



**Hewlett Packard
Enterprise**

HPE iLO Federation User Guide for iLO 5

Abstract

This guide explains how to configure and use the HPE iLO Federation features. It is intended for system administrators, Hewlett Packard Enterprise representatives, and Hewlett Packard Enterprise Authorized Channel Partners who are involved in configuring and using iLO 5, HPE ProLiant Gen10 servers, and HPE Synergy compute modules.

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iLO Federation

iLO Federation enables you to manage multiple servers from one system using the iLO web interface. When configured for iLO Federation, iLO uses multicast discovery and peer-to-peer communication to enable communication between the systems in an iLO Federation group.

When an iLO Federation page loads, a data request is sent from the iLO system running the web interface to its peers, and from those peers to other peers until all data for the selected iLO Federation group is retrieved.

iLO supports the following features:

- Group health status—View server health and model information.
- Group Virtual Media—Connect URL-based media for access by the servers in an iLO Federation group.
- Group power control—Manage the power status of the servers in an iLO Federation group.
- Group power capping—Set dynamic power caps for the servers in an iLO Federation group.
- Group firmware update—Update the firmware of the servers in an iLO Federation group.
- Group license installation—Enter a license key to activate iLO licensed features on the servers in an iLO Federation group.
- Group configuration—Add iLO Federation group memberships for multiple iLO systems.

Any user can view information on iLO Federation pages, but a license is required for using the following features: Group Virtual Media, Group power control, Group power capping, Group configuration, and Group firmware update.

More information

[iLO licensing](#) on page 33

Configuring iLO Federation

Prerequisites for using the iLO Federation features

Procedure

- **The network configuration meets the iLO Federation requirements.**
- **The multicast options are configured for each iLO system that will be added to an iLO Federation group.**
If you use the default multicast option values, configuration is not required.
- **iLO Federation group memberships are configured.**
All iLO systems are automatically added to the **DEFAULT** group.
- **Enclosure support for iLO Federation** is configured in the Onboard Administrator software (ProLiant server blades only).
This setting is enabled by default.

iLO Federation network requirements

- Optional: iLO Federation supports both IPv4 and IPv6. If both options have valid configurations, you can configure iLO to use IPv4 instead of IPv6. To configure this setting, disable the **iLO Client Applications use IPv6 first** option on the **IPv6 Settings** page.
- Configure the network to forward multicast traffic if you want to manage iLO systems in multiple locations.
- If the switches in your network include the option to enable or disable multicast traffic, ensure that it is enabled. This configuration is required for iLO Federation and other Hewlett Packard Enterprise products to discover the iLO systems on the network.
- For iLO systems that are separated by Layer 3 switches, configure the switches to forward SSDP multicast traffic between networks.
- Configure the network to allow multicast traffic (UDP port 1900) and direct HTTP (TCP default port 80) communication between iLO systems.
- For networks with multiple VLANs, configure the switches to allow multicast traffic between the VLANs.
- For networks with Layer 3 switches:
 - For IPv4 networks: Enable PIM on the switch and configure it for PIM Dense Mode.
 - For IPv6 networks: Configure the switch for MLD snooping.

Configuring the multicast options for one iLO system at a time

Use the following procedure to configure the multicast options for each iLO system that will be added to an iLO Federation group. If you use the default values, configuration is not required.

You can use the iLO RESTful API or RIBCL scripts to view and configure multicast options for multiple iLO systems.

Prerequisites

Configure iLO Settings privilege

Procedure

1. Click **iLO Federation** in the navigation tree.

The **Setup** tab is displayed.

2. Enable or disable the **iLO Federation Management** option.
3. Enable or disable the **Multicast Discovery** option.
4. Enter a value for **Multicast Announcement Interval (seconds/minutes)**.
5. Select a value for **IPv6 Multicast Scope**.

To ensure that multicast discovery works correctly, make sure that all iLO systems in the same group use the same value for **IPv6 Multicast Scope**.

6. Enter a value for **Multicast Time To Live (TTL)**.

To ensure that multicast discovery works correctly, make sure that all iLO systems in the same group use the same value for **Multicast Time to Live (TTL)**.

7. Click **Apply**.

Network changes and changes you make on this page take effect after the next multicast announcement.

Multicast options

iLO Federation Management

Enables or disables the iLO Federation features. The default setting is **Enabled**. Selecting **Disabled** disables the iLO Federation features for the local iLO system.

This property is called `iLOFederationManagement` in the iLO RESTful API.

Multicast discovery

Enables or disables multicast discovery. The default setting is **Enabled**. Selecting **Disabled** disables the iLO Federation features for the local iLO system.

Disabling multicast discovery is not supported on Synergy compute modules. To limit the impact of multicast traffic on a network with Synergy compute modules, adjust the **IPv6 Multicast Scope** and **Multicast Time To Live (TTL)** settings.

This property is called `MulticastDiscovery` in the iLO RESTful API.

Multicast Announcement Interval (seconds/minutes)

Sets the frequency at which the iLO system announces itself on the network. Each multicast announcement is approximately 300 bytes. Select a value of 30 seconds to 30 minutes. The default value is 10 minutes. Selecting **Disabled** disables the iLO Federation features for the local iLO system.

The possible values are:

- 30, 60, or 120 seconds
- 5, 10, 15, or 30 minutes
- Disabled

This property is called `MulticastAnnouncementInterval` in the iLO RESTful API. Enter the value in seconds when you configure this setting with the RESTful Interface Tool.

IPv6 Multicast Scope

The size of the network that will send and receive multicast traffic. Valid values are **Link**, **Site**, and **Organization**. The default value is **Site**.

This property is called `IPv6MulticastScope` in the iLO RESTful API.

Multicast Time To Live (TTL)

Specifies the number of switches that can be traversed before multicast discovery stops. Valid values are from 1 to 255. The default value is 5.

This property is called `MulticastTimeToLive` in the iLO RESTful API.

iLO Federation groups

iLO Federation group memberships for local iLO systems

When you configure group memberships for a local iLO system, you specify the privileges that members of a group have for configuring the local managed server.

For example, if you add the local iLO system to **group1** and assign the Virtual Power and Reset privilege, the users of other iLO systems in **group1** can change the power state of the managed server.

If the local iLO system does not grant the Virtual Power and Reset privilege to **group1**, the users of other iLO systems in **group1** cannot use the group power control features to change the power state of the managed server.

If the system maintenance switch is set to disable iLO security on the local iLO system, the users of other iLO systems in **group1** can change the state of the managed server, regardless of the assigned group privileges.

Group memberships for the local iLO system are configured on the **iLO Federation** page **Setup** tab.

You can perform the following tasks for a local iLO system:

- View group memberships.
- Add and edit group memberships.
- Remove group memberships.

More information

[Adding iLO Federation group memberships on page 11](#)

[Editing iLO Federation group memberships on page 12](#)

[Removing a local iLO system from an iLO Federation group on page 13](#)

[Viewing iLO Federation group memberships \(local iLO system\) on page 13](#)

iLO Federation group memberships for a set of iLO systems

When you add group memberships for multiple iLO systems at one time, you specify the privileges that members of the group have for configuring the other members of the group.

For example, if you configure **group2** based on the **DEFAULT** group, and you assign the Virtual Power and Reset privilege, the users of iLO systems in **group2** can change the power state of all the servers in the group.

You can add group memberships for multiple iLO systems on the **Group Configuration** page.

You can perform the following tasks for a group of iLO systems:

- Create a group with the same members as an existing group, but with different privileges.
- Create a group with members that you select by using the iLO Federation filters.











More information

[Adding an iLO Federation group based on an existing group on page 13](#)

[Creating a group from a filtered set of servers on page 15](#)

iLO Federation group privileges

When an iLO system is added to a group, the group can be granted the following privileges:

-  **Login**— Group members can log in to iLO.
-  **Remote Console**—Group members can remotely access the managed server Remote Console, including video, keyboard, and mouse control.
-  **Virtual Power and Reset**—Group members can power-cycle or reset the host system. These activities interrupt the system availability.
-  **Virtual Media**—Group members can use URL-based Virtual Media with the managed server.
-  **Host BIOS**—Group members can configure the host BIOS settings by using the UEFI System Utilities.
-  **Configure iLO Settings**—Group members can configure most iLO settings, including security settings, and can remotely update firmware.
-  **Administer User Accounts**—Group members can add, edit, and delete iLO user accounts.
-  **Host NIC**—Group members can configure the host NIC settings.
-  **Host Storage**—Group members can configure the host storage settings.
-  **Recovery Set**—Group members can manage the recovery install set.

This privilege is not available if you start a session when the system maintenance switch is set to disable iLO security.

iLO Federation group characteristics

- All iLO systems are automatically added to the **DEFAULT** group, which is granted the Login privilege for each group member. You can edit or delete the **DEFAULT** group membership.
- iLO Federation groups can overlap, span racks and data centers, and can be used to create management domains.
- An iLO system can be a member of up to 10 iLO Federation groups.
- There is no limit on the number of iLO systems that can be in a group.
- You must have the Configure iLO Settings privilege to configure group memberships.
- You can use the iLO web interface to configure group memberships for a local iLO system or a group of iLO systems.
- You can use RIBCL XML scripts to view and configure group memberships.
- You can use the iLO RESTful API to configure group memberships.
- Hewlett Packard Enterprise recommends installing the same version of the iLO firmware on iLO systems that are in the same iLO Federation group.

Managing iLO Federation group memberships (local iLO system)

Adding iLO Federation group memberships

Prerequisites

Configure iLO Settings privilege

Procedure

1. Click **iLO Federation** in the navigation tree.
The **Setup** tab is displayed.
2. Click **Join Group**.
3. Enter the following information:
 - **Group Name**—The group name, which can be 1 to 31 characters long.
 - **Group Key**—The group password, which can be from the configured minimum password length to 31 characters long.
 - **Group Key Confirm**—Confirm the group password.

If you enter the name and key for an existing group, the local iLO system is added to that group. If you enter the name and key for a group that does not exist, the group is created and the local iLO system is added to the new group.

4. Select from the following privileges:

- **Login**
- **Remote Console**
- **Virtual Power and Reset**
- **Virtual Media**
- **Host BIOS**
- **Configure iLO Settings**
- **Administer User Accounts**
- **Host NIC**
- **Host Storage**
- **Recovery Set**

The privileges granted to the group by the local iLO system control the tasks that users of other iLO systems in the group can perform on the managed server.

5. Click **Join Group**.

More information

[iLO Federation group memberships for local iLO systems](#) on page 9

[iLO Federation group privileges](#) on page 10

Editing iLO Federation group memberships

Prerequisites

Configure iLO Settings privilege

Procedure

1. Click **iLO Federation** in the navigation tree.

The **Setup** tab displays the existing group memberships for the local iLO system.

