OpenManage Management Pack for vRealize Operations Manager version 1.0

User's Guide

Notes, cautions, and warnings

NOTE: A NOTE indicates important information that helps you make better use of your product.

CAUTION: A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

WARNING: A WARNING indicates a potential for property damage, personal injury, or death.

2017 - 02

Rev. A00

Contents

1

OpenManage Management Pack for vRealize Operations Manager

OpenManage Management Pack for vRealize Operations Manager enables monitoring of different metrics and hardware resources in the Dell server (12th generation servers and later) and chassis by using vRealize Operations Manager. OpenManage Management Pack for vRealize Operations Manager requires VMware vRealize Operations Manager version 6.3 or later.

OpenManage Integration for VMware vCenter (OMIVV) is a product that manages the ESXi servers within the VMware vCenter. OpenManage Management Pack for vRealize Operations Manager supports OpenManage Integration for VMware vCenter 4.0 or later.

OpenManage Management Pack for vRealize Operations Manager enables you to monitor and analyze the health, inventory, and status of the Dell PowerEdge servers and chassis that are managed by the OMIVV.

The OpenManage adapter retrieves the data of the managed Dell servers and its associated Dell chassis from the configured OMIVV. The retrieved details are used to discover and monitor the Dell PowerEdge servers and chassis. For more information, see Dell.com/OMConnectionsEnterpriseSystemsManagement

NOTE:
OpenManage adapter affects only the Health Badge of the resources, and it does not have any impact on the sub-badges.

NOTE:
The **Project** tab is not pertinent in vROPS while accessing the Dell servers, chassis, and components.

NOTE:
After you update the firmware versions, BIOS, OS, or after you change the iDRAC IP, you must run the inventory to view the updated status.

What's new in this release

This release of OpenManage vRealize Operations Management Pack has the following features:

- Support for monitoring and analyzing Dell PowerEdge servers, chassis, and components.
- Support for power consumption metrics.
- Support for firmware update report.
- Supports server relationship for Dell PowerEdge servers and ESXi.

Use case scenarios

This section describes typical use cases and tasks that can be performed with OpenManage Management Pack for vRealize Operations Manager.

Monitoring the servers

Server monitoring is the process of reviewing and analyzing a server for health, inventory, availability, and other operations-related processes. You can also monitor the components of servers such as CPU, memory, PSU, fan, temperature, physical disks, and so on.

For more information, see the Dell servers overview dashboard.

Perform the following steps to monitor a server:

1. Launch the **vRealize Operations Manager** console.
2. From the **Home** tab, click **Environment**.
3. In **Inventory Trees**, select **Dell Servers**.
4. Select the server that you want to monitor.

   The health status, alerts, and the associated details of the selected server is displayed. For more information about alerts, see Viewing Alerts

Monitoring the chassis

Chassis monitoring is the process of reviewing and analyzing chassis level health, inventory, and availability of supported chassis connected through OMIVV. You can also view the overall health status of the fan and PSU that enables you to view the metrics for various Dell chassis.

For more information, see the Dell chassis overview dashboard.

Perform the following steps to monitor a chassis:

1. Launch the **vRealize Operations Manager** console.
2. On the **Home** tab, click **Environment**.
3. In **Inventory Trees**, select **Dell Chassis**.
4. Select the chassis that you want to monitor.

   The health status, alerts, and the associated details of the selected chassis is displayed. For more information about alerts, see Viewing Alerts

   NOTE:
   If the PowerEdge FX2/FX2s chassis is not on the network, and the RSM mode is enabled in Chassis Management Controller, then the chassis overall health alerts are not generated on the server.

Frimware update report for servers

Firmware update report displays the current and available versions of the firmware for each component. This enables you to update the firmware to the latest version for the Dell servers from OMIVV. For more information, see the Dell firmware update summary report.

Perform the following steps to generate firmware update report:

1. On the **Home** tab, click **Content** and then click **Report**.
2. Select **Dell Server Firmware Update Summary Report**.
3. Click **Run Template** and select **All Objects** → **Dell OpenManage Adapter** → **Dell Firmware Group** → **Dell Firmware Group**.
4. Click **OK**.

