

Management Pack for HPE ProLiant

VMware vRealize Operations Management Pack 5.0

You can find the most up-to-date technical documentation on the VMware website at:

<https://docs.vmware.com/>

VMware, Inc.
3401 Hillview Ave.
Palo Alto, CA 94304
www.vmware.com

Copyright © 2021 VMware, Inc. All rights reserved. [Copyright and trademark information.](#)

Contents

1	Management Pack for HPE ProLiant	4
2	System Requirements (HPE ProLiant)	5
	Assigning User Privileges (HPE ProLiant)	7
	Prerequisite Configurations for ESXi Hosts (HPE ProLiant)	9
	Adding an SSL Certificate to the vROps Truststore (HPE ProLiant)	10
3	Upgrading the Management Pack (HPE ProLiant)	12
4	Installing the Management Pack (HPE ProLiant)	15
5	Configuring the Management Pack (HPE ProLiant)	16
	Creating a Credential (HPE ProLiant)	16
	Creating an Adapter Instance (HPE ProLiant)	17
	Enabling Server to VMware Relationships	19
	Validating Data Collection (HPE ProLiant)	20
6	Troubleshooting the Management Pack (HPE ProLiant)	21
7	Using the Management Pack (HPE ProLiant)	25
	Resource Kinds and Relationships (HPE ProLiant)	25
	Inventory Tree (Traversal Spec) (HPE ProLiant)	27
	Dashboards (HPE ProLiant)	27
	Tags (HPE ProLiant)	28
	Views (HPE ProLiant)	28
	Reports (HPE ProLiant)	29
	Analysis Badges and Capacity Definitions (HPE ProLiant)	30
	Alerts (HPE ProLiant)	30
	Metrics (HPE ProLiant)	43

Management Pack for HPE ProLiant

1

The **VMware vRealize® Management Pack for HPE ProLiant** is an embedded adapter for vRealize Operations (vROps), collecting performance data from your HPE ProLiant environment and providing predictive analytics and real-time information about problems in your infrastructure—within the vRealize Operations user interface.

Notable Features

The Management Pack for HPE ProLiant harnesses powerful vRealize Operations features, such as:

- **Comprehensive monitoring dashboards**, including:
 - HPE Health Investigation
 - HPE Enclosure Overview
 - HPE Blade Overview
 - HPE Hosted ESXi Hosts
- **400+ collected metrics** for HPE ProLiant resources
- **Key performance metrics** such as blade power consumption, power supply average power output, fan speed, and port receives/transmits
- **40+ detailed alerts and recommendations** for critical health, memory, disk, temperature, and power consumption events
- **External relationships** to VMware ESXi Hosts and VMs and Cisco Nexus switches

System Requirements (HPE ProLiant)

2

Before installing and configuring the Management Pack for HPE ProLiant, ensure your system meets the following requirements:

	vRealize Operations (vROps) Requirements	HPE Server Requirements
Version(s)	vRealize Operations 7.x & 8.x (Standard, Advanced, or Enterprise editions)	HPE ProLiant Servers, Gen 8, 9, or 10 (Blade or Rack), with one of the following: ■ HPE Onboard Administrator (OA) Command Line Interface (CLI), 4.50+ – Recommended connection method for enclosure-based blade server environments ■ Optional: HPE Virtual Connect Manager (VCM) CLI, 4.50+ (in addition to OA) - OR - ■ iLO 4 with firmware 2.0+ -or- iLO 5 with firmware 1.20+ – Required connection method for rack server environments. (The Management Pack no longer supports the iLO connection method for blade server environments.) Note The Management Pack assumes a maximum of one rack server per iLO. Note A couple prerequisite configurations for ESXi hosts are required to collect Host > Server external relationships and certain metrics. See: Prerequisite Configurations for ESXi Hosts (HPE ProLiant).
Connection		OA or iLO hostname (or IP address), comma-separated list of hosts, or host IP range written in CIDR notation. Note If using multiple hosts, they must share the same credentials. Default ports: ■ OA: 22 (TCP) – not configurable ■ VCM: 22 (TCP) – not configurable ■ iLO: 443 (TCP) – configurable when Creating an Adapter Instance (HPE ProLiant)
Credentials		OA users: ■ OA administrator user name and password for your Enclosure / Chassis Caution The management pack does not support connecting directly to the OA of the blades; it can only target the OA of the enclosures. Note The least-privileged OA user must be assigned the User privilege. See: Assigning User Privileges (HPE ProLiant). OA and VCM users: ■ OA user name and password (with User privilege assigned, as noted above) ■ VCM user name and password (The least-privileged user for VCM is read-only. See: Assigning User Privileges (HPE ProLiant)) iLO users: ■ iLO user name and password Note The least-privileged iLO user account must be assigned the Login privilege. See: Assigning User Privileges (HPE ProLiant).

This chapter includes the following topics:

- [Assigning User Privileges \(HPE ProLiant\)](#)
- [Prerequisite Configurations for ESXi Hosts \(HPE ProLiant\)](#)
- [Adding an SSL Certificate to the vROps Truststore \(HPE ProLiant\)](#)

Assigning User Privileges (HPE ProLiant)

To create a least-privileged user(s) (LPU) for the management pack, you must assign certain privileges to the HPE OA, VCM, or iLO user(s) you plan to use as your management pack credentials .

- HPE OA
- HPE VCM
- HPE iLO

HPE OA

- UI Instructions
- CLI Instructions

Caution The management pack does **not** support connecting directly to the OA of the **blades**; it can **only** target the OA of the **enclosures**.

UI Instructions

- 1 Log in to your **HP BladeSystem Onboard Administrator** console as an administrator, then navigate to **Systems and Devices > User/Authentication > Local Users**, and select the user you plan to use for your management pack credentials.
- 2 Ensure the following settings are configured:
 - **Privilege Level:** Select **user**.
 - **User Enabled:** Ensure this checkbox is selected.
 - **Device & Interconnect Bay Access:** Ensure all bays are selected.
- 3 Click **Update User** to save your settings.

CLI Instructions

To create your OA user with "User" Privilege Level from the command-line interface:

- 1 Log in to your **HP BladeSystem Onboard Administrator** as an administrator.
- 2 Run the following commands:

```
ADD USER <username> <password>
SET USER ACCESS "<username>" USER
```

HPE VCM

- UI Instructions
- CLI Instructions

UI Instructions

- 1 Log in to your **HPE Virtual Connect Manager** console as an administrator, then navigate to **Domain Settings > User/Authentication > Local Users**.

- 2 Click **+Add**. In the Add Local User window that appears, enter the following information:

- Username
- Password
- Confirm Password

Note Under Roles, do **not** select any options. A read-only user will be created by default if no role is selected.

- 3 Click **Add & Close** to save your read-only user.

CLI Instructions

- 1 Log in to your HPE VCM as an administrator.
- 2 Run the following commands to create a read-only VCM user:

```
add user ROuser
```

- 3 At the prompts, enter and verify the password you want associated with your read-only user:
- 4 After you have successfully created your read-only user, you can view details about it by using the following command:

```
show user ROuser
```

Note Note that by default no specific roles or role operations are assigned to a read-only user.

HPE iLO

- UI Instructions
- CLI Instructions

UI Instructions

Note The following steps were completed on an iLO 5 system. The steps may vary slightly for iLO 4 systems.

- 1 Log in to your HPE **iLO 5** console as an administrator, then navigate to **Administration > User Administration**, and select **New**.
- 2 In the window that appears, enter your user name and password information, and ensure the **Login** User Privilege is selected.
- 3 Click **Add User** to save your settings.

CLI Instructions

To create your iLO user with "Login" User Privileges from the command-line interface:

- 1 Log in to your iLO as an administrator.
- 2 Run the following commands:

```
create /map1/accounts1 username=<username> password=<password>
```

What to do next

[Chapter 4 Installing the Management Pack \(HPE ProLiant\)](#)

Prerequisite Configurations for ESXi Hosts (HPE ProLiant)

The following prerequisite configurations for ESXi hosts are required to collect external relationships and certain metrics.

Note If you are using **Intelligent Provisioning**, both prerequisite configurations listed below will be performed automatically, and you can skip the steps below. If using HPE's customized ESXi, the **HPE ESXi Offline Bundle for VMware vSphere** will be installed automatically, and you can skip the second prerequisite configuration. However, if using VMware's generic ESXi, you will need to perform both prerequisite configurations manually as outlined below.

- Configuring the iLO Server Name to ESXi Host – Blade or Rack Servers
 Required to create the **VMware Host > Server** external relationship
- Installing the HPE ESXi Offline Bundle for VMware vSphere – Rack Servers Only
 Required to collect certain metrics (details below)

Configuring the iLO Server Name to ESXi Host – Blade or Rack Servers

To create an external relationship between your rack/blade server and VMware host, you must set the **Server Name** and **Server FQDN/IP Address** to your ESXi server name in your iLO Security settings.

Note The following steps were completed on an iLO 5 system. The steps may vary slightly for iLO 4 systems.

- 1 From your iLO 5 console, navigate to **Security > Access Settings**.
- 2 Under **Server Name** and **Server FQDN/IP Address**, enter your ESXi server information.
- 3 Click **Apply** to save your changes.

Installing the HPE ESXi Offline Bundle for VMware vSphere – Rack Servers Only

If you want the optional **HPE Agentless Management Service (AMS)** under ESXi, you must install the current version of the **HPE ESXi Offline Bundle for VMware vSphere** for your version of ESXi. Without AMS, certain metrics will not be collected. See the excerpt from HPE's iLO documentation below for details:

Note AMS is installed automatically if you use the recommended **Intelligent Provisioning** installation method for Windows installations.

Adding an SSL Certificate to the vROps Truststore (HPE ProLiant)

Note If you are using an iLo-based rack server configuration, you have the ability to enable SSL verification for added security. When [Creating an Adapter Instance \(HPE ProLiant\)](#), set the **Verify SSL (iLo only)** Advanced Setting to **Yes** to enable the feature (requires the adapter to validate that the SSL certificate has been added to the vROps truststore). If you leave the setting set to **No** (default), the management pack will accept all SSL certificates.

To add an SSL certificate to the vROps truststore:

- 1 Obtain the SSL certificate for your HPE host server from your Internet browser. Export the certificate as an **X.509 Certificate (PEM)**.
- 2 Copy the certificate to your vROps machine.
- 3 Use 'ssh' to log in to the vROps machine as the root user, then run the following command:

Linux:

```
$VCOPS_BASE/jre/bin/keytool -import -alias <product_alias> -file /tmp/<certfile>
-keystore "$VCOPS_DATA_VCOPS/user/conf/ssl/tcserver.truststore" -storepass `grep
ssltruststorePassword /storage/vcops/user/conf/ssl/storePass.properties | sed s/
ssltruststorePassword=//` -trustcacerts
```

Windows:

```
%VCOPS_BASE%\jre\bin\keytool -import -alias <product_alias> C:\path\to\certfile
-keystore "%VCOPS_DATA_VCOPS%\user\conf\ssl\tcserver.truststore" -storepass
<truststore_password> -trustcacerts
```

Note The <truststore_password> is generated by vROps and is located in/storage/vcops/user/conf/ssl/storePass.properties. Copy the password from thessltruststorePassword= field and paste it in the <truststore_password> placeholder.

Parameter Descriptions:

- product_alias is a unique name for each key that you add (per host)

- certfile is the location where the cert file was saved
- 4 Run the reboot command to re-start the vROps machine for the changes to take effect.

Upgrading the Management Pack (HPE ProLiant)

3

When upgrading the Management Pack, follow the instructions recommended (based on version) prior to installing the latest release of the Management Pack:

- Upgrading from version 2.0.3.20171117.153434
- Upgrading from version 2.0.0.20170809.143036
- Upgrading from versions earlier than 2.0.0.20170809.143036

Upgrading from version 2.0.3.20171117.153434

If upgrading from version 2.0.3.20171117.153434, no specific pre-installation tasks are recommended. You may simply install the new .pak file as indicated in [Chapter 4 Installing the Management Pack \(HPE ProLiant\)](#).

Upgrading from version 2.0.0.20170809.143036

If upgrading from version 2.0.0.20170809.143036, we recommend the following task:

Delete existing Rack Overview Dashboard

In the 2.0.3.20171117.153434 release of the Management Pack, the **HPE Rack Overview** dashboard was renamed to [HPE Rack Server Overview](#). To prevent duplicate dashboards, we recommend deleting this dashboard prior to installing the new version.

To remove the existing Rack Overview Dashboard:

- 1 From the top navigation bar, select **Dashboards**.
- 2 Select the **HPE Rack Overview** dashboard.
- 3 From the Actions drop-down menu, select **Delete Dashboard**.
- 4 Click **OK** when the confirmation dialog box appears to delete the selected dashboard.

Upgrading from versions earlier than 2.0.0.20170809.143036

If upgrading from any version of the Management Pack for HPE ProLiant prior to 2.0.0.20170809.143036, we recommend the following tasks:

- Delete existing HP Servers dashboards
- Delete existing HP Servers adapter instances and objects (existing iLO blade server users only)

Delete existing HP Servers dashboards

If you do not remove the dashboards from a previous version of the Management Pack before installing the new version, you will see duplicate and/or deprecated HP Servers dashboards after upgrading.

To remove existing Management Pack dashboards:

- 1 From the top navigation bar, select **Dashboards**.
- 2 Select an existing HP Servers dashboard.
- 3 From the Actions drop-down menu, select **Delete Dashboard**.
- 4 Click **OK** when the confirmation dialog box appears to delete the selected dashboard.

Note Previous versions of the HPE ProLiant Management Pack use HP (rather than HPE) in the UI label names (dashboards, resources, etc.). The example here shows the newer HPE labels.

Delete existing HP Servers adapter instances and objects (existing iLO blade server users only)

Existing customers who are monitoring blade server environments through the iLO must switch to the Onboard Administrator (OA) configuration. (See: [Chapter 2 System Requirements \(HPE ProLiant\)](#).) We also recommend deleting existing iLO-based adapter instances and objects prior to installing and configuring the new version of the Management Pack for an OA.

To remove existing adapter instances and objects:

- 1 From the top navigation bar, select **Administration**.
- 2 In the left panel, expand the **Configuration** category, then select **Inventory Explorer**.
- 3 In the right panel, expand the **Object Types** category, then find the HP-prefixed objects.

Note Previous versions of the HPE ProLiant Management Pack use HP (rather than HPE) in the UI label names (dashboards, resources, etc.). The example here shows the newer HPE labels.