2. Select a group membership, and then click **Edit**.

3. To change the group name, enter a new name in the **Group Name** box.

The group name can be 1 to 31 characters long.

4. To change the group key, select the **Change Group Key** check box, then enter a new value in the **Group Key** and **Group Key Confirm** boxes.

The group key can be from the configured minimum password length to 31 characters long.

5. Select or clear the check boxes for the privileges you want to update.

The privileges granted to the group by the local iLO system control the tasks that users of other iLO systems in the group can perform on the managed server.

6. Click **Update Group**.

7. If you updated the group name or group key, update them on the other systems in the affected group.

More information

[iLO Federation group memberships for local iLO systems](#) on page 9

[iLO Federation group privileges](#) on page 10

Removing a local iLO system from an iLO Federation group

Prerequisites

Configure iLO Settings privilege

Procedure

1. Click **iLO Federation** in the navigation tree.
The **Setup** tab shows the group membership for the local iLO system.
2. Select the check box next to the group membership that you want to delete.
3. Click **Delete**.
4. When prompted to confirm the request, click **Yes, delete**.

Viewing iLO Federation group memberships (local iLO system)

Procedure

Click **iLO Federation** in the navigation tree.

You can also use RIBCL scripts to view information about groups. For more information, see the iLO Federation user guide.

The **Group Membership for this iLO** table lists the name of each group that includes the local iLO system, and the privileges granted to the group by the local iLO system.

More information

[iLO Federation group privileges](#) on page 10

Adding iLO Federation group memberships (multiple iLO systems)

Adding an iLO Federation group based on an existing group

Use this procedure to create an iLO Federation group with the same members as an existing group. For example, you might want to create a group that contains the same systems that are in the DEFAULT group, but with different privileges.

Prerequisites

- Configure iLO Settings privilege
- A license that supports this feature is installed. For information about the available license types and the features they support, see the licensing documentation at the following website: <http://www.hpe.com/info/ilo>.

Procedure

1. Click **iLO Federation** in the navigation tree, and then click the **Group Configuration** tab.

If no iLO Federation groups exist, this page displays the following message: *There are no configured groups.* Use the iLO Federation **Setup** page to create a group.

2. Select a group from the **Selected Group** menu.

All of the systems in the selected group will be added to the group you create on this page.

3. Enter the following information:

- **Group Name**—The group name, which can be 1 to 31 characters long.
- **Group Key**—The group password, which can be from the configured minimum password length to 31 characters long.
- **Group Key Confirm**—Confirm the group password.

If you enter the name of a group that exists, iLO prompts you to enter a unique group name.

4. Select from the following privileges:

- **Administer User Accounts**
- **Remote Console Access**
- **Virtual Power and Reset**
- **Virtual Media**
- **Configure iLO Settings**
- **Login Privilege**

This step defines the privileges that members of the group have for configuring the other members of the group.

5. Optional: Enter the **Login Name** and **Password** for a user account on the remote systems you want to manage.

This information is required if the selected group does not have the Configure iLO Settings privilege on the remote systems you want to manage.

To enter credentials for multiple remote systems, create a user account with the same login name and password on each system.

For more information, see the iLO user guide.

6. Click **Create Group**.

The group creation process takes a few minutes. The group will be fully populated within the amount of time configured for the **Multicast Announcement Interval**.

More information

[iLO Federation group memberships for a set of iLO systems](#) on page 10

[iLO Federation group privileges](#) on page 10

Creating a group from a filtered set of servers

Use this procedure to create an iLO Federation group from a list of filtered servers. For example, you might want to create a group that contains all servers with a specific version of the iLO firmware.

When you create a group from a list of filtered servers, only the servers listed in the **Affected Systems** list at the time the group is created are added to the group. If you configure servers that meet the filter criteria after the group is created, they are not added to the group.

Prerequisites

- Configure iLO Settings privilege
- A license that supports this feature is installed. For information about the available license types and the features they support, see the licensing documentation at the following website: <http://www.hpe.com/info/ilo>.

Procedure

1. Create a set of systems by using the filters on the **iLO Federation** pages.

2. Click **iLO Federation** in the navigation tree, and then click the **Group Configuration** tab.

The filters you apply when you create a set of systems are listed at the top of the page. To remove a filter, click the filter name.

If no iLO Federation groups exist, this page displays the following message: `There are no configured groups.` Use the **Setup** page to create a group.

3. Select a group from the **Selected Group** menu.

All of the systems in the selected group that meet the selected filter criteria will be added to the new group.

4. Enter the following information:

- **Group Name**—The group name, which can be 1 to 31 characters long.
- **Group Key**—The group password, which can be from the configured minimum password length to 31 characters long.
- **Group Key Confirm**—Confirm the group password.

5. Select from the following privileges:

- **Administer User Accounts**
- **Remote Console Access**
- **Virtual Power and Reset**
- **Virtual Media**
- **Configure iLO Settings**
- **Login Privilege**

This step defines the privileges that members of the group have for configuring the other members of the group.

6. Optional: Enter the **Login Name** and **Password** for a user account on the remote systems you want to manage.

This information is required if the selected group does not have the Configure iLO Settings privilege on the remote systems you want to manage.

To enter credentials for multiple remote systems, create a user account with the same login name and password on each system.

7. To save the configuration, click **Create Group**.

The group creation process takes a few minutes. The group will be fully populated within the amount of time configured for the **Multicast Announcement Interval**.

More information

[iLO Federation group memberships for a set of iLO systems](#) on page 10

[Selected Group list filters](#) on page 18

[iLO Federation group privileges](#) on page 10

Servers affected by a group membership change

The **Affected Systems** section on the **Group Configuration** page provides the following details about the servers affected when you make a group membership change:

- **Server Name**—The server name defined by the host operating system.
- **Server Power**—The server power state (**ON** or **OFF**).
- **UID Indicator**—The state of the UID LED. The UID LED helps you identify and locate a server, especially in high-density rack environments. The possible states are **UID ON**, **UID OFF**, and **UID BLINK**.
- **iLO Hostname**—The fully qualified network name assigned to the iLO subsystem. To open the iLO web interface for the server, click the link in the **iLO Hostname** column.
- **IP Address**—The network IP address of the iLO subsystem. To open the iLO web interface for the server, click the link in the **IP Address** column.

Click **Next** or **Prev** (if available) to view more servers in the list.

More information

[Exporting iLO Federation information to a CSV file](#) on page 19

Configuring Enclosure iLO Federation Support

If you want to use iLO Federation with server blades in a BladeSystem c-Class enclosure, the **Enable Enclosure iLO Federation Support** option must be enabled in the Onboard Administrator software. This setting is required to allow peer-to-peer communication between the server blades in an enclosure. The **Enable Enclosure iLO Federation Support** option is enabled by default.

Procedure

1. Log in to the Onboard Administrator web interface (<https://<OA hostname or IP address>>).
2. Select **Enclosure Information > Enclosure Settings > Network Access** in the navigation tree.
The **Protocols** tab is displayed.
3. Select the **Enable Enclosure iLO Federation Support** check box, and then click **Apply**.

[Protocols](#)
[Trusted Hosts](#)
[Anonymous Data](#)
[FIPS](#)

Login Banner

Protocol Restrictions: These protocol settings can be used to deny or allow access to the enclosure.

Enable Web Access (HTTP/HTTPS)

Enable Secure Shell

Enable Telnet

Enable XML Reply [\(view\)](#)

Enable Enclosure iLO Federation Support

Enclosure-enabled iLO Federation bays: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16

Enable FQDN link support for accessing iLOs and interconnects [?](#)

[Apply](#)

You can also use the CLI to enable or disable the **Enable Enclosure iLO Federation Support** option. To enable the option, enter `ENABLE ENCLOSURE_ILO_FEDERATION_SUPPORT`. To disable the option, enter `DISABLE ENCLOSURE_ILO_FEDERATION_SUPPORT`. For more information, see the Onboard Administrator CLI user guide.

Verifying server blade support for iLO Federation

Procedure

1. Log in to the Onboard Administrator web interface (<https://<OA hostname or IP address>>).
2. Select **Device Bays > <Device Name> > iLO** in the navigation tree.
3. Verify that **iLO Federation Capable** is set to **Yes**.

Management Processor Information	
Name	
Address	
MAC Address	
Model	iLO5
Firmware Version	1.10 May 25 2017
iLO Federation Capable	Yes

Using the iLO Federation features

The iLO Federation features are available from the **iLO Federation** branch of the iLO web interface navigation tree.

Make sure that your environment meets the prerequisites for using iLO Federation.

Selected Group list

All of the iLO Federation pages except for **Setup** have a **Selected Group** list.

When you select a group from the **Selected Group** list:

- The servers affected by a change on the **Group Virtual Media**, **Group Power**, **Group Firmware Update**, **Group Licensing**, and **Group Configuration** pages are listed in the **Affected Systems** table.
- The information displayed on iLO Federation pages applies to all the servers in the selected group.
- The changes you make on iLO Federation pages apply to all the servers in the selected group.
- The selected group is saved in a cookie and remains persistent, even when you log out of iLO.

After you select a group, you can filter the servers in the list to view server information or perform actions on a subset of the servers in the group.

Selected Group list filters

When you filter the list of servers:

- The information displayed on iLO Federation pages applies to all the servers in the selected group that meet the filter criteria.
- The changes you make on iLO Federation pages apply to all the servers in the selected group that meet the filter criteria.
- The filter settings are saved in a cookie and remain persistent, even when you log out of iLO.

Selected Group list filter criteria

You can use the following criteria to filter the servers in a group:

- **Health status**—Click a health status link to select servers with a specific health status.
- **Model**—Click a server model number link to select servers matching the selected model.
- **Server name**—Click a server name to filter by an individual server.
- **Firmware Information**—Click a firmware version or flash status to select servers matching the selected firmware version or status.
- **TPM or TM Option ROM Measuring**—Click an Option ROM Measuring status to include or exclude servers matching the selected Option ROM Measuring status.
- **License usage**—If an error message related to a license key is displayed, click the license key to select servers that use that license key.

- **License type**—Click a license type to select servers with the selected license type installed.
- **License status**—Click a license status to select servers with an installed license matching the selected status.

Exporting iLO Federation information to a CSV file

The following **iLO Federation** pages allow you to export information to a CSV file:

- **Multi-System View**—Export the **Systems with critical or degraded status** list.
- **Multi-System Map**—Export the iLO peers list.
- **Group Virtual Media**—Export the **Affected Systems** list.
- **Group Power**—Export the **Affected Systems** list.
- **Group Firmware Update**—Export the **Affected Systems** list.
- **Group Licensing**—Export the **Affected Systems** list.
- **Group Configuration**—Export the **Affected Systems** list.

Procedure

1. Navigate to a page that supports the file export feature.
2. Click **View CSV**.
3. In the **CSV Output** window, click **Save**, and then follow the browser prompts to save or open the file.

