Image 1.0.0.5 Upgrade Script

You run the upgrade script to upgrade Oracle Exalytics base image to 1.0.0.5.

Note: If you are installing Oracle Exalytics Release 1 Patchset 3 on Oracle Exalytics Release 1 Patchset 2, the script installs new rpms without affecting your existing installation.

To run the run the Oracle Exalytics Script:

1. Stop and backup all Oracle Business Intelligence, Oracle TimesTen, and (if installed) Enterprise Performance Management services.

For information on stopping Oracle Business Intelligence services, see "Starting and Stopping Oracle Business Intelligence" in *Oracle Fusion Middleware System Administrator's Guide for Oracle Business Intelligence Enterprise Edition*.

For information on starting and stopping Oracle TimesTen services, see "Working with the Oracle TimesTen Data Manager Daemon" in *Oracle® TimesTen In-Memory Database Operations Guide*.

For more information on starting and stopping Enterprise Performance Management services, see "Chapter 12, Starting and Stopping EPM System

Products" in *Oracle Enterprise Performance Management System Installation and Configuration Guide Release 11.1.2.3* at the following location:

http://docs.oracle.com/cd/E40248_01/epm.1112/epm_install.pdf

2. Navigate to the temporary (/tmp) directory where you unzipped the file.

The folder contains text, and rpm (RPM Package Manager) files that are listed in [Table 7–8](#).

Table 7–8 Text and RPM Files in the Oracle Exalytics Zip File

File Name	Notes
README.txt	File with install instructions
exalytics-scripts-1.0.0.5-xx.noarch.rpm	Oracle Exalytics configuration scripts, such as: <ul style="list-style-type: none"> ■ Health check scripts ■ Capacity on demand script ■ Network configuration script
exalytics-flash-1.0.0.5-xx.x86_64.rpm	Flash drivers and Flash configuration scripts
exalytics-container-bm-1.0.0.5-xx.x86_64.rpm	Internal script
exalogic-1.0.0.5-3.0.exalytics.noarch.rpm	Exalogic script
exalogic.tools-1.0.0.5-3.0.exalytics.noarch.rpm	Exalogic script

3. To navigate to a temporary (tmp) directory, enter the following command:

```
# cd /tmp
```

4. To install the upgrade script (*exalytics-scripts-1.0.0.5-xx.noarch.rpm*), enter the following command:

```
# rpm -Uv /tmp/exalytics_upgrade_bm_1.0.0.2_to_1.0.0.5/exalytics-scripts-1.0.0.5-xx.noarch.rpm
```

The script is installed.

The output should look similar to the following:

```
Preparing packages for installation...
exalytics-scripts-1.0.0.5-xx
postInstall (exalytics-scripts) 1 ...
[EXALYTICS_INFO:GENERAL] starting; Wed Jun 5 02:01:23 EDT 2013 ...
[EXALYTICS_INFO:GENERAL] Updating exalytics-node-config file to set EXALYTICS_
INSTALL_TYPE=BM ...
[EXALYTICS_INFO:GENERAL] finished; Wed Jun 5 02:01:23 EDT 2013
postInstall (exalytics-scripts) 1; done
```

5. To copy the *exalogic-1.0.0.5-3.0.exalytics.noarch.rpm* file to the tmp directory, enter the following command:

```
# cp /tmp/exalytics_upgrade_bm_1.0.0.2_to_1.0.0.5/exalogic-1.0.0.5-3.0.exalytics.noarch.rpm /tmp
```

6. To navigate to the Oracle Exalytics bin directory, enter the following command:

```
# cd /opt/exalytics/bin
```

7. To upgrade the Oracle Exalytics base image, enter the following command:

```
# ./update_bm_1.0.0.2_to_1.0.0.5.sh file:///<path of the directory for
the yum repository>/
```

8. **Optional:** View the log files at `/var/log/exalytics/update-1.0.0.5.log` and `/var/log/exalytics/exalytics.log`.

9. To restart the Exalytics Machine, enter the following command:

```
# /sbin/shutdown -r now
```

Note: You can also start the Exalytics Machine using Integrated Lights Out Manager (ILOM).

10. Restart the Oracle Business Intelligence, Oracle TimesTen, and Enterprise Performance Management services.

11. To confirm the base image, enter the following command as a root user:

```
# /opt/exalytics/bin/exalytics_imageinfo
```

The output should look similar to the following:

```
Image version      : 1.0.0.5
Creation timestamp : Day Date Month YEAR HOUR:MIN:SEC
Kernel version     : 2.6.32-100.23.1.el5
```

```
RPM versions:
kernel-2.6.32-100.23.1.el5
exalytics-container-bm-1.0.0.5-xx
exalytics-scripts-1.0.0.5-xx
exalytics-flash-1.0.0.5-xx
```

Step 4: Run the Oracle Exalytics Configuration Utilities Scripts

To run the Oracle Exalytics configuration utilities scripts:

- If you installed the Oracle Exalytics Release 1 Patchset 3 on a new machine, perform the following steps:
 - a. Navigate to the `/opt/exalytics/bin` folder.

The folder contains the scripts that are listed in [Table 7–9](#).

Table 7–9 Oracle Exalytics Configuration Utilities Scripts

File Name	Notes
<code>exalytics_configure_network.sh</code>	Oracle Exalytics network configuration script
<code>exalytics_configure_for_emcc.sh</code>	Oracle Exalytics Enterprise Manager configuration script
<code>exalytics_CheckFlash</code>	Oracle Exalytics Flash information script
<code>exalytics_resourceControl.sh</code>	Oracle Exalytics Capacity on Demand Script
<code>exalytics_imageinfo</code>	Oracle Exalytics image information script
<code>exalytics_CheckSWProfile</code>	Oracle Exalytics Software check script

- b. Run the following scripts:
 - a. `exalytics_configure_network.sh`: You run the script to configure the Exalytics Machine to the network. For information, see "Adding Oracle

Exalytics In-Memory Machine to Your Network" in *Oracle Exalytics In-Memory Machine Owner's Guide*.

