

Oracle® Enterprise Manager

Cloud Control Introduction

13c Release 1

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Oracle Enterprise Manager Cloud Control Introduction, 13c Release 1

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Glossary

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Preface

This manual introduces Oracle Enterprise Manager. It provides a brief overview of the system architecture and describes the key features of the product. The manual also details new features in this release.

Note that later versions of this and other Enterprise Manager books may be available on the Oracle Technology Network:

<http://www.oracle.com/technology/documentation/oem.html>

Audience

This manual is intended for all users of Oracle Enterprise Manager.

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at

<http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc>.

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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.

Structure

The book consists of the following chapters:

Chapter 1, "Overview of Oracle Enterprise Manager Cloud Control 13c"

Presents the Enterprise Manager Cloud Control architecture and briefly describes the key features of the product.

Chapter 2, "New Features In Oracle Enterprise Manager Cloud Control 13c"

Highlights the new features available in Oracle Enterprise Manager Cloud Control 12c.

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.

Overview of Oracle Enterprise Manager Cloud Control 13c

This chapter provides an overview of Enterprise Manager Cloud Control 13c and helps you understand its architecture and the various core components that are integrated within the product. It contains the following sections:

- [About Enterprise Manager Cloud Control 13c](#)
- [Enterprise Manager Cloud Control Architecture](#)
- [Enterprise Manager Management Focus Areas](#)

See Also: For detailed information about Oracle Enterprise Manager Cloud Control, see the *Oracle Enterprise Manager Cloud Control Documentation* web site:

http://docs.oracle.com/cd/E63000_01/index.htm

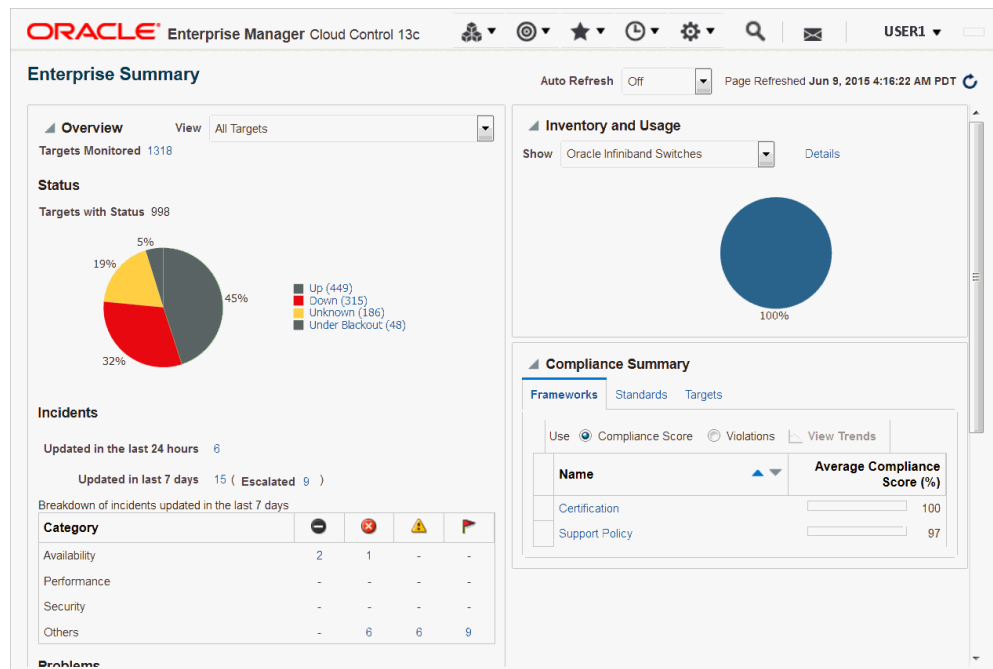
1.1 About Enterprise Manager Cloud Control 13c

Oracle Enterprise Manager is Oracle's integrated enterprise information technology (IT) management product line, which provides the industry's only complete, integrated, and business-driven enterprise cloud management solution. Oracle Enterprise Manager creates business value for IT by leveraging the built-in management capabilities of the Oracle stack for traditional and cloud environments, enabling customers to achieve unprecedented efficiency gains while dramatically increasing service levels.

The key capabilities of Enterprise Manager include:

- A complete cloud lifecycle management solution enabling you to quickly set up, manage, and support enterprise clouds and traditional Oracle IT environments from applications to disk
- Maximum return on IT management investment through the best solutions for intelligent management of the Oracle stack and engineered systems with real-time integration of Oracle's knowledge base with each customer environment
- Best service levels for traditional and cloud applications through business-driven application management

Figure 1–1 illustrates how Enterprise Manager Cloud Control offers a solution that enables you to monitor and manage the complete Oracle IT infrastructure from a single console.

Figure 1–1 Enterprise Manager Cloud Control Console

For more information about Enterprise Manager Cloud Control, access the following URL:

<http://www.oracle.com/us/products/enterprise-manager/index.html>

1.2 Enterprise Manager Cloud Control Architecture

This section introduces you to the architecture of Enterprise Manager Cloud Control and describes the core components of the product. It includes the following sections:

- [Architecture of Enterprise Manager Cloud Control](#)
- [About Oracle Management Agent](#)
- [About Oracle Management Service \(OMS\)](#)
- [About Oracle Management Repository](#)
- [About Plug-ins](#)
- [About Oracle JVM Engine](#)
- [About Oracle BI Publisher](#)
- [About Enterprise Manager Cloud Control Console](#)
- [About EMCTL](#)
- [About EM CLI](#)

1.2.1 Architecture of Enterprise Manager Cloud Control

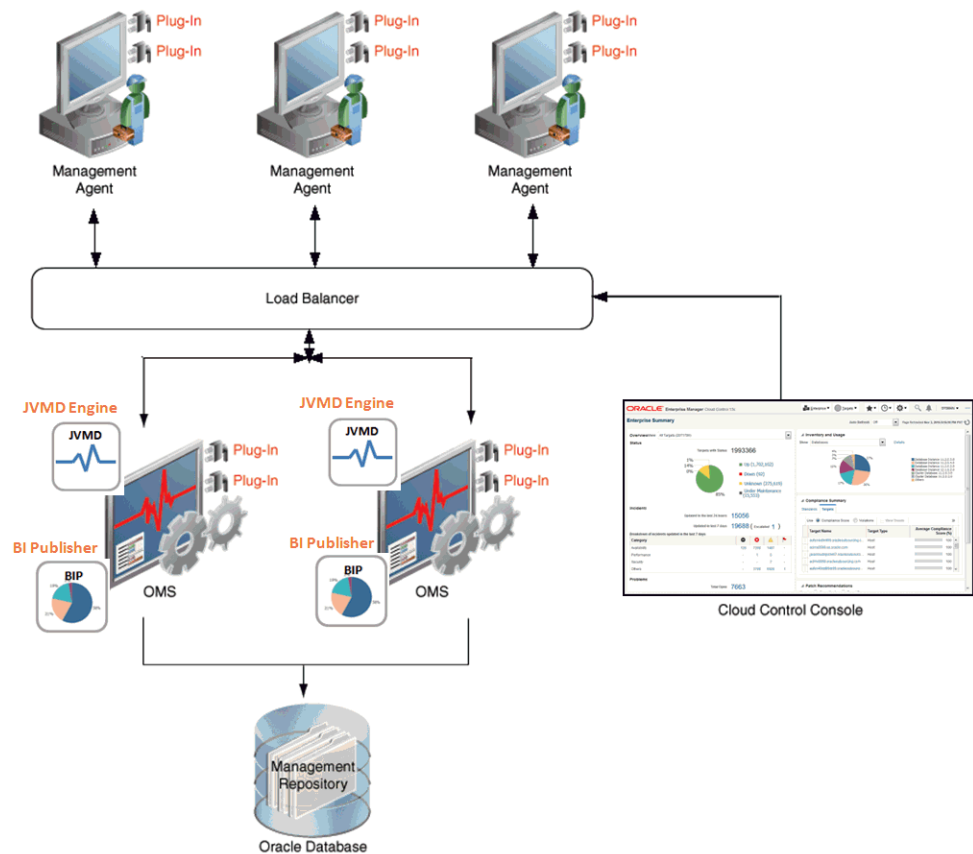
Enterprise Manager Cloud Control includes the following components:

- Oracle Management Agent
- Oracle Management Service

- Oracle Management Repository
- Plug-ins
- Enterprise Manager Cloud Control Console

Figure 1–2 shows a sample Enterprise Manager Cloud Control configuration and illustrates how these core components fit into the architecture.

Figure 1–2 Enterprise Manager Cloud Control Architecture



Note: In Figure 1–2, the load balancer and the multiple Oracle Management Service (OMS) instances are depicted only to indicate how a sample Enterprise Manager Cloud Control architecture would look in a large organization. They are not a prerequisite or a requirement for an Enterprise Manager system installation. If you do not have a load balancer, then the Management Agents communicate directly with the OMS instances.

1.2.2 About Oracle Management Agent

The Management Agent is an integral software component that enables you to convert an unmanaged host to a managed host in the Enterprise Manager system. The Management Agent works in conjunction with the plug-ins to monitor the targets running on that managed host.

With the first Oracle Management Service (OMS) you install, by default you receive a Management Agent called the *Central Agent*. The *Central Agent* is used for monitoring only the first OMS host, the first OMS, and the other targets running on the first OMS host. To monitor other hosts and the targets running on those hosts, you must install a separate *Standalone Management Agent* on each of those hosts.

1.2.3 About Oracle Management Service (OMS)

Oracle Management Service (OMS) is a Web-based application that orchestrates with the Management Agents and the plug-ins to discover targets, monitor and manage them, and store the collected information in a repository for future reference and analysis. The OMS also renders the user interface for Enterprise Manager Cloud Control.

The OMS is deployed to the middleware home, which is the parent directory that contains Oracle WebLogic Server, OMS, plug-ins, Java Development Kit (JDK), Oracle WT directory, Oracle Common, and other relevant configuration files and directories. While installing the OMS, the Enterprise Manager Cloud Control Installation Wizard automatically installs Oracle WebLogic Server and JDK, and therefore, a WebLogic Server admin console is available by default.

1.2.4 About Oracle Management Repository

The Oracle Management Repository (Management Repository) is a storage location where all the information collected by the Management Agent gets stored. It consists of objects such as database jobs, packages, procedures, views, and tablespaces.

The OMS uploads the monitoring data it receives from the Management Agents to the Management Repository. The Management Repository then organizes the data so that it can be retrieved by the OMS and displayed in the Enterprise Manager Cloud Control console. Since data is stored in the Management Repository, it can be shared between any number of administrators accessing the Enterprise Manager Cloud Control.

At the time of installation, the Enterprise Manager Cloud Control Installation Wizard configures the Management Repository in your existing, certified database. The wizard, however, does not install a new database.

1.2.5 About Plug-ins

Plug-ins are pluggable entities that offer special management capabilities customized to suit specific target types. Unlike the earlier releases of Enterprise Manager, in Enterprise Manager Cloud Control, the plug-ins work in conjunction with the OMS and the Management Agent to monitor every target in your environment. Therefore, they are deployed to the OMS as well as the Management Agent. In the earlier releases, plug-ins enabled you to monitor only third-party targets, but in Enterprise Manager Cloud Control, plug-ins enable you to monitor all types of targets in your environment.