- 4 Select object(s) from the list, then click the **Delete Object**  icon.
- 5 Click **Yes** when the confirmation dialog box appears to delete the selected object(s).

What to do next

[Chapter 4 Installing the Management Pack \(HPE ProLiant\)](#)

Installing the Management Pack (HPE ProLiant)

4

The Management Pack for HPE ProLiant is installed using a .pak file.

Note If you are upgrading from a previous version of the Management Pack, please see: [Chapter 3 Upgrading the Management Pack \(HPE ProLiant\)](#) before installing a new version.

Procedure

- 1 Save the .pak file in a temporary location.
- 2 Log in to vRealize Operations as an admin user.
- 3 From the top navigation bar, select **Administration**. In the left panel, the default **Solutions** view will be selected. In the right panel, click the **Add+** icon.

Note If you are using vROps 7.5, **Solutions** will have two subcategories: **Configuration** and **Repository**. Select **Repository** and scroll down to **Other Management Packs** and select **Add a Management Pack** to install a new management pack.

- 4 The **Add Solution** window will appear. Browse to the location of the saved .pak file, then click **Upload**.
- 5 Click **Next** when the upload has finished.
- 6 Read and accept the End User License Agreement (EULA), then click **Next**.
- 7 Click **Finish** when the installation process is complete.

Configuring the Management Pack (HPE ProLiant)

5

Configuring the Management Pack for HPE Servers includes the following required tasks:

- [Creating a Credential \(HPE ProLiant\)](#)
- [Creating an Adapter Instance \(HPE ProLiant\)](#)

Note In addition, you may want to perform one or more of the following optional tasks to further configure the Management Pack for your specific needs:

- [Enabling Server to VMware Relationships](#) (optional)
 - [Validating Data Collection \(HPE ProLiant\)](#) (optional)
-

This chapter includes the following topics:

- [Creating a Credential \(HPE ProLiant\)](#)
- [Creating an Adapter Instance \(HPE ProLiant\)](#)
- [Enabling Server to VMware Relationships](#)
- [Validating Data Collection \(HPE ProLiant\)](#)

Creating a Credential (HPE ProLiant)

One of the required configuration tasks for the Management Pack is to create a set of credentials in vROps.

Prerequisites

- [Chapter 4 Installing the Management Pack \(HPE ProLiant\)](#)

Procedure

- 1 From the top navigation bar, select **Administration**. In the left panel, expand the Management category and select **Credentials**.
- 2 In the right panel, click the **Add**  icon. In the **Manage Credential** window that appears, select the desired credential kind from the drop-down menu, then enter the information for that specific credential kind as follows:
 - iLO Credentials

- OA Credentials
- OA with VCM Credentials

iLO Credentials

- **Credential name:** A name for this set of Management Pack credentials
- **iLO User Name:** Your HPE iLO user name
- **iLO Password:** The password associated with your HPE iLO user name

OA Credentials

- **Credential name:** A name for this set of Management Pack credentials
- **OA User Name:** The HPE Onboard Administrator user name for your **enclosure**
- **OA Password:** The password associated with the HPE Onboard Administrator user name

OA with VCM Credentials

- **Credential name:** A name for this set of Management Pack credentials
- **OA User Name:** Your HPE Onboard Administrator user name
- **OA Password:** The password associated with your HPE Onboard Administrator user name
- **VCM User Name:** Your Virtual Connect Manager user name
- **VCM Password:** The password associated with your Virtual Connect Manager user name

3 Click **OK** to save the credential.

What to do next

[Creating an Adapter Instance \(HPE ProLiant\)](#)

Creating an Adapter Instance (HPE ProLiant)

Before you can begin using the Management Pack, you must create an adapter instance to identify the host from which the Management Pack will retrieve data.

Prerequisites

- [Chapter 4 Installing the Management Pack \(HPE ProLiant\)](#)

Procedure

- 1 From the top navigation bar, select **Administration**. In the right panel, the **Solutions** view will be displayed.
- 2 Select **HP Servers** from the **Solutions** list on the right.

- 3 Click the **Configure**  icon. The **Manage Solution** window will appear.

Note Click the **Add**  icon above the **Instance Name** list on the left to create multiple adapter instances.

- 4 In the **Manage Solution** window, enter the following information:

a **Adapter Settings:**

- **Display Name:** Enter a name for this particular instance of the Management Pack.
- **Description:** Optional field, but it can be helpful to describe multiple adapter instances of the Management Pack.

b **Basic Settings:**

- **Host:** Enter your Onboard Administrator (OA) or iLO hostname, comma-separated list of hosts, or IP range written in CIDR notation.
- **Credential:** Select the credential you created when [Creating a Credential \(HPE ProLiant\)](#), or you can create one now by clicking the **Add**  icon.

c **Advanced Settings:**

- **Collector:** Default Collector/Group is automatically selected. Click the drop-down menu if you want to run the collection on a different node.
- **Port (iLO only):** The Port setting is applicable to iLO configurations only. Default port is **443**(HTTPS). If using a different port, specify it here.
- **Timeout (Seconds):** Default timeout is **300** seconds. If you anticipate your calls taking longer than 5 minutes, adjust accordingly.
- **Collect Events:** The default setting is **Yes**. To disable event collection, set to **No**.
- **Minimum Event Severity:** To help mitigate “alert storms,” this setting allows you to define which events the adapter will collect based on the selected severity. Only events of the selected severity or greater will be collected. The default (and lowest) setting is **Info**. Other options (in order of increasing severity) are: **Warning** and **Critical**.
- **Verify SSL (iLO):** For increased security (applicable to iLO users only), select **Yes** if you want your SSL certificate to be validated in the vROps truststore. The default value is **No** (all SSL certificates will be accepted). See: [Adding an SSL Certificate to the vROps Truststore \(HPE ProLiant\)](#).
- **Threadpool Size:** This setting indicates the number of threads (per endpoint) that the collector spawns. Default value is **10**. Use to limit the total number of targets that are collected from simultaneously.
- **Discover Ports:** Select **Yes** to collect port resources; select **No** to disable port collection.

- **Use SHA-256 Key Exchange:** If you are using an SHA-256 Hash on your passwords, select **Yes** to enable SHA-256 Key Exchange.
- **Number of Returned Events:** Enter the maximum number of events to return per collection cycle. The default value is **10000**.
- **Support Autodiscovery:** The default setting is **True**, which enables the adapter instance to create resources for you. This should not be set to **False**.

5 Click **Test Connection** to test the configured connection information.

6 Click **Save Settings** and **Close** to save your adapter instance.

What to do next

- To validate data collection, see: [Validating Data Collection \(HPE ProLiant\)](#).

Enabling Server to VMware Relationships

If relationships between HPE ProLiant and VMware Hosts and VMs are not automatically created, try enabling the collection of Host System IP Addresses, Host System UUIDs, and VM Mac Addresses by editing your active policy in vRealize Operations.

Prerequisites

The vCenter Management Pack must be installed and collecting.

Procedure

- 1 From the top navigation bar, select **Administration**. In the left panel, select **Policies**.
- 2 In the right panel, take note of the active policy listed in the **Active** tab, then click the **Policy Library** tab.
- 3 Select the active policy from the list.
- 4 Select the **Edit**  icon.
- 5 Select **5. Collect Metrics and Properties**
- 6 Ensure only the **Property** Attribute Type is selected, then filter on "IP".
- 7 In the filtered list, select the **Network I/O|IP Address** property for the Host System object type, then change the State field from Inherited to **Local**

 .
- 8 Next, filter on "UUID". In the filtered list, select the **Summary|Host UUID** property for the Host System object type, then change the State field from **Inherited** to **Local**


- 9 Lastly, filter on "Mac Address". In the filtered list, select the for the **Network I/O|Mac Address** property for the Virtual Machine object type, then change the State field from **Inherited** to **Local**



- 10 Click **Save** to apply your property state overrides for your active vROps policy.

Validating Data Collection (HPE ProLiant)

After you add an adapter instance, you will most likely want to validate the data that it collects in vRealize Operations.

Prerequisites

- [Creating an Adapter Instance \(HPE ProLiant\)](#)

Procedure

- 1 From the top navigation bar, select **Environment** .
- 2 In the left panel, select **All Objects**, then expand the **HPE ProLiant Adapter** objects list.
- 3 Select a resource from the list, then click the **All Metrics** tab to select metrics and validate values against the data source.

What to do next

- To learn more about using the Management Pack, see: [Chapter 7 Using the Management Pack \(HPE ProLiant\)](#)

Troubleshooting the Management Pack (HPE ProLiant)

6

Once you have finished [Chapter 4 Installing the Management Pack \(HPE ProLiant\)](#) and [Chapter 5 Configuring the Management Pack \(HPE ProLiant\)](#), check the **Collection State** and **Collection Status** for the adapter instance on the **Solutions** page. If they show as **Not Collecting** or **No Data Receiving**, respectively, the following troubleshooting topics can help you diagnose and correct common problems with your adapter instance.

- Test Connection Errors
- Adapter and Collector Log Files

Test Connection Errors

When [Creating an Adapter Instance \(HPE ProLiant\)](#), click **Test Connection** after entering all of your configuration settings to ensure vROps can connect to the specified host.

The following errors are possible:

Onboard Administrator (OA) Connection Errors

Unable to Connect to OA

Error Message: Unable to establish a valid connection to the target system. Unable to connect to any OA hosts.

Description: Ensure the correct OA hostname(s)/IP address(es) were entered when adding your adapter instance.

Unable to Collect from OA

Error Message: Unable to establish a valid connection to the target system. Unable to collect from any OA hosts.

Description: In this scenario, an OA CLI session has been established and a host has been connected to, but data cannot be collected. Ensure the specified host is for the intended OA system.

Unable to Establish Session with Onboard Administrator

Error Message: Unable to establish session with Onboard Administrator.

Description: Confirm you can use the OA CLI to directly establish a session with the OA host.

Unable to Collect Enclosure Name

Error Message: Unable to collect the enclosure name. Ensure host provided is an OA system: {HOSTNAME}

Description: In this scenario, an OA CLI session has been established and a host has been connected to, but data cannot be collected. Ensure the specified host is for the intended OA system.

Invalid Algorithm Parameter Exception

Error Message: Unable to establish a valid connection to the target system.

Description: See [this article](#) by our support team to resolve this error.

VCM Connection Errors

Missing VCM User Name

Error Message: VCM password is provided, but VCM user name is not.

Description: Add your VCM user name to the OA and VCM credential.

Missing VCM Password

Error Message: VCM user name is provided, but VCM password is not.

Description: Add the password associated with your VCM user name to the OA and VCM credential.

Unable to Connect to VCM Host

Error Message: Unable to connect to any VCM hosts.

Description: Ensure the VCM credentials entered are correct for the intended VCM host.

Unable to Collect from VCM

Error Message: Unable to collect from any VCM hosts

Description: In this scenario, a VCM CLI session has been established, but the OA is returning a VCM host that is unreachable.

Invalid Algorithm Parameter Exception

Error Message: Unable to establish a valid connection to the target system.

Description: See [this article](#) by our support team to resolve this error.

iLO Connection Errors

Unable to Connect to iLO

Error Message: Unable to establish a valid connection to the target system. Unable to connect to the specified iLO host.

Description: Ensure the correct iLO hostname(s)/IP address(es) were entered when adding your adapter instance.

Invalid Port

Error Message: Unable to establish a valid connection to the target system. Invalid port.

Description: Ensure the correct iLO port is specified. Default value is 443.

Invalid Timeout Setting

Error Message: Unable to establish a valid connection to the target system. Invalid timeout.

Description: Ensure the value specified for the Timeout is a positive integer value

Invalid Algorithm Parameter Exception

Error Message: Unable to establish a valid connection to the target system.

Description: See [this article](#) by our support team to resolve this error.

Invalid User Name / Password (Authentication Failure)

Error Message: Unable to establish a valid connection to the target system. Invalid iLO user name or password

Description: Ensure the specified iLO user name and password are correct.

Note The iLO provides a security feature that disables logins after a number of failed attempts. This feature does not need to be changed in order for the Management Pack to work, but the lockout does also apply to connections made by the Management Pack. As a result, a streak of consecutive failed connection tests could cause the iLO to refuse future connections for a period of time. To check if this security feature is causing Test Connection to fail, open the iLO login page. If logins are disabled, there will be a message to alert you. The settings for delay time and number of failed login attempts needed to cause a delay can be adjusted in the iLO settings (**Administration > Access Settings**).

Adapter and Collector Log Files

You can review adapter errors in the adapter and collector log files, which can be viewed in the vROps UI or in an external log viewer.

- **Adapter log files** are located in the \$VCOPS_BASE/user/log/adapters/HPComputeAdapter/ folder.
- **Collector log files** are located in the \$VCOPS_BASE/user/log/ folder.

To set the base log level for the collector in vROps:

- 1 Navigate to **Administration > Support > Logs**
 - 2 Expand the **MASTER** folder, then select the **COLLECTOR** folder.
 - 3 Click the **Edit Properties**  icon.
 - 4 In the **Root logger level** drop-down menu, select the desired option.
- The default logging level is **warning**.
 - To troubleshoot issues, set the logging level to **info**.

- To view detailed messages, including micro steps, queries, and returned results, set the logging level to **debug**.

Note If you set the logging level to **debug**, log files can become large very quickly. Set the logging level to **debug** only for short periods of time.

For more information about viewing log files and modifying levels, refer to the vROps online help.

Using the Management Pack (HPE ProLiant)

7

The Management Pack for HPE Servers includes the following out-of-the-box features, harnessing the power of the vRealize Operations user interface:

- Resource Kinds and Relationships (HPE ProLiant)
- Inventory Tree (Traversal Spec) (HPE ProLiant)
- Dashboards (HPE ProLiant)
- Tags (HPE ProLiant)
- Views (HPE ProLiant)
- Reports (HPE ProLiant)
- Analysis Badges and Capacity Definitions (HPE ProLiant)
- Alerts (HPE ProLiant)
- Metrics (HPE ProLiant)

This chapter includes the following topics:

- Resource Kinds and Relationships (HPE ProLiant)
- Inventory Tree (Traversal Spec) (HPE ProLiant)
- Dashboards (HPE ProLiant)
- Tags (HPE ProLiant)
- Views (HPE ProLiant)
- Reports (HPE ProLiant)
- Analysis Badges and Capacity Definitions (HPE ProLiant)
- Alerts (HPE ProLiant)
- Metrics (HPE ProLiant)

Resource Kinds and Relationships (HPE ProLiant)

The Management Pack for HPE ProLiant creates Resource Kinds and Relationships (associations) for critical resources in your HPE ProLiant environment.

