Hewlett Packard Enterprise

HPE iLO 5 Scripting and Command Line Guide

Abstract

This document describes the syntax and tools available for use with the HPE iLO firmware through the command line or a scripted interface. This document is for the person who installs, administers, and troubleshoots servers and storage systems. Hewlett Packard Enterprise assumes you are qualified in the servicing of computer equipment and trained in recognizing hazards in products with hazardous energy levels. Use this guide for HPE iLO ProLiant servers and ProLiant BladeSystem server blades.

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Introduction

Scripting and command line guide overview

HPE iLO 5 provides multiple ways to configure, update, and operate HPE ProLiant servers remotely. The HPE iLO User Guide describes each feature and explains how to use these features with the browser-based interface and RBSU. For more information, see the iLO User Guide on the Hewlett Packard Enterprise website at **http://www.hpe.com/info/ilo/docs**.

The HPE iLO Scripting and Command Line Guide describes the syntax and tools available to use iLO 5 through a command line or scripted interface.

Sample XML scripts downloaded from the Hewlett Packard Enterprise website contain commands for all iLO firmware. Unless otherwise specified, the examples in this guide are for iLO 5 version 1.10 and later. Before using the sample scripts, review the firmware support information in each script to tailor the script for the intended firmware and version. Download the sample scripts from the Hewlett Packard Enterprise website:

- Windows:

  http://www.hpe.com/support/windows-sample-scripts
- Linux:

  http://www.hpe.com/support/linux-perl-sample-scripts

Throughout this manual, iLO 5 is referred to as iLO.

In addition to the GUI, the iLO firmware provides multiple ways to configure and control iLO and the server using scripts and command line instructions.

The scripting tools provide a method to configure multiple iLO systems, to incorporate a standard configuration into the deployment process, and to control servers and subsystems. Using the scripting tools enables you to:

- Change the Administrator password on all your iLO systems
- Configure LDAP directory service settings
- Control the server power state
- Attach a virtual media CD/DVD to the host server
- Update the iLO firmware
- Retrieve power consumption data
- Issue various configuration and control commands

The command line tools provide quick and easy methods to send commands to the iLO firmware and host servers.

NOTE:

The iLO scripting and the CLI have supported all the new features of past generations of HPE servers and earlier revisions of iLO. With the release of iLO 5, some new features and capabilities available in the iLO web interface are not supported by RIBCL or the CLI. Instead, HPE recommends the use of the iLO RESTful API, particularly for setting the new iLO security states and extended user privileges. The iLO RESTful API is the preferred programmatic interface for Gen10 and later systems, and the preferred CLI/scripting tool is the RESTful Interface Tool (iLOrest).

For more information about the iLO RESTful API ecosystem, see **http://www.hpe.com/info/redfish**.

Scripting and command line utilities

This section describes the following scripting and command line tools:

- HPQLOCFG.EXE
- LOCFG.PL
- HPONCFG.EXE
- SMASH CLP
- IPMI

The current version of iLO 5 requires the following versions of the utilities:

Table 1: HPE iLO 5 1.10 scripting and command line utilities required versions

Utility	Version
HPQLOCFG	5.0.0
HP Lights-Out XML Scripting Sample	5.00
HPONCFG for Windows	5.0.0.0
HPONCFG for Linux	5.0.0-0
LOCFG.PL[1]	5.00
HPLOMIG	5.00

[1] *This utility is available in the HP Lights-Out XML Scripting Sample.*

HPQLOCFG Utility

The Lights-Out Configuration Utility (HPQLOCFG.EXE) utility is a Windows command line utility that sends XML configuration and control scripts over the network to iLO. Run this utility manually from a Windows command prompt, or create a batch file to run the same script to many iLO devices.

The tool accepts properly formatted XML scripts containing commands and values; see the XML scripts in the iLO Sample Scripts for Windows or the HP Lights-Out XML Scripting Sample for Linux for examples of proper formatting. All available commands are detailed later in this guide. HPQLOCFG also integrates with HPE SIM for easy launching of the same script on multiple devices.

LOCFG.PL Script

The LOCFG.PL scripting utility is a PERL script that provides similar functionality as the HPQLOCFG utility. Run this tool on any client that has a compatible PERL environment (including OpenSSL) installed. This tool uses the same XML scripts as HPQLOCFG input files.

HPONCFG Utility

Use the HPONCFG.EXE utility to send XML configuration and control scripts (the same scripts as HPQLOCFG) from the server host operating system to iLO. HPONCFG has both Windows and Linux versions. One common usage is to run an HPONCFG script to configure iLO to a standard configuration at the end of your server deployment process. HPONCFG integrates with HPE RDP and also runs at the end of an unattended OS installation.

NOTE:

HPONCFG on Linux supports iLO higher security states. HPONCFG on Windows supports Production mode only.

When you run HPONCFG from the host operating system, you must be logged in to the host server using an Administrator or root level user account. An iLO username and password are not required (when iLO security is set to Production). However, when using Linux with iLO security set to any state higher than Production, a username and password are required.

Windows server operating systems also have the HPONCFG_GUI.EXE utility. As with the command line HPONCFG, this utility supports iLO 5 only in Production mode.

SMASH CLP

SMASH CLP is the DMTF suite of specifications that deliver industry-standard protocols and profiles to unify the management of the data center. The SMASH CLP specification enables simple and intuitive management of heterogeneous servers in a data center.

SMASH CLP provides a standardized set of commands for configuration and control of management processors (called Management Access Points) and host systems. On iLO, access SMASH CLP through the SSH port.

IPMI

The IPMI specification is a standard that defines a set of common interfaces to a computer system. System administrators can use IPMI to monitor system health and manage the system. IPMI 2.0 defines a mandatory system interface, and an optional LAN interface. The iLO processor supports both interfaces.

The IPMI specification defines a standardized interface for platform management. The IPMI specification defines the following types of platform management:

- Monitors the status of system information, such as fans, temperatures, and power supplies
- Recovery capabilities, such as system resets and power on/off operations
- Logging capabilities for abnormal events, such as over-temperature readings or fan failures
- Inventory capabilities, such as identifying failed hardware components

IPMI commands are sent to iLO using a third-party or open source utility, such as IPMITOOL, IPMIUTIL, OpenIPMI or FreeIPMI.

You must be familiar with IPMI specifications when issuing raw commands. For additional information, see the IPMI specification on the Intel website at **http://www.intel.com/content/www/us/en/servers/ipmi/ipmi-v2-rev1-1-spec-errata-6-markup.html?wapkw=ipmi**.

HPE Insight Control server deployment

HPE Insight Control server deployment integrates with iLO to enable the management of remote servers and to monitor the performance of remote console operations, regardless of the state of the operating system or hardware.

The deployment server provides the capability to use the power management features of iLO to power on, power off, or cycle power on the target server. Each time a server connects to the deployment server, the deployment server polls the target server to verify the presence of a LOM management device. If installed, the server gathers information, including the DNS name, IP address, and user login name. Security is maintained by requiring the user to enter the correct password for that user name.

For more information about the Insight Control server deployment, see the documentation that ships on the HPE Insight software DVD, or the Hewlett Packard Enterprise website at **http://www.hpe.com/info/insightcontrol**.

HPQLOCFG usage

The HPQLOCFG.EXE utility is a Windows-based utility that connects to iLO using a secure connection over the network. RIBCL scripts are passed to iLO over the secure connection to HPQLOCFG. This utility requires a valid user ID and password with the appropriate privileges. Launch the HPQLOCFG utility from SIM for Group Administration, or launch it independently from a command prompt for batch processing.

Download this utility from the Hewlett Packard Enterprise website at: **http://www.hpe.com/support/ilo5**.

Version 5.0.0 or later of HPQLOCFG is required to support all features of iLO 5 v1.10

SIM discovers iLO devices as management processors. HPQLOCFG sends a RIBCL file to a group of iLO devices to manage the user accounts for those iLO devices. The iLO devices then perform the action designated by the RIBCL file and send a response to the log file.

Use HPQLOCFG to execute RIBCL scripts on iLO. HPQLOCFG must reside on the same server as SIM. HPQLOCFG generates two types of error messages; runtime errors, and syntax errors.

- Runtime errors occur when an invalid action is requested. Runtime errors are logged to the following directory:`C:\Program Files\HP\Systems Insight Manager\`
- Syntax errors occur when an invalid XML tag is encountered. When a syntax error occurs, HPQLOCFG stops running and logs the error in the runtime script and output log file. Syntax errors use the following format: `Syntax error: expected X but found Y` . For example:

```
Syntax error: expected USER_LOGIN=userlogin
              but found USER_NAME=username
```

If an enhanced security state is enabled in iLO 5 (for example, HighSecurity or FIPS), you must upgrade your installation of Microsoft .NET Framework to v4.5. Additionally, verify that the OS supports enhanced security protocols like TLS v1.1 and TLS v1.2.

Table 2: Usage requirements

OS	.NET Framework version	HPQLOCFG with iLO 5 security set to Production	HPQLOCFG with higher security settings[1]
Windows Server 2008[2]	v4.0 or above	✔	x
	v4.5	✔	x
Windows 7 and Windows Server 2008 R2	v4.0 or lower	✔	x
	v4.5	✔	✔
Windows 8 and Windows Server 2012	v4.0 or lower	✔	x
	v4.5	✔	✔

[1] *This refers to using HPQLOCFG in an environment in which the iLO 5 security state is set to HighSecurity, FIPS, or CNSA/SuiteB mode.*

[2] On certain operating systems, such as Windows Server 2008 , even with .NET Framework v4.5 installed, TLS v1.1 and TLS v1.2 are not supported by the OS itself.

Configuring for unauthenticated XML queries

If configured to do so, the iLO device returns identifying information in response to an unauthenticated XML query. By default, the iLO device is configured to return this information.

To disable this feature in the CLI, set the CIM_SECURITY_MASK in the `MOD_SNMP_IM_SETTINGS` command to disable unauthenticated XML query return information.

You can also configure the handling of unauthenticated XML query information through the iLO web interface:

Procedure

1. Click **Management** in the navigation tree, and then click the **SNMP Settings** tab.
2. Scroll down to the **Insight Management Integration** heading, and then click the menu for the **Level of Data Returned** option.

   This setting controls the content of an anonymous discovery message received by iLO. The information returned is used for HPE SIM HTTP identification requests. The following options are available:

   - **Enabled (iLO+Server Association Data)**

     (default)—Enables HPE SIM to associate the management processor with the host server, and provides sufficient data to enable integration with HPE SIM.
   - **Disabled (No Response to Request)**

     —Prevents iLO from responding to HPE SIM requests.

     NOTE:

     You must have this setting enabled to successfully perform device discoveries with SIM.
3. Select **Disabled (No Response to Request)** to disable unauthenticated XML query return information.
4. Click the **Apply** button below the settings.

To obtain unauthenticated identifying information, enter the following command to the iLO web server port:

`https://<iloaddress>/xmldata?item=all`

Alternatively, you can click View XML Reply to view the response.

A typical response is:

```
<RIMP>
    <HSI>
        <SBSN>ABC12345678</SBSN>
        <SPN>ProLiant BL460c Gen8</SPN>
        <UUID>BL4608CN71320ZNN</UUID>
        <SP>0</SP>
        <cUUID>36344C42-4E43-3830-3731-33305A4E4E32</cUUID>
        <VIRTUAL>
            <STATE>Inactive</STATE>
            <VID>
                <BSN/>
                <cUUID/>
            </VID>
        </VIRTUAL>
        <PRODUCTID>BL4608-101</PRODUCTID>
        <NICS>
            <NIC>
                <PORT>1</PORT>
                <MACADDR>00:17:a4:77:08:02</MACADDR>
            </NIC>
```

```
            <NIC>
                <PORT>2</PORT>
                <MACADDR>00:17:a4:77:08:04</MACADDR>
            </NIC>
            <NIC>
                <PORT>3</PORT>
                <MACADDR>00:17:a4:77:08:00</MACADDR>
            </NIC>
            <NIC>
                <PORT>4</PORT>
                <MACADDR>9c:8e:99:13:20:cd</MACADDR>
            </NIC>
            <NIC>
                <PORT>5</PORT>
                <MACADDR>9c:8e:99:13:20:ca</MACADDR>
            </NIC>
            <NIC>
                <PORT>6</PORT>
                <MACADDR>9c:8e:99:13:20:ce</MACADDR>
            </NIC>
            <NIC>
                <PORT>7</PORT>
                <MACADDR>9c:8e:99:13:20:cb</MACADDR>
            </NIC>
            <NIC>
                <PORT>8</PORT>
                <MACADDR>9c:8e:99:13:20:cf</MACADDR>
            </NIC>
        </NICS>
    </HSI>
    <MP>
        <ST>1</ST>
        <PN>Integrated Lights-Out 5 (iLO 5)</PN>
        <FWRI>1.10</FWRI>
        <CID>0x0</CID>
        <BBLK/>
        <HWRI>ASIC: 19</HWRI>
        <SN>ILOdl360genten2345</SN>
        <UUID>ILO679119dl360gente</UUID>
        <IPM>1</IPM>
        <SSO>1</SSO>
        <PWRM>UNKNOWN</PWRM>
        <ERS>0</ERS>
        <EALERT>1</EALERT>
    </MP>
    <HEALTH>
        <STATUS>2</STATUS>
    </HEALTH>
</RIMP>
```


Creating a system collection in HPE SIM

To quickly see all system management processors, login to SIM and in the **System and Event Collections** panel, scroll down to and select **All Management Processors**. The **All Management Processors** page appears.

Procedure

1. To create a custom group of all iLO devices (or by iLO version), create a system collection.
2. In the **System and Event Collections** panel, click **Customize**. The **Customize Collections** page appears.
3. In the **Show collections of** dropdown list, select **Systems**. All available system or cluster collections appear.
4. Click **New**. The New Collection section appears.
5. Select **Choose members by attributes**.
6. In the **Search for** dropdown list, select **systems** .
7. In the **where** dropdown, select **system sub type**, and select **is** from the inclusion/exclusion dropdown.
8. Select an Integrated Lights-Out choice from the system sub type dropdown at the right.
9. Click one of the following:
   - **View** — to run the search and display results immediately.
   - **Save as Collection** — to save the collection.
   - **Cancel** — to close the New Collection section without saving any changes.

Launch applications with HPE SIM custom tools

Use custom tools in SIM to combine RIBCL, HPQLOCFG, and system collection to manage Group Administration of iLO devices. Custom tools are executed on the CMS and on target systems. You can create a remote tool that runs on selected target systems, and even schedule its execution.

For more information about custom tools, see the SIM help.

Batch processing using HPQLOCFG

Group Administration is also delivered to iLO through batch processing. The components needed for batch processing are HPQLOCFG, a RIBCL file, and a batch file.

The following example shows a sample batch file used to perform the Group Administration for iLO:

```
REM Updating the HP Integrated Lights-Out 5 board
REM Repeat line for each board to be updated
REM
HPQLOCFG -S ILO1 -F C:\...SCRIPT.XML -L ILO1LOG.TXT -V
HPQLOCFG -S ILO2 -F C:\...SCRIPT.XML -L ILO2LOG.TXT -V
HPQLOCFG -S ILO3 -F C:\...SCRIPT.XML -L ILO3LOG.TXT -V
.
.
.
HPQLOCFG -S ILO<N> -F C:\...SCRIPT.XML -L ILO<N>LOG.TXT -V
```

HPQLOCFG overwrites any existing log files.

HPQLOCFG command line parameters

For information on the syntax of the XML data files, see **RIBCL XML Scripting Language**.

Download sample XML scripts from the Hewlett Packard Enterprise website:

- Windows:

  http://www.hpe.com/support/windows-sample-scripts
- Linux:

  http://www.hpe.com/support/linux-perl-sample-scripts

Using quote characters

The restrictions for using single and double-quote characters are based on whether they are passed to HPQLOCFG inside an XML script or on the command line.

Quotes inside XML scripts

When using an XML script to enter the user name and password use the double-quote (") as delimiters. However, if you must use " inside the user name or password in the XML file (if the user name or password has double quotes in it), change the outside double-quote delimeters to single quotes (').

For example, consider a username with quotes in it:

```
Sample"simple"name
```

This must be in an XML script as:

```
'Sample"simple"name'
```

NOTE:

Support for Windows-specific smart-quotes (“ ” and ‘ ’) as content delimiters in XML is being phased out. Be sure to replace any smart-quote characters in your script with normal double or single quotes (`"` and `'`).