Plug-ins have independent release cycles, so every time you have a new version of an Oracle product released, you will have a new version of the plug-in released to support monitoring of that new product version in Enterprise Manager Cloud Control. This simplifies things because you no longer have to wait to upgrade your Enterprise Manager system to support a new product version; instead you can upgrade your plug-ins to monitor the new product version.

[Table 1-1](#) lists the default plug-ins that are installed with a new Enterprise Manager system. In addition to these plug-ins, you can optionally install other plug-ins

available in the software kit (DVD, downloaded software bundle, and so on). The installer offers a screen where you can select the optional plug-ins and install them.

Table 1–1 Default Plug-ins Installed with Enterprise Manager Cloud Control

Name	Description
Oracle Database	Enables you to discover, monitor, and manage Oracle Database and related targets such as Oracle Real Application Clusters (Oracle RAC), Oracle Automatic Storage Management (Oracle ASM), and so on.
Oracle Fusion Middleware	Enables you to discover, monitor, and manage Oracle Fusion Middleware products such as Oracle WebLogic Domain, Oracle WebLogic AdminServer, Oracle WebLogic Server, Oracle SOA Suite, Oracle Web Tier, and so on.
Oracle Exadata	Enables you to discover, monitor, and manage Oracle Exadata targets.
Oracle Cloud Framework	Enables you to access basic features that are common across cloud services such as Middleware as a Service (MWaaS), Database as a Service (DBaaS), Infrastructure as a Service (IaaS), and Testing as a Service (TaaS).
Oracle System Infrastructure	Enables you to discover, monitor, and manage Oracle hardware systems and Super Cluster engineered systems, including server hardware, chassis, racks, power distribution unit, network equipment, operating systems, virtualization software, and clustering software.

1.2.6 About Oracle JVMD Engine

Java Virtual Machine Diagnostics (JVMD) Engine enables you to diagnose performance problems in Java applications in the production environment. By eliminating the need to reproduce problems, it reduces the time required to resolve these problems, thus improving application availability and performance.

Starting with 13c (13.1.0.0.0), as part of the Oracle Fusion Middleware Plug-in deployment, one JVMD Engine is installed and configured by default on the OMS. For every additional OMS you deploy, you receive one JVMD Engine by default with that OMS.

While JVMD Engine is installed by default on the OMS host, you will still need JVMD Agents to be manually deployed on the targeted JVMs.

1.2.7 About Oracle BI Publisher

Oracle Business Intelligence (BI) Publisher is Oracle's primary reporting tool for authoring, managing, and delivering all your highly formatted documents. Oracle BI Publisher makes your data stand out with pixel-perfect reports and dashboards, offers a variety of report and dashboard layouts, and enables you to create all types of highly formatted documents.

Starting with 13c (13.1.0.0.0), Oracle BI Publisher is installed and configured by default on the OMS. For every additional OMS you deploy, you receive one Oracle BI Publisher by default with that OMS.

1.2.8 About Enterprise Manager Cloud Control Console

The Enterprise Manager Cloud Control console is the user interface you see after you install Enterprise Manager Cloud Control. See [Figure 1–1](#). With the help of the console, you can monitor and administer your entire computing environment from one

location on the network. All the systems and services including enterprise application systems, databases, hosts, middleware application servers, listeners, and so on, are easily managed from one central location.

1.2.9 About EMCTL

EMCTL is a command-line tool that enables you to execute certain tasks on the OMS and Management Agents. You can use it for tasks such as starting or stopping OMS instances, setting properties on OMS instances, or getting a list of targets being monitored by a specific Management Agent. EMCTL commands are executed on a specific OMS or Management Agent.

1.2.10 About EM CLI

The Enterprise Manager Command Line Interface (EM CLI) is a command-line tool that is accessible through classic programming language constructs, enabling tasks to be created and run either from the command-line or programatically. EM CLI enables you to access Enterprise Manager Cloud Control functionality from text-based consoles (shells and command-line windows) for a variety of operating systems.

1.3 Enterprise Manager Management Focus Areas

This section provides brief descriptions of the following management focus areas:

- [Framework and Infrastructure](#)
- [Enterprise Monitoring](#)
- [Application Management](#)
- [Database Management](#)
- [Middleware Management](#)
- [Hardware and Virtualization Management](#)
- [Heterogeneous \(Non-Oracle\) Management](#)
- [Cloud Management](#)
- [Hybrid Cloud Management](#)
- [Lifecycle Management](#)
- [Application Performance Management](#)
- [Application Quality Management](#)

1.3.1 Framework and Infrastructure

Oracle Enterprise Manager is a critical tool for data center management. It has a framework that is secure, scalable and highly available. With a next-generation user interface, it provides a rich, intuitive console that can be customized to suit different roles. Oracle Enterprise Manager framework also has advanced capabilities such as self-update where key components such as target plug-ins, compliance policies, and deployment procedures can be updated automatically as newer versions become available.

Oracle Enterprise Manager framework is enterprise-ready and is designed to manage and monitor critical business operations to ensure smooth running of enterprise data centers.

1.3.2 Enterprise Monitoring

World class enterprise monitoring is about monitoring the status of your infrastructure and applications, notifying the appropriate IT staff when incidents occur, and reporting on status, history, and trends to interested parties throughout IT and the business. Oracle Enterprise Manager provides rich monitoring features as a foundation for monitoring all components of your IT infrastructure (Oracle and non-Oracle) as well as the applications and services that are running on them. These features enable IT to proactively monitor and resolve issues by business priority, implement operational best practices for monitoring, and provide consistent, high quality service in support of business goals.

1.3.3 Application Management

Oracle provides advanced, out-of-the-box application management solutions for Oracle E-Business Suite, Siebel, Peoplesoft, JD Edwards, and Fusion Applications. They provide end-to-end, integrated application monitoring and management capabilities, resulting in improved availability, predictability, and reliability. Oracle Enterprise Manager's management capabilities include user experience management, performance management, change and configuration management, patching, provisioning, testing, integrated diagnostics, and automatic tuning.

Enterprise Manager also offers advanced management capabilities for managing custom applications, integrations, and extensions. Capabilities such as Business Transaction Management (BTM), JVM Diagnostics (JVMD) and others are presented in further detail in [Section 1.3.11, "Application Performance Management"](#).

1.3.4 Database Management

Oracle revolutionized the field of enterprise database management systems with the release of Oracle Database 10g by introducing the industry's first self-management capabilities built right into the database kernel. Today, after several releases and continuous improvement of this intelligent management infrastructure, Oracle Database provides the most extensive self-management capabilities in the industry, ranging from zero-overhead instrumentation to integrated self-healing and business-driven management. Oracle's Database management capabilities make the lives of DBA's easier by providing a full-lifecycle solution encompassing the following:

- Change and configuration management

For more information about change and configuration management, see *Overview of Change Management for Databases* and *Overview of Configuration Management*.

- Patching and Upgrades

For more information about patching and upgrades, see *Patching Software Deployments*.

- Provisioning

For more information about provisioning, see *Overview of Database Provisioning*.

- Testing

For more information about testing, see the *Database Testing Guide*.

- Masking/subsetting

For more information about masking and subsetting, see *Masking Sensitive Data and Data Subsetting*.

- Performance management

For more information about performance management, see the *Database Performance Tuning Guide*.

- Automatic tuning

For more information about automatic tuning, see *Automatic SQL Tuning Advisor* and *Managing Diagnostic Data*.

In addition, Oracle Enterprise Manager Cloud Control provides the following database management capabilities:

- Provides problem detection and guided resolution workflows
- Enables you to perform day to day tasks from Enterprise Manager Cloud Control
- Enables you to run repetitive jobs from Enterprise Manager Cloud Control

1.3.5 Middleware Management

Oracle Enterprise Manager Cloud Control 13c provides a comprehensive management solution for Oracle WebLogic Server, Oracle Fusion Middleware, and non-Oracle middleware technologies. Oracle's offering encompasses out-of-the-box availability and performance monitoring, robust diagnostics, administration, and lifecycle management that includes configuration and compliance management as well as provisioning and patching across middleware software such as:

- WebLogic Server
- SOA Suite
- Coherence
- Identity Management
- WebCenter
- Web Tier
- Business Intelligence
- Exalogic Elastic Cloud
- Oracle GlassFish
- Non-Oracle Middleware (for example, JBoss Application Server and IBM WebSphere Application Server)

1.3.6 Hardware and Virtualization Management

Oracle Enterprise Manager provides an integrated and cost-effective solution for complete physical and virtual server lifecycle management. By delivering comprehensive provisioning, patching, monitoring, administration, and configuration management capabilities through a web-based user interface, Enterprise Manager significantly reduces the complexity and cost associated with managing Oracle VM, Linux, UNIX, and Windows operating system environments. In addition, enterprises using Oracle Sun hardware can obtain deep insight into their server, storage, and network infrastructure layers and manage thousands of systems in a scalable manner. Oracle Enterprise Manager helps customers to accelerate the adoption of virtualization and cloud computing to optimize IT resources, improve hardware utilization, streamline IT processes, and reduce costs. Oracle Enterprise Manager is integrated with OVM 3.0 and higher and Oracle Virtual Assembly Builder.

1.3.7 Heterogeneous (Non-Oracle) Management

Oracle Enterprise Manager, besides being the best suite of management products for Oracle technologies, also provides a comprehensive solution for the management of heterogeneous data centers (including Microsoft SQL Server and JBoss Application Server) through its rich collection of extensions known as plug-ins and connectors. The Self Update mechanism in Enterprise Manager 13c enables customers to download /import and deploy extensions built by Oracle, Oracle's numerous partners, and customers themselves. These extensions are built upon the same management framework that is used for Oracle products, and therefore provides the same level of stability and richness as the Oracle products.

For more information, see the Oracle Enterprise Manager 13c Extensibility Exchange page:

<http://www.oracle.com/goto/emextensibility>

1.3.8 Cloud Management

Enterprise cloud presents new management challenges. With a move to virtualization, a top benefit expected from private cloud adoption is cost savings through standardization for operational efficiency. However, without proper management capabilities, expected economic benefits of cloud computing will not be realized.

Oracle Enterprise Manager Cloud Control is Oracle's complete cloud lifecycle management solution. It is the industry's first complete solution including self-service provisioning balanced against centralized, policy-based resource management, integrated chargeback, and capacity planning, and complete visibility of the physical and virtual environment from applications to disk.

1.3.9 Hybrid Cloud Management

With Hybrid Cloud Management, Enterprise Manager Cloud Control provides you with a "single pane of glass" for monitoring and managing on-premise as well as Oracle Cloud deployments, all from the same management console. By deploying Hybrid Cloud Agents onto the Oracle Cloud virtual hosts serving your Oracle Cloud services, you are able to manage Oracle Cloud targets just as you would any other. The communication between Management Agents and your on-premise Oracle Management Service instances is secure from external interference. In addition to a hardened architecture of its own, Enterprise Manager supports the use of additional external HTTP proxies that support tunneling, which can be configured to connect to the Oracle Cloud.

