Oracle® Enterprise Manager Ops Center on SuperCluster Systems

Supplement

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Contents

Using This Documentation

This document contains information specific to using the Enterprise Manager 12c component of the Oracle Enterprise Ops Center on the SuperCluster systems from Oracle. This document is written system administrators who have advanced experience configuring engineered systems.

Related Documentation

Documentation	Links
All Oracle products	http://www.oracle.com/documentation
SuperCluster Documentation	http://wd0338.oracle.com/archive/cd_ns/E40281_01/index.html
Oracle Solaris OS and systems software library	http://www.oracle.com/technetwork/indexes/documentation/index.html#sys_swhttp://www.oracle.com/technetwork/indexes/documentation/index.html#sys_sw
Oracle Enterprise Manager Ops Center library	http://docs.oracle.com/cd/E27363_01/index.htm

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Oracle Enterprise Manager Ops Center for SuperCluster Systems

Overview

Oracle Enterprise Manager Ops Center is Oracle's comprehensive system management solution for monitoring and managing the physical and virtual operating systems, servers, and storage devices in your data center.

Oracle Enterprise Manager Ops Center manages SuperCluster differently from a traditional data center asset. A SuperCluster system is managed as its own, self-contained data center, with Oracle Enterprise Manager Ops Center installed and run internally on SuperCluster. The entire SuperCluster system can be passively monitored as one asset by the data center Oracle Enterprise Manager Ops Center, but any active management of the SuperCluster components must occur from the internal Oracle Enterprise Manager Ops Center instance on SuperCluster.

The following sections describe using Oracle Enterprise Manager Ops Center on SuperCluster systems. These sections assume you are logging in to the instance of Oracle Enterprise Manager Ops Center that is installed on the SuperCluster system.

Accessing Oracle Enterprise Manager Ops Center Documentation

You can access Oracle Enterprise Manager Ops Center documentation at the following URL: http://docs.oracle.com/cd/E27363_01/index.htm .

Installation Rules

Oracle Enterprise Manager Ops Center is initially installed on the SuperCluster system by Oracle ACS. This section describes the rules followed to install Oracle Enterprise Manager Ops Center on SuperCluster.

- Oracle Enterprise Manager Ops Center should be installed on the compute node in an Oracle Solaris 11 Control Domain. If the SuperCluster system comes with an Oracle 11gR2 Database, it will be installed in this domain. The Control Domain on another compute node will be used for a standby Enterprise Controller should HA be configured later.
- Enterprise Controllers intended to manage SuperCluster cannot be installed outside of SuperCluster.
- Oracle Enterprise Manager Ops Center cannot be installed in a zone on SuperCluster.
- Oracle Enterprise Manager Ops Center will be installed with co-located Proxy Controllers, which means the Proxy Controllers will be placed on the same nodes as the Enterprise Controllers, but will be configured in HA mode.

Note – In case of the current non-HA default installation there will be just one proxy controller collocated with a single Enterprise Controller.

- Oracle Enterprise Manager Ops Center should use the Oracle 11gR2 Database connected to the storage servers on SuperCluster.

- All SuperCluster assets are discovered during the installation process and should appear in the Oracle Enterprise Manager Ops Center user interface SuperCluster View mode.

Restrictions on SuperCluster Systems

This section describes the restrictions when using Oracle Enterprise Manager Ops Center on SuperCluster systems.

- At this time, you cannot update SuperCluster software and firmware through Oracle Enterprise Manager Ops Center. You must manually download and install the SuperCluster QMUs (QFSDP) to update the system.

Note – While the Oracle Enterprise Manager Ops Center allows you to update individual components, it should not be attempted as it is not supported.

- Do not use Oracle Enterprise Manager Ops Center to create or modify LDoms on SuperCluster. LDom configurations are set at the initial installation of the system and any changes made to the LDom configuration could negatively affect system performance.