Quotes on the command line

When using HPQLOCFG or LOCFG and entering the password or command on the command line with the `-p` option, you cannot normally use the double-quote special character ("), except when using an ampersand (&) or less-than (<) symbol. To enter a password or command that uses either of these special characters, use double-quotes.

For example:

- `"admin&admin"`
- `"admin<admin"`

When using LOCFG and entering the password or command on the command line with the `-i` option, do not include double-quotes around the password.

For example:

```
admin&admin
```

```
admin<admin
```

Passwords or commands delimited with double-quotes do not work on the LOCFG command line with the `-i` option.

When using LOCFG, to enter a username or password containing the exclamation symbol (!) on the command line, use single quotes.

For example:

```
‘admin!admin’
```

Command line switches

The following command line switches are available to be used with HPQLOCFG.EXE:

Table 3: HPQLOCFG command line switches

Switch	Effect
`-S`	Determines the iLO that is to be updated. This switch is followed by either the DNS name or IP address of the target server. When using IPv6 addresses, you can optionally add the port number preceded by a colon (<IPv6_address:port>). **NOTE:** Do not use this switch if you are launching from SIM. SIM automatically provides the address of the iLO when you launch HPQLOCFG.
`-F`	Full path location and name of the RIBCL file that contains the actions to be performed.
`-U`	User login name. Entering this at the command line overrides the user login name from the script.
`-P`	Password. Entering this at the command line overrides the password from the script.
`-L`[1]	Defines the log file name and file location. If this switch is omitted, a default log file with the DNS name or the IP address is created in the same directory used to launch HPQLOCFG. Ensure that HPQLOCFG is in a directory referenced by the PATH environment variable. Any log files generated are placed in the same directory as the HPQLOCFG executable.This switch cannot designate an output log filename. The default filename is based on the DNS name or the IP address. **NOTE:** Do not use this switch if launching from SIM. The output values may need to be modified to match the RIBCL syntax.
`-V`	Enables verbose message return. The resulting log file contains all commands sent, all responses received, and any errors. By default, only errors and responses from GET commands are logged without this switch.
`-t namevaluepairs`	The `-t namevaluepairs` switch substitutes variables (`%variable%`) in the input file with values specified in name-value pairs. Separate multiple name-value pairs with a comma. See **Using variables and name value pairs with HPQLOCFG** on page 22.

[1] The `-L` and `-V` switches might or might not be set depending on the IT administrator preferences.

Using variables and name value pairs with HPQLOCFG

See the scripts below for examples of successfully using name value pairs.

Script prepared for variables (`Get_Asset_Tag.xml`)

```
<RIBCL VERSION="2.0">
  <LOGIN USER_LOGIN="%user%" PASSWORD="%password%">
    <SERVER_INFO MODE="read">
      <GET_ASSET_TAG/>
    </SERVER_INFO>
```

```
  </LOGIN>
</RIBCL>
```

To execute this script correctly, use the `-t namevaluepairs` switch on the command line:

```
hpqlocfg -f get_asset_tag.xml -s <serverip> -t user=Admin,password=pass
```

If the parameter contains multiple words, you must enclose the phrase within double quotes (" "). Up to 50 variables are supported in an XML file. The maximum length of a variable or value is 255 characters.

LOCFG.PL usage

LOCFG.PL Utility

To use the LOCFG.PL utility, you must have the following PERL modules:

- `Net::SSLeay`
- `IO::Socket::SSL`

You must also have a valid iLO user account and password for each XML script to use LOCFG.PL. To process the request, your account must have the appropriate iLO privileges.

The `LOCFG.PL` script connects to iLO using an SSL connection.

For example:

```
perl locfg.pl -s {servername|ipaddress}[:port] [-l logfilename] -f
input_filename [-u username -p password] [ilo5]
```

LOCFG.PL command line switches

The following command line switches are available to be used with LOCFG.PL:

Table 4: LOCFG.PL command line switches

Switch	Effect
`-s servername` or `ipaddress`	servername: DNS name of target server. Do not use this switch if launching from SIM.
	ipaddress: IP address of the target server. Do not use this switch if launching from SIM.
`:port`	If a port is not specified, the port defaults to `:443`.
`-l logfilename`	Name of the file to log all output to. A default file with the server name and IP address is created if this option is not specified. Do not use this switch if launching from SIM.
`-f input_filename`	Filename containing the RIB commands.
`-u username`	Command line user name. Entering this at the command line overrides the user login name from the script.
`-p password` [1]	Command line password. Entering this at the command line overrides the password from the script.
`-t namevaluepairs`	The `-t namevaluepairs` switch substitutes variables (`%variable%`) in the input file with values specified in name-value pairs. Separate multiple name-value pairs with a comma.
`-i`	Enables interactive input of username and password.

Table Continued

Switch	Effect
`-v`	Enables verbose message mode. The resulting log file contains all commands sent, all responses received, and any errors. By default, only errors and responses from GET commands are logged without this switch.
`-ilo5`	Specifies the type of targeted management processor. This flag is optional. Without this flag, LOCFG.PL detects the iLO type automatically. The iLO 5 firmware performs better when this flag is present.

[1] Use `-u` and `-p` with caution, because command line options are visible on Linux systems.

For more information, see **RIBCL XML Scripting Language** on page 73.

HPONCFG online configuration utility

HPONCFG

The HPONCFG utility is an online configuration tool used to set up and configure iLO from within Windows and Linux operating systems without requiring a reboot of the server operating system. HPONCFG runs in a command line mode and must be executed from an operating system command line using an account with administrator or root access. HPONCFG provides a limited graphical interface for servers that use Windows operating systems.

HPONCFG requirements

- Windows-based servers—The following channel interface driver installation must be loaded on the server:
  - `HP ProLiant iLO 5 Channel Interface Driver for Windows`
- Linux-based servers—The `HP ProLiant iLO Channel Interface` (KMOD/KMP) must be loaded on the server, which includes a health driver package. Each SPP includes the necessary interface and health drivers, and the package is also available from the Hewlett Packard Enterprise website at: **http://www.hpe.com/support/ilo5**.

Installing HPONCFG

The HPONCFG utility is delivered in separate packages for Windows and Linux operating systems. For Windows operating systems, it is included as a smart component. For Linux operating systems, it is included as an RPM package file. HPONCFG packages are included in the Service Pack for ProLiant (SPP).

Download SPP at **http://www.hpe.com/servers/spp/download**.

Windows server installation

HPONCFG installs automatically when the Service Pack for ProLiant is installed. To install HPONCFG manually, run the self-extracting executable.

HPONCFG creates a directory at:

`%Program files%\Hewlett Packard Enterprise\HPONCFG`.

Linux server installation

HPONCFG is installed automatically when Service Pack for ProLiant is installed. Download the HPONCFG RPM package for Linux distributions from the Hewlett Packard Enterprise website. Install the appropriate package using the RPM installation utility.

For example, for a package installation, install the HPONCFG RPM package on Red Hat Enterprise Linux 6 by entering the following command:

```
rpm -ivh hponcfg-5.x.x-x.x86_64.rpm
```

IMPORTANT:

The following Linux commands must be installed and working before attempting to use HPONCFG 5.0.0 on Linux:

- `strings`
- `which`
- `idconfig`
- `awk`
- `grep`
- `sort`
- `head`

After installation, the HPONCFG executable is located in the `/sbin` directory. Be sure that the appropriate Management Interface Driver is loaded. For details about where to obtain this driver and file, see **HPONCFG requirements** on page 26.

VMware installation

HPONCFG is available for VMware (ESXi 5.0 and 6.0). HPONCFG is included with the Hewlett Packard Enterprise custom VMware ESXi 5.0 or 6.0 image. If you have the standard VMware ESXi image, HPONCFG can be downloaded from **http://www.hpe.com** and installed as a VIB with the following command:

```
esxcli software vib install -v <path><filename.vib>
```

The `hpilo` driver is included in the image (either Hewlett Packard Enterprise custom or standard VMware).

HPONCFG utility

The HPONCFG configuration utility reads an XML input file, formatted according to the rules of the RIBCL language, and produces a log file containing the requested output.

A package containing various and comprehensive sample scripts is available for download on the Hewlett Packard Enterprise website:

- Windows sample scripts: **http://www.hpe.com/support/windows-sample-scripts**
- Linux sample scripts: **http://www.hpe.com/support/linux-perl-sample-scripts**

Typical usage is to select a script that is similar to the desired functionality and modify it for your exact requirements.

Although no authentication to iLO is required when iLO is set to the Production security state, the XML syntax requires that the USER_LOGIN and PASSWORD tags are present in the LOGIN tag, and that these fields contain data. To successfully execute HPONCFG, the utility must be invoked as Administrator on Windows servers and as root on Linux servers. HPONCFG returns an error message if you do not possess sufficient privileges.

IMPORTANT:

HPONCFG is supported in Windows when iLO 5 is set to Production mode only. The utility is supported in Linux when iLO 5 is set to a higher security mode, such as HighSecurity, FIPS, or CNSA/SuiteB, and requires authentication.

HPONCFG command line parameters

HPONCFG accepts the following command line parameters:

Table 5: HPONCFG command line parameters

Parameter	Effect
`/help` or `?`	Displays the help page
`/reset`	Resets the iLO to factory default values
`/iLO_reboot`	Reboots the iLO without changing any settings.
`/f` *`filename`*	Sets and receives the iLO configuration from the information given in the XML input file that has name *`filename`*
`/i`	Sets and receives iLO configuration from XML input received through the standard input stream
`/w` *`filename`*	Writes the iLO configuration obtained from the device to the XML output file named *`filename`*
/a or /all	Capture the complete configuration of iLO to a file. Must be used with /w command line parameter.
`/l` *`filename`*	Logs replies to the text log file that has name ***`filename`***
/v or /xmlverbose	Display all the responses from iLO.
`/s` *`namevaluepair`* or `/substitute` *`namevaluepair`*	Substitutes variables present in the input config file with values specified in *`namevaluepair`*
`/get_hostinfo`	Receives the host information. Returns the server name and server serial number
`/m`	Indicates the minimum firmware level that should be present in the management device to execute the RIBCL script. If at least this level of firmware is not present, HPONCFG returns an error without performing any additional action
`/mouse`	Configures the server for optimized mouse handling to improve graphical remote console performance. By default, it optimizes for remote console single cursor mode for the current user. The `dualcursor` command line option, along with the mouse option, optimizes mouse handling as suited for remote console dual-cursor mode. The `allusers` command line option optimizes mouse handling for all users on the system. This option is available only for Windows
`/display`	Configures Windows display parameters to optimize graphical remote console display performance

These parameters must be preceded by a slash (`/`) in Windows or a hyphen (`-`) in Linux as specified in the usage string.

For example, in Windows:

```
hponcfg /f add_user.xml /l log.txt > output.txt
```

Using HPONCFG on Windows servers

Start the HPONCFG configuration utility from the command line. When using Windows, `cmd.exe` is available by selecting **Start** > **Run** and entering `cmd`. HPONCFG displays a usage page if HPONCFG is entered with no parameters. HPONCFG accepts a correctly formatted XML script.

For more information about formatting XML scripts, see **RIBCL XML Scripting Language** on page 73.

The command line format is:

```
hponcfg [ /help | /? | /m firmwarelevel | /reset [/m firmwarelevel]
                  | /f filename [/l filename][/s namevaluepair]
                                [/xmlverbose or /v][/m firmwarelevel]
                  | /i [/l filename][/s namevaluepair]
                                [/xmlverbose or /v][/m firmwarelevel]
                  | [/a] /w filename [/m firmwarelevel]
                  | /get_hostinfo [/m firmwarelevel]
                  | /mouse [/dualcursor][/allusers]
                  | /display [/allusers]
```

Using HPONCFG on Linux servers

Invoke the HPONCFG configuration utility from the command line. HPONCFG displays a usage page if it is entered with no command line parameters.

The command line format is:

```
hponcfg  -?
hponcfg  -h
hponcfg  -m minFw
hponcfg  -r [-m minFw] [-u username] [-p password]
hponcfg  -b [-m minFw] [-u username] [-p password]
hponcfg  [-a] -w filename [-m minFw] [-u username] [-p password]
hponcfg  -g [-m minFw] [-u username] [-p password]
hponcfg  -f filename [-l filename] [-s namevaluepair] [-v] [-m minFw]
                     [-u username] [-p password]
hponcfg  -i [-l filename] [-s namevaluepair] [-v] [-m minFw] [-u username]
            [-p password]
```

Table 6: HPONCFG Linux command line parameters

Parameter	Effect
`-h`	Display the help page.
`--help`	
`-?`	
`-r`	Reset the Management Processor to factory default values.
`--reset`	
`-b`	Reboots the Management Processor without changing any settings.
`--reboot`	
`-f` *`filename`*	Sets and receives the Management Processor configuration from the information given in the XML input file that has name *filename*. [1]
`--file` *`filename`*	

Table Continued

Parameter	Effect
`-i`	Sets and receives Management Processor configuration from XML input received through the standard input stream. [1]
`--input`	
`-w` *`filename`*	Writes the Management Processor configuration obtained from the device to the XML output file named *filename*.
`--writeconfig` *`filename`*	
`-a`	Capture the complete configuration of the Management Processor to a file. Must be used with -w command line parameter.
`--all`	
`-l` *`filename`*	Logs replies to the text log file that has name *filename*.
`--log` *`filename`*	
`-v`	Display all the responses from the Management Processor.
`--xmlverbose`	
`-s` *`namevaluepair`*	Substitutes variables present in the input config file with values specified in *namevaluepair*.
`--substitute` *`namevaluepair`*	
`-g`	Receives the host information. Returns the server name and server serial number.
`--get_hostinfo`	
`-m`	Indicates the minimum firmware level that should be present in the management device to execute the RIBCL script. If at least this level of firmware is not present, HPONCFG returns an error without performing any additional action.
`--minfwlevel`	
`-u`	The iLO username credential of the user initiating the action. [1]
`--username`	
`-p`	The iLO password credential of the user initiating the action. [1]
`--password`	

[1] *When entity processing tags are used inside XML that is passed through the -f or -i option, in addition to using -u and -p to send username and password in high security states, do not use entity substitution for the username and password in the command line. For example,* `hponcfg -f filename.xml -u admin -p admin&123`. *Do not use* `admin&123`.

Obtaining the basic configuration

Use HPONCFG to obtain a basic configuration from iLO 5 by executing the utility from the command line without specifying an input file. You must provide the name of the output file on the command line.

For example:

```
hponcfg /w config.xml
```

In this example of a typical output file, the utility indicates that it obtained the data successfully and wrote the data to the output file:

```
<!-- HPONCFG VERSION = "5.0.0.0" -->
<!-- Generated 04/01/2017 20:14:12 -->
<RIBCL VERSION="2.1">
 <LOGIN USER_LOGIN="Administrator" PASSWORD="password">
```

```
  <DIR_INFO MODE="write">
  <MOD_DIR_CONFIG>
    <DIR_AUTHENTICATION_ENABLED VALUE = "N"/>
    <DIR_LOCAL_USER_ACCT VALUE = "Y"/>
    <DIR_SERVER_ADDRESS VALUE = ""/>
    <DIR_SERVER_PORT VALUE = "636"/>
    <DIR_OBJECT_DN VALUE = ""/>
    <DIR_OBJECT_PASSWORD VALUE = ""/>
    <DIR_USER_CONTEXT_1 VALUE = ""/>
    <DIR_USER_CONTEXT_2 VALUE = ""/>
    <DIR_USER_CONTEXT_3 VALUE = ""/>
  </MOD_DIR_CONFIG>
  </DIR_INFO>
  <RIB_INFO MODE="write">
  <MOD_NETWORK_SETTINGS>
    <SPEED_AUTOSELECT VALUE = "Y"/>
    <NIC_SPEED VALUE = "10"/>
    <FULL_DUPLEX VALUE = "N"/>
    <DHCP_ENABLE VALUE = "Y"/>
    <DHCP_GATEWAY VALUE = "Y"/>
    <DHCP_DNS_SERVER VALUE = "Y"/>
    <DHCP_STATIC_ROUTE VALUE = "Y"/>
    <DHCP_WINS_SERVER VALUE = "Y"/>
    <REG_WINS_SERVER VALUE = "Y"/>
    <IP_ADDRESS VALUE = "192.168.1.3"/>
    <SUBNET_MASK VALUE = "255.255.255.0"/>
    <GATEWAY_IP_ADDRESS VALUE = "192.168.1.1"/>
    <DNS_NAME VALUE = "ILODNSNAME"/>
    <DOMAIN_NAME VALUE = "hp.com"/>
    <PRIM_DNS_SERVER value = "192.168.1.2"/>
    <SEC_DNS_SERVER value = "0.0.0.0"/>
    <TER_DNS_SERVER value = "0.0.0.0"/>
    <PRIM_WINS_SERVER value = "0.0.0.0"/>
    <SEC_WINS_SERVER value = "0.0.0.0"/>
    <STATIC_ROUTE_1 DEST = "0.0.0.0" GATEWAY = "0.0.0.0"/>
    <STATIC_ROUTE_2 DEST = "0.0.0.0" GATEWAY = "0.0.0.0"/>
    <STATIC_ROUTE_3 DEST = "0.0.0.0" GATEWAY = "0.0.0.0"/>
  </MOD_NETWORK_SETTINGS>
  </RIB_INFO>
  <USER_INFO MODE="write">
  <ADD_USER
    USER_NAME = "admin"
    USER_LOGIN = "admin"
    PASSWORD = "%user_password%">
    <ADMIN_PRIV value = "Y"/>
    <REMOTE_CONS_PRIV value = "Y"/>
    <RESET_SERVER_PRIV value = "Y"/>
    <VIRTUAL_MEDIA_PRIV value = "Y"/>
    <CONFIG_ILO_PRIV value = "Y"/>
  </ADD_USER>
  </USER_INFO>
 </LOGIN>
</RIBCL>
```

NOTE:

For security reasons, user passwords are not returned.