- b. `exalytics_configure_for_emcc.sh`: You run the script to enable Enterprise Manager Cloud Control (EMCC) to identify the Exalytics host. For information, see [Step 6: Configure Exalytics Host for Enterprise Manager Cloud Control Discovery](#).
- c. `exalytics_CheckFlash`: If Flash is installed, you run the script to verify the status of Flash cards. For information, see [Section 7.5.3, "Configuring Flash."](#)
- d. `exalytics_resourceControl.sh`: You run the script if you want to disable certain number of cores of the Oracle Exalytics operating system. For information, see [Section 3.4.5, "Configuring Exalytics Operating System to Change Capacity On Demand."](#)
- e. `exalytics_imageinfo`: You run the script to verify the current Exalytics image. For information, see [Section 3.2.2, "Verifying Exalytics Image Information."](#)
- f. `exalytics_CheckSWProfile`: You run the script to verify the software configurations of the Exalytics Machine. For information, see [Section 3.2.1, "Verifying Exalytics Software and Storage Configurations."](#)
- If you installed Oracle Exalytics Release 1 Patchset 3 on Oracle Exalytics Release 1 Patchset 2, navigate to the `/opt/exalytics/bin` folder and confirm that scripts listed in [Table 7–9](#) are available in the folder.

Step 5: Configure ASR

To configure ASR:

- If you installed Oracle Exalytics Release 1 Patchset 3 on a new machine, then configure ASR. For information see, [Section 7.3.5.4, "Step 4: Configure ASR."](#)
- If you installed Oracle Exalytics Release 1 Patchset 3 on Oracle Exalytics Release 1 Patchset 2 and ASR is already configured, complete the following step to verify that ASR is running:
 - Execute the `ps -ef | grep bda` command to ensure that `bda_mon_hw_asr_pl` is running.

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

Step 6: Configure Exalytics Host for Enterprise Manager Cloud Control Discovery

To configure Exalytics Host for Enterprise Manager Cloud Control Discovery:

- If you installed Oracle Exalytics Release 1 Patchset 3 on a new machine with Enterprise Manager Cloud Control (EMCC) deployed, then configure EMCC to identify the Exalytics host. For information, see [Section 7.3.5.5, "Step 5: Configure Exalytics Host for Enterprise Manager Cloud Control Discovery."](#)
- If you installed Oracle Exalytics Release 1 Patchset 3 on Oracle Exalytics Release 1 Patchset 2 with Enterprise Manager Cloud Control (EMCC) deployed, then complete the following step to verify that EMCC identifies the Exalytics host:
 - Review the contents of the `/var/exalytics/info/em-context.info` file and ensure that it correctly displays the system identifier for the Oracle Exalytics machine.

The system identifier should be identical to the system identifier displayed in the Oracle Integrated Lights Out Manager (ILOM). For information, see [Section 7.3.5.5, "Step 5: Configure Exalytics Host for Enterprise Manager Cloud Control Discovery."](#)

Step 7: Download and Install Oracle BI EE 11.1.1.7.0

To upgrade an Oracle BI EE 11.1.1.6.x installation to an Oracle BI EE 11.1.1.7.0, see *Oracle Fusion Middleware Upgrade Guide for Oracle Business Intelligence*.

Note: If you are installing Oracle Exalytics for the first time, you can install Oracle BI EE 11.1.1.7.0. For information, see [Chapter 3, "Installing Software on the Exalytics Machine."](#) See also, *Oracle Fusion Middleware Installation Guide for Oracle Business Intelligence*.

Step 8: Download and Install Oracle TimesTen 11.2.2.5 for Exalytics

Navigate to the Oracle Software Delivery Cloud web site at the following link and download and install Oracle TimesTen 11.2.2.5

<http://edelivery.oracle.com>

Note: If you are installing Oracle Exalytics for the first time, you can install Oracle TimesTen 11.2.2.5 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*.

Step 9: Download and Install Oracle Essbase 11.1.2.2.102

To download Oracle Essbase 11.1.2.2.102:

1. Navigate to the Oracle Software Delivery Cloud web site at the following link:
<http://edelivery.oracle.com>
2. For Product Pack, select **Oracle Enterprise Performance System**.
3. For Platform, select **Linux x86-64**.
4. Click **Go**.

5. 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 11.1.2.2.102.

Note: To install and configure Oracle Essbase that is part of Oracle Enterprise Performance Management System Release 11.1.2.3, see *Oracle Enterprise Performance Management System Installation and Configuration Guide 11.1.2.3* at the following location:

http://docs.oracle.com/cd/E40248_01/epm.1112/epm_install.pdf

7.4.4.2 Applying Oracle Exalytics Release 1 Patchset 3 (1.0.0.3.1) on an Exalytics Machine Configured for Virtualization

You apply the Oracle Exalytics Release 1 Patchset 3 (1.0.0.3.1) on an Exalytics Machine configured for virtualization.

This section contains the following topics:

- [Section 7.4.4.2.1, "Prerequisites for Applying Oracle Exalytics Release 1 Patchset 3 on an Exalytics Machine Configured for Virtualization"](#)
- [Section 7.4.4.2.2, "Upgrading Oracle Exalytics for Oracle VM 3.0.3 to Oracle VM 3.2.4"](#)
- [Section 7.4.4.2.3, "Installing and Configuring Flash on an Exalytics Machine Configured for Virtualization"](#)
- [Section 7.4.4.2.4, "Installing Software on the Exalytics Machine Configured for Virtualization"](#)

7.4.4.2.1 Prerequisites for Applying Oracle Exalytics Release 1 Patchset 3 on an Exalytics Machine Configured for Virtualization

The following prerequisites must be met before you can apply Oracle Exalytics Release 1 Patchset 3 on an Exalytics virtualization:

- You have one or more Exalytics Machines configured for virtualization with Oracle Virtual Machine Server 3.0.3 (Base Image 2.0.1.1) (Oracle VM Server). For information on configuring an Exalytics Machine for virtualization, see [Chapter 2, "Configuring Exalytics Machines for Virtualization."](#)
- You have removed existing partitions on the Exalytics Machine. For information, see [Section 2.1.3, "Removing Existing Partitions."](#)
- You have reconfigured the existing RAID configuration on the Exalytics Machine. For information see, [Section 2.1.4, "Reconfiguring Existing RAID Configurations on the Exalytics Machine."](#)
- You have added Oracle VM Server to your Oracle VM Manager environment. To add Oracle VM Servers to your Oracle VM Manager, see [Section 2.2.2.2.3, "Discovering Oracle VM Servers."](#)

7.4.4.2.2 Upgrading Oracle Exalytics for Oracle VM 3.0.3 to Oracle VM 3.2.4

This section consists of the following topics:

- ["Upgrading Oracle VM Manager 3.0.3 to Oracle VM Manager 3.2.4"](#)
- ["Upgrading Oracle VM Server 3.0.3 \(Base Image 2.0.1.1\) to Oracle VM Server 3.2.4"](#)

Upgrading Oracle VM Manager 3.0.3 to Oracle VM Manager 3.2.4

Oracle VM Manager provides a graphical user interface to manage Oracle VM Servers, virtual machines, and resources.