  SuperCluster does not support use of the Oracle VM Server managment features described in the "Management of Logical Domains" section of the *Oracle Enterprise Manager Ops Center Feature Reference Guide* at:

  `http://docs.oracle.com/cd/E27363_01/doc.121/e27511/ftr_ovm_sparc_mgmt.htm#BABEAEGI`

- Oracle Enterprise Ops Center is not allowed to change the InfiniBand and optional 10GBE network configuration on SuperCluster.

  SuperCluster does not support use of the Network managment features described in the "Networks" section of the *Oracle Enterprise Manager Ops Center Feature Reference Guide* at:

  `http://docs.oracle.com/cd/E27363_01/doc.121/e27511/network_mgmt.htm#autoId0`

- Oracle Enterprise Ops Center is not allowed to make modifications to the ZFS SA on SuperCluster.

  SuperCluster does not support use of the managment features described in the "Storage Server: Sun ZFS Storage Appliance" section of the *Oracle Enterprise Manager Ops Center Feature Reference Guide* at:

  `http://docs.oracle.com/cd/E27363_01/doc.121/e27511/storage_mgmt.htm#autoId30`

- Oracle Enterprise Ops Center is not allowed to bare metal provision servers in the rack or provision their Oracle VM Server guests.

  SuperCluster does not support use of the provisioning features (for bare metal servers and their Oracle VM Servers guests) described in the "Provisioning Operating Systems" section of the *Oracle Enterprise Manager Ops Center Feature Reference Guide* at:

  `http://docs.oracle.com/cd/E27363_01/doc.121/e27511/os_management.htm#autoId18`

- You can use Oracle Enterprise Manager Ops Center to create zones on SuperCluster.

Understanding User Roles

In Oracle Enterprise Manager Ops Center, users can be assigned several roles such as Asset Admin, Cloud Admin, SuperCluster System Admin, Cloud User, Network Admin and Storage Admin. Each role grants the user a set of permissions; a particular permission can be granted by more than one role, and a user can be assigned multiple roles. For more information about user roles, see the "User and Role Management" section of the *Oracle Enterprise Manager Ops Center Administration Guide* at:

`http://docs.oracle.com/cd/E27363_01/doc.121/e25143/user_and_role_management.htm#DAFGEIHG`

You can add users to Oracle Enterprise Manager Ops Center from the local authentication subsystem of the Enterprise Controller's operating system. Each user can be given a different role which grants or denies access to the different functions of Oracle Enterprise Manager Ops Center. You can view the existing Users from the Users tab of the Administration section.

Note – While you can configure LDAP user authentication, using local authentication is preferred in the embedded SuperCluster environment and does not require additional setup.

SuperCluster System Admin Role

The SuperCluster System Administrator is responsible for overall monitoring and management of the SuperCluster system. The SuperCluster System Administrator also has privileges to manage the Oracle Solaris Cluster, Virtual Pools, and Storages. As a SuperCluster System Administrator, you can perform most of the operations which are allowed in the context of the SuperCluster appliance system.

The SuperCluster System Administrator role is a default role highly recommended for the management of the SuperCluster appliance and tasks related to the above functionality.

Prerequisites: The user must be familiar with the use of Oracle Enterprise Manager Ops Center and be familiar with hardware management and OS management in general.

Discovering a SuperCluster Component

If a component is changed or installed after the initial system installation, you might need to manually discovery that component. The component can either be a compute node, storage, or switch. To add a component to SuperCluster, you must first discover the component, then add it to the SuperCluster rack. Use the following procedures to complete these tasks.

- "Add a Component Manually" on page 5
- "Add an Asset to the SuperCluster Rack" on page 6

▼ Add a Component Manually

To manually discover a SuperCluster component, do the following:

1. **On the Navigation pane, select Plan Management.**
2. **Select Profiles and Policies, then select Discovery.**

   The available discovery profiles are listed in the center pane.
3. **Select the required stored discovery profile and edit the profile and metadata if required.**

4. **Click Finish.**

   The job is run and the component is discovered.

   After the asset is discovered, the new asset moves to the available asset poll. The asset must be added to the SuperCluster rack.

