

# Dell EMC OpenManage Enterprise Power Manager Version 1.0

User's Guide

## Notes, cautions, and warnings

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

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

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

# Contents

<b>Chapter 1: Introduction to Power Manager</b> .....	<b>5</b>
<b>Chapter 2: Features of Power Manager</b> .....	<b>6</b>
<b>Chapter 3: Compatibility for Power Manager</b> .....	<b>7</b>
Role-based user privileges for Power Manager.....	8
<b>Chapter 4: License requirements for Power Manager</b> .....	<b>10</b>
<b>Chapter 5: Use case in Power Manager</b> .....	<b>11</b>
<b>Chapter 6: Getting started with Power Manager</b> .....	<b>12</b>
Installing Power Manager.....	12
Adding devices to Power Manager.....	12
Adding groups to Power Manager.....	13
<b>Chapter 7: Maintaining Power Manager</b> .....	<b>14</b>
Setting preferences in Power Manager.....	14
Disabling Power Manager .....	15
Enabling Power Manager .....	16
Removing devices.....	16
Removing groups.....	16
Uninstalling Power Manager .....	17
<b>Chapter 8: Viewing Metrics and Monitoring History in Power Manager</b> .....	<b>18</b>
<b>Chapter 9: Managing power policies</b> .....	<b>20</b>
Creating policy.....	20
Viewing policy.....	21
Editing policy.....	22
Disabling policy.....	22
Enabling policy.....	22
Deleting policy.....	22
<b>Chapter 10: Managing Emergency Power Reduction</b> .....	<b>23</b>
Applying Emergency Power Reduction.....	23
Disabling Emergency Power Reduction.....	24
<b>Chapter 11: Thresholds</b> .....	<b>25</b>
Creating Alert Thresholds.....	25
Viewing Alert Thresholds.....	26
Editing Alert Thresholds.....	26
Deleting Alert Thresholds.....	27

<b>Chapter 12: Alerts.....</b>	<b>28</b>
Creating Alert Policy .....	28
<b>Chapter 13: Scalability and performance.....</b>	<b>29</b>
<b>Chapter 14: Widgets for Power Manager.....</b>	<b>30</b>
Adding groups in <b>OpenManage Enterprise</b> dashboard for monitoring Power Manager related data .....	30
Viewing Power Manager data on OpenManage dashboard.....	30
<b>Chapter 15: Reports in Power Manager.....</b>	<b>31</b>
Viewing and downloading reports.....	31
Emailing reports.....	32
Create custom report in Power Manager.....	32
Editing custom reports in Power Manager.....	33
Deleting custom reports in Power Manager.....	33
<b>Chapter 16: Frequently Asked Questions.....</b>	<b>34</b>
<b>Chapter 17: Troubleshooting.....</b>	<b>39</b>
<b>Chapter 18: Other information you may need.....</b>	<b>42</b>

# Introduction to Power Manager

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

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

# Features of Power Manager

This chapter provides a brief list of Power Manager features.

- Set your preferences to collect data from the devices added to Power Manager using the **Power Manager Settings** page.
- Monitor the following metrics for all the supported devices that are added individually and added as part of a group to Power Manager using **Metrics and Monitoring History** feature:
  - **Power History**
  - **Temperature History**
  - **CPU Utilization**
  - **Input Output Utilization**
  - **Memory Utilization**
  - **System Airflow**
- Create and maintain power policies that enable you to set a power cap on the power consumption of the devices or devices that are part of a group using the **Policies** feature.
- Disable Power Manager extension settings, configurations, and files without uninstalling the extension using **Disable** feature and restore all the configurations and files using the **Enable** feature.
- Throttle down the power consumption on or shut down the specific devices or devices that are part of a group during an emergency using **Emergency Power Reduction (EPR)** feature.
- Create threshold limits for power and temperature specifying warning and critical limits for the specific devices or devices that are part of a group using the **Alert Threshold** feature.
- Generate predefined or custom reports to view power and thermal consumption of the specific devices or devices that are part of a group using **Reports** feature.
- Add Power Manager groups to Dell EMC OpenManage Enterprise dashboard to have quick access to monitor them.
- Generate events in Power Manager through **Alert Log** when there are threshold violations or group membership changes.
- Log all activities of Power Manager through **Audit Logs** in **System Health** category, and **Metrics** and **Power Configuration** subcategories.

# Compatibility for Power Manager

Following are the Dell EMC PowerEdge servers and chassis supported in Power Manager:

