Dell EMC OpenManage Enterprise Power Manager Version 1.1

User's Guide

June 2020
Rev. A00

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.

Contents

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Introduction to Power Manager

Dell EMC OpenManage Enterprise Power Manager is an extension or a plugin to the Dell EMC OpenManage Enterprise (OME) console and uses fine-grained instrumentation to provide increased visibility to power consumption, anomalies, and utilization. Also, Power Manager alerts and reports about power and thermal events in servers, chassis, and custom groups consisting of servers and chassis. This reporting enables increased control, faster response times, greater accuracy, and broader decision-making intelligence than is otherwise possible.

When used with PowerEdge servers or modular systems with an iDRAC Enterprise or iDRAC Datacenter license, or supported chassis and OpenManage Enterprise Advanced license, Power Manager leverages information from the OME console to deliver platform-level power reporting. Power Manager then communicates with Integrated Dell Remote Access Controller (iDRAC) or Chassis Management Controller (CMC) on each managed device to provide power-management data and execution of control policy—making it easy for administrators to identify areas in which they can gain efficiencies and cut wasteful costs.

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What's new in this release

- Power Manager can now support devices up to 6000.
- After upgrading OpenManage Enterprise, if the installed version of Power Manager is incompatible with the latest version of OpenManage Enterprise, Power Manager extension is disabled.
- Flexibility to download the Power Manager files and install the extension at a convenient time.
- Sort and filter information for all the features in Power Manager.
- Support for configuring the power cap value in Watts or percentage at a group level.
- Dedicated landing page for Power Manager.
- Improvements in widgets for better user experience.
- Support for creating and maintain temperature-triggered policies to prevent damage to managed devices due to overheating caused by failure of cooling infrastructure by applying Emergency Power Reduction (EPR) on the devices.
- Added support to view temperature-triggered policy details in existing in-built reports.
- View the top 10 devices and groups violating power and temperature thresholds.
- Support for Dell EMC VxRail systems.
- Support for PowerEdge servers with AMD processors with iDRAC version 4.10.10.10 onwards.
- Support for iDRAC Datacenter license.

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Compatibility matrix

Topics:

Supported devices in Power Manager

Power Manager supports the following list of Dell EMC PowerEdge servers and chassis.

Table 1. Supported servers and chassis models

Category	Model
Server	• Dell EMC VxRail E460 • Dell EMC VxRail E460F • Dell EMC VxRail P470 • Dell EMC VxRail P470F • Dell EMC VxRail S470 • Dell EMC VxRail V470 • Dell EMC VxRail V470F • Dell EMC VxRail E560 • Dell EMC VxRail E560F • Dell EMC VxRail E560N • Dell EMC VxRail P570 • Dell EMC VxRail P570F • Dell EMC VxRail S570 • Dell EMC VxRail V570 • Dell EMC VxRail V570F • Dell EMC VxRail P580N • PowerEdge R320 Server • PowerEdge R420 Server • PowerEdge R520 Server • PowerEdge R620 Server • PowerEdge R720 Server • PowerEdge R720xd Server • PowerEdge R820 Server • PowerEdge R920 Server • PowerEdge M620 Server • PowerEdge M520 Server • PowerEdge T320 Server • PowerEdge T420 Server • PowerEdge T620 Server • PowerEdge R330 Server • PowerEdge R430 Server • PowerEdge R440 Server • PowerEdge R530 Server • PowerEdge R530XD Server • PowerEdge R540 Server • PowerEdge R630 Server

Table 1. Supported servers and chassis models (continued)

Category	Model
	• PowerEdge R730 Server • PowerEdge R730Xd Server • PowerEdge R7415 Server • PowerEdge R7425 Server • PowerEdge R930 Server • PowerEdge R6415 Server • PowerEdge R640 Server • PowerEdge R740 Server • PowerEdge R740XD Server • PowerEdge R830 Server • PowerEdge R840 Server • PowerEdge R940 Server • PowerEdge R940xa Server • PowerEdge M630 Server • PowerEdge M640 Server • PowerEdge M830 Server • PowerEdge T330 Server • PowerEdge T430 Server • PowerEdge T440 Server • PowerEdge T630 Server • PowerEdge FC430 Server • PowerEdge FC630 Server • PowerEdge FC640 Server • PowerEdge FC830 Server • PowerEdge C6320 Server • PowerEdge C6320p Server • PowerEdge C6420 Server • PowerEdge MX740C Server • PowerEdge MX840C Server • PowerEdge R340 Server • PowerEdge T340 Server • PowerEdge R740xd2 Server • PowerEdge R7525 Server • PowerEdge R7515 Server • PowerEdge R6515 Server • PowerEdge R6525 Server • PowerEdge C6525 Server
Chassis	• PowerEdge M1000e • PowerEdge VRTX Blade Enclosure • PowerEdge FX2/FX2s • PowerEdge MX7000

Versions of Power Manager compatible with OpenManage Enterprise

The following table shows Power Manager and OpenManage Enterprise version compatibility.

Table 2. Compatibility matrix of Power Manager and OpenManage Enterprise

Power Manager Version	OpenManage Enterprise Version
Power Manager 1.1	OpenManage Enterprise 3.4

Table 2. Compatibility matrix of Power Manager and OpenManage Enterprise (continued)

Power Manager Version	OpenManage Enterprise Version
Power Manager 1.0	• OpenManage Enterprise 3.2 • OpenManage Enterprise 3.2.1 • OpenManage Enterprise 3.3 • OpenManage Enterprise 3.3.1

Supported protocols

Power Manager supports the following protocols:

- Power Manager supports only Web Services for Management (WSMAN) protocol for servers and chassis.
- Power Manager supports only Representational State Transfer (REST) protocol for PowerEdge MX7000 chassis.

Hardware requirements

The following table lists the minimum set of hardware configurations that are based on the number of devices you want to monitor through Power Manager.

Table 3. Minimum required hardware

Minimum recommended hardware	Large deployments	Small deployments
Number of devices that Power Manager can manage	Up to 6000	1000
RAM	32 GB	16 GB
Processors	8 cores	4 cores
Hard drive	250 GB	250 GB

Supported web browsers

Power Manager supports the following versions of web browsers:

- Internet Explorer (64-bit) 11 and later
- Mozilla Firefox 52 and later
- Google Chrome 58 and later
- Microsoft Edge version 41.16299 and later

Power Manager is not supported on the following:

- PowerEdge M1000e, PowerEdge VRTX, PowerEdge FX2, and PowerEdge FX2s chassis discovered with viewer credentials
- Servers with cabled Power Supply Units (PSUs)
- PowerEdge FM120x4
- Servers added through In-Band server discovery.
- iDRAC firmware version 4.00.00.00

Role-based user privileges for Power Manager

Role-based Access Control (RBAC) is a method to provide restrictive access to the users by assigning a role to each user. The user's role determines the level of access for all the Power Manager and device management features. The following table provides a list of different user roles and their permissions for all the features in Power Manager. Therefore, the console enforces one role per account.

Table 4. Role-based user privileges for Power Manager

Features	Admin user	Device Manager	Viewer
Install Power Manager	Yes	No	No
Enable Power Manager	Yes	No	No
Disable Power Manager	Yes	No	No
Uninstall Power Manager	Yes	No	No
Add or remove devices from Power Manager	Yes	Yes	No
Add or remove groups from Power Manager	Yes	No	No
Monitor metrics	Yes	Yes	Yes
Manage power policies for devices	Yes	Yes	No
Manage power policies for groups	Yes	No	No
Manage temperature-triggered policies for groups	Yes	No	No
Manage alert thresholds in Power Manager	Yes	Yes	No
View alert thresholds in Power Manager	Yes	Yes	Yes
Modify Power Manager Settings	Yes	No	No
View Power Manager Settings	Yes	Yes	Yes
Manage Emergency Power Reduction (EPR) for devices	Yes	Yes	No
Manage Emergency Power Reduction (EPR) for groups	Yes	No	No
Run and view reports for devices and groups	Yes	Yes	Yes
Manage custom reports for devices	Yes	Yes	No
Manage custom reports for groups	Yes	Yes	No
View events	Yes	Yes	Yes
Dashboard	Yes	Yes	Yes

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License requirements

Use OpenManage Enterprise Advanced license together with your iDRAC license to work with all the features of Power Manager. The following table provides the license combinations that are required to use Power Manager.

Table 5. License capability with servers

OpenManage Enterprise Advanced license	iDRAC Base license	iDRAC Express license	iDRAC Enterprise license	iDRAC Data Center license	Device and group monitoring	Device and group management
Not added	Added	Not added	Not added	Not added	Not added	Not added
Not added	Not added	Added	Not added	Not added	Not added	Not added
Not added	Not added	Not added	Added	Not added	Not added	Not added
Not added	Not added	Not added	Not added	Added	Not added	Not added
Added	Added	Not added	Not added	Not added	Not added	Not added
Added	Not added	Added	Not added	Not added	Added	Not added
Added	Not added	Not added	Added	Not added	Added	Added
Added	Not added	Not added	Not added	Added	Added	Added

Table 6. License capability with chassis

Chassis models	CMC Enterprise license	Monitoring	Power policy	Emergency Power Reduction (EPR)
PowerEdge VRTX	Not added	Yes	No	Yes
PowerEdge VRTX	Added	Yes	Yes	Yes
PowerEdge FX2 or PowerEdge FX2s	Not added	Yes	No	Yes
PowerEdge FX2 or PowerEdge FX2s	Added	Yes	Yes	Yes
PowerEdge M1000e	NA	Yes	Yes	Yes
PowerEdge MX7000	NA	Yes	Yes	Yes

Licensing behavior in Power Manager for devices:

- If the OpenManage Enterprise Advanced license on the target devices is expired or deleted, the devices are removed from Power Manager. You must re-add the devices to Power Manager after adding the license.
- If EPR is enabled on a device, and the device is removed from Power Manager due to an expired or deleted license, then you cannot access the device through Power Manager. To disable EPR, go to the iDRAC or CMC page of the device and remove the EPR.
- If policy and alert thresholds are set on a device, and the device is removed from Power Manager due to an expired or deleted license, then the policy and alert thresholds are removed from the device.

Licensing behavior in Power Manager for groups:

- For a group, only the devices that have a valid license are added as part of the group into Power Manager. Metrics are collected only for these devices in the group.
- If the OpenManage Enterprise Advanced license is expired or deleted from the target devices that are part of a group, the devices are removed from Power Manager. After updating the license, these devices are automatically added to Power Manager in the next inventory cycle.
- If EPR is enabled on a group, and if the license is expired or deleted for any device in a group, the device is not removed from Power Manager.

- If EPR is enabled on a group, you cannot remove the group or any device that is part of the group from Power Manager.

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Scalability and performance

Power Manager supports up to 6000 target devices.

It is important to configure appropriate Power and Temperature Sampling Intervals in Power Manager, because sampling intervals impact the system performance and footprint significantly, including network bandwidth consumption, database size, and trend graph display latency.