Note: The following procedure also applies if you want to upgrade Oracle VM Manager 3.0.3 to a higher release version in the Oracle VM Manager 3.2.x series.

To upgrade Oracle VM Manager 3.0.3 to 3.2.4:

1. If Oracle VM Manager is connected to an Oracle VM Server, stop Oracle VM Server and all virtual machines. For instructions, see Step 1 in [Upgrading Oracle VM Server 3.0.3 \(Base Image 2.0.1.1\) to Oracle VM Server 3.2.4](#).
2. Navigate to My Oracle Support and download patch number 16410417.
3. Follow the readme instructions for upgrading Oracle VM Manager.

Note: If you are installing Oracle VM Manager for the first time, you must install Oracle VM Manager 3.2.1 and then upgrade to Oracle VM Manager 3.2.4. For information, see [Section 2.2.2, "Installing and Configuring Oracle VM Manager 3.2.4."](#)

Upgrading Oracle VM Server 3.0.3 (Base Image 2.0.1.1) to Oracle VM Server 3.2.4

Before you upgrade Oracle VM Server, ensure you upgraded Oracle VM Manager.

Note: If you are configuring Exalytics Machine for virtualization for the first time, you *cannot* install Oracle VM Server 3.2.4 directly. You must first install Oracle VM Server 3.0.3 and then upgrade to Oracle VM Server 3.2.4. For information on installing Oracle VM Server 3.0.3, see [Section 2.2.1.2.1, "Installing Oracle VM Server 3.0.3 \(Base Image 2.0.1.1\)."](#)

Oracle recommends that you use the same release version of Oracle VM Manager and Oracle VM Server.

Note: The following procedure also applies if you want to upgrade Oracle VM Server 3.0.3 to a higher release version in the Oracle VM Server 3.2.x series.

To upgrade Oracle VM Server 3.0.3 to 3.2.4:

1. Stop Oracle VM Server, by performing the following actions:
 - a. Stop all applicable processes running on the Exalytics Machine.
 - b. Stop all virtual machines running on the server.
 - c. Connect to Oracle VM Manager.
 - d. Select the **Servers and VMs** tab.
 - e. In the left pane, expand **Server Pools**, and then **exalytics_server_pool**.
 - f. Right-click the Exalytics Machine, and select **Stop Server**.

For more information, see "Section 6.10.7 Stopping Oracle VM Servers" in *Oracle VM User's Guide for Release 3.2.1*.

2. Navigate to My Oracle Support and download patch number 16410428 to a local directory.
3. On the Exalytics Machine, connect and log on to Oracle Integrated Lights Out Manager (ILOM).
4. In ILOM, 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 3.2.4 image as a remote virtual CD-ROM in ILOM.
6. Restart the machine, by performing the following action:
 - In ILOM, select **ILOM**, then **Host Management**, and then **Power Cycle**.
7. Display the setting for the Next Boot Device, by performing the following action:
 - In ILOM, select **Host Management**, then **Host Control**, and then **Next Boot Device**.

The setting for the Next Boot Device is displayed.

8. Restart the machine, by performing the following action:
 - In ILOM, select **ILOM**, then **Host Management**, and then **Power Cycle**.

The Exalytics Machine restarts and the CD Found screen is displayed.

9. Press **OK** to start the media test.

The Media Check screen is displayed.

10. Press **Test** to test the CD in the drive.

At the conclusion of the test, the Media Check Result screen is displayed.

11. Press **OK**.

The Media Check screen is displayed.

12. Press **Continue**.

The Keyboard Selection screen is displayed.

13. Select the model keyboard attached to the Exalytics Machine, and click **OK**.

The OVS EULA screen is displayed.

14. Press **Accept**.

The System to Upgrade screen is displayed.

15. Select **Oracle VM Server 3.0.3**, and press **OK**.

Note: Take note of the drive on which Oracle VM Server 3.0.3 is installed. You need the drive particulars when you move the drive to the top of the BOOT menu. See Step 17 (e).

The Upgrade Boot Loader Configuration screen is displayed.

16. Select **Create new boot loader configuration**, and press **OK**.

The Boot Loader Configuration screen is displayed.

17. On the Boot Loader Configuration screen, perform the following actions:
 - a. Select **Use GRUB Boot Loader**, and press **OK**.
 - b. Press **OK** to not add additional kernel parameters.
 - c. If required, enter a password, and press **OK**.
 - d. Press **Change drive order** to specify where you want to install the boot loader.
 - e. Select the drive on which the Oracle VM Server is installed and continue pressing **Move up** to move the drive to the top of the BOOT menu.
 - f. Select your drive from top of the BOOT menu, and select **Allow boot from multipath device**.
 - g. Press **OK**.

The Upgrade to begin screen is displayed.

18. Press **OK**.
19. Confirm the upgrade completes successfully, and then press **Reboot**.

The Exalytics Machine restarts.

20. Perform the following actions to rediscover the upgraded Oracle VM Server:
 - a. Connect to Oracle VM Manager.
 - b. Select the **Servers and VMs** tab.
 - c. In the left pane, expand **Server Pools**, and then **exalytics_server_pool**.
 - d. Right-click the Exalytics Machine and select **Rediscover Server**.
 - e. Enter the following information for the server:
 - Oracle VM Agent Port. The default port number is 8899.
 - Oracle VM Agent Password. The default password is "oracle".
 - IP Address.
 - f. Click **OK**.

For more information, see "Section 5.3. Upgrading Oracle VM Server for x86" in *Oracle VM Installation and Upgrade Guide for Release 3.2.1*.

7.4.4.2.3 Installing and Configuring Flash on an Exalytics Machine Configured for Virtualization

Flash driver installation and configuration is required for supporting Flash storage on Exalytics virtualization. Therefore, this section is applicable only for the following customers who have Flash storage:

- Customers running Exalytics X3-4 machines
- Customers running Exalytics X2-4 machines with Flash upgrade kit

Note: Oracle Exalytics X2-4 customers who do not have Flash upgrade kit can ignore this section.

This section consists of the following topics:

- ["Installing Flash Drivers and Utilities on Oracle VM Server"](#)

- ["Configuring Flash on Oracle VM Server"](#)
- ["Configuring RAID1 for Flash in Oracle Virtual Machine"](#)

Installing Flash Drivers and Utilities on Oracle VM Server

After you have upgraded Oracle VM Manager and Oracle VM Server, you install Flash drivers and utilities.