Resource Kinds

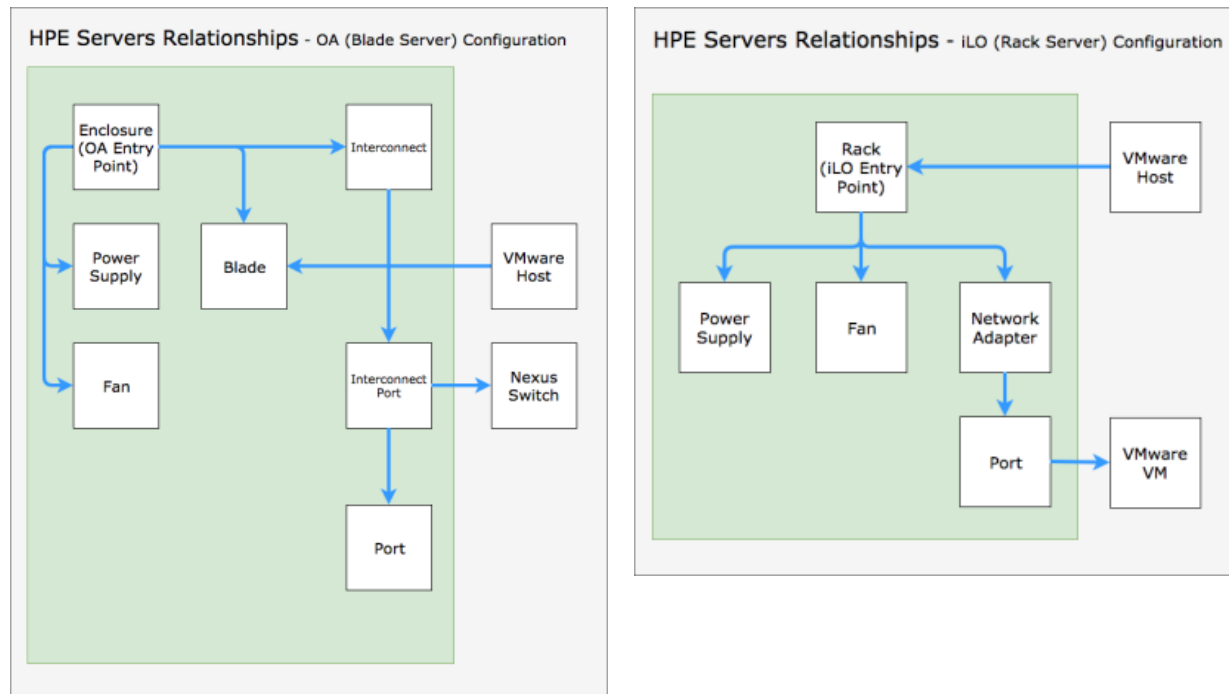
Performance, health, and availability data are collected for the following HPE ProLiant resource kinds:

- **HPE Enclosure**
- **HPE Blade (Server)**
- **HPE Network Adapter**
- **HPE Port**
- **HPE Rack (Server)**
- **HPE Power Supply**
- **HPE Fan**
- **HPE Interconnect**
- **HPE Interconnect Port**

Relationships

Relationships among discovered resources are also created by the Management Pack. The hierarchical structure of those relationships is depicted in the diagram below.

HPE ProLiant Relationships Diagrams



External Relationships

In addition to external relationships to the VMware virtual layer, the Management Pack for HPE ProLiant can discover an external relationship to Cisco Nexus switches for True Visibility Suite customers who are also using the [Management Pack for Cisco Networking](#).

- **HPE Interconnect Port (OA Blade Server Configuration Only) > Nexus Switch**

Inventory Tree (Traversal Spec) (HPE ProLiant)

The Inventory Tree (Traversal Spec) feature in vROps allows you to easily navigate your HPE ProLiant environment. The hierarchical structure implicitly shows relationships among resources and enables quick drill-downs to root-cause issues.

To access your HPE ProLiant **Inventory Tree**, select **Environment** from the top navigation bar, then select the **HPE ProLiant** from the left panel.

Dashboards (HPE ProLiant)

Dashboards are the primary feature for monitoring and troubleshooting HPE ProLiant data problems from within vRealize Operations.

The following dashboards are included in the Management Pack for HPE ProLiant :

- **HPE Overview** provides at-a-glance heatmap views depicting the overall health of your HP Server resources (enclosures, racks, chassis, power supplies, blades, fans, network adapters, etc.).
- **HPE Health Investigation** allows you to view health status, top alerts, and key performance Metrics (KPIs) for a selected resource in your HPE Servers environment.
- **HPE Enclosure Overview** displays an overview of the KPIs for your HPE enclosure(s) and its child resources, all in one view.
- **HPE Blade Overview** allows you to select a blade to view its health, status, properties, relationships, and alerts, as well as port status and properties.
- **HPE Rack Server Overview** allows you to select a rack server to view its health, status, properties, power, child resources (fans, network adapters, ports, etc.), relationships, and alerts. NB: Depending on your server configuration, some dashboards may not display data if those resource kinds are not present in your environment.
- **HPE Hosted ESXi Hosts** allows you to select an ESXi Host to view its properties, relationships, and KPIs, as well as its host HPE Server and related KPIs.
- **HPE Hosted VMs** allows you to select a virtual machine to view its KPIs and relationships, parent ESXi host and its KPIs, and HPE Server and its KPIs.

Note To filter by VMs and Hosts within the dashboards, see: [Tags \(HPE ProLiant\)](#)

Tags (HPE ProLiant)

To further customize how your Management Pack dashboards are displayed, the following tags are currently available for filtering:

- **VMware VMs on HPE Container**
- **VMware Hosts on HPE Container**
- **HPE ProLiant**
- **HPE**

To select a tag, perform the following steps:

- 1 From the top navigation bar, select **Dashboards**.
- 2 Select the specific dashboard you want to filter.
- 3 For the dashboard widget you want to filter, hover over the widget header at the top until icons appear on the right.
- 4 Select **Edit Widget** .
- 5 Select the desired HPE tag from the list, then click **Save**.

Views (HPE ProLiant)

The Management Pack for HPE ProLiant creates views that allow the user to view statistics of metrics for various HPE ProLiant resources. The views help give a broad picture of the entire system, as opposed to a more in depth view.

The following views are available in the Management Pack:

View	Type	Description
Average HPE Health Overview	List	Displays average health and availability over the past week
HPE Alerts	List	Displays alert counts by severity
HPE Capacity	List	Displays capacity (%) and time (days) remaining
HPE Chassis Average KPIs	List	Displays average chassis KPIs over the past week
HPE Fan KPIs	List	Displays KPIs for HPE fans
HPE Health Overview	List	Displays current health and availability
HPE Network Adapter Average KPIs	List	Displays average network adapter KPIs over the past week
HPE Port Average KPIs	List	Displays average port KPIs over the past week

View	Type	Description
HPE Power Supply KPIs	List	Displays KPIs for HPE power supplies
HPE Server Information	List	Displays KPIs and alert counts by severity for HPE blade and rack servers

To access the Management Pack views:

- 1 Navigate to **Environment > All Objects > HPE ProLiant**.
- 2 Double-click on the desired object (resource).
- 3 Select the **Details** tab, then **Views**.

The available views for that resource are listed and can be selected.

Reports (HPE ProLiant)

The Management Pack for HPE ProLiant contains out-of-the-box reports that you can easily export and share with key stakeholders in either .pdf or .csv formats.

The following reports are available in the Management Pack:

Report	Description
HPE Alerts	Includes alert counts for HPE resources by severity
HPE Capacity	Includes capacity (%) and time (days) remaining for applicable HPE resources
HPE Chassis Average KPIs	Includes average chassis KPIs over the past week
HPE Fan Average KPIs	Includes KPIs for HPE fans
HPE Firmware Report	Includes software and firmware versions for various HPE components
HPE Health Overview	Includes current health and availability of HPE resources
HPE Network Adapter Average KPIs	Includes average network adapter KPIs over the past week
HPE Port Average KPIs	Includes average port KPIs over the past week
HPE Power Supply KPIs	Includes KPIs for HPE power supplies
HPE Server Information	Includes KPIs and alert counts by severity for HPE blade and rack servers

To access Management Pack reports:

- 1 Navigate to **Environment > All Objects > HPE ProLiant**
- 2 Double-click on the desired object (resource).
- 3 Select the **Reports** tab, then **Report Templates**.

The available report(s) for the selected resource are listed and can be selected.

To run a selected report, click the **Run Template**  icon.

Analysis Badges and Capacity Definitions (HPE ProLiant)

Using the predictive analytics capabilities of the vRealize Operations Analysis Badges through capacity definitions, the Management Pack for HPE ProLiant populates capacities as indicated in the table below.

Capacity Definitions List

Container	Use in Workload
HPE Rack	
vRealize Calculated Power Capacity	yes
HPE Power Supply	
vRealize Calculated iLO Power Output Capacity	yes
vRealize Calculated OA Power Output Capacity	yes

Alerts (HPE ProLiant)

The Management Pack for HPE ProLiant creates alerts and provides recommended actions based on various symptoms (health status notifications and events) that it detects in your HPE ProLiant environment. See the table below for the list of alerts available in the Management Pack.

Name	Description	Symptom	Recommendation
Blade Health: Warning	Blade Health: Warning	Blade Health: Warning	Blade health is degraded. Review the health of this blade's related components to diagnose the problem.
Blade Health: Critical	Blade Health: Critical	Blade Health: Critical	Blade health is failed. Review the health of this blade's related components to diagnose the problem.

Name	Description	Symptom	Recommendation
Blade Memory Health: Warning	Blade Memory Health: Warning	Blade Memory Health: Warning	Blade memory health is degraded. Recommended actions: ■ Be sure the memory meets the blade requirements and is installed as required by the blade. ■ Some blades may require that memory banks be populated fully or that all memory within a memory bank must be the same size, type, and speed. To determine if the memory is installed properly, see the blade documentation. ■ Check any blade LEDs that correspond to memory slots. ■ If you are unsure which DIMM has failed, test each bank of DIMMs by removing all other DIMMs. Then isolate the failed DIMM by switching each DIMM in a bank with a known working DIMM. ■ Remove any third-party memory and run HP Insight Diagnostics.
Rack Memory Health: Warning	Rack Memory Health: Warning	Rack Memory Health: Warning	Rack memory health is degraded. Recommended actions: ■ Be sure the memory meets the rack requirements and is installed as required by the rack. ■ Some racks may require that memory banks be populated fully or that all memory within a memory bank must be the same size, type, and speed. To determine if the memory is installed properly, see the rack documentation. ■ Check any rack LEDs that correspond to memory slots. ■ If you are unsure which DIMM has failed, test each bank of DIMMs by removing all other DIMMs. Then, isolate the failed DIMM by switching each DIMM in a bank with a known working DIMM. ■ Remove any third-party memory and run HP Insight Diagnostics.
Blade Memory Health: Critical	Blade Memory Health: Critical	Blade Memory Health: Critical	Blade memory health is failed. Recommended actions: ■ Be sure the memory meets the blade requirements and is installed as required by the blade. ■ Some blades may require that memory banks be populated fully or that all memory within a memory bank must be the same size, type, and speed. To determine if the memory is installed properly, see the blade documentation. ■ Check any blade LEDs that correspond to memory slots. ■ If you are unsure which DIMM has failed, test each bank of DIMMs by removing all other DIMMs. Then, isolate the failed DIMM by switching each DIMM in a bank with a known working DIMM. ■ Remove any third-party memory and run HP Insight Diagnostics.

Name	Description	Symptom	Recommendation
Rack Memory Health: Critical	Rack Memory Health: Critical	Rack Memory Health: Critical	Rack memory health is failed. Recommended actions: ■ Be sure the memory meets the rack requirements and is installed as required by the rack. ■ Some racks may require that memory banks be populated fully or that all memory within a memory bank must be the same size, type, and speed. To determine if the memory is installed properly, see the rack documentation. ■ Check any rack LEDs that correspond to memory slots. ■ If you are unsure which DIMM has failed, test each bank of DIMMs by removing all other DIMMs. Then, isolate the failed DIMM by switching each DIMM in a bank with a known working DIMM. ■ Remove any third-party memory and run HP Insight Diagnostics.

Name	Description	Symptom	Recommendation
Blade Processor Health: Warning	Blade Processor Health: Warning	Blade Processor Health: Warning	Blade processor health is degraded. Recommended actions: ■ Be sure each processor is supported by the blade and is installed as directed in the blade documentation. The processor socket requires very specific installation steps and only supported processors should be installed. For processor requirements, see the blade documentation. ■ Be sure the blade ROM is current. ■ Be sure you are not mixing processor stepping, core speeds, or cache sizes if this is not supported on the blade. For more information, see the blade documentation. CAUTION: Removal of some processors and heatsinks require special considerations for replacement, while other processors and heatsinks are integrated and cannot be reused once separated. For specific instructions for the blade you are troubleshooting, refer to processor information in the blade user guide. ■ If the blade has only one processor installed, reseal the processor. If the problem is resolved after you restart the blade, the processor was not installed properly. ■ If the blade has only one processor installed, replace it with a known functional processor. If the problem is resolved after you restart the blade, the original processor failed. ■ If the blade has multiple processors installed, test each processor: 1 Remove all but one processor from the blade. Replace each with a processor terminator board or blank, if applicable to the blade. 2 Replace the remaining processor with a known functional processor. If the problem is resolved after you restart the blade, a fault exists with one or more of the original processors. Install each processor one by one, restarting each time, to find the faulty processor or processors. At each step, be sure the blade supports the processor configurations.