The default power and temperature intervals in Power Manager are 15 minutes. This value is appropriate for small, or medium-sized environments where the device number is less than 1000. However, when the environment has more managed devices, the interval is automatically set to 30 minutes.

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Power Manager workflow

This section provides high-level information to help administrators get started with Power Manager.

Prerequisites

Ensure that the following prerequisites are met:

1. Discover the devices in Dell EMC OpenManage Enterprise.
2. After discovering the devices, create static groups in Dell EMC OpenManage Enterprise.

   For more information about discovering devices and creating static groups, see *OpenManage Enterprise User's Guide*.

About this task

To monitor power and temperature data of devices and groups using Power Manager, perform the following steps:

Steps

1. Add **OpenManage Enterprise Advanced** license on iDRAC of target devices.
2. Add the supported devices or static groups to Power Manager.

   NOTE: Only the devices that are supported by Power Manager can be added as part of the group. For more information about supported devices, see List of supported devices.

3. Configure all the setting Power Manager as per your data center specifications using the **Power Manager Settings** page.

   After configuring Power Manager, you can perform the following tasks:
   - View all the device or group metrics details related to Power Manager using **Metrics and Monitoring History**.
   - Create and apply Policies to regulate the power consumption on devices or groups.
   - Create and apply to regulate device temperature.
   - During a power emergency, reduce power consumption using the Emergency Power Reduction feature.
   - Create alert thresholds in Power Manager by configuring the warning and critical values for devices or groups that are monitored in Power Manager.
   - Run the built-in or customized reports to view in-depth information about the devices or groups, jobs, alerts, and other parameters of your data center.
   - View and acknowledge alerts that are generated in OpenManage Enterprise through Power Manager in **Alerts** > **Alert Logs**.
   - View generic Power Manager logs generated in OpenManage Enterprise through **Monitor** > **Audit Logs** tabs.
   - To quickly view power and thermal history of your favorite groups, add them to OpenManage Enterprise dashboard. For more information, see widgets.
   - To view top five devices or groups that consume maximum energy, see the **Top Energy Consumer** graph on the OpenManage Enterprise dashboard.
   - To view a ratio of number of devices that are added to OpenManage Enterprise and are compatible with Power Manager to total devices that are managed by Power Manager, see **Power Manager Devices Statistics** graph on the OpenManage Enterprise dashboard.
   - To view top 10 offenders of power and temperature, see Viewing top 10 offenders.

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Getting started with Power Manager

Topics:

Installing Power Manager

To monitor power and thermal data for devices or groups, install the Power Manager plugin on OpenManage Enterprise.

Prerequisites

Ensure that the following prerequisite is met:

- Connectivity to the repository is successful:
  - To connect to an online repository, connect to `downloads.dell.com` portal.
  - To connect to an offline repository, ensure that the offline server is configured with required plugin catalog and plugin installation files.

About this task

NOTE: Installing a plugin on OpenManage Enterprise restarts the appliance services.

NOTE: From OpenManage Enterprise version 3.5 the word extension is replaced with the word plugin.

To install the plugin, perform the following steps:

Steps

1. Launch Dell EMC OpenManage Enterprise.
2. If you are using OpenManage Enterprise version 3.4 or earlier, in **Application Settings**, click **Console and Extensions**.

   The Console and extensions page is displayed.

   If you are using OpenManage Enterprise version 3.5, in **Application Settings**, click **Console and Plugins**.

   The Console and plugins page is displayed.
3. In the **Power Manager** section, click **Install**.
   The **Install Extension** or **Install Plugin** page is displayed.
4. Click **Download extension** or **Download plugin**.
   The plugin is downloaded and the status of the download is displayed on a green color band at the right top corner.
5. Review and ensure that you meet the list of prerequisites that are mentioned in the **Prerequisites** section.

   NOTE: The lists of prerequisites change depending on the version of plugin that select.
6. In **Install Details**, select the required version of Dell EMC OpenManage Enterprise Power Manager from the **Version(s)** drop-down menu, and then click **Install Extension** or **Install plugin**.

   The details of the number of users who are logged in to OpenManage Enterprise, tasks in progress, and schedule jobs are displayed in the confirmation window.

   To confirm the installation, select the **I agree that I have captured the snapshot of the OM Enterprise appliance prior to the upgrade** option, and then click **Confirm Install**.

   The status of the installation is displayed.

- To instantly view the latest list of devices and groups that are part of Power Manager as a result of any license changes made on the target devices, click **Run Inventory** in OpenManage Enterprise, and then click the **Refresh Power Manager capabilities** option on the **Power Manager Settings** page.
- View the count of overall power-capable devices from the **Power Manager Devices Statistics** section of the OpenManage Enterprise dashboard.

Adding devices to Power Manager

To collect and monitor power and thermal utilization, and airflow data of devices, add the devices in Power Manager.

Prerequisites

Ensure that the following prerequisites are met:

- The devices have the required management console license. For more information, see the License requirements section.
- Servers have an **OpenManage Enterprise Advanced** license. For information about adding the license, see *OpenManage Enterprise User's Guide*.
- Devices are discovered in OpenManage Enterprise. For information about discovering devices, see *OpenManage Enterprise User's Guide*.
- The modular server is not in a **Proxied** state in OpenManage Enterprise.

About this task

To view the list of devices that are compatible with Power Manager, before running the inventory in OpenManage Enterprise and immediately after the installation, perform the following steps:

1. In OpenManage Enterprise, click **Devices** > **Run Inventory** option.
2. If you are using OpenManage Enterprise version 3.4 or earlier, click **Power Management** > **Monitored Devices and Groups** > **Refresh the list for Power Manager capabilities** tab.

   If you are using OpenManage Enterprise version 3.5, click **Plugins** > **Power Management** > **Monitored Devices and Groups** > **Refresh the list for Power Manager capabilities** tab.

   The list of devices compatible with Power Manager are displayed when you start to add the devices from OpenManage Enterprise.

To add devices, perform the following steps:

Steps

1. Launch OpenManage Enterprise.
2. If you are using OpenManage Enterprise version 3.4 or earlier, click **Power Management** > **Monitored Devices and Groups**.

   If you are using OpenManage Enterprise version 3.5, click **Plugins** > **Power Management** > **Monitored Devices and Groups**.

   The **Monitored Devices and Groups** tab is displayed.
3. Click **Individual Devices** > **Add device(s)**.
   The **Add Devices to Power Manager** page is displayed.
4. View all the devices that are discovered in OpenManage Enterprise by expanding the **SYSTEM GROUPS** section on the left side and in **All Devices** tab, select the devices that you want to add.
5. (Optional) To filter and view the data:
   a. Click **Advanced Filters**.

   The following filters are displayed:

   - **Health State**
   - **Power State**
   - **Connection State**
   - **Name**
   - **Service Tag**
   - **Model**
   - **Type**
   - **Managed State**

6. To clear the filters, click **Clear All filters**.
7. To view the selected devices, click **Selected Devices** tab.
8. To add the devices, click **Add Selected**.
   All the devices added individually to Power Manager are displayed on the **Individual Devices** tab along with the total count of devices that are added to Power Manager.

   All the individual devices and devices that are part of the selected group, are added to Power Manager, and are displayed on the **All Monitored Devices** tab along with the total count of devices.

Adding static groups to Power Manager

To collect and monitor custom static group data, add the groups in Power Manager.

Prerequisites

Ensure that the following prerequisites are met:

- Static groups are created in OpenManage Enterprise. For information about creating groups, see *OpenManage Enterprise User's Guide*.
- The servers that are part of a group must have OpenManage Enterprise Advanced license. For information about adding the license, see *OpenManage Enterprise User's Guide*.
- None of the modular servers that are part of the group are not in a **Proxied** state in OpenManage Enterprise.
- It is recommended that each group contains less than or equal to 40 devices.
- The maximum number of groups that you can add to Power Manager is 500.
- The maximum level of group nesting is 5.

About this task

NOTE: Query groups that are created in OpenManage Enterprise are not supported in Power Manager.

NOTE: After adding a group into Power Manager, only devices that are compatible with Power Manager are added as part of the group. Hence, the data is collected only for these devices in a group. For example, if a group you have added to Power Manager consists of five devices, but only three devices have valid licenses, only three devices are added as part of the group in Power Manager.

To add groups, perform the following steps:

Steps

1. Launch OpenManage Enterprise.
2. If you are using OpenManage Enterprise version 3.4 or earlier, click **Power Management** > **Monitored Devices and Groups**.

   If you are using OpenManage Enterprise version 3.5, click **Plugins** > **Power Management** > **Monitored Devices and Groups**.

   The **Monitored Devices and Groups** tab is displayed.
3. On the **Static Groups** tab, click **Add Group(s)**.
   The **Add Groups to Power Manager** page is displayed.
4. On the left pane, select a group from the **Static Groups** category and click **Add Selected**.
   The groups added to Power Manager are displayed in **Groups** page along with the total count of groups added.

   All the individual devices and devices that are part of the selected group, are added to Power Manager, and are displayed on the **All Monitored Devices** tab along with the total count of devices.

Next steps

If the static groups were created and devices were added to the groups in OpenManage Enterprise before installing Power Manager, and when you add the groups to Power Manager, the total number of servers present in the group is displayed as zero. Click the **Refresh the list for Power Manager capabilities** option on the **Monitored Devices and Groups** tab after running an inventory in OpenManage Enterprise.

For more information about running an inventory, see *OpenManage Enterprise User's Guide*.

Viewing devices and groups added to Power Manager

About this task

To view devices or groups that are added to Power Manager, perform the following steps:

Steps

1. Launch OpenManage Enterprise.
2. Click **Power Management** section, and then click **Monitored Devices and Groups**.
   The **Monitored Devices and Groups** tab is displayed.
3. To refresh the list of devices and groups that are added, click **Refresh the list for Power Manager Capabilities**.
4. To view a device or a group that is added to Power Manager, perform one of the following:
   - To view a static group, click the **Static Groups** tab.
   - To view a physical group, click the **Physical Groups** tab.
   - To view a device, click the **Individual Devices** tab.
   - To view all the devices added to Power Manager as individual devices and as a part of groups, click the **All Monitored Devices** tab.
5. To filter and view the data on any of the tabs:
   a. Click a tab.
   b. Click **Advanced Filters**.
   c. Select a filter category.

   The following filters are displayed for the **Static Groups** and **Physical Groups** tabs:
   - Group Name

   The following filters are displayed for the **Individual Devices** tab:

   - **Health State**
   - **Power State**
   - **Connection State**
   - **Name**
   - **Service Tag**
   - **Model**
   - **Type**
   - **Managed State**

   The following filters are displayed for the **All Monitored Devices** tab:

   - **Health State**
   - **Power State**
   - **Connection State**
   - **Name**
   - **Service Tag**
   - **Model**
   - **Type**
   - **Managed State**
   - **Part of Group**
6. To clear the filters, click **Clear All filters**.
7. To sort any column alphabetically, click the column name so that an arrow is displayed with the column name.

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Maintaining Power Manager

Topics:

Setting preferences

The settings on the page enables you to collect data for the devices and groups added to Power Manager. Set the **Sampling Intervals** according to your data center recommendations and monitor your devices.