To install Flash drivers and utilities on Oracle VM Server:

1. Navigate to My Oracle Support and download patch number 17206021: Oracle Exalytics Base Image 2.0.1.2 for Exalytics Oracle VM x86-64 Upgrade Utility that contains the zipped rpm file.

The zipped rpm file contains Flash drivers and the Flash configuration scripts.

2. Unzip the file into a temporary (/tmp) directory.
3. Log on to the Exalytics Machine as the root user.
4. Using FTP, extract the contents of the file into an appropriate directory on the Exalytics Machine.
5. To install Flash, enter the following command:

```
# rpm -Uv exalytics-flash-1.0.0.5ps3-61.x86_64.rpm
```

Flash starts installing. The output should look similar to the following:

```
Preparing packages for installation...
exalytics-flash-1.0.0.5ps3-61
postInstall (exalytics-flash) 1 ...
[EXALYTICS_INFO:GENERAL] Updating exalytics-flash-config file to set FLASH_
INSTALL_TYPE=OVS ...
postInstall (exalytics-flash) 1; done
```

6. To verify that Flash is installed and the number of Flash cards installed, enter the following command:

```
# ddcli
```

Six Flash cards are displayed. The output should look similar to the following:

```
*****
LSI Corporation WarpDrive Management Utility
Version 107.00.00.04 (2012.06.05)
Copyright (c) 2011 LSI Corporation. All Rights Reserved.
*****
```

ID	WarpDrive	Package Version	PCI Address
1	ELP-4x100-4d-n	06.05.09.00	00:11:00:00
2	ELP-4x100-4d-n	06.05.09.00	00:21:00:00
3	ELP-4x100-4d-n	06.05.07.00	00:31:00:00
4	ELP-4x100-4d-n	06.05.07.00	00:a1:00:00
5	ELP-4x100-4d-n	06.05.01.00	00:c1:00:00
6	ELP-4x100-4d-n	06.05.01.00	00:d1:00:00

Configuring Flash on Oracle VM Server

Each Flash card on the Exalytics Machine contains four 100 GB drives, for a total of 24 individual drives. You next configure Flash to enable names of the Flash drives on Oracle VM Server to be read by Oracle VM Manager.

Note: Before Oracle Exalytics X2-4 customers can configure Flash, they must have Oracle Field Services engineers install six Flash cards on the Exalytics Machine being used for virtualization.

To configure Flash on Oracle VM Server:

1. Log on to the Exalytics Machine as the root user.
2. To create a FlashDriveMappings file, enter the following command:

```
# /opt/exalytics/bin/exalytics_flashovsrepos -script > ~/flashDriveMappings
```

The FlashDriveMappings file extracts the names of the Flash drives on Oracle VM Server into a text file.
3. On Oracle VM Server, zip the `/opt/exalytics/bin/exalytics_ovm_scripts/` folder and the FlashDriveMappings file and copy them to Oracle VM Manager.
4. Connect to Oracle VM Manager.
5. Navigate to the directory where you copied the scripts and the FlashDriveMappings file.
6. To rename the Flash drives in Oracle VM Manager, enter the following command:

```
# <path_to_script_files>/exalytics_ovm_scripts/exalytics_ovm_rename_flash.sh <path_to_flashmappingfile> <Oracle VM Manager Username> <Oracle VM Manager Password>
```

The names of the Flash drives in Oracle VM Manager now appears the same as the names specified in the FlashDriveMappings file.
7. Attach the Flash drives to Oracle VM Manager by performing the following tasks:
 - a. In Oracle VM Manager, select the **Server and VMs** tab.
 - b. In the left pane, select the server pool on which the virtual machine resides.
 - c. From the Perspective list, select **Virtual Machines**.
 - d. In the Management pane, select a virtual machine.
 - e. In the toolbar, click **Edit**.

The Edit Virtual Machine dialog is displayed.
 - f. Click the **Disks** tab.
 - g. Under Disk Type, select **Physical Disk**.
 - h. Under Actions, select **Select a Virtual Machine Disk**.

Select a Physical Disk page is displayed.
 - i. Select the Flash card you want to attach to Oracle VM Manager, and click **OK**.
 - j. Repeat the previous step to attach other Flash cards to Oracle VM Manager.
8. In Oracle VM Manager, select the **Servers and VMs** tab.
9. In the left pane, expand **Server Pools**, and then select `exalytics_server_pool`.
10. From the Perspective list, select **Virtual Machines**.
11. In the Management pane, select a virtual machine.
12. Click the expand arrow to the left of the selected virtual machine.

13. Click the **Disks** tab.

14. Confirm that the Flash drives attached to Oracle VM Manager are displayed.

Configuring RAID1 for Flash in Oracle Virtual Machine

Finally, you configure RAID Level 1 for Flash.

RAID Level 1 is usually referred to as mirroring. RAID Level 1 duplicates data from one drive on a second drive so that if either drive fails, no data is lost. This is useful when reliability is more important than data storage capacity.

Note: When configuring RAID1, ensure that the Flash drives on RAID1 are from different Flash cards. This ensures that no data is lost if one Flash card fails.

The following procedure assume you have attached the Flash drives to Oracle VM Manager.

Note: In this example, RAID1 is configured for two (xvdb and xvdc) Flash drives that are on two different Flash cards. Depending on your configuration, you can configure RAID1 for a different number of Flash drives.

To configure RAID1 for Flash in Oracle Virtual Machine:

1. Connect as a root user to the Oracle VM Manager to which you attached the Flash drives.
2. To configure RAID1 for the two Flash drives (xvdb and xvdc), enter the following command:

```
# /sbin/mdadm --create /dev/md2 --level=1 --raid-devices=2 /dev/xvdb
/dev/xvdc
```

3. To add the RAID1 configuration to the RAID configuration file, enter the following command:

```
# mdadm --detail --scan --verbose >> /etc/mdadm.conf
```

This enables the RAID configuration to be recognized when Oracle VM Manager restarts.

4. To create a file system on the new RAID1 device, enter the following command:
5. To create a new directory (/u02) on the virtual disk, enter the following command:

```
# mkfs -t ext3 /dev/md2
```

6. To mount the RAID1 on this directory, enter the following command:

```
# mount /dev/md2 /u02
```

/u02 is created as the new Flash drive.