1.3.10 Lifecycle Management

Lifecycle Management is a comprehensive solution that helps database, system, and application administrators automate the processes required to manage the lifecycle of Oracle technology. It eliminates manual and time-consuming tasks related to discovery, initial provisioning, patching, configuration management, and ongoing change management. In addition, the solution provides compliance frameworks for reporting and managing industry and regulatory compliance standards. Finally, all of the on-premise instrumentation can be connected in real-time to My Oracle Support for complete communication between Oracle and customers.

1.3.11 Application Performance Management

Enterprise Manager 13c provides a complete Application Performance Management (APM) solution for custom applications and Oracle applications (including E-Business Suite, Siebel, PeopleSoft, JD Edwards, and Fusion Applications). The APM solution is designed for both cloud and enterprise data center deployments and is supported on Oracle and non-Oracle platforms.

Oracle APM delivers Business Driven Application Management with end-to-end monitoring that includes:

- **User Experience Management:** Real user monitoring and synthetic transaction monitoring with Real User Experience Insight (RUEI) and Service Level Management (SLM) beacons, respectively.

There are two ways to monitor Web site user experience: using real traffic from real customers or using synthetic traffic (traffic artificially created by software to mimic the load that the Web site would be expected to receive). RUEI supports monitor of both of these ways. SLM beacons are components within the monitored environment that send out synthetic traffic. Typically, they test the performance and availability of business-critical services in the infrastructure as part of SLM.

- **Business Transaction Management:** Monitor and trace transactions and transaction instances. Monitor business metrics included in transaction content.
- **Java monitoring and diagnostics:** Zero-overhead, production Java diagnostics for Oracle and non-Oracle platforms. Trace transactions from Java to Oracle Database and back.
- **Discovery and topology:** Multi-layer discovery of infrastructure and application topology.
- **Application Performance Analytics:** Rich reporting and analytic capabilities on real user activities and transaction monitoring data.

1.3.12 Application Quality Management

Oracle's Application Quality Management products provide a complete testing solution for Oracle Database, Oracle Packaged Applications, and custom Web applications.

- **Application Testing:** Application Testing Suite's Test Management, Functional Testing, and Load Testing capabilities ensure the quality of web-based applications including Oracle e-Business Suite, Fusion, Siebel, PeopleSoft, Hyperion, and J.D. Edwards.
- **Infrastructure Testing:** Application Replay and Real Application Testing enable realistic, production-scale testing of the application and database infrastructure. They use real, production workloads to generate load against applications or databases under test and do not require any script development or maintenance. With Application Replay or Real Application Testing you can reduce your testing time by more than 80%. They provide the most efficient, optimized and highest quality testing for validating application and database infrastructure changes.
- **Test Data Management:** Oracle Test Data Management and Data Masking provide efficient, automated, and secure test system creation capabilities for Oracle and non-Oracle databases, with out-of-the-box templates for Oracle packaged applications.

New Features In Oracle Enterprise Manager Cloud Control 13c

This chapter provides an overview of the new features available in Oracle Enterprise Manager Cloud Control 13.1. It lists new features specifically associated with the base Oracle Enterprise Manager platform which includes the Cloud Control console, Oracle Management Service, and Oracle Management Agents. The latest Plug-in and Connector releases are also highlighted.

This document contains the following sections:

- [Framework and Infrastructure](#)
- [Enterprise Monitoring and Incident Management Features](#)
- [Database Management](#)
- [Middleware Management](#)
- [Cloud Management](#)
- [Lifecycle Management](#)
- [Configuration Management](#)
- [Big Data Appliance Management](#)
- [Oracle Java Message Service Interactive Test and Query](#)
- [Oracle Business Intelligence Enterprise Edition](#)
- [Infrastructure Management](#)

See Also: For detailed information about Oracle Enterprise Manager Cloud Control, see the *Oracle Enterprise Manager Cloud Control Documentation* web site:

http://docs.oracle.com/cd/E63000_01/index.htm

2.1 Framework and Infrastructure

The Enterprise Manager Framework and Infrastructure component can be divided into the following groupings:

- [Alta Skin ReTouch](#)
- [System Broadcast](#)
- [Multiple Proxy Support](#)

- [Corrective Actions Enhancements](#)
- [Intelligent Incident Compression](#)
- [Job System Enhancements](#)
- [Improved Page Performance Monitoring and Diagnosis](#)
- [Enterprise Manager 13.1 Installer Enhancements](#)
- [Gold Image Based Agent Lifecycle Management](#)
- [Distributed Software Library Improved Efficiency](#)

2.1.1 Alta Skin ReTouch

The Enterprise Manager user interface (UI) has been refreshed to include a new and more modern color palette, cleaner icons, and larger font size with more spacing.

This enhancement provides a more tablet-friendly experience for users. Users will also experience faster page load times and enhanced visualization and graphics.

2.1.2 System Broadcast

This feature provides a way for the super administrator to send a pop-up message to all users of Enterprise Manager. Users who are currently logged in to Enterprise Manager will receive a pop-up message from the super administrator. This message is sent using Enterprise Manager Command Line Interface (EM CLI) `send_system_broadcast` verb and can include various message severity levels. This is particularly useful in preventing a managed target from being taken off line without notice to other Enterprise Manager users.

This feature enhances the user's experience by providing a single interface for administrator communication within Enterprise Manager.

2.1.3 Multiple Proxy Support

This feature enables an Enterprise Manager administrator to configure multiple proxy servers that can be used by the OMS for its communications to the Management Agents. Doing this provides redundancy for failures or maintenance. The addition of new proxies will not require OMS bounces. These proxies are managed as complete targets so that users can easily identify a proxy if it is down. Agents are associated with the proxies by name or pattern. Patterns are a way to specify the a list of Agents whose target names match the pattern. The OMS tries to use a proxy with an Agent only when there is a direct association present or a pattern match is successful. You can configure many-to-many associations between proxies and Agents. For example multiple proxies can be associated with single agent and vice-versa.

Configuring multiple proxies for communication from the OMS to an agent ensures there is no single point of failure.

2.1.4 Corrective Actions Enhancements

Corrective actions are tasks that are used to automatically fix or further diagnose target availability events or metric alerts. In this release, they have been enhanced to support all event types including Compliance Standard Rule violations, Service Level Agreement (SLA) alerts, and job status events.

A corrective action can be configured to run automatically in response to an event or can be invoked manually by an administrator. A more controlled development

lifecycle is now supported that enables administrators to first develop, test, then finally publish a corrective action for public use. When published, the corrective action can be associated with one or more events.

The extended scope of events for which corrective actions can be configured enables better administrator efficiency. Instead of manually responding to events, common responses to these events can be scripted and automated using corrective actions.

2.1.5 Intelligent Incident Compression

Events relating to the same issue can be automatically combined into one incident. For example, all target down events for instances of a cluster database or all target down events for targets within a WebLogic domain can be combined into one incident. Doing this enables administrators to manage all of these events as a single unit.

The criteria for grouping events include grouping by targets on the same host or by targets belonging to the same aggregate target (for example a cluster or system), grouping by event category, and grouping events by metric. A time window can also be used to group together events that occur within close time frames of each other. For example, the default one hour time window groups together events that occur within an hour of each other.

Event grouping reduces the overall volume of incidents created and promotes more efficient management of incidents. The extended scope of events for which corrective actions can be configured enables better administrator efficiency. Instead of manually responding to events, common responses to these events can be scripted and automated using corrective actions.

2.1.6 Job System Enhancements

2.1.6.1 Chef Job Support

In Enterprise Manager Cloud Control 13c, a new job type has been added to support Chef recipes. The Enterprise Manager software library now supports managing and accessing both Chef cookbooks and recipes, and deployment procedures have been extended to support the execution of Chef recipes. Chef cookbooks and recipes can exist either in the software library or on the host on which they are being executed. This release supports chef-solo using the following steps:

1. Ensure that chef-solo has been setup and is available.
2. Create a software library folder.
3. Upload a Chef cookbook.
4. Create a job using the Chef job type and submit it.

Steps two and three are required only if Chef cookbooks are loaded in the software library.

2.1.7 Improved Page Performance Monitoring and Diagnosis

Page performance diagnosis is enhanced to report SQL statements that are executed at repository which are increasing repository time for a poorly performing UI console page. With this feature, you have greater visibility into the SQL executions triggered within the page. The page performance diagnosis has also been enhanced to show the pages that have been performing poorly for the last 24 hours in addition to pages currently performing poorly.

2.1.8 Enterprise Manager 13.1 Installer Enhancements

The Enterprise Manager 13.1 Installer includes the following enhancements that simplify Enterprise Manager setup:

- Integration of BI Publisher with the Enterprise Manager installer. BI Publisher is configured by default during Enterprise Manager installation. If you are upgrading to Enterprise Manager 13.1 and your existing installation includes BI Publisher, the existing BI Publisher will also be upgraded. If your existing installation does not include BI Publisher, then BI publisher must be installed post-upgrade.
- JVM Diagnostics (JVMD) is now deployed and configured by default with the Oracle Fusion Middleware Plug-in as part of the installation process.

2.1.9 Gold Image Based Agent Lifecycle Management

Enterprise Manager administrators spend a lot of time on various agent life cycle operations starting from a fresh installation through upgrade and patching. These tasks are even more challenging if you manage over 100 agents, ensuring they are all on the same patch level. Gold image-based agent lifecycle management simplifies the agent lifecycle process by using images of a gold agent to:

- Provide auto-recovery from agent upgrade and agent plug-in deployment or upgrade
- Ensure zero downtime for agent maintenance including patching, upgrade, and plug-ins
- Providing standardized agent configurations
- Provision, upgrade, and update Agents and plug-ins in a highly scalable approach
- Create from live test agent patched and updated with required plug-ins
- Export/import the gold image (test agent) from Test to Enterprise Manager Production
- Promote gold images based on maturity level (Prod, Test)
- Provide Oracle supplied gold agent image and configurations through Self Update
- Report to show distribution of agents deployed with gold images
- Pick configuration data from source agent emd.property file

2.1.10 Distributed Software Library Improved Efficiency

The distributed software library delivers improved efficiency when transferring large images over a WAN to remote servers in geographically distant data centers. This feature introduces the concept of cache nodes, which can be used to stage select content on servers that are localized to a region or a subnet. All subsequent file transfers are initiated from these cache nodes, thereby reducing transfer time and required bandwidth.

2.2 Enterprise Monitoring and Incident Management Features

The following sections describe new monitoring and incident management features and enhancements in the release.

- [Notification Blackouts](#)

- [Always-on Monitoring](#)
- [Incident Dashboard](#)
- [Metric Enhancements](#)
- [Export and Import of Incident Rule Sets](#)
- [Support for Selenium Based Tests](#)
- [New End User Service Target Type](#)
- [Enhancements to Corrective Actions](#)

2.2.1 Notification Blackouts

Notification blackouts enable you to continue monitoring targets that are under maintenance. During the blackout period, alerts can be viewed in the Cloud Control console, but notifications and incident rules are suspended. From an SLA perspective, target downtime does not impact overall target availability (%).