About this task

To set the units and sampling intervals, perform the following steps:

Steps

1. Launch OpenManage Enterprise.
2. If you are using OpenManage Enterprise version 3.4 or earlier, click From OpenManage Enterprise, click **Power Management** > **Settings**.

   If you are using OpenManage Enterprise version 3.5, click From OpenManage Enterprise, click **Plugins** > **Power Management** > **Settings**.

   The **Settings** window is displayed.
3. Click **Edit**.
   The **Edit Power Manager Preferences** window is displayed.
4. Select the values for the listed options, and then click **Apply**.

   The following table provides more information about the attributes that are displayed in Power Manager.

Table 7. Power Manager Settings

Field	Description
Data gathering interval	Select the frequency to collect data from devices or groups. Use your data center requirements such as network traffic, and criticality of data to set the data gathering interval. **NOTE:** If you have set the data gathering interval as 15 minutes, and only when the number of devices that are added to Power Manager exceed 1000, the interval automatically changes to 30 minutes. You cannot return this 30 minutes setting to 15 minutes.
Duration of top energy consumers	Select the duration to view the list of devices or groups that consume maximum energy on the OpenManage Enterprise dashboard for the selected duration. Only top five energy consumers are displayed.
Report Duration	View data for the selected duration.

Table 7. Power Manager Settings (continued)

Field	Description
Aggregation Period	Select frequency of the level of detailed information that has to be displayed in reports. **NOTE:** If you select a **Report Duration** other than 1 Day, the **Aggregation Period** is automatically set to **1 Day**.
Delete Power Manager data	Based on your data requirements, select one of the options: • **Yes**—To delete configured alert thresholds and metric data that is collected from devices and groups when they are removed from Power Manager. • **No**—To retain the configured alert thresholds and metric data that is collected from devices and groups when they are removed from Power Manager. **NOTE:** When you add a device or group and set **Delete Power Manager data** to **No**, all Power Manager-related data for that device or group is removed from view but not deleted, when you remove the device or group from Power Manager. When you re-add the device or group, data for that device or group is available again.
Reset WSMAN power metric data	Based on data accuracy requirement, select one of the following options: • **Enabled**—To reset the current cumulative energy consumption (in kWh) for the server or chassis in iDRAC or CMC. This reset depends on the selected **Data gathering interval**. • **Disabled**—To not reset the cumulative energy consumption data in iDRAC or CMC.

NOTE: To delete the data after specific duration, configure the **Data purge interval** option present in the following location: **OpenManage Enterprise** > **Application Settings** > **Console Preferences** > **Metrics Collection Settings**.

The following table provides further information about the mandatory fields and the value range for each field.

Table 8. Details about mandatory data intervals and duration

Field	Mandatory	Value Range
Power Unit	Yes **Watt** is the default unit.	• **Watt** • **BTU/Hr**
Temperature Unit	Yes **Celsius** is the default unit.	• **Celsius** • **Fahrenheit**
Data gathering interval	Yes The default value is **15** minutes.	• **15** • **30** • **60**
Duration of top energy consumers	Yes The default value is **3 Months**.	• **1 Day** • **7 Days** • **15 Days** • **1 Month** • **3 Months** • **6 Months** • **1 Year**
Report Duration	Yes The default value is **3 Months**.	• **1 Day** • **7 Days**

Table 8. Details about mandatory data intervals and duration (continued)

Field	Mandatory	Value Range
		• **15 Days** • **1 Month** • **3 Months** • **6 Months** • **1 Year**
Aggregation Period	Yes The default value is **1 Day**.	**1 Day**
Delete Power Manager data	Yes The default value is **No**.	• **Yes** • **No**
Reset WSMAN power metric data	Yes The default value is **Disabled**.	• **Disabled** • **Enabled**

Updating Power Manager

About this task

To update Power Manager from OpenManage Enterprise, perform the following:

Steps

1. Configure the location of repository to check for updates. For more information, see Configuring OpenManage Enterprise for Power Manager updates.
2. Upgrade Power Manager. For more information, see Upgrading Power Manager.

Configuring OpenManage Enterprise for Power Manager updates

About this task

Check for Power Manager updates at `downloads.dell.com` or an `offline location`. To configure OpenManage Enterprise to view updates, perform the following:

Steps

1. Launch Dell EMC OpenManage Enterprise.
2. Click **Application Settings** > **Console and Extensions**.
   The **Console and Extensions** page is displayed.
3. To configure updates, click **Update Settings**.
   The **Update Settings** page is displayed.
4. In **How to check for updates**, select one of the following options:
   - **Automatic**—automatically check for updates every week. This frequency cannot be changed.
   - **Manual**—manually check for updates.
5. In **Where to check for updates**, select one of the following options and click **Apply**:
   - **Online**—check for updates at `downloads.dell.com`.
   - **Offline**—check for updates at the specified offline source.

     To use an internal network share as an offline update source, download the relevant files from `downloads.dell.com` and save them on a NFS share preserving the same folder structure.

a. In **Local Path**, provide the location of the downloaded files. The format of a network share is: `nfs://<IP Address>/<Folder_Name>`, `http://<IP Address>/<Folder_Name>`, or `https://<IP Address>/<Folder_Name>`.
b. To verify the connection, click **Test now**.

Upgrading Power Manager

Prerequisites

Ensure that the new version of Power Manager is compatible with OpenManage Enterprise.

About this task

To update Power Manager, perform the following steps:

Steps

1. Launch OpenManage Enterprise.
2. Click **Application Settings** > **Console and Extensions**.
   The **Console and Extensions** page is displayed.
3. In the Power Manager section, click **Update Avaiable**.
   The **Update Extension** page is displayed.
4. To view the updates for this version, click the **Release Notes** link.
   The support page is displayed.
5. To download the update, click **Download Extension**.
   The extension is downloaded, and the status of the download is displayed on a green color band.
6. To update Power Manager, click **Update Extension**.

   In the **Confirmation** window, select the **I agree that I have captured the snapshot of the OM Enterprise appliance prior to the upgrade** option, and then click **Update**.

   Information about the number of users using OpenManage Enterprise and details about the jobs running in OpenManage Enterprise are displayed.

   After updating Power Manager the version is displayed on the **Console and Extensions** page at the Power Manager section.

Disabling Power Manager

Disables all the functionality of Power Manager on OpenManage Enterprise. The REST APIs specific to Power Manager are also disabled.

Prerequisites

Ensure that the following prerequisites are met:

- The Emergency Power Reduction (EPR) is not enabled on the device. View the EPR status of all devices and groups on the **Emergency Power Reduction** page.
- There are no active policies.

About this task

NOTE: Disabling a plugin in OpenManage Enterprise restarts the appliance services.

Steps

1. Launch OpenManage Enterprise.
2. If you are using OpenManage Enterprise version 3.4 or earlier, in **Application Settings**, click **Console and Extensions**.

   The Console and extensions page is displayed.

   If you are using OpenManage Enterprise version 3.5, in **Application Settings**, click **Console and Plugins**.

The Console and plugins page is displayed.

3. In the Power Manager section, click the **Disable** option.
   The **Disable** page is displayed.
4. If you are using OpenManage Enterprise version 3.4 or earlier, click **Enable Extension**.
   If you are using OpenManage Enterprise version 3.5, click **Enable Plugin**.
   The **Confirmation** page is displayed.
5. On the **Confirmation** page, select the **I agree that I have captured the snapshot of the OM Enterprise appliance prior to the upgrade** option, and then click **Confirm Disable**.
   Information about the number of users using OpenManage Enterprise and details about the jobs running are displayed.

Results

After disabling Power Manager, you cannot see any information or pages that are related to Power Manager in OpenManage Enterprise.

Enabling Power Manager

All functionalities of Power Manager are enabled in OpenManage Enterprise. The REST APIs specific to Power Manager are also enabled in **OpenManage Enterprise**.

About this task

NOTE: Enabling a plugin in **OpenManage Enterprise** restarts the appliance services.

Steps

1. Launch OpenManage Enterprise.
2. If you are using OpenManage Enterprise version 3.4 or earlier, in **Application Settings**, click **Console and Extensions**.
   The Console and extensions page is displayed.
   If you are using OpenManage Enterprise version 3.5, in **Application Settings**, click **Console and Plugins**.
   The Console and plugins page is displayed.
3. In Power Manager section, click **Enable** option.
   The **Enable** page is displayed.
4. If you are using OpenManage Enterprise version 3.4 or earlier, click **Enable Extesnion**.
   If you are using OpenManage Enterprise version 3.5, click **Enable Plugin**.
   The **Confirmation** page is displayed.
5. In the **Confirmation** page, select **I agree that I have captured the snapshot of the OM Enterprise appliance prior to the upgrade**, and then click **Confirm Enable**.
   Information about the number of users using OpenManage Enterprise and details about the jobs running are displayed.

Removing devices

To stop monitoring the devices, remove them from Power Manager.

Prerequisites

Ensure that the following prerequisite is met:

- The Emergency Power Reduction (EPR) is not enabled on the device.

About this task

NOTE: If a device is removed in **OpenManage Enterprise**, then that device is automatically removed from Power Manager.

NOTE: When a device is added individually and as part of a group to Power Manager, ensure that all the instances of the device are removed from Power Manager to stop monitoring the devices.

To remove a device, perform the following steps:

Steps

1. Launch OpenManage Enterprise.
2. If you are using OpenManage Enterprise version 3.4 or earlier, click **Power Management** > **Monitored Devices and Groups**.

   If you are using OpenManage Enterprise version 3.5, click **Plugins** > **Power Management** > **Monitored Devices and Groups**.

   The **Monitored Devices and Groups** tab is displayed.
3. Click the **Individual Devices** tab.
   The **Individual Devices** tab is displayed.
4. Select the devices that you want to remove and click **Remove Device(s).**
   The **Remove Device** confirmation window is displayed.
5. To confirm removal, click **Remove**.
   The devices are removed from Power Manager.

Removing groups

To stop monitoring the groups, remove them from Power Manager.

Prerequisites

Ensure that the following prerequisite is met:

- Emergency Power Reduction (EPR) option is not enabled on the specific devices that are part of the group.

About this task

To remove a group, perform the following steps:

NOTE: If a group or a specific device in a group is removed from **OpenManage Enterprise**, then the changes are automatically reflected in Power Manager.

NOTE: If a policy is applied on the group, on deletion of the group the policy is also removed from Power Manager.

Steps

1. Launch OpenManage Enterprise.
2. If you are using OpenManage Enterprise version 3.4 or earlier, click **Power Management** > **Monitored Devices and Groups**.

   If you are using OpenManage Enterprise version 3.5, click **Plugins** > **Power Management** > **Monitored Devices and Groups**.

   The **Monitored Devices and Groups** tab is displayed.
3. Click the **Static Groups** tab.
   The **Static Groups** tab is displayed.
4. Select the groups that you want to remove and click **Remove Group(s)**.

   The **Remove Group** confirmation window is displayed.
5. To confirm removal, click **Remove**.
   The groups are removed from Power Manager.