Name	Description	Symptom	Recommendation
Rack Processor Health: Warning	Rack Processor Health: Warning	Rack Processor Health: Warning	Rack processor health is degraded. Recommended actions: ■ Be sure each processor is supported by the rack and is installed as directed in the rack documentation. The processor socket requires very specific installation steps and only supported processors should be installed. For processor requirements, see the rack documentation. ■ Be sure the rack ROM is current. ■ Be sure you are not mixing processor stepping, core speeds, or cache sizes if this is not supported on the rack. For more information, see the rack documentation. CAUTION: Removal of some processors and heatsinks require special considerations for replacement, while other processors and heatsinks are integrated and cannot be reused once separated. For specific instructions for the rack you are troubleshooting, refer to processor information in the rack user guide. ■ If the rack has only one processor installed, reseal the processor. If the problem is resolved after you restart the rack, the processor was not installed properly. ■ If the rack has only one processor installed, replace it with a known functional processor. If the problem is resolved after you restart the rack, the original processor failed. ■ If the rack has multiple processors installed, test each processor: 1 Remove all but one processor from the rack. Replace each with a processor terminator board or blank, if applicable to the rack. 2 Replace the remaining processor with a known functional processor. If the problem is resolved after you restart the rack, a fault exists with one or more of the original processors. Install each processor one by one, restarting each time, to find the faulty processor or processors. At each step, be sure the rack supports the processor configurations.

Name	Description	Symptom	Recommendation
Blade Processor Health: Critical	Blade Processor Health: Critical	Blade Processor Health: Critical	Blade processor health is failed. Recommended actions: ■ Be sure each processor is supported by the blade and is installed as directed in the blade documentation. The processor socket requires very specific installation steps and only supported processors should be installed. For processor requirements, see the blade documentation. ■ Be sure the blade ROM is current. ■ Be sure you are not mixing processor stepping, core speeds, or cache sizes if this is not supported on the blade. For more information, see the blade documentation. CAUTION: Removal of some processors and heatsinks require special considerations for replacement, while other processors and heatsinks are integrated and cannot be reused once separated. For specific instructions for the blade you are troubleshooting, refer to processor information in the blade user guide. ■ If the blade has only one processor installed, reseal the processor. If the problem is resolved after you restart the blade, the processor was not installed properly. ■ If the blade has only one processor installed, replace it with a known functional processor. If the problem is resolved after you restart the blade, the original processor failed. ■ If the blade has multiple processors installed, test each processor: 1 Remove all but one processor from the blade. Replace each with a processor terminator board or blank, if applicable to the blade. 2 Replace the remaining processor with a known functional processor. If the problem is resolved after you restart the blade, a fault exists with one or more of the original processors. Install each processor one by one, restarting each time, to find the faulty processor or processors. At each step, be sure the blade supports the processor configurations.

Name	Description	Symptom	Recommendation
Rack Processor Health: Critical	Rack Processor Health: Critical	Rack Processor Health: Critical	Rack processor health is failed. Recommended actions: ■ Be sure each processor is supported by the rack and is installed as directed in the rack documentation. The processor socket requires very specific installation steps and only supported processors should be installed. For processor requirements, see the rack documentation. ■ Be sure the rack ROM is current. ■ Be sure you are not mixing processor stepping, core speeds, or cache sizes if this is not supported on the rack. For more information, see the rack documentation. CAUTION: Removal of some processors and heatsinks require special considerations for replacement, while other processors and heatsinks are integrated and cannot be reused once separated. For specific instructions for the rack you are troubleshooting, refer to processor information in the rack user guide. ■ If the rack has only one processor installed, reseal the processor. If the problem is resolved after you restart the rack, the processor was not installed properly. ■ If the rack has only one processor installed, replace it with a known functional processor. If the problem is resolved after you restart the rack, the original processor failed. ■ If the rack has multiple processors installed, test each processor: 1 Remove all but one processor from the rack. Replace each with a processor terminator board or blank, if applicable to the rack. 2 Replace the remaining processor with a known functional processor. If the problem is resolved after you restart the rack, a fault exists with one or more of the original processors. Install each processor one by one, restarting each time, to find the faulty processor or processors. At each step, be sure the rack supports the processor configurations.
Network Adapter Health: Warning	Network Adapter Health: Warning	Network Adapter Health: Warning	Network adapter health is degraded. Recommended action: ■ Reseat the network adapter and restart the server. ■ Review the signal backplane on the server or the midplane for damage. ■ Replace the adapter.
Network Adapter Health: Critical	Network Adapter Health: Critical	Network Adapter Health: Critical	Network adapter health is failed. Recommended action: ■ Reseat the network adapter and restart the server. ■ Review the signal backplane on the server or the midplane for damage. ■ Replace the adapter.

Name	Description	Symptom	Recommendation
Port Health: Warning	Port Health: Warning	Port Health: Warning	Port health is degraded. Recommended action: ■ Review the signal backplane on the server or the midplane for damage. ■ Replace the network adapter.
Port Health: Critical	Port Health: Critical	Port Health: Critical	Port health is failed. Recommended action: ■ Review the signal backplane on the server or the midplane for damage. ■ Replace the network adapter.
Rack Chassis Health: Warning	Rack Chassis Health: Warning	Rack Health: Warning	Rack chassis health is degraded. Review the health of this rack's related components to diagnose the problem.
Rack System Health: Warning	Rack System Health: Warning	Rack System Health: Warning	Rack system health is degraded. Review the health of this rack's related components to diagnose the problem.
Rack Chassis Health: Critical	Rack Chassis Health: Critical	Rack Health: Critical	Rack chassis health is failed. Review the health of this rack's related components to diagnose the problem.
Rack System Health: Critical	Rack System Health: Critical	Rack System Health: Critical	Rack system health is failed. Review the health of this rack's related components to diagnose the problem.
Power Supply Health: Warning	Power Supply Health: Warning	Power Supply Health: Warning	Power supply health is degraded. Recommended actions: ■ Be sure no loose connections exist. ■ Check the power source. If the power source is working properly, then replace the power supply. ■ Be sure the system has enough power, particularly if you recently added hardware, such as hard drives. Remove the newly added component and if the problem is no longer present, then additional power supplies are required. Check the system information from the IML. ■ If running a redundant configuration, be sure that all of the power supplies in the system have the same spare part number and are supported by the server.
Power Supply Health: Critical	Power Supply Health: Critical	Power Supply Health: Critical	Power supply health is failed. Recommended actions: ■ Be sure no loose connections exist. ■ Check the power source. If the power source is working properly, then replace the power supply. ■ Be sure the system has enough power, particularly if you recently added hardware, such as hard drives. Remove the newly added component and if the problem is no longer present, then additional power supplies are required. Check the system information from the IML. ■ If running a redundant configuration, be sure that all of the power supplies in the system have the same spare part number and are supported by the server.

Name	Description	Symptom	Recommendation
Fan Health: Warning	Fan Health: Warning	Fan Health: Warning	Fan health is degraded. Recommended actions: ■ Be sure the fans are properly seated and working. Follow the procedures and warnings in the server documentation for removing the access panels and accessing and replacing fans. Unseat, and then reseal, each fan according to the proper procedures. Replace the access panels, and then attempt to restart the server. ■ Be sure the fan configuration meets the functional requirements of the server. See the server documentation. ■ Be sure no ventilation problems exist. If you have been operating the server for an extended period of time with the access panel removed, airflow may have been impeded, causing thermal damage to components. For further requirements, see the server documentation. ■ Be sure no POST error messages are displayed while booting the server that indicate temperature violation or fan failure information. For the temperature requirements for the server, see the server documentation. ■ Use iLO or an optional IML viewer to access the IML to see if any event list error messages relating to fans are listed. ■ In the iLO web interface, navigate to the Information > System Information page and verify the following information: 1 Click the Fans tab and verify the fan status and fan speed. 2 Click the Temperatures tab and verify the temperature readings for each location on the Temperatures tab. If a hot spot is located, then check the airflow path for blockage by cables and other material. ■ Replace any required non-functioning fans and restart the server. For specifications on fan requirements, see the server documentation. ■ Be sure all fan slots have fans or blanks installed. For requirements, see the server documentation. ■ Verify the fan airflow path is not blocked by cables or other material.

Name	Description	Symptom	Recommendation
Fan Health: Critical	Fan Health: Critical	Fan Health: Critical	Fan health is failed. Recommended actions: ■ Be sure the fans are properly seated and working. Follow the procedures and warnings in the server documentation for removing the access panels and accessing and replacing fans. Unseat, and then reseal, each fan according to the proper procedures. Replace the access panels, and then attempt to restart the server. ■ Be sure the fan configuration meets the functional requirements of the server. See the server documentation. ■ Be sure no ventilation problems exist. If you have been operating the server for an extended period of time with the access panel removed, airflow may have been impeded, causing thermal damage to components. For further requirements, see the server documentation. ■ Be sure no POST error messages are displayed while booting the server that indicate temperature violation or fan failure information. For the temperature requirements for the server, see the server documentation. ■ Use iLO or an optional IML viewer to access the IML to see if any event list error messages relating to fans are listed. ■ In the iLO web interface, navigate to the Information > System Information page and verify the following information: 1 Click the Fans tab and verify the fan status and fan speed. 2 Click the Temperatures tab and verify the temperature readings for each location on the Temperatures tab. If a hot spot is located, then check the airflow path for blockage by cables and other material. ■ Replace any required non-functioning fans and restart the server. For specifications on fan requirements, see the server documentation. ■ Be sure all fan slots have fans or blanks installed. For requirements, see the server documentation. ■ Verify the fan airflow path is not blocked by cables or other material.
Rack Power Consumption: High	Rack Power Consumption: High	Rack Power Consumption: High	Rack power consumption is high. Recommended actions: ■ Be sure the power supplies are properly seated and operational. ■ Be sure the system has enough power, particularly if you recently added hardware, such as hard drives. Remove the newly added component and if the problem is no longer present, then additional power supplies are required.

Name	Description	Symptom	Recommendation
Power Supply Average Output: High	Power Supply Average Output: High	Power Supply Average Output: High	Power supply average output is high. Recommended actions: ■ Be sure all the other power supplies are properly seated and operational. ■ Be sure the system has enough power, particularly if you recently added hardware, such as hard drives. Remove the newly added component and if the problem is no longer present, then additional power supplies are required.
Temperature Sensor Reading Exceeded Non-Critical Threshold	Temperature Sensor Reading Exceeded Non-Critical Threshold	Temperature Sensor Reading Exceeded Non-Critical Threshold	Temperature exceeded the non-critical threshold. Recommended actions: ■ Check the airflow path for blockage by cables and other material. ■ Replace any required non-functioning fans and restart the server. For specifications on fan requirements, see the server documentation. ■ Be sure all fan slots have fans or blanks installed. For requirements, see the server documentation.
Temperature Sensor Reading Exceeded Non-Critical Threshold	Temperature Sensor Reading Exceeded Non-Critical Threshold	Temperature Sensor Reading Exceeded Non-Critical Threshold	Temperature exceeded the non-critical threshold. Recommended actions: ■ Check the airflow path for blockage by cables and other material. ■ Replace any required non-functioning fans and restart the server. For specifications on fan requirements, see the server documentation. ■ Be sure all fan slots have fans or blanks installed. For requirements, see the server documentation.
Temperature Sensor Reading Exceeded Critical Threshold	Temperature Sensor Reading Exceeded Critical Threshold	Temperature Sensor Reading Exceeded Critical Threshold	Temperature exceeded the critical threshold. Recommended actions: ■ Check the airflow path for blockage by cables and other material. ■ Replace any required non-functioning fans and restart the server. For specifications on fan requirements, see the server documentation. ■ Be sure all fan slots have fans or blanks installed. For requirements, see the server documentation.
Temperature Sensor Reading Exceeded Critical Threshold	Temperature Sensor Reading Exceeded Critical Threshold	Temperature Sensor Reading Exceeded Critical Threshold	Temperature exceeded the critical threshold. Recommended actions: ■ Check the airflow path for blockage by cables and other material. ■ Replace any required non-functioning fans and restart the server. For specifications on fan requirements, see the server documentation. ■ Be sure all fan slots have fans or blanks installed. For requirements, see the server documentation.

Name	Description	Symptom	Recommendation
Ambient Temperature Sensor Reading Exceeded Caution Threshold	Ambient Temperature Sensor Reading Exceeded Caution Threshold	Ambient Temperature Above Caution	Temperature exceeded the caution threshold. Recommended actions: ■ Check the airflow path for blockage by cables and other material. ■ Replace any required non-functioning fans and restart the server. For specifications on fan requirements, see the server documentation. ■ Be sure all fan slots have fans or blanks installed. For requirements, see the server documentation.
Ambient Temperature Sensor Reading Exceeded Critical Threshold	Ambient Temperature Sensor Reading Exceeded Critical Threshold	Ambient Temperature Above Critical	Temperature exceeded the Critical threshold. Recommended actions: ■ Check the airflow path for blockage by cables and other material. ■ Replace any required non-functioning fans and restart the server. For specifications on fan requirements, see the server documentation. ■ Be sure all fan slots have fans or blanks installed. For requirements, see the server documentation.
CPU Temperature Sensor Reading Exceeded Caution Threshold	CPU Temperature Sensor Reading Exceeded Caution Threshold	CPU Temperature Above Caution	Temperature exceeded the caution threshold. Recommended actions: ■ Check the airflow path for blockage by cables and other material. ■ Replace any required non-functioning fans and restart the server. For specifications on fan requirements, see the server documentation. ■ Be sure all fan slots have fans or blanks installed. For requirements, see the server documentation.
CPU Temperature Sensor Reading Exceeded Critical Threshold	CPU Temperature Sensor Reading Exceeded Critical Threshold	CPU Temperature Above Critical	Temperature exceeded the Critical threshold. Recommended actions: ■ Check the airflow path for blockage by cables and other material. ■ Replace any required non-functioning fans and restart the server. For specifications on fan requirements, see the server documentation. ■ Be sure all fan slots have fans or blanks installed. For requirements, see the server documentation.
Disk Temperature Sensor Reading Exceeded Caution Threshold	Disk Temperature Sensor Reading Exceeded Caution Threshold	Disk Temperature Above Caution	Temperature exceeded the caution threshold. Recommended actions: ■ Check the airflow path for blockage by cables and other material. ■ Replace any required non-functioning fans and restart the server. For specifications on fan requirements, see the server documentation. ■ Be sure all fan slots have fans or blanks installed. For requirements, see the server documentation.