Notification blackouts support target maintenance periods by suspending incidents and notifications for events while targets are undergoing planned maintenance activities. To give administrators visibility into the status and health of the targets, monitoring of the target continues but incidents and notifications are suspended and target downtime is excluded from target availability (%) calculations. When the notification blackout ends, incidents will be created and notifications will be sent for events that occurred during the blackout.

With better visibility into the status and health of the targets, administrators can ensure that maintenance work does not negatively impact the targets, and therefore be assured that the target is ready to be used by their users at the end of the maintenance period.

2.2.2 Always-on Monitoring

Always-on Monitoring provides continuous monitoring of target down and other critical alerts when the regular Enterprise Manager monitoring and notification services are unavailable during Enterprise Manager planned downtime. Email notifications can be configured to be sent when target down and other critical alerts are detected.

Always-on Monitoring ensures that monitoring of these applications and systems continues even while Enterprise Manager is under maintenance. This enables IT staff to meet their SLAs and provide high quality services that their businesses require.

2.2.3 Incident Dashboard

Incident Manager now displays incident views in the new Incident Dashboard. The Incident Dashboard is designed to provide at-a-glance summaries of open incidents, highlighting key areas such as incidents of fatal severity, escalated incidents, and unassigned incidents. In addition, incident summary charts are also included, providing analysis and breakdown of incidents across various dimension organized by severity, category, ownership, resolution status, age, and so on.

The incident dashboard can be configured to auto-refresh at regular intervals, enabling administrators to keep up with the latest incident data. An administrator can also customize the incident dashboard by adding new charts that summarize incident data across other dimensions (for example, by event category and target type).

The Incident Dashboard enables quick analysis of problem areas and better focus on areas of need. A senior administrator can use it to review incident workload distribution among administrators in a team and make adjustments as needed.

2.2.4 Metric Enhancements

Target monitoring continues to be enhanced with the following new features:

- Ability to change the metric threshold comparison operator for alerts. Changing the metric threshold comparison operator enables administrators to adjust the semantics of the alert to better fit their needs.
- User-defined business hours for adaptive thresholds. Customizing adaptive threshold business hours to match actual hours of a business enables more accurate metric threshold calculations.
- Support for compute expressions in metric extensions. Compute expressions enable administrators to specify more complex numerical calculations for metric extensions.
- Ability to define a metric extension for a single instance database or real application clusters (RAC) instance alone.

These enhancements collectively provide more flexibility and richer monitoring of targets to better meet business requirements.

2.2.5 Export and Import of Incident Rule Sets

Incident Rule Sets can now be exported from one Enterprise Manager site and imported into another. The exported rule set is stored as an XML file. It can be saved as a backup or imported into another Enterprise Manager site as a way to quickly replicate rule sets between sites. The exported rule set includes all entities such as users subscribed to the rules, email addresses of recipients, targets on which the rule set operates, and notification methods. When importing the rule set, if these entities exist in the destination Enterprise Manager site, then they are kept in the rule set, otherwise they are removed from the rule set.

This feature facilitates a commonly used test-to-production process by enabling administrators to easily copy well-tested rule sets from an Enterprise Manager test site into an Enterprise Manager production site. For global enterprises that maintain multiple Enterprise Manager sites across different geographies, it also promotes standardization of incident management processes across sites.

2.2.6 Support for Selenium Based Tests

This release supports the Selenium based tests. This test enables recorded scripts created with the open source Selenium IDE recorder or custom scripts created using the TestNG framework to be uploaded to Enterprise Manager and pushed to its beacons for test execution. It includes the following features:

- The Selenium test Java files can be stored in the Enterprise Manager software library so they can be reused for multiple services.
- Reference files can be stored in the software library for functions that are called during the execution of Selenium scripts.
- When uploading or storing the Selenium test script Enterprise Manager automatically discovers used post parameters and stores these in a separate file that can easily be edited.

- During the execution of the Selenium scripts, Enterprise Manager launches a full web browser session and captures all request/response sequences. The performance details are recorded in a test log file (only supported for Selenium test type).
- You can drill-down directly from the test log file into Java workbench pages and WebLogic server log viewer using Execution Context ID (ECID) correlation.
- You have direct access to test Log files from the Events and Incident page through the guided resolution path.

2.2.7 New End User Service Target Type

The new End User Service (EUS) target type displays end user performance and behavior information captured by Real User Experience Insight (RUEI). By discovering a RUEI system in Enterprise Manager, all applications, suites, and services that the RUEI system is monitoring automatically become individual EUS targets. All key performance indicator (KPI) events also automatically show up under the relevant EUS target. The EUS target type includes the following features:

- Thematic map region. This shows a number of metrics on an interactive map that can be zoomed from continent to city, displaying end user metrics such as sessions, page views, and Application Performance Index (Apdex) scores.
- User Flow region.
- KPI region.
- Top Users region.
- Top Executed Pages region.
- Sunburst region displaying end user violation percentages.
- User Flow Details page.
- End User Metrics page.
- End User Sessions page.
- Event and incidents guided resolution and diagnostics.
- Integration with Java workbench page and WebLogic Server using ECID correlation.
- Ability to create direct relationships to systems from EUS.
- Support for business application targets to aggregate multiple EUS targets into a single service.

2.2.8 Enhancements to Corrective Actions

The corrective actions feature has been enhanced to include:

- Support for all event types.
- Support for compliance rules. This will allow users to associate corrective actions with various compliance checks.
- Automated invocation using event rules.
- Ability to attach the latest corrective actions automatically.

2.3 Database Management

This section describes new features and enhancements for database management.

- [Flexible Oracle Enterprise Manager 13c Database Machine Target Upgrade](#)
- [Enterprise Manager Support for Intercontinental Zero Data Loss](#)
- [Database Consolidation Workbench](#)
- [Oracle Enterprise Manager support for Database Service Target](#)
- [Enhanced Enterprise Manager Support for Optimizer Statistics Management](#)
- [SQL Performance Analyzer Default Parameters Page](#)
- [New EM CLI Database Replay Commands](#)
- [Enhanced Resource Manager Support for Database Resource Manager](#)
- [In-memory Enhancements](#)
- [Database Plug-in 13.1.1.0 Features](#)

2.3.1 Flexible Oracle Enterprise Manager 13c Database Machine Target Upgrade

When you upgrade from Oracle Enterprise Manager 12c to 13c, you can choose to have existing Oracle Exadata Database Machine (DBM) targets continue to be monitored as EM 12c target types. When you are ready to adopt Oracle Enterprise Manager 13c monitoring features you can click a button in the Enterprise Manager user interface (UI) to convert the Enterprise Manager 12c DBM targets to Enterprise Manager DBM 13c targets.

This feature enables you to continue to monitor and manage DBM targets as you have with Oracle Enterprise Manager 12c while at the same time upgrading to Oracle Enterprise Manager 13c where you can experience new features in a phased manner at your convenience. The ability improves DBM manageability and quality of service.

Oracle Exadata DBMs newly discovered in Enterprise Manager 13c will be monitored using Enterprise Manager 13c target type functionality. Oracle Enterprise Manager 13c has also been enhanced to show a photo realistic view of the DBM hardware on the DBM Home page. The view represents the slots and whole machine with photo realistic background images of front and back of the Exadata hardware.

2.3.2 Enterprise Manager Support for Intercontinental Zero Data Loss

A primary database using Data Guard Maximum Availability can have redo transport configured for synchronous transmission to a light-weight Oracle instance, termed a Far Sync Standby. A Far Sync Standby has no data files. It's only function is to receive redo and forward it to one or more remote destinations. Remote destinations may be either Data Guard standby databases or Oracle Recovery Server. Oracle advanced compression can also be used by the Far Sync Standby to compress redo that it forwards to remote destinations. The existence of a Far Sync Standby is transparent to the user in so far as effecting Data Guard role transitions. The same switchover/failover commands used for any Data Guard configuration will transition any of the remote standby databases served by the Far Sync Standby to the primary production role. Enterprise Manager supports the creation and management of Far Sync Standbys.

Zero data loss protection can be achieved across long distances. The Far Sync Standby is located within a distance of the primary database where synchronous transport does not impact application performance. The Far Sync standby handles all communication

with the remote standby and is transparent when executing a zero data loss failover. A Far Sync Standby also off loads the production database of the overhead of servicing multiple remote destinations (multiple standby databases or standby databases and Oracle Recovery Server). A Far Sync Standby also off loads the production database of the overhead of Redo Transport Compression

2.3.3 Database Consolidation Workbench

Database Consolidation Workbench is a comprehensive end-to-end solution for managing database consolidation. Database Consolidation Workbench has three phases (planning, migration, and validation) that help in end-to-end consolidation of databases. It provides a risk-free and accurate approach to consolidation by eliminating guess work and human errors.

The Database Consolidation Workbench planning phase uses historical workload metrics - both database and host - to produce an optimal consolidation plan that maps many sources of databases to fewer databases (both non-container database (CDB) and CDB) or servers on existing or yet to be procured hardware.

The Database Consolidation Workbench migration phase automates the entire database consolidation implementation process, saving DBAs the manual error-prone effort of consolidation. The different modes of consolidation supported in the Database Consolidation Workbench enable IT administrators and DBAs to implement the chosen consolidation strategy with minimal downtime based on the business needs.

The Database Consolidation Workbench validation phase uses SQL Performance Analyzer (SPA) to validate the SQL workload performance on the consolidation platform to meet SLAs and identify any potential regressions so they can be tuned before production deployment.

Database consolidation validation using SQL Performance Analyzer enables DBAs to validate the optimal consolidation plan proposed by the Database Consolidation Workbench. The validation process validates source workloads (saved as SQL Tuning Sets). This is done by conducting SQL workload trials using SQL Performance Analyzer on the source databases and consolidated platform to identify SQL improvements or regressions and understand the net impact on the SQL workload because of the consolidation of databases. The validation process enables the DBA to quantify the I/O bandwidth savings by consolidating existing workloads onto Exadata Database Machine using the Exadata simulation component of SQL Performance Analyzer

By validating database consolidation, the DBA can avoid downtime or performance degradation caused by database consolidation by proactively identifying SQL regressions as a result of the consolidation of databases. In addition, database consolidation validation improves cost efficiencies for Exadata systems by accurately estimating the I/O savings, thereby enabling consolidation of more databases on the same Exadata system.

2.3.4 Oracle Enterprise Manager support for Database Service Target

Oracle Enterprise Manager 13c supports the ability to monitor and manage an Oracle database service as an Enterprise Manager target. Users can manually or auto-discover database services as Enterprise Manager targets and search them by global target properties or associated database target names. The Database Service Target Home Page displays information about database associations, service resource utilization and, metric history.

This feature makes it easier for an administrator to monitor and manage database services.