Uninstalling Power Manager

Uninstall Power Manager and delete all the data that is collected by Power Manager.

Prerequisites

Ensure that the following prerequisites are met:

- The Emergency Power Reduction (EPR) is not enabled on the device. View the EPR status of all devices and groups on the **Emergency Power Reduction** page.
- There are no active policies.

About this task

To uninstall Power Manager, perform the following steps:

Steps

1. Launch OpenManage Enterprise.
2. In **Application Settings**, click the **Console and Extensions** tab.
   The **Console and Extensions** page is displayed.
3. In the Power Manager section, click **Uninstall** option.
   The **Uninstall Extension** page is displayed.
4. Click **Uninstall Extension**.
   The **Confirmation** page is displayed.
5. In the **Confirmation** page, select **I agree that I have captured the snapshot of the OM Enterprise appliance prior to the upgrade**, and then click **Confirm Uninstall**.
   Information about the number of users using OpenManage Enterprise and details about the jobs running are displayed.

Results

After uninstalling Power Manager, you cannot see any information or pages that are related to Power Manager on OpenManage Enterprise.

9

Viewing Metrics and Monitoring History in Power Manager

Power Manager provides a visual representation of the data that is collected for all devices and groups.

Prerequisites

Ensure that the following prerequisite is met:

- Devices or groups are added to Power Manager. For more information, see Adding devices to Power Manager and Adding groups to Power Manager.

About this task

To view Power Manager metric, perform the following steps:

Steps

1. From OpenManage Enterprise, perform one of the following steps:
   - For device:
     a. Click **Devices**.

        All the devices that are discovered in OpenManage Enterprise are displayed.

     b. From the list of devices, click a device name.

        The details of the device are displayed on the **Overview** page.

     c. To view Power Manager related information, click **Metrics** page.
   - For group:
     a. Click **Devices** > **Static Groups** > **Group name**.

        All the devices that are part of the static group are displayed.

     b. To view Power Manager related information, click **Group Details**.
2. View metrics and monitoring data in **Metrics and Monitoring History** tab.

   NOTE: For static groups, only the power and thermal data is displayed.

   The power, thermal, CPU, Input Output, memory utilization and system airflow history is indicated in a graphical format.
3. To view a metric, expand the metric and select a duration from the **Duration** drop-down menu. Hover the mouse pointer over the graph to view the maximum, average, and minimum values.

   NOTE: The values are displayed according to the format that you have specified in the **Monitoring Units**, and **Metric gathering interval** in the **Power Manager Preferences** section.

   NOTE: You can view only **Instant temperature** for PowerEdge M1000e, PowerEdge FX2, and PowerEdge FX2s chassis.

   NOTE: You can view only the power, temperature, and system airflow history for PowerEdge AMD processor servers.

   Details of the granular information are as follows based on your selection:

Table 9. Granularity of data

Duration	Granularity of data
6 Hours or **12 Hours** or **1 Day**	Data is displayed based on the **Metric gathering interval** set in the **Preferences** section.

Table 9. Granularity of data (continued)

Duration	Granularity of data
7 Days or **1 Month**	Data is displayed at an interval of one hour.
3 Months or **6 Months** or **1 Year**	Data is displayed at an interval of one day.

4. To view the latest metrics, click the refresh icon.

Table 10. List of Power Manager metrics and supported devices

Metric	Supported devices
Power History	• 12th and later generations of PowerEdge servers (Intel) **NOTE:** Cabled PSU servers are not supported. **NOTE:** PowerEdge Fm120 aqua is not supported. • PowerEdge MX7000 • PowerEdge M1000e • PowerEdge VRTX • PowerEdge FX2 • PowerEdge FX2s
Energy Consumption	• 12th and later generations of PowerEdge servers (Intel) • PowerEdge MX7000 • PowerEdge M1000e • PowerEdge VRTX • PowerEdge FX2 • PowerEdge FX2s
Thermal History	• 12th and later generations of PowerEdge servers (Intel) • PowerEdge MX7000 • PowerEdge M1000e • PowerEdge VRTX • PowerEdge FX2 • PowerEdge FX2s
CPU Utilization	• 13th and later generations of PowerEdge Intel servers • 15th and later generations of Poweredge AMD servers with iDRAC version 4.30.30.30 and later
Input Output Utilization	• 13th and later generations of PowerEdge servers (Intel)
Memory Utilization	• 13th and later generations of PowerEdge servers (Intel)
System Airflow	• Non-modular PowerEdge servers ○ Latest generation of AMD servers with iDRAC Data Center license and iDRAC version 4.10.10.10 and above **NOTE:** 14th generation AMD servers with iDRAC version 4.10.10.10 and above.

10

Manage data center during power reduction

The Emergency Power Reduction (EPR) feature helps reduce power consumption of devices immediately during a power emergency. For example, if there is a power failure occurs and your devices are running on a UPS, you can apply EPR to reduce the power consumption of your managed devices.

EPR also helps in preventing device damage due to overheating in an event of cooling infrastructure failure. Use temperature-triggered policies for enabling EPR on a group of devices when its average inlet temperature crosses a defined threshold value.

NOTE: Applying EPR on the devices throttles down the power to an extremely low level, impacting performance, or shuts down the devices completely. All devices on which an EPR is applied are affected. Use this feature only in an emergency situation.

Following are the EPR options available for servers, chassis, and groups:

- **Throttle**—set to minimal power consumption state.
  NOTE: Only the **Throttle** option is supported for a chassis.
- **Shut down**—shut down the server

After applying EPR on devices and groups, they are marked as **EPR Enabled (Throttle)** or **EPR Enabled (Shut down)** on the devices and groups page. The summary of devices and groups on which EPR is applied is displayed on the **Emergency Power Reduction** page in **Power Manager**.

Topics:

Enabling Emergency Power Reduction

During a power shortage, enable the Emergency Power Reduction (EPR) on devices so that they run on minimal power.

About this task

NOTE: Temperature-triggered EPR cannot be activated manually. When a temperature-triggered policy is active and the group temperature is equal to or exceeds the threshold value, Power Manager automatically applies the EPR.

To enable EPR, perform the following steps:

Steps

1. From OpenManage Enterprise, perform one of the following steps:
   - For device:
     a. Click **Devices**.

        All the devices that are discovered in OpenManage Enterprise are displayed.

     b. From the list of devices, click a device name.

        The details of the device are displayed on the **Overview** page.

     c. To view Power Manager related information, click **Metrics** page.
   - For group:
     a. Click **Devices** > **Static Groups** > **Group name**.

        All the devices that are part of the static group are displayed.

     b. To view Power Manager related information, click **Group Details**.

2. To enable EPR, click the **Policies and EPR** tab, and then click **Apply EPR**.
   In the confirmation screen, select one of the options and click **Apply EPR**.
   - **Throttle**—All selected devices and groups are allowed to consume an extremely low level of power. This settings affects performance.
     NOTE: The throttle option is supported for servers with iDRAC DC or iDRAC Enterprise licenses and chassis.
   - **Shut down**—All selected devices or devices part of the selected group are shut down gracefully.
     NOTE: If a group consists of servers and chassis, and you select the **Shut down** option, then only the servers in the group are shut down. The shut-down option applies only to servers.
3. Click **Yes** on the confirmation screen.
   EPR is enabled on the selected device or group. A red color bar indicator is displayed on the **Policies and EPR** tab along with the type of EPR option applied.

Viewing active Emergency Power Reduction

About this task

To view the list of devices and groups to which Emergency Power Reduction (EPR) is applied, perform the following:

Steps

From OpenManage Enterprise, perform any one of the following:

- To view an EPR applied on a device or a group, click **Devices** tab, click the device name, **Power Management and Monitoring** tab, and then click **Policies and EPR**.
- To view EPRs applied on all devices and groups in Power Manager:

a. If you are using OpenManage Enterprise version 3.4 or earlier, click **Power Management** > **Emergency Power Reduction** .
   If you are using OpenManage Enterprise version 3.5, click **Plugins** > **Power Management** > **Emergency Power Reduction**.

   The **Emergency Power Reduction** tab is displayed.

   The following fields are displayed:
   - **ASSIGNED TO**—Device name or service tag to which the EPR is applied.
   - **ENTITY TYPE**—Type of device. The supported entity types are, devices, and groups.
   - **EPR TYPE**—Type of EPR applied. The supported EPR types are **Throttle** and **Shut down**.
   - **EPR SOURCE**—Source of EPR trigger. You can apply an EPR manually or automatically.
   - **CREATED ON**—Time the EPR was applied.

b. To filter and view the data, click **Advanced Filters**.
   You can filter your data using the following components:
   - **Assigned To**—Filters EPRs based on the device name or service tag.
   - **EPR Source**—Filters the EPR source. The supported filters are, **All**, **Manual**, and **Temperature-triggered**.

c. To sort any column alphabetically, click a column name so that an arrow is displayed with the column name.

Disabling Emergency Power Reduction

To restore the devices or groups to their normal state, disable the Emergency Power Reduction (EPR).

About this task

NOTE: An EPR activated due to temperature-triggered event cannot be disabled manually. After the temperature reduces to the normal value, Power Manager automatically removes the EPR.

To disable a manually applied EPR, perform the following steps:

Steps

1. Launch OpenManage Enterprise.
2. If you are using OpenManage Enterprise version 3.4 or earlier, click **Power Management** > **Emergency Power Reduction** .

If you are using OpenManage Enterprise version 3.5, click **Plugins** > **Power Management** > **Emergency Power Reduction**.

3. Select the devices or groups for which you want to disable EPR, and click **Disable**.

   In the confirmation page, click **Yes**.

   EPR is disabled successfully.

11

Policies

Power Manager supports two types of policies you can use to monitor power and temperature of your data center devices.

Topics:

Static policy

A static policy contains various settings that help regulate the power consumption of a specific device or a group. A power management policy is useful in different situations. For example, you can create a policy to:

- Ensure that power consumption does not exceed the capacity of the circuit.
- Schedule power usage according to the workload of the device or group For example, to reduce the overall power use in your data center, apply an aggressive power cap policy when the workload is low.
- Increase rack density. For example, to increase the rack density or number of devices in a group you can set power cap at group level and add more servers. The policy cap keeps the power within the defined limit.

NOTE: After applying a policy on a group, if you add more devices to the group and the power consumption exceeds the power cap, then you receive alerts in **Alert Log**.

For example, an active policy with power cap value of 1000 Watts is applied on a device, and then another active policy with power cap value of 1500 Watts is applied on the same device, the policy with power cap value of 1000 Watts is applied on the device as this policy is the most restrictive policy.

Temperature-triggered policy

A temperature-triggered policy is used to prevent damage to devices due to overheating in the event of cooling infrastructure failure. It limits the processing capability of the devices in the group, hence reducing the heat generation. The policy helps in maintaining the data center temperature to align to the standards defined by American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE). Create temperature-triggered policy on a group of devices by defining a temperature threshold value. After defining the threshold value and enabling the policy, if the average inlet temperature of the group crosses the temperature threshold value, Power Manager enforces an EPR—Throttle on the group. In the EPR page, the source of EPR is displayed as *Temperature-triggered* —Throttle on the group.