Obtaining a specific configuration

Obtain a specific configuration using the appropriate XML input file.

For example, the following is the contents of a typical XML input file:

```
get_global.xml
:
<!-- Sample file for Get Global command -->
<RIBCL VERSION="2.0">
<LOGIN USER_LOGIN="x" PASSWORD="x">
<RIB_INFO MODE="read">
<GET_GLOBAL_SETTINGS />
</RIB_INFO>
</LOGIN>
</RIBCL>
```

The XML commands are read from the input file `get_global.xml` and are processed by the device:

```
hponcfg /f get_global.xml /l log.txt > output.txt
```

The requested information is returned in the log file, which, in this example, is named `log.txt`.

```
<GET_GLOBAL_SETTINGS>
<!-- A session timeout value of zero means that the timeout is set to infinite.
-->
    <SESSION_TIMEOUT VALUE="0"/>
    <F8_PROMPT_ENABLED VALUE="Y"/>
    <F8_LOGIN_REQUIRED VALUE="N"/>
    <HTTPS_PORT VALUE="443"/>
    <HTTP_PORT VALUE="80"/>
    <REMOTE_CONSOLE_PORT VALUE="17990"/>
    <VIRTUAL_MEDIA_PORT VALUE="17988"/>
    <SNMP_ACCESS_ENABLED VALUE="Y"/>
    <SNMP_PORT VALUE="161"/>
    <SNMP_TRAP_PORT VALUE="162"/>
    <SSH_PORT VALUE="22"/>
    <SSH_STATUS VALUE="Y"/>
    <SERIAL_CLI_STATUS VALUE="Enabled-Authentication Required"/>
    <SERIAL_CLI_SPEED VALUE="9600"/>
    <VSP_LOG_ENABLE VALUE="N"/>
    <MIN_PASSWORD VALUE="8"/>
    <AUTHENTICATION_FAILURE_LOGGING VALUE="Enabled-every 3rd failure"/>
    <RBSU_POST_IP VALUE="Y"/>
    <ENFORCE_AES VALUE="N"/>
    <IPMI_DCMI_OVER_LAN_ENABLED VALUE="Y"/>
    <REMOTE_SYSLOG_ENABLE VALUE="N"/>
    <REMOTE_SYSLOG_PORT VALUE="514"/>
    <REMOTE_SYSLOG_SERVER_ADDRESS VALUE="192.0.2.20"/>
    <ALERTMAIL_ENABLE VALUE="N"/>
    <ALERTMAIL_EMAIL_ADDRESS VALUE=""/>
    <ALERTMAIL_SENDER_DOMAIN VALUE=""/>
```

```
    <ALERTMAIL_SMTP_PORT VALUE="25"/>
    <ALERTMAIL_SMTP_SERVER VALUE=""/>
    <PROPAGATE_TIME_TO_HOST VALUE="Y"/>
</GET_GLOBAL_SETTINGS>
```

NOTE:

The key designation in the two parameters F8_PROMPT_ENABLED and F8_LOGIN_REQUIRED refer to previously assigned function keys for starting UEFI/RBSU in previous generations of HPE systems. For Gen10, the key to press for this function has changed to F9. To ensure backward compatibility, the parameter names have not been changed.

Setting a configuration

Set a specific configuration by using the command format:

```
hponcfg /f add_user.xml /l log.txt
```

In this example, the input file has contents:

```
<RIBCL VERSION="2.0">
<LOGIN USER_LOGIN="x" PASSWORD="x">
<USER_INFO MODE="write">
    <ADD_USER
        USER_NAME="Landy9"
        USER_LOGIN="mandy8"
        PASSWORD="floppyshoes">
    <ADMIN_PRIV value ="No"/>
    <REMOTE_CONS_PRIV value ="Yes"/>
    <RESET_SERVER_PRIV value ="No"/>
    <VIRTUAL_MEDIA_PRIV value ="No"/>
    <CONFIG_ILO_PRIV value="Yes"/>
    </ADD_USER>
</USER_INFO>
</LOGIN>
</RIBCL>
```

The specified user is added to the device.

Using variable substitution

HPONCFG enables you to specify variables in the XML RIBCL script and to assign values to those variables when you run HPONCFG. This feature helps to avoid rewriting the XML script file every time with different values. Anything enclosed by two percent sign (%) characters in the XML file is considered a variable.

In this example, `%username%`, `%loginname%` , and `%password%` are variables:

```
<!-- Add user with minimal privileges to test default setting of -->
<!-- assigned privileges to 'N' -->
<RIBCL version="1.2">
<LOGIN USER_LOGIN="x" PASSWORD="x">
<USER_INFO MODE="write">
    <ADD_USER USER_NAME="%username%" USER_LOGIN="%loginname%"
PASSWORD="%password%">
        <RESET_SERVER_PRIV value="Y" />
        <ADMIN_PRIV value="Y" />
    </ADD_USER>
</USER_INFO>
```

```
</LOGIN>
</RIBCL>
```

Specify values for the variables when you run HPONCFG by using the substitute option. The argument must be a string or variable name and value pairs must be separated by a comma (,). The variable name and its value must be separated by an equal sign (=). For example:

```
hponcfg /f add_user.xml /s
username=testuser,loginname=testlogin,password=testpasswd
```

In this example, `%host_power%` is a variable:

```
<RIBCL VERSION="2.0">
<LOGIN USER_LOGIN="adminname" PASSWORD="password">
<SERVER_INFO MODE="write">
    <!-- Modify the HOST_POWER attribute to toggle power on the host server -->
    <!-- HOST_POWER="No" (Turns host server power off) -->
    <!-- A graceful shutdown will be attempted for ACPI-aware -->
    <!-- operating systems configured to support graceful shutdown. -->
    <!-- HOST_POWER="Yes" (Turns host server power on) -->
    <SET_HOST_POWER HOST_POWER="%host_power%"/>
</SERVER_INFO>
</LOGIN>
</RIBCL>
```

Procedure

- To power the system on, enter: `hponcfg /f Set_Host_Power.xml /s host_power=YES`
- To power the system off, enter: `hponcfg /f Set_Host_Power.xml /s host_power=NO`

Capturing and restoring a configuration

Use HPONCFG to capture basic configuration information in an XML readable file format. Use this file to set or restore the iLO configuration. This feature is available with HPONCFG version 1.2 and later. HPONCFG writes the configuration information in the HPE RIBCL format.

Procedure

1. To capture a configuration, you must specify the name and location of the output file on the command line. See **Obtaining the basic configuration** on page 30 for details.

   For example:

   ```
   hponcfg /w config.xml
   ```

   HPONCFG displays a message when it successfully writes the configuration information to the output file as requested. For security reasons, the default user administrator and user passwords are not captured in the configuration file or returned in the response. A variable is provided in its place to use with the `substitute` option to provide a default password for all users when restoring a configuration. Manually change the password before using the file to restore the configuration.
2. To restore a configuration, the file must be sent to HPONCFG as input using the `/f` or `-f` option. Add a default password for all users using the substitute or `s` option.

   For example:

   ```
   hponcfg /f config.xml /s user_password=password
   ```

SMASH CLP usage

SMASH CLP

The DMTF SMASH initiative is a suite of specifications that deliver architectural semantics, industry standard protocols and profiles to unify the management of the data center. The SMASH CLP specification enables simple and intuitive management of heterogeneous servers in the data center.

For more information, see **SMASH CLP Scripting Language** on page 38.

IPMI usage

The IPMI utility

Use the Linux IPMI tool and Windows IPMI util applications to test the IPMI interfaces on server platforms. The Linux IPMI tool is used in environments where scripting is used as the base for platform monitoring.

The Windows IPMI util has a dependency on the IPMI driver if using "in-band" (or from a command prompt). The Windows IPMI driver is delivered in Windows Server 2008 R2. IPMI support might be available in later updates of Windows Server 2003 R2.

The Linux IPMI tool also requires the IPMI drivers (delivered in the distribution) to be enabled if utilized in-band. The IPMI device drivers are not typically enabled to automatically start when the Linux operating system is started. If you are logged on to a Linux console (command prompt) as a root user, use the following command to initiate the IPMI device drivers based on your Linux version:

- RHEL6, SLES10, SLES11, SLES12:**`service ipmi start`**
- RHEL7:**`systemctl start ipmi.service`**

For more information, see the documentation provided by the specific Linux distribution.

The IPMI tool supports remote IPMI protocols that provide the capability to power the server on and off, and to remotely monitor the platform. The iLO firmware supports the IPMI 2.0 RMCP+ protocol for the highest level of authentication, encryption and integrity. The legacy IPMI 1.5 IPMI over LAN protocol is not supported.

Basic IPMI tool usage

The Linux IPMI tool is fully documented in the Linux MAN page. The `man ipmitool` command provides extended documentation beyond the scope of this guide. To use IPMI tool from the Linux operating system to locally monitor a system, the IPMI drivers must be enabled. Typical in-band commands include the following.

- To retrieve the iLO status, enter:`#` **`ipmitool mc info`**
- To retrieve the status of iLO monitored sensors, enter:`#` **`ipmitool sensor list`**
- To retrieve the contents of the IPMI SEL, enter:`#` **`ipmitool sel list`**

Advanced IPMI tool usage on Linux

The Linux IPMI tool has the capability to securely communicate with iLO using the IPMI 2.0 RMCP+ protocol. This is the `ipmitool lanplus` protocol feature. For most commands, a valid iLO user name and password is required. Typical out-of-band (or IPMI over LAN) commands include the following.

- To retrieve the general iLO status, enter:`#` **`ipmitool -H`** ***`IP Address or FQDN`*** **`-I lanplus -U`** ***`user name`*** **`mc info`**
- To power on the ProLiant Server, enter:`#` **`ipmitool -H`** ***`IP Address or FQDN`*** **`-I lanplus -U`** ***`user name`*** **`chassis power on`**
- To turn on the ProLiant Server UID, enter:`#` **`ipmitool -H`** ***`IP Address or FQDN`*** **`-I lanplus -U`** ***`user name`*** **`chassis identify on`**

Most Linux IPMI tool commands can be issued remotely, including retrieving the IML entries and current sensor readings. The following parameter is required to enable the IPMI 2.0 RMCP+ protocol:

```
-I lanplus
```

Advanced IPMIutil usage on Windows

Use the Windows `IPMIutil.exe` application for remote IPMI access to iLO. The commands, although different, provide similar functionality.

- To retrieve the general status of iLO, enter:`C:\>` **`ipmiutil.exe health -N`** ***`IP Address`*** **`-J 3 -U`** ***`user name`*** **`-P`** ***`Password`***
- To power the ProLiant server on, enter:`C:\>` **`ipmiutil.exe reset -u -N`** ***`IP Address`*** **`-J 3 -U`** ***`user name`*** **`-P`** ***`Password`***
- To power the ProLiant server off, enter:`C:\>` **`ipmiutil.exe reset -d -N`** ***`IP Address`*** **`-J 3 -U`** ***`user name`*****`-P`** ***`Password`***
- To turn on the ProLiant server UID, enter:`C:\>` **`ipmiutil.exe led -i5 -N`** ***`IP Address`*** **`-J 3 -U`** ***`user name`*** **`-P`** ***`Password`***

NOTE:

The IPMIutil application only enables turning on the UID for five seconds. To keep the UID light on persistently, script the command in a loop with a four second delay.

SMASH CLP Scripting Language

SMASH CLP command line overview

SMASH CLP provides a standardized set of commands for the configuration and control of management processors (called Management Access Points) and host systems. On iLO, SMASH CLP is accessed through the SSH port.

SMASH CLP command line access

The iLO 5 firmware features enable you to execute the supported commands from a SMASH CLP command line. Access the command line option from the one of the following interfaces:

- A serial port using one connection. Access the iLO CLI by entering `ESC (`
- A network using SSH. This enables multiple simultaneous connections (an IP address or DNS name, login name, and password are required to start a session using SSH)

Five network connections can be active simultaneously.

The SSH session starts after authentication. The maximum length of login name is 127 characters and the password length is limited to 63 characters.

NOTE:

Enable the **Serial Command Line Interface Status** on the **Security** > **Access Settings** screen of the iLO 5 web interface before attempting to connect using a serial port connection.

Security states and privileges in iLO 5

SMASH CLP does not support the following:

- Setting iLO security states.
- The extended user privileges available from the iLO 5 web interface.
- iLO 5 CNSA/SuiteB security state.

For more information about setting iLO security states or extended user privileges, see the *HPE iLO 5 User Guide* in the HPE Information LIbrary at **http://www.hpe.com/info/ilo/docs**.

Using the command line

After initiating a command line session, the iLO CLI prompt appears. Each time you execute a command (or you exit the Remote Console or VSP), you return to the CLI prompt as shown in the following example:

```
hpiLO->
```

Each time a CLI command executes, the returned output follows this general format:

```
hpiLO-> CLI command
status=0
status_tag=COMMAND COMPLETED
… output returned…
hpiLO->
```

If an invalid command is entered, then the `status` and `status_tag` values reflect the error as shown:

```
hpiLO-> boguscommand
status=2
status_tag=COMMAND PROCESSING FAILED
error_tag=COMMAND NOT RECOGNIZED
```

If an invalid parameter is given to a valid command, the response is slightly different:

```
hpiLO-> show /bad

status=2
status_tag=COMMAND PROCESSING FAILED
error_tag=INVALID OPTION
hpiLO->
```

The privilege level of the logged in user is verified against the privilege required for the command. The command is only executed if the privilege levels match. If the serial command line session status is set to `Enabled-No Authentication`, then all the commands are executed without verifying the privilege level.

The general syntax of a CLP command is:

```
<verb> <target> <option> <property>
```

- **Verbs**—The supported verbs are:
  - `cd`
  - `create`
  - `delete`
  - `help`
  - `load`
  - `reset`
  - `set`
  - `show`
  - `start`
  - `stop`
  - `exit`
  - `version`
- **Target**—The default target is the `/`. Change the target using the `cd` command, or by specifying a target on the command line.
- **Options**—The valid options are:
  - `-all`
  - `-a`
- **Properties** — Are the attributes of the target that can be modified.
- **Output** — The output syntax is:
  - `status`
  - `status_tag`
  - `status_msg`

The valid Boolean values for any command are `yes`, `no`, `true`, `false`, `y`, `n`, `t`, `f`, `1`, and `0`.

NOTE:

If a CLP command spans more than one line, you cannot navigate between different lines.

In the Windows PuTTy client, map the Backspace key to a value of 0x8 by changing the setting for Terminal Keyboard to **Ctrl+H**.

Escape commands

The escape key commands are shortcuts to popular tasks.

ESC R ESC r ESC R

Resets the system.

ESC ^

Powers on the system.

ESC ESC

Erases the current line.

There is a one second timeout for entering any of the escape sequence characters.

Base commands

Following are the base commands for use on the command line:

help

Displays context-sensitive help and all supported commands

command help/?