   Firmware update reports are generated for all Dell servers.

Power monitoring report for servers

Power Monitoring report displays the server metrics for the Dell PowerEdge servers. For more information, see Dell server power details.

Perform the following steps to generate power monitoring report:

1. On the **Home** tab, click **Content**, and then click **Report**.
2. Select **Dell Server Power Consumption Report**.
3. Click **Run Template** and select **All Objects** →**Dell OpenManage Adapter**→**Dell Servers Group** →**Dell Servers Group**.
4. Click **OK**.

   Power monitoring reports are generated for all Dell servers.

Viewing dashboards

Dashboards enable you to monitor and analyze the Dell PowerEdge servers and chassis environment in vROPS.

The following dashboards are available in vRealize Operations Manager:

- Dell Servers Overview Dashboard
- Dell Server Detailed Dashboard
- Dell Chassis Overview Dashboard
- Dell Chassis Detailed Dashboard

Dell servers overview dashboard

Following are the parameters displayed in the Dell Servers Overview Dashboard:

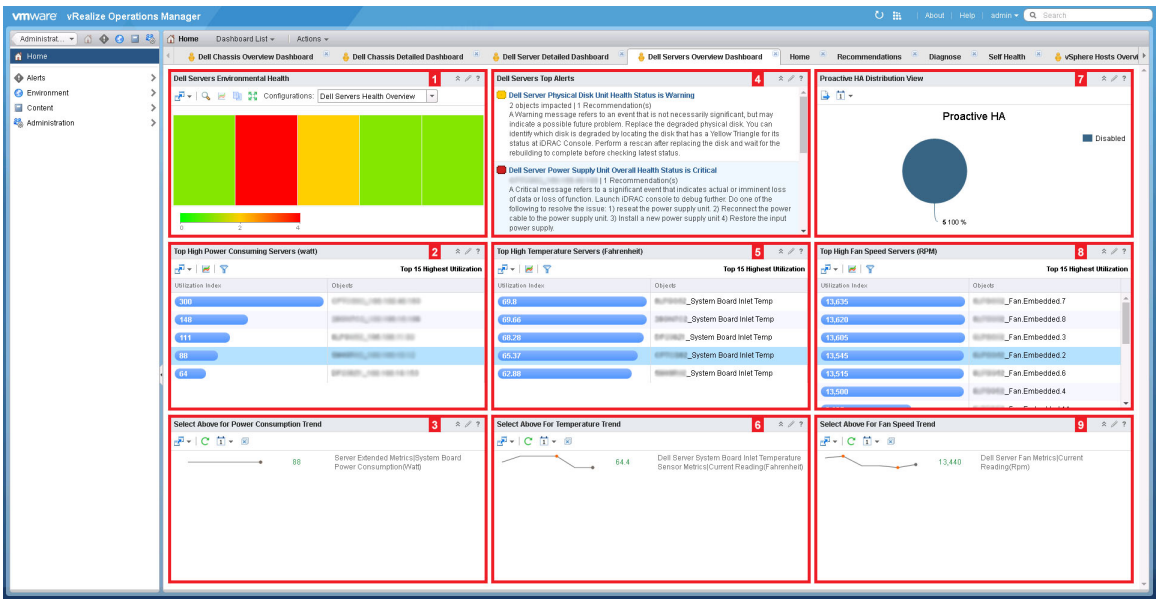

Figure 1. Dell Servers Overview Dashboard

1. **Dell Servers Environmental Health**: Displays the health status of all the servers. Red indicates Critical state, yellow indicates Warning state, and green indicates Healthy state. The source of **Dell Servers Environmental Health** is defined as **Dell Server|Badge|Health Status**.
2. **Top High Power Consuming Servers (watt)**: Displays the top 15 power consuming servers. The source of **Top High Power Consuming Servers (watt)** is defined as **Dell Server|Server Extended Metrics| System Board Power Consumption (Watt)**.
3. **Select Above For Fan Speed Trend**: Displays the fan speed trend for the server selected in the **Top High Fan Speed Servers (RPM)** widget.
4. **Dell Servers Top Alerts**: Displays the top 15 alerts of PowerEdge servers. The source of **Dell Servers Top Alerts** is defined as **Dell Servers Group**.
5. **Top High Temperature Servers (Fahrenheit)**: Displays the top 15 high temperature servers. The source of **Top High Temperature Servers** is defined as **Dell Sever System Board Inlet Temperature|Dell Sever System Board Inlet Temperature Sensor Metrics|Current Reading (Fahrenheit)**.
6. **Select Above For Temperature Trend**: Displays the system board inlet temperature trend for the server selected in the **Top High Temperature Servers (Fahrenheit)** widget.
7. **Proactive HA Distribution View**: Displays whether the Proactive High Availability (HA) is enabled or disabled. For more information about Proactive HA, see OpenManage Integration for VMware vCenter User's Guide version 4.0. The source of **Proactive HA Distribution View** is defined as **Dell Proactive HA Servers View**.
8. **Top High Fan Speed Servers (RPM)**: Displays the top 15 high fan speed servers. The source of **Top High Fan Speed Servers (RPM)** is defined as **Dell Server Fan|Dell Server Fan Metrics|Current Reading (RPM)**.

9. **Select Above For Power Consumption Trend**: Displays the power consumption trend for the server selected in the **Top High Power Consuming Servers (watt)** widget.

Dell server detailed dashboard

In the Dell server detailed dashboard, you can view the overall health status of the fan, battery, voltage, memory, temperature, physical disk, power supply, and processor of the server.