**Table 1. Supported servers and chassis models**


Category	Validated Model
Server	<ul style="list-style-type: none"> <li>• PowerEdge R320 Server</li> <li>• PowerEdge R420 Server</li> <li>• PowerEdge R520 Server</li> <li>• PowerEdge R620 Server</li> <li>• PowerEdge R720 Server</li> <li>• PowerEdge R720xd Server</li> <li>• PowerEdge R820 Server</li> <li>• PowerEdge R830 Server</li> <li>• PowerEdge R920 Server</li> <li>• PowerEdge M620 Server</li> <li>• PowerEdge M520 Server</li> <li>• PowerEdge T320 Server</li> <li>• PowerEdge T420 Server</li> <li>• PowerEdge T620 Server</li> <li>• PowerEdge R330 Server</li> <li>• PowerEdge R430 Server</li> <li>• PowerEdge R440 Server</li> <li>• PowerEdge R530 Server</li> <li>• PowerEdge R530XD Server</li> <li>• PowerEdge R540 Server</li> <li>• PowerEdge R630 Server</li> <li>• PowerEdge R730 Server</li> <li>• PowerEdge R730Xd Server</li> <li>• PowerEdge R930 Server</li> <li>• PowerEdge R640 Server</li> <li>• PowerEdge R740 Server</li> <li>• PowerEdge R740XD Server</li> <li>• PowerEdge R840 Server</li> <li>• PowerEdge R940 Server</li> <li>• PowerEdge R940xa Server</li> <li>• PowerEdge M630 Server</li> <li>• PowerEdge M640 Server</li> <li>• PowerEdge M830 Server</li> <li>• PowerEdge T330 Server</li> <li>• PowerEdge T430 Server</li> <li>• PowerEdge T440 Server</li> <li>• PowerEdge T630 Server</li> <li>• PowerEdge FC430 Server</li> <li>• PowerEdge FC630 Server</li> <li>• PowerEdge FC640 Server</li> <li>• PowerEdge FC830 Server</li> <li>• PowerEdge C6420 Server</li> <li>• PowerEdge MX740C Server</li> <li>• PowerEdge MX840C Server</li> </ul>

**Table 1. Supported servers and chassis models (continued)**

Category	Validated Model
	<ul style="list-style-type: none"><li>• PowerEdge R340 Server</li><li>• PowerEdge T340 Server</li><li>• PowerEdge R740xd2 Server</li></ul>
Chassis	<ul style="list-style-type: none"><li>• PowerEdge M1000e</li><li>• PowerEdge VRTX Blade Enclosure</li><li>• PowerEdge FX2/FX2s</li><li>• PowerEdge MX7000</li></ul>

**Supported protocols**

- Power Manager supports only WSMAN protocol for servers and chassis.
- Power Manager supports only REST protocol for PowerEdge MX7000 chassis.

 **NOTE:** Power Manager version 1.0 is supported on OpenManage Enterprise versions 3.2, 3.2.1 and 3.3

**Supported hardware:**

**Table 2. Minimum required hardware**

Minimum recommended hardware	Large deployments	Small deployments
Number of devices that can be managed by Power Manager	Up to 3000	1000
RAM	16 GB	16 GB
Processors	8 cores	4 cores
Hard drive	250 GB	250 GB

**Supported web browsers:**

- Google Chrome 58 and later
- Mozilla Firefox 57 and later
- Microsoft Internet Explorer 11 and later (64-bit)

**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.

**Topics:**

- [Role-based user privileges for Power Manager](#)

## Role-based user privileges for Power Manager

Users are assigned roles which determine their level of access to Power Manager and device management features. This is termed as Role-Based Access Control (RBAC). This is a common list of RBAC for users based on their roles and Power Manager features. Therefore, the console enforces one role per account.

**Table 3. 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



**Table 3. Role-based user privileges for Power Manager (continued)**

<b>Features</b>	<b>Admin user</b>	<b>Device Manager</b>	<b>Viewer</b>
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 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

## License requirements for Power Manager

Use OpenManage Enterprise Advanced license to work with all the features of Power Manager. The following table depicts the license combination that is required to use Power Manager.

**Table 4. License capability with servers**

OpenManage Enterprise Advanced License	iDRAC Basic License	iDRAC Express License	iDRAC Enterprise License	Monitoring of devices and groups	Management of devices and groups
No	Yes	No	No	No	No
No	No	Yes	No	No	No
No	No	No	Yes	No	No
Yes	Yes	No	No	No	No
Yes	No	Yes	No	Yes	No
Yes	No	No	Yes	Yes	Yes

**Table 5. License capability with chassis**

Chassis Models	CMC Enterprise License	Monitoring	Power policy	Emergency Power Reduction (EPR)
PowerEdge VRTX	No	Yes	No	Yes
PowerEdge VRTX	Yes	Yes	Yes	Yes
PowerEdge FX2 or PowerEdge FX2s	No	Yes	No	Yes
PowerEdge FX2 or PowerEdge FX2s	Yes	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 is expired on or is deleted from the target devices, the devices are removed from Power Manager. You must 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 expired or deleted license, then you cannot access this device through Power Manager. To disable EPR, go to the iDRAC or CMC page of the device and remove the EPR.
- If a policy and alert thresholds are set on a device, and the device is removed from Power Manager due to expired or deleted license, then the policy and the threshold is removed for the device.

Licensing behavior in Power Manager for groups:

- For a group, only the devices that have valid license are added as part of the group into Power Manager. Hence, the metrics are collected only for these devices in the group.
- If the OpenManage Enterprise Advanced license is expired on or deleted from the target devices that are part of a group, the devices are removed from Power Manager. After adding the license, these devices are automatically added to Power Manager in the next inventory cycle.
- If EPR is enabled on a group, and if license has 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 part of the group from Power Manager.