If multiple pages of servers are included in the list, the CSV file will contain only the servers that are currently displayed on the iLO web interface page.

If a query error occurred, the systems that did not respond to the query are excluded from the iLO web interface page and the CSV file.

iLO Federation Multi-System view

The **Multi-System View** page provides a summary of the server models, server health, and critical and degraded systems in an iLO Federation group.

Viewing server health and model information

Procedure

1. Click **iLO Federation** in the navigation tree, and then click the **Multi-System View** tab.
2. Select a group from the **Selected Group** menu.
3. Optional: To filter the list of servers, click a health status, server model, or server name link.

Server health and model details

- **Health**—The number of servers in each listed health status. The percentage of the total number of servers in each listed health status is also displayed.
- **Model**—The list of servers, grouped by model number. The percentage of the total number of servers for each model number is also displayed.
- **Critical and Degraded Systems**—The list of servers in the critical or degraded state.

Viewing servers with critical and degraded status

Procedure

1. Click **iLO Federation** in the navigation tree, and then click the **Multi-System View** tab.
2. Select a group from the **Selected Group** menu.
3. Optional: To filter the list of servers, click a health status, server model, or server name link.
4. Click **Next** or **Previous** (if available) to view more servers in the **Critical and Degraded Systems** list.

More information

[Exporting iLO Federation information to a CSV file on page 19](#)

Critical and degraded server status details

- **Server Name**—The server name defined by the host operating system.
- **System Health**—The server health status.
- **Server Power**—The server power status (**ON** or **OFF**).
- **UID Indicator**—The state of the server UID LED. The UID LED helps you identify and locate a server, especially in high-density rack environments. The possible states are **UID ON**, **UID OFF**, and **UID BLINK**.
- **System ROM**—The installed System ROM version.
- **iLO Hostname**—The fully qualified network name assigned to the iLO subsystem. To open the iLO web interface for the server, click the link in the **iLO Hostname** column.
- **IP Address**—The network IP address of the iLO subsystem. To open the iLO web interface for the server, click the link in the **IP Address** column.

Viewing the iLO Federation Multi-System Map

The **Multi-System Map** page displays information about the peers of the local iLO system. The local iLO system identifies its peers through multicast discovery.

When an iLO Federation page loads, a data request is sent from the iLO system running the web interface to its peers, and from those peers to other peers until all the data for the selected group is retrieved.

Procedure

1. Click **iLO Federation** in the navigation tree, and then click the **Multi-System Map** tab.
2. Select a group from the **Selected Group** menu.

More information

[Exporting iLO Federation information to a CSV file on page 19](#)

iLO peer details

- **#**—The peer number.
- **iLO UUID**—The iLO system UPnP UUID.
- **Last Seen**—The time stamp of the last communication from the server.
- **Last Error**—A description of the most recent communication error between the listed peer and the local iLO system.
- **Query Time** (seconds)—When a timeout occurs, this value can be used to identify systems that are not responding quickly. This value applies to the most recent query.
- **Node Count**—When an error occurs, this value can indicate how much data might be missing. A value of zero indicates that the most recent query timed out. This value applies to the most recent query.
- **URL**—The URL for starting the iLO web interface for the listed peer.
- **IP**—The peer IP address.

iLO Federation Group Virtual Media

Group Virtual Media enables you to connect URL-based media for access by the servers in an iLO Federation group.

- The following types of URL-based Virtual Media are supported: 1.44 MB floppy disk images (IMG) and CD/DVD-ROM images (ISO). The image must be on a web server on the same network as the grouped iLO systems.
- Only one of each type of media can be connected to a group at the same time.
- You can view, connect, and eject URL-based media, and you can boot from CD/DVD-ROM disk images. When you use URL-based media, you save a floppy disk or CD/DVD-ROM disk image to a web server and connect to the disk image by using a URL. iLO accepts URLs in HTTP or HTTPS format. iLO does not support FTP.
- Before you use the Virtual Media feature, review the Virtual Media operating system considerations. For more information, see the iLO user guide.

Connecting URL-based Virtual Media for groups

Prerequisites

- A license that supports this feature is installed. For information about the available license types and the features they support, see the licensing documentation at the following website: <http://www.hpe.com/info/ilo>.
- Each member of the selected iLO Federation group has granted the Virtual Media privilege to the group.

Procedure

1. Click **iLO Federation** in the navigation tree, and then click the **Group Virtual Media** tab.
2. Select a group from the **Selected Group** menu.
The URL-based media you connect will be available to all systems in the selected group.
3. Enter the disk image URL in the **Virtual Media URL** box in the **Connect Virtual Floppy** section (IMG files) or the **Connect CD/DVD-ROM** section (ISO files).
4. Select the **Boot on Next Reset** check box if you want the servers in the group to boot to this disk image only on the next server reboot.
The image will be ejected automatically on the second server reboot so that the servers do not boot to it twice.
If this check box is not selected, the image remains connected until it is manually ejected. The servers will boot to the image on all subsequent server resets, if the system boot options are configured accordingly.
If a server in the group is in POST when you enable the **Boot on Next Reset** check box, an error occurs. You cannot modify the server boot order during POST. Wait for POST to finish, and then try again.
5. Click **Insert Media**.
iLO displays the command results.

Viewing URL-based Virtual Media status for groups

Procedure

Click **iLO Federation** in the navigation tree, and then click the **Group Virtual Media** tab.

URL-based media details

When URL-based media is connected to the systems in an iLO Federation group, the following details are listed in the **Virtual Floppy Status** section and **Virtual CD/DVD-ROM Status** section:

- **Media Inserted**—The Virtual Media type that is connected. **Scripted Media** is displayed when URL-based media is connected.
- **Connected**—Indicates whether a Virtual Media device is connected.
- **Image URL**—The URL that points to the connected URL-based media.

The **Virtual Floppy Status** and **Virtual CD/DVD-ROM Status** sections are displayed only when media is connected.

Ejecting a URL-based Virtual Media device

Prerequisites

- A license that supports this feature is installed. For information about the available license types and the features they support, see the licensing documentation at the following website: <http://www.hpe.com/info/ilo>.
- Each member of the selected iLO Federation group has granted the Virtual Media privilege to the group.

Procedure

1. Click **iLO Federation** in the navigation tree, and then click the **Group Virtual Media** tab.
2. Select a group from the **Selected Group** menu.
The URL-based Virtual Media device that you eject will be disconnected from all the systems in the selected group.
3. Click **Eject Media** in the **Virtual Floppy Status** section or the **Virtual CD/DVD-ROM Status** section.

Servers affected by a Group Virtual Media action

The **Affected Systems** section provides the following details about the servers affected when you initiate a Group Virtual Media action:

- **Server Name**—The server name defined by the host operating system.
- **Server Power**—The server power state (**ON** or **OFF**).
- **UID Indicator**—The state of the UID LED. The UID LED helps you identify and locate a server, especially in high-density rack environments. The possible states are **UID ON**, **UID OFF**, and **UID BLINK**.
- **iLO Hostname**—The fully qualified network name assigned to the iLO subsystem. To open the iLO web interface for the server, click the link in the **iLO Hostname** column.
- **IP Address**—The network IP address of the iLO subsystem. To open the iLO web interface for the server, click the link in the **IP Address** column.

Click **Next** or **Prev** (if available) to view more servers in the list.

More information

[Exporting iLO Federation information to a CSV file on page 19](#)

iLO Federation Group Power

The Group Power feature enables you to manage the power of multiple servers from a system running the iLO web interface. Use this feature to do the following:

- Power off, reset, or power-cycle a group of servers that are in the **ON** or **Reset** state.
- Power on a group of servers that are in the **OFF** state.
- View the list of servers that will be affected when you click a button in the **Virtual Power Button** section of the **Group Power** page.

Changing the power state for a group of servers

The **Virtual Power Button** section on the **Group Power** page summarizes the current power state of the servers in a group. The summary information includes the total number of servers that are in the **ON**, **OFF**, or **Reset** state. The **System Power** summary indicates the state of the server power when the page is first opened. Use the browser refresh feature to update the **System Power** information.

Prerequisites

- A license that supports this feature is installed. For information about the available license types and the features they support, see the licensing documentation at the following website: <http://www.hpe.com/info/ilo>.
- Each member of the selected iLO Federation group has granted the Virtual Power and Reset privilege to the group.

Procedure

1. Click **iLO Federation** in the navigation tree, and then click the **Group Power** tab.

2. Select a group from the **Selected Group** menu.

iLO displays the grouped servers by power state with a counter that shows the total number of servers in each state.

3. To change the power state of a group of servers, do one of the following:

- For servers that are in the **ON** or **Reset** state, click one of the following buttons:
 - **Momentary Press**
 - **Press and Hold**
 - **Reset**
 - **Cold Boot**

For servers that are in the **OFF** state, click the **Momentary Press** button.

The **Press and Hold**, **Reset**, and **Cold Boot** options are not available for servers that are in the **OFF** state.

4. When prompted to confirm the request, click **OK**.

iLO displays a progress bar while the grouped servers respond to the Virtual Power Button action. The progress bar indicates the number of servers that successfully processed the command.

The **Command Results** section displays the command status and results, including error messages related to the power state change.

Virtual Power Button options

- **Momentary Press**—The same as pressing the physical power button.
Some operating systems might be configured to initiate a graceful shutdown after a momentary press, or to ignore this event. Hewlett Packard Enterprise recommends using system commands to complete a graceful operating system shutdown before you attempt to shut down by using the Virtual Power Button.
- **Press and Hold**—The same as pressing the physical power button for 5 seconds and then releasing it.
The servers in the selected group are powered off as a result of this operation. Using this option might circumvent a graceful operating system shutdown.
This option provides the ACPI functionality that some operating systems implement. These operating systems behave differently, depending on a short press or long press.
- **Reset**—Forces the servers in the selected group to warm-boot: CPUs and I/O resources are reset. Using this option circumvents a graceful operating system shutdown.
- **Cold Boot**—Immediately removes power from the servers in the selected group. Processors, memory, and I/O resources lose main power. The servers will restart after approximately 6 seconds. Using this option circumvents a graceful operating system shutdown.

Servers affected by the Virtual Power Button

The **Affected Systems** list provides the following details about the servers affected when you initiate a Virtual Power Button action:

- **Server Name**—The server name defined by the host operating system.
- **Server Power**—The server power state (**ON** or **OFF**).
- **UID Indicator**—The state of the UID LED. The UID LED helps you identify and locate a server, especially in high-density rack environments. The possible states are **UID ON**, **UID OFF**, and **UID BLINK**.
- **iLO Hostname**—The fully qualified network name assigned to the iLO subsystem. To open the iLO web interface for the server, click the link in the **iLO Hostname** column.
- **IP Address**—The network IP address of the iLO subsystem. To open the iLO web interface for the server, click the link in the **IP Address** column.