Displays the help message specific to that command

exit

Terminates the CLP session

cd

The command sets the current default target. The context works like a directory path. The root context for the server is a forward slash (/) and is the starting point for a CLP system. Shorten commands by changing the context.

For example, to find the current iLO firmware version, enter the following command:

```
show /map1/firmware1
```

show

The command displays values of a property or contents of a collection target.

For example:

```
hpiLO-> show
status=0
status_tag=COMMAND COMPLETED

/
  Targets
    system1
```

```
    map1
  Properties
  Verbs
    cd version exit show
```

The first line of information returned by the `show` command is the current context. In the example, `/` is the current context. Following the context is a list of sub-targets (Targets) and properties (Properties) applicable to the current context. The verbs (Verbs) section shows which commands are applicable to this context.

Specify the `show` command with an explicit or implicit context as well as a specific property. For example, an explicit context is `/map1/firmware1` and is not dependent on the current context, while an implicit context assumes that the context specified is a child of the current context. If the current context is `/map1` then a `show firmware` command displays the `/map1/firmware1` data.

If you do not specify a property, then all properties are shown. In the case of the `/map1/firmware1` context, two properties are available: `version`, and `date`. If you execute `show /map1/firmware1 date`, only the date is shown.

create

Creates a new instance of the MAP in the name space.

delete

Removes instances of the MAP in the name space.

load

Moves a binary image from a URL to the MAP.

reset

Causes a target to cycle from enabled to disabled, and back to enabled.

set

Sets a property or set of properties to a specific value, and resets iLO to implement the changes.

start

Causes a target to change the state to a higher run level.

stop

Causes a target to change the state to a lower run level.

version

The command queries the version of the CLP implementation or other CLP elements.

For example:

```
hpiLO-> version
status=0
status_tag=COMMAND COMPLETED

SM-CLP Version 1.0
```

oemhpe_ping

The command determines if an IP address is reachable from the current iLO session.

For example:

```
hpiLO-> oemhpe_ping 192.168.1.1
```

Where `192.168.1.1` is the IP address you are testing.

`oemhpe_clearRESTAPIstate`

The command clears any data cache stored by the HPE RESTful interface.

For example:

```
hpiLO-> oemhpe_clearRESTAPIstate
```

`oemhpe_nicautosel`

The command allows iLO to automatically select between either the shared or dedicated network ports at startup. The feature looks for network activity on the ports, and the first port found with network activity is selected for use. Any changes to this setting do not take effect until the iLO is reset.

Syntax:

```
oemhpe_nicautosel Method [sbvlan= <0-4094>] [sbport= <1-2>] [sbport_limit=<0
or 2>]
[delay=<90-1800>]
```

Argument	Effect
sbvlan	Optional. Specifies the VLAN tag to be used for the shared NIC port. A value of zero disables the VLAN tag.
sbport	Optional. Specifies which port of the shared NIC will be shared with iLO. Verify your server and network adapter can support any values greater than 1.
sbport_limit	Optional. Specifies when shared NIC ports will be tested by NIC Auto-selection in addition to the dedicated NIC. Value must be 0 or 2: • 0 = Test only the currently configured port • 2 = Auto mode, tests both shared NIC ports 1 and 2 The default is 0.
delay	Optional. Specifies the number of seconds to test each NIC connection before moving to the next while searching. Default is 90 seconds.
Methods:	
disabled	Disables NIC auto-selection.
linkact	Enables NIC auto-selection for any activity detection.
rcvdata	Enables NIC auto-selection for received data packet activity detection.
dhcp	Enables NIC auto-selection for DHCP address assignment.

For example:

```
hpilLO-> oemhpe_nicautosel rcvdata
```

This command enables the feature for received data packet activity detection.

Using the NIC auto-selection feature

To enable the NIC auto-selection feature, do the following:

Procedure

1. Configure both iLO network ports.
2. Before enabling and using the NIC auto-selection feature, both iLO network ports must be configured for their respective network environments.
3. Enable the feature using the CLI command oemhpe_nicautosel or by adding the command to the MOD_NETWORK_SETTINGS script.
4. If DHCP Address Assignment is being used for activity detection (`oemhpe_nicautosel dhcp`), then it should be enabled on at least one port with appropriate DHCP options. Either or both of IPv4 or IPv6 address assignment methods can be used. When both IPv4 and IPv6 DHCP is enabled, either protocol being assigned an address will be considered success during searching using DHCP Address Assignment detection.
5. Arrange server cabling as desired, and then reset iLO.
6. The change to NIC auto-selection does not take effect until iLO is reset.

Specific commands

The following sections cover specific iLO commands available when at the command line, including:

User commands

User commands enable you to view and modify user settings. **User Command Properties** shows the User Command properties. User settings are located at:

`/map1/accounts1`

Targets

All local users are valid targets. For example, if three local users have the login names `Administrator`, `admin`, and `test`, then valid targets are:

- `Administrator`
- `admin`
- `test`

Table 7: User Command Properties

Property	Access	Description
`username`	read/write	Corresponds to the iLO 5 login name.
`password`	read/write	Corresponds to the password for the current user.
`name`	read/write	Displays the name of the user. If a name is not specified, the parameter uses the same value as the login name (username). This value corresponds to the iLO 5 user name property.
`group`	read/write	Specifies the privilege level. The valid values are as follows: • `admin` • `config` • `oemHPE_power` • `oemHPE_rc` • `oemHPE_vm` If you do not specify a group, no privileges are assigned to the user. **NOTE:** For backwards compatibility, `oemhp_` is accepted in place of `oemHPE_`.

For example

The current path is:

`/map1/accounts1`

- In this example, `username` corresponds to the login name:

  `create` *`username`*`=lname1 password=password`
- In this example, `lname1` is the login name of the user:

  `create /map1/accounts1 username=<lname1> password=<pwd12345> name=<dname1> group=<admin,config,oemhpe_vm,oemhpe_rc,oemhpe_power>`

HPE SSO settings

HPE SSO settings commands are accessed using:

`/map1/oemHPE_ssocfg1`

You must have the Configure iLO Settings privilege to change these properties. SSO is only supported for browser access from trusted SIM servers. SSO is a licensed feature. **HPE SSO Properties** shows the SSO properties. For more information, see the iLO User Guide on the Hewlett Packard Enterprise website at **http://www.hpe.com/info/ilo/docs**.

Targets

None

Table 8: HPE SSO Properties

Property	Access	Description
`oemHPE_ssotrust`	Read/write	The Single Sign-On required trust level. Valid values are: • `disabled` • `all` • `name` • `certificate`
`oemHPE_ssouser`	Read/write	The privileges associated with the user role. Valid values are: • `login` • `oemHPE_rc` • `oemHPE_power` • `oemHPE_vm` • `config` • `admin`
`oemHPE_ssooperator`	Read/write	The privileges associated with the operator role. Valid values are: • `login` • `oemHPE_rc` • `oemHPE_power` • `oemHPE_vm` • `config` • `admin`
`oemHPE_ssoadministrator`	Read/write	The privileges associated with the administrator role. Valid values are: • `login` • `oemHPE_rc` • `oemHPE_power` • `oemHPE_vm` • `config` • `admin`
`oemHPE_ssoserver`	Read	Contains 0 or more HPE SIM Trusted Server records. Each record contains a server name or a server certificate.

For example

- To set the SSO trust level to trust by certificate:`</>hpiLO-> set /map1/oemHPE_ssocfg1 oemHPE_ssotrust=certificate`
- To assign user roles the Login privilege:`</>hpiLO-> set /map1/oemHPE_ssocfg1 oemHPE_ssouser=login`

- To assign the operator role Login, Remote Console, Virtual Power and Reset, and Virtual Media privileges:`</>hpiLO-> set /map1/oemHPE_ssocfg1 oemHPE_ssooperator=login,oemHPE_rc,oemHPE_power,oemHPE_vm`
- To Add a SIM Trusted Server name record:`</>hpiLO-> cd map1/oemHPE_ssocfg1`

  `</map1/oemHPE_ssocfg1>hpiLO-> create hpsim1.corp.net`
- To load an SSO certificate from a SIM 7.0 server or later:`</map1/oemHPE_ssocfg1>hpiLO-> load http://<HP SIM name or network address>:280/GetCertificate?certtype=sso` Or:`</map1/oemHPE_ssocfg1>hpiLO-> load https://<HP SIM name or network address>:50000/GetCertificate?certtype=sso`
- To delete oemHPE_ssoserver with index 5:`</map1/oemHPE_ssocfg1>hpiLO-> delete 5`
- To display the complete iLO SSO configuration:`</>hpiLO-> cd map1/oemHPE_ssocfg1</map1/oemHPE_ssocfg1>hpiLO->show`

Network commands

The network subsystems are located at:

- `/map1/enetport1`
- `/map1/dhcpendpt1`
- `/map1/dnsendpt1`
- `/map1/gateway1`
- `/map1/dnsserver1`
- `/map1/dnsserver2`
- `/map1/dnsserver3`
- `/map1/settings1`
- `/map1/vlan1`

See also `oemhpe_nicautosel` in **Base commands**.

Table 9: /map1/enetport1

Targets	Properties
lanendpt1	• `Autosense` • `PermanentAddress` • `LinkTechnology` • `Speed` • `SystemName` • `Fullduplex`

For example

```
set /map1/enetport1 Speed=100
```

```
set /map1/enetport1/lanendpt1/ipendpt1 IPv4Address=15.255.102.245
SubnetMask=255.255.248.0
```

Table 10: /map1/dhcpendpt1

Targets	Properties
None	• `EnabledState` • `OtherTypeDescription`

Table 11: /map1/dnsendpt1

Targets	Properties
None	• EnabledState • HostName • DomainName • OtherTypeDescription

Table 12: /map1/gateway1

Targets	Properties
None	• AccessInfo • AccessContext • DHCPOptionToUse

Table 13: /map1/dnsserver1, dnsserver2, dnsserver3

Targets	Properties
None	• AccessInfo • AccessContext

Table 14: /map1/settings1

Targets	Properties
DNSSettings1	• DNSServerAddress • RegisterThisConnection • DomainName • DHCPOptionToUse • oemHPE_UseDHCPv4DomainName
WINSSettingData1	• WINSServerAddress • RegisterThisConnection • DHCPOptionToUse
StaticIPSettings1	• oemHPE_SRoute1Address • oemHPE_Mask1Address • oemHPE_Gateway1Address • oemHPE_SRoute2Address • oemHPE_Mask2Address • oemHPE_Gateway2Address • oemHPE_SRoute3Address • oemHPE_Mask3Address • oemHPE_Gateway3Address • DHCPOptionToUse

Table 15: /map1/vlan1

Targets	Properties
None	• `EnabledState` • `VLANID`

NOTE:

Verbs

Network commands are compatible with the following verbs:

- `cd`
- `version`
- `exit`
- `show`
- `set`

Specify one or more properties on the command line. If multiple properties are on the same command line, they must be separated by a space.

The iLO firmware resets after the network settings have been applied.

For example, the following command sets the iLO network port to the shared network port NIC on the server motherboard. This NIC is referred to as the LOM elsewhere in iLO documentation. Not all servers have this hardware.

```
Set /map1/enetport1/lanendpt1 EnabledState=32768
```

The following example sets the iLO network port to the optional shared network port NIC that can be plugged into the server in the FlexibleLOM slot on the server motherboard. This slot is not a standard PCI slot, but is a special horizontal connector in the back right hand corner of the motherboard. Not all servers have this slot, or the NIC that plugs into this slot.

```
Set /map1/enetport1/lanendpt1 EnabledState=32769
```

iLO 5 settings

The iLO 5 settings commands enable you to view or modify iLO 5 settings. **iLO Properties** shows the iLO 5 properties. The iLO 5 settings are located at:

```
/map1/config1
```

Targets

No targets

Properties

NOTE:

All iLO properties listed are Read/Write access.

Table 16: iLO Properties

Property	Description
oemHPE_mapenable	Enables or disables iLO. Boolean values are accepted.
oemHPE_timeout	Displays or modifies idle timeout setting, in minutes. Valid values are 15, 30, 60, and 120.
oemHPE_rbsuenable	Enables or disables RBSU prompt during POST. Boolean values are accepted.
oemHPE_rbsulogin	Enables or disables login requirement for accessing RBSU. Boolean values are accepted.
oemHPE_rbsushowip	Enables or disables iLO IP address display during POST. Boolean values are accepted.
oemHPE_vsp_log_enable	Enables or disables capture of virtual serial port output from the server.
oemHPE_httpport	Sets the HTTP port value.
oemHPE_sslport	Sets the SSL port value.
oemHPE_rcport	Sets remote console port value.
oemHPE_vmport	Sets virtual media port value.
oemHPE_sshport	Sets the SSH port value.
oemHPE_sshstatus	Enables or disables SSH. Boolean values are accepted.
oemHPE_serialclistatus	Displays or modifies serial port CLI status setting. Boolean values are accepted.
oemHPE_serialcliauth	Displays or modifies serial port CLI authorization status setting. Boolean values are accepted.
oemHPE_serialclispeed	Displays or modifies serial port CLI speed setting.
oemHPE_minpwdlen	Displays or modifies minimum password length setting.
oemHPE_enforce_aes	Displays or modifies AES encryption configuration. Valid values are 'yes' or 'no'. This setting requires a forced logout for the changes to take place.
oemHPE_authfailurelogging	Displays or modifies authentication failure logging setting.
oemHPE_computer_lock	Displays or modifies Remote Console Computer Lock configuration.

Table Continued

Property	Description
oemHPE_hotkey_ctrl_t, oemHPE_hotkey_ctrl_u, oemHPE_hotkey_ctrl_v, oemHPE_hotkey_ctrl_w, oemHPE_hotkey_ctrl_x, oemHPE_hotkey_ctrl_y	Displays or modifies remote console hotkey configuration.
oemHPE_irc_trust_enable	Displays or modifies iLO Trusted Certificate check for Integrated Remote Console.
oemHPE_snmp_access	Displays or modifies SNMP Access.
oemHPE_snmp_port	Displays or modifies SNMP port setting.
oemHPE_snmp_trapport	Displays or modifies SNMP Trap port setting.
oemHPE_fips_enable	Displays or modifies FIPS mode setting.
oemHPE_ipmi_dcmi_overlan_enable	Displays or modifies IPMI status setting. Valid values are **`yes`** or **`no`**.
oemHPE_ipmi_dcmi_overlan_port	Displays or modifies IPMI port setting. Valid value is between **`1`** and **`65535`**.
oemHPE_ribcl_status	Displays or modifies RIBCL status setting. Valid values are **`yes`** or **`no`**.
oemHPE_webserver_status	Displays or modifies WEB Server status setting. Valid values are **`yes`** or **`no`**.
oemHPE_webgui_status	Displays or modifies WEB GUI status setting. Valid values are **`yes`** or **`no`**.
oemHPE_virtual_media_status	Displays or modifies Virtual Media status setting. Valid values are **`yes`** or **`no`**.
oemHPE_remote_console_status	Displays or modifies Remote Console status setting. Valid values are **`yes`** or **`no`**.

Verbs

- cd
- version
- exit
- show
- set
- oemHPE_loadSSHkey
- oemHPE_resetHotkeys
- vsp

For example

```
set /map1/config1 oemHPE_mapenable=yes oemHPE_timeout=30
```

Specify one or more properties in the command line. If multiple properties are on the same command line, they must be separated by a space.

For example:

```
set /map1/config1 oemHPE_computer_lock=windows
```

```
set /map1/config1 oemHPE_computer_lock=custom,l_gui,l
```

```
set /map1/config1 oemHPE_computer_lock=disabled
```

For a complete list of `oemHPE_computer_lock` custom keys, see the iLO User Guide on the Hewlett Packard Enterprise website at: **http://www.hpe.com/info/ilo/docs**. Keys with a space must have the space replaced with an underscore.

For example:

```
set /map1/config1 oemHPE_computer_lock=custom,SYS_RQ
```

iLO embedded health settings

iLO embedded health commands enable you to display system embedded health information for fans, temperature sensors, voltage sensors, and power supplies. **Embedded Health Properties** shows the iLO Embedded Health properties.