# Use case in Power Manager

Ensure that the following prerequisites are met:

1. Discover the devices in Dell EMC OpenManage Enterprise. For more information, see *OpenManage Enterprise User's Guide*.
2. After discovering the devices, create static groups in Dell EMC OpenManage Enterprise. For more information, see *OpenManage Enterprise User's Guide*.

**i** **NOTE:** Create static groups for Power Manager based on hierarchy such as data centers, rooms, aisle, racks, chassis, and servers.

This section provides a standard scenario to help administrators to get started with Power Manager. Use Power Manager for monitoring, viewing power and temperature data of devices for specific time slots by creating policies and setting thresholds.

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

**i** **NOTE:** Only the devices that are supported by Power Manager are 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, 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 power consumption on devices or groups.
- During a power emergency, minimize the power consumption using the [Emergency Power Reduction](#) feature.
- Generate [alert thresholds](#) through Power Manager by configuring the warning and critical values for target devices or groups.
- Run the built-in or customized [reports](#) to view more details of the devices or groups.
- To view the various categories of [alerts](#) that are generated by Power Manager see **Alert Logs** and **Audit Logs**.
- To quickly view history of few groups, add them to OpenManage Enterprise dashboard using [widgets](#).
- To view top energy consumers, see OpenManage Enterprise dashboard using the [widgets](#).
- To view the number of total devices compatible with Power Manager and total devices that are managed by Power Manager, see **Power Manager Devices Statistics** graph on OpenManage Enterprise dashboard.

# Getting started with Power Manager

## Topics:


- [Installing Power Manager](#)
- [Adding devices to Power Manager](#)
- [Adding groups to Power Manager](#)

## Installing Power Manager

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


Ensure that the following prerequisite is met:

- Connectivity to the repository is successful:
  - For online, `downloads.dell.com` portal
  - For offline, server is configured with required extension catalog and extension installation files.

 **NOTE:** Installing an extension on OpenManage Enterprise restarts the appliance services.

To install the extension, perform the following steps:

1. Launch Dell EMC OpenManage Enterprise.
2. In **Application Settings**, click **Console and Extensions**.  
The Console and Extensions page is displayed.
3. In **Power Manager** section, click **More Actions > Install**.  
The **Install Extension** window is displayed.
4. Review and ensure that you meet the list of prerequisites that are mentioned in the **Prerequisite** section.

 **NOTE:** The lists of prerequisites change as you select the version of extension that you want to install.

5. 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**.  
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 **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 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** on OpenManage Enterprise, and then click **Refresh Power Manager capabilities** option on **Power Manager Settings** page.
- View the count of overall power capable devices from **Power Manager Devices Statistics** section of OpenManage Enterprise dashboard.

## Adding devices to Power Manager

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


Ensure that the following prerequisites are met:

- Devices are discovered in OpenManage Enterprise. For information about discovering devices, see *OpenManage Enterprise User's Guide*.
- Servers have **OpenManage Enterprise Advanced** license. For information about adding the license, see *OpenManage Enterprise User's Guide*.
- The modular server is not in **Proxied** state in OpenManage Enterprise.


 **NOTE:** To view the Power Manager capable devices immediately, **Run Inventory** on OpenManage Enterprise.

To add the devices, perform the following steps:

1. Launch OpenManage Enterprise.
2. In **Application Settings**, click **Console and Extensions**.  
The **Console and Extensions** page is displayed.
3. In Power Manager section, click **More Actions > Settings**.  
The **Power Manager Settings** window is displayed.
4. Click **Individual Devices > Add device(s)**.  
The **Add Devices to Power Manager** window is displayed.
5. Select the devices that you want to add.

 **NOTE:** To view the selected devices, click **Selected Devices**.

6. To add the devices, click **Add selected**.  
All the devices added individually to Power Manager are displayed on the **Individual Devices** page along with the total count of devices that are added to Power Manager.

 **NOTE:** 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** page along with the total count of devices.

## Adding groups to Power Manager

To collect and monitor data of custom static groups, add the groups into Power Manager.

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 the group must have OpenManage Enterprise Advanced license. For information about adding the license, see *OpenManage Enterprise User's Guide*.
- All the modular servers that are part of the group are not in **Proxied** state in OpenManage Enterprise.
- Maximum numbers of devices part of a group are 40.
- Maximum number of groups that you can add to Power Manager is 200.
- Maximum level of group nesting is 5.

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

 **NOTE:** After adding a group into Power Manager, only the devices 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 there are five devices in a group that you add to Power Manager, and 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:

1. Launch OpenManage Enterprise.
2. In **Application Settings**, click **Console and Extensions**.  
The **Console and Extensions** page is displayed.
3. In Power Manager section, click **More Actions > Settings**.  
The **Power Manager Settings** window is displayed.
4. On the **Groups** page, click **Add Group(s)**.  
The **Add Groups to Power Manager** page is displayed.
5. 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.

 **NOTE:** 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** page along with the total count of devices.

First time only: After adding groups to Power Manager, the count of servers present in the group is displayed as zero. Hence, click **Refresh the list for Power Manager capabilities** after running an inventory in OpenManage Enterprise.