7. To update the file system, enter the following command:

```
# echo "/dev/md2 /u02 ext3 defaults 0 0" >> /etc/fstab
```

7.4.4.2.4 Installing Software on the Exalytics Machine Configured for Virtualization

The process of installing Oracle BI EE 11.1.1.7.0, Oracle TimesTen 11.2.2.5, and Oracle Essbase 11.1.2.2.102 on virtual machines is similar to installing them on the Exalytics Machine. For more information, see [Section 7.4.4.1, "Applying Oracle Exalytics Release 1 Patchset 3 \(1.0.0.3\) on an Exalytics Machine."](#)

7.4.5 Postinstallation Instructions for the Oracle Exalytics Release 1 Patchset 3

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 7.4.5.1, "Oracle TimesTen In-Memory Database"](#)
- [Section 7.4.5.2, "Oracle Business Intelligence Enterprise Edition"](#)

7.4.5.1 Oracle TimesTen In-Memory Database

This section contains the following topics:

- [Section 7.4.5.1.1, "Configure Oracle TimesTen Checkpoint Frequency"](#)
- [Section 7.4.5.1.2, "Other Postinstallation Steps"](#)

7.4.5.1.1 Configure 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`

7.4.5.1.2 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*.

7.4.5.2 Oracle Business Intelligence Enterprise Edition

This section contains the following topics:

- [Section 7.4.5.2.1, "Edit the opmn.xml File"](#)
- [Section 7.4.5.2.2, "Reinstall Oracle Business Intelligence Client Installer"](#)

7.4.5.2.1 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. Enter the following command:
./opmnctl stopall

Stops OPMN and all Oracle Business Intelligence system components.
 - c. Enter the following command:
./opmnctl startall

Starts OPMN and all Oracle Business Intelligence system components.

7.4.5.2.2 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*.

7.4.6 Deinstallation Instructions for the Oracle Exalytics Release 1 Patchset 3

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.

7.4.7 Bugs Fixed by the Oracle Exalytics Release 1 Patchset 3

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

7.4.8 Known Bugs with the Oracle Exalytics Release 1 Patchset 3

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

7.5 Configuring Flash and Replacing a Defective Flash Card on an Exalytics Machine

This section contains the following topics:

- [Section 7.5.1, "License to Receive Open Source Code"](#)
- [Section 7.5.2, "Prerequisites for Configuring Flash"](#)
- [Section 7.5.3, "Configuring Flash"](#)
- [Section 7.5.4, "Replacing a Defective Flash Card"](#)

7.5.1 License to Receive Open Source Code

The license for each component is located in the documentation, which may be delivered with the Oracle Linux programs or accessed online at <http://oss.oracle.com/linux/legal/oracle-list.html> and/or in the component's source code.

For technology in binary form that is licensed under an open source license that gives you the right to receive the source code for that binary, you may be able to obtain a copy of the applicable source code at these site(s):

<https://edelivery.oracle.com/linux>

If the source code for such technology was not provided to you with the binary, you can also receive a copy of the source code on physical media by submitting a written request to:

Oracle America, Inc.

Attn: Oracle Linux Source Code Requests

Development and Engineering Legal

500 Oracle Parkway, 10th Floor

Redwood Shores, CA 94065

Your request should include:

- The name of the component or binary file(s) for which you are requesting the source code
- The name and version number of the Oracle Software
- The date you received the Oracle Software
- Your name
- Your company name (if applicable)
- Your return mailing address and email
- A telephone number in the event we need to reach you.

We may charge you a fee to cover the cost of physical media and processing. Your request must be sent (i) within three (3) years of the date you received technology that included the component or binary file(s) that are the subject of your request, or (ii) in the case of code licensed under the GPL v3, for as long as Oracle offers spare parts or customer support for that Software model.

7.5.2 Prerequisites for Configuring Flash

The following prerequisites must be met before configuring Flash on the Exalytics Machine:

- Release 1 Patchset 3 has been installed on the Exalytics Machine.
- Oracle Field Services engineers have installed six Flash cards on the Exalytics Machine.

7.5.3 Configuring Flash

When you upgrade to Oracle Exalytics Release 1 Patchset 3, Flash drivers are automatically installed. To improve the performance and storage capacity of the Exalytics Machine you must configure Flash.

Note: The installed Flash drivers use software RAID.

To configure Flash:

1. Restart the Exalytics Machine using ILOM.
 - a. Log on to the ILOM web-based interface.
 - b. In ILOM, select **ILOM**, then **Host Management**, and then **Power Cycle**.

The Exalytics Machine restarts.

2. Enter the following command as a root user:

```
# /opt/exalytics/bin/configure_flash.sh --RAID01
```

The following warning, applicable only for software RAID, is displayed: "This flash configuration script will remove any existing RAID arrays, as well as remove any partitions on any flash drives and will create a new RAID array across all these flash drives. This will result in ALL DATA BEING LOST from these drives. Do you still want to proceed with this flash configuration script? (yes/no)"