Name	Description	Symptom	Recommendation
Disk Temperature Sensor Reading Exceeded Critical Threshold	Disk Temperature Sensor Reading Exceeded Critical Threshold	Disk Temperature Above Critical	Temperature exceeded the Critical threshold. Recommended actions: ■ Check the airflow path for blockage by cables and other material. ■ Replace any required non-functioning fans and restart the server. For specifications on fan requirements, see the server documentation. ■ Be sure all fan slots have fans or blanks installed. For requirements, see the server documentation.
I/O Temperature Sensor Reading Exceeded Caution Threshold	I/O Temperature Sensor Reading Exceeded Caution Threshold	I/O Temperature Above Caution	Temperature exceeded the caution threshold. Recommended actions: ■ Check the airflow path for blockage by cables and other material. ■ Replace any required non-functioning fans and restart the server. For specifications on fan requirements, see the server documentation. ■ Be sure all fan slots have fans or blanks installed. For requirements, see the server documentation.
I/O Temperature Sensor Reading Exceeded Critical Threshold	I/O Temperature Sensor Reading Exceeded Critical Threshold	I/O Temperature Above Critical	Temperature exceeded the Critical threshold. Recommended actions: ■ Check the airflow path for blockage by cables and other material. ■ Replace any required non-functioning fans and restart the server. For specifications on fan requirements, see the server documentation. ■ Be sure all fan slots have fans or blanks installed. For requirements, see the server documentation.
Memory Temperature Sensor Reading Exceeded Caution Threshold	Memory Temperature Sensor Reading Exceeded Caution Threshold	Memory Temperature Above Caution	Temperature exceeded the caution threshold. Recommended actions: ■ Check the airflow path for blockage by cables and other material. ■ Replace any required non-functioning fans and restart the server. For specifications on fan requirements, see the server documentation. ■ Be sure all fan slots have fans or blanks installed. For requirements, see the server documentation.
Memory Temperature Sensor Reading Exceeded Critical Threshold	Memory Temperature Sensor Reading Exceeded Critical Threshold	Memory Temperature Above Critical	Temperature exceeded the Critical threshold. Recommended actions: ■ Check the airflow path for blockage by cables and other material. ■ Replace any required non-functioning fans and restart the server. For specifications on fan requirements, see the server documentation. ■ Be sure all fan slots have fans or blanks installed. For requirements, see the server documentation.

Name	Description	Symptom	Recommendation
Power Supply Temperature Sensor Reading Exceeded Caution Threshold	Power Supply Temperature Sensor Reading Exceeded Caution Threshold	Power Supply Temperature Above Caution	Temperature exceeded the caution threshold. Recommended actions: ■ Check the airflow path for blockage by cables and other material. ■ Replace any required non-functioning fans and restart the server. For specifications on fan requirements, see the server documentation. ■ Be sure all fan slots have fans or blanks installed. For requirements, see the server documentation.
Power Supply Temperature Sensor Reading Exceeded Critical Threshold	Power Supply Temperature Sensor Reading Exceeded Critical Threshold	Power Supply Temperature Above Critical	Temperature exceeded the Critical threshold. Recommended actions: ■ Check the airflow path for blockage by cables and other material. ■ Replace any required non-functioning fans and restart the server. For specifications on fan requirements, see the server documentation. ■ Be sure all fan slots have fans or blanks installed. For requirements, see the server documentation.
System Temperature Sensor Reading Exceeded Caution Threshold	System Temperature Sensor Reading Exceeded Caution Threshold	System Temperature Above Caution	Temperature exceeded the caution threshold. Recommended actions: ■ Check the airflow path for blockage by cables and other material. ■ Replace any required non-functioning fans and restart the server. For specifications on fan requirements, see the server documentation. ■ Be sure all fan slots have fans or blanks installed. For requirements, see the server documentation.
System Temperature Sensor Reading Exceeded Critical Threshold	System Temperature Sensor Reading Exceeded Critical Threshold	System Temperature Above Critical	Temperature exceeded the Critical threshold. Recommended actions: ■ Check the airflow path for blockage by cables and other material. ■ Replace any required non-functioning fans and restart the server. For specifications on fan requirements, see the server documentation. ■ Be sure all fan slots have fans or blanks installed. For requirements, see the server documentation.

Metrics (HPE ProLiant)

The Management Pack for HPE ProLiant collects the metrics listed in the following table, according to HPE ProLiant resource kind.

[Download metrics list as .csv file](#)

Resource Kind	Resource Group	Resource Attribute	Attribute Type	Attribute Source	Attribute Description
HPE Servers Adapter Instance	License	Blades and Racks	double	iLO, Onboard Administrator	Number of blade and rack licenses required for this adapter instance.
HPE Servers Container	Relationships	Enclosure Children	string	iLO	All HPE enclosures.
HPE Servers Container	Relationships	Rack Children	string	iLO	All HPE racks.
VMware VMs on HPE Container	Relationships	Virtual Machine Children	string	iLO	The virtual machines running on HPE servers.
VMware Hosts on HPE Container	Relationships	Host System Children	string	iLO	The host systems running on HPE servers.
HPE Enclosure	Relationships	Servers Parent	string	iLO,OA	Servers container.
HPE Enclosure	Relationships	Chassis Children	string	iLO	All the chassis in this enclosure.
HPE Enclosure	Relationships	Blade Children	string	OA	All the blades in this enclosure.
HPE Enclosure	Relationships	Fan Children	string	OA	All the fans on this enclosure.
HPE Enclosure	Relationships	Power Supply Children	string	OA	All the power supplies on this enclosure.
HPE Enclosure	Relationships	Interconnect Children	string	OA	All the interconnects on this enclosure.
HPE Enclosure	Details	Asset Tag	string	VCM	Asset Tag of the Enclosure for identification
HPE Enclosure	Details	Description	string	VCM	Description of the Enclosure provided by HPE
HPE Enclosure	Details	Number of Device Bays	integer	VCM	Number of Device Bays
HPE Enclosure	Details	ID	string	VCM	The ID of the Enclosure.
HPE Enclosure	Details	Number of I/O Bays	integer	VCM	Number of I/O Bays
HPE Enclosure	Details	Manufacturer	string	VCM	Manufacturer of the Enclosure
HPE Enclosure	Details	OA1 IP Address	string	VCM	IP Address of Onboard Administrator 1
HPE Enclosure	Details	OA1 IPv6 Address	string	VCM	IPv6 Address of Onboard Administrator 1

Resource Kind	Resource Group	Resource Attribute	Attribute Type	Attribute Source	Attribute Description
HPE Enclosure	Details	OA2 IP Address	string	VCM	IP Address of Onboard Administrator 2
HPE Enclosure	Details	OA2 IPv6 Address	string	VCM	IPv6 Address of Onboard Administrator 2
HPE Enclosure	Details	Onboard Administrator Firmware Version	string	OA	Firmware Version of the Onboard Administrator
HPE Enclosure	Details	Part Number	string	OA	Part Number of the Enclosure
HPE Enclosure	Details	Primary	string	OA	Whether or not this is designated as the primary enclosure
HPE Enclosure	Details	Serial Number	string	OA	Serial Number of the Enclosure
HPE Enclosure	Details	Spare Part Number	string	VCM	Spare Part Number for the Enclosure
HPE Enclosure	Details	Spare Rack Name	string	VCM	Spare Rack Name for the enclosure
HPE Enclosure	Details	Name	string	OA,iLO	The name of the Enclosure.
HPE Enclosure	General (Deprecated)	Name (Deprecated)	string	iLO	The name of the enclosure.
HPE Enclosure	General (Deprecated)	UUID (Deprecated)	string	iLO	The universal unique identifier for this enclosure.
HPE Enclosure	Status	Communication Status	string	VCM	Communication Status of the Enclosure
HPE Enclosure	Status	Import Status	string	VCM	Import Status of the Enclosure
HPE Enclosure	Status	Onboard Administrator Status	string	VCM	Onboard Administrator Status
HPE Enclosure	Status	Operational Status	string	VCM	Operational Status of the Enclosure
HPE Enclosure	Status	Overall Status	string	VCM	Overall status of the Enclosure
HPE Enclosure	Status	Root Cause	string	VCM	Root Cause of the status
HPE Enclosure	Status	Status Cause	string	VCM	Cause of the status
HPE Blade	Relationships	Network Adapter Child	string	iLO	The network adapter on the blade.
HPE Blade	Relationships	Chassis Parent	string	iLO	The chassis this blade is in.

Resource Kind	Resource Group	Resource Attribute	Attribute Type	Attribute Source	Attribute Description
HPE Blade	Relationships	Enclosure Parent	string	OA	The enclosure this blade is in.
HPE Blade	Relationships	Port Child	string	OA	The ports on this blade.
HPE Blade	Relationships	Host System Parent	string	iLO	Host system parent.
HPE Blade	Details	Ambient Zone Temperature Sensors Above Caution	integer	OA	Number of Ambient Zone Temperature Sensors reported by the blade with values greater than the caution threshold
HPE Blade	Details	Ambient Zone Temperature Sensors Above Critical	integer	OA	Number of Ambient Zone Temperature Sensors reported by the blade with values greater than the critical threshold
HPE Blade	Details	Average Ambient Zone Temperature	float	OA	Average Ambient Zone Temperature reported by the blade
HPE Blade	Details	Average CPU Zone Temperature	float	OA	Average CPU Zone Temperature reported by the blade
HPE Blade	Details	Average Chassis Zone Temperature	float	OA	Average Chassis Zone Temperature reported by the blade
HPE Blade	Details	Average Disk Zone Temperature	float	OA	Average Disk Zone Temperature reported by the blade
HPE Blade	Details	Average I/O Board Zone Temperature	float	OA	Average I/O Board Zone Temperature reported by the blade
HPE Blade	Details	Average Memory Zone Temperature	float	OA	Average Memory Zone Temperature reported by the blade
HPE Blade	Details	Average Power Supply Zone Temperature	float	OA	Average Power Supply Zone Temperature reported by the blade
HPE Blade	Details	Average System Zone Temperature	float	OA	Average System Zone Temperature reported by the blade
HPE Blade	Details	BIOS Version	string	OA,iLO	BIOS Version of the blade
HPE Blade	Details	Blade Number	string	OA	Slot number of the blade.

Resource Kind	Resource Group	Resource Attribute	Attribute Type	Attribute Source	Attribute Description
HPE Blade	Details	CPU Zone Temperature Sensors Above Caution	integer	OA	Number of CPU Zone Temperature Sensors reported by the blade with values greater than the caution threshold
HPE Blade	Details	CPU Zone Temperature Sensors Above Critical	integer	OA	Number of CPU Zone Temperature Sensors reported by the blade with values greater than the critical threshold
HPE Blade	Details	Chassis Zone Temperature Sensors Above Caution	integer	OA	Number of Chassis Zone Temperature Sensors reported by the blade with values greater than the caution threshold
HPE Blade	Details	Chassis Zone Temperature Sensors Above Critical	integer	OA	Number of Chassis Zone Temperature Sensors reported by the blade with values greater than the critical threshold
HPE Blade	Details	Current Power Consumption	integer	OA	The blade's current power consumption
HPE Blade	Details	Disk Zone Temperature Sensors Above Caution	integer	OA	Number of Disk Zone Temperature Sensors reported by the blade with values greater than the caution threshold
HPE Blade	Details	Disk Zone Temperature Sensors Above Critical	integer	OA	Number of Disk Zone Temperature Sensors reported by the blade with values greater than the critical threshold
HPE Blade	Details	I/O Board Zone Temperature Sensors Above Caution	integer	OA	Number of I/O Board Zone Temperature Sensors reported by the blade with values greater than the caution threshold
HPE Blade	Details	I/O Board Zone Temperature Sensors Above Critical	integer	OA	Number of I/O Board Zone Temperature Sensors reported by the blade with values greater than the critical threshold
HPE Blade	Details	Management Processor Firmware Version	string	OA	The blade's management processor's firmware version
HPE Blade	Details	Management Processor IP Address	string	OA	The blade's management processor's IP Address

Resource Kind	Resource Group	Resource Attribute	Attribute Type	Attribute Source	Attribute Description
HPE Blade	Details	Management Processor MAC Address	string	OA	The blade's management processor's MAC Address
HPE Blade	Details	Management Processor Type	string	OA	The blade's management processor's type
HPE Blade	Details	Manufacturer	string	OA,iLO	Manufacturer of the blade
HPE Blade	Details	Maximum Ambient Zone Temperature	integer	OA	Maximum Ambient Zone Temperature reported by the blade
HPE Blade	Details	Maximum CPU Zone Temperature	integer	OA	Maximum CPU Zone Temperature reported by the blade
HPE Blade	Details	Maximum Chassis Zone Temperature	integer	OA	Maximum Chassis Zone Temperature reported by the blade
HPE Blade	Details	Maximum Disk Zone Temperature	integer	OA	Maximum Disk Zone Temperature reported by the blade
HPE Blade	Details	Maximum I/O Board Zone Temperature	integer	OA	Maximum I/O Board Zone Temperature reported by the blade
HPE Blade	Details	Maximum Memory Zone Temperature	integer	OA	Maximum Memory Zone Temperature reported by the blade
HPE Blade	Details	Maximum Power Supply Zone Temperature	integer	OA	Maximum Power Supply Zone Temperature reported by the blade
HPE Blade	Details	Maximum System Zone Temperature	integer	OA	Maximum System Zone Temperature reported by the blade
HPE Blade	Details	Memory Zone Temperature Sensors Above Caution	integer	OA	Number of Memory Zone Temperature Sensors reported by the blade with values greater than the caution threshold
HPE Blade	Details	Memory Zone Temperature Sensors Above Critical	integer	OA	Number of Memory Zone Temperature Sensors reported by the blade with values greater than the critical threshold
HPE Blade	Details	Minimum Ambient Zone Temperature	integer	OA	Minimum Ambient Zone Temperature reported by the blade