Click **Next** or **Prev** (if available) to view more servers in the list.

More information

[Exporting iLO Federation information to a CSV file on page 19](#)

Configuring group power capping

Prerequisites

- A license that supports this feature is installed. For information about the available license types and the features they support, see the licensing documentation at the following website: <http://www.hpe.com/info/ilo>.
- Each member of the selected iLO Federation group has granted the Configure iLO Settings privilege to the group.

Procedure

1. Click **iLO Federation** in the navigation tree, and then click the **Group Power Settings** tab.
2. Select a group from the **Selected Group** menu.
Changes you make on this page affect all systems in the selected group.
3. Set the **Enable power capping** option to enabled.
4. Enter the **Power Cap Value** in watts, BTU/hr, or as a percentage.
The percentage is the difference between the maximum and minimum power values. The power cap value cannot be set lower than the server minimum power value.
5. Optional: When values are displayed in watts, select **BTU/hr** in the **Power Unit** menu to change the display to BTU/hr. When values are displayed in BTU/hr, select **Watts** to change the display to watts.
6. Click **Apply**.

Group power capping considerations

The Group Power Settings feature enables you to set dynamic power caps for multiple servers from a system running the iLO web interface.

- When a group power cap is set, the grouped servers share power to stay below the power cap. More power is allocated to busy servers and less power is allocated to idle servers.
- The power caps that you set for a group operate concurrently with the power caps that you can set on the **Power Settings** page for an individual server.
- If a power cap configured at the enclosure or individual server level or by another iLO Federation group affects a server, other group power caps might allocate less power to that server.
- When a power cap is set, the average power reading of the grouped servers must be at or below the power cap value.
- During POST, the ROM runs two power tests that determine the peak and minimum observed power values.

Consider the values in the **HPE Automatic Group Power Capping Settings** table when determining your power capping configuration.

- **Maximum Available Power**—The total power supply capacity for all servers in a group. This value is also the **Maximum Power Cap** threshold. It is the highest power cap that can be set.
 - **Peak Observed Power**—The maximum observed power for all servers in a group. This value is also the **Minimum High-Performance Cap** threshold. It is the lowest power cap value that can be set without affecting the performance of the servers in a group.
 - **Minimum Observed Power**—The minimum observed power for all servers in a group. This value is also the **Minimum Power Cap** threshold. It represents the minimum power that the servers in a group use. A power cap set to this value reduces the server power usage to the minimum, which results in server performance degradation.
- Power capping is not supported on all servers. For more information, check the server specifications.
 - You must manage power capping settings for some servers outside of the iLO web interface. You can use tools such as:
 - HPE Advanced Power Manager

See the server specifications at <http://www.hpe.com/info/qs> for information about the power management features your server supports.

Viewing group power capping information

Prerequisites

A license that supports this feature is installed. For information about the available license types and the features they support, see the licensing documentation at the following website: <http://www.hpe.com/info/ilo>.

Procedure

1. Click **iLO Federation** in the navigation tree, and then click the **Group Power Settings** tab.
2. Select a group from the **Selected Group** menu.
3. Optional: When values are displayed in watts, click **Show values in BTU/hr** to change the display to BTU/hr. When values are displayed in BTU/hr, click **Show values in Watts** to change the display to watts.

Power capping details

- **HPE Automatic Group Power Capping Settings**—This section shows the following details:
 - **Measured Power Values**—The maximum available power, peak observed power, and minimum observed power.
 - **Power Cap Value**—The power cap value, if one is configured.
- **Current State**—This section includes the following details:

- **Present Power Reading**—The current power reading for the selected group.
- **Present Power Cap**—The total amount of power allocated to the selected group. This value is 0 if a power cap is not configured.
- **Group Power Allocations for this system**—The group power caps that affect the local iLO system, and the amount of power allocated to the local iLO system by each group power cap. If a power cap is not configured, the allocated power value is 0.

iLO Federation Group Firmware Update

The Group Firmware Update feature enables you to view firmware information and update the firmware of multiple servers from a system running the iLO web interface. The following firmware types are supported with iLO Federation:

- iLO firmware
- System ROM (BIOS)
- Chassis firmware (Power Management)
- Power Management Controller
- System Programmable Logic Device (CPLD)
- NVMe Backplane Firmware
- Language packs

Obtaining the iLO firmware image file

You can download an iLO firmware image file and use it to update a single server or multiple servers in an iLO Federation group.

The BIN file from the iLO Online ROM Flash Component is required for updating the iLO firmware with the **Flash Firmware** or **Group Firmware Update** features.

Procedure

1. Navigate to the following website: <http://www.hpe.com/support/hpesc>.
2. To locate and download the iLO Online ROM Flash Component file, follow the onscreen instructions. Download a Windows or Linux component.
3. Extract the BIN file.
 - For Windows components: Double-click the downloaded file, and then click the **Extract** button. Select a location for the extracted files, and then click **OK**.
 - For Linux components: Depending on the file format, enter one of the following commands:
 - `#./<firmware_file_name>.scexe -unpack=/tmp/`
 - `#rpm2cpio <firmware_file_name>.rpm | cpio -id`

The name of the iLO firmware image file is similar to `iLO 5_<yyy>.bin`, where `<yyy>` represents the firmware version.

Obtaining supported server firmware image files

Procedure

1. Navigate to the following website: <http://www.hpe.com/support/hpesc>.
2. To locate and download an Online ROM Flash Component file, follow the onscreen instructions.
3. If you downloaded a Windows component:
 - a. Double-click the downloaded file, and then click the **Extract** button.
 - b. Select a location for the extracted files, and then click **OK**.
4. If you downloaded a Linux component:
 - a. For Linux components, depending on the file format, enter one of the following commands:
 - `#!/<firmware_file_name>.scexe -unpack=/tmp/`
 - `#rpm2cpio <firmware_file_name>.rpm | cpio -id`
 - b. For Innovation Engine and Server Platform Services (SPS) firmware components only—Locate the `<firmware_file_name>.zip` file, and extract the binary file.

Server firmware file type details

- When you update the system ROM, you must use a signed image or the signed ROMPAQ image:
 - **Signed image example:**
`http://<server.example.com:8080>/<wwwroot>/P79_1.00_10_25_2013.signed.flash`
 - **Signed ROMPAQ image example:**
`http://<server.example.com>/<wwwroot>/CPQPJ0612.A48`
- The Power Management Controller, chassis firmware, and NVMe backplane files use the file extension `.hex`. For example, the file name might be similar to `ABCD5S95.hex`.
- The System Programmable Logic Device (CPLD) firmware file uses the file extension `.vme`.
- The Innovation Engine (IE) and Server Platform Services (SPS) firmware files use the file extension `.bin`.

Some IE firmware components include two zip files. If you are updating from IE firmware version 0.1.3.2 or earlier, use the IE component that includes the letter B. For example, `IEGen10_0.1.5.2B.signed.bin`.

Updating the firmware for multiple servers

Prerequisites

- Each member of the selected iLO Federation group has granted the Configure iLO Settings privilege to the group.
- A license that supports this feature is installed. For information about the available license types and the features they support, see the licensing documentation at the following website: <http://www.hpe.com/info/ilo>.

Procedure

1. Download the supported firmware from the Hewlett Packard Enterprise Support Center: <http://www.hpe.com/support/hpesc>.
2. Save the firmware file to a web server.
3. Click **iLO Federation** in the navigation tree, and then click the **Group Firmware Update** tab.
4. Select a group from the **Selected Group** menu.

All of the systems in the selected group will be affected when you initiate a firmware update on this page.

5. Optional: To filter the list of affected systems, click a firmware version, flash status, or TPM or TM Option ROM Measuring status link.

⚠ CAUTION: If you attempt to perform a system ROM or iLO firmware update on a server with a TPM or TM installed, iLO prompts you to suspend or back up any software that stores information on the TPM or TM. For example, if you use drive encryption software, suspend it before initiating a firmware update. Failure to follow these instructions might result in losing access to your data.

6. In the **Firmware Update** section, enter the URL to the firmware file on your web server, and then click **Update Firmware**.

The URL to enter is similar to the following: `http://<server.example.com>/<subdir>/iLO5_<yyy>.bin`, where <yyy> represents the firmware version.

Each selected system downloads the firmware image and attempts to flash it.

The **Flash Status** section is updated and iLO notifies you that the update is in progress. When the update is complete, the **Firmware Information** section is updated.

If a firmware image is not valid for a system or has a bad or missing signature, iLO rejects the image and the **Flash Status** section shows an error for the affected system.

Some firmware update types might require a system reset, iLO reset, or a server reboot for the new firmware to take effect.

More information

[Obtaining the iLO firmware image file on page 28](#)

[Obtaining supported server firmware image files on page 29](#)

Viewing group firmware information

Procedure

1. Click **iLO Federation** in the navigation tree, and then click the **Group Firmware Update** tab.
2. Select a group from the **Selected Group** menu.
3. Optional: To filter the list of displayed systems, click a firmware version, flash status, or TPM or TM Option ROM Measuring status link.

Firmware details

The **Firmware Information** section displays the following information:

- The number of servers with each supported iLO firmware version. The percentage of the total number of servers with the listed firmware version is also displayed.
- The flash status for the grouped servers. The percentage of the total number of servers with the listed status is also displayed.
- The TPM or TM Option ROM Measuring status for the grouped servers. The percentage of the total number of servers with the listed status is also displayed.
- The number of servers with each system ROM version. The percentage of the total number of servers with the listed system ROM version is also displayed.

Servers affected by a Group Firmware Update

The **Affected Systems** list provides the following details about the servers affected by a firmware update:

- **Server Name**—The server name defined by the host operating system.
- **System ROM**—The installed System ROM (BIOS).
- **iLO Firmware Version**—The installed iLO firmware version.
- **iLO Hostname**—The fully qualified network name assigned to the iLO subsystem. To open the iLO web interface for the server, click the link in the **iLO Hostname** column.
- **IP Address**—The network IP address of the iLO subsystem. To open the iLO web interface for the server, click the link in the **IP Address** column.

Click **Next** or **Prev** (if available) to view more servers in the list.

More information

[Exporting iLO Federation information to a CSV file on page 19](#)

Installing license keys (iLO Federation group)

The **Group Licensing** page displays the license status for members of a selected iLO Federation group. Use the following procedure to enter a key to activate iLO licensed features.

Prerequisites

- Configure iLO Settings privilege
- Each member of the iLO Federation group has granted the Configure iLO Settings privilege to the group.
- The license key is authorized for the number of selected servers.