The iLO embedded health CLP settings are:

- `/system1/fan*`
- `/system1/sensor*`
- `/system1/powersupply*`

Targets

- Fan
- Sensor
- Powersupply
- firmware1
- bootconfig1
- log1
- led1
- network1
- oemHPE_vsp1
- oemHPE_power1
- cpu1
- memory*
- slot*
- swid*

Table 17: Embedded Health Properties

Property	Access	Description
`DeviceID`	Read	Displays fan, sensor, or power supply label number
`ElementName`	Read	Displays fan, sensor, or power supply location
`OperationalStatus`	Read	Displays fan, sensor, or power supply operational status
`VariableSpeed`	Read	Displays if fan is operating at variable speed
`DesiredSpeed`	Read	Displays the current fan speed
`HealthState`	Read	Displays the health status of the fan, sensor, or power supply
`RateUnits`	Read	Displays the reading units for temperature and voltage sensors
`CurrentReading`	Read	Displays the current reading of sensor
`SensorType`	Read	Displays the sensor type
`oemHPE_CautionValue`	Read	Displays temperature sensor caution value
`oemHPE_CriticalValue`	Read	Displays temperature sensor critical value

NOTE:

All available embedded health properties from all targets are shown in **Embedded Health Properties**. The actual properties returned depend on the command.

For example

The following command displays the system fan1 properties:

```
show /system1/fan1


/system1/fan1
  Targets
  Properties
    DeviceID=Fan 1
    ElementName=System
    OperationalStatus=Not Installed
    VariableSpeed=Yes
    DesiredSpeed=0 percent
    HealthState=Not Installed
```

VRM power supplies are usually mapped to the sensor targets. The following command displays the VRM1 properties:

```
show /system1/sensor15


/system1/sensor15
  Targets
  Properties
    DeviceID=15-P/S 1 Inlet
```

```
    ElementName=Power Supply
    OperationalStatus=Ok
    RateUnits=Celsius
    CurrentReading=30
    SensorType=Temperature
    HealthState=Ok
    oemHPE_CautionValue=Not Applicable
    oemHPE_CriticalValue=Not Applicable
```

Other sensor targets show system temperatures. The following command displays one of the temperature zone properties:

```
show /system1/sensor38
```

```
/system1/sensor38
  Targets
  Properties
    DeviceID=38-PCI 3 Zone
    ElementName=I/O Board
    OperationalStatus=Ok
    RateUnits=Celsius
    CurrentReading=28
    SensorType=Temperature
    HealthState=Ok
    oemHPE_CautionValue=90
    oemHPE_CriticalValue=95
```

SNMP settings

SNMP settings commands enable you to view and modify SNMP settings. **SNMP Command Properties** shows the SNMP command properties. SNMP settings are available at:

```
/map1/snmp1
```

Targets

None

Properties

NOTE:

All SNMP command properties are Read/Write access.

Table 18: SNMP Command Properties

Property	Description
`accessinfo<n>`	Sets the SNMP trap destination address, where <*n*> is `1`, `2`, or `3`.
`readcom<n>`	Displays or modifies SNMP read community address for when Agentless Management is enabled, where <*n*> is `1`, `2`, or `3`.
`trapcom<n>`	Displays or modifies SNMP trap community address, where <*n*> is `1`, `2`, or `3`.

Table Continued

Property	Description
`oemHPE_iloalert`	Enables or disables iLO SNMP alerts. Boolean values accepted.
`oemHPE_systemlocation`	Displays or modifies SNMP System Location when Agentless Management is enabled.
`oemHPE_systemcontact`	Displays or modifies SNMP System Contact when Agentless Management is enabled.
`oemHPE_systemrole`	Displays or modifies SNMP System Role information when Agentless Management is enabled.
`oemHPE_systemroledetail` *<n>*	Displays or modifies SNMP System Role detail when Agentless Management is enabled, where *<n>* is `1` to `5`.
`oemHPE_imdatalevel`	Displays or modifies level of data returned to Insight Manager. Boolean values accepted.
`oemHPE_coldstarttrap`	Displays or modifies the SNMP Cold Start Trap Broadcast. Boolean values accepted.
`oemHPE_trapsource`	Displays or modifies the SNMP trap source setting.

NOTE:

The command properties oemhp_agentalert, oemhp_snmppassthru, oemhp_imagenturl and oemhp_agentlessenable properties are deprecated in iLO 5.

- Verbs
  - cd
  - version
  - exit
  - show
  - set

For example

The following commands set various SNMP properties:

- `set /map1/snmp1 accessinfo1=192.168.0.50 oemHPE_imdatalevel=Enabled`
- `set readcom1="public1"`
- `set trapcom1="trapcomm1"`
- `set oemHPE_systemlocation="HP Data Center, Hockley, TX"`
- `set oemHPE_systemcontact="Mr. System Administrator"`
- `set oemHPE_systemrole="Brief Role Description [60 characters]"`
- `set oemHPE_systemroledetail1="Extended role description [100 characters]"`
- Showing multiple lines for `oemHPE_systemroledetail`:
  - `set oemHPE_systemroledetail2="Extended role description"`
  - show - Existing string in detail1 has spaces added to meet 100 char limit.

Specify one or more properties on the command line. If multiple properties are on the same command line, they must be separated by a space.

License commands

License commands enable you to display and modify the iLO license. **License Commands** shows the License command properties. License commands are available at:

`/map1/`

Targets

None

Commands

Table 19: License Commands

Command	Description
`cd`	Changes the current directory
`show`	Displays license information
`set`	Changes the current license

NOTE:

For more information see the **HPE iLO Licensing Guide** at:

http://www.hpe.com/support/iLOLicenseGuide-en

For example

- `set /map1 license=12345000006789100000000001`
- `show /map1 license`

Directory commands

Directory commands enable you to view and modify directory settings. **Directory Command Properties** shows the Directory command properties. Directory command settings are available at:

`/map1/oemHPE_dircfg1`

Targets

The Directory Command Targets are shown in **Directory Command Targets**.

Table 20: Directory Command Targets

Target	Description
`/map1/oemHPE_dircfg1/oemHPE_keytab1`	Contains a load verb used to load the binary keytab file from a given URL. The keytab file may be up to 1024 bytes in length.

Properties

Table 21: Directory Command Properties

Property	Access	Description
`oemHPE_dirauth`	Read/Write	Enables or disables directory authentication. Valid settings are as follows: • `extended_schema` Uses Hewlett Packard Enterprise extended schema • `default_schema` Uses schema-free directories • `disabled` Directory-based authentication is disabled
`oemHPE_localacct`	Read/Write	Enables or disables local account authentication. This property can be disabled only if directory authentication is enabled. Boolean values accepted.
`oemHPE_dirsrvaddr`	Read/Write	Sets the directory server IP address or DNS name. The schema-free directory configuration requires a DNS name.
`oemHPE_dir_generic_ldap_enabled`	Read/Write	Displays or modifies iLO 5 generic ldap setting for directory default schema. Valid values are `yes` and `no`. Directory authorization should be set to 'Default Schema' before this property can be modified.
`oemHPE_ldapport`	Read/Write	Sets the directory server port.
`oemHPE_dirdn`	Read/Write	Displays the LOM object distinguished name. This field is ignored when the schema-free directory configuration is used.
`oemHPE_usercntxt1, 2 ...` (up to 15)	Read/Write	Displays the directory user login search context. This field is not necessary when the schema-free directory configuration is used.
`oemHPE_group(n)_name` where *n* = 1..6	Read/Write	Displays security group distinguished name. Used within the schema-free directory configuration only.
`oemHPE_group(n)_priv` where *n* = 1..6	Read/Write	The privileges associated with a group. Valid values are: • `login` • `oemHPE_rc` • `oemHPE_power` • `oemHPE_vm` • `config` • `admin`
`oemHPE_dir_kerberos_enabled`	Read/Write	Enables or disables Kerberos authentication. Boolean values are accepted.

Table Continued

Property	Access	Description
`oemHPE_dir_kerberos_kdc_port`	Read/Write	Specifies the port number used to connect to the domain controller. The Kerberos port number is 88, but the domain controller can be configured for a different port number.
`oemHPE_dir_kerberos_kdc_address`	Read/Write	The location of the domain controller. The domain controller location is specified as an IP address or DNS name.
`oemHPE_dir_kerberos_realm`	Read/Write	Specifies the Kerberos realm for which the domain controller is configured. By convention, the Kerberos realm name for a given domain is the domain name converted to uppercase.

For example

- `set /map1/oemHPE_dircfg1`
- `set /map1/oemHPE_dircfg1 oemHPE_dirauth=default_schema oemHPE_dirsrvaddr=adserv.demo.com`

Define additional groups using additional `set` commands.

Specify one or more properties on the command line. If multiple properties are on the same command line, they must be separated by a space.

Virtual Media commands

Access to the iLO virtual media is supported through the CLP. **Virtual Media Command Targets** shows the Virtual Media command targets. **Virtual Media Command Properties** shows the Virtual Media command properties. The virtual media subsystem is located at:

`/map1/oemHPE_vm1`.

For more information, see the iLO User Guide on the Hewlett Packard Enterprise website at: **http://www.hpe.com/info/ilo/docs**.

Targets

The virtual media targets are shown in **Virtual Media Command Targets**.

Table 22: Virtual Media Command Targets

Target	Description
`/map1/oemHPE_vm1/floppydr1`	Virtual floppy or key drive device
`/map1/oemHPE_vm1/cddr1`	Virtual CD-ROM device

Table 23: Virtual Media Command Properties

Property	Access	Description
`oemHPE_image`	Read/Write	The image path and name for virtual media access. The value is a URL with a maximum length of 80 characters.
`oemHPE_connect`	Read	Displays if a virtual media device is already connected through the CLP or scriptable virtual media.
`oemHPE_boot`	Read/Write	Sets the boot flag. The valid values are: • `Never` Do not boot from the device. The value appears as `No_Boot`. • `Once` Boot from the device only once. The value appears as `Once`. • `Always` Boot from the device each time the server is rebooted. The value is displayed as `Always`. • `Connect` Connect the virtual media device. Sets `oemHPE_connect` to `Yes` and `oemHPE_boot` to `Always`. • `Disconnect` Disconnects the virtual media device and sets the `oemHPE_boot` to `No_Boot`.
`oemHPE_wp`	Read/Write	Enables or disables the write-protect flag. Boolean values accepted.
`vm_applet`	Read/Write	Displays whether an iLO 5 virtual media device is connected via Integrated Remote Console (IRC) or Java IRC. Requires an iLO Advanced license.

Image URL

The `oemhp` image value is a URL. The URL, which is limited to 80 characters, specifies the location of the virtual media image file on an HTTP server and is in the same format as the scriptable virtual media image location.

URL example:

`protocol://username:password@hostname:port/filename`

- `protocol`—Mandatory field that must be HTTP or HTTPS
- `username:password` —Optional field
- `hostname`—Mandatory field
- `port`—Optional field
- `filename`—Mandatory field

The CLP performs only a cursory syntax verification of the URL value. You must visually verify that the URL is valid.

For example

- `set oemHPE_image=http://imgserver.company.com/image/dosboot.bin`
- `set oemHPE_image=http://john:abc123@imgserver.company.com/VMimage/installDisk.iso`

Tasks

- To insert a floppy USB key image into the Virtual Floppy/USBKey, enter:

  ```
  cd /map1/oemHPE_vm1/floppydr1
  show
  set oemHPE_image=http://my.imageserver.com/floppyimg.bin
  set oemHPE_boot=connect
  show
  ```

  This example executes the following commands:

  - Changes the current context to the floppy or key drive
  - Shows the current status to verify that the media is not in use
  - Inserts the desired image into the drive
  - Connects the media. The boot setting always connects automatically
- To eject a floppy or USB key image from the Virtual Floppy/USBKey, enter:

  ```
  cd /map1/oemHPE_vm1/floppydr1
  set oemHPE_boot=disconnect
  ```

  This example executes the following commands:

  - Changes the current context to the floppy or key drive
  - Issues the disconnect command that disconnects the media and clears the `oemHPE_image`
- To insert a CD-ROM image into the virtual CD-ROM, enter:

  ```
  cd /map1/oemHPE_vm1/cddr1
  show
  set oemHPE_image=http://my.imageserver.com/ISO/install_disk1.iso
  set oemHPE_boot=connect
  show
  ```

  This example executes the following commands:

  - Changes the current context to the CD-ROM drive
  - Shows the current status to verify that the media is not in use
  - Inserts the desired image into the drive
  - Connects the media. The boot setting always connects automatically
- To eject a CD-ROM image from the Virtual CD-ROM, enter:

  ```
  cd /map1/oemHPE_vm1/cddr1
  set oemHPE_boot=disconnect
  ```

  This example executes the following commands:

  - Changes the current context to the CD-ROM drive
  - Issues the disconnect command that disconnects the media and clears the `oemHPE_image`

- To insert a CD-ROM image and set for single boot, enter:

```
cd /map1/oemHPE_vm1/cddr1
set oemHPE_image=http://my.imageserver.com/ISO/install_disk1.iso
set oemHPE_boot=connect
set oemHPE_boot=once
show
```

  This example executes the following commands:

  - Changes the current context to the CD-ROM drive
  - Shows the current status to verify that the media is not in use
  - Inserts the desired image into the drive
  - Connects the media. The boot setting always connects automatically
  - Overrides the boot setting to Once
- To eject a CD-ROM image from the virtual CD-ROM in a single command, enter:`set /map1/oemHPE_vm1/cddr1 oemHPE_boot=disconnect`If you attempt to disconnect when the drive is not connected, you receive an error.

Start and Reset commands

Start and reset commands enable you to power on and reboot the server containing iLO or reboot just iLO itself. **Start and Reset Commands** shows the Start and Reset command properties.

Table 24: Start and Reset Commands

Command	Description
`start`	Turns on server power
`stop`	Turns off server power
`reset hard`	Power cycles the server
`reset`	Power cycles the server
`reset soft`	Warm boots the server

Table 25: Manual Reset Command

Property	Access	Description
manual_iLO_reset	Read/Write	Allows a delay to iLO resets, which is useful when changing multiple properties. Valid values are **`yes`** (enabled) or **`no`** (disabled). When enabled, the iLO will reset only when a user logs out, is disconnected from iLO, or issues a ‘reset/map1’ command.

For example

The following commands are supported if the current target is:

`/system1`

- `start`
- `stop`
- `reset hard`

The following commands are supported if the current target is:

`/map1`

- `reset`
- `reset soft`

Set the status of the manual_iLO_reset property using the following commands in /map1:

- set /map1/ manual_ilo_reset=yes
- set /map1/ manual_ilo_reset=no

Firmware commands

Firmware commands enable you to display and modify the iLO firmware version. **Firmware Update Properties** shows the Firmware Update properties. Firmware settings are available at:

`/map1/firmware1`

Targets

No targets

Table 26: Firmware Update Properties

Property	Access	Description
`version`	read	Displays the current firmware version.
`date`	read	Displays the release date of the current firmware version.
`name`	read	Displays the iLO firmware name.

Command format - source

`load -source` *`URL`* `[target]`

where *URL* is the URL of a firmware update image file on a web server. The URL is limited to 80 characters.

URL example:

`protocol://username:password@hostname:port/filename`

- `protocol`—Mandatory field, must be `HTTP` or `HTTPS`.
- `username:password`—Optional field
- `hostname`—Mandatory field
- `port`—Optional field
- `filename`—Mandatory field

The CLP only performs a cursory syntax verification of the `URL` value. You must visually ensure that the URL is valid. For example:

```
load /map1/firmware1 -source http://imgserver.company.com/firmware/
iloFWimage.bin
```

Command format - Target

The [`target`] field is:

`/map1/firmware1`—This field is optional if it is already the current target.

NOTE:

Firmware components loaded will be flashed onto the system, replacing the existing versions. If the firmware flash was successful, then the status_tag of COMMAND COMPLETED will be shown. If iLO firmware was flashed, then a reset of iLO will occur.

If an HPE Trusted Platform Module (TPM) is installed and enabled the load command must include the `-TPM_force` option after the URL. Otherwise the command will fail.

IMPORTANT:

If a TPM is enabled, then upgrading without performing the proper OS encryption procedure will result in loss of access to your data. If you do not have your recovery key or have not suspended BitLocker do not flash iLO.

Non-iLO firmware commands

Non-iLO firmware commands support system firmware updates, available at:

`/system1/swid<N>`

Where <*N*> is either a number or a wildcard (*). Use a wildcard to show every firmware version installed on the system (including iLO) and identify the software ID number of the firmware you want to load.