2.3.5 Enhanced Enterprise Manager Support for Optimizer Statistics Management

Oracle Enterprise Manager provides Optimizer Statistics Manager, a central hub for all optimizer statistics related operations such as configuring preferences, overall database statistics status (stale, fresh, statistics), auto task statistics jobs, and submitted job progress and their status. It provides detailed information that helps clarify the results of statistics gathering tasks that can be used by an administrator to take appropriate action.

The Optimizer Statistics Manager enables database administrators to ensure that their database statistics are properly maintained, allow the database optimizer to produce the most efficient SQL execution plans and therefore the most efficiently operating database.

2.3.6 SQL Performance Analyzer Default Parameters Page

SQL Performance Analyzer (SPA) enables you to assess system changes that impact SQL performance. There are a number of parameters that you can change to modify the behavior of SPA to customize testing for your environment. The new SPA Default Parameters page enables you to easily modify the default parameters for more effective testing and advanced reporting. It enables you to run additional, more comprehensive SPA tests enabling you to fully exploit all the features available in SQL Performance Analyzer and optimize the performance of your workloads.

2.3.7 New EM CLI Database Replay Commands

Enterprise Manager facilitates running and managing Database Replay. New EM CLI verbs enable you to discover and import workloads that have been created outside of Enterprise Manager and initiate replays. These new EMCLI verbs enable you to integrate Database Replay command line execution with Enterprise Manager to fully exploit the capabilities of Database Replay.

2.3.8 Enhanced Resource Manager Support for Database Resource Manager

Database Resource Manager (DBRM) improves quality of service by enabling administrators to specify how CPU utilization is distributed based on service levels and other workload attributes. Oracle Enterprise Manager 13c provides an enhanced graphical interface for DBRM monitoring and statistics. On the SQL Monitoring page, you can view long running queries and cancel them if required. On the Resource Manager Statistics page you can view parallel statements and servers that are active and queued by resource consumer groups. Historical information about runaway query management by resource consumer groups is also displayed.

Oracle Enterprise Manager enhanced support for DBRM makes it easier for DBAs to manage runaway queries to improve their business quality of service.

2.3.9 In-memory Enhancements

In-memory columnar storage functionality has been added that enables segments to be stored in the SGA memory area, in addition to the on-disk version, enabling faster look-up queries, scans, and joins. The In-memory Object Access Heatmap now shows the top 100 objects in-memory with their relative sizes, and shows you the recently

accessed objects represented by different colors. The in-memory functionality also now allows searches for highly accessed objects not in-memory.

The new database in-memory functionality enables data to be maintained in both the existing Oracle row format, for OLTP operations, and a new, purely in-memory column format, optimized for analytical processing. You can use the new In-memory Advisor to help you determine the most efficient deployment of the database in-memory functionality.

2.3.10 Database Plug-in 13.1.1.0 Features

2.3.10.1 Flexible DB Access Control on Database Pages

Enterprise Manager 13.1 introduces flexible DB access control for Enterprise Manager Database Plug-in. The new out of box roles align with database personas and provide tighter access control on managed target databases. Before the introduction of this feature an Enterprise Manager user granted access on the database had access to all of the database management features, such as performance management, high availability management, storage management, security management and so forth. Enterprises have different classes of users such as DBA, Application Developer, Application DBA, and Infrastructure DBA that need to access database management functions. There is a need for a flexible privilege model to accommodate these roles. For example, enterprises may want their application developers to access only performance management functions in a View Only mode.

Providing enterprise users access to unnecessary features and pages opens up the database to security vulnerabilities. Oracle recommends that you grant Enterprise Manager users the minimum number of privileges required to perform their job. Introducing these out of box database management roles grants users access to only the Enterprise Manager pages required to perform their job.

Fine grained privilege control for Enterprise Manager Database plug-in provides a privilege control model for database pages. This enables Enterprise Manager super administrators to grant the minimum access to Enterprise Manager administrators and users required to complete their more specific responsibilities.

2.3.10.2 Monitor Databases Through Secure Authentication

Out of the box support is provided for discovering, monitoring, and administration of TCPS enabled listeners. All databases created through the Admin provisioning flow or Cloud Self Service portal support SSL enabled connection strings by default.

As businesses look towards cloud solutions, secure user authentication is a key requirement of the product offering. Oracle's default authentication protocols O3LOGON and O5LOGON (introduced in Enterprise Manager 11g) have been revamped to enable user authentication using the TCPS protocol for Oracle Database Server instead of the not-so-secure TCP protocol.

Note: Using secure authentication has no impact on normal database performance.

2.4 Middleware Management

2.4.1 Fusion Middleware Plug-in 13.1.1.0 Features

This section describes new features and enhancements for the Fusion Middleware Plug-in:

- [WebLogic Server 12.2.1 Management](#)
- [Enhanced Target Management Best Practices](#)
- [Exalytics Patching](#)
- [STIG Compliance Standard for Oracle WebLogic Server](#)
- [Oracle Enterprise Manager Support Workbench Integration with Diagnostic Assistant](#)
- [Oracle Enterprise Manager integration with Remote Diagnostic Agent](#)
- [Service Oriented Architecture Management New Features](#)
- [Support for Monitoring Node Manager](#)
- [Audit Oracle WebLogic Server Specific Operations](#)
- [Problem Analysis Enhancements](#)
- [JVMD Enhancements](#)
- [Middleware Diagnostics Advisor Enhancements](#)
- [Coherence Management Enhancements](#)
- [Middleware as a Service](#)
- [Enhancements to Multi-Domain Log Viewer and Search](#)

2.4.1.1 WebLogic Server 12.2.1 Management

Beginning with this release, administrators are able to discover and centrally manage their WebLogic Server version 12.2.1 deployments. All existing management features continue to be supported with WebLogic Server version 12.2.1, including:

- Performance monitoring and diagnostics
- Configuration management
- Administration and process control
- Provisioning and cloning middleware and scaling up/out domain
- Patching

In addition to these features, the discovery of WebLogic Server 12.2.1 also introduces new target types to support WebLogic Server multi-tenancy. If multi-tenancy is used and partitions have been created in the domain, then Oracle Enterprise Manager Cloud Control 13c with Fusion Middleware Plug-in 13.1.1.0 will add domain partition and partition application deployment targets as members of the discovered domain.

2.4.1.2 Enhanced Target Management Best Practices

The Target Management Best Practices feature of Oracle Enterprise Manager Cloud Control has been greatly enhanced. As in prior releases, this feature continues to recommend next steps to perform after discovering and promoting a WebLogic domain as a managed target or at any other time. However, with release 13.1 Target Management Best Practices exposes a wider range of management features for Oracle Fusion Middleware management. These features include basic setup, monitoring and diagnostics, configuration and compliance management, administration, service level

management, and provisioning and patching. Target Management Best Practices also provides direct links to access these features as well as links to view recorded demonstrations, documentation, and online help.

The enhancements made to Target Management Best Practices help administrators who may be unaware of all the features available from Cloud Control for middleware management, and assists them to access, enable, configure, and use certain features.

2.4.1.3 Exalytics Patching

Exalytics patching is now automated. To patch Exalytics, navigate to the Exalytics system and select the Software Update option in the menu. After the patching is complete, configure Oracle Auto Service Request (ASR) if required.

If the Exalytics has an OBIEE instance installed and it is discovered, that instance can also be patched from the same section.

2.4.1.4 STIG Compliance Standard for Oracle WebLogic Server

Oracle Enterprise Manager Cloud Control Release 13.1 provides a compliance standard based directly on the Department of Defense Security Technical Implementation Guide (STIG) for Oracle WebLogic Server. Administrators can directly leverage this standard to confirm that their Oracle WebLogic Servers conform to this standard.

Many federal and local government agencies as well as private sector businesses follow the Department of Defense STIG standard for Oracle WebLogic Server to ensure the security of their application servers. This standard automates the initial and ongoing validation of Oracle Enterprise Manager Cloud Control managed Oracle WebLogic Servers to this standard.

2.4.1.5 Oracle Enterprise Manager Support Workbench Integration with Diagnostic Assistant

With Oracle Enterprise Manager 13c, Support Workbench (SWB) can be used to collect diagnostics from non-Automatic Diagnostic Repository (ADR) targets such as hosts, WebLogic servers, and Siebel applications. The Diagnostic Assistant (DA) is an Oracle support tool that provides a common, light-weight menu interface to multiple diagnostic collection tools such as ADR, RDA, and Explorer. The DA has been integrated with SWB. This integration enables users to execute different diagnostic collections of the DA directly from SWB. Additionally, SWB can now be used to schedule, execute, and collect diagnostics data for customized user scripts. After diagnostics data is collected, users can package it using the Incident Packaging Service (IPS) feature and create draft service requests (SRs).

The integration of Oracle Enterprise Manager and the DA makes it easier for customers to create draft SRs with required diagnostic data all from the Enterprise Manager interface thereby reducing problem resolution time.

2.4.1.6 Oracle Enterprise Manager integration with Remote Diagnostic Agent

Remote Diagnostic Agent (RDA) is a diagnostics collection tool used with a wide range of Oracle products and families including Oracle Database and Oracle Fusion Middleware. Starting with Oracle Enterprise Manager 13c, RDA can be executed from the Enterprise Manager interface and is packaged as part of the Enterprise Manager Agent foot print. Installing and deploying Enterprise Manager Agent makes RDA available for all supported targets and types. RDA has a quarterly release cycle and can be updated to newer versions through Oracle Enterprise Manager. Packaging directives can be used to archive the contents of the output directory into a single

archive file for uploading RDA collected data to Oracle Support. Incident Packaging Service (IPS) can also request RDA collections at incident finalization time.

The integration of Oracle Enterprise Manager and RDA makes it easier for customers to upload diagnostic information to service requests through the Enterprise Manager interface and simplifies RDA life cycle management. This feature reduces problem resolution time for customers.

2.4.1.7 Service Oriented Architecture Management New Features

Service Oriented Architecture (SOA) management new features include:

- Event Delivery Network (EDN) Diagnostics - Provides backlog and usage visibility into the EDN.
- Service Bus Cluster Level Home Page - Collects and displays cluster-wide metrics, including a single view into server metrics across the cluster and a collection of cluster aggregated metrics for services.
- Support for compliance rules. Enables users to associate corrective actions with various compliance checks.
- Work Manager Groups - Shows the work managers related to the SOA Infrastructure and their mappings to SOA partitions where such a mapping exists.
- Service Bus Heat Map - Heat maps of service bus services at the managed server and cluster level allow administrators to quickly pinpoint individual services that may be experience unusual performance or fault behavior.

2.4.1.8 Support for Monitoring Node Manager

During Oracle Fusion Middleware and WebLogic Domain discovery, Oracle Enterprise Manager 13c now discovers Node Manager targets associated with the domain. Using Oracle Enterprise Manager 13c offers the following features for Node Manager:

- Monitor Node Manager status and receive notification if down
- In the context of Node Manager, view associated domains
- In context of domain and WebLogic servers, view associated Node Managers and their status
- View and analyze collected configuration data on Node Manager (for example, version, listen address, port)

Having a single interface for monitoring Oracle WebLogic and Node Manager targets simplifies an administrator's job and increases productivity.