# Maintaining Power Manager

## Topics:

- [Setting preferences in Power Manager](#)
- [Disabling Power Manager](#)
- [Enabling Power Manager](#)
- [Removing devices](#)
- [Removing groups](#)
- [Uninstalling Power Manager](#)

## Setting preferences in Power Manager

You can use the settings on this page to monitor power and temperature units for devices and groups. Also, set the **Sampling Intervals** as per your data center recommendations.




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

1. Launch OpenManage Enterprise.
2. In **Application Settings**, click **Console and Extensions** tab. The **Console and Extensions** page is displayed.
3. In Power Manager section, click **More Actions > Settings**. The **Power Manager Settings** window is displayed.
4. In the **Preferences** section, click **Edit**. The **Edit Power Manager Preferences** window is displayed.
5. Select the values for the listed options, and then click **Apply**. The following table lists the attributes that are displayed in Power Manager:

**Table 6. Power Manager Settings**

Field	Description
<b>Monitoring Units</b>	Select the units of measurement for temperature and power.
<b>Sampling Intervals</b>	
<b>Data gathering interval</b>	Select the frequency to collect information from the devices or groups. <i>i</i> <b>NOTE:</b> Set the frequency of data gathering interval based on requirements of your data center such as network traffic, criticality of data and so on. <i>i</i> <b>NOTE:</b> If you have set the interval as 15 minutes, and the number of devices that are added to Power Manager are more than 1000, the interval automatically changes to 30 minutes and this cannot be reverted to 15 minutes.
<b>Data purge interval</b>	Select or enter the number of days after which the data is deleted. <i>i</i> <b>NOTE:</b> Power Manager does not support retaining data older than 365 days.
<b>Duration of top energy consumers</b>	Specify the duration to view the list of devices or groups that consume maximum energy on the OpenManage Enterprise dashboard for the selected duration.

**Table 6. Power Manager Settings (continued)**

Field	Description
	 <b>NOTE:</b> Only top five energy consumers are displayed.
<b>Report Duration</b>	View data for the selected duration.
<b>Aggregation Period</b>	Select frequency of the level of detailed information that has to be displayed in reports.  <b>NOTE:</b> If you select <b>Report Duration</b> as anything else other than 1 Day, the <b>Aggregation Period</b> is automatically set to <b>1 Day</b> .
<b>Delete Power Manager data</b>	Based on the requirement of data, select one of the options: <ul style="list-style-type: none"> <li>• <b>Yes</b>—to delete alert thresholds configured and metric data collected from the devices and groups when they are removed from Power Manager.</li> <li>• <b>No</b>—to retain all alert thresholds configured and metric data collected from the devices and groups when they are removed from Power Manager.</li> </ul>  <b>NOTE:</b> After adding a device or group to Power Manager, and you select <b>Delete Power Manager data</b> option as <b>No</b> , all the Power Manager related data is saved though the device or group is deleted from Power Manager. In future, when you re-add the device or group to Power Manager all the Power Manager data is restored.
<b>Reset WSMAN power metric data</b>	Based on the requirement of accuracy, select the required option: <ul style="list-style-type: none"> <li>• <b>Enabled</b>—select to reset the current cumulative energy consumption (in kWh) for the server or chassis in iDRAC or CMC. This reset depends on the selected <b>Data gathering interval</b>.</li> <li>• <b>Disabled</b>—select to not reset the cumulative energy consumption data in iDRAC or CMC.</li> </ul>

## Disabling Power Manager

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

Ensure that the following prerequisite is met:

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

 **NOTE:** Disabling an extension on OpenManage Enterprise restarts the appliance services.

1. Launch OpenManage Enterprise.
2. In **Application Settings**, click **Console and Extensions** tab. The **Console and Extensions** page is displayed.
3. In Power Manager section, click **More Actions > Disable**. The **Disable Extension** window is displayed.
4. Click **Disable Extension**.
5. In **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 **Disable Extension**.

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

After disabling Power Manager, you cannot see any information or pages-related Power Manager on OpenManage Enterprise.

## Enabling Power Manager

All the functionality of Power Manager is enabled on OpenManage Enterprise. The REST APIs specific to Power Manager are also enabled.

**NOTE:** Enabling an extension on **OpenManage Enterprise** restarts the appliance services.

1. Launch OpenManage Enterprise.
2. In **Application Settings**, click **Console and Extensions** tab.  
The **Console and Extensions** page is displayed.
3. In Power Manager section, click > **More Actions** > **Enable**.  
The **Enable** window is displayed.
4. Click **Enable Extension**.
5. In the **Confirmation** window, select **I agree that I have captured the snapshot of the OM Enterprise appliance prior to the upgrade** option, and then click **Enable Extension**.

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

## Removing devices

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

Ensure that the following prerequisite is met:

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

**NOTE:** If a device is deleted 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:

1. Launch OpenManage Enterprise.
2. In **Application Settings**, click **Console and Extensions** tab.  
The **Console and Extensions** page is displayed.
3. In **Dell EMC OpenManage Enterprise Power Manager** section, click **More Actions** > **Settings**.  
The **Power Manager Settings** window 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 the removal, click **Remove**.  
The devices are removed from Power Manager.