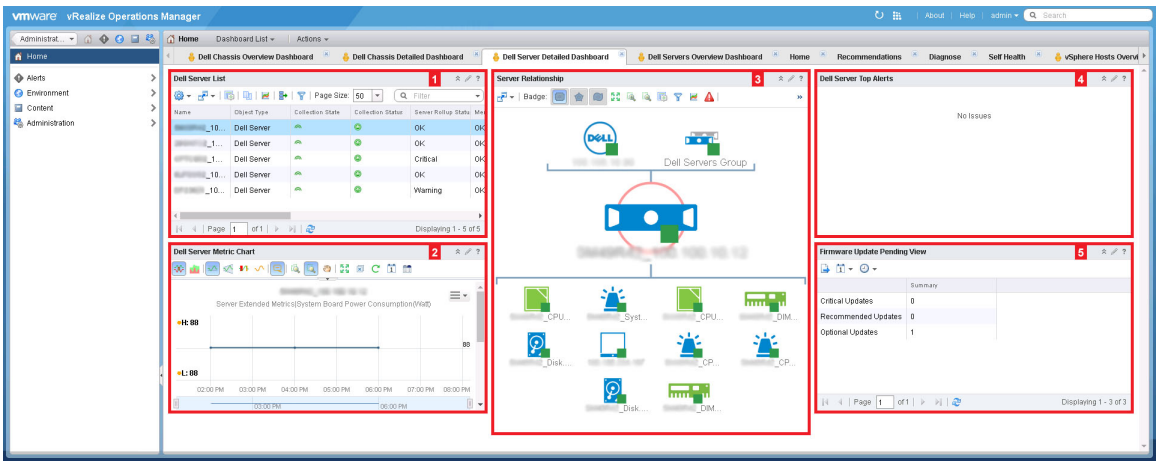

Figure 2. Dell Server Detailed Dashboard

1. **Dell Server List**: Displays the servers and the details such as, **Server Rollup Status**, **Memory Rollup Status**, **Battery Rollup Status**, **Processor Rollup Status**, **Voltage Rollup Status**, **PSU Rollup Status**, **Fan Rollup Status**, **Temperature Rollup Status**, **Storage Rollup Status**, and **Proactive HA**. The source of **Dell Server List** is defined as **Server Metrics|Server Rollup Status**, **Server Metrics|Memory Rollup Status**, **Server Metrics|Battery Rollup Status**, **Server Metrics|Processor Rollup Status**, **Server Metrics|Voltage Rollup Status**, **Server Metrics|PSU Rollup Status**, **Server Metrics|Fan Rollup Status**, **Server Metrics|Temperature Rollup Status**,**Server Metrics|Storage Rollup Status**, and **Server Metrics|ProactiveHA**.
2. **Dell Server Metric Chart**: Displays the system board power consumption and energy consumption of the server for the selected period. The source of **Dell Server Metric Chart** is defined as **Server Extended Metrics|System Board Power Consumption** and **Server Extended Metrics|Energy Consumption**.
3. **Server Relationship**: Displays the relationship of the host system, servers and the associated components.

   NOTE:
   Battery, voltage, or the IDSDM components are not associated with a server in the relationship map. For more information about the components, log in to the iDRAC console.
4. **Dell Server Top Alerts**: Displays the alerts of the servers and the associated components.
5. **Firmware Update Pending View**: Displays the number of pending firmware updates for the server, such as number of pending **Critical Updates**, **Recommended Updates**, and **Optional Updates**. The source of **Firmware Update Pending View** is defined as **Dell Server Available Firmware Update Summary**.

Dell chassis overview dashboard

Dell chassis overview dashboard displays the overall heath status of the chassis environment.