To display (`show`) information about the firmware entities installed on the system:

```
</system1>hpiLO-> show swid*
status=0
status_tag=COMMAND COMPLETED
Thu May 25 09:28:25 2017

/system1/swid1
  Targets
  Properties
    name=iLO 5
    VersionString=1.15 May 10 2017
    oemHPE_VersionStrings=1.15 May 10 2017
  Verbs
    cd version exit show load

/system1/swid2
  Targets
  Properties
    name=System ROM
    VersionString=U41 v1.20 (05/10/2017)
    oemHPE_VersionStrings=U41 v1.20 (05/10/2017)
  Verbs
    cd version exit show load

.
.
.
```

When loading non-iLO firmware, the system may need to be manually reset for the changes to be applied.

Follow the command format as explained above. For example:

`load -source http://192.168.1.1/images/fw/<firmware_filename>`

The following types of firmware files are supported:

- ProLiant System ROM
- System Programmable Logic Device
- SL Chassis Firmware
- Power Management Controller Firmware and FW Bootloader
- Innovation Engine (IE) Firmware
- Ethernet Adapter

Download these server firmware files at:

http://www.hpe.com/support

Eventlog commands

Eventlog commands enable you to display or delete the logs of both the system and iLO. **Eventlog Command Properties** shows the Eventlog command properties. Eventlog settings are available at:

- `/system1/log1`

  —IML
- `/map1/log1`

  —iLO event log

Targets

`record:1..n`

Where *n* is the total number of records.

Table 27: Eventlog Command Properties

Property	Access	Description
`number`	read	Displays the record number for the event.
`severity`	read	Displays the severity of the event. Severity levels are `informational`, `noncritical`, `critical`, or `unknown`.
`date`	read	Displays the event date.
`time`	read	Displays the event time.
`description`	read	Displays a description of the event.

For example

- `show /system1/log1`

  —Displays the IML.
- `show /map1/log1`

  —Displays the iLO event log.
- `show /system1/log1/record`*n*

  —Displays record *n* from the Integrated Management log.
- `show /map1/log1/record`*n*

  —Displays record *n* from the iLO event log.
- `delete /system1/log1`

—Deletes the IML.

- `delete /map1/log1`

  —Deletes iLO event log.

Blade commands

Blade commands enable you to view and modify the values on a c-Class server. **Blade Command Targets** shows the Blade command targets. **Blade Command Properties** shows the Blade command properties. These values are available at:

`/system1/map1/blade1`

Table 28: Blade Command Targets

Target	Description
`/map1/blade1/rack`	Displays and modifies the blade rack settings.
`/map1/blade1/rack/enclosure`	Displays and modifies the blade enclosure settings.

Table 29: Blade Command Properties

Property	Access	Description
`bay_number`	Read	Displays the blade bay number.
`auto_power`	Read	Displays and modifies if the blade is enabled to automatically power up.
`ip_address`	Read	Displays the IP address
`mac_address`	Read	Displays the MAC address
`sys_health`	Read	Displays the system health status

Boot commands

Boot commands enable you to modify the boot order of the system. **Boot Command Properties** shows the Boot command properties. Boot settings are available at:

`/system1/bootconfig1`

Targets

`bootsource<n>`

Where *n* is the total number of boot sources.

The boot source targets and matching boot source values do not change.

For systems with UEFI BIOS, the values for bootsource are:

- `bootsource1: BootFmCd`
- `bootsource2: BootFmDrive`
- `bootsource3: BootFmUSBKey`
- `bootsource4: BootFmNetwork`

For systems with legacy BIOS, the values for bootsource are:

- `bootsource1: BootFmCd`
- `bootsource2: BootFmFloppy`
- `bootsource3: BootFmDrive`
- `bootsource4: BootFmUSBKey`
- `bootsource5: BootFmNetwork`

NOTE:

If no bootable network device is enabled on the system, the BootFmNetwork boot source may not show up in the list of targets.

Table 30: Boot Command Properties

Property	Access	Description
`bootorder`	Read/write	Configures the boot order for a given boot source

For example

When configuring `bootorder`, first list the current boot order by entering `show -all /system1/bootconfig1`. The example output below shows `bootsource3` (BootfmDrive) is currently configured as the primary boot device, because it has a `bootorder=1`:

```
</system1/bootconfig1/bootsource1>hpiLO-> show -all /system1/bootconfig1
/system1/bootconfig1
  Targets
    bootsource1
    bootsource2
    bootsource3
    bootsource4
    bootsource5
  Properties
  Verbs
    cd version exit show set

/system1/bootconfig1/bootsource1
  Targets
  Properties
    bootorder=2
    bootdevice=BootFmCd
  Verbs
    cd version exit show set

/system1/bootconfig1/bootsource2
  Targets
  Properties
    bootorder=3
    bootdevice=BootFmFloppy

  Verbs
    cd version exit show set

/system1/bootconfig1/bootsource3
  Targets
  Properties
    bootorder=1
```

```
    bootdevice=BootFmDrive
  Verbs
    cd version exit show set

/system1/bootconfig1/bootsource4
  Targets
  Properties
    bootorder=4
    bootdevice=BootFmUSBKey
  Verbs
    cd version exit show set

/system1/bootconfig1/bootsource5
  Targets
  Properties
    bootorder=5
    bootdevice=BootFmNetwork
  Verbs
    cd version exit show set
```

To change the boot order, enter the following command:

```
set /system1/bootconfig1/bootsource<n> bootorder=<num> .
```

For example, to move `bootsource1` (BootfmCd) to be the primary boot device:

```
</system1/bootconfig1>hpiLO-> set bootsource1 bootorder=1
Bootorder being set.

bootsource1=BootFmCd        bootorder=1
bootsource3=BootFmDisk      bootorder=2
bootsource2=BootFmFloppy    bootorder=3
bootsource4=BootFmUSBKey    bootorder=4
bootsource5=BootFmNetwork   bootorder=5
```

To display the boot order for a specific device, enter the following command:

```
show /system1/bootconfig1/bootsource<n>
```

For example, to display the boot order for `bootsource1`:

```
</system1/bootconfig1>hpiLO-> show /system1/bootconfig1/bootsource1

/system1/bootconfig1/bootsource1
  Targets
  Properties
    bootorder=1
  Verbs
    cd version exit show set
```

To display the current boot mode, enter the following command:

```
show /system1/bootconfig1/oemHPE_bootmode
```

To display the pending boot mode (which will be active on the next boot), enter the following command:

```
show /system1/bootconfig1/oemHPE_pendingbootmode
```

UEFI enabled systems

When configuring the UEFI `bootorder`, first list the current boot order by entering `show -all /system1/bootconfig1`. For systems that support UEFI, the targets are listed in their respective boot order. The example output below shows `oemHPE_uefibootsource1` is currently configured as the primary boot device, because it has a `bootorder=1`

```
/system1/bootconfig1
  Targets
    oemHPE_uefibootsource1
    oemHPE_uefibootsource2
  Properties
    oemHPE_bootmode=UEFI
    oemHPE_secureboot=no
    oemHPE_pendingbootmode=UEFI
  Verbs
    cd version exit show set

/system1/bootconfig1/oemHPE_uefibootsource1
  Targets
  Properties
    bootorder=1
    oemHPE_description=Windows Boot Manager
  Verbs
    cd version exit show set

/system1/bootconfig1/oemHPE_uefibootsource2
  Targets
  Properties
    bootorder=2
    oemHPE_description=Embedded SATA Port 3 HDD : GB0160CAABV

  Verbs
    cd version exit show set
```

To change the boot order for UEFI enabled systems, enter the following command:

`set /system1/bootconfig1/oemHPE_uefibootsource<n> bootorder=<num> .`

For example, to move `uefibootsource2` to be the primary boot device:

`set /system1/bootconfig1/oemHPE_uefibootsource2 bootorder=1`

To display the boot order for a specific device, enter the following command:

`show /system1/bootconfig1/oemHPE_uefibootsource<n>/bootorder`

To display the system secure boot setting for systems with UEFI enabled, enter the following command:

`show /system1/bootconfig1/oemHPE_secureboot`

LED commands

LED commands are used to change the state of the UID light on the server. **LED Command Properties** shows the LED command properties. LED settings are available at:

`/system1/led1`

Table 31: LED Command Properties

Property	Description
`start`	Turns the LED on.
`stop`	Turns the LED off.
`show`	Displays the LED status.

For example

- `show /system1/led1` —Displays current LED status
- `start /system1/led1`—Turns LED on
- `stop /system1/led1`—Turns LED off

iLO CLI support

Simple UID CLI commands are supported:

- `uid` —Displays the current UID state on the server.
- `uid on`—Turns the UID light on.
- `uid off` —Turns the UID light off.

The CLP format is supported as well:

- `show /system1/led1`—Verifies LED status
- `start /system1/led1` —Turns LED on
- `stop /system1/led1` —Turns LED off

System properties and targets

The properties and targets described in this section provide information about the server. System properties settings are available at:

`/system1`

Table 32: System Properties

Property	Access	Description
`name`	Read	Displays the system name.
`number`	Read	Displays the system serial number.
`oemHPE_server_name`	Read	Displays the host server name string. This string can be up to 50 characters in length, and requires the Configure iLO Settings privilege to change.
`oemHPE_server_fqdn`	Read	Displays the host server fully qualified domain name.
`enabledstate`	Read	Appears if the server is powered up.
`processor_number`	Read	Displays the number of logical processors in the system.

For example

- `show /system1`
- `show /system1 name`
- `set /system1 oemHPE_powerreg=auto`

CPU properties

The CPU property is a target of `/system1` and displays information about the system processor. The properties are available at:

`/system1/cpu`*n*

Where *n* is the processor number.

Table 33: System CPU Properties

Property	Access	Description
`name`	Read	Displays manufacturer information about the processor.
`status`	Read	Displays status information.
`number_cores`	Read	Displays the number of processor cores.
`active_cores`	Read	Displays the number of active logical processors within a CPU.
`threads`	Read	Displays the number of logical threads within a CPU.
`speed`	Read	Displays the processor speed.
`memory_technology`	Read	Displays the bit level technology of the memory.
`cachememory1`	Read	Displays the size of the processor level-1 cache.
`cachememory2`	Read	Displays the size of the processor level-2 cache.
`cachememory3`	Read	Displays the size of the processor level-3 cache.

```
show /system1/cpu1

/system1/cpu1
  Targets
  Properties
    name= Intel(R) Xeon(R) CPU E5-2670 0 @ 2.60GHz
    status=OK
    number_cores=8
    active_cores=8
    threads=16
    speed=2600MHz
    memory_technology=64-bit Capable
    cachememory1=256KB
    cachememory2=2048KB
    cachememory3=20480KB
```

System memory properties

The `memory` property displays information about the system memory.

The properties are available at:

`/system1/memoryn`

Where *n* is the memory DIMM number.

Table 34: System Memory Properties

Property	Access	Description
`size`	Read	Displays the memory size.
`frequency`	Read	Displays the memory speed.
`location`	Read	Displays the location of the memory.

System slot properties

The `Slot` property displays information about the system slots.

The properties are available at:

`/system1/slotn`

Where *n* is the slot number.

Table 35: System Slot Properties

Property	Access	Description
`type`	Read	Displays the slot type.
`width`	Read	Displays the slot width.
`name`	Read	Display the slot name.

System firmware properties

The `Firmware` property displays information about the system ROM.

The properties are available at:

`/system1/firmware1`

Table 36: System Firmware Properties

Property	Access	Description
`version`	Read	Displays the version of the system ROM.
`date`	Read	Displays the date the system ROM.

For example:

- `show /system1/cpu1` —Displays information on one CPU.
- `show /system1/memory1`—Displays information on one memory slot.

- `show /system1/slot1`—Displays information on one slot.
- `show /system1/firmware1`—Displays information about system ROM. For example:

```
/system1/firmware1
  Targets
  Properties
    version=U33
    date=12/04/2016
  Verbs
    cd version exit show load
```

System power properties

The `oemHPE_power1` property displays information about the system power.

The properties are available at:

`/system1/oemHPE_power1`

Table 37: oemHPE_power1 properties

Target	Description
`oemHPE_powerreg`	Displays and modifies the Power Regulator for ProLiant state. Valid values are **dynamic**, **max**, **min**, or **os**.
`oemHPE_pwrcap`	Displays and modifies the power cap setting for the server in watts. A wattage of zero indicates that power capping is disabled. The value must be an integer cap value that is greater than or equal to oemHPE_serverminpower, and must be less than or equal to oemHPE_powersupplycapacity.
`oemHPE_PresentPower`	Displays the average power reading from the last sample
`oemHPE_AvgPower`	Displays the average power reading from the past 24 hours
`oemHPE_MaxPower`	Displays the greatest peak power reading from the past 24 hours
`oemHPE_MinPower`	Displays the minimum average power reading from the past 24 hours
`oemHPE_powersupplycapacity`	Displays the power supply's total capacity in Watts.
`oemHPE_servermaxpower`	Displays the server's maximum power capacity in Watts.
`oemHPE_serverminpower`	Displays the server's minimum power capacity in Watts.
`warning_type`	Displays and modifies the warning type
`warning_threshold`	Displays and modifies the warning threshold for power consumption
`warning_duration`	Displays and modifies the duration the power threshold must be exceeded before a warning is generated

Table Continued

Target	Description
`oemHPE_power_micro_ver`	Displays the firmware version number for the Power Micro Controller.
`oemHPE_auto_pwr`	Displays and modifies Server Automatic Power On setting. Valid values are on, 15, 30, 45, 60, random, restore, and off. **On** turns on automatic power on with minimum delay. Time-delayed automatic power on settings of **15**, **30**, **45**, and **60** seconds, as well as a **random** time delay of up to 120 seconds can be enabled (time starts after iLO finishes booting). **Restore** restores the last power state (except on BL servers). **Off** turns off automatic power on.

Verbs:

- cd
- version
- exit
- show
- set

For example:

- `show /system1/oemHPE_power1 oemHPE_powerreg`
- `set /system1/oemHPE_power1 oemHPE_powerreg=<dynamic|max|min|os>`
- `show /system1/oemHPE_power1 oemHPE_pwrcap`
- `set /system1/oemHPE_power1 oemHPE_pwrcap=0`
- `show /system1/oemHPE_power1 oemHPE_power_micro_ver`

Other commands

Other commands include the following:

`start /system1/oemHPE_vsp1`

Starts a virtual serial port session. Press **Esc (** to return to the CLI session. This includes a single property, `enabled_state`, which must be set to either `enabled` or `disabled`.

`nmi server`

Generates and sends an NMI to the server. It is limited to users with the Virtual Power and Reset privilege.

RIBCL XML Scripting Language

Overview of the RIBCL

The Remote Insight Board Command Language (RIBCL) enables you to write XML scripts to configure and manage iLO 5 configuration settings, user accounts, directory settings, server settings, and SSO settings.

Download the sample scripts from the Hewlett Packard Enterprise website at **http://www.hpe.com/info/ilo**. Scroll down to the **Resources** section, and then click **Tools**. Choose your language and operating system, and the sample scripts display for the appropriate operating systems, along with other available software, in the **Software - Lights-Out Management** section.

Before using the XML sample scripts downloaded from the Hewlett Packard Enterprise website, read the firmware support information in each sample script to tailor the script for the intended firmware and version.

When writing your XML scripts, write comments in the command as needed. If a comment falls in the command line, an error message is generated. Unless otherwise specified, examples in this guide are specifically for iLO 5 firmware version 1.10 and later.

This section describes the XML commands and their parameters common to most LOM products and servers. For more information about the ProLiant BL c-Class server and rack XML commands, see the iLO User Guide on the Hewlett Packard Enterprise website at: **http://www.hpe.com/info/ilo/docs**.

XML headers

The following XML header must be present in every script, to ensure the connection is an XML connection, not an HTTP connection:

```
<?xml version="1.0"?>
```

In addition to the header above, two other headers can be added in RIBCL scripts:

- **<?ilo entity-processing="standard"?>**

  This header added to a RIBCL script (or in a response) will take the following entities in a quoted string and change them to their symbol equivalents:

  Table 38: Accepted script entities

Entity	Symbol
<	<
>	>
&	&
'	'
"	"

- **<?xml ilo output-format="xml"?>**

  This header will accept entities (see **Accepted script entities**) along with changing output to minimum of response.