Creating policy

Create a policy to limit the power consumption for devices and groups or apply EPR on devices in a group when the average inlet temperature exceeds the temperature threshold.

Prerequisites

Ensure that the following prerequisites are met:

- Devices or groups are added to Power Manager.

- Servers have the iDRAC and OpenManage Enterprise Advanced license.
  - If a device is PowerEdge VRTX or PowerEdge FX2 chassis, it has a Chassis Management Controller (CMC) Enterprise license.

About this task

To create a policy, perform the following steps:

Steps

1. Launch OpenManage Enterprise.
2. If you are using OpenManage Enterprise version 3.4 or earlier, click **Power Management** > **Policies**.
   If you are using OpenManage Enterprise version 3.5, click **Plugins** > **Power Management** > **Policies**.
   The **Policies** tab is displayed.
3. Click **Create**.
   The **Create Policy** wizard is displayed.
4. In the **General** section, provide the following information and click **Next**.
   a. In **Type**, select the type of policy.
      - **Static policy**—Applies a cap on the power consumption of a device or group.
      - **Temperature-triggered policy**—Applies Emergency Power Reduction (EPR) on a group of devices when its temperature equals or exceeds a specified value.

      NOTE: After a policy is created, you cannot change the type of policy.

      To activate the policy after creation, **Enable** option is selected by default.

   b. Provide a policy name and description.
5. In the **Devices/Groups** section, select the required option:
   - To add a device:

   a. Select the **Device** option and click **Select Device**.
      The **Select Device** page is displayed.
   b. Click **Advanced Filters**.
      The following filters are displayed:
      - **Health State**
      - **Power State**
      - **Connection State**
      - **Name**
      - **Service Tag**
      - **Model**
      - **Type**
      - **Managed State**
      - **Part of Group**

   c. Select the device, and click **Add Selected**.
   - To add a group:

   a. Select the **Group** option and click **Select Group**.
      The **Select Group** page is displayed.
   b. Click **Advanced Filters**.
      The following filters are displayed:
      - **Name**
      - **Type**

   c. To clear the filters, click **Clear All filters**.
   d. Select the group, and click **Add Selected**.

   NOTE: You can select only one device or group when creating a policy.

   NOTE: After you create a policy for a device, you cannot apply the policy to a group. Similarly, after creating a policy for a group, you cannot apply the policy to a device.

6. Click **Next**.
7. For a static policy:

   In the **Policy Settings** section, select the monitoring period from the **Monitoring time period** drop-down menu, and provide the **Power cap** value, and then click **Next**.

   Use the **Power History** section as a reference to set the power cap value.
   - **Power History** for a device—this section displays minimum, average, and maximum power consumption with lower and upper bound values. The values change as you change the duration of **Monitoring time period**.
   - **Power History** for a group—this section displays minimum, average, and maximum power consumption with lower and upper bound values. The minimum, average, and maximum power history of the group is the sum of all the minimum, average, and maximum power consumption of individual devices in the group. The values change as you change the duration of **Monitoring time period**. The upper and lower bound value for a group is the sum of upper bound and lower bound values for all devices part of the group. The **Power Cap** displayed is the sum of all the power cap values of the devices in the group.

   Guidance for providing power cap values:
   - The default **Power Cap Value** displayed is the upper bound value of the device. You can change the **Power Cap** value and the **Power Cap** percentage gets populated automatically.
   - If you change the percentage of **Power Cap** then the **Power Cap** value gets populated automatically.
   - If you change the **Percentage of Range** then the **Power Cap Value** gets populated automatically.
   - For groups, provide the power cap value or percentage of consumption at the group level or at every device level.
   - Provide the power cap value that range between the lower and upper bounds of the device.

   NOTE: For the following list of PowerEdge servers, the **Lower Bound** and **Upper Bound** threshold range values are always static.

   Table 11. Power cap range for servers

Generation of servers	Models	Value Range (Watts)
14th generation	• VxRail G560 • VxRail G560F • PowerEdge C6420 • PowerEdge R6415 • PowerEdge R7415 • PowerEdge R7425	**Zero** to **32767**
13th generation	• PowerEdge C6320 • PowerEdge C6320p	**Zero** to **700**

   For a temperature-triggered policy:

   In the **Policy Settings** section, select a monitoring period from the **Monitoring time period** drop-down menu, select or provide the **Temperature Threshold** value, and then click **Next**.

   Use the **Temperature data** section as a reference to set the temperature threshold value. Based on your selection of **Monitoring time period** value, the temperature summary details are displayed.

   - The values change as you change the duration of **Monitoring time period**.
   - Select your preferred American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) temperature threshold from the **Temperature Threshold** drop-down menu. Based on your ASHRAE class selection, the temperature value is populated.

     Select the ASHRAE standard relevant in your region or provide a custom value in Celsius only.

     - **ASHRAE Recommended**27 degrees Celsius or 81 degrees Fahrenheit
     - **ASHRAE Class A1 Allowable**—32 degrees Celsius or 90 degrees Fahrenheit
     - **ASHRAE Class A2 Allowable**— 35 degrees Celsius or 95 degrees Fahrenheit
     - **ASHRAE Class A3 Allowable**— 40 degrees Celsius or 104 degrees Fahrenheit
     - **ASHRAE Class A4 Allowable**—45 degrees Celsius or 113 degrees Fahrenheit
   - You can also provide a custom temperature threshold value.
8. In the **Policy Schedule** section, provide the following information and click **Next**.

Power Manager enables you to create and apply multiple policies on a specific device or group. At any instance, if multiple policies are active on a device, either by policies set on the device or by policies set on the group the device is a part of, the most restrictive power cap among the policies is applied on the device.

a. For the **Time Span** option, select **Always** for the policy to be active from the time of creation. If the policy does not have to be active always when enabled, click **Range** and provide a time range during which the policy must be active when it is enabled.
b. For the **Day(s)** option, select **Always** for the policy to be active from the time of creation. If the policy does not have to be active always when enabled, click **Daily**, to select specific days on which the policy must be active when it is enabled.
c. For **Active Date** option, select the date range during which the policy must be active when enabled.

NOTE: A temperature-triggered policy cannot be scheduled.

9. In the **Summary** section, view the policy details and click **Finish**.

The policy is created successfully.

The following table provides more information about all the fields in the policy wizard.

Table 12. Policy wizard details

Field	Mandatory	Value Range
Type	Yes By default, the type is selected as **Static**.	• **Static policy** • **Temperature-triggered policy**
Name	Yes	Combination of characters, special characters, and numbers Limit: 1 to 255 characters
Description	No	Combination of characters, special characters, and numbers Limit: 0 to 255 characters
Enable	No By default, the check-box is selected.	• Select • Clear
Monitoring time period	Yes By default, the time period is selected as **1 Day**.	• **1 Day** • **7 Days** • **1 Month** • **3 Months**
For static policy		
Power cap	Yes By default, the power cap is populated with the **Upper Bound** value and **hundred** percent.	Recommended limit: **Lower Bound**-**Upper Bound**
Time Span	Yes By default, the option is selected as **Always**.	**Range** Limit: 12 hours format
Day(s)	Yes By default, the option is selected as **Always**.	**Daily** Select at least one day.
Active Date	Yes	**Range**

Table 12. Policy wizard details (continued)

Field	Mandatory	Value Range
	By default, the option is selected as **Always**.	• **From** • **To** Limit: Current and future dates
For temperature-triggered policy		
Temperature Threshold	Yes By default, the option that is selected is **ASHRAE Recommended**.	• Custom value range: -10 degrees to 60 degrees • **ASHRAE Recommended** • **ASHRAE Class A1** • **ASHRAE Class A2** • **ASHRAE Class A3** • **ASHRAE Class A4**

Viewing policy

View all the policies that are created for devices and groups in Power Manager.

About this task

To view a policy, perform the following steps:

Steps

From OpenManage Enterprise, perform any one of the following:

- To view all the policies created in Power Manager:

  If you are using OpenManage Enterprise verison 3.4 or earlier, click **Power Management** > **Policies**.

  If you are using OpenManage Enterprise verison 3.5, click **Plugins** > **Power Management** > **Policies**.

  The **Policies** tab is displayed.

  Select your category of filters, and view the data. Following is a list of categories available:
  - **State**—Filters the policies based on the state of the policy. The supported filters are **All**, **Enabled**, **Disabled**.
  - **Name**—Filters the policies based on the name of the policy.
  - **Description**—Filters the policies based on description of the policy.
  - **Type**—Filters the policies based on the type of policy. The supported filters are, **All**, **Static**, and **Temperature-Triggered**.
  - **Assigned To**—Filters policies based on device or group it is assigned to.

  To filter and view the data, click **Advanced Filters**.

  To clear the filters, click **Clear All filters**.

  To sort any column alphabetically, click a column name so that an arrow is displayed with the column name.

- To view all the policies created for a device—click **Devices** > **Power Management and Monitoring** > **Policies**

  All the policies applied to the device are displayed with the details.

- To view all the policies created for a group—click **Devices**, click a custom group with static membership, click **Group Details**, and then click **Policies**.

  The policies applied to the group are displayed with the details.

Editing policy

Update a policy based on the changes in power consumption history or average inlet temperature that is generated by the devices or groups.

About this task

When there are changes to a group membership and the group has an active policy, Power Manager notifies you to reevaluate the policy associated with the group.

NOTE: After you create a policy for a device, you cannot apply the policy to a group. Similarly, after creating a policy for a group, you cannot apply the policy to a device.

NOTE: For a temperature-triggered policy, if the temperature threshold value is increased after the EPR is applied, then Power Manager automatically removes the EPR if the updated temperature threshold value is greater than average temperature of the group.

To edit a policy, perform the following steps:

Steps

1. If you are using OpenManage Enterprise version 3.4 or earlier, click **Power Management** > **Policies**.
   If you are using OpenManage Enterprise version 3.5, click **Plugins** > **Power Management** > **Policies**.
   The **Policies** tab is displayed.
2. Select a policy and click **Edit**.
   The power policy wizard is displayed.
   For more information about each field in the wizard, see Creating policy.
3. To save your changes, click **Finish**.
   The changes are saved successfully.

Disabling policy

To remove power consumption or temperature policy limits, disable the relevant policy.

About this task

To disable a policy, perform one of the following steps:

Steps

1. If you are using OpenManage Enterprise version 3.4 or earlier, click **Power Management** > **Policies**.
   If you are using OpenManage Enterprise version 3.5, click **Plugins** > **Power Management** > **Policies**.
   The **Policies** tab is displayed.
2. Perform one of the following methods:
   a. Select the policy that you want to disable, and click **Disable**.
   b. In the confirmation window, click **Yes**.

   OR

   a. Select the policy that you want to disable, and click **Edit**.
      The Create Policy wizard is displayed.
   b. In **General** section, clear the **Enable** check-box and click **Next** until you reach the **Summary** section and then click **Finish**.
      The policy is disabled successfully.