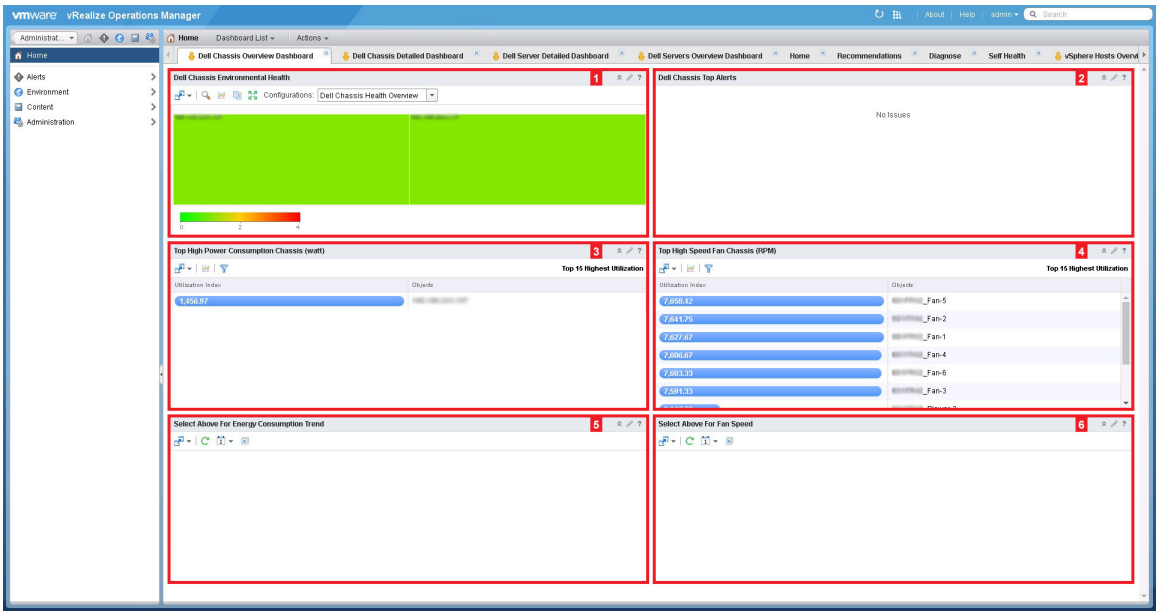

Figure 3. Dell Chassis Overview Dashboard

1. **Dell Chassis Environmental Health**: Displays the health status of all the chassis. Red indicates the critical state, yellow indicates warning state, and green indicates healthy state. The source of **Dell Chassis Environmental Health** is defined as **Dell Chassis|Badge|Health State**.
2. **Dell Chassis Top Alerts**: Displays top 15 alerts of the chassis. The source of **Dell Chassis Top Alerts** is defined as **Dell Chassis Group**.
3. **Top High-Power Consumption Chassis (watt)**: Displays the top 15 high-power consuming chassis. The source of **Top High-Power Consumption Chassis (watt)** is defined as **Chassis Metrics|Energy Consumption (KWh)**.
4. **Top High Fan Speed Chassis (RPM)**: Displays the top 15 high fan speed chassis. The source of **Top High Fan Speed Chassis (RPM)** is defined as **Dell Chassis Fan Metrics|Current Reading (RPM)**.
5. **Select Above For Energy Consumption Trend**: Displays the energy consumption trend for the chassis selected in **Top High-Power Consumption Chassis (watt)** widget.
6. **Select Above For Fan Speed Trend**: Displays the fan speed trend for the chassis selected in **Top High Fan Speed Chassis (RPM)** widget.