▼ Add an Asset to the SuperCluster Rack

To add an asset to the SuperCluster rack, perform the following steps:

1. **On the Navigation pane, under Assets, select SuperCluster Systems from the drop-down list.**
2. **Select the rack to which you want to add the asset.**
3. **On the center pane, click the Details tab. A photorealistic view of the rack is displayed.**
4. **Click the Add/Remove Asset in the rack.**
5. **Search for the right type of asset.**
6. **Assign or Remove the asset in the rack.**
7. **Save the rack changes. A rack modification job is created.**

   After the rack modification job is successful, the manually discovered asset appears in the SuperCluster rack.

Viewing and Managing the System

SuperCluster integrates SPARC compute nodes, a Sun ZFS Storage Appliance, InfiniBand switches, a spine switch, PDUs, and Exadata Storage Servers into a multi-rack system. You can view and manage the components indidually, or you can view and manage them from the rack view.

- "View and Manage the Rack" on page 7
- "View and Manage Components" on page 8

▼ View and Manage the Rack

This section describes how to view the SuperCluster system rack, visualization of the rack physical layout, aggregated rack components, energy data, and other rack-level details. As an administrator, you can drill down to an asset contained in the rack (compute node, storage node, switch, Exadata servers) or even further.

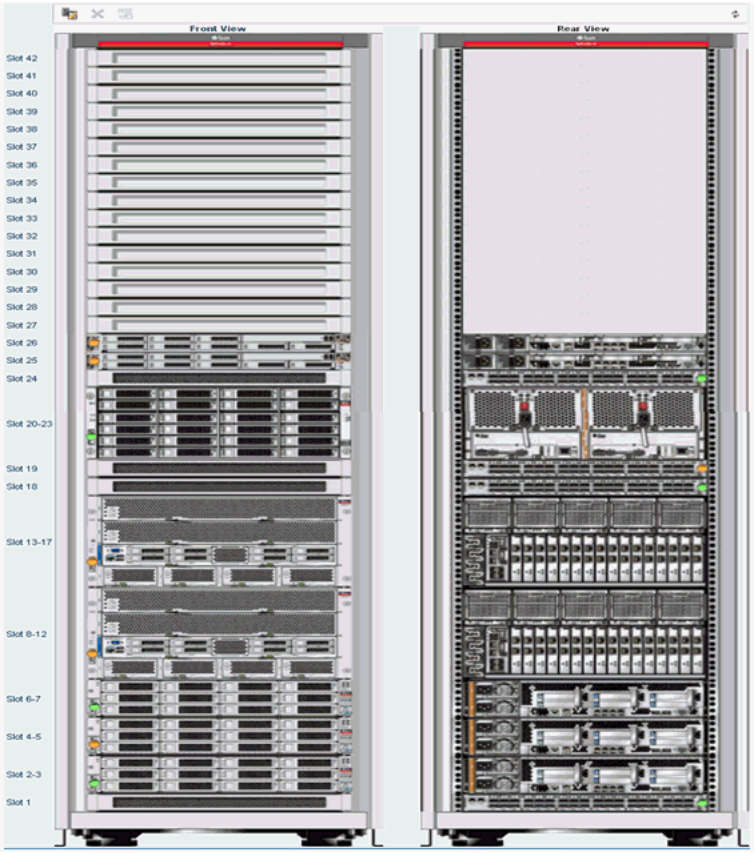
1. **On the Navigation pane, under Assets, select SuperCluster Systems.**
2. **Select a rack that you want to view.**

   The Dashboard, Details, Firmware, Incidents, Charts, Energy, and Jobs tabs are displayed in the center pane.
3. **Select any of the tabs to view more details of the rack.**
4. **(Optional) In the center pane, click the Details tab.**

   A photorealistic view of the SuperCluster System rack is displayed.

   Each asset in the rack is represented by an image. The health status of each assets is displayed in the form of colored lights as seen on the component itself. OK status is identified by the green color. Warning and critical status are identified by the yellow color. Hover the mouse over the slots in the rack and view details about the assets such as slot number, asset name and description, type of asset, model number of the asset, and its health status.