Enabling policy

On enabling a policy, the power or temperature cap is activated on the devices and groups.

About this task

To enable a policy, perform the following steps:

Steps

1. If you are using OpenManage Enterprise version 3.4 or earlier, click **Power Management** > **Policies**.
   If you are using OpenManage Enterprise version 3.5, click **Plugins** > **Power Management** > **Policies**.
   The **Policies** tab is displayed.
2. Enable a policy using any one of the following methods:
   - Select the policy that you want to enable, and click **Enable**.
   - At the time of creation or when editing the policy, select the **Enable** option from **Create Power Policy** wizard.
3. In the confirmation window, click **Yes**.
   The policy is enabled successfully, and a tick mark is displayed against the policy.

Deleting policy

Delete policies that are no longer required.

About this task

When an active policy is deleted, any power consumption restrictions or temperature thresholds that are applied by the policy are also deleted.

NOTE: If you delete an active temperature-triggered policy, the Emergency Power Reduction (EPR) is automatically removed on the group.

To delete a policy, perform the following steps:

Steps

1. If you are using OpenManage Enterprise version 3.4 or earlier, click **Power Management** > **Policies**.
   If you are using OpenManage Enterprise version 3.5, click **Plugins** > **Power Management** > **Policies**.
   The **Policies** tab is displayed.
2. Select a policy that you want to delete, and click **Delete**.
3. In the confirmation window, click **Yes**.
   The policy is deleted successfully.

12

Thresholds

Thresholds enable you to specify warning and critical limits for power and temperature metrics on devices and groups. Power Manager generates alerts through OpenManage Enterprise if the configured limits are violated and you are notified of the violations. The status of power and temperature are displayed in form of graphs on the **Metrics** or **Group Details** tab.

Topics:

Creating Alert Thresholds

To monitor the devices and groups for threshold violations, define the threshold values of power and temperature.

Prerequisites

Ensure that you have added devices or groups to Power Manager.

About this task

To configure alert thresholds for power and temperature, perform the following steps:

Steps

1. From OpenManage Enterprise, perform one of the following steps:
   - For device:
     a. Click **Devices**.

        All the devices that are discovered in OpenManage Enterprise are displayed.

     b. From the list of devices, click a device name.

        The details of the device are displayed on the **Overview** page.

     c. To view Power Manager related information, click **Metrics** page.
   - For group:
     a. Click **Devices** > **Static Groups** > **Group name**.

        All the devices that are part of the static group are displayed.

     b. To view Power Manager related information, click **Group Details**.
2. To set thresholds, click **Alert Thresholds** tab, and click **Edit**.
   The **Edit Alert Thresholds** page is displayed.
3. Provide the threshold values for **Power** and **Temperature**.

   NOTE: When the alert threshold value units are set for power in **BTU/Hr** and temperature in **Fahrenheit**, ensure that you provide only the values and no other special character as the value may change after saving it.

   NOTE: When the power or temperature values exceed the lower or upper warning values, a warning-level alert is generated and forwarded to OpenManage Enterprise.

   NOTE: When the power or temperature value exceeds the lower or upper critical values, a critical-level alert is generated and sent to OpenManage Enterprise.
4. Click **Apply** to save the values.

The thresholds are saved successfully, and the scales are color coded based on the current state of the device or group. View the following tables for each threshold value range.

Table 13. Alert threshold range details for Watt and Celsius scale

Field	Mandatory	Value Range
Power (Watt)		
Upper Warning	No	Limit: 1–29307121 integers
Upper Critical	No	Limit: 1–29307121 integers
Temperature (Celsius)		
Lower Critical	No	Limit: -10 - 60 degrees
Lower Warning	No	Limit: -10 - 60 degrees
Upper Warning	No	Limit: -10 -60 degrees
Upper Critical	No	Limit: -10 to 60 degrees

Table 14. Alert threshold range details for BTU/hour and Fahrenheit scale

Field	Mandatory	Value Range
Power (BTU/hour)		
Upper Warning	No	Limit: 3–99937283 integers
Upper Critical	No	Limit: 3–99937283 integers
Temperature (Fahrenheit)		
Lower Critical	No	Limit: 14-140 degrees
Lower Warning	No	Limit: 14-140 degrees
Upper Warning	No	Limit: 14-140 degrees
Upper Critical	No	Limit: 14-140 degrees

Viewing alert thresholds

View the status of the device or group that is based on the configured alert thresholds.

Prerequisites

Ensure that you have added devices or groups to Power Manager.

About this task

To view the alert thresholds graphs for power and temperature:

Steps

1. From OpenManage Enterprise, perform one of the following steps:
   - For device:
     a. Click **Devices**.

        All the devices that are discovered in OpenManage Enterprise are displayed.

     b. From the list of devices, click a device name.

        The details of the device are displayed on the **Overview** page.

     c. To view Power Manager related information, click **Metrics** page.
   - For group:

a. Click **Devices** > **Static Groups** > **Group name**.

   All the devices that are part of the static group are displayed.

b. To view Power Manager related information, click **Group Details**.

2. View the power and temperature status on the **Alert Thresholds** tab.

   The **Collected At**field displays the last collection time.

   The pointer on the scale gives the average power and thermal data.

   Power Manager displays the minimum and maximum power and temperature values based on the device and the previous readings that were collected. The scale is grayed-out if the thresholds are not set or if the threshold values are cleared off. The upper and lower warning and critical values are displayed only if the threshold values are set. To view more information about any violations, see the **Alert Log** on the **Alerts** page and the **Audit Logs** on the **Monitor** page.

Editing alert thresholds

Update alert thresholds based on changes to device utilization or updates in group membership.

Prerequisites

Ensure that you have added devices or groups to Power Manager.

About this task

To edit the threshold values for a device or a group, perform the following steps:

Steps

1. From OpenManage Enterprise, perform one of the following steps:
   - For device:
     a. Click **Devices**.

        All the devices that are discovered in OpenManage Enterprise are displayed.

     b. From the list of devices, click a device name.

        The details of the device are displayed on the **Overview** page.

     c. To view Power Manager related information, click **Metrics** page.
   - For group:
     a. Click **Devices** > **Static Groups** > **Group name**.

        All the devices that are part of the static group are displayed.

     b. To view Power Manager related information, click **Group Details**.
2. On the **Alert Thresholds** tab, click **Edit**.
   The **Edit Alert Thresholds** page is displayed.
3. Provide the values and click **Apply**.
   Threshold values are updated successfully.

Deleting alert thresholds

To remove the thresholds that are configured on devices or groups, clear all the thresholds.

About this task

To delete alert thresholds, perform the following steps:

Steps

1. From OpenManage Enterprise, perform one of the following steps:
   - For device:

a. Click **Devices**.

   All the devices that are discovered in OpenManage Enterprise are displayed.

b. From the list of devices, click a device name.

   The details of the device are displayed on the **Overview** page.

c. To view Power Manager related information, click **Metrics** page.

- For group:
  a. Click **Devices** > **Static Groups** > **Group name**.

     All the devices that are part of the static group are displayed.

  b. To view Power Manager related information, click **Group Details**.

2. On the **Alert Thresholds** tab, click **Edit**.
   The **Edit Alert Thresholds** page is displayed.
3. To remove all the thresholds, clear all the existing threshold values, and click **Apply**.

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Alerts

An alert is helpful when monitoring thresholds and you want a notification about when the power of a device or a group exceeds the limits set on them or when there are changes to a group you are monitoring.

An alert is generated under the following circumstances:

- When the values cross the defined alert thresholds
- When the values for a device or group come back to normal state.
- When the policy cap of an active policy is violated.
- When there are changes to a group that has an active policy that is applied on it.
- When a policy is applied on a group and if new devices are added or devices are removed from the group.

You can view alerts by going to **OpenManage Enterprise** > **Alerts** > **Alert Log**:

For information about managing the alerts, see *OpenManage Enterprise User's Guide*.

Topics:

Creating Alert Policy

To receive alerts that are related to Power Manager, select the Power Manager specific sub-categories while creating an Alert Policy.

About this task

For information about creating Alert Policy, see *OpenManage Enterprise User's Guide*.

Steps

1. Launch OpenManage Enterprise, and click **Alerts** > **Alert Policies**.
   The **Alert Policies** page is displayed.
2. In **Alert Policies** page, click **Create**.
   The **Create Alert Policy** wizard is displayed.
3. Provide a name and description for the policy.
   To enable the policy after creation, **Enable** option is selected by default.
4. In **Category** section, expand **Application** > **System Health** category and select the following sub-categories for the Power Manager alerts and click **Next**.
   - **Metrics**—to receive alerts on alert threshold violations.
   - **Power Configuration**—to receive alerts on policy cap violations.
5. In **Target** section, select the required Power Manager devices or groups and click **Next**.
6. In **Date and Time** section, provide a period for which the policy has to be active, select the days when the policy should be active, and click **Next**.
7. In the **Severity** section, select the severity level of the alert for which this policy must be activated.
   To select all the severity categories, select the **All** check-box.
8. In **Actions** section, select one or more check-boxes to initiate the actions when the policy is run and click **Next**.
9. In the **Summary** section, review the details that are provided and click **Finish.**
   The alert policy is successfully created and listed in the Alert Policies section.
   For more information about creating and managing the alerts, see *OpenManage Enterprise User's Guide*.

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Widgets for Power Manager

Widgets provide quick access to the power and thermal history of selective groups. They also allow you to, view the maximum energy consumers regarding servers, chassis, and groups.

Topics:

Adding or removing groups from OpenManage Enterprise dashboard to monitor Power Manager data

Add your favorite groups to the dashboard to quickly monitor their power and thermal data.

Prerequisites

Ensure that the following prerequisites are met:

- The groups are added in Power Manager.
- Identify the favorite groups for monitoring.

NOTE: You can add a maximum of three groups to the dashboard.

About this task

To add groups to the **OpenManage Enterprise** dashboard, perform the following steps:

Steps

1. Launch **OpenManage Enterprise**.
2. Click **Home** tab and go to the **Power Manager** section.
3. To add or remove a group to the **Power History** or **Thermal History** graphs, click **Add Groups**.
   The **Add group(s) to dashboard** page is displayed.
4. (Optional) Select or clear the groups using the check-boxes and click **Apply**.

   To filter the groups, expand **Advanced Filters** option. The following categories are displayed:
   - Name
   - Type

   To clear the filters, click **Clear All Filters**.

   The groups are updated in the selected metric graphs.

Viewing top five energy consumers

About this task

View the devices consuming most of the energy in the Power Manager section of the OpenManage Enterprise dashboard.

Steps

1. Launch OpenManage Enterprise, and go to the **Power Manager** section.
2. To view the top five energy consumers, click the **Top Energy Consumers** tab.
3. View data regarding servers, chassis, and groups using the **Filter** drop-down menu.

Viewing power and thermal history of Power Manager groups

About this task

View Power Manager-specific data on the OpenManage Enterprise dashboard.