Dell chassis detailed dashboard

Dell Chassis Detailed Dashboard displays the overall health status of the fan, PSU, and the servers of the chassis.

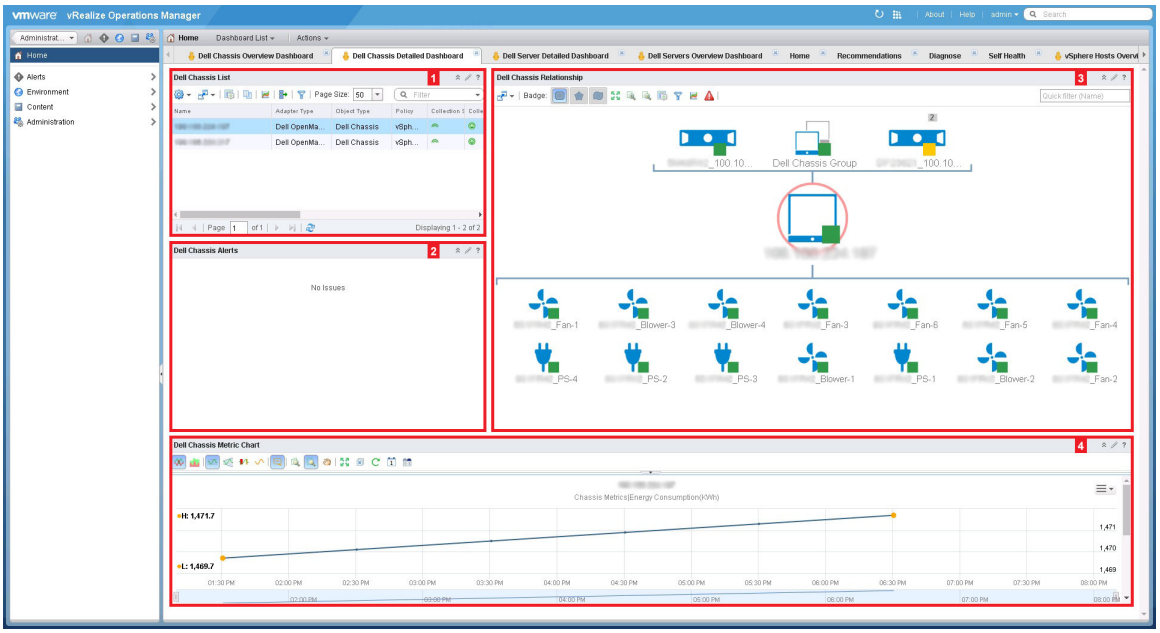

Figure 4. Dell Chassis Detailed Dashboard

1. **Dell Chassis List**: Displays the chassis and the details such as, **Hostname**, **Model**, **ServiceTag**, **IPAddress**, **Chassis Overall health**, **PSU Rollup Status**, and **Fan Rollup Status**. The source of **Dell Chasssi List** is defined as **Chassis Metrics|Model**, **Chassis Metrics|Host Name**, **Chassis Metrics|IpAddress**, **Chassis Metrics|Service Tag**, **Chassis Metrics|Chassis Overall Health**, **Chassis Metrics|PSU Rollup Status**, and **Chassis Metrics|Fan Rollup Status**.
2. **Dell Chassis Alerts**: Displays the alerts of the chassis.
3. **Dell Chassis Relationship**: Displays the relationship between the Dell chassis and its associated components.
4. **Dell Chassis Metric Chart**: Displays the energy consumption and system peak power for the selected period. The source of **Dell Chassis Metric Chart** is defined as **Chassis Metrics|Energy Consumption** and **Chassis Metrics|System Peak Power**.