FIGURE: Photorealistic View



▼ View and Manage Components

Perform the following steps to view and manage system components.

1. **Login to Oracle Enterprise Manager Ops Center using the SuperCluster System Admin role.**
2. **On the Navigation pane, under Assets, select SuperCluster Systems from the drop-down list.**
3. **Expand the SuperCluster system, and select a component.**

   The component details are displayed on the center pane. Select the respective tabs on the center pane to view or perform actions.

Using Monitoring Profiles and Rules

Monitoring rules, profiles, and plans detect components or attributes of a managed asset or resource that are not operating within specified parameters. A resource is a generic term for any resource managed through Enterprise Manager Ops Center; it can be an asset, a group, a network, or a library. An Enterprise Manager Ops Center administrator has permissions to edit and add monitoring rules and profiles.

The following are the main components of a complete monitoring configuration:

- Monitoring Rules - Express alerting conditions. You can apply one or more rules to an asset in order to monitor the asset and raise an alert when the monitoring rule condition is met.
- Monitoring Profiles - A set of monitoring rules targeted to a specific asset type. Default monitoring profiles contain a set of rules that are automatically applied. You can copy a profile and manually configure the rules in the profile.

For more information see the *Oracle Enterprise Manager Ops Center Tuning Monitoring Rules and Policies* document at:
`http://docs.oracle.com/cd/E27363_01/doc.121/e27340/toc.htm`

The following sections describe:

- "Creating a Monitoring Profile" on page 9
- "Adding a Monitoring Rule" on page 10

▼ Creating a Monitoring Profile

Use this procedure to create a new monitoring profile and edit the profile to add rules.

1. **Expand Plan Management in the navigation pane.**
2. **Click Monitoring Profiles.**
3. **Click Create Profile in the Action pane.**
4. **Provide a name and description for the monitoring profile, then select the resource type for the profile from the Subtype list.**
5. **Click Finish to save the profile. The new profile will appear in the center content pane.**
6. **(Optional) To add or remove rules or change monitoring parameters, double-click the profile in the center content pane.**

7. **(Optional) To make this profile the default monitoring profile, click the Set as Default Profile icon.**

▼ Adding a Monitoring Rule

Use this procedure to add a monitoring rule from the Asset view.

1. **Click Assets in the Navigation pane, expand the tree and click the asset to which you want to add the rule.**
2. **Click the Monitoring tab to see a list of all the monitoring rules.**
3. **Click the Add Alert Monitoring Rule icon in the center pane. The Add Alert Monitoring Rule Parameters window is displayed.**
4. **Select a Rule Type from the drop-down menu: Threshold, Boolean Control, Enumerated Control or Expression.**
5. **Select an Asset Type from the drop-down menu.**
6. **Complete the Monitored Attribute. If you selected Expression, the Monitored Attribute option is not available.**
7. **Provide a name and description for the rule that will appear in the Profile Details page.**
8. **Define the monitoring schedule, either continuously or for a specific time period.**

   The start and end times are based on the monitored asset's time zone.
9. **Define how long the alerting condition must last to be considered an alert.**

   The default setting is 5 minutes. You can change the amount of time and the unit of measurement to be either minutes, hours, or days.
10. **Complete the Alert parameters for the different severity levels.**
11. **Use the Immediate Action field to define what action should take place when a problem is detected.**
12. **Click Apply to save the rule. The new rule will appear in the profile.**

Creating and Viewing Reports

Using reports you can view the rack setup for each of the components within the system including the asset details related to the rack. Reports provide information about your assets, such as job history, firmware, OS updates, and incidents. Reports are created in PDF and CSV formats, and you can export reports or use reports to launch jobs on targeted assets.