## Removing groups

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

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.

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.

1. Launch OpenManage Enterprise.
2. In **Application Settings**, click **Console and Extensions** tab.  
The **Console and Extensions** page is displayed.



3. In Power Manager section, click **More Actions > Settings**.  
The **Power Manager Settings** window 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 **Yes**.  
The groups are removed from Power Manager.

## Uninstalling Power Manager

Uninstalls and deletes all the data that is collected by Power Manager.

Ensure that the following prerequisite is met:

- The Emergency Power Reduction (EPR) is not enabled on the device. View the EPR status of all devices and groups on **Emergency Power Reduction** page.
  - There are no active policies.
1. Launch OpenManage Enterprise.
  2. In **Application Settings**, click **Console and Extensions** tab.  
The **Console and Extensions** page is displayed.
  3. In Power Manager section, click **More Settings > Uninstall**.  
The **Uninstall Extension** window is displayed.
  4. Click **Uninstall Extension**.
  5. In the **Confirmation** window, select **I agree that I have captured the snapshot of the OM Enterprise appliance prior to the upgrade** option, and then click **Uninstall Extension**.  
Information about number of users using OpenManage Enterprise and details about the jobs running in OpenManage Enterprise are displayed.

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

# 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.

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](#).

To view Power Manager metric, perform the following 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, select 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** section.

**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.

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

**Table 7. Granularity of data**

Duration	Granularity of data
<b>6 Hours</b> or <b>12 Hours</b> or <b>1 Day</b>	Data is displayed based on the <b>Metric gathering interval</b> set in the <b>Preferences</b> section.
<b>7 Days</b> or <b>1 Month</b>	Data is displayed at an interval of one hour.
<b>3 Months</b> or <b>6 Months</b> or <b>1 Year</b>	Data is displayed at an interval of one day.

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

**Table 8. List of Power Manager metrics and supported devices**

<b>Metric</b>	<b>Supported devices</b>
Power History	<ul style="list-style-type: none"><li>● 12<sup>th</sup> and later generations of PowerEdge servers</li><li>● ⓘ <b>NOTE:</b> Cabled PSU servers are not supported.</li><li>● ⓘ <b>NOTE:</b> PowerEdge Fm120 aqua is not supported.</li><li>● PowerEdge MX7000</li><li>● PowerEdge M1000e</li><li>● PowerEdge VRTX</li><li>● PowerEdge FX2</li><li>● PowerEdge FX2s</li></ul>
Thermal History	<ul style="list-style-type: none"><li>● 12<sup>th</sup> and later generations of PowerEdge servers</li><li>● PowerEdge MX7000</li><li>● PowerEdge M1000e</li><li>● PowerEdge VRTX</li><li>● PowerEdge FX2</li><li>● PowerEdge FX2s</li></ul>
CPU Utilization	<ul style="list-style-type: none"><li>● 13<sup>th</sup> and later generations of PowerEdge servers</li></ul>
Input Output Utilization	<ul style="list-style-type: none"><li>● 13<sup>th</sup> and later generations of PowerEdge servers</li></ul>
Memory Utilization	<ul style="list-style-type: none"><li>● 13<sup>th</sup> and later generations of PowerEdge servers</li></ul>
System Airflow	<ul style="list-style-type: none"><li>● Non-modular PowerEdge servers</li></ul>

# Managing power policies

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

- **Power Cap**—Ensure that power consumption does not exceed the capacity of the circuit.
- **Control Power Usage**—Schedule power usage according to the workload of the device or group. For example, you can set an aggressive cap when the workload is low, enabling a reduction of power use for your data center.
- **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 limit.

Using Power Manager, create a policy and manually set the power cap for a device or for every device in a group.

**Power History** for a device—this section is displayed with minimum, average, and maximum power consumption with lower and upper bound values. The values change as per the duration that is selected in **Monitoring time period** drop-down menu. The upper and lower bound values for a device are predefined. The **Power Cap Value** displayed is the upper bound value of the device by default. You can change the **Power Cap** value and the **Power Cap** percentage gets populated automatically. Or you can change the percentage of **Power Cap** and the **Power Cap** value gets populated automatically.

**Power History** for a group—this section is displayed with 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 per the duration that is selected in **Monitoring time period** drop-down menu. 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. The **Power Cap** value that is displayed is the upper bound value of the group by default. You can change the **Power Cap Value** for every individual device in the group and the **Percentage of Range** is populated automatically. Or you can change the **Percentage of Range** and the **Power Cap Value** gets populated automatically. If there are changes in a group to which a power policy is applied to, Power Manager notifies you to re-evaluate the policies.

Schedule a policy to be active for a specific duration by specifying date and time range and recurrence pattern. The policy is active on the specific devices and on devices that are part of the group only for a specified duration. After the specified interval, the power cap is disabled on the devices and devices that are part of the group. 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.

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.