NOTE:
If the CMC firmware versions are earlier than CMC 5.2 for M1000e, CMC 2.2 for VRTX, and CMC 1.4 for FX2, after the network outage the chassis detailed dashboard displays a wrong chassis name.

NOTE:
Chassis components are reported with healthy and non-healthy status. All non-healthy statuses are reported as critical.

Accessing views

OpenManage Management Pack for vRealize Operations Manager enables you to view statistics of metrics and the warranty period for various Dell PowerEdge servers and chassis.

Accessing views for a specific server

Perform the following steps to access the views for a specific server:

1. Launch **vRealize Operations Manager** for a console.
2. On the **Home** tab, click **Environment**.
3. In **Inventory Trees**, select **Dell Servers**.
4. Select the server that you want view, and then select the **Details** tab.
   A List of views is displayed.

Accessing views for the group of servers

Perform the following steps to access Dell server group views for all the servers:

1. Launch **vRealize Operations Manager** for a console.
2. On the **Home** tab, click **Environment**.
3. Expand **All Objects**, and click **Dell OpenManage Adapter**.
4. Expand **Dell Servers Group**, again click **Dell Servers Group**, and then select the **Details** tab.
   A List of views is displayed.

The following views are available in **Dell Views**

- **Dell Server Available Firmware Update Summary** — Displays the critical, recommended, and optional firmware updates for servers
- **Dell Server Power Details** — Displays the **PowerEdge Model**, **Average Energy Consumption**, **System Peak Power (Watt)**, **System Peak Amps (A)**, **Warning Threshold (Watt)**, and **Failure Threshold (Watt)**.
- **Dell OMIVV License List View** — Displays the list of available nodes, used nodes, evaluation license, licensed node, expiry status, and license status.
- **Dell Pro Active Servers View** — Displays whether or not the proactive high availability is enabled or disabled.
- **Dell FRM capable Servers View** — Displays the Fault Resilient Memory (FRM) capability on the Dell PowerEdge servers.
- **Dell Server Firmware Summary List** — Displays the list of firmware available for all the PowerEdge servers.
- **Dell Chassis Warranty List** — Displays the list of warranties for all the chassis.
- **Dell Server Warranty List** — Displays the list of warranties for all the PowerEdge servers.

Accessing reports

The OpenManage Management Pack for vRealize Operations Manager provides custom reports for the following:

- Dell Server Firmware Summary List
- Dell Server Power Details
- Dell Server Warranty

Dell server firmware summary list

Dell server firmware summary list displays **Servicetag**, **Hostname**, **Component**, **Current Version**, **Available Version**, **Criticality**, and **Reboot Required** of Dell PowerEdge servers.

Dell server power details

Dell server power details displays the **PowerEdge Model**, **Average Energy Consumption**, **System Peak Power (Watt)**, **System Peak Amps (A)**, **Warning Threshold (Watt)**, and **Failure Threshold (Watt)** of the Dell PowerEdge servers.

Dell server warranty

Dell server warranty displays **Name**, **Days Left**, **End Date**, **Entitilement Type**, **Provider**, **Service Level Description**, **Start Date** and **Status** for PowerEdge servers. There are separate warranty reports that are available for PowerEdge servers and chassis.

Viewing alerts

OpenManage Management Pack for vRealize Operations Manager displays any unusual events from the Dell servers, chassis and associated components as alerts. It also recommends that you perform certain steps to overcome the unusual events. If the extended monitoring or firmware metric collection job fails for a server, it may create a warning alert for that particular server.