Resource Kind	Resource Group	Resource Attribute	Attribute Type	Attribute Source	Attribute Description
HPE Blade	Details	Minimum CPU Zone Temperature	integer	OA	Minimum CPU Zone Temperature reported by the blade
HPE Blade	Details	Minimum Chassis Zone Temperature	integer	OA	Minimum Chassis Zone Temperature reported by the blade
HPE Blade	Details	Minimum Disk Zone Temperature	integer	OA	Minimum Disk Zone Temperature reported by the blade
HPE Blade	Details	Minimum I/O Board Zone Temperature	integer	OA	Minimum I/O Board Zone Temperature reported by the blade
HPE Blade	Details	Minimum Memory Zone Temperature	integer	OA	Minimum Memory Zone Temperature reported by the blade
HPE Blade	Details	Minimum Power Supply Zone Temperature	integer	OA	Minimum Power Supply Zone Temperature reported by the blade
HPE Blade	Details	Minimum System Zone Temperature	integer	OA	Minimum System Zone Temperature reported by the blade
HPE Blade	Details	Model	string	OA	The model of the blade.
HPE Blade	Details	Number of Ambient Zone Temperature Sensors	integer	OA	Number of Ambient Zone Temperature Sensors reported by the blade
HPE Blade	Details	Number of CPU Zone Temperature Sensors	integer	OA	Number of CPU Zone Temperature Sensors reported by the blade
HPE Blade	Details	Number of Chassis Zone Temperature Sensors	integer	OA	Number of Chassis Zone Temperature Sensors reported by the blade
HPE Blade	Details	Number of Disk Zone Temperature Sensors	integer	OA	Number of Disk Zone Temperature Sensors reported by the blade
HPE Blade	Details	Number of I/O Board Zone Temperature Sensors	integer	OA	Number of I/O Board Zone Temperature Sensors reported by the blade
HPE Blade	Details	Number of Memory Zone Temperature Sensors	integer	OA	Number of Memory Zone Temperature Sensors reported by the blade
HPE Blade	Details	Number of Power Supply Zone Temperature Sensors	integer	OA	Number of Power Supply Zone Temperature Sensors reported by the blade

Resource Kind	Resource Group	Resource Attribute	Attribute Type	Attribute Source	Attribute Description
HPE Blade	Details	Number of System Zone Temperature Sensors	integer	OA	Number of System Zone Temperature Sensors reported by the blade
HPE Blade	Details	Power Management Controller Version	string	OA,iLO	Power Management Controller Version of the blade's management processor
HPE Blade	Details	Power Supply Zone Temperature Sensors Above Caution	integer	OA	Number of Power Supply Zone Temperature Sensors reported by the blade with values greater than the caution threshold
HPE Blade	Details	Power Supply Zone Temperature Sensors Above Critical	integer	OA	Number of Power Supply Zone Temperature Sensors reported by the blade with values greater than the critical threshold
HPE Blade	Details	SKU	string	OA,iLO	The blade's part number
HPE Blade	Details	Serial Number	string	OA,iLO	Serial Number of the blade.
HPE Blade	Details	System Zone Temperature Sensors Above Caution	integer	OA	Number of System Zone Temperature Sensors reported by the blade with values greater than the caution threshold
HPE Blade	Details	System Zone Temperature Sensors Above Critical	integer	OA	Number of System Zone Temperature Sensors reported by the blade with values greater than the critical threshold
HPE Blade	Details	Virtual Fan	integer	OA	The blade's virtual fan usage
HPE Blade	Details	Hostname	string	OA	The blade's hostname
HPE Blade	General	Serial Number (Deprecated)	string	iLO	The blade serial number.
HPE Blade	General	UUID	string	iLO	The universal unique identifier for this blade.
HPE Blade	General	Hostname	string	iLO	The hostname of this blade.
HPE Blade	General	Manufacturer (Deprecated)	string	iLO	The manufacturer or OEM of this blade.
HPE Blade	General	Model	string	iLO	The model information that the manufacturer uses to refer to this blade.
HPE Blade	General	SKU (Deprecated)	string	iLO	SKU for the blade.

Resource Kind	Resource Group	Resource Attribute	Attribute Type	Attribute Source	Attribute Description
HPE Blade	General	Asset Tag	string	iLO	A user-definable tag that is used to track this blade for inventory or other client purposes.
HPE Blade	Firmware	BIOS Version (Deprecated)	string	iLO	The version of the blade BIOS or primary blade firmware.
HPE Blade	Firmware	Platform Definition Firmware Version	string	iLO	Platform Definition Table version.
HPE Blade	Firmware	Power Management Controller Firmware Version	string	iLO	The Power Management Microcontroller firmware version.
HPE Blade	Firmware	Power Management Controller Bootloader Firmware Version	string	iLO	The Power Management Microcontroller firmware bootloader version.
HPE Blade	Firmware	SAS PLD Firmware Version	string	iLO	SAS Programmable Logic Device version.
HPE Blade	Firmware	SPS Firmware Version	string	iLO	SPS Firmware version
HPE Blade	Firmware	System PLD Firmware Version	string	iLO	The firmware version of the CPLD.
HPE Blade	Processor	Core Count	integer	iLO	The number of processor cores in the blade.
HPE Blade	Processor	Processor Count	integer	iLO	The number of processors in the blade.
HPE Blade	Processor	Processor Model	string	iLO	The processor model for the primary or majority of processors in this blade.
HPE Blade	Processor	Processor Health	string	iLO	This represents the health state of the processors in the absence of its dependent resources.
HPE Blade	Network Adapter	Critical Network Adapter Health	integer	iLO	Number of Network Adapters with Health Critical.
HPE Blade	Network Adapter	Warning Network Adapter Health	integer	iLO	Number of Network Adapters with Health Warning.
HPE Blade	Network Adapter	OK Network Adapter Health	integer	iLO	Number of Network Adapters with Health OK.
HPE Blade	Power	Power State	string	iLO	This is the current power state of the blade.
HPE Blade	Power	Power Capacity	double	iLO	The total amount of power allocated to the blade.

Resource Kind	Resource Group	Resource Attribute	Attribute Type	Attribute Source	Attribute Description
HPE Blade	Memory	Memory Health	string	iLO	This represents the health state of the memory in the absence of its dependent resources.
HPE Blade	Memory	Total Memory	double	iLO	The total amount of memory in the blade.
HPE Blade	Memory	Memory	integer	OA	Memory on the blade
HPE Blade	Status	State	string	iLO	This indicates the known state of the blade, such as if it is enabled.
HPE Blade	Status	Health	string	iLO, OA	This represents the health state of this blade in the absence of its dependent resources.
HPE Blade	Status	Cooling Status	string	OA	The blade's cooling status
HPE Blade	Status	Device Degraded Status	string	OA	The blade's device degraded status
HPE Blade	Status	Device Failure Status	string	OA	The blade's device failure status
HPE Blade	Status	I/O Configuration Status	string	OA	The blade's I/O configuration status
HPE Blade	Status	Internal Data Status	string	OA	The blade's internal data status
HPE Blade	Status	Location Status	string	OA	The blade's location status
HPE Blade	Status	Management Processor Status	string	OA,iLO	Status of the Management Processor on the blade
HPE Blade	Status	Mezzanine Card Status	string	OA	The blade's mezzanine card status
HPE Blade	Status	Power State	string	OA	The on/off power state of the blade
HPE Blade	Status	Power Status	string	OA	Power status of the blade
HPE Blade	Status	VCM Configured Status	string	OA	The blade's VCM configured status
HPE Blade	Status	iLO Network Status	string	OA	The blade's iLO network status
HPE Network Adapter	Relationships	Blade Parent	string	iLO	The blade this network adapter is on.
HPE Network Adapter	Relationships	Rack Parent	string	iLO	The rack system this network adapter is on.
HPE Network Adapter	Relationships	Port Child	string	iLO	Port that this network adapter has.

Resource Kind	Resource Group	Resource Attribute	Attribute Type	Attribute Source	Attribute Description
HPE Network Adapter	General	IP Addresses	string	iLO	The IP addresses of the ports on the network adapter.
HPE Network Adapter	General	Serial Number	string	iLO	The device serial number.
HPE Network Adapter	General	Part Number	string	iLO	The device part number.
HPE Network Adapter	Firmware	Firmware Version	string	iLO	This string represents the version of the firmware image.
HPE Network Adapter	Status	State	string	iLO	This indicates the known state of the port, such as if it is enabled.
HPE Network Adapter	Status	Health	string	iLO	This represents the health state of this resource in the absence of its dependent resources.
HPE Network Adapter	Port Health	State	string	iLO	This indicates the known state of the port, such as if it is enabled.
HPE Network Adapter	Port Health	Critical Port Health	integer	iLO	Number of Ports with Health Critical.
HPE Network Adapter	Port Health	Warning Port Health	integer	iLO	Number of Ports with Health Warning.
HPE Network Adapter	Port Health	OK Port Health	integer	iLO	Number of Ports with Health OK.
HPE Network Adapter	Performance	Bad Receives	double	iLO	A count of frames that were received by the adapter but which had an error. This counter is the sum of mib items cpqNicIfPhysAdapterAlignmentErrors, cpqNicIfPhysAdapterFCSErrors, cpqNicIfPhysAdapterFrameTooLongs, and cpqNicIfPhysAdapterInternalMacReceiveErrors. If this counter increments frequently, check the more detailed error statistics and take appropriate action.

Resource Kind	Resource Group	Resource Attribute	Attribute Type	Attribute Source	Attribute Description
HPE Network Adapter	Performance	Bad Transmits	double	iLO	A count of frames that were not transmitted by the adapter because of an error. This counter is the sum of MIB items cpqNicIfPhysAdapterDeferredTransmissions, cpqNicIfPhysAdapterLateCollisions, cpqNicIfPhysAdapterExcessiveCollisions, cpqNicIfPhysAdapterCarrierSenseErrors, and cpqNicIfPhysAdapterInternalMacTransmitErrors. If this counter increments frequently, check the more detailed error statistics and take appropriate action.
HPE Network Adapter	Performance	Good Receives	double	iLO	A count of frames successfully received by the physical adapter.
HPE Network Adapter	Performance	Good Transmits	double	iLO	A count of frames successfully transmitted by the physical adapter.
HPE Port	Relationships	Network Adapter Parent	string	iLO	The network adapter this port is on.
HPE Port	Details	Bay	integer	OA	Bay the port is in.
HPE Port	Details	Bay Port Number	integer	OA	Bay port number assigned to the port.
HPE Port	Details	Mezzanine Device	string	OA	Mezzanine device for the port.
HPE Port	Details	Mezzanine Slot	string	OA	Mezzanine slot of the port.
HPE Port	General	MAC Address	string	iLO	The port MAC address.
HPE Port	General	Full Duplex	string	iLO	Full-duplex data transmission means that data can be transmitted in both directions on a signal carrier at the same time.
HPE Port	General	IPv4 Address	string	iLO	This is the IPv4 Address.
HPE Port	General	IPv6 Address	string	iLO	This is the IPv6 Address.

Resource Kind	Resource Group	Resource Attribute	Attribute Type	Attribute Source	Attribute Description
HPE Port	Performance	Bad Receives	double	iLO	A count of frames that were received by the adapter but which had an error. This counter is the sum of mib items cpqNicIfPhysAdapterAlignmentErrors, cpqNicIfPhysAdapterFCSErrors, cpqNicIfPhysAdapterFrameTooLongs, and cpqNicIfPhysAdapterInternalMacReceiveErrors. If this counter increments frequently, check the more detailed error statistics and take appropriate action.
HPE Port	Performance	Bad Transmits	double	iLO	A count of frames that were not transmitted by the adapter because of an error. This counter is the sum of MIB items cpqNicIfPhysAdapterDeferredTransmissions, cpqNicIfPhysAdapterLateCollisions, cpqNicIfPhysAdapterExcessiveCollisions, cpqNicIfPhysAdapterCarrierSenseErrors, and cpqNicIfPhysAdapterInternalMacTransmitErrors. If this counter increments frequently, check the more detailed error statistics and take appropriate action.
HPE Port	Performance	Good Receives	double	iLO	A count of frames successfully received by the physical adapter.
HPE Port	Performance	Good Transmits	double	iLO	A count of frames successfully transmitted by the physical adapter.

Resource Kind	Resource Group	Resource Attribute	Attribute Type	Attribute Source	Attribute Description
HPE Port	Performance	Speed	double	iLO	An estimate of the interface's current bandwidth For interfaces which do not vary in bandwidth or for those where no accurate estimation can be made, this object should contain the nominal bandwidth.
HPE Port	Status	State	string	iLO	This indicates the known state of the port, such as if it is enabled.
HPE Port	Status	Health	string	iLO	This represents the health state of this resource in the absence of its dependent resources.
HPE Port	Status	Status	string	OA	Status of the port
HPE Chassis	Relationships	Enclosure Parent	string	iLO	Enclosure this chassis is on.
HPE Chassis	Relationships	Power Supply Child	string	iLO	Power Supply this chassis has.
HPE Chassis	Relationships	Blade Child	string	iLO	Blade this chassis has.
HPE Chassis	Relationships	Fan Child	string	iLO	Fan this chassis has.
HPE Chassis	Fan Health	Critical Fan Health	integer	iLO	Number of Fans with Health Critical.
HPE Chassis	Fan Health	Warning Fan Health	integer	iLO	Number of Fans with Health Warning.
HPE Chassis	Fan Health	OK Fan Health	integer	iLO	Number of Fans with Health OK.
HPE Chassis	Performance	Maximum Memory Temperature	double	iLO	The maximum memory temperature of the chassis.
HPE Chassis	Performance	Maximum CPU Temperature	double	iLO	The maximum cpu temperature of the chassis.
HPE Chassis	Performance	Average CPU Temperature	double	iLO	The average CPU temperature of the chassis.
HPE Chassis	Performance	Average Memory Temperature	double	iLO	The average memory temperature of the chassis.
HPE Chassis	General	Model	string	iLO	The chassis model number.
HPE Chassis	General	Serial Number	string	iLO	The chassis serial number.
HPE Chassis	General	Chassis Type	string	iLO	This property indicates the physical form factor type of this chassis.

Resource Kind	Resource Group	Resource Attribute	Attribute Type	Attribute Source	Attribute Description
HPE Chassis	General	Hostname	string	iLO	The hostname of this chassis.
HPE Chassis	General	Manufacturer	string	iLO	The chassis manufacturer.
HPE Chassis	General	UUID	string	iLO	The chassis UUID.
HPE Chassis	General	Name	string	iLO	The chassis name.
HPE Chassis	General	SKU	string	iLO	SKU for the chassis.
HPE Chassis	General	Version	string	iLO	The chassis version.
HPE Chassis	General	Asset Tag	string	iLO	The chassis user-assigned asset tag.
HPE Chassis	General	Consumed Height (Bays)	double	iLO	The number of enclosure bays this chassis consumes in height.
HPE Chassis	General	Consumed Width (Bays)	double	iLO	The number of enclosure bays this chassis consumes in width.
HPE Chassis	General	Bay Number	string	iLO	The position of the chassis inside an enclosure.
HPE Chassis	General	Height (U)	string	iLO	The chassis rack U height.
HPE Chassis	General	U Location	string	iLO	The chassis rack U location.
HPE Chassis	General	U Position	string	iLO	The chassis U position in the rack.
HPE Chassis	General	Rack Part Number	string	iLO	The chassis rack part number.
HPE Chassis	General	Rack Product Description	string	iLO	The chassis rack description.
HPE Chassis	Status	State	string	iLO	This indicates the known state of the chassis, such as if it is enabled.
HPE Chassis	Status	Health	string	iLO	This represents the health state of this chassis in the absence of its dependent resources.
HPE Chassis	Firmware	SAS PLD Firmware Version	string	iLO	The firmware version of the SAS controller.
HPE Chassis	Firmware	SPS Firmware Version	string	iLO	The SPS FW Version number, aka ME FW Version, AAAA.BBBB.CCCC.DDDD.E
HPE Chassis	Firmware	System PLD Firmware Version	string	iLO	The firmware version of the CPLD.