Procedure

1. Click **iLO Federation** in the navigation tree, and then click the **Group Licensing** tab.
2. Optional: To filter the list of affected systems, click a license type or status link.
3. Optional: If you install a license key on a server that already has a key installed, the new key replaces the installed key. If you do not want to replace existing licenses, click **Unlicensed** in the **Status** section to install licenses only on servers that are unlicensed.
4. Enter the license key in the **Activation Key** box.
5. To move the cursor between the segments in the **Activation Key** box, press the **Tab** key or click inside a segment of the box. The cursor advances automatically when you enter data into the segments of the **Activation Key** box.
6. Click **Install**.
iLO prompts you to confirm that you have read and accept the EULA.
The EULA details are available in the License Pack option kit.
7. Click **I agree**.
The license is installed and the **License Information** section is updated to show the new license details for the selected group.

More information

[iLO licensing](#) on page 33

Servers affected by a license installation

The **Affected Systems** section provides the following details about the servers that will be affected when you install a license key:

- **Server Name**—The server name defined by the host operating system.
- **License**—The installed license type.
- **iLO Firmware Version**—The installed iLO firmware version.
- **iLO Hostname**—The fully qualified network name assigned to the iLO subsystem. To open the iLO web interface for the server, click the link in the **iLO Hostname** column.
- **IP Address**—The network IP address of the iLO subsystem. To open the iLO web interface for the server, click the link in the **IP Address** column.

Click **Next** or **Prev** (if available) to view more servers in the list.

More information

[Exporting iLO Federation information to a CSV file](#) on page 19

Viewing iLO Federation group license information

Procedure

1. Click **iLO Federation** in the navigation tree, and then click the **Group Licensing** tab.
2. Select a group from the **Selected Group** menu.
3. Optional: To filter the list of servers, click a license type or status link in the **License Information** section.

iLO Federation group license details

- **Type**—The number of servers with each listed license type. The percentage of the total number of servers with each listed license type is also displayed.
- **Status**—The number of servers with each listed license status. The percentage of the total number of servers with each license status is also displayed. The possible status values follow:
 - **Evaluation**—A valid evaluation license is installed.
 - **Expired**—An expired evaluation license is installed.
 - **Perpetual**—A valid iLO license is installed. This license does not have an expiration date.
 - **Unlicensed**—The factory default (iLO Standard) features are enabled.

iLO licensing

iLO standard features are included with every server to simplify server setup, perform health monitoring, monitor power and thermal control, and facilitate remote administration.

iLO licenses activate features such as the graphical Remote Console with multiuser collaboration, video record and playback, and many more features.

Why register your iLO licenses?

- Registration activates a unique HPE Support Agreement ID (SAID). Your SAID identifies you and the products you use.
- You can obtain quicker HPE Support Services by using your SAID.
- Obtain access to the HPE Support Center.
- Obtain access to software updates in the HPE Update Center.
- Receive important product alerts.
- Track your HPE product license keys in one place through the HPE licensing portal.

How do I register my iLO licenses?

1. Locate the Entitlement Order Number (EON) on your **License Entitlement Certificate** or **Licensing Confirmation Email**.
2. Enter the EON in the HPE [Licensing Portal](#).

License key information

- For information about obtaining a free iLO trial license, see the iLO licensing guide.

For information about purchasing, registering, and redeeming a license key, see the iLO licensing guide.

The licensing guide is available at the following website: <http://www.hpe.com/support/ilo-docs>.

- One iLO license is required for each server on which the product is installed and used. Licenses are not transferable.
- You cannot license a server with a license key that is meant for a different server type.
- An iLO Advanced license is automatically included with Synergy compute modules.
- If you lose a license key, follow the lost license key instructions.

Using the iLO RESTful API with iLO Federation

You can view and configure iLO Federation settings by using server management tools and the iLO RESTful API. This guide provides instructions for using the RESTful Interface Tool.

For information about using the iLO RESTful API, see the following website: <http://www.hpe.com/info/redfish>.

For help with the RESTful Interface Tool, enter the `-help` command within the tool, or see the following website: <https://hewlettpackard.github.io/python-redfish-utility/>.

Configuring the multicast options (iLOrest)

Prerequisites

- The RESTful Interface Tool is installed.
- Configure iLO Settings privilege

Procedure

1. Start the RESTful Interface Tool.

2. Log in to an iLO system:

```
iLOrest > login iLO host name or IP address -u iLO user name -p iLO password
```

3. To view the available resource types, enter the following command: `types`.

This procedure uses the Manager resource type.

4. Find the **Manager** resource type in the list, and then enter a command similar to the following: `select Manager.v1_1_0`.

Your input might be different, depending on your version of the Manager schema.

5. To view the current settings, enter the following command: `list -j`.

Use the `-j` parameter to view the list in JSON format.

The output includes text that shows the current settings:

```
"FederationConfig": {
  "MulticastDiscovery": "Enabled",
  "IPv6MulticastScope": "Site",
  "MulticastAnnouncementInterval": 600,
  "MulticastTimeToLive": 5,
  "iLOFederationManagement": "Enabled"
```

6. To update a property, enter a command similar to the following:

```
set Oem/Hpe/FederationConfig/Property name=Property value
```

For information about the properties you can configure, see **Multicast options** on page 8.

7. Repeat step **6** for all the multicast options that you want to change.

8. To save the changes and logout, enter the following command: `commit`.
9. Optional: Repeat steps [2](#) through [5](#) to verify the changes.

Viewing iLO Federation group memberships (iLOrest)

Use this procedure to view information about all the iLO Federation groups that contain an iLO system.

Prerequisites

The RESTful Interface Tool is installed.

Procedure

1. Start the RESTful Interface Tool.
2. Log in to an iLO system:

```
iLOrest > login iLO host name or IP address -u iLO user name -p iLO password
```

3. Enter the following command:

```
iLOrest > ilofederation
```

The output lists the name of each group that includes the iLO system, and the privileges granted to the group by the iLO system.

Adding an iLO Federation group membership (iLOrest)

Prerequisites

- The RESTful Interface Tool is installed.
- Configure iLO Settings privilege

Procedure

1. Start the RESTful Interface Tool.
2. Log in to an iLO system:

```
iLOrest > login iLO host name or IP address -u iLO user name -p iLO password
```

3. To add an iLO Federation group membership, enter a command similar to the following:

```
iLOrest > ilofederation add iLO Federation group name iLO Federation group key
```

The group name can be 1-31 characters long.

The group key can be from the configured minimum password length to 31 characters long.

If you enter the name and key for an existing group, the iLO system is added to that group. If you enter the name and key for a group that does not exist, the group is created and the iLO system is added to the group.

This command adds an iLO Federation group membership with all available privileges. To exclude one or more privileges, use one of the **privilege parameters**. For example, to add a group membership with all privileges except Remote Console, enter a command similar to the following:

```
iLOrest > ilofederation add iLO Federation group name iLO Federation group key  
--noremoteconsolepriv
```

iLO Federation privilege parameters

When you use the RESTful Interface Tool to add iLO Federation groups, all available privileges are enabled unless you specify privileges to disable.

--noremoteconsolepriv

Disable the Remote Console privilege.

--noiloconfigpriv

Disable the Configure iLO Settings privilege.

--novirtualmediapriv

Disable the Virtual Media privilege.

--nouserconfigpriv

Disable the Administer User Accounts privilege.

--novirtualprpriv

Disable the Virtual Power and Reset privilege.

--nologinpriv

Disable the Login privilege.

--nobiosconfigpriv

Disable the Host BIOS privilege.

--nonicconfigpriv

Disable the Host NIC privilege.

--nohoststorageconfigpriv

Disable the Host Storage privilege.

--nosysrecoveryconfigpriv

Disable the Recovery Set privilege.

Modifying an iLO Federation group key (iLOrest)

Prerequisites

- The RESTful Interface Tool is installed.
- Configure iLO Settings privilege

Procedure

1. Start the RESTful Interface Tool.

2. Log in to an iLO system:

```
iLOrest > login iLO host name or IP address -u iLO user name -p iLO password
```

3. To change a group key, enter a command similar to the following:

```
iLOrest > ilofederation changekey iLO Federation group name new group key
```

The group key can be from the configured minimum password length to 31 characters long.

4. Update the group key on the other systems in the affected group.

Modifying iLO Federation group privileges (iLOrest)

Prerequisites

- The RESTful Interface Tool is installed.
- Configure iLO Settings privilege

Procedure

1. Start the RESTful Interface Tool.

2. Log in to an iLO system:

```
iLOrest > login iLO host name or IP address -u iLO user name -p iLO password
```

3. Enter the following command to view information about a specific group:

```
iLOrest > rawget /redfish/v1/Managers/1/FederationGroups/group name
```

The output is similar to the following:

```
[200] The operation completed successfully.
{
  "@odata.type": "#HpeiloFederationGroup.v2_0_0.HpeiloFederationGroup",
  "Name": "DEFAULT",
  "Privileges": {
    "HostNICConfigPriv": false,
    "HostStorageConfigPriv": false,
    "RemoteConsolePriv": false,
    "iLOConfigPriv": false,
    "VirtualMediaPriv": false,
    "UserConfigPriv": false,
    "HostBIOSConfigPriv": false,
    "VirtualPowerAndResetPriv": false,
    "LoginPriv": true,
    "SystemRecoveryConfigPriv": false
  },
  "@odata.id": "/redfish/v1/Managers/1/FederationGroups/DEFAULT/",
  "@odata.context": "/redfish/v1/$metadata#HpeiloFederationGroup.HpeiloFederationGroup",
  "Id": "DEFAULT",
  "@odata.etag": "W/\"A1508BC0\""
}
```

4. Open a text editor and create a file to update the privileges the iLO system grants to the iLO Federation group.

Use the following example as a template.

```
{
  "path": "/redfish/v1/Managers/1/FederationGroups/DEFAULT/",
  "body": {
    "Privileges": {
      "VirtualMediaPriv": true,
      "SystemRecoveryConfigPriv": true
    }
  }
}
```

5. Save the file as a TXT file. For example, **privileges.txt**.

6. Enter the command to submit the file

```
ilorest > rawpatch file name
```

7. Optional: To view the changes, enter the following command:

```
iLOrest > rawget /redfish/v1/Managers/1/FederationGroups/group name
```

Deleting an iLO Federation group membership (iLOrest)

Prerequisites

- The RESTful Interface Tool is installed.
- Configure iLO Settings privilege

Procedure

1. Start the RESTful Interface Tool.

2. Log in to an iLO system:

```
iLOrest > login iLO host name or IP address -u iLO user name -p iLO password
```

3. To remove an iLO Federation group membership, enter a command similar to the following:

```
iLOrest > ilofederation delete <iLO Federation group name>
```

Viewing group power capping information (iLOrest)

Prerequisites

- The RESTful Interface Tool is installed.
- Configure iLO Settings privilege

Procedure

1. Start the RESTful Interface Tool.

2. Log in to an iLO system:

```
iLOrest > login iLO host name or IP address -u iLO user name -p iLO password
```

- To view the available resource types, enter the following command: `types`.
This procedure uses the `HpeiLOFederatedGroupCapping` resource type.
- Find the **HpeiLOFederatedGroupCapping** resource type in the list, and then enter a command similar to the following: `select HpeiLOFederatedGroupCapping.v2_0_0`.
Your input might be different, depending on your version of the `HpeiLOFederatedGroupCapping` schema.
- To view the group power capping configuration, enter the following command: `list -j`.