The following are the type of alerts:

1. Critical - Indicates that the component has either failed or failure is imminent. It requires immediate attention and may require replacement.
2. Warning - Indicates that a probe or other monitoring device has detected a reading for the component that is exceeding the acceptable level. The component may be functioning, but it can fail. The component may also be functioning in an impaired state.

Warranty Metrics

Server and chassis warranty information is retrieved and displayed by OpenManage Management Pack for vRealize Operations Manager. The service tags are used to gather warranty information about the servers and chassis. When you set up a **Warranty Expiration Notification Threshold** at OMIVV, OpenManage Management pack creates a warning or critical alert based on the threshold that has been set.

NOTE:
Warranty metrics is displayed for each PowerEdge server and chassis.

NOTE:
When there are different types of warranties for chassis and servers, alerts are created for the longest warranty peirod.

2

License metrics of OMIVV

The license for OMIVV directly interprets to the licensing used for the management pack. License metrics of OMIVV enables you to view the license information and metrics.

The following metrics are associated with Dell OMIVV License:

- **Available Nodes**: Displays the number of licenses that are available.
- **Used Nodes**: Displays the number of licenses that are used.
- **Evaluation License**: Displays the current license type whether or not it is evaluation or standard license.
- **Licensed Nodes**: Displays the number of licensed nodes.
- **Expiry Status**: Displays the expiry status of license.
- **License Status**: Displays the status of the servers that are managed. Alerts are generated, when X+1 servers are managed.

The license metrics is associated with each OMIVV license that displays **Activation Date**, **Days Remaining**, **Entitlement ID**, **Expiration Date**, **License Sub State**, **License Type**, and **Number of Nodes**.

NOTE:
In case, you have installed a new evaluation license despite having an active or expired older evaluation license, the older evaluation license generates and displays the alerts to show number of days remaining for the license to expire.

3

Dell server metrics

Table 1. Dell Server Metrics

Resources	Available Server- Resource Metrics
Server Metrics	Battery Rollup Status
	Chassis Service Tag
	Fan Rollup Status
	Host Entity ID
	iDRAC IP
	IDSDM Present
	IDSDM Rollup Status
	Memory Rollup Status
	Model
	Overall Warranty Status
	ProactiveHA
	Processor Rollup Status
	PSU Rollup Status
	Server Generation
	Server Rollup Status
	Service Tag
	Storage Rollup Status
	Temperature Rollup Status
	Voltage Rollup Status
Server Extended Metrics	Energy Consumption End Date Time
	Energy Consumption Start Date Time
	Energy Consumption (KWh)
	Extended Metrics Collection Job Status
	Failure Threshold (Watt)
	FRM Capable

	FRM Enable
	FRM Type
	Peak Amps End Date Time
	Peak Amps Start Date Time
	System Board Power Consumption (Watt)
	System Instantaneous Headroom (Watt)
	System Peak Amps
	System Peak Headroom (Watt)
	System Peak Power End Date Time
	System Peak Power Start Date Time
	System Peak Power (Watt)
	Warning Threshold (Watt)
Server Firmware Updates	Critical
	Firmware Metrics Collection Job Status
	Optional
	Recommended
Server Warranty	Days Left
	End Date
	Entitlement Type
	Last Updated Time
	Provider
	Service Level Description
	Start Date
	Status
Dell Server Temperature Sensor Metrics	Current Reading (Fahrenheit)
	Health Status
	Maximum Critical Threshold (Fahrenheit)
	Maximum Warning Threshold (Fahrenheit)
	Minimum Critical Threshold (Fahrenheit)
	Minimum Warning Threshold (Fahrenheit)
Dell Server Processor Metrics	Processor Health Status
Dell Server Memory Metrics	Memory Unit Instance Health

Dell Server System Board Inlet Temperature Sensor Metrics	Current Reading (Fahrenheit)
	Health Status
	Maximum Critical Threshold (Fahrenheit)
	Maximum Warning Threshold (Fahrenheit)
	Minimum Critical Threshold (Fahrenheit)
	Minimum Warning Threshold (Fahrenheit)
Dell Server PSU Metrics	Health Status
	Input Voltage (Volts)
	Redundancy Status
	NOTE: Power supply redundancy status is displayed as **Unknown**, if the **Redundancy Policy** is set to **Not Redundant** in Integrated Dell Remote Access Controller (iDRAC).
Dell Server Physical Disk Metrics	Available Disk Space (GB)
	Health Status
	Media Type
	Remaining Rated Write Endurance
	Smart Alert Enabled State
	Total Disk Size (GB)
	NOTE: The default value for non-SSD disk is 255.