Resource Kind	Resource Group	Resource Attribute	Attribute Type	Attribute Source	Attribute Description
HPE Chassis	Firmware	Power Management Controller Firmware Version (Deprecated)	string	iLO	The firmware version of the Power Monitor.
HPE Chassis	Firmware	Power Management Controller Boot Loader Firmware Version	string	iLO	The firmware version of the Power Monitor boot loader.
HPE Chassis	Firmware	Platform Definition Firmware Version	string	iLO	The version of the Intelligent Platform Abstraction Data.
HPE Chassis	Power	Power Management Hardware Family	string	iLO	The family type of the Power Monitor hardware.
HPE Chassis	Power	Power Capacity	double	iLO	The total power (Watts) available to the chassis from all power supplies (adjusting for redundancy settings).
HPE Chassis	Power	Power Metrics Interval	double	iLO	The interval between power metric evaluation in minutes.
HPE Chassis	Power	Minimum Power Consumed	double	iLO	The minimum power consumed during the interval specified by IntervalInMin.
HPE Chassis	Power	Maximum Power Consumed	double	iLO	The maximum power consumed during the interval specified by IntervalInMin.
HPE Chassis	Power	Average Power Consumed	double	iLO	The average power consumed during the interval specified by IntervalInMin.
HPE Chassis	Power	Power Consumed	double	iLO	The latest observed power (Watts) being drawn by this chassis. The update interval may vary depending upon implementation but is usually measured in seconds.
HPE Rack	Relationships	Servers Parent	string	iLO	Servers container.
HPE Rack	Relationships	Enclosure Parent	string	iLO	Enclosure this rack is on.
HPE Rack	Relationships	Power Supply Child	string	iLO	Power Supply this rack has.
HPE Rack	Relationships	Network Adapter Child	string	iLO	Network adapter this rack has.

Resource Kind	Resource Group	Resource Attribute	Attribute Type	Attribute Source	Attribute Description
HPE Rack	Relationships	Fan Child	string	iLO	Fan this rack has.
HPE Rack	Relationships	Host System Parent	string	iLO	Host system parent.
HPE Rack	Network Adapter	Critical Network Adapter Health	integer	iLO	Number of Network Adapters with Health Critical.
HPE Rack	Network Adapter	Warning Network Adapter Health	integer	iLO	Number of Network Adapters with Health Warning.
HPE Rack	Network Adapter	OK Network Adapter Health	integer	iLO	Number of Network Adapters with Health OK.
HPE Rack	Fan Health	Critical Fan Health	integer	iLO	Number of Fans with Health Critical.
HPE Rack	Fan Health	Warning Fan Health	integer	iLO	Number of Fans with Health Warning.
HPE Rack	Fan Health	OK Fan Health	integer	iLO	Number of Fans with Health OK.
HPE Rack	Power Supply Health	Critical Power Supply Health	integer	iLO	Number of Power Supplies with Health Critical.
HPE Rack	Power Supply Health	Warning Power Supply Health	integer	iLO	Number of Power Supplies with Health Warning.
HPE Rack	Power Supply Health	OK Power Supply Health	integer	iLO	Number of Power Supplies with Health OK.
HPE Rack	Performance	Maximum Memory Temperature	double	iLO	The maximum memory temperature of the chassis.
HPE Rack	Performance	Maximum CPU Temperature	double	iLO	The maximum cpu temperature of the chassis.
HPE Rack	Performance	Average CPU Temperature	double	iLO	The average CPU temperature of the chassis.
HPE Rack	Performance	Average Memory Temperature	double	iLO	The average memory temperature of the chassis.
HPE Rack	General	Name	string	iLO	The rack name.
HPE Rack	General	Serial Number	string	iLO	The rack serial number.
HPE Rack	General	Chassis Type	string	iLO	This property indicates the physical form factor type of this rack.
HPE Rack	General	Hostname	string	iLO	The hostname of this rack.
HPE Rack	General	Manufacturer	string	iLO	The rack manufacturer.
HPE Rack	General	Model	string	iLO	The rack model number.
HPE Rack	General	SKU	string	iLO	SKU for the rack.

Resource Kind	Resource Group	Resource Attribute	Attribute Type	Attribute Source	Attribute Description
HPE Rack	General	Version	string	iLO	The rack version.
HPE Rack	General	Asset Tag	string	iLO	The rack user-assigned asset tag.
HPE Rack	General	UUID	string	iLO	The rack UUID provided by SMBIOS.
HPE Rack	General	Consumed Height (Bays)	string	iLO	The number of enclosure bays this rack consumes in height.
HPE Rack	General	Consumed Width (Bays)	string	iLO	The number of enclosure bays this rack consumes in width.
HPE Rack	General	Bay Number	string	iLO	The position of the rack inside an enclosure.
HPE Rack	General	Height (U)	string	iLO	The rack U height.
HPE Rack	General	U Location	string	iLO	The rack U location.
HPE Rack	General	U Position	string	iLO	The rack U position in the rack.
HPE Rack	General	Enclosure	string	iLO	The name of the rack enclosure.
HPE Rack	Status	State	string	iLO	This indicates the known state of the rack, such as if it is enabled.
HPE Rack	Status	Health	string	iLO	This represents the health state of this rack in the absence of its dependent resources.
HPE Rack	Firmware	BIOS Version	string	iLO	The version of the blade BIOS or primary blade firmware.
HPE Rack	Firmware	SAS PLD Firmware Version	string	iLO	The firmware version of the SAS controller.
HPE Rack	Firmware	SPS Firmware Version	string	iLO	The SPS FW Version number, aka ME FW Version, AAAA.BBBB.CCCC.DDDD.E
HPE Rack	Firmware	System PLD Firmware Version	string	iLO	The firmware version of the CPLD.
HPE Rack	Firmware	Power Management Controller Firmware Version	string	iLO	The firmware version of the Power Monitor.

Resource Kind	Resource Group	Resource Attribute	Attribute Type	Attribute Source	Attribute Description
HPE Rack	Firmware	Power Management Controller Boot Loader Firmware Version	string	iLO	The firmware version of the Power Monitor boot loader.
HPE Rack	Firmware	Platform Definition Firmware Version	string	iLO	The version of the Intelligent Platform Abstraction Data.
HPE Rack	Power	Power Management Hardware	string	iLO	The family type of the Power Monitor hardware.
HPE Rack	Power	Power State	string	iLO	This is the current power state of the blade.
HPE Rack	Power	Power Limit	double	iLO	The total amount of power allocated to the blade.
HPE Rack	Power	Power Capacity	double	iLO	The total power (Watts) available to the chassis from all power supplies (adjusting for redundancy settings).
HPE Rack	Power	Power Metrics Interval	double	iLO	The interval between power metric evaluation in minutes.
HPE Rack	Power	Minimum Power Consumed	double	iLO	The minimum power consumed during the interval specified by IntervalInMin.
HPE Rack	Power	Maximum Power Consumed	double	iLO	The maximum power consumed during the interval specified by IntervalInMin.
HPE Rack	Power	Average Power Consumed	double	iLO	The average power consumed during the interval specified by IntervalInMin.
HPE Rack	Power	Power Consumed	double	iLO	The latest observed power (Watts) being drawn by this chassis. The update interval may vary depending upon implementation but is usually measured in seconds.
HPE Rack	Processor	Core Count	integer	iLO	The number of processor cores in the rack system.
HPE Rack	Processor	Processor Count	integer	iLO	The number of processors in the rack system.

Resource Kind	Resource Group	Resource Attribute	Attribute Type	Attribute Source	Attribute Description
HPE Rack	Processor	Processor Model	string	iLO	The processor model for the primary or majority of processors in this rack system.
HPE Rack	Processor	Processor Health	string	iLO	This represents the health state of the processors in the absence of its dependent resources.
HPE Rack	Memory	Memory Health	string	iLO	This represents the health state of the memory in the absence of its dependent resources.
HPE Rack	Memory	Total Memory	double	iLO	The total amount of memory in the rack system.
HPE Power Supply	Relationships	Chassis Parent	string	iLO	Chassis this power supply is on.
HPE Power Supply	Relationships	Rack Parent	string	iLO	Rack this power supply is on.
HPE Power Supply	Relationships	Enclosure Parents	string	OA	List of parent Enclosure resources
HPE Power Supply	General	Serial Number	string	iLO	The serial number for this Power Supply
HPE Power Supply	General	Bay Number	string	iLO	The power supply bay number.
HPE Power Supply	General	Spare Part Number	string	iLO	The part number for this Power Supply
HPE Power Supply	General	Model	string	iLO	The model number for this Power Supply.
HPE Power Supply	General	Type	string	iLO	The Power Supply type (AC or DC).
HPE Power Supply	General	Hotplug Capable	string	iLO	If true, this power supply (and power supply bay) is capable of being hot-plugged.
HPE Power Supply	Firmware	Firmware Version	string	iLO	The firmware version for this Power Supply.
HPE Power Supply	Details	Current Power Output	integer	OA	Current Power Output
HPE Power Supply	Details	Output Capacity	integer	OA	Output Capacity
HPE Power Supply	Details	Part Number	string	OA	Part Number

Resource Kind	Resource Group	Resource Attribute	Attribute Type	Attribute Source	Attribute Description
HPE Power Supply	Details	Power Supply Number	string	OA	Power Supply Number.
HPE Power Supply	Details	Product Name	string	OA	Power Supply Product Name.
HPE Power Supply	Details	Spare Part Number	string	iLO, OA	Spare Part Number
HPE Power Supply	Details	Version	string	OA	Product Version
HPE Power Supply	Status	State	string	iLO	This indicates the known state of the power supply, such as if it is enabled.
HPE Power Supply	Status	Health	string	iLO	This represents the health state of this power supply in the absence of its dependent resources.
HPE Power Supply	Status	Status	string	OA	This indicates the known status of the power supply.
HPE Power Supply	Status	AC Input Status	string	OA	AC Input Status
HPE Power Supply	Status	Device Failure Status	string	OA	Device Failure Status
HPE Power Supply	Status	Internal Data Status	string	OA	Internal Data Status
HPE Power Supply	Status	Power Cord Status	string	OA	Power Cord Status
HPE Power Supply	Performance	Power Capacity	double	iLO	The maximum capacity of this Power Supply.
HPE Power Supply	Performance	Average Power Output	double	iLO	The average power output of this Power Supply.
HPE Fan	Relationships	Chassis Parent	string	iLO	Chassis this fan is on.
HPE Fan	Relationships	Rack Parent	string	iLO	Rack this fan is on.
HPE Fan	Details	Maximum speed	integer	OA	Maximum speed of the fan
HPE Fan	Details	Minimum speed	integer	OA	Minimum speed of the fan
HPE Fan	Details	Part Number	string	OA	HPE assigned part number
HPE Fan	Details	Power Consumed	integer	OA	Power Consumed by the fan
HPE Fan	Details	Product Name	string	OA	HPE assigned product name
HPE Fan	Details	Spare Part Number	string	OA	HPE assigned spare part number

Resource Kind	Resource Group	Resource Attribute	Attribute Type	Attribute Source	Attribute Description
HPE Fan	Details	Percent of Maximum Speed	integer	OA	Speed as a percent of Maximum speed
HPE Fan	Details	Version	string	OA	HPE assigned Version
HPE Fan	General	Chassis Serial Number	string	iLO	The serial number of the chassis this fan is on.
HPE Fan	General	Name	string	iLO	The name of the fan sensor.
HPE Fan	General	Fan Location	string	iLO	The area or device to which this fan is located.
HPE Fan	Status	State	string	iLO	The state of the fan.
HPE Fan	Status	Health	string	iLO	The health of the fan.
HPE Fan	Status	Device Degraded Status	string	OA	Device Degraded Diagnostic Status of the fan
HPE Fan	Status	Device Failure Status	string	OA	Device Failure Diagnostic Status of the fan
HPE Fan	Status	Internal Data Status	string	OA	Internal Data Diagnostic Status of the fan
HPE Fan	Status	Location Status	string	OA	Location Diagnostic Status of the fan
HPE Fan	Status	Missing Device Status	string	OA	Missing Device Diagnostic Status of the fan
HPE Fan	Status	Status	string	OA	Status of the fan
HPE Fan	Performance	Current Utilization (%)	double	iLO	The current utilization (% of max speed) of the fan.
HPE Fan	Performance	Current Speed (RPM)	double	iLO	The current speed of the fan.
HPE Interconnect	Network	Average Received Data	float	VCM	Average Received Data
HPE Interconnect	Network	Average Received Non Unicast Packets	float	VCM	Average Received Non Unicast Packets
HPE Interconnect	Network	Average Received Packets	float	VCM	Average Received Packets
HPE Interconnect	Network	Average Transmitted Data	float	VCM	Average Transmitted Data
HPE Interconnect	Network	Average Transmitted Non Unicast Packets	float	VCM	Average Transmitted Non Unicast Packets
HPE Interconnect	Network	Average Transmitted Packets	float	VCM	Average Transmitted Packets
HPE Interconnect	Network	Total Received Data	integer	VCM	Total Received Data