## Topics:

- [Creating policy](#)
- [Viewing policy](#)
- [Editing policy](#)
- [Disabling policy](#)
- [Enabling policy](#)
- [Deleting policy](#)

## Creating policy

Create a policy to ensure that the power consumption on a device or a group does not exceed a certain value.

Ensure that the following prerequisites are met:

- Devices are added to Power Manager
- Servers have iDRAC Enterprise license

- If the device is PowerEdge VRTX or PowerEdge FX2 chassis, they have a Chassis Management Controller (CMC) Enterprise license

To create a power policy in Power Manager, perform the following steps:

1. From OpenManage Enterprise, click **Power Management > Power Policies**.

The **Power Policies** tab is displayed.

2. Click **Create**.

The **Create Power Policy** wizard is displayed.

3. Provide a policy name and a description and click **Next**.

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

4. In **Devices/Groups**, select the required option:

- To add device:

- a. Select the **Device > Select Device** option and click .

The **Select Device** page is displayed.

- b. Select the device and click **Add Selected**.

- To add group:

- a. Select the **Group** option and click **Select Group**.

The **Select Group** page is displayed.

- b. Select the group and click **Add Selected**.

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

5. Click **Next**.

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

The **Power History** information is displayed based on the **Monitoring time period** that is selected and the table provides the power consumption history of the device or group. Use this table as a reference to set the power cap.

**NOTE:** You can provide the power cap value or a percentage for the power cap. Based on the first value provided, the other value is populated automatically.

7. In **Policy Schedule**, select the values and click **Next**.

- a. In **Time Span**, select **Always** if the policy has to be active always when it is enabled. Else, click **Range** to provide a time range for the policy to be active when it is enabled.

- b. In **Day(s)**, select **Always** if the policy has to be active always when it is enabled. Else, click **Daily**, to select specific days on which the policy is active when enabled.

- c. In **Active Date**, select the date range when the policy is active when enabled.

8. In **Summary**, view the details that are provided and click **Finish**.

The policy is created successfully.

## Viewing policy

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

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

From OpenManage Enterprise, perform any one of the following:

- To view all the policies created in Power Manager—from OpenManage Enterprise, click **Power Management > Power Policies**.

The **Power Policies** tab is displayed.

- To view all the policies created for a device—click **Devices**, click a device name, and then click **Metrics** tab.


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, and then click **Group Details**.

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

## Editing policy

Based on the power history of the selected devices or groups, update the power cap value in a policy.

 **NOTE:** You cannot edit the selection of a device or group.

To edit a policy, perform the following steps:

1. From OpenManage Enterprise, click **Power Management > Power Policies**.  
The **Power Policies** tab is displayed.
2. Select a policy that you want to edit and click **Edit**.  
The power policy wizard is displayed.
3. To save the changes made, click **Finish**.  
The changes are saved successfully.

## Disabling policy

Remove the limit of power consumption on a device or group by disabling the policy.

To disable a policy, perform the following steps:

1. From OpenManage Enterprise, click **Power Management > Power Policies**.  
The **Power Policies** tab is displayed.
2. Select the policy that you want to disable, and click **Disable**.
3. In the confirmation window, click **Yes**.  
The policy is disabled successfully.

## Enabling policy

The policies on the devices and groups are activated on enabling a policy.

To enable a policy, perform the following steps:

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

## Deleting policy

Remove the old policies that are not needed by deleting them and by deleting an active policy, the restriction of power consumption on the devices or groups are also removed automatically.

To delete a policy, perform the following steps:

1. From OpenManage Enterprise, click **Power Management > Power Policies**.  
The **Power 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.

# Managing Emergency Power Reduction

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

**i** **NOTE:** Applying EPR on the devices, throttles down the power to an extremely low level, which impacts performance, or shuts them down completely. All devices with monitoring and capping power capabilities are impacted. Use this feature only in an emergency situation.

Following are the EPR options available for servers and chassis. Also, the EPR option can be applied to groups.

- **Throttle**-set to minimal power consumption state
- **Shut down**-shut down the server

Only the **Throttle** option is supported for a chassis.

After applying EPR on the devices and groups, they are marked as **EPR Enabled (Throttle)** or **EPR Enabled (Shut down)** in 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** page.

## Topics:

- [Applying Emergency Power Reduction](#)
- [Disabling Emergency Power Reduction](#)

## Applying Emergency Power Reduction

During a decrease in power, enable the Emergency Power Reduction (EPR).

To enable EPR, perform the following 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, select 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 **Apply EPR**.

In the confirmation screen, select one of the option and click **Apply EPR**.

- **Throttle**—All the selected devices or groups consume extremely low level of power and have an impact on performance.
 

**i** **NOTE:** Throttle option is supported for servers having iDRAC Enterprise license and chassis.
- **Shut down**—All the selected devices or devices part of the selected group are shut down gracefully.
 

**i** **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, as the shut-down option is applicable only for servers.

3. Click **Yes** on the confirmation screen.

EPR is enabled on the selected device or group. A red bar indicator is displayed on the **Metrics** page for a device and on the **Group Details** page for a group along with the type of EPR option applied.