The following sections describe how to create a SuperCluster Report and view the report in the desired format. Using the report, you can check for any issues within the rack. For example, after the report has been created successfully, view the Validation Table in the report. The Validation Table displays the validation results of the rack. If a different component was placed in the slot, the expected component for that particular slot is displayed in the Expected Component column. If an asset is missing from the slot, the same is reported in the Expected Component column with the correct component that must be placed in that slot.

You can create the report using the available templates or create your own style of report.

The following sections describe:

- "Creating a Report" on page 11
- "View a Report" on page 12

▼ Creating a Report

You will need the following to create a SuperCluster Report and view it:

- A system running Oracle Enterprise Manager Ops Center.
- Access to Oracle Enterprise Manager Ops Center with a SuperCluster System Admin role.
- A SuperCluster system deployed and discovered in Oracle Enterprise Manager Ops Center.

1. **In the Navigation pane, select Reports.**
2. **Select SuperCluster System Report.**

   The Report Templates and Report Results are displayed in the center pane.
3. **In the Actions pane, click Create SuperCluster System Report.**

   The Create SuperCluster System Report wizard opens.

4. **In the Define Report Parameters window, enter a name and description for the report, then click Next.**

   The Schedule and Output Format are checked by default.

   - Select Create Schedule if you want to run the report later or on a recurring schedule.
   - Select the output formats of the result that will be generated for the report.

5. **In the Schedule window, select a schedule for the report, then click Next.**

   You can schedule the report to run on the following instances:

   - Now - Runs the report immediately.
   - At a later date/time - Select a date and time to generate the report.
   - On a Recurring Schedule - Select the month and day when you want to generate the report. Select the Start Time, End Time and Number of Hours between runs. This is to set the number of times the report is generated between the specified start and end time. For example, if you set the start time at 6.00 a.m, end time at 12.00 a.m, and the number of hours between runs as 2, then the report is run at 6.00 a.m, 8.00 a.m, 10.00 a.m, and 12.00 a.m.

6. **In the Summary window, verify the report parameters and click one of the options as required:**

   - Save Template and Close - Saves the report as a template and closes the wizard. You can use the report template to generate the report later.
   - Run and Close - Runs the report and closes the wizard window.

   Once you have triggered the report creation process, the job starts to run. You can view the status of your report in the Report Results section. Upon successful completion, a green check mark is displayed in the status column and the report is ready to be viewed

▼ View a Report

To view the report, perform the following steps:

1. **On the Navigation pane, select Reports.**
2. **Select SuperCluster System Report.**

   The SuperCluster reports are displayed in the Reports Results section on the center pane.

3. **Select a report and click one of the following options to view the report.**

   - Click the PDF icon to view the report in PDF format.
   - Click the CSV icon to view the report in CSV format.

- Click the INT icon to view the report interactively (detailed view).

Incident Management

Incident management in Enterprise Manager Ops Center comprises several components that are designed to work together to simplify managing problems for the hardware assets in your system. The components include monitoring rules, suggested actions, and tools to automate problem identification and resolution.

Each Enterprise Manager OpsCenter asset has it's own incidents tab that aggregates issues related to that asset. For example, is an OS becomes unreachable, SMF service fails would appear under the affects OS tab. In additional the incidents are aggregated to higher levels (server, serverpool, rack, etc.) where you can see the aggregate by multiple assets or sources. In addition, the Message Center provides the complete overview of the incidents and allows a delegation of the reported incidents for different users for further action.

Montitoring Rules

When monitoring is enabled, it is connected with a problem management and notification system. One of the monitoring tools available is a standard set of monitoring rules and attributes, many of which are editable. In addition, you can add custom monitoring attributes and alert conditions.

When an attribute for a managed asset or sub-asset type does not meet a monitoring rule, an alert is generated and is displayed as a problem in the Message Center. If an attribute exceeds a monitoring rule and then later meets the rule, the alert is automatically cleared. If the attribute does not meet the rule again, a new alert is generated.

For more information see the *Oracle Enterprise Manager Ops Center Managing Incidents* document at:
`http://docs.oracle.com/cd/E27363_01/doc.121/e36437/toc.htm`.