2.4.1.9 Audit Oracle WebLogic Server Specific Operations

Oracle WebLogic Server specific operations, which include WebLogic domain login, WebLogic domain logout, and WebLogic domain update/invoke, are now audited in Oracle Enterprise Manager Cloud Control 13c. Enabling auditing of these operations enables an administrator to monitor, detect, and investigate problems and enforce enterprise-wide security policies.

2.4.1.10 Problem Analysis Enhancements

Problem Analysis includes the following enhancements:

- Configuration metrics correlation.
- Log correlation.

- Import/export of Problem Analysis metadata.
- Problem Analysis metadata as a self updateable entity.
- The Problem Analysis tool now analyzes historical performance metrics and related data for problem events and assigns ranks to the related targets metrics based on statistical correlation of historical data.

2.4.1.10.1 Related Config and Related Logs Views Two new views were added to the existing Related Metrics, Related Targets and Topology views: Related Config and Related Logs.

The Related Config view shows the list of configuration items that are related to the inspected metrics. The properties and change history are displayed for each configuration item. The related configuration items are predefined and available for some of the Fusion Middleware metrics.

The Related Log view presents a histogram of related WebLogic Server log messages over time, broken down by severity. It also list the message text, in the context of the time selected on the histogram.

This additional data, provided in the context of a specific metric, helps you find the root cause of a problem faster, by guiding you to the most relevant information collected by Enterprise Manager.

2.4.1.10.2 Import, Export, and Self Update Chart Set Using the Chart Sets menu in the list of related metrics in Problem Analysis, you can download chart set definitions to your desktop in XML format. This file can be imported into other instances of Enterprise Manager.

The chart set definition can be also updated using Enterprise Manager self update. Doing this enables you to get updates to the default chart sets as soon as they are updated by Oracle, without the need to upgrade Enterprise Manager or the Fusion Middleware Plug-in.

2.4.1.11 JVM D Enhancements

JVMD includes the following enhancements:

- Java Workload Explorer (JWE) and Java Workload Reporter (JWR)
New UI page in JVMD enable you to quickly identify resource and workload bottlenecks.

JWE enables the you to create a data set by searching and filtering the different data elements (requests, SQL statements, methods, ECID, DBs, and so forth). The data set can be saved as a snapshot or as a metadata set. A snapshot set is a static set which contains actual data. A metadata set is a dynamic or temporal set which only contains the definition of the set. Using snapshot or metadata sets, you can compare activity between two sets of JVM between requests, or between two periods of time, for example before and after a new version is deployed.

At any time, you can generate a JWR from the active data set. A JWR is a flat page representation of all of the JVM activities as selected using the JWE filters and time selection capabilities. The JWR can be emailed and viewed outside of Enterprise Manager Cloud Control, thereby facilitating easy communication with remote development centers, external experts, and so forth.

- New Instrumentation
Enabled by on the fly, lightweight, byte code instrumentation, JVMD can now collect request execution times even when monitoring a non-Fusion Middleware

domain (WebLogic or any other Java application server running without JRF). Additional instrumentation includes i/o file names, the thread allocations count, applications, and sessions.

- Improved integration with RUEI

You can drill down in a context of a request from RUEI to JVMD even if JRF is not deployed. You can also drill down in the context of a session.
- Major improvements to the Memory Diagnostics page, including:
 - Analysis of GC overhead
 - Visibility into the Young Generation object tenuring
 - Class loader statistics
 - List of biggest memory allocators
 - Sample and compare histogram
- JFR integration improvements

You can now enable JFR from Enterprise Manager (Java 8 build 40 and higher) and manage (start, stop, delete) recordings.
- Two new JFR reports:
 - General GC Impact report
 - JFR Findings report - over 10 findings (and growing) created by the JVM team

2.4.1.12 Middleware Diagnostics Advisor Enhancements

The following enhancements have been made to the Middleware Diagnostics Advisor:

- New and improved findings
 - GC overhead
 - Heap configuration and heap growth
 - Stuck Thread Growth (redesign of existing finding)
 - JDBC and JMS finding (redesign of existing finding)
- New Findings Timeline view
- Central control page allow to enable/disable specific finding on individual servers, domains, or all targets
- New Architecture - Metadata driven finding, enabling fast deployment of new findings

2.4.1.13 Coherence Management Enhancements

Coherence management includes the following enhancements:

- Improved topology view to support large clusters.
- New heat map view that provides flexible visualization by nodes, caches, services, and host
- New support for Manage Coherence Cluster. Automatic discovery with the Oracle WebLogic Domain discovery. The cluster appears under the domain in the navigation tree.

- Coherence logs can be viewed from Enterprise Manager user interface. This feature uses the WebLogic log viewer, but is available to managed and standalone clusters.
- Administrators can remove multiple unneeded targets (nodes and caches) in one step. Administrators can find all target members (nodes, caches) that are not active (down) and delete all or some in one operation.
- User name credentials in the cluster level. Users must provide host credentials to perform cache administration operations. This feature enables you to set stored credentials in the cluster level and have those stored credentials available to all caches. This feature can save significant time, as many clusters have many caches that previously required setting stored credentials in each of them

2.4.1.14 Middleware as a Service

2.4.1.14.1 Message Notifications Support for Self Service Application Administrators Message Notification Support for Self Service Application administrators enhances existing capabilities to enable Self Service Application administrators and the SSA subsystems to send messages to one or more SSA users. SSA users can view and manage all of the messages centrally in the Notification center (Inbox). Messages may include service requests, processing failures, reaching quota limits and so forth. SSA users can opt-in to receive emails by subscribing to message topics.

This feature enhances the customer's experience by providing a single interface for administrator collaboration within Enterprise Manager.

2.4.1.15 Enhancements to Multi-Domain Log Viewer and Search

Viewing, searching, and correlating messages across log files for non Oracle Java Required Files (JRF) enabled environments is now supported.

Viewing, searching, and correlating messages across log files for Oracle Fusion Middleware targets that are unavailable (for example, their status is Down) is now supported.

All log files related to a domain may now be downloaded collectively in one operation.

Improvements in the usability of target selection and Search By fields have been made.

These enhancements to the log viewer feature of Oracle Enterprise Manager Cloud Control saves administrators time when diagnosing performance problems across middleware software.

2.5 Cloud Management

This section describes new features and enhancements for the following releases:

- [Snap Cloning Using "Test Master Snapshot"](#)
- [Improved Service Catalog](#)
- [New Cloud Self Service Portal Look and Feel](#)
- [Approval Workflow Integration for all Cloud Artifact Creation Requests](#)
- [Chargeback and Consolidation Planner Plug-in 13.1.1.0 Features](#)

2.5.1 Snap Cloning Using "Test Master Snapshot"

The Snap Clone feature enables the creation of fully functional copies of Oracle databases with minimal storage requirements. With Snap Clone, users can create test master clones containing terabytes of data in just minutes instead of hours, while keeping storage requirements to a minimum.

With this thin cloning method, an RMAN (incremental) backup image of the source database is created on the registered storage volumes. Once the backup completes, a "Test Master Snapshot" of the volume is created. Each time the source database is backed up onto the storage volumes, new snapshots are created. Users can choose any of these snapshots and initiate a snap clone request. The user can provide an SCN or timestamp later than the chosen snapshot and obtain a thin clone copy of the source recovered up to the specified point-in-time.

2.5.2 Improved Service Catalog

A new Service Catalog enables users to have a consistent experience, whether they are provisioning into Oracle Cloud or on-premises software. The Service Catalog is better organized, separates out Service Level attributes from the Template attributes, and is backed by a richer set of APIs.

2.5.3 New Cloud Self Service Portal Look and Feel

The Cloud Self Service Portal has been redesigned with a new look and feel similar to the Oracle Public Cloud. A new Summary page has been added to show all services. The Service Listing page has a new look. Important summary information is now shown at the top of the page in addition to moving the request section to another tab. Self Service Portal notifications are now shown in a new, fully integrated Notification Center.

2.5.4 Approval Workflow Integration for all Cloud Artifact Creation Requests

This release introduces request settings based on which approvals will be enabled. When request settings are enabled, relevant SSA-USER requests will go through the approval process. SSA-ADMIN users are then able to approve or reject requests. Only the Create requests go through the approval process by default.

The notification center integration done at the self-service portal always keeps users updated on request approval status and all other associated changes to their provisioned targets.

2.5.5 Chargeback and Consolidation Planner Plug-in 13.1.1.0 Features

The Chargeback and Consolidation Planner Plug-in 13.1.1.0 includes the following features, as well as the features listed in this section:

- Ability to apply ad-hoc charges and discounts for a target, day, and so on
- Ability to modify a plan for a target in a past report cycle
- New cost center and entities tab in the user interface

2.5.5.1 Tiered Pricing

Tiered Pricing enables users to specify pricing with different rates depending on how resources are consumed. Tiered Pricing also enables peak/off peak rates to encourage users to consume IT resources at times when resources are used less. This feature

enables administrators to drive resource usage towards times when resources have less use.

2.5.5.2 Charge Estimation Advisor

There are two parts to the Charge Estimation Advisor: the Charge Estimator and the Plan Advisor.

The Charge Estimator enables users to find the likely monthly charges for targets. The charges are estimated based on the past average usage of the targets. Users can choose the currently assigned plan or any other plan for estimation.

The Plan Advisor helps users to define charge rates for a chargeable entity. The charge rates are calculated based on parameters such as recovery cost, recovery time, and weighting of the various chargeable items that the entity contains.

To create the estimate, all of the chargeable entities are identified by the system. The selected charge rates are then applied on the daily average to determine the daily estimated charges. These charges are multiplied by the number of days in a report cycle to determine the total estimated charges. Even though a target is created in the middle of the month, the estimation will be shown as if the target were available for the whole month.

2.6 Lifecycle Management

This section describes the following new features and enhancements:

- [Cloud Scale Drift and Consistency Management](#)
- [Engineered Systems Patching](#)
- [Provisioning on Virtualized Exadata](#)
- [Compliance Management](#)

2.6.1 Cloud Scale Drift and Consistency Management

The power of the compliance and configuration management subsystems has been combined to enable drift and consistency management at cloud scale. Users can now define simple definitions consisting of a reference target and comparison template which can be applied at scale and dynamically to thousands of targets. Results are reported in the new Drift Dashboard which provides a summary and detailed results of drifted targets across the entire managed estate.

2.6.2 Engineered Systems Patching

Complete patching automation for Exadata and Exalytics including features like patch recommendations, auto patch download, scheduled application, granular status tracking, log monitoring and aggregation. Patches can be applied to all or a subset of components providing extreme flexibility.

Automating the application of the quarterly patches will save significant time and reduce errors by ensuring pre-requisite steps and procedures are properly followed, and by applying the component patches in the correct sequence.