# Disabling Emergency Power Reduction

To bring back the devices or devices that are part of a group to their normal mode, disable the Emergency Power Reduction (EPR)

To disable the EPR, perform the following steps:

1. From **OpenManage Enterprise**, click **Power Management > Emergency Power Reduction**.

2. 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.



# 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](#)
- [Viewing Alert Thresholds](#)
- [Editing Alert Thresholds](#)
- [Deleting Alert Thresholds](#)

## Creating Alert Thresholds

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

Ensure that you add devices or groups to Power Manager.

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

- From OpenManage Enterprise, perform one of the following steps:
  - For device:
    - Click **Devices**.  
All the devices that are discovered in OpenManage Enterprise are displayed.
    - From the list of devices, select a device name.  
The details of the device are displayed on the **Overview** page.
    - To view Power Manager related information, click **Metrics** page.
  - For group:
    - Click **Devices > Static Groups > Group name**.  
All the devices that are part of the static group are displayed.
    - To view Power Manager related information, click **Group Details**.
- To set thresholds, click **Alert Thresholds** tab, and click **Edit**.  
The **Edit Alert Thresholds** page is displayed.
- 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.
- 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.

# Viewing Alert Thresholds

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

Ensure that you add devices or groups to Power Manager.

To view the alert thresholds graphs for power and temperature:

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, select 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 in **Alert Thresholds** section.

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

The pointer on the scale gives the value of the recently collected power or 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. Only if the threshold values are set, the upper and lower warning and critical values are displayed. To view more information about the violations, see the **Alert Log** on **Alerts** page and **Audit Logs** on **Monitor** page.

# Editing Alert Thresholds

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

Ensure that you add devices or groups to Power Manager.

To edit the threshold values for a device or a group, perform the following 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, select 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. In **Alert Thresholds** section, click **Edit**.  
The **Edit Alert Thresholds** page is displayed.
3. Provide the values and click **Apply**.  
The threshold values are updated successfully.

# Deleting Alert Thresholds

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

To delete alert thresholds, perform the following 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, select 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. In **Alert Thresholds** section, click **Edit**.  
The **Edit Alert Thresholds** page is displayed.
3. To remove all the thresholds, clear all the existing threshold values, and click **Apply**.

## Alerts

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

An alert is generated at the following circumstances and you can view them in **OpenManage Enterprise > Alerts > Alert Log** or **OpenManage Enterprise > Monitor > Audit Logs** :

- When the values cross the defined alert thresholds
- When the values for a device or group come back to normal state.
- When an active policy's policy cap 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 static group and if new devices are added to the group.

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

### Topics:

- [Creating Alert Policy](#)

## Creating Alert Policy

To receive Power Manager alerts for alert threshold and policy cap violations, select the following sub-categories and create an Alert Policy:

In **Create ALERT Policy** wizard, in **Category** page, expand **Application > System Health** category and select the following sub-categories for the required alerts:

- **Metrics**—to receive alerts on alert threshold violations.
- **Power Configuration**—to receive alerts on policy cap violations.

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

## Scalability and performance

Power Manager supports up to 3000 target devices in one data center.

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.

For more information, see *Benchmark the Performance, Reliability, and Scalability of Dell EMC OpenManage Enterprise Power Manager* white paper on the support site.

# Widgets for Power Manager

Widgets enable you to have quick access to selected groups to view their power and thermal history. Also, view the maximum energy consumers regarding a server, chassis, and group.


## Topics:

- [Adding groups in OpenManage Enterprise dashboard for monitoring Power Manager related data](#)
- [Viewing Power Manager data on OpenManage dashboard](#)

## Adding groups in OpenManage Enterprise dashboard for monitoring Power Manager related data

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

Identify the favorite groups for monitoring.

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

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

1. Launch **OpenManage Enterprise** and navigate to **Widgets** section—**Power History** or **Thermal History**.
2. To add a group, click **Add groups**.  
The **Add group(s) to dashboard** is displayed.
3. Select the groups using the check-boxes and click **Apply**.  
The power or thermal metric graph is added.

## Viewing Power Manager data on OpenManage dashboard

View Power Manager specific data on OpenManage Enterprise dashboard for the following list:

- Power and thermal data for selective groups
  - Ratio of devices present in OpenManage Enterprise that are compatible with Power Manager to how many devices are monitored through Power Manager
  - Top five servers, chassis, and groups that consume maximum energy
1. Launch **OpenManage Enterprise** and navigate to **Widgets** section—**Power History** or **Thermal History**.
  2. To view the ratio, see the **Power Manager Devices Stats**.
  3. To view the top five energy consumers by the category of servers, chassis and groups, see **Top Energy Consumers by Server**, **Top Energy Consumer by Chassis**, and **Top Energy Consumers by Group** graphs.

## 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. Reports are built-in, and user-defined.

The built-in reports are downloaded in .HTML format. However, you can download the report in CSV, PDF, or .XLS format also. The following built-in reports available through Power Manager are:

- **Power Manager: Thresholds Report for Devices**-This report displays the threshold values set on the devices and number of times the values have exceeded the defined thresholds.
- **Power Manager: Thresholds Report for Groups**-This report displays the threshold values set on groups and number of times the values have exceeded the defined thresholds.
- **Power Manager: Power and Thermal Report of Devices**-This report displays the power and temperature values for devices.
- **Power Manager: Power and Thermal Report of Groups**-This report displays the power and temperature values for groups.
- **Power Manager: Power Policies Report of Groups**-This report displays the details of the policies that are applied on the groups.