3. Enter Yes at the prompt to continue running the script.

The output should look similar to the following:

```
[EXALYTICS_INFO:FLASH_CONFIG] Warning response was : yes
```

```
[EXALYTICS_INFO:FLASH_CONFIG] The machine has flash drivers installed.
[EXALYTICS_INFO:FLASH_CONFIG] This machine has 6 flash cards
[EXALYTICS_INFO:FLASH_CONFIG] Flash cards appear to be healthy
[EXALYTICS_INFO:FLASH_CONFIG] Fetching some info on installed flash drives ....
[EXALYTICS_INFO:FLASH_CONFIG] Removing partitions for /dev/sdf
[EXALYTICS_INFO:FLASH_CONFIG] Removing partitions for /dev/sde
[EXALYTICS_INFO:FLASH_CONFIG] Removing partitions for /dev/sdd
[EXALYTICS_INFO:FLASH_CONFIG] Removing partitions for /dev/sdc
[EXALYTICS_INFO:FLASH_CONFIG] Removing partitions for /dev/sdj
[EXALYTICS_INFO:FLASH_CONFIG] Removing partitions for /dev/sdi
[EXALYTICS_INFO:FLASH_CONFIG] Removing partitions for /dev/sdh
[EXALYTICS_INFO:FLASH_CONFIG] Removing partitions for /dev/sdg
[EXALYTICS_INFO:FLASH_CONFIG] Removing partitions for /dev/sdm
[EXALYTICS_INFO:FLASH_CONFIG] Removing partitions for /dev/sdn
[EXALYTICS_INFO:FLASH_CONFIG] Removing partitions for /dev/sdl
[EXALYTICS_INFO:FLASH_CONFIG] Removing partitions for /dev/sdk
[EXALYTICS_INFO:FLASH_CONFIG] Removing partitions for /dev/sdr
[EXALYTICS_INFO:FLASH_CONFIG] Removing partitions for /dev/sdq
[EXALYTICS_INFO:FLASH_CONFIG] Removing partitions for /dev/sdp
[EXALYTICS_INFO:FLASH_CONFIG] Removing partitions for /dev/sdo
[EXALYTICS_INFO:FLASH_CONFIG] Removing partitions for /dev/sdv
[EXALYTICS_INFO:FLASH_CONFIG] Removing partitions for /dev/sdu
[EXALYTICS_INFO:FLASH_CONFIG] Removing partitions for /dev/sdt
[EXALYTICS_INFO:FLASH_CONFIG] Removing partitions for /dev/sds
[EXALYTICS_INFO:FLASH_CONFIG] Removing partitions for /dev/sdz
[EXALYTICS_INFO:FLASH_CONFIG] Removing partitions for /dev/sdy
[EXALYTICS_INFO:FLASH_CONFIG] Removing partitions for /dev/sdx
[EXALYTICS_INFO:FLASH_CONFIG] Removing partitions for /dev/sdw
mdadm: Unrecognised md component device - /dev/sdr
mdadm: Unrecognised md component device - /dev/sdq
mdadm: Unrecognised md component device - /dev/sdp
mdadm: Unrecognised md component device - /dev/sdo
mdadm: Unrecognised md component device - /dev/sdv
mdadm: Unrecognised md component device - /dev/sdu
mdadm: Unrecognised md component device - /dev/sdt
mdadm: Unrecognised md component device - /dev/sds
mdadm: Unrecognised md component device - /dev/sdz
mdadm: Unrecognised md component device - /dev/sdy
mdadm: Unrecognised md component device - /dev/sdx
mdadm: Unrecognised md component device - /dev/sdw
mdadm: Unrecognised md component device - /dev/sdf
mdadm: Unrecognised md component device - /dev/sde
mdadm: Unrecognised md component device - /dev/sdd
mdadm: Unrecognised md component device - /dev/sdc
mdadm: Unrecognised md component device - /dev/sdj
mdadm: Unrecognised md component device - /dev/sdi
mdadm: Unrecognised md component device - /dev/sdh
mdadm: Unrecognised md component device - /dev/sdg
mdadm: Unrecognised md component device - /dev/sdm
mdadm: Unrecognised md component device - /dev/sdn
mdadm: Unrecognised md component device - /dev/sdl
mdadm: Unrecognised md component device - /dev/sdk
umount: /dev/md1: not found
mdadm: cannot open /dev/md1: No such file or directory
[EXALYTICS_INFO:FLASH_CONFIG] Creating RAID array: /dev/md1, using devices :
/dev/sdr /dev/sdq /dev/sdp /dev/sdo /dev/sdv /dev/sdu /dev/sdt /dev/sds
/dev/sdz /dev/sdy /dev/sdx /dev/sdw
mdadm: array /dev/md1 started.
[EXALYTICS_INFO:FLASH_CONFIG] RAID device created : /dev/md1.
umount: /dev/md2: not found
```



```

mdadm: cannot open /dev/md2: No such file or directory
[EXALYTICS_INFO:FLASH_CONFIG] Creating RAID array: /dev/md2, using devices :
/dev/sdf /dev/sde /dev/sdd /dev/sdc /dev/sdj /dev/sdi /dev/sdh /dev/sdg
/dev/sdm /dev/sdn /dev/sdl /dev/sdk
mdadm: array /dev/md2 started.
[EXALYTICS_INFO:FLASH_CONFIG] RAID device created : /dev/md2.
[EXALYTICS_INFO:FLASH_CONFIG] Creating RAID1 array: /dev/md3
umount: /dev/md3: not found
mdadm: cannot open /dev/md3: No such file or directory
[EXALYTICS_INFO:FLASH_CONFIG] Creating RAID array: /dev/md3, using devices
:/dev/md1 /dev/md2
mdadm: array /dev/md3 started.
[EXALYTICS_INFO:FLASH_CONFIG] RAID device created : /dev/md3.
mke2fs 1.39 (29-May-2006)
Filesystem label=
OS type: Linux
Block size=4096 (log=2)
Fragment size=4096 (log=2)
146489344 inodes, 292968368 blocks
14648418 blocks (5.00%) reserved for the super user
First data block=0
Maximum filesystem blocks=4294967296
8941 block groups
32768 blocks per group, 32768 fragments per group
16384 inodes per group
Superblock backups stored on blocks:
32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632, 2654208,
4096000, 7962624, 11239424, 20480000, 23887872, 71663616, 78675968,
102400000, 214990848

Writing inode tables: done
Creating journal (32768 blocks): done
Writing superblocks and filesystem accounting information: done

This filesystem will be automatically checked every 21 mounts or
180 days, whichever comes first. Use tune2fs -c or -i to override.
[EXALYTICS_INFO:FLASH_CONFIG] Flash mounted at /u02
[EXALYTICS_INFO:FLASH_CONFIG] RAID config complete and /etc/mdadm.conf updated.
See /var/log/exalytics/exalytics.log for more details
#

```

4. To verify that Flash has been configured correctly, enter the following command:

```
# df -h
```

The output should look similar to the following:

```

Filesystem                Size  Used Avail Use% Mounted on
/dev/mapper/VolGroup00-LogVol100
                          718G  4.4G  677G   1% /
/dev/sda1                  99M   15M   79M  16% /boot
tmpfs                     1010G      0 1010G   0% /dev/shm
/dev/md3                   1.1T  199M  1.1T   1% /u02

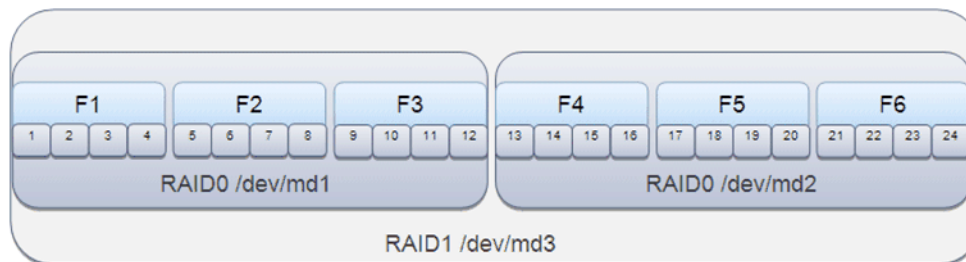
```

Flash is configured as shown in [Figure 7-2](#).