Table 39: XML ILO output (GET_FW_VERSION)

Output with header	Output without header
C:\data\iLo\scripts>perl locfg.pl -s servername -f get_fw_version.xml -u admin -p admin123	
<?xml version="1.0"?> <RIBCL VERSION="2.22">

<GET_FW_VERSION
FIRMWARE_VERSION = "1.10"
FIRMWARE_DATE = "Jan 20 2017"
MANAGEMENT_PROCESSOR = "iLO5"
LICENSE_TYPE = "iLO Advanced"
/>
</RIBCL> | <?xml version="1.0"?>
<RIBCL VERSION="2.22">
<RESPONSE
STATUS="0x0000"
MESSAGE='No error'
/>

<?xml version="1.0"?>
<RIBCL VERSION="2.22">
<RESPONSE
STATUS="0x0000"
MESSAGE='No error'
/>
</RIBCL>

<?xml version="1.0"?>
<RIBCL VERSION="2.22">
<RESPONSE
STATUS="0x0000"
MESSAGE='No error'
/>
</RIBCL>

<?xml version="1.0"?>
<RIBCL VERSION="2.22">
<RESPONSE
STATUS="0x0000"
MESSAGE='No error'
/>
<GET_FW_VERSION
FIRMWARE_VERSION = "1.10"
FIRMWARE_DATE = "Jan 20 2017"
MANAGEMENT_PROCESSOR = "iLO5"
LICENSE_TYPE = "iLO Advanced"
/>
</RIBCL>

<?xml version="1.0"?>
<RIBCL VERSION="2.22">
<RESPONSE
STATUS="0x0000"
MESSAGE='No error'
/>
</RIBCL>

<?xml version="1.0"?>
<RIBCL VERSION="2.22">
<RESPONSE |

Output with header	Output without header

	`STATUS="0x0000"`
	`MESSAGE='No error'`
	`/>`
	`</RIBCL>`

Data types

The three data types allowed in the parameter are:

- String
- Specific string
- Boolean string

String

A string is any text enclosed in quotes. It can include spaces, numbers, or any printable character. A string must start with either a double or single quote, and it must end with the same type of quote. The string can contain a quote if it is different from the string delimiter quotes.

For example, if a string starts with a double quote, a single quote can be used within the string and the string must be closed with a double quote.

NOTE:

Unsupported Microsoft Windows quote characters

Support for Windows-specific smart-quotes (“ ” and ‘ ’) as content delimiters in XML is being phased out. Be sure to replace any smart-quote characters in your script with normal double or single quotes (" and ').

Specific string

A specific string is one that is required to contain certain characters. In general, you have a choice of words that are accepted as correct syntax and all other words produce an error.

Boolean string

A Boolean string is a specific string that specifies a `yes` or `no` condition. Acceptable Boolean strings are `yes`, `no`, `true`, `false`, `y`, `n`, `t`, `f`, `1`, and `0`. These strings are not case sensitive.

Response definitions

Every command that is sent to iLO generates a response. The response indicates whether the command succeeded or failed. Some commands generate additional information. The additional information appears in execution sequence, provided no errors occurred.

For example:

```
<RESPONSE
STATUS="0x0001"
MSG="There has been a severe error."/>
```

- RESPONSE—This tag name indicates that iLO is sending a response to the previous commands back to the client application to indicate the success or failure of the commands that have been sent to iLO.
- STATUS—This parameter contains an error number. The number `0x0000` indicates that no error exists.
- MSG—This element contains a message describing the error that happened. If there is no error, the `No error` message appears.

RIBCL

This command is used to start and end a RIBCL session. You can use it only once to start a RIBCL session, and it must be the first command to display in the script. The RIBCL tags are required to mark the beginning and the end of the RIBCL document.

For example:

```
<RIBCL VERSION="2.0">
</RIBCL>
```

RIBCL parameters

VERSION is a string that indicates the version of the RIBCL that the client application is expecting to use. The VERSION string is compared to the version of the RIBCL that is expected, and an error message is returned if the first number of the string and the version (major version) do not match. The preferred value for the VERSION parameter is 2.X. For example, if the string is 2.20 and the expected major version number is 2, no errors message is sent. However, if the VERSION string is 1.X and the expected version is 2, then the different versions may introduce compatibility issues. If there is a major version mismatch, the following inform message is sent:

`The RIBCL version is incorrect. The correct version is <X.XX> or later.`

Update the RIBCL script to be compatible with the current RIBCL version.

RIBCL runtime errors

The possible RIBCL error messages include:

- `Version must not be blank.`
- `The RIBCL version is incorrect. The correct version is X.XX or later.`

Combining multiple commands in one RIBCL script

To combine multiple commands in a single RIBCL script, enclose each command in a top level *_INFO tag. One of the following top level tags must enclose each command used, or accidental changes to your configuration can result:

- USER_INFO
- RIB_INFO
- DIR_INFO
- BLADESYSTEM_INFO
- SERVER_INFO
- SSO_INFO

See the examples below for contrasting script samples.

Incorrectly combined script

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

```
      <MOD_GLOBAL_SETTINGS>
        <MIN_PASSWORD value="5"/>
      </MOD_GLOBAL_SETTINGS>
      <MOD_NETWORK_SETTINGS>
        <DHCP_DNS_SERVER value="No"/>
        <DHCP_WINS_SERVER value="No"/>
        <DHCP_STATIC_ROUTE value="No"/>
      </MOD_NETWORK_SETTINGS>
    </RIB_INFO>
    <USER_INFO MODE="write">
      <ADD_USER USER_NAME="admin" USER_LOGIN="admin" PASSWORD="admin">
        <ADMIN_PRIV value="Yes" />
        <REMOTE_CONS_PRIV value="Yes" />
        <RESET_SERVER_PRIV value="Yes" />
        <VIRTUAL_MEDIA_PRIV value="Yes" />
        <CONFIG_ILO_PRIV value="Yes" />
      </ADD_USER>
      <DELETE_USER USER_LOGIN="Administrator" />
    </USER_INFO>
  </LOGIN>
</RIBCL>
```

Correctly combined script

```
<RIBCL VERSION="2.0">
  <LOGIN USER_LOGIN="adminname" PASSWORD="password">
    <RIB_INFO MODE="write">
      <MOD_GLOBAL_SETTINGS>
        <MIN_PASSWORD value="5"/>
      </MOD_GLOBAL_SETTINGS>
    </RIB_INFO>
    <RIB_INFO MODE="write">
      <MOD_NETWORK_SETTINGS>
        <DHCP_DNS_SERVER value="No"/>
        <DHCP_WINS_SERVER value="No"/>
        <DHCP_STATIC_ROUTE value="No"/>
      </MOD_NETWORK_SETTINGS>
    </RIB_INFO>
    <USER_INFO MODE="write">
      <ADD_USER USER_NAME="admin" USER_LOGIN="admin" PASSWORD="admin">
        <ADMIN_PRIV value="Yes" />
        <REMOTE_CONS_PRIV value="Yes" />
        <RESET_SERVER_PRIV value="Yes" />
        <VIRTUAL_MEDIA_PRIV value="Yes" />
        <CONFIG_ILO_PRIV value="Yes" />
      </ADD_USER>
    </USER_INFO>
    <USER_INFO MODE="write">
      <DELETE_USER USER_LOGIN="Administrator" />
    </USER_INFO>
  </LOGIN>
</RIBCL>
```

LOGIN

The LOGIN command provides the information that is used to authenticate the user whose permission level is used when performing RIBCL actions. The specified user must have a valid iLO account to execute RIBCL

commands. The user privileges are verified against the required privilege for a particular command, and an error is returned if the privilege level does not match.

For example:

```
<LOGIN USER_LOGIN="username" PASSWORD="password">
</LOGIN>
```

Alternatively, the HPQLOCFG utility allows you to specify the login information as parameters on the command line using switches:

```
hpqlocfg -u username -p password
```

LOGIN parameters

USER_LOGIN is the login name of the user account. This parameter is case sensitive and must not be blank. The maximum length of the login name is 127 characters.

PASSWORD is the password associated with the user. This parameter is case sensitive and can be a combination of any printable characters. The maximum length of the password is 63 characters.

LOGIN runtime errors

Possible runtime error messages include:

- `User login name was not found.`
- `Logged-in user does not have required privilege for this command.`

USER_INFO

The USER_INFO command can only appear within a LOGIN command block. When the command is parsed, it reads the local user information database into memory and prepares to edit it. Only commands that are USER_INFO type commands are valid inside the USER_INFO command block. The USER_INFO command generates a response that indicates to the host application whether the database was successfully read or not. If the database is open for writing by another application, then this call fails.

USER_INFO requires the MODE parameter with a value of read or write. MODE is a specific string parameter with a maximum length of 10 characters that specifies what you intend to do with the information.

Write mode enables both reading and writing of iLO information. Read mode prevents modification of the iLO information.

For example:

```
<USER_INFO MODE="write">
…… USER_INFO commands ……
</USER_INFO>
```

ADD_USER

The ADD_USER command is used to add a local user account. The USER_NAME and USER_LOGIN parameters must not exist in the current user database. Use the MOD_USER command to change existing user information. For this command to parse correctly, the command must appear within a USER_INFO command block, and USER_INFO MODE must be set to write. The user must have the Administer User Accounts privilege.

All of the attributes that pertain to the user are set using the following parameters:

```
<RIBCL VERSION="2.0">
   <LOGIN USER_LOGIN="adminname" PASSWORD="password">
      <USER_INFO MODE="write">
         <ADD_USER
           USER_NAME="User"
           USER_LOGIN="username"
           PASSWORD="password">
            <ADMIN_PRIV value ="N"/>
            <REMOTE_CONS_PRIV value ="Y"/>
            <RESET_SERVER_PRIV value ="N"/>
            <VIRTUAL_MEDIA_PRIV value ="N"/>
            <CONFIG_ILO_PRIV value="Y"/>
         </ADD_USER>
      </USER_INFO>
   </LOGIN>
</RIBCL>
```

NOTE:

ADD_USER has not been enhanced to support the extended user privileges available from the iLO 5 web interface. For more information about setting user privileges in iLO 5, see the *HPE iLO 5 User Guide* in the HPE Information LIbrary at **http://www.hpe.com/info/ilo/docs**.

ADD_USER parameters

USER_NAME is the actual name of the user. This parameter can be a combination of any printable characters up to a maximum length of 39 characters. This parameter is not case sensitive and must not be blank.

USER_LOGIN is the name used to gain access to the respective iLO. This parameter can be a combination of any printable characters up to a maximum length of 39 characters. This parameter is not case sensitive and must not be left blank.

PASSWORD is the password associated with the user. This parameter is case sensitive and can be a combination of any printable characters. The length is user defined and can be a minimum of zero characters and a maximum of 39 characters. The minimum length is defined in the iLO Global Settings and has a default value of eight characters.

ADMIN_PRIV is a Boolean parameter that enables the user to administer user accounts. This parameter is optional, and the Boolean string must be set to `Yes` if the user is allowed this privilege. The user can modify account settings, modify other user account settings, add users, and delete users. Omitting this parameter prevents the user from adding, deleting, or configuring user accounts.

REMOTE_CONS_PRIV is a Boolean parameter that gives permission for the user to access the Remote Console functionality. This parameter is optional, and the Boolean string must be set to `Yes` if the user is allowed this privilege. If this parameter is used, the Boolean string value must not be left blank. Omitting this parameter denies the user access to Remote Console functionality.

RESET_SERVER_PRIV is a Boolean parameter that gives the user permission to remotely manipulate the server power setting. This parameter is optional, and the Boolean string must be set to `Yes` if the user is allowed this privilege. If this parameter is used, the Boolean string value must not be left blank. Omitting this parameter prevents the user from manipulating the server power settings.

VIRTUAL_MEDIA_PRIV is a Boolean parameter that gives the user permission to access the virtual media functionality. This parameter is optional, and the Boolean string must be set to `Yes` if the user is allowed this privilege. If this parameter is used, the Boolean string value must not be left blank. Omitting this parameter denies the user the Virtual Media privilege.

CONFIG_ILO_PRIV is a Boolean parameter that enables the user to configure iLO settings. This privilege includes network settings, global settings, Insight Manager settings, and SNMP settings. This parameter is optional, and the Boolean string must be set to `Yes` if the user is allowed this privilege. If this parameter is used, the Boolean string value must not be blank. Omitting this parameter prevents the user from manipulating the current iLO configuration.

ADD_USER runtime errors

Possible ADD_USER error messages include:

- `Login name is too long.`
- `Password is too short.`
- `Password is too long.`
- `User table is full. No room for new user.`
- `Cannot add user. The user name already exists.`
- `User information is open for read-only access. Write access is required for this operation.`
- `User name cannot be blank.`
- `User login ID cannot be blank.`
- `Boolean value not specified.`
- `User does not have correct privilege for action. ADMIN_PRIV required.`

DELETE_USER

The DELETE_USER command is used to remove an existing local user account. The USER_LOGIN parameter must exist in the current user database. For this command to parse correctly, the command must appear within a USER_INFO command block, and USER_INFO MODE must be set to write. The user must have the Administer User Accounts privilege.

For example:

```
<RIBCL VERSION="2.0">
 <LOGIN USER_LOGIN="adminname" PASSWORD="password">
  <USER_INFO MODE="write">
   <DELETE_USER USER_LOGIN="username"/>
  </USER_INFO>
 </LOGIN>
</RIBCL>
```

DELETE_USER parameter

USER_LOGIN is the login name of the user account. This parameter is not case sensitive, and must not be blank.

DELETE_USER runtime errors

Possible DELETE_USER errors include:

- `User information is open for read-only access. Write access is required for this operation.`
- `Cannot delete user information for currently logged in user.`
- `User login name was not found.`
- `User login name must not be left blank.`
- `User does not have correct privilege for action. ADMIN_PRIV required.`

DEL_USERS_SSH_KEY

Deletes any SSH keys associated with USER_LOGIN. The DEL_USERS_SSH_KEY command is implemented as a subcommand and must appear within a MOD_USER command block. This command requires HPQLOCFG.EXE version 1.00 or later.

For example:

```
<RIBCL VERSION="2.0">
   <LOGIN USER_LOGIN="admin" PASSWORD="admin123">
      <USER_INFO MODE="write">
         <MOD_USER USER_LOGIN="admin">
            <DEL_USERS_SSH_KEY/>
         </MOD_USER>
      </USER_INFO>
   </LOGIN>
</RIBCL>
```

DEL_SSH_KEY parameters

None

DEL_SSH_KEY runtime errors

Possible DEL_SSH_KEY runtime errors include:

- `User login name must not be blank`
- `User does not have correct privilege for action. ADMIN_PRIV required.`
- `Unable to clear the SSH key.`

GET_USER

The GET_USER command returns local user information, excluding the password. The USER_LOGIN parameter must exist in the current user database. For this command to parse correctly, the command must appear within a USER_INFO command block, and USER_INFO MODE can be read or write.

For example:

```
<RIBCL VERSION="2.0">
 <LOGIN USER_LOGIN="adminname" PASSWORD="password">
  <USER_INFO MODE="read">
   <GET_USER USER_LOGIN="username"/>
  </USER_INFO>
 </LOGIN>
</RIBCL>
```

GET_USER parameter

USER_LOGIN is the login name of the user account. This parameter is case sensitive and must not be blank.

GET_USER runtime errors

Possible GET_USER error messages include:

- `User login name must not be blank.`
- `User login name was not found.`

GET_USER return messages

A possible GET_USER return message includes:

```
<RESPONSE STATUS="0x0000" MSG="No Errors"/>
<GET_USER USER_NAME="Admin User" USER_LOGIN= "username"
ADMIN_PRIV="N"
REMOTE_CONS_PRIV="Y"
RESET_SERVER_PRIV="N"
VIRTUAL_MEDIA_PRIV="N"
CONFIG_ILO_PRIV value ="No"/>
```

MOD_USER

The MOD_USER command is used to modify an existing local user account. The USER_LOGIN parameter must exist in the current user database. For this command to parse correctly, the command must appear within a USER_INFO command block, and USER_INFO MODE must be set to write. The user must have the Administer User Accounts privilege. Otherwise, the user can only modify their individual account password.