Also, 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.

### Topics:

- [Viewing and downloading reports](#)
- [Create custom report in Power Manager](#)
- [Editing custom reports in Power Manager](#)
- [Deleting custom reports in Power Manager](#)

## Viewing and downloading reports

Run an in-built or custom report and view or download the report.

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

To view and download a report that is generated through Power Manager, perform the following steps:

1. Launch **OpenManage Enterprise**, click **Monitor > Reports**.  
The **Reports** page is displayed.
2. Locate the report that you want to view, and select it using the check-box.
3. To view the report, click **Run**.  
The report is displayed.
4. To download the report, click **Download**.  
The **Download Report** page is displayed.
5. To download the report, select the required format, and then click **Finish**.

Power Manager supports downloading reports in the following formats:

- HTML
- CSV
- PDF
- XLS

The report is downloaded in the selected format.

## Emailing reports

Email the reports to view them later.

Configure the SMTP parameters to receive alerts through emails in the required format. For more information, see *Dell EMC OpenManage Enterprise User's Guide*.

To email the reports, perform the following steps:

1. Launch **OpenManage Enterprise**, click **Monitor > Reports**.  
The **Reports** page is displayed.
2. Select the report that you want to email, and click **Run and Email**.  
The **Email Report** page is displayed.
3. Provide the configured email address, and then click **Finish**.

## Create custom report in Power Manager

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

To create custom report, perform the following steps:

**i** **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.

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**.
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.
- i** **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**.



## Editing custom reports in Power Manager

Based on the changes for monitoring attributes, edit the custom reports.

To edit a custom report, perform the following steps:

1. Launch **OpenManage Enterprise**, click **Monitor > Reports**.  
The **Reports** page is displayed.
2. Locate the report that you want to edit, and click **Edit**.
3. Add or remove the columns and click **Finish**.

## Deleting custom reports in Power Manager

If a custom report is outdated, and you are not using it you can delete the custom reports.

To delete a custom report, perform the following steps:

1. Launch **OpenManage Enterprise**, click **Monitor > Reports**.  
The **Reports** page is displayed.
2. Locate the report that you want to delete and click **More Actions** drop-down menu and then click **Delete**.
3. In the confirmation screen, click **Yes**.  
The report is deleted successfully.

## Frequently Asked Questions

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 9. List of supported devices and metrics**

Device Type	Supported Metrics
12 <sup>th</sup> generation of PowerEdge servers	<ul style="list-style-type: none"> <li>● Maximum, minimum, and average power</li> <li>● Maximum and average temperature</li> <li>● System airflow</li> <li>● Energy consumption</li> </ul>
13 <sup>th</sup> generation and 14 <sup>th</sup> generation of PowerEdge servers	<ul style="list-style-type: none"> <li>● Maximum, minimum, and average power</li> <li>● Maximum and average temperature</li> <li>● Maximum, minimum, and average CPU utilization</li> <li>● Maximum, minimum, and average Input Output utilization</li> <li>● Maximum, minimum, and average Memory Utilization</li> <li>● System airflow</li> <li>● Energy consumption</li> </ul>
PowerEdge M1000e, VRTX, FX2, and FX2s chassis	<ul style="list-style-type: none"> <li>● Maximum, minimum, and average power</li> <li>● Instant temperature</li> <li>● Energy consumption</li> </ul>
PowerEdge MX7000 chassis	<ul style="list-style-type: none"> <li>● Maximum, and minimum power</li> <li>● Maximum and minimum temperature</li> <li>● Energy consumption</li> </ul>

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

## 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 folders 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.

## 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.

### 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.

## 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 10. Other information you may need**

Document	Description	Availability
<i>Dell EMC OpenManage Enterprise Power Manager Release Notes</i>	Provides information about known issues and workarounds in Power Manager.	<ol style="list-style-type: none"> <li>Go to <a href="https://Dell.com/OpenManageManuals">Dell.com/OpenManageManuals</a>.</li> <li>Click <b>Dell OpenManage Enterprise</b> and select the required version of OpenManage Enterprise.</li> <li>Click <b>Manuals &amp; documents</b> to access these documents.</li> </ol>
<i>Dell EMC OpenManage Enterprise Power Manager REST API Guide</i>	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.	
<i>Dell EMC OpenManage Enterprise User's Guide</i>	Provides information about using the features of OpenManage Enterprise.	
<i>Dell EMC OpenManage Enterprise Release Notes</i>	Provides information about known issues and workarounds in OpenManage Enterprise.	
<i>Dell EMC OpenManage Enterprise Support Matrix</i>	Lists the devices that are supported by OpenManage Enterprise.	
<i>Dell EMC OpenManage Enterprise and OpenManage Enterprise - Modular Edition RESTful API Guide</i>	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.	