- Each Flash card (F1, F2, F3, and so on) has four 100 GB drives. Each drive maps to a device, such as /dev/sdg, /dev/sdh, /dev/sdi, /dev/sdj, and so on.
- Three Flash drives are configured on RAID0 /dev/md1 and three Flash drives are configured on RAID0 /dev/md2.

- The two RAID0s are configured on the parent RAID1 /dev/md3.

Figure 7–2 Flash Configuration on RAID0 and RAID1



5. To verify the status of Flash cards, enter the following command:

```
# /opt/exalytics/bin/exalytics_CheckFlash.sh
```

The output for all the six Flash cards should look similar to the following:

```
Checking Exalytics Flash Drive Status
```

```
Fetching some info on installed flash drives ....
```

```
Driver version : 01.250.41.04 (2012.06.04)
```

```
Supported number of flash drives detected (6)
```

```
Flash card 1 :
```

```
Overall health status : GOOD
```

```
Size (in MB) : 381468
```

```
Capacity (in bytes) : 400000000000
```

```
Firmware Version : 108.05.00.00
```

```
Devices: /dev/sdf /dev/sde /dev/sdd /dev/sdc
```

```
Flash card 2 :
```

```
Overall health status : GOOD
```

```
Size (in MB) : 381468
```

```
Capacity (in bytes) : 400000000000
```

```
Firmware Version : 108.05.00.00
```

```
Devices: /dev/sdj /dev/sdi /dev/sdh /dev/sdg
```

```
Flash card 3 :
```

```
Overall health status : GOOD
```

```
Size (in MB) : 381468
```

```
Capacity (in bytes) : 400000000000
```

```
Firmware Version : 108.05.00.00
```

```
Devices: /dev/sdn /dev/sdm /dev/sdl /dev/sdk
```

```
Flash card 4 :
```

```
Overall health status : GOOD
```

```
Size (in MB) : 381468
```

```
Capacity (in bytes) : 400000000000
```

```
Firmware Version : 108.05.00.00
```

```
Devices: /dev/sdq /dev/sdp /dev/sdr /dev/sdo
```

```
Flash card 5 :
```

```
Overall health status : GOOD
```

```
Size (in MB) : 381468
```

```
Capacity (in bytes) : 400000000000
```

```
Firmware Version : 108.05.00.00
```

```
Devices: /dev/sdv /dev/sdt /dev/sds /dev/sdu
```

```
Flash card 6 :
Overall health status : GOOD
Size (in MB) : 381468
Capacity (in bytes) : 400000000000
Firmware Version : 108.05.00.00
Devices: /dev/sdz /dev/sdy /dev/sdx /dev/sdw

Raid Array Info (/dev/md3):
/dev/md3: 1117.59GiB raid1 2 devices, 0 spares. Use mdadm --detail for more
detail.
/dev/md3: No md super block found, not an md component.

Summary:
Healthy flash drives : 6
Broken flash drives : 0
Pass : Flash card health check passed
```

7.5.4 Replacing a Defective Flash Card

If required, you can replace a failed or defective Flash card. The following procedure assumes you have a defective Flash card in *RAID0* */dev/md2*, which is installed on the parent *RAID1* */dev/md3*. See [Figure 7-2](#).

To replace a failed or defective Flash card:

1. To verify the status of Flash cards, enter the following command:

```
# /opt/exalytics/bin/exalytics_CheckFlash.sh
```

If a defective Flash card is detected, the output displays an "Overall Health : ERROR" message, and the summary indicates the defective card.

2. To locate the RAID that contains the defective Flash card, enter the following command:

```
# mdadm -D /dev/md3
```

The output should look similar to the following:

```
UUID : d97f9d32:906da3fd:bfa0390d:8ae3c2a3
```

```
Events : 0.39
```

Number	Major	Minor	RaidDevice	State	
0	9	1	0	active sync	/dev/md1
1	0	0	1	removed	
2	9	2	-	faulty spare	/dev/md2

Note: Notice the defective card in *RAID0* */dev/md2*. Also, make a note of the UUID number at the top of the display. You need the number later when you re-assemble RAID1.

3. To view all RAID configurations and their devices, enter the following command:

```
# mdadm --detail --scan --verbose
```

The output displays all RAID configurations and the devices used in each RAID. The output should look similar to the following:

```
ARRAY /dev/md1 level=raid0 num-devices=12 metadata=0.90
```

```
UUID=376793cb:2f25b327:66540b80:9a9099f7
devices=/dev/sds,/dev/sdr,/dev/sdq,/dev/sdp,/dev/sdu,/dev/sdw,/dev/sdv,/dev/sdt
,/dev/sdaa,/dev/sdz,/dev/sdy,/dev/sdx
ARRAY /dev/md2 level=raid0 num-devices=12 metadata=0.90
UUID=d79a8086:ec3d74a5:afe93883:9398ea21
devices=/dev/sdg,/dev/sdf,/dev/sde,/dev/sdk,/dev/sdh,/dev/sdj,/dev/sdi,/dev/sdo
,/dev/sdn,/dev/sdm,/dev/sdl
ARRAY /dev/md3 level=raid1 num-devices=2 metadata=0.90
UUID=d45effbc:ca983d64:468f8a99:fa267141
devices=/dev/md1,/dev/md2
```

Note: The following steps assume that a defective Flash card mapped to device */dev/sdd* in *RAID0 /dev/md2* was detected. In this example, the device */dev/sdd* is replaced by device */dev/sdab*.

4. To display the defective Flash card in *RAID0 /dev/md2*, enter the following command:

```
# mdadm -D /dev/md2
```

The output should look similar to the following:

Number	Major	Minor	RaidDevice	State	
0	8	96	0	active sync	/dev/sdg
1	8	80	1	active sync	/dev/sdf
2	8	64	2	active sync	/dev/sde
3	8	48	3	active sync	
4	8	160	4	active sync	/dev/sdk
5	8	112	5	active sync	/dev/sdh
6	8	144	6	active sync	/dev/sdj
7	8	128	7	active sync	/dev/sdi
8	8	224	8	active sync	/dev/sdo
9	8	208	9	active sync	/dev/sdn
10	8	192	10	active sync	/dev/sdm
11	8	176	11	active sync	/dev/sdl

Note: Notice the missing device (*/dev/sdd*) at number 3. In this example, this is replaced by */dev/sdab*. Also, take note of the other devices (*/dev/sdg*, */dev/sdf*, */dev/sde*, */dev/sdk*, and so on). You need these devices to rebuild *RAID0* after installing the new Flash card.