Resource Kind	Resource Group	Resource Attribute	Attribute Type	Attribute Source	Attribute Description
HPE Interconnect	Network	Total Received Non Unicast Packets	integer	VCM	Total Received Non Unicast Packets
HPE Interconnect	Network	Total Received Packets	integer	VCM	Total Received Packets
HPE Interconnect	Network	Total Transmitted Data	integer	VCM	Total Transmitted Data
HPE Interconnect	Network	Total Transmitted Non Unicast Packets	integer	VCM	Total Transmitted Non Unicast Packets
HPE Interconnect	Network	Total Transmitted Packets	integer	VCM	Total Transmitted Packets
HPE Interconnect	Network	Average TCP/IP Discarded Datagrams Received	float	VCM	Average Discarded Packets Received
HPE Interconnect	Network	Total TCP/IP Discarded Datagrams Received	integer	VCM	Total Discarded Packets Received
HPE Interconnect	Network	Average TCP/IP Forwarded Datagrams	float	VCM	Average Forwarded datagrams
HPE Interconnect	Network	Total TCP/IP Forwarded Datagrams	integer	VCM	Total Forwarded datagrams
HPE Interconnect	Network	Average TCP/IP Received Datagrams	float	VCM	Average Received Datagrams
HPE Interconnect	Network	Total TCP/IP Received Datagrams	integer	VCM	Total Received Datagrams
HPE Interconnect	Network	Average TCP/IP Discarded Inbound Packets	float	VCM	Average Discarded Inbound Packets
HPE Interconnect	Network	Total TCP/IP Discarded Inbound Packets	integer	VCM	Total Discarded Inbound Packets
HPE Interconnect	Network	Average TCP/IP Inbound Error Packets	float	VCM	Average Inbound Packets Undeliverable due to Errors
HPE Interconnect	Network	Total TCP/IP Inbound Error Packets	integer	VCM	Total Inbound Packets Undeliverable due to Errors
HPE Interconnect	Network	Average TCP/IP Header Error Datagrams Received	float	VCM	Average Header Error Datagrams Received
HPE Interconnect	Network	Total TCP/IP Header Error Datagrams Received	integer	VCM	Total Header Error Datagrams Received

Resource Kind	Resource Group	Resource Attribute	Attribute Type	Attribute Source	Attribute Description
HPE Interconnect	Network	Average TCP/IP Inbound Non-Unicast Packets	float	VCM	Average Non-Unicast Packets received
HPE Interconnect	Network	Total TCP/IP Inbound Non-Unicast Packets	integer	VCM	Total Non-Unicast Packets received
HPE Interconnect	Network	Average TCP/IP Total Octets Received	float	VCM	Average Total Octets Received
HPE Interconnect	Network	Total TCP/IP Total Octets Received	integer	VCM	Total Total Octets Received
HPE Interconnect	Network	Average TCP/IP Unicast Packets Received	float	VCM	Average Total Octets Received
HPE Interconnect	Network	Total TCP/IP Unicast Packets Received	integer	VCM	Total Total Octets Received
HPE Interconnect	Network	Average TCP/IP Unknown Protocols	float	VCM	Average Inbound packets discarded because of an unknown or unsupported protocol
HPE Interconnect	Network	Total TCP/IP Unknown Protocols	integer	VCM	Total Inbound packets discarded because of an unknown or unsupported protocol
HPE Interconnect	Network	Average TCP/IP Discarded Outbound Packets	float	VCM	Average Discarded outbound packets
HPE Interconnect	Network	Total TCP/IP Discarded Outbound Packets	integer	VCM	Total Discarded outbound packets
HPE Interconnect	Network	Average TCP/IP Outbound Error Packets	float	VCM	Average Outbound Packets Undeliverable due to Errors
HPE Interconnect	Network	Total TCP/IP Outbound Error Packets	integer	VCM	Total Outbound Packets Undeliverable due to Errors
HPE Interconnect	Network	Average TCP/IP Outbound Non-Unicast Packets	float	VCM	Average Outbound Non-Unicast Packets
HPE Interconnect	Network	Total TCP/IP Outbound Non-Unicast Packets	integer	VCM	Total Outbound Non-Unicast Packets
HPE Interconnect	Network	Average TCP/IP Total Octets Sent	float	VCM	Average Total Octets Sent
HPE Interconnect	Network	Total TCP/IP Total Octets Sent	integer	VCM	Total Total Octets Sent

Resource Kind	Resource Group	Resource Attribute	Attribute Type	Attribute Source	Attribute Description
HPE Interconnect	Network	Average TCP/IP Packet Outbound Queue Length	float	VCM	Average Packet Outbound Queue Length
HPE Interconnect	Network	Total TCP/IP Packet Outbound Queue Length	integer	VCM	Total Packet Outbound Queue Length
HPE Interconnect	Network	Average TCP/IP Unicast Packets Delivered	float	VCM	Average Unicast Packets Delivered
HPE Interconnect	Network	Total TCP/IP Unicast Packets Delivered	integer	VCM	Total Unicast Packets Delivered
HPE Interconnect	Relationships	Enclosure Parent	string	VCM	List of parent Enclosure resources
HPE Interconnect	Relationships	Servers Parent	string	VCM	List of parent server tag resources
HPE Interconnect	Relationships	Interconnect Port Children	string	VCM	List of child Interconnect Port resources
HPE Interconnect	Details	VCM Host	string	VCM	VCM Host
HPE Interconnect	Details	Bay	string	VCM	Bay
HPE Interconnect	Details	Enclosure	string	VCM	Enclosure
HPE Interconnect	Details	Firmware Version	string	VCM	Firmware Version
HPE Interconnect	Details	Hostname	string	VCM	Hostname
HPE Interconnect	Details	IP Address	string	VCM	IP Address
HPE Interconnect	Details	IPv6 Address	string	VCM	IPv6 Address
HPE Interconnect	Details	MAC Address	string	VCM	MAC Address
HPE Interconnect	Details	Manufacturer	string	VCM	Manufacturer
HPE Interconnect	Details	Node WWN	string	VCM	Node WWN
HPE Interconnect	Details	Part Number	string	VCM	Part Number
HPE Interconnect	Details	Product Name	string	VCM	Product Name

Resource Kind	Resource Group	Resource Attribute	Attribute Type	Attribute Source	Attribute Description
HPE Interconnect	Details	Rack Name	string	VCM	Rack Name
HPE Interconnect	Details	Role	string	VCM	Role
HPE Interconnect	Details	Serial Number	string	VCM	Serial Number
HPE Interconnect	Details	Spare Part Number	string	VCM	Spare Part Number
HPE Interconnect	Details	Type	string	VCM	Type
HPE Interconnect	Details	UID	string	VCM	UID
HPE Interconnect	Status	Status	string	VCM	Status
HPE Interconnect	Status	Status Cause	string	VCM	Status Cause
HPE Interconnect	Status	Root Cause	string	VCM	Root Cause
HPE Interconnect	Status	Power Status	string	VCM	Power Status
HPE Interconnect	Status	OA Status	string	VCM	OA Status
HPE Interconnect	Status	Comm Status	string	VCM	Comm Status
HPE Interconnect Port	Details	Autonegotiate	string	VCM	Autonegotiate
HPE Interconnect Port	Details	Connected From	string	VCM	Connected From
HPE Interconnect Port	Details	Connected To	string	VCM	Connected To
HPE Interconnect Port	Details	Enclosure	string	VCM	Enclosure
HPE Interconnect Port	Details	LAG ID	string	VCM	LAG ID
HPE Interconnect Port	Details	Label	string	VCM	Label

Resource Kind	Resource Group	Resource Attribute	Attribute Type	Attribute Source	Attribute Description
HPE Interconnect Port	Details	Paired With	string	VCM	Paired With
HPE Interconnect Port	Details	Speed	string	VCM	Speed
HPE Interconnect Port	Details	Type	string	VCM	Type
HPE Interconnect Port	Details	Used By	string	VCM	Used By
HPE Interconnect Port	Network	Received Frames	float	VCM	Frames received for bridging functions
HPE Interconnect Port	Network	Sent Frames	float	VCM	Frames sent for bridging functions
HPE Interconnect Port	Network	Discards	float	VCM	Frames discarded for bridging functions
HPE Interconnect Port	Network	Discards Due To Delay	float	VCM	Frames discarded due to excessive transit delay through the bridge for bridging functions
HPE Interconnect Port	Network	Discards Due To Size	float	VCM	Frames discarded due to excessive size for bridging functions
HPE Interconnect Port	Network	Interface Broadcast Received	float	VCM	Total broadcast packets received for this sub-layer to a higher (sub-)layer.
HPE Interconnect Port	Network	Interface Broadcast Sent	float	VCM	Total broadcast packets requested by a higher (sub-)layer.
HPE Interconnect Port	Network	Interface Multicast Received	float	VCM	Total multicast packets received for this sub-layer to a higher (sub-)layer.
HPE Interconnect Port	Network	Interface Multicast Sent	float	VCM	Total multicast packets requested by a higher (sub-)layer.
HPE Interconnect Port	Network	Interface Octets Received	float	VCM	Total octets received for this interface.

Resource Kind	Resource Group	Resource Attribute	Attribute Type	Attribute Source	Attribute Description
HPE Interconnect Port	Network	Interface Octets Sent	float	VCM	Total octets requested by a higher (sub-)layer.
HPE Interconnect Port	Network	Interface Unicast Received	float	VCM	Total unicast packets received for this sub-layer to a higher (sub-)layer.
HPE Interconnect Port	Network	Interface Unicast Sent	float	VCM	Total unicast packets requested by a higher (sub-)layer.
HPE Interconnect Port	Network	Received Data	integer	VCM	Received Data
HPE Interconnect Port	Network	Received Non Unicast Packets	integer	VCM	Received Non Unicast Packets
HPE Interconnect Port	Network	Received Packets	integer	VCM	Received Packets
HPE Interconnect Port	Network	Remote Broadcast Packets Received	float	VCM	Total good broadcast packets received
HPE Interconnect Port	Network	Remote Collisions	float	VCM	Collisions on this ethernet segment
HPE Interconnect Port	Network	Remote Drop Events	float	VCM	Total events in which packets were dropped due to lack of resources.
HPE Interconnect Port	Network	Remote Fragments	float	VCM	Total Packets received that were less than 64 octets in length.
HPE Interconnect Port	Network	Remote Jabbers	float	VCM	Total Packets received that were greater than 1518 octets in length.
HPE Interconnect Port	Network	Remote Multicast	float	VCM	Total Packets received that were directed to a multicast address.
HPE Interconnect Port	Network	Remote Octets	float	VCM	Total octets of data received on the network.
HPE Interconnect Port	Network	Remote Oversize Packets	float	VCM	Total packets longer than 1518 received on the network.
HPE Interconnect Port	Network	Remote Packets	float	VCM	Total packets received on the network.

Resource Kind	Resource Group	Resource Attribute	Attribute Type	Attribute Source	Attribute Description
HPE Interconnect Port	Network	Remote Packets Received without Errors	float	VCM	Total packets with no errors received on the network.
HPE Interconnect Port	Network	Remote Packets Size 1024 to 1418	float	VCM	Total packets between 1024 and 1418 octets received on the network.
HPE Interconnect Port	Network	Remote Packets Size 128 to 255	float	VCM	Total packets between 128 and 255 octets received on the network.
HPE Interconnect Port	Network	Remote Packets Size 256 to 511	float	VCM	Total packets between 256 and 511 octets received on the network.
HPE Interconnect Port	Network	Remote Packets Size 512 to 1023	float	VCM	Total packets between 512 and 1023 octets received on the network.
HPE Interconnect Port	Network	Remote Packets Size 64	float	VCM	Total packets sized 64 octets received on the network.
HPE Interconnect Port	Network	Remote Packets Size 65 to 127	float	VCM	Total packets between 65 and 127 octets received on the network.
HPE Interconnect Port	Network	Remote Packets Transmitted without Errors	float	VCM	Total packets with no errors transmitted on the network.
HPE Interconnect Port	Network	Remote Received CRC Alignment Errors	float	VCM	Total packets received that had an alignment error
HPE Interconnect Port	Network	Remote Undersized Packets	float	VCM	Total packets less than 64 octets in size received on the network.
HPE Interconnect Port	Network	TCP/IP Discarded Datagrams Received	float	VCM	Discarded Packets Received
HPE Interconnect Port	Network	TCP/IP Discarded Inbound Packets	float	VCM	Discarded Inbound Packets
HPE Interconnect Port	Network	TCP/IP Discarded Outbound Packets	float	VCM	Discarded outbound packets
HPE Interconnect Port	Network	TCP/IP Forwarded Datagrams	float	VCM	Forwarded datagrams
HPE Interconnect Port	Network	TCP/IP Header Error Datagrams Received	float	VCM	Header Error Datagrams Received

Resource Kind	Resource Group	Resource Attribute	Attribute Type	Attribute Source	Attribute Description
HPE Interconnect Port	Network	TCP/IP Inbound Error Packets	float	VCM	Inbound Packets Undeliverable due to Errors
HPE Interconnect Port	Network	TCP/IP Inbound Non-Unicast Packets	float	VCM	Non-Unicast Packets received
HPE Interconnect Port	Network	TCP/IP Outbound Error Packets	float	VCM	Outbound Packets Undeliverable due to Errors
HPE Interconnect Port	Network	TCP/IP Outbound Non-Unicast Packets	float	VCM	Outbound Non-Unicast Packets
HPE Interconnect Port	Network	TCP/IP Packet Outbound Queue Length	integer	VCM	Packet Outbound Queue Length
HPE Interconnect Port	Network	TCP/IP Received Datagrams	float	VCM	Received Datagrams
HPE Interconnect Port	Network	TCP/IP Total Octets Received	float	VCM	Total Octets Received
HPE Interconnect Port	Network	TCP/IP Total Octets Sent	float	VCM	Total Octets Sent
HPE Interconnect Port	Network	TCP/IP Unicast Packets Delivered	float	VCM	Unicast Packets Delivered
HPE Interconnect Port	Network	TCP/IP Unicast Packets Received	float	VCM	Total Octets Received
HPE Interconnect Port	Network	TCP/IP Unknown Protocols	float	VCM	Inbound packets discarded because of an unknown or unsupported protocol
HPE Interconnect Port	Network	Transmitted Data	integer	VCM	Transmitted Data
HPE Interconnect Port	Network	Transmitted Non Unicast Packets	integer	VCM	Transmitted Non Unicast Packets
HPE Interconnect Port	Network	Transmitted Packets	integer	VCM	Transmitted Packets
HPE Interconnect Port	Relationships	Interconnect Parents	string	VCM	List of parent Interconnect resources

Resource Kind	Resource Group	Resource Attribute	Attribute Type	Attribute Source	Attribute Description
HPE Interconnect Port	Relationships	Port Parents	string	VCM	List of parent Port resources
HPE Interconnect Port	Relationships	Cisco Networking Switch Parent	string	iLO	Cisco Networking Switch parent.
HPE Interconnect Port	Status	PID LED State	string	VCM	PID LED State
HPE Interconnect Port	Status	Status	string	VCM	Status