2.6.3 Provisioning on Virtualized Exadata

The Exadata plug-in has been enhanced to support the lifecycle management of an Exadata 12.1.2.1.0 virtualized environment. VM provisioning on Exadata provides an

efficient, completely automated mechanism for scheduled mass deployment of RAC databases. Administrators can now perform the following active management operations from the Exadata target home page to meet on demand or planned capacity needs:

- Create and delete RAC databases including VMs
- Extend existing clusters (grid infrastructure) including VMs
- Scale down cluster and deprovision VMs

2.6.4 Compliance Management

There are numerous enhancements and improvements to the compliance framework including:

- Group Association

Users can now associate groups to compliance standards including dynamic and static. Group membership changes like additions and deletions will automatically cause the targets to be associated or unassociated to the compliance standard.
- Test Mode

Users can now see the results compliance standard evaluation for a given target prior to associating it. This allows the opportunity to address issues prior to final association which could result in unwanted alerts and results on the compliance dashboard.

Users can also choose to have newly added targets to remain in test status before being moved to full association when using group association feature.
- Incident Management integration improvements

Users now have additional granularity and control when selecting types of compliance events in an incident rule set. Users can now choose events for by choosing specific compliance standards/rules or by choosing a name pattern, type or lifecycle state.
- Corrective Actions

Corrective actions can now be associated to Oracle provided or custom rules. Association enables a link to execute the corrective action in the remediation section of the violation event details page.
- Missing Patches Rule Type

A new type of rule specifically created to simplify the process of creating checks for missing required patches in user environments. Users can simply enter a single or list of patches OR choose from the list of recommended patches per the downloaded recommended patch catalog without the need to create the SQL using the search wizard. These rules can be added to any repository compliance standard.
- Drift and Consistency Rule Types

Rules and Standards of these new types are automatically created when using the new Drift and consistency management functionality. However, users can directly create and manage these standards and rules if they choose.
- EMCLI and MGMT\$ Views

New and improved emcli and management views enable complete and simplified external compliance orchestration, integration and reporting. This includes tasks like violation suppression and group association.

- **Orachk Integration**

The ORAchk health check engine from Oracle Support has been integrated with the compliance framework. This includes support for engineered systems (Exadata, Exalogic, Exalytics, SuperCluster, BDA, ODA, ZDLRA) as well as stand alone databases (single instance and RAC).

Users now have a single location in the compliance dashboard to view the current and historical standings of the managed targets against Oracle best practices and health checks.

2.7 Configuration Management

This section describes the following new features and enhancements:

- [Search and History Integration](#)
- [Improved Configuration Item Search](#)
- [Advanced Logic Support](#)
- [Inventory and Usage Details](#)

2.7.1 Search and History Integration

Current and historic configuration search have been integrated into the same UI. This now enables users to build, save and manage history searches exactly as they could with current searches previously including the ability to review or edit the auto generated SQL which is useful for report generation.

2.7.2 Improved Configuration Item Search

In addition to choosing configuration items from the target model, users can now search properties with continually updated "look ahead" results making it easier to find items.

2.7.3 Advanced Logic Support

Users can now choose between AND and OR conditions when using search to generate reports for a subset of targets.

2.7.4 Inventory and Usage Details

Includes additional target type support including SQL Server and DB2 databases.

2.8 Big Data Appliance Management

This section includes the following topics:

- [Support for Oracle Big Data Appliance Mammoth Utility Administration](#)
- [Exadoop Support for Big Data Appliance Plugin](#)

2.8.1 Support for Oracle Big Data Appliance Mammoth Utility Administration

The Oracle Enterprise Manager 13c Big Data Appliance (BDA) Plug-in enables you to monitor and manage the Oracle BDA Mammoth Utility. It enables users to view and modify various BDA Mammoth properties, reimagine BDA clusters, and add a new NoSQL Oracle clusters. Using Oracle Enterprise Manager 13c, BDA administrators can execute configuration compliance checks for BDA and enable or disable Kerberos credentials or Audit Vault. Oracle Enterprise Manager 13c also supports the collection of new map-reduced and HDFS metrics such as Reduce Target, Slot Utilization, Jobs Failed, Jobs Killed, JobTracker Alert Rate, TaskTracker Alert Rate, Failed Tasks, and Data Node Alert Rate.

Oracle Enterprise Manager support for Oracle BDA Mammoth Utility administration improves the manageability of BDA Mammoth Utility and improves quality of service.

2.8.2 Exadool Support for Big Data Appliance Plugin

The Oracle Enterprise Manager 13c BDA Plug-in enables you to monitor and manage Oracle Exadool Appliance. You can perform guided or EM CLI-based discovery of an Exadool Appliance. Once discovered, the Exadool Appliance appears as a bigDataSQL target in the Oracle Enterprise Manager 13c targets list. Oracle Enterprise Manager 13c also displays software targets such as Yarn Poo, solr, solrServer, Impala, Spark, SparkMaster, and SparkWorker. The BDA plug-in provides support to start and stop the Exadool Services.

The Oracle Enterprise Manager 13c Big Data Appliance Plug-in simplifies the task of monitoring and administering Oracle Exadool Appliance.

2.9 Oracle Java Message Service Interactive Test and Query

Users can interactively submit messages to Oracle Java Message Service (JMS) queues and topics, and then look into a queue or durable topic subscriber to see the pending messages. This feature enables users to quickly and interactively validate JMS messaging.

2.10 Oracle Business Intelligence Enterprise Edition

This section lists features and enhancements for managing Oracle Business Intelligence Enterprise Edition (OBIEE).

- [Scale out and Cloning for OBIEE](#)
- [Diagnosibility Enhancement of OBIEE](#)

2.10.1 Scale out and Cloning for OBIEE

This enhancement provides the basic scale out and cloning functionality for OBIEE from Oracle Enterprise Manager Cloud Control. To clone an existing OBIEE domain:

Note: You must have a database which will host the BIEE repository.

1. Access a BI instance that you want to clone and invoke the profile creation wizard. A deployment procedure is submitted to complete this task.
2. After a profile is created, a new BI instance can be created from the profile.

3. Access the BI Instance target in Enterprise Manager and invoke the provisioning wizard. The wizard takes in parameters required to create the new domain.
4. The deployment procedure to provision the new BIEE domain is run. You can check the status of the procedure run and after it completes you can access the BI dashboards.

The existing BI domain can be scaled out to increase the number of servers or components, as follows:

Note: You must have a database which will host the OBIEE repository.

1. Navigate to the BI instance that you want to scale out and launch the scale out wizard.
2. When prompted, enter the inputs for scale out such as the host and number components. A deployment procedure will be submitted for scaling out the environment according to the inputs.

This feature helps you to plan for scale out and automates the BI instance cloning process through Enterprise Manager Cloud Control.

2.10.2 Diagnosability Enhancement of OBIEE

If you want to analyze or diagnose dashboard performance, you can use this feature to get more information about the internal workings of the dashboard.

The feature fetches the logical SQL for the dashboard and redirects you to the SQL details page on Enterprise Manager Cloud Control where you can see the SQL plan and the performance of each query as well as other details.

This feature helps you understand dashboard performance.

2.11 Infrastructure Management

This section includes the following topics:

- [Systems Infrastructure Plug-in 13.1.1.0 Features](#)
- [New Systems Infrastructure Plug-in Features](#)

2.11.1 Systems Infrastructure Plug-in 13.1.1.0 Features

2.11.1.1 Network Equipment Configuration and Monitoring

Enterprise Manager 13.1 provides unified hardware (infrastructure) and software management. As part of hardware management, it now provides operating system administration and monitoring. Administrators can monitor metrics, set up notifications, view metric history, and perform common configuration management tasks. The cause of problems with databases, middleware, or applications can be uncovered by drilling down into the details of the relevant operating system, storage, network, or zone.

2.11.2 New Systems Infrastructure Plug-in Features

The Oracle Enterprise Manager Systems Infrastructure (EMSI) plug-in provides an enterprise-wide view of the bottom half of the stack and monitoring of most targets including Oracle Solaris and Linux operating systems, SPARC/x86 servers, virtual environments (Solaris Zones and OVM for SPARC), ZFS storage appliance and Oracle switches. It also supports monitoring of engineered systems such as Oracle SuperCluster which integrates SPARC compute nodes along with an Oracle ZFS Storage Appliance, Exadata Storage Servers and Network switches into a multi-rack system.

Each target has its own home page that provides system information, incident summary and resource utilization details. It also provides a comprehensive, customizable set of metrics. For hardware targets, a photorealistic view displays all component details, including any open incidents.

The separate modeling of infrastructure target types enables alerts and notifications for specific components, such as a power distribution unit (PDU). Relevant hardware faults will be propagated to the application dashboard, providing true "single pane of glass" management, with one tool managing the entire stack. It also enables hardware targets to participate in configuration management, such as verifying the configuration differences between two storage servers.

Glossary

adaptive alert thresholds

Computed statistical alert thresholds using either static (user-defined) or dynamic (self-adjusting) baselines.

See also [metric baselines](#).

ADDM

See [Automatic Database Diagnostic Monitor \(ADDM\)](#).

administration group

A type of group used to fully automate the application of monitoring and other management settings targets upon joining the group. When a target is added to the group, Enterprise Manager applies a template collection defined for the group to consisting of monitoring templates, compliance standards, and cloud policies the target.

administrator account

Enterprise Manager administrator account that provides permission to perform daily administration work and access administrative information.

agent

See [Oracle Management Agent](#).

alert

An issue raised by Enterprise Manager when a problem occurs, such as when a metric threshold is exceeded.

attestation

Process of having users or system managers confirm people's access rights on a periodic basis.

Automatic Database Diagnostic Monitor (ADDM)

Application that automatically takes regularly scheduled snapshots of the database activity. ADDM identifies the most resource-intensive components or operations and provides advice, which may recommend running an advisor or making configuration changes to your database.

Automatic Storage Management (ASM)

Application that automates and simplifies the layout of data files, control files, and log files. Database files are automatically distributed across all available disks, and database storage is rebalanced whenever the storage configuration changes.

Automatic target discovery

Process by which targets are located and added to Enterprise Manager. Automatic discovery begins when the Oracle Management Agent starts up after installation. Targets located on the Agent are discovered and added to Enterprise Manager to be monitored and administered. How the targets are installed determines which targets are automatically added.

Automatic Workload Repository (AWR)

Automatic capture of statistics data for real-time and historical performance analysis. AWR includes snapshot data, active session history data, and workload reports.

availability

The percentage or amount of scheduled time that a computing system provides application service.

AWR

See [Automatic Workload Repository \(AWR\)](#).

Beacon

Application to monitor transactions from different user communities or geographical regions. You can enable the Beacon software to monitor the availability and performance of network components (a host computer or an IP traffic controller) from more than one location, or Web pages and Web applications from multiple network locations.

blackout

Maintenance tool for suspending any data collection activity on one or more monitored targets. This allows you to perform scheduled maintenance on targets while excluding these special-case situations from the data analysis to obtain a more accurate, long-term picture of a target's performance.

notification blackout

Suppresses the sending of event notifications for specific targets. The targets will continue to be monitored and events will be generated but no notifications will be sent during the notification blackout.

cluster cache coherency

For Oracle Real Application Clusters (RAC) environments, helps you identify processing trends and optimize performance. The Cluster Cache Coherency page enables you to view the global cache block access latency, global cache block transfer rate, and global cache block transfers and physical reads.

control

See [Oracle Enterprise Manager Fusion Middleware Control](#)

dashboard

Tool for proactively monitoring status and alerts as they occur by viewing the health of managed targets in real time. The dashboard presents information using intuitive

icons and graphics that let you spot recent changes and quickly identify and respond to problems.

database configuration

The configuration information Enterprise Manager collects for an Oracle database, which includes:

- General database and instance information, such as the database name, instance name, and whether or not the database is running in restricted mode or archive log mode
- Initialization parameter values
- System Global Area values
- Tablespaces and their parameters
- Datafiles and their parameters
- Control files and their attributes
- Redo logs and their attributes
- Rollback segments and their parameters
- High availability information
- License information
- Database options information

database instance

Running Oracle Database consisting of memory structures (SGA) and background processes. An instance only exists while it is up and running. Essentially, a database resides on disk, while an instance resides in memory.