The output is similar to the following:

```
{
  "@odata.context": "/redfish/v1/$metadata#HpeiLOFederatedGroupCapping.HpeiLOFederatedGroupCapping",
  "@odata.id": "/redfish/v1/Chassis/1/Power/FederatedGroupCapping/",
  "@odata.type": "#HpeiLOFederatedGroupCapping.v2_0_0.HpeiLOFederatedGroupCapping",
  "CapWatts": 0,
  "CapacityWatts": 1600,
  "Groups": {
    "DEFAULT": {
      "CapLimitWatts": 0,
      "AllocatedPowerWatts": 0,
      "CapLimitPctTenths": null
    }
  },
  "Id": "FederatedGroupCapping",
  "Name": "iLO Federated Group Power Capping",
  "Throttle": "Low"
}
```

Viewing the peers of an iLO system (iLOrest)

Prerequisites

- The RESTful Interface Tool is installed.
- Configure iLO Settings privilege

Procedure

- Start the RESTful Interface Tool.
- Log in to an iLO system:

```
iLOrest > login iLO host name or IP address -u iLO user name -p iLO password
```

- To view the available resource types, enter the following command: `types`.
This procedure uses the `HpeiLOFederationPeers` resource type.
- Find the **HpeiLOFederationPeers** resource type in the list, and then enter a command similar to the following: `select HpeiLOFederationPeers.v2_0_0`.
Your input might be different, depending on your version of the `HpeiLOFederationPeers` schema.
- To view the peers of the iLO system you logged into, enter the following command: `list`.

The output is similar to the following:

```
@odata.context=/redfish/v1/$metadata#HpeiLOFederationPeers.HpeiLOFederationPeers
@odata.etag=W/"F7D353FC"
@odata.id=/redfish/v1/Managers/1/FederationPeers/DEFAULT/
@odata.type=#HpeiLOFederationPeers.v2_0_0.HpeiLOFederationPeers
```



```
Id=DEFAULT
Name=DEFAULT
Peers=
  URL=http://XX.XX.XXX.XXX:XX/
  ManagerIPAddress=XX.XX.XXX.XXX
  HttpStatusCode=0
  UUID=XXXXXXXX-XXXX-XXXX-XXXX-XXXXXXXXXXXX
  Time=2018-06-14T20:47:48Z

  URL=http://XX.XX.XXX.XXX:XX/
  ManagerIPAddress=XX.XX.XXX.XXX
  HttpStatusCode=0
  UUID=XXXXXXXX-XXXX-XXXX-XXXX-XXXXXXXXXXXX
  Time=2018-06-14T20:48:19Z
```

For more information, see [iLO peer details](#) on page 21

Using RIBCL scripts with iLO Federation

You can view and configure iLO Federation settings by using RIBCL scripts.

For information about using the HPQLOCFG utility to send RIBCL scripts to a group of servers, see the iLO scripting and command-line guide. To use another tool to send scripts to a group of servers, see the tool documentation.

This chapter describes the available iLO Federation scripts. You can download sample scripts from the following website: <http://www.hpe.com/support/ilo5>.

GET_FEDERATION_MULTICAST

Use the GET_FEDERATION_MULTICAST command to retrieve the current federation multicast options. The response includes values for Multicast Discovery, Multicast Announcement Interval, IPv6 Multicast Scope, and Multicast TTL. The command must appear within a RIB_INFO command block, and RIB_INFO MODE must be set to `read`.

For example:

```
<RIBCL VERSION="2.0">
  <LOGIN USER_LOGIN="adminname" PASSWORD="password">
    <RIB_INFO MODE="read">
      <GET_FEDERATION_MULTICAST/>
    </RIB_INFO>
  </LOGIN>
</RIBCL>
```

GET_FEDERATION_MULTICAST parameters

None

GET_FEDERATION_MULTICAST runtime errors

None

GET_FEDERATION_MULTICAST return messages

The following response is typical of the data returned from the GET_FEDERATION_MULTICAST command:

```
<?xml version="1.0"?>
<RIBCL VERSION="2.23">
<RESPONSE
  STATUS="0x0000"
  MESSAGE='No error'
  />
<MULTICAST_FEDERATION_ENABLED VALUE="Yes"/>
<MULTICAST_DISCOVERY_ENABLED VALUE="Yes"/>
<MULTICAST_ANNOUNCEMENT_INTERVAL VALUE="60"/>
<IPv6_MULTICAST_SCOPE VALUE="Site"/>
<MULTICAST_TTL VALUE="255"/>
</GET_FEDERATION_MULTICAST>
</RIBCL>
```

SET_FEDERATION_MULTICAST

Use SET_FEDERATION_MULTICAST to enable or disable iLO Federation, and to set the iLO Federation multicast options, including Multicast Discovery, Multicast Announcement Interval, IPv6 Multicast Scope, and Multicast TTL.

For example:

```
<RIBCL VERSION="2.0">
  <LOGIN USER_LOGIN="adminname" PASSWORD="password">
    <RIB_INFO MODE="write">
      <SET_FEDERATION_MULTICAST>
        <MULTICAST_FEDERATION_ENABLED VALUE="Yes"/>
        <MULTICAST_DISCOVERY_ENABLED VALUE="Yes"/>
        <MULTICAST_ANNOUNCEMENT_INTERVAL VALUE="30"/>
        <IPV6_MULTICAST_SCOPE VALUE="Site"/>
        <MULTICAST_TTL VALUE="255"/>
      </SET_FEDERATION_MULTICAST>
    </RIB_INFO>
  </LOGIN>
</RIBCL>
```

NOTE: Disabling multicast discovery or announcements disables the iLO Federation features.

All devices in an iLO Federation group must have the same scope and TTL to properly enable peer discovery.

SET_FEDERATION_MULTICAST parameters

MULTICAST_FEDERATION_ENABLED enables or disables iLO Federation. The value must be either **Yes** (enabled) or **No** (disabled). When disabled, iLO federation management features are unavailable.

MULTICAST_DISCOVERY_ENABLED enables or disables multicast discovery. The value must be either **Yes** (enabled) or **No** (disabled). When enabled, this parameter makes the iLO discoverable as federated on the network. When disabled, iLO Federation features are unavailable.

MULTICAST_ANNOUNCEMENT_INTERVAL sets the number of seconds between each multicast availability announcement on the network. Valid values are **Disabled**, **30**, **60**, **120**, **300**, **600**, **900**, and **1800** seconds. When disabled, iLO Federation features are unavailable.

IPV6_MULTICAST_SCOPE sets the scope of multicast discovery. Valid values are **Link** (link-local), **Site** (site-local), and **Organization** (organization-local). All devices in an iLO Federation group must have the same scope to properly enable peer discovery.

MULTICAST_TTL sets the time to live, limiting the number of switches that can be traversed before the multicast discovery is stopped. Valid values are between **1** and **255**. All devices in a federated group must have the same TTL to properly enable peer discovery.

SET_FEDERATION_MULTICAST runtime errors

Some possible SET_FEDERATION_MULTICAST error messages include the following:

- The MULTICAST_ANNOUNCEMENT_INTERVAL VALUE is invalid. The valid values are "Disabled", "30", "60", "120", "300", "600", "900", and "1800".
- The IPV6_MULTICAST_SCOPE VALUE is invalid.

- The MULTICAST_TTL VALUE is invalid. Valid values are between 1 and 255.
- User does not have correct privilege for action. CONFIG_ILO_PRIV required.

GET_FEDERATION_ALL_GROUPS

Use the GET_FEDERATION_ALL_GROUPS command to retrieve a list of all iLO Federation group names. The command must appear within a RIB_INFO command block, and RIB_INFO MODE must be set to read.

For example:

```
<RIBCL VERSION="2.0">
  <LOGIN USER_LOGIN="adminname" PASSWORD="password">
    <RIB_INFO MODE="read">
      <GET_FEDERATION_ALL_GROUPS/>
    </RIB_INFO>
  </LOGIN>
</RIBCL>
```

GET_FEDERATION_ALL_GROUPS parameters

None

GET_FEDERATION_ALL_GROUPS runtime errors

None

GET_FEDERATION_ALL_GROUPS return messages

The following response is typical of the data returned from the GET_FEDERATION_ALL_GROUPS command:

```
<?xml version="1.0"?>
<RIBCL VERSION="2.23">
<RESPONSE
  STATUS="0x0000"
  MESSAGE='No error'
  />
<GET_FEDERATION_ALL_GROUPS>
  <GROUP_NAME VALUE="Group1"/>
  <GROUP_NAME VALUE="Group2"/>
</GET_FEDERATION_ALL_GROUPS>
</RIBCL>
```

GET_FEDERATION_ALL_GROUPS_INFO

Use GET_FEDERATION_ALL_GROUPS_INFO to retrieve a list of all iLO Federation group names and the associated privileges for each group. To retrieve the privileges of a specific group, use **GET_FEDERATION_GROUP**. In addition to the group name, the returned group privileges include:

- User Account Administration (ADMIN_PRIV)
- Remote Console Access (REMOTE_CONS_PRIV)
- Virtual Power and Reset (RESET_SERVER_PRIV)

- Virtual Media (VIRTUAL_MEDIA_PRIV)
- iLO Setting Configuration (CONFIG_ILO_PRIV)
- Login Privilege (LOGIN_PRIV)

NOTE: GET_FEDERATION_ALL_GROUPS_INFO has not been enhanced to support the extended group privileges available from the iLO 5 web interface. For more information about setting group privileges in iLO 5, see the *HPE iLO 5 User Guide* in the HPE Information Library at <http://www.hpe.com/support/ilo-docs>.

The command must appear within a RIB_INFO command block, and RIB_INFO MODE must be set to read.

For example:

```
<RIBCL VERSION="2.0">
  <LOGIN USER_LOGIN="adminname" PASSWORD="password">
    <RIB_INFO MODE="read">
      <GET_FEDERATION_ALL_GROUPS_INFO/>
    </RIB_INFO>
  </LOGIN>
</RIBCL>
```

GET_FEDERATION_ALL_GROUPS_INFO parameters

None.