Steps

1. Launch OpenManage Enterprise, and go to **Power Manager** section.
2. To view the power or thermal history of a group, click the **Power History** or **Thermal History** tab.
   The graph is displayed.
3. (Optional) To change the duration, select an option from the **Duration** drop-down menu.
4. (Optional) To view data for a different group, select a group from the **Group** drop-down menu.
5. (Optional) To refresh the data, click the refresh option.

Viewing ratio of devices discovered in OpenManage Enterprise to devices added in Power Manager

About this task

View the ratio of total devices that are discovered in OpenManage Enterprise and that are compatible with Power Manager to total number of devices that are monitored through Power Manager.

Steps

1. Launch OpenManage Enterprise and go to the **Power Manager** section.
2. To view the ratio, click the **Devices Statistics** tab.

Viewing ratio of devices discovered in OpenManage Enterprise to devices added in Power Manager

About this task

View the ratio of total devices that are discovered in OpenManage Enterprise and that are compatible with Power Manager to total number of devices that are monitored through Power Manager.

Steps

1. Launch OpenManage Enterprise and go to the **Power Manager** section.
2. To view the ratio, click the **Devices Statistics** tab.

Viewing top ten power offenders

Prerequisites

Ensure that you have configured the power and temperature thresholds in **Alert Thresholds** tab under **Metrics** tab for devices, or under **Group Details** for groups.

About this task

To view a list of devices and groups that have violated the defined threshold values of power, run the in-built for **Power Manager: Metric Thresholds Report for Devices** and **Power Manager: Metric Thresholds Report for Groups**. The total violation count for power is the sum of upper warning, and upper critical violation counts. The total violation count for temperature is the sum of upper warning, upper critical, lower warning, and lower critical violation counts.

To view the top offenders, perform the following steps:

Steps

1. Launch OpenManage Enterprise.
2. If you are using OpenManage Enterprise version 3.4 or earlier, click **Power Management** > **Overview** tab.

   If you are using OpenManage Enterprise version 3.5, click **Plugins** > **Power Management** > **Overview** tab.

   The **Overview** tab is displayed.
3. View the **Top 10 Power Offenders** section.
   Device information that is provided by default include details such as device name, service tag, number of times the device has violated the defined power threshold, and nature of violations that are based on the alert threshold values defined.
4. To view the groups that have violated the power threshold, select the **Groups** option from the **Entity Type** drop-down menu.
   Device information that is provided by default include details such as group name, number of times the group has violated the defined power threshold, and nature of violations that are based on the alert threshold values defined.
5. To view devices or groups in a particular violation state, select an option from the **State** drop-down menu.
6. (Optional) To refresh the data, click the refresh option.

Viewing top ten temperature offenders

Prerequisites

Ensure that you have configured the power and temperature thresholds in **Alert Thresholds** tab under **Metrics** tab for devices, or under **Group Details** for groups.

About this task

To view a list of devices and groups that have violated the defined threshold values of power, run the in-built for **Power Manager: Metric Thresholds Report for Devices** and **Power Manager: Metric Thresholds Report for Groups**. The total violation count for power is the sum of upper warning, and upper critical violation counts. The total violation count for temperature is the sum of upper warning, upper critical, lower warning, and lower critical violation counts.

To view the top offenders, perform the following steps:

Steps

1. Launch OpenManage Enterprise.
2. If you are using OpenManage Enterprise version 3.4 or earlier, click **Power Management** > **Overview** tab.

   If you are using OpenManage Enterprise version 3.5, click **Plugins** > **Power Management** > **Overview** tab.

   The **Overview** tab is displayed.
3. To view the devices that have violated the temperature threshold, go to **Top 10 Temperature Offenders** section.
   Device information that is provided by default includes information such as device name, service tag, number of times the device has violated the defined temperature threshold, and nature of violations that are based on the alert threshold values defined.
4. To view the groups that have violated the temperature threshold, select **Groups** option from the **Entity Type** drop-down menu.

Device information that is provided by default includes information such as group name, service tag, number of times the group has violated the defined temperature threshold, and nature of violations that are based on the alert threshold values defined.

5. To view devices or groups in a particular violation state, select an option from the **State** drop-down menu.
6. (Optional) To refresh the data, click the refresh option.

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Reports in Power Manager

Reports contain information about the specific devices or devices part of a group, jobs, alerts, and other elements of your data center. Power Manager supports built-in and user-defined reports. Download these reports to view the status of the Power Manager devices and groups.

You can download the built-in reports in HTML, CSV, PDF, or XLS formats. The following built-in reports available for Power Manager related data through OpenManage Enterprise **Reports** tab:

- **Power Manager: Metric Thresholds Report for Devices**-This report displays the metric and alert threshold details of all Power Manager devices such as device name, device details, metric type, the threshold values set on the devices, and number of times the values have exceeded the defined thresholds.
- **Power Manager: Metric Thresholds Report for Groups**-This report displays the alert threshold details of all the Power Manager groups such as group name, metric type, threshold values set on groups, and number of times the values have exceeded the defined thresholds.
- **Power Manager: Policies Report of Groups**-This report displays all the Power Manager policies details such as group name, policy name, policy type, whether the policy enabled, policy active, power cap, temperature threshold, and violations.
- **Power Manager: Power and Thermal Report of Devices**-This report displays all the power and temperature details of Power Manager devices such as device name, device details, power and temperature values, energy consumed and what time the data was collected.
- **Power Manager: Power and Thermal Report of Groups**-This report displays all the power and temperature details of Power Manager groups such as the group name, power and temperature values of groups, energy consumed and what time the data was collected.

Also, you can create or build customized reports with Power Manager details along with other device details from OpenManage Enterprise.

Definitions and attributes that are used for a built-in report cannot be edited or deleted. But, you can edit or delete the user-defined reports.

For information about running and emailing reports, or deleting custom reports, see *OpenManage Enterprise User's Guide*.

NOTE: The reports are generated based on your selection for **Report Duration** and **Aggregation Period** in **Power Manager Settings** page.

Topics:

Create custom report

View a detailed report for specific devices or devices part of a group by creating custom reports.

About this task

NOTE: If custom reports are created along with Power Manager categories, these categories are hidden when Power Manager is disabled or deleted when Power Manager is uninstalled.

To create custom report, perform the following steps:

Steps

1. Launch **OpenManage Enterprise**, click **Monitor** > **Reports**.
   The **Reports** page is displayed.
2. To create a custom report, click **Create**.
   The **Report Definition** page is displayed.
3. Provide a name and description, and then click **Next**.
4. In **Category**, select one of the following and in the confirmation screen click **Yes**:

- To view data of Power Manager devices:
  a. Select **Power Manager Devices**.
  b. In the confirmation page, click **Yes**.
  c. In **Device Group**, select the required system groups or search for devices using the search box.
- To view data of Power Manager groups:
  a. Select **Power Manager Groups**.
  b. In the confirmation page, click **Yes**.

5. (Optional) To create a query, click **Edit** in **Filter** section. Create the queries and click **Finish**. For more information about creating a query, see *OpenManage Enterprise User's Guide*.
6. In **Column Selection**, **Ordering**, and **Sorting**, expand the category, select the required fields using the check-box to add them into the **Column Order** box.

   The **Device Metric Threshold**, and **Device Power and Thermal Metrics** are populated only for Power Manager devices.

   The **Group**, **Group Metric Threshold**, **Group Power and Thermal Metrics**, and **Group Power Policy** columns are populated only for Power Manager groups.

7. To sort by fields, use the **Sort by** drop-down menu and to sort the values in ascending and descending order, use the **Direction** drop-down menu.
   - If you have selected any column from **Metric Threshold** collection, select the **Metric Type** of information you want to see.
   - If you have selected any column from **Power and Thermal Metrics** collection, select the **Report Duration** and **Aggregation Period** to view the information.

   NOTE: When creating a custom report, ensure that you select the **Aggregation Period** as **Daily** if the **Report Duration** is anything other than **1 Day**.

8. Review the fields added, and then click **Finish**.

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Frequently Asked Questions

Why am I not able to view the metrics?

Cause: After removing the required iDRAC or DC License, or the OpenManage Enterprise Advanced Feature license, the license-dependent features are not available on the User Interface (UI). Hence, the metric is not available, and the values are not collected by Power Manager from the next inventory cycle.

Why do I see two entries with the same date in the graph when the time duration was chosen for showing the graph is changed?

Cause: When viewing the **Metrics and Monitoring History** graphs for 3 months, 6 months, or 1 year the data is auto-converted from UTC time zone to your current time zone and displayed. And, due to the time zone differences, there are two entries for the same day on the graphs. Hence, the last entry is for the current day, and the last but one entry is for the previous day.

Why do I see slight variations in values of power and temperature in Alert Thresholds section?

Cause: When the power and temperature values are provided in BTU/Hour and Fahrenheit, they are converted to Watt and Celsius. When displaying the values, they are reconverted and rounded off to the next highest numbers and displayed. Hence, the values are slightly higher when displayed in BTU/Hour and Fahrenheit scale.

Why are there same number of power cap or threshold violations for all the entries in my report?

Cause: For an in-built or custom report which consists of Violation attribute along with Time Stamp attribute, the violation count that is displayed for all the entries is always for the latest value.

Why do I see blank entries for total energy consumed in reports or metrics graphs?

Cause: The **Total Energy Consumed** field has no entry for servers and PowerEdge MX7000 devices due to the following reasons:

- After the first metric collection the energy consumption value is not available yet and hence, the second metric collection has to happen.
- If you change **Data gathering interval** to 60 minutes, then for 60 minutes duration Energy Consumption cannot be calculated. This happens when data is collected for a day with hourly granularity for reports.
- If power metric in iDRAC is reset during the interval that is chosen, and the latest reading has a lower value than the oldest reading.

Why do I not see all metric types for different types of devices?

Cause: Different devices support different types of metrics.

Table 15. List of supported devices and metrics

Device Type	Supported Metrics
12th generation of PowerEdge servers	• Maximum, minimum, and average power • Maximum and average temperature • System airflow • Energy consumption
13th generation and 14th generation of PowerEdge servers	• Maximum, minimum, and average power • Maximum and average temperature • Maximum, minimum, and average CPU utilization • Maximum, minimum, and average Input Output utilization • Maximum, minimum, and average Memory Utilization • System airflow • Energy consumption
PowerEdge M1000e, VRTX, FX2, and FX2s chassis	• Maximum, minimum, and average power • Instant temperature • Energy consumption
PowerEdge MX7000 chassis	• Maximum, and minimum power • Maximum and minimum temperature • Energy consumption

NOTE: Modular servers do not support **System Airflow** values.

Also, if all the criteria is met and still you are not able to view **Power Manager** data, ensure that the **Server Power Monitoring** feature is enabled on the device you are discovering. To view the discovery log of a device:

1. In OpenManage Enterprise, click **Monitor** > **Jobs**.

   The **Jobs** page is displayed.

2. Search for the discovery type job for the device and select the job.
3. Click the **View Details** on the right side of the tab.

   Details about the job are displayed.

   In the **Messages:** section, check the status for **Server Power Monitoring** feature.

   NOTE: If the **Server Power Monitoring** feature is disabled, then the device is not compatible with **Power Manager**.