A database is normally managed by only one instance. However, when using Oracle Real Application Clusters, multiple instances can be started for a single database (on different hosts of a cluster).

See also [Oracle Real Application Clusters \(RAC\)](#).

enterprise configuration

Configuration information stored in the Management Repository for the set of hosts and targets that comprise your enterprise.

event

A significant occurrence on a target that has been detected by Enterprise Manager. Events include metric alerts, compliance violations, job events and availability alerts.

discovery

The process of identifying unmanaged hosts and targets on those hosts within your environment that could be managed by Enterprise Manager. You can discover hosts and targets automatically or manually.

fast-start failover

Ability of Data Guard to rapidly and automatically fail over to a standby database without requiring manual intervention. This improves the degree of availability as well as the disaster resilience for the system infrastructure.

fetchlet

Parameterized data access mechanism that takes arguments for input and returns formatted data.

group

A set of targets managed and monitored as a single logical unit. A group can include targets of the same type, such as all of your production databases, or it can include all the targets on a host which is comprised of different target types. Groups enable you to enable you to collectively monitor and administer many targets.

home page

See [target home page](#).

host configuration

Configuration information that Enterprise Manager collects for a host that is a managed target, including:

- Hardware for the host (including memory, CPU, I/O device, and network interface information)
- Operating system for the host (including information such as operating system properties, packages, and installed patches)
- Installed Oracle software, including (but not limited to) installed products and their components, patch sets, and interim patches on the host. Enterprise Manager uses the Oracle Universal Installer inventory or inventories on a host to obtain information about the Oracle products installed on the host.

incident

A significant event or set of related significant events.

incident rule

Instructs Enterprise Manager to take specific actions when incidents, events, or problems occur, such as sending notifications.

incident rule set

A collection of rules that apply to a common set of objects such as targets (hosts, databases, groups) and take appropriate actions when events and incidents occur.

instance

See [database instance](#).

Java EE

Abbreviation for Java 2 Platform Enterprise Edition. Java EE is an environment for developing and deploying enterprise applications.

Management Agent

See [Oracle Management Agent](#).

Management Plug-in

See [Oracle Management Plug-in](#).

Management Repository

See [Oracle Management Repository](#).

Management Services

See [Oracle Management Service](#).

metric

Unit of measurement used to report the health of the system.

management target

An entity that is actively being monitored and managed by Cloud Control.

metric baselines

Named period of time associated with a target and used as a reference for evaluating target performance. Statistics are computed over the baseline period for specific target metrics. You can use these statistics to automatically set metric thresholds for alerting, as well as to normalize graphical displays of system performance.

See also [adaptive alert thresholds](#).

metric snapshot

The notification system sends email when specific incidents, events, or problems arise. All Enterprise Manager administrators can set up e-mail notifications for themselves.

notification

The notification system sends email when specific incidents, events, or problems arise. All Enterprise Manager administrators can set up e-mail notifications for themselves.

notification method

Mechanism for defining different mechanisms for sending notifications. These include e-mail, SNMP traps, or running custom scripts—or all three. Once defined, these methods can then be used with Notification Rules for sending notifications to administrators as a result of alert occurrences.

Oracle ecosystem

Organization of software, hardware, and their environment so that they function as a unit. Typically, this consists of an Oracle platform and all third-party software, including storage systems, hosts, routers, and so on. The Cloud Control Home page provides a unified view of your ecosystem.

Oracle Enterprise Manager

Oracle Enterprise Manager is the Oracle integrated management solution for managing your computing environment.

Oracle Enterprise Manager Fusion Middleware Control

Fusion Middleware Control relies on various underlying technologies to discover, monitor, and administer the Oracle Fusion Middleware environment. Fusion Middleware Control consists of the Fusion Middleware Control console and its underlying technologies:

- Oracle Dynamic Monitoring Service (DMS)
- Oracle Process Management Notification (OPMN)
- Distributed Configuration Management (DCM)
- A local version of the Oracle Management Agent specifically designed to gather monitoring data for Fusion Middleware Control.

Oracle Management Agent

A process deployed on each monitored host. The Oracle Management Agent is responsible for monitoring all targets on the host, for communicating that information to the middle-tier Management Service, and for managing and maintaining the host and its targets.

Oracle Management Plug-in

Target type provided by the user or a third party to extend Enterprise Manager's set of predefined target types.

Oracle Management Repository

Two tablespaces in an Oracle Database that contain information about administrators, targets, and applications that are managed within Enterprise Manager.

The Management Service uploads to the Management Repository the monitoring data it receives from the Management Agent. The Management Repository then organizes the data so it can be retrieved by the Management Service and displayed on Cloud Control.

Oracle Management Service

A J2EE Web application that renders the user interface for the Cloud Control console, works with all Management Agents in processing monitoring and job information, and uses the Management Repository as its data store.

monitoring template

A template used to standardize monitoring settings across your enterprise by enabling you to specify the monitoring settings once and apply them to your monitored targets.

My Oracle Support

Oracle Support Services site where customers can get information about released patches and outstanding bugs. You can use Enterprise Manager to download patches from *My Oracle Support*.

Oracle Streams

Propagation and management of data, transactions, and events in a data stream either within a database, or from one database to another. Controls what information is put into a stream, how the stream flows from database to database, what happens to messages in the stream, and how the stream terminates.

policy

Defines the desired behavior of systems and is associated with one or more targets or groups. Policies include different categories of policy rules, such as configuration, security, and storage rules. Enterprise Manager compares the targets for which policy rules exist with the policy rules for that target type, and identifies the policy violations for the target.

policy association

Relationship of a policy rule and its settings to a target or monitoring template.

policy compliance score

Number denoting the conformance of a target to a set of requirements (policy rules.) The score, ranging from 0% to 100%, is much like a test score. A score of 100% means that the target was fully compliant with the goals of the policy. The policy compliance

score facilitates your assessment of the relative levels of attention needed for various targets given the violations on those targets.

policy evaluation

Process of testing a policy's condition and recording any violations in the repository.

policy groups

Standards that report deviations and enable closed loop remediation by optionally taking action to bring systems back into compliance.

policy rule

A conditional expression that tests values from a target against a condition; for example, verifying that database profile limits are set as expected.

policy rule library

Collection of policy rules.

policy settings

Conditions related to a policy. The policy settings include, but are not limited to, parameter values and excluded objects.

policy trend

The policy compliance trend of a policy in the domain of a particular target.

policy violation

Infringement of a policy rule. For example, one of the host security policy rules checks for open ports. The recommendation is that the insecure ports not be opened. Therefore, the violation is that there are open ports.

privileges

A right to perform management actions within Enterprise Manager, such as view any target and add any target in the enterprise, or a right to perform operations on a target such as maintaining and cloning the target. Types of privileges are defined by Oracle.

promotion

The process of converting unmanaged hosts and targets that have been discovered in your environment to managed targets that are actively being monitored and managed by Cloud Control.

Oracle Real Application Clusters (RAC)

Option that allows multiple concurrent instances to share a single physical database. It provides a high-availability database environment spanning multiple hosts. Each cluster can be comprised of multiple cluster databases, each of which consists of multiple cluster database instances.

redundancy group

Group that contains members of the same type that function collectively as a unit.

repository

See [Oracle Management Repository](#).

roles

Collection of predefined Enterprise Manager target or system privileges created by super administrators to facilitate granting multiple privileges or roles to users. Roles limit target access and access to specific management features.

Secure Socket Layer (SSL)

Software to secure the communications between the Management Service and the Management Agent. Encrypted communications between the Management Agent and Management Service over HTTPS ensures the privacy of data sent from one computer to another.

service

Entity that provides a useful function to its users, such as CRM applications, online banking, and email services. Some simpler forms of services are business functions that are supported by protocols such as DNS, LDAP, POP, or SMTP.

standby database

Read-only database on the standby node. The standby database, also referred to as the replicated database, is physically identical to the master database. In the event of catastrophic failures, data modification activities “fail over” to the standby database so that it becomes the new master database.

Super Administrator

Enterprise Manager administrator that can create, modify, and delete any Enterprise Manager administrator, create any role in the system, perform any action on any target in the system, and see all areas of the management system.

SYSMAN

By default during the installation of Oracle Enterprise Manager, one Super Administrator account is created with the user name of SYSMAN. The SYSMAN account should be used to perform infrequent system-wide, global configuration tasks such as setting up the environment. Other administrator accounts can be created for daily administration work. The SYSMAN account is:

- Owner of the Management Repository schema
- Default Enterprise Manager Super Administrator
- User name used to log in to Enterprise Manager the first time

system

Logical grouping of targets that collectively hosts one or more services. It is a set of infrastructure targets (hosts, databases, application servers, and so on) that function together to host one or more applications or services.

system privilege

Allows a user to perform system-wide operations. For example, the VIEW ANY TARGET system privilege allows the administrator to view any target on the system, including Oracle Management Agents and Oracle Management Services.

target

A single component that you can monitor or configure with Enterprise Manager. Examples of a target include:

- Single Oracle database

- Group of databases that provide your worldwide customers with product information
- Oracle Application Server or an instance of Oracle HTTP Server
- Web application that your customers visit to investigate or buy your products
- Linux host computer, including its memory, disks, and CPU
- Server load balancer switch that controls the Internet traffic for a set of Web servers

Enterprise Manager can manage all these targets. A complete list of the target types you can manage is included in *Oracle Enterprise Manager Grid Control Installation and Basic Configuration*.

target compliance score

Average of the individual policy compliance scores for policies that have been associated with a target. Also, a target's security compliance score is the average of the compliance scores for security policies associated with that target.

You can use a compliance score to assess a target's overall compliance, and a group can use a score to determine the most troubled targets with respect to policy violations.

target home page

Page that contains general information about the selected target. From a target home page, you can drill down for more detailed performance information.

target privilege

Privilege that allows an administrator to perform operations on a target. For example, the View Target privilege allows an administrator to view properties, inventory, and monitor information about a target.

threshold

Boundary values against which monitored metric values are compared. The comparison determines whether an alert should be generated.

topology

Graphically shows the relationships between components, nodes, or objects within different Oracle applications.

wait classes

Grouping of wait events. Whenever an Oracle process waits for something, it records the wait using one of a set of predefined wait events. These wait events are grouped in wait classes, which show how much of the database is waiting for CPU time. The wait classes appear in the Database Performance page.

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