GET_FEDERATION_ALL_GROUPS_INFO runtime errors

None

GET_FEDERATION_ALL_GROUPS_INFO return messages

The following response is typical of the data returned from the GET_FEDERATION_ALL_GROUPS_INFO command:

```
<?xml version="1.0"?>
<RIBCL VERSION="2.23">
<RESPONSE
  STATUS="0x0000"
  MESSAGE='No error'
  />
<GET_FEDERATION_ALL_GROUPS_INFO>
  <FEDERATION_GROUP>
    <GROUP_NAME VALUE="Group1"/>
    <ADMIN_PRIV VALUE="Yes"/>
    <REMOTE_CONS_PRIV VALUE="Yes"/>
    <RESET_SERVER_PRIV VALUE="Yes"/>
    <VIRTUAL_MEDIA_PRIV VALUE="Yes"/>
    <CONFIG_ILO_PRIV VALUE="Yes"/>
    <LOGIN_PRIV VALUE="Yes"/>
  </FEDERATION_GROUP>
  <FEDERATION_GROUP>
    <GROUP_NAME VALUE="Group2"/>
    <ADMIN_PRIV VALUE="Yes"/>
    <REMOTE_CONS_PRIV VALUE="Yes"/>
```

```

    <RESET_SERVER_PRIV VALUE="No"/>
    <VIRTUAL_MEDIA_PRIV VALUE="No"/>
    <CONFIG_ILO_PRIV VALUE="Yes"/>
    <LOGIN_PRIV VALUE="Yes"/>
  </FEDERATION_GROUP>
</GET_FEDERATION_ALL_GROUPS_INFO>
</RIBCL>

```

GET_FEDERATION_GROUP

Use GET_FEDERATION_GROUP to retrieve the privileges granted to a specified Federated group. To retrieve the privileges granted to all groups, use **GET_FEDERATION_ALL_GROUPS_INFO**. In addition to the group name, the return includes the following group privileges:

- User Account Administration (ADMIN_PRIV)
- Remote Console Access (REMOTE_CONS_PRIV)
- Virtual Power and Reset (RESET_SERVER_PRIV)
- Virtual Media (VIRTUAL_MEDIA_PRIV)
- iLO Setting Configuration (CONFIG_ILO_PRIV)
- Login Privilege (LOGIN_PRIV)

The command must appear within a RIB_INFO command block, and RIB_INFO MODE must be set to read.

For example:

```

<RIBCL VERSION="2.0">
  <LOGIN USER_LOGIN="adminname" PASSWORD="password">
    <RIB_INFO MODE="read">
      <GET_FEDERATION_GROUP GROUP_NAME="groupname"/>
    </RIB_INFO>
  </LOGIN>
</RIBCL>

```

NOTE: GET_FEDERATION_GROUP has not been enhanced to support the extended group privileges available from the iLO 5 web interface. For more information about setting group privileges in iLO 5, see the *HPE iLO 5 User Guide* in the HPE Information Library at <http://www.hpe.com/support/ilo-docs>.

GET_FEDERATION_GROUP parameters

GROUP_NAME—The name of the group to be displayed. The name must be from 1 to 31 characters long.

GET_FEDERATION_GROUP runtime errors

GET_FEDERATION_GROUP returns the following message if the value specified for GROUP_NAME does not match any existing groups:

Group name not found.

GET_FEDERATION_GROUP return messages

The following response is typical of the data returned from the GET_FEDERATION_GROUP command:

```
<?xml version="1.0"?>
<RIBCL VERSION="2.23">
<RESPONSE
  STATUS="0x0000"
  MESSAGE='No error'
  />
<GET_FEDERATION_GROUP>
  <FEDERATION_GROUP>
    <GROUP_NAME VALUE="Group2"/>
    <ADMIN_PRIV VALUE="Yes"/>
    <REMOTE_CONS_PRIV VALUE="Yes"/>
    <RESET_SERVER_PRIV VALUE="No"/>
    <VIRTUAL_MEDIA_PRIV VALUE="No"/>
    <CONFIG_ILO_PRIV VALUE="Yes"/>
    <LOGIN_PRIV VALUE="Yes"/>
  </FEDERATION_GROUP>
</GET_FEDERATION_GROUP>
</RIBCL>
```

ADD_FEDERATION_GROUP

Use ADD_FEDERATION_GROUP to create a new iLO Federation group, or to include an iLO in an existing group membership while setting the associated privileges of that group on the iLO. The command must appear within a RIB_INFO command block, and RIB_INFO MODE must be set to `write`.

NOTE: ADD_FEDERATION_GROUP has not been enhanced to support the extended group privileges available from the iLO 5 web interface. For more information about setting group privileges in iLO 5, see the *HPE iLO 5 User Guide* in the HPE Information Library at <http://www.hpe.com/support/ilo-docs>.

For example:

```
<RIBCL VERSION="2.0">
  <LOGIN USER_LOGIN="adminname" PASSWORD="password">
    <RIB_INFO MODE="write">
      <ADD_FEDERATION_GROUP
        GROUP_NAME="groupname"
        GROUP_KEY="groupkey">
          <ADMIN_PRIV VALUE="Yes"/>
          <REMOTE_CONS_PRIV VALUE="Yes"/>
          <RESET_SERVER_PRIV VALUE="Yes"/>
          <VIRTUAL_MEDIA_PRIV VALUE="Yes"/>
          <CONFIG_ILO_PRIV VALUE="Yes"/>
          <LOGIN_PRIV VALUE="Yes"/>
        </ADD_FEDERATION_GROUP>
      </RIB_INFO>
    </LOGIN>
  </RIBCL>
```

NOTE: A single iLO can belong to up to a maximum of 10 iLO Federation groups. To remove an iLO system from an iLO Federation group, use **DELETE_FEDERATION_GROUP**.

ADD_FEDERATION_GROUP parameters

GROUP_NAME—The name of the group to be added. The name must be from 1 to 31 characters long.

GROUP_KEY—The password for the group to be added. The password can be from the configured minimum password length to 31 characters long.

ADMIN_PRIV (Administer User Accounts)—Enables members of a group to add, edit, and delete iLO user accounts.

REMOTE_CONS_PRIV (Remote Console Access)—Enables members of a group to remotely access the host system Remote Console, including video, keyboard, and mouse control.

RESET_SERVER_PRIV (Virtual Power and Reset)—Enables members of a group to power-cycle or reset the local iLO system.

VIRTUAL_MEDIA_PRIV (Virtual Media)—Enables members of a group to use scripted Virtual Media with the local iLO system.

CONFIG_ILO_PRIV (Configure iLO Settings)—Enables members of a group to configure most iLO settings, including security settings, and to remotely update firmware.

LOGIN_PRIV (Login)—Enables members of a group to log in to iLO.

ADD_FEDERATION_GROUP runtime errors

Some possible ADD_FEDERATION_GROUP error messages include the following:

- The GROUP_NAME must not be left blank.
- The GROUP_NAME is too long.
- The GROUP_KEY must not be left blank.
- The GROUP_KEY is too long.
- The GROUP_KEY is too short. Use a longer key.
- Group membership already exists.
- Cannot add group membership. Maximum number of memberships reached: 10.

MOD_FEDERATION_GROUP

Use MOD_FEDERATION_GROUP to modify an existing iLO Federation group membership and associated privileges. The command must appear within a RIB_INFO command block, and RIB_INFO MODE must be set to *write*.

NOTE: All parameters are optional. Any iLO Federation property that is not explicitly modified retains its old value.

For example:

```
<RIBCL VERSION="2.0">
  <LOGIN USER_LOGIN="adminname" PASSWORD="password">
    <RIB_INFO MODE="write">
      <MOD_FEDERATION_GROUP GROUP_NAME="groupname">
        <GROUP_NAME VALUE="newgroupname"/>
        <GROUP_KEY VALUE="newgroupkey"/>
        <ADMIN_PRIV VALUE="Yes"/>
        <REMOTE_CONS_PRIV VALUE="Yes"/>
      </MOD_FEDERATION_GROUP>
    </RIB_INFO>
  </LOGIN>
</RIBCL>
```



```
<RESET_SERVER_PRIV VALUE="Yes"/>
<VIRTUAL_MEDIA_PRIV VALUE="Yes"/>
<CONFIG_ILO_PRIV VALUE="Yes"/>
<LOGIN_PRIV VALUE="Yes"/>
</MOD_FEDERATION_GROUP>
</RIB_INFO>
</LOGIN>
</RIBCL>
```

NOTE: MOD_FEDERATION_GROUP has not been enhanced to support the extended group privileges available from the iLO 5 web interface. For more information about setting group privileges in iLO 5, see the *HPE iLO 5 User Guide* in the HPE Information Library at <http://www.hpe.com/support/ilo-docs>.

MOD_FEDERATION_GROUP parameters

GROUP_NAME—The name of the group to be changed, or the new name to be given to the specified Federation group, depending on the parameters' location. The name must be from 1 to 31 characters long.

GROUP_KEY—The new password to set for the group. The password can be from the configured minimum password length to 31 characters long.

ADMIN_PRIV (Administer User Accounts)—Enables members of a group to add, edit, and delete iLO user accounts.

REMOTE_CONS_PRIV (Remote Console Access)—Enables members of a group to remotely access the host system Remote Console, including video, keyboard, and mouse control.

RESET_SERVER_PRIV (Virtual Power and Reset)—Enables members of a group to power-cycle or reset the local iLO system.

VIRTUAL_MEDIA_PRIV (Virtual Media)—Enables members of a group to use scripted Virtual Media with the local iLO system.

CONFIG_ILO_PRIV (Configure iLO Settings)—Enables members of a group to configure most iLO settings, including security settings, and to remotely update firmware.

LOGIN_PRIV (Login)—Enables members of a group to log in to iLO.

MOD_FEDERATION_GROUP runtime errors

Some possible MOD_FEDERATION_GROUP error messages include the following:

- The GROUP_NAME must not be left blank.

NOTE: This error appears only if the value in the <MOD_FEDERATION_GROUP GROUP_NAME="groupname"> command is left blank. This error does not appear if "newgroupname" in the parameter setting <GROUP_NAME VALUE="newgroupname"/> is left blank or the line is omitted. In that case, the original group name is retained.

- Group name not found.
- The GROUP_NAME is too long.
- The GROUP_KEY must not be left blank.
- The GROUP_KEY is too long.

- Group membership already exists.
- User does not have correct privilege for action. CONFIG_ILO_PRIV required.

DELETE_FEDERATION_GROUP

Use DELETE_FEDERATION_GROUP to remove the iLO from an iLO Federation group membership. The command must appear within a RIB_INFO command block, and RIB_INFO MODE must be set to write.

For example:

```
<RIBCL VERSION="2.0">
  <LOGIN USER_LOGIN="adminname" PASSWORD="password">
    <RIB_INFO MODE="write">
      <DELETE_FEDERATION_GROUP GROUP_NAME="groupname"/>
    </RIB_INFO>
  </LOGIN>
</RIBCL>
```

DELETE_FEDERATION_GROUP parameters

GROUP_NAME—The name of the iLO Federation group to be deleted. The name must be from 1 to 31 characters long and must already exist as a membership group.