Why do I see a failure of EPR in audit log but EPR is applied successfully for the device?

Cause: Applying EPR on the target device may fail due to the following reasons:

- Connectivity issues between the appliance and the target device
- If the target device is part of Power Manager with an expired license.

Why do I see a failure of EPR in audit log but EPR is applied successfully for the group?

Cause: When EPR option is applied for a group, and if the EPR option is applied successfully for at least one device in the group, we can see the EPR banner at the group level. However, the EPR option may fail on other devices of the group due to connectivity issues or license expiry and so on. Hence, there are EPR audit logs for successful and failure scenarios for all devices of the group.

Why are devices not listed for addition to Power Manager?

Cause: You cannot view certain devices in Power Manager because of the following reasons:

- If devices do not have OpenManage Enterprise Advanced license.
- If the devices are discovered in OpenManage Enterprise, and then Power Manager is installed, then the devices are not displayed in Power Manager until you **Run Inventory** on OpenManage Enterprise.
- Devices like switches, storage sleds, Input/Output Modules are not supported in Power Manager.
- Servers that are discovered through the Operating System(In-Band) are not supported in Power Manager.

Why can I not install Power Manager?

Cause: There are two cases in which the installation of Power Manager may fail:

- If you have selected the online updates option in OpenManage Enterprise, check for the connectivity for the online path is successful.
- If you have selected the offline updates option in OpenManage Enterprise, ensure that the `ome_powermanager_1.0.0.tar.gz` folder has all the files for extension catalog with the sign file and the extension installer packages, including the RPMs. The installation fails if there is a mismatch between the catalog and .tar files.

Why can I not disable or uninstall Power Manager?

Cause: If active policies or EPR option is enabled, you cannot disable or uninstall Power Manager.

Resolution: Disable the active policies and EPR option and then try to disable or uninstall Power Manager.

Why are policies being disabled when too many policies are selected for deletion or disable or enable?

Cause: When you select multiple policies for enabling or disabling or deleting, the job is initiated. However, the policies are disabled on the User Interface (UI) until the action is complete. After the job is complete, there are entries to the audit logs for these actions.

Why cannot I remove some devices or groups from Power Manager?

Cause: If you have applied Emergency Power Reduction (EPR) option on the device or a group, then you cannot remove the device or group from Power Manager.

Resolution: Disable the EPR option on the device or group, and then remove them from Power Manager.

Why is Power Manager not listed on Console and Extensions page?

Cause: Power Manager may not be listed due to the following reasons:

- The offline share folder is not accessible.
- Power Manager extension and tar folder.s are not present in the offline share folder
- If the extension catalog file is edited, then the signature files get corrupted.

Resolution: Ensure that the offline share folder is reachable through OpenManage Enterprise with the following files:

- `ome_powermanager_1.0.0.tar.gz`
- `plugins_catalog`
- `plugins_catalog.json.asc`

Also, download the `plugins_catalog` file and replace it with the corrupt file.

Why can I not apply Policies on some devices or groups?

Cause: You can apply policy only on devices that are supported by Power Manager having valid license and that are added to Power Manager.

You can apply policies on supported PowerEdge servers with iDRAC Enterprise, PowerEdge FX2, FX2s, and VRTX chassis with CMC Enterprise license.

NOTE: PowerEdge M1000e and PowerEdge MX7000 chassis do not require CMC Enterprise license.

Why are some alerts not being forwarded using SNMP?

Cause: The following events are not forwarded as SNMP alerts:

- Device membership or group membership changes
- Device management such as change in license status

Alerts are generated by OpenManage Enterprise or Power Manager, that is displayed in the `system health` category and `metric/power configuration` subcategory the SNMP trap forwarding is not supported.

Why some email alerts are not getting forwarded?

Cause: The following events are not forwarded as SNMP alerts:

- Device membership or group membership changes
- Device management such as change in license status

SNMP trap forwarding is not supported.

Why are some of the devices getting automatically removed from Power Manager?

Cause: If the OpenManage Enterprise Advanced license has expired or is removed from a target node, then the device is removed from Power Manager after the device capability check is run.

Why do I not see temperature metric for some devices?

Cause: Temperature metric is not visible for devices if they are powered off.

Why can I not select a particular child group?

Cause: When you select a group, all the child groups within this group are also selected. But when you clear a child group the selection gets cleared at the main group level also.

Why am I seeing `No Data Available` or `No Information available` message for some devices metrics?

Cause: When the first metric collection has not yet happened or if the device is not reachable the following message is displayed: `No Data Available`

When a device is not added to Power Manager even though it is a supported device, the following message is displayed: `No Information available`.

Why are some of the fields in reports empty?

Cause: The fields may be empty in a report due to the following reasons:

- When the device was not reachable for that duration.
- When that category is not applicable for that device.
- When the values are not defined for certain fields in Power Manager and these fields are part of the report.

  For example, when you have not configured the power and temperature threshold values for a device, the following fields are added to the report, but the values are not populated:
  - Upper Warning Power
  - Upper Critical Power
  - Lower Critical Temperature
  - Lower Warning Temperature
  - Upper Warning Temperature
  - Upper Critical Temperature

If you have configured the above threshold values and only when the threshold values are violated, the following fields are populated and displayed in the report:

- Lower Critical Violation Count
- Lower Warning Violation Count
- Upper Critical Violation Count
- Upper Warning Violation Count

Why do I not see regular metric data points in the metric graphs?

Cause: A metric graph having irregular metric points indicate that data was not collected for that device at that duration of time.

Why can I not clear the check box for policies?

Cause: The checkbox for policies in **Power Policies** page is disabled if that policy is being enabled or disabled or edited. After the job is completed, you can clear the policy.

How do I see the old metric data?

Cause: The old metric data is not available after a few days because the data is deleted. This configuration depends on the selection of **Delete Power Manager data** option available in **Power Manager Preferences** section.

Why are the values I set using threshold REST API not configured?

Cause: If you use threshold REST API before installing and adding the devices to Power Manager, the values are not retained.

Resolution: Install and add the devices to Power Manager, and then use the threshold REST APIs.

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Troubleshooting

Why cannot I apply Emergency Power Reduction (EPR) on target device or a group?

Scenario:

When you are trying to apply EPR on a device, the EPR operation may fail and there is an entry in the **Audit Logs**.

When you are trying to apply EPR option on a group, the EPR operation may fail with the following error message: `Unable to enable the Emergency Power Reduction feature because target devices are unavailable in the group.`

Resolution:

Ensure that all the following conditions are met:

- There is at least one device in the group that is eligible for applying EPR.
- **Throttle** option is applicable for the following devices:
  - If the device is a server, then iDRAC Enterprise license is applied.
  - If the device is PowerEdge M1000e or PowerEdge MX7000 chassis.
- **Shutdown** option is applicable only for servers.

Power and temperature units are not updated on UI

Scenario: When you change the power and temperature units in Power Manager through REST APIs and check the UI, the updates are not reflected on the UI.

Resolution:

After changing the power and temperature units, go to the **Power Manager Settings** page and then view the **Metrics** tab.

Why is OpenManage Enterprise unresponsive when I try to perform extension lifecycle-related actions (install/uninstall/enable/disable)?

Scenario:

After rebooting OpenManage Enterprise appliance, if you try to perform any extension lifecycle-related actions for Power Manager, the job is initiated in the back-end but you still see the **Console and Extensions** page. And, the following message is displayed after some time: `This page isn't working`

Resolution:

Wait for some time, and view the status. The extension lifecycle-related action is completed successfully.

Power cap value or the percentage for MX 7000 chassis is not updated when either one of the entries is changed

Scenario:

For an MX7000 chassis, the power cap value is displayed as same as the upper bound value. When you manually change the power cap percentage, the value is not updated and even if you change the value, the percentage is not updated.

Resolution:

Provide the power cap value, and save the policy. The policy imposes the specified power cap value on the selected devices or groups.

Power policy not updated after the changes

Scenario:

When the time span of an active policy is changed, the policy is not disabled on the device.

Resolution:

Resolve the issue using one of the following methods:

- Manually disable the policy on the device.
- Disable the policy in Power Manager, change the time span, and then enable the policy.

Events not generated for alert thresholds

Scenario:

Events are not generated for the following combination of temperature threshold violations:

- Lower Warning to Upper Warning
- Lower Critical to Upper Critical
- Upper Warning to Lower Warning
- Upper Critical to Lower Critical

Resolution:

Provide realistic warning and critical values so that there are no immediate alert generating temperature changes.

Error when removing a device from a group using REST API

Scenario:

When you try to remove a device that is part of multiple groups using the REST API, then an error message is displayed.

Resolution:

To remove a device that is part of multiple groups, remove the device from the group in OpenManage Enterprise. The changes are automatically reflected in Power Manager.

Multiple alerts for group membership changes in Audit Logs

Scenario:

Multiple entries on group membership changes in **Audit Logs**.

Resolution:

When there are updates to the static group membership through OpenManage Enterprise, there are multiple entries of this update in the **Audit Logs** and **Alert Log**.

Ignore action not working for groups-related alerts

Scenario:

When you select the **Ignore** option for a group alert in **Alert Log** page, you still receive the alerts. Only the alerts for the first device of the group are ignored.

Resolution:

Create an alert policy by selecting the group for which you want to ignore the alerts by selecting the **Ignore** option in **Create Alert Policy** wizard.

Policy not deactivated

Scenario:

When scheduling a power policy for a single day, the policy does not deactivate later.

Resolution:

To deactivate the policy, perform one of the following actions:

- In **Power Management** > **Power Policies** page, select the policy and click **Disable**.
- In **Power Management** > **Power Policies** page, select the policy and click **Edit**. In **Create Power Policy** wizard, clear the selection for **Enable** option and save the policy.

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Other information you may need

In addition to this guide, you can access the following documents that provide more information about Dell EMC OpenManage Enterprise Power Manager and other related products.

Table 16. Other information you may need

Document	Description	Availability
Dell EMC OpenManage Enterprise Power Manager Release Notes	Provides information about known issues and workarounds in Power Manager.	1. Go to Dell.com/OpenManageManuals. 2. Click **Dell OpenManage Enterprise** and select the required version of OpenManage Enterprise. 3. Click **Manuals & documents** to access these documents.
Dell EMC OpenManage Enterprise Power Manager REST API Guide	Provides information about integrating Power Manager by using Representational State Transfer (REST) APIs and also includes examples of using REST APIs to perform common tasks.	
Dell EMC OpenManage Enterprise User's Guide	Provides information about using the features of OpenManage Enterprise.	
Dell EMC OpenManage Enterprise Release Notes	Provides information about known issues and workarounds in OpenManage Enterprise.	
Dell EMC OpenManage Enterprise Support Matrix	Lists the devices that are supported by OpenManage Enterprise.	
Dell EMC OpenManage Enterprise and OpenManage Enterprise - Modular Edition RESTful API Guide	Provides information about integrating OpenManage Enterprise by using Representational State Transfer (REST) APIs and also includes examples of using REST APIs to perform common tasks.	