5. Shut down and unplug the Exalytics Machine.
6. Replace the defective Flash card.
7. Restart the Exalytics Machine.

Note: You can also start the Exalytics Machine using Integrated Lights Out Manager (ILOM).

8. To learn which devices are mapped to the new Flash card, enter the following command:

```
# /opt/exalytics/bin/exalytics_CheckFlash.sh
```

Devices mapped to the new Flash card are displayed. In this example, the old device (*/dev/sdd*) mapped to the defective Flash card is replaced with a new device (*/dev/sdab*).

9. To unmount and stop RAID1, enter the following commands:

```
# umount /dev/md3
# mdadm --stop /dev/md3
```

10. To stop the failed RAID0, enter the following command:

```
# mdadm --stop /dev/md2
```

11. To re-assemble the failed RAID0, enter the following command:

```
# mdadm /dev/md2 --assemble /dev/sdg /dev/sdf /dev/sde /dev/sdk
/dev/sdh /dev/sdj /dev/sdi /dev/sdo /dev/sdn /dev/sdm /dev/sdl
/dev/sdab
```

Note: As previously noted, the old device (*/dev/sdd*) is replaced with the new device (*/dev/sdab*).

The RAID0 restarts.

12. To check the health of the repaired RAID0, enter the following command:

```
# mdadm -D /dev/md2
```

13. Confirm that twelve active devices are listed.

If all twelve devices are not listed, run the `/opt/exalytics/bin/exalytics_CheckFlash.sh` script again, locate and fix the error and then check the health of the repaired RAID0. Repeat this until all twelve devices are listed.

14. To re-assemble the parent RAID1, enter the following command:

```
# mdadm /dev/md3 --assemble -u <UUID number>
```

15. To check the health of the repaired RAID1, enter the following command:

```
# mdadm -D /dev/md3
```

The output from the command shows RAID1 as running, but it shows *RAID0 /dev/md2* as missing, which you need to re-add.

16. To re-add the rebuilt *RAID0 /dev/md2* into *RAID1 /dev/md3*, enter the following command:

```
# mdadm /dev/md3 --re-add /dev/md2
```

17. To re-check the health of RAID1, enter the following command:

```
# mdadm -D /dev/md3
```

RAID1 starts rebuilding. Monitor the output and confirm that the process completes. The output should look similar to the following:

```
Rebuild Status : 2% complete
  Number  Major  Minor  RaidDevice State
    0      9      1      0      active sync   /dev/md1
    2      9      2      1      spare rebuilding /dev/md2
```

18. To recreate the `mdadm.conf` configuration file, which ensures that RAID details are maintained when you restart the Exalytics Machine, enter the following command:

```
# mdadm --detail --scan --verbose > /etc/mdadm.conf
```

Note: If you have other customizations in the mdadm.conf configuration file (such as updating the list of devices that are mapped to each RAID), you must manually edit the file.

19. To remount /dev/md3, enter the following command:

```
# mount /dev/md3 /u02
```

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"](#)

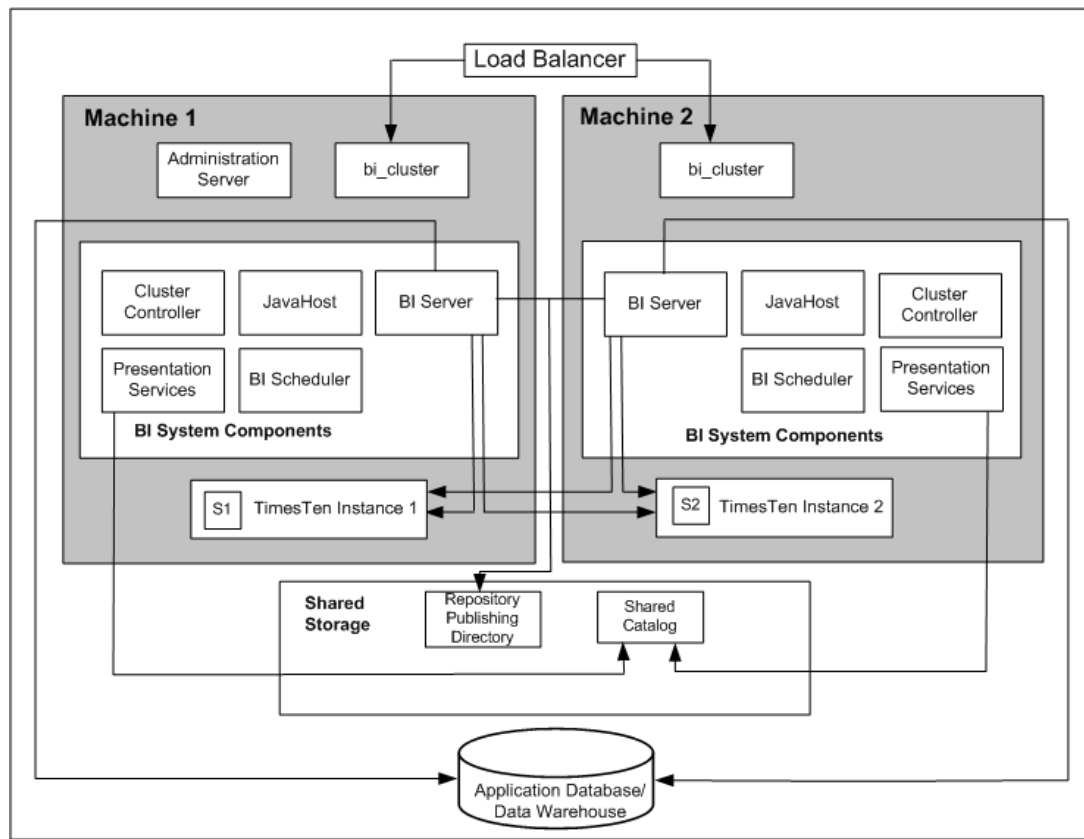
8.1 Requirements for High Availability

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 3.3.1, "Step 1: Creating the User, Group, and Password on the Operating System."](#)
2. Create the inventory for Oracle TimesTen, as described in [Section 3.3.2, "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 3.3.5, "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.

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*.