DELETE_FEDERATION_GROUP runtime errors

Some possible runtime errors returned by DELETE_FEDERATION_GROUP include the following:

- If the value specified for GROUP_NAME does not match any existing groups: Group name not found.
- User does not have correct privilege for action. CONFIG_ILO_PRIV required.

Troubleshooting

Query errors occur on iLO Federation pages

Symptom

When you open an iLO Federation page, iLO peers and associated data might be missing from the page, and the following error is displayed:

```
Errors occurred during query, returned data may be incomplete or inconsistent.
```

Cause

This error might occur when a network communication error, configuration problem, or failed iLO system prevents the retrieval of data from all systems in an iLO Federation group.

Action

- Wait for twice the configured **Multicast Announcement Interval**, and then refresh the iLO Federation page.

If an iLO system was reconfigured and can no longer communicate with the local iLO system, it will be dropped from its peer relationships after they expire.

- Check the **Multi-System Map** page for errors.

This page can help you identify communication problems between iLO peers.

- If you are using server blades in a BladeSystem enclosure, verify that **Enclosure iLO Federation Support** is configured on the **Enclosure Settings > Network Access > Protocols** page in the Onboard Administrator web interface.

You must have Onboard Administrator 4.11 or later to configure this setting.

This configuration is required to allow peer-to-peer communication between the server blades in an enclosure.

- Verify that the switches in the network are configured to allow communication between iLO peers.
- If you changed the network routes, subnet mask, IP address, or HTTP port for an iLO peer, verify that the peer has a communication path to the local iLO system.
- Ensure that a communication path exists between the local iLO system and the peer with the error.

An intermediate firewall or a change to the iLO network configuration and HTTP port setting might block communication between the local iLO system and the peer.

A timeout error is displayed on the iLO Multi-System Map page

Symptom

The **Multi-System Map** page displays a `Timed Out` error for a peer of the local iLO system.

Cause

This error might occur in the following situations:

- A peer of the local iLO system has a peer that has failed.
- An intermediate firewall is preventing communication between the local iLO system and a peer.
- Network configuration changes are preventing communication between the local iLO system and a peer.
- The enclosure that contains the peer is not configured for iLO Federation support.

Action

- Remove or repair the failed peer.
- Verify that the network is configured to allow communication between the iLO peers.
- Verify that the enclosure that contains an iLO server blade peer is configured for iLO Federation support on the **Enclosure Settings > Network Access > Protocols** page in the Onboard Administrator web interface.

You must have Onboard Administrator 4.11 or later to configure this setting. This configuration is required to allow peer-to-peer communication between the server blades in an enclosure.

iLO Multi-System Map page displays a 502 error

Symptom

The **Multi-System Map** page shows a 502 error.

Cause

The listed peer rejected a request from the local iLO system.

Action

Ensure that a communication path exists between the local iLO system and the peer with the error.

An intermediate firewall or a change to the iLO network configuration and HTTP port setting might block communication between the local iLO system and the peer.

iLO Multi-System Map page displays a 403 error

Symptom

The **Multi-System Map** page shows a 403 Forbidden/Authorization error.

Cause

The group key on the local iLO system does not match the group key on a peer iLO system.

Action

Ensure that the group key matches for all iLO systems that are members of the selected group.

iLO peers are not displayed on iLO Federation pages

Symptom

iLO peers (systems in the same group as the local iLO system) are not displayed on iLO Federation pages.

Action

- Ensure that the group key matches for all iLO systems that are members of the selected group.
- Wait for twice the configured multicast interval, and then refresh the iLO Federation page.

If an iLO system was reconfigured and can no longer communicate with the local iLO system, it will be dropped from its peer relationships after they expire.

- If you are using server blades in an enclosure, verify that **Enclosure iLOFederation Support** is configured on the **Enclosure Settings > Network Access > Protocols** page in the Onboard Administrator web interface.

You must have Onboard Administrator 4.11 or later to configure this setting. This configuration is required to allow peer-to-peer communication between the server blades in an enclosure.

- Verify that the switches in the network are configured to allow communication between iLO peers.
- Ensure that a communication path exists between the local iLO system and the peer with the error.

An intermediate firewall or a change to the iLO network configuration and HTTP port setting might block communication between the local iLO system and the peer.

iLO peers are displayed with IPv6 addresses on IPv4 networks

Symptom

iLO peers on an IPv4 network are displayed with IPv6 addresses on iLO Federation pages.

Action

Verify that the **iLO Client Applications use IPv6 first** check box is not selected on the **iLO Dedicated Network Port - IPv6** or **iLO Shared Network Port - IPv6** page.

Websites

General websites

Hewlett Packard Enterprise Information Library

www.hpe.com/info/EIL

For additional websites, see [Support and other resources](#).

Product websites

iLO

<http://www.hpe.com/info/ilo>

iLO 5 Information Library

<http://www.hpe.com/support/ilo-docs>

iLO Support

<http://www.hpe.com/support/ilo5>

iLO Advanced

<http://www.hpe.com/servers/iloadvanced>

iLO Advanced Premium Security Edition

<http://www.hpe.com/servers/ilopremium>

iLO mobile app

<http://www.hpe.com/info/ilo/mobileapp>

Active Health System Viewer

<http://www.hpe.com/servers/ahsv>

Intelligent System Tuning

<http://www.hpe.com/info/ist>

HPE ProLiant Gen10 servers

<http://www.hpe.com/info/proliantgen10-docs>

HPE ProLiant Gen10 and HPE Synergy compute module troubleshooting

<http://www.hpe.com/info/Gen10-troubleshooting>

UEFI System Utilities

<http://www.hpe.com/info/ProLiantUEFI/docs>

SUM

<http://www.hpe.com/info/sum-docs>

SPP

<http://www.hpe.com/info/spp/documentation>

Intelligent Provisioning

<http://www.hpe.com/info/intelligentprovisioning/docs>

iLO RESTful API and RESTful Interface Tool

<http://www.hpe.com/info/redfish>

Remote Support

<http://www.hpe.com/info/insightremotesupport/docs>

HPE OneView

<http://www.hpe.com/info/oneview/docs>

OA

<http://www.hpe.com/support/oa/docs>

HPE SIM

<http://www.hpe.com/info/insightmanagement/sim/docs>

Support and other resources

Accessing Hewlett Packard Enterprise Support

- For live assistance, go to the Contact Hewlett Packard Enterprise Worldwide website:
<http://www.hpe.com/assistance>
- To access documentation and support services, go to the Hewlett Packard Enterprise Support Center website:
<http://www.hpe.com/support/hpesc>

Information to collect

- Technical support registration number (if applicable)
- Product name, model or version, and serial number
- Operating system name and version
- Firmware version
- Error messages
- Product-specific reports and logs
- Add-on products or components
- Third-party products or components

Accessing updates

- Some software products provide a mechanism for accessing software updates through the product interface. Review your product documentation to identify the recommended software update method.
- To download product updates:

Hewlett Packard Enterprise Support Center

www.hpe.com/support/hpesc

Hewlett Packard Enterprise Support Center: Software downloads

www.hpe.com/support/downloads

Software Depot

www.hpe.com/support/softwaredepot

- To subscribe to eNewsletters and alerts:
www.hpe.com/support/e-updates
- To view and update your entitlements, and to link your contracts and warranties with your profile, go to the Hewlett Packard Enterprise Support Center **More Information on Access to Support Materials** page:

- ❗ **IMPORTANT:** Access to some updates might require product entitlement when accessed through the Hewlett Packard Enterprise Support Center. You must have an HPE Passport set up with relevant entitlements.
-

Customer self repair

Hewlett Packard Enterprise customer self repair (CSR) programs allow you to repair your product. If a CSR part needs to be replaced, it will be shipped directly to you so that you can install it at your convenience. Some parts do not qualify for CSR. Your Hewlett Packard Enterprise authorized service provider will determine whether a repair can be accomplished by CSR.

For more information about CSR, contact your local service provider or go to the CSR website:

<http://www.hpe.com/support/selfrepair>

Remote support

Remote support is available with supported devices as part of your warranty or contractual support agreement. It provides intelligent event diagnosis, and automatic, secure submission of hardware event notifications to Hewlett Packard Enterprise, which will initiate a fast and accurate resolution based on your product's service level. Hewlett Packard Enterprise strongly recommends that you register your device for remote support.

If your product includes additional remote support details, use search to locate that information.

Remote support and Proactive Care information

HPE Get Connected

www.hpe.com/services/getconnected

HPE Proactive Care services

www.hpe.com/services/proactivecare

HPE Proactive Care service: Supported products list

www.hpe.com/services/proactivecaresupportedproducts

HPE Proactive Care advanced service: Supported products list

www.hpe.com/services/proactivecareadvancedsupportedproducts

Proactive Care customer information

Proactive Care central

www.hpe.com/services/proactivecarecentral

Proactive Care service activation

www.hpe.com/services/proactivecarecentralgetstarted

Warranty information

To view the warranty for your product or to view the *Safety and Compliance Information for Server, Storage, Power, Networking, and Rack Products* reference document, go to the Enterprise Safety and Compliance website:

www.hpe.com/support/Safety-Compliance-EnterpriseProducts

Additional warranty information

HPE ProLiant and x86 Servers and Options

www.hpe.com/support/ProLiantServers-Warranties

HPE Enterprise Servers

www.hpe.com/support/EnterpriseServers-Warranties

HPE Storage Products

www.hpe.com/support/Storage-Warranties

HPE Networking Products

www.hpe.com/support/Networking-Warranties

Regulatory information

To view the regulatory information for your product, view the *Safety and Compliance Information for Server, Storage, Power, Networking, and Rack Products*, available at the Hewlett Packard Enterprise Support Center:

www.hpe.com/support/Safety-Compliance-EnterpriseProducts

Additional regulatory information

Hewlett Packard Enterprise is committed to providing our customers with information about the chemical substances in our products as needed to comply with legal requirements such as REACH (Regulation EC No 1907/2006 of the European Parliament and the Council). A chemical information report for this product can be found at:

www.hpe.com/info/reach

For Hewlett Packard Enterprise product environmental and safety information and compliance data, including RoHS and REACH, see:

www.hpe.com/info/ecodata

For Hewlett Packard Enterprise environmental information, including company programs, product recycling, and energy efficiency, see:

www.hpe.com/info/environment

Documentation feedback

Hewlett Packard Enterprise is committed to providing documentation that meets your needs. To help us improve the documentation, send any errors, suggestions, or comments to Documentation Feedback (docsfeedback@hpe.com). When submitting your feedback, include the document title, part number, edition, and publication date located on the front cover of the document. For online help content, include the product name, product version, help edition, and publication date located on the legal notices page.