4

Dell chassis metrics

Table 2. Dell Chassis Metrics

Resources	Available Chassis- Resource Metrics
Chassis Metrics	Chassis Overall Health
	Enegy Consumption (KWh)
	Fan Rollup Status
	Host Name
	IPAddress
	Model
	Overall Warranty Status
	PSU Rollup Status
	Service Tag
	System Peak Power End Date Time
	System Peak Power Start Date Time
	System Peak Power (Watt)
	NOTE: When rack server Mode is enabled, chassis PSU and fans are discovered and monitored as server components.
Chassis Warranty	Days Left
	End Date
	Entitlement Type
	Last Updated Time
	Provider
	Service Level Description
	Start Date
	Status
Dell Chassis PSU Metrics	Health Status
	Input Voltage (Volts)
Dell Chassis Fan Metrics	Health Status

Current Reading (RPM)

5

View Dell PowerEdge servers and ESXi of VMware relationship

This dashboard provides a visual representation of server relationship between Dell PowerEdge servers and ESXi.

To view the object relationship health tree, see Dell server detailed dashboard.

6

Issues

- Servers that have an in-built PSU or the drives that are connected to **Embedded Controller** always display a warning status in vROPS, because **Embedded Controller** is not monitored by iDRAC.
- The removed PSUs or fans exist under **Dell chassis**. In such a situation, because the health cannot be retrieved the FAN or PSU status is displayed as **Critical**.
- Disconnecting the power cable and non-removal of PSU from a specific port of chassis results in the relationship maps displaying the specific PSU as **Critical**. However, if the PSU is removed, the removed PSU is not displayed in the relationship map.
- The **FAN Rollup** status for PowerEdge FX2/FX2s and VRTX is based on the chassis firmware constraint. For more information, see Chassis Management Controller User's Guide.
- When the chassis has an **object down** alert, the server may have a **descendent** alert, but the overall health status of the server and relationship map are not impacted.
- Power supply unit health is not recorded for PowerEdge C6320.
- Alerts are not created when Non-Raid Physical Disk is removed from the server, and the Dell server overall health status is displayed as **Critical**.
- Ensure that the basic health update and extended metric jobs are running successfully for the specified host, if the data is not populated.
- The vROPS report displays the entries of a removed server. To generate an updated report, remove the non existent Dell objects from inventory explorer.

7

Accessing documents from Dell support site

You can access the required documents in one of the following ways:

- Using the following links:
  - For all Enterprise Systems Management documents — Dell.com/SoftwareSecurityManuals
  - For OpenManage documents — Dell.com/OpenManageManuals
  - For Remote Enterprise Systems Management documents — Dell.com/esmmanuals
  - For iDRAC and Lifecycle Controller documents — Dell.com/idracmanuals
  - For OpenManage Connections Enterprise Systems Management documents — Dell.com/OMConnectionsEnterpriseSystemsManagement
  - For Serviceability Tools documents — Dell.com/ServiceabilityTools
  - For Client Command Suite Systems Management documents — Dell.com/DellClientCommandSuiteManuals
- From the Dell Support site:
  a. Go to Dell.com/Support/Home.
  b. Under **Select a product** section, click **Software & Security**.
  c. In the **Software & Security** group box, click the required link from the following:
     - **Enterprise Systems Management**
     - **Remote Enterprise Systems Management**
     - **Serviceability Tools**
     - **Dell Client Command Suite**
     - **Connections Client Systems Management**
  d. To view a document, click the required product version.
- Using search engines:
  - Type the name and version of the document in the search box.