For example:

```
<RIBCL VERSION="2.0">
   <LOGIN USER_LOGIN="adminname" PASSWORD="password">
      <USER_INFO MODE="write">
         <MOD_USER USER_LOGIN="username">
            <USER_NAME value="displayname"/>
            <USER_LOGIN value="newusername"/>
            <PASSWORD value="newpassword"/>
            <ADMIN_PRIV value="Yes"/>
            <REMOTE_CONS_PRIV value="No"/>
            <RESET_SERVER_PRIV value="Yes"/>
            <VIRTUAL_MEDIA_PRIV value="Yes"/>
            <CONFIG_ILO_PRIV value="Yes"/>
         </MOD_USER>
      </USER_INFO>
   </LOGIN>
</RIBCL>
```

Reset administrator password example:

```
<RIBCL VERSION="2.0">
 <LOGIN USER_LOGIN="adminname" PASSWORD="password">
  <USER_INFO MODE="write">
   <MOD_USER USER_LOGIN="Administrator">
   <PASSWORD value="password"/>
   </MOD_USER>
  </USER_INFO>
 </LOGIN>
</RIBCL>
```

Change password example:

```
<RIBCL VERSION="2.0">
 <LOGIN USER_LOGIN="adminname" PASSWORD="password">
```

```
  <USER_INFO MODE="write">
   <MOD_USER USER_LOGIN="username">
   <PASSWORD value="newpassword"/>
   </MOD_USER>
  </USER_INFO>
 </LOGIN>
</RIBCL>
```

NOTE:

MOD_USER has not been enhanced to support the extended user privileges available from the iLO 5 web interface. For more information about setting user privileges in iLO 5, see the *HPE iLO 5 User Guide* in the HPE Information LIbrary at **http://www.hpe.com/info/ilo/docs**.

MOD_USER parameters

If the following parameters are not specified, then the parameter value for the specified user is preserved.

MOD_USER USER_LOGIN is the login name of the user to be changed. This parameter can be a combination of any printable characters up to a maximum length of 39 characters. This parameter is not case sensitive and must not be left blank.

USER_NAME is the actual name of the user to be modified. This parameter is not case sensitive, can be any valid string, and has a maximum length of 39 characters. This string is used for display only and must not be left blank.

PASSWORD is the password associated with the user. This parameter is case sensitive and can be a combination of any printable characters. The length is user defined and can be a minimum of zero characters and a maximum of 39 characters. The minimum length is defined in the iLO Global Settings and has a default value of eight characters.

ADMIN_PRIV is a Boolean parameter that enables the user to administer user accounts. The user can modify their account settings, modify other user account settings, add users, and delete users. Omitting this parameter prevents the user from adding, deleting, or configuring user accounts.

REMOTE_CONS_PRIV is a Boolean parameter that gives permission for the user to access the Remote Console functionality. This parameter is optional, and the Boolean string must be set to `Yes` if the user is allowed this privilege. If this parameter is used, the Boolean string value must not be left blank. Omitting this parameter denies the user access to Remote Console functionality.

RESET_SERVER_PRIV is a Boolean parameter that gives the user permission to remotely manipulate the server power setting. This parameter is optional, and the Boolean string must be set to `Yes` if the user is allowed this privilege. If this parameter is used, the Boolean string value must not be left blank. Omitting this parameter prevents the user from manipulating the server power settings.

VIRTUAL_MEDIA_PRIV is a Boolean parameter that gives the user permission to access the virtual media functionality. This parameter is optional, and the Boolean string must be set to `Yes` if the user is allowed this privilege. If this parameter is used, the Boolean string value must not be left blank. Omitting this parameter denies the user The Virtual Media privilege.

CONFIG_ILO_PRIV is a Boolean parameter that enables the user to configure iLO settings. This privilege includes network settings, global settings, Insight Manager settings, and SNMP settings. This parameter is optional, and the Boolean string must be set to `Yes` if the user is allowed this privilege. If this parameter is used, the Boolean string value must not be left blank. Omitting this parameter prevents the user from manipulating the current iLO configuration.

MOD_USER runtime errors

Possible MOD_USER error messages include:

- Login name is too long.
- Password is too short.
- Password is too long.
- User information is open for read-only access. Write access is required for this operation.
- User login name must not be blank.
- Cannot modify user information for currently logged user.
- User does not have correct privilege for action. ADMIN_PRIV required.

GET_ALL_USERS

The GET_ALL_USERS command returns all USER_LOGIN parameters in the user database. For this command to parse correctly, the command must appear within a USER_INFO command block, and USER_INFO MODE can be in read or write. The user must have the Administer User Accounts privilege to retrieve all user accounts.

For example:

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

GET_ALL_USERS parameters

None

GET_ALL_USERS return messages

A possible GET_ALL_USERS return message is:

```
<RESPONSE STATUS="0x0000" MESSAGE='No Error'/>
<GET_ALL_USERS>
<USER_LOGIN VALUE="username"/>
<USER_LOGIN VALUE="user2"/>
<USER_LOGIN VALUE="user3"/>
<USER_LOGIN VALUE="user4"/>
<USER_LOGIN VALUE="user5"/>
<USER_LOGIN VALUE="user6"/>
<USER_LOGIN VALUE="user7"/>
<USER_LOGIN VALUE="user8"/>
<USER_LOGIN VALUE="user9"/>
<USER_LOGIN VALUE="user10"/>
<USER_LOGIN VALUE=""/>
<USER_LOGIN VALUE=""/>
</GET_ALL_USERS>
```

A possible unsuccessful request is:

```
<RESPONSE STATUS="0x0023" MESSAGE='User does NOT have correct
privilege for action.
```

```
ADMIN_PRIV required.'/>
```

GET_ALL_USER_INFO

The GET_ALL_USER_INFO command returns all local user information in the user database, excluding passwords. For this command to parse correctly, the command must appear within a USER_INFO command block, and USER_INFO MODE can be in read or write. The user must have the Administer User Accounts privilege to execute this command.

For example:

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

NOTE:

GET_ALL_USER_INFO has not been enhanced to support the extended user privileges available from the iLO 5 web interface. For more information about setting user privileges in iLO 5, see the *HPE iLO 5 User Guide* in the HPE Information LIbrary at **http://www.hpe.com/info/ilo/docs**.

GET_ALL_USER_INFO parameters

None

GET_ALL_USER_INFO return messages

A possible GET_ALL_USER_INFO return message is:

```
<GET_ALL_USER_INFO/>
<GET_USER
USER_NAME="Admin"
USER_LOGIN="Admin"
ADMIN_PRIV="Y"
CONFIG_RILO_PRIV="Y"
LOGIN_PRIV="Y"
REMOTE_CONS_PRIV="Y"
RESET_SERVER_PRIV="Y"
VIRTUAL_MEDIA_PRIV="Y"
/> ......
The same information will be repeated for all the users.
</GET_ALL_USER_INFO>
```

A possible unsuccessful request is:

```
<RESPONSE STATUS="0x0023" MESSAGE='User does NOT have correct
privilege for action.
ADMIN_PRIV required.'/>
```

RIB_INFO

The RIB_INFO command can only appear within a LOGIN command block. When the command is parsed, it reads the iLO configuration information database into memory and prepares to edit it. Only commands that are RIB_INFO type commands are valid inside the RIB_INFO command block. The RIB_INFO command generates a response that indicates to the host application whether the database was successfully read or not. If the database is open for writing by another application, then this call fails.

RIB_INFO requires the MODE parameter with a value of read or write. MODE is a specific string parameter with a maximum length of 10 characters that specifies what you intend to do with the information.

Write mode enables both reading and writing of iLO information. Read mode prevents modification of the iLO information.

For example:

```
<RIB_INFO MODE="write">
…… RIB_INFO commands ……
</RIB_INFO>
```

Clear iLO event log example:

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

RESET_RIB

The RESET_RIB command is used to reset iLO. For this command to parse correctly, the command must appear within a RIB_INFO command block, and RIB_INFO MODE can be set to read or write. The user must have the Configure iLO Settings privilege to execute this command.

For example:

```
<RIBCL VERSION="2.0">
 <LOGIN USER_LOGIN="Admin" PASSWORD="Password">
  <RIB_INFO MODE = "write">
   <RESET_RIB/>
  </RIB_INFO>
 </LOGIN>
</RIBCL>
```

RESET_RIB parameters

None

RESET_RIB runtime errors

The possible RESET_RIB error message include:

```
User does not have correct privilege for action. CONFIG_ILO_PRIV required.
```

GET_EVENT_LOG

The GET_EVENT_LOG command retrieves the iLO Event Log or the Integrated Management log, depending on the context of the command. For this command to parse correctly, the command must appear within a RIB_INFO or SERVER_INFO command block. To retrieve the iLO Event Log, use the RIB_INFO command block. To retrieve the Integrated Management log use, the SERVER_INFO command block.

For example:

- iLO Event Log example:

```
<RIBCL version="2.0">
 <LOGIN USER_LOGIN="adminname" PASSWORD="password">
  <RIB_INFO MODE="READ">
   <GET_EVENT_LOG />
  </RIB_INFO>
 </LOGIN>
</RIBCL>
```

- Integrated Management log example:

```
<RIBCL version="2.0">
 <LOGIN USER_LOGIN="adminname" PASSWORD="password">
  <SERVER_INFO MODE="READ">
   <GET_EVENT_LOG />
  </SERVER_INFO>
 </LOGIN>
</RIBCL>
```

GET_EVENT_LOG parameters

None

GET_EVENT_LOG runtime errors

GET_EVENT_LOG returns a runtime error if it is not called from within the RIB_INFO or SERVER_INFO block.

For example:

```
<RIBCL VERSION="2.0">
<RESPONSE STATUS="0x0001" MESSAGE='Syntax error: Line #3: syntax error near ">"
in the line: " GET_EVENT_LOG >"'/>
</RIBCL>
```

GET_EVENT_LOG return messages

The response includes all of the events recorded, in the order that they occurred. Events are not sorted by severity or other criteria. Each event includes a common set of attributes:

- SEVERITY indicates the importance of the error and how it might impact server or iLO availability:
  - FAILED indicates a problem or component failure that might impact operational time if it is not addressed.
  - CAUTION indicates an event that is not expected during normal system operation. This might not indicate a platform issue.

    - DEGRADED indicates the device or subsystem is operating at a reduced capacity.
    - REPAIRED indicates that an event or component failure has been addressed.
    - INFORMATIONAL indicates that something noteworthy occurred, but operational time is not impacted.
- CLASS indicates the subsystem that generated the event, and can include iLO, environment, power, system error, rack infrastructure, and more.
- LAST_UPDATE indicates the most recent time this event was modified.
- INITIAL_UPDATE indicates when this event first occurred.
- COUNT indicates the number of times a duplicate event happened.
- DESCRIPTION indicates the nature of the event and all recorded details.
- EVENT_CODE is a unique identifier for an event within a given event class displayed in hexadecimal format.

The following response is typical of the data returned from the iLO Event Log:

```
<EVENT_LOG DESCRIPTION="iLO 5 Event Log">
 <EVENT
  SEVERITY="Informational"
  CLASS="iLO 5"
  LAST_UPDATE="01/20/2017 07:33:00"
  INITIAL_UPDATE="01/20/2017 07:33:00"
  COUNT="1"
  DESCRIPTION="Event log cleared by: admin."
  EVENT_CODE="0x0087"
 />
</EVENT_LOG>
```

The following response is typical of the data returned from the Integrated Management Log:

```
<EVENT_LOG DESCRIPTION="Integrated Management Log">
 <EVENT
  SEVERITY="Informational"
  CLASS="Maintenance"
  LAST_UPDATE="11/14/2016 20:18:28"
  INITIAL_UPDATE="11/14/2016 20:18:28"
  COUNT="1"
  DESCRIPTION="IML Cleared (iLO 5 user: Administrator)"
  EVENT_CLASS="0x0021"
  EVENT_CODE="0x0001"
 />
</EVENT_LOG>
```

CLEAR_EVENTLOG

The CLEAR_EVENTLOG command clears the iLO Event Log. For this command to parse correctly, the command must appear within a RIB_INFO command block, and RIB_INFO MODE must be set to write. The user must have the Configure iLO Settings privilege to execute this command.

For example:

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

```
</RIBCL>
```

CLEAR_EVENTLOG parameters

None

CLEAR_EVENTLOG runtime errors

The possible CLEAR_EVENTLOG error messages are:

- `iLO information is open for read-only access. Write access is required for this operation.`
- `User does not have correct privilege for action. CONFIG_ILO_PRIV required.`

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 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/info/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>
```

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/info/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.`

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.`

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/info/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>
```

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"/>
            <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/info/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.`

COMPUTER_LOCK_CONFIG

The COMPUTER_LOCK_CONFIG command is used to configure the Remote Console Computer Lock feature. For this command to parse correctly, the command must appear within a RIB_INFO command block, and RIB_INFO MODE must be set to write. The user must have the Configure iLO Settings privilege to execute this command.

Uppercase letters are not supported, and are converted automatically to lowercase. If either a double quote or a single quote is used, it must be different from the delimiter. For a complete list of the supported custom keys, see the iLO User Guide on the Hewlett Packard Enterprise website at: **http://www.hpe.com/info/ilo/docs**.

```
<RIBCL VERSION="2.0">
   <LOGIN USER_LOGIN="adminname" PASSWORD="password">
      <RIB_INFO MODE="write">
         <COMPUTER_LOCK_CONFIG>

            <!-- To set default Windows Computer Lock keys combination:      -->
            <COMPUTER_LOCK value="windows"/>

            <!-- To configure custom Computer Lock keys combination:         -->
            <!--
            <COMPUTER_LOCK value="custom"/>
            <COMPUTER_LOCK_KEY value="L_GUI,l"/>
            -->

            <!-- To disable Computer Lock feature:                           -->
            <!--
            <COMPUTER_LOCK value="disabled"/>
            -->

         </COMPUTER_LOCK_CONFIG>
      </RIB_INFO>
   </LOGIN>
</RIBCL>
```

COMPUTER_LOCK_CONFIG parameters

COMPUTER_LOCK value— You can customize Windows, Linux and other operating systems by setting the value:

- `windows`

—Sets the command to define the computer lock for a Windows based operating system. The computer lock on Windows based operating systems defaults to the **Windows logo** + **L** keys.

- `custom`

  —Sets the command to define the computer lock for a non-Windows based operating system.
- `disabled`

  —Disables the computer lock feature.

COMPUTER_LOCK key—Sets the key combination to lock an operating system.

For example:

```
<COMPUTER_LOCK key="l_gui,l"/>
```

COMPUTER_LOCK_CONFIG runtime errors

Possible COMPUTER_LOCK_CONFIG error messages include:

- `iLO information is open for read-only access. Write access is required for this operation.`
- `Invalid number of parameters. The maximum allowed is five.`
- `User does not have correct privilege for action. CONFIG_ILO_PRIV required.`
- `Invalid COMPUTER_LOCK option; value must be windows, custom, or disabled.`
- `COMPUTER_LOCK value must be set to custom to use the COMPUTER_LOCK_KEY tag.`
- `The COMPUTER_LOCK key command was used without a preceding COMPUTER_LOCK value command equal to custom.`
- `The key parameter specified is not valid.`

GET_NETWORK_SETTINGS

The GET_NETWORK_SETTINGS command requests the respective iLO network settings. For this command to parse correctly, the command must appear within a RIB_INFO command block, and RIB_INFO MODE can be set to read.

For example:

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

GET_NETWORK_SETTINGS parameters

None

GET_NETWORK_SETTINGS runtime errors

None

GET_NETWORK_SETTINGS return messages

A possible GET_NETWORK_SETTINGS return message is:

```
<GET_NETWORK_SETTINGS>
    <ENABLE_NIC VALUE="Y"/>
```

```
<SHARED_NETWORK_PORT VALUE="N"/>
<VLAN_ENABLED VALUE="N"/>
<VLAN_ID VALUE="0"/>
<SPEED_AUTOSELECT VALUE="Y"/>
<NIC_SPEED VALUE="Automatic"/>
<FULL_DUPLEX VALUE="Automatic"/>
<DHCP_ENABLE VALUE="N"/>
<DHCP_GATEWAY VALUE="N"/>
<DHCP_DNS_SERVER VALUE="N"/>
<DHCP_WINS_SERVER VALUE="N"/>
<DHCP_STATIC_ROUTE VALUE="N"/>
<DHCP_DOMAIN_NAME VALUE="N"/>
<DHCP_SNTP_SETTINGS VALUE="N"/>
<REG_WINS_SERVER VALUE="N"/>
<REG_DDNS_SERVER VALUE="Y"/>
<PING_GATEWAY VALUE="N"/>
<MAC_ADDRESS VALUE="9c:8e:99:18:07:52"/>
<IP_ADDRESS VALUE="192.168.1.14"/>
<SUBNET_MASK VALUE="255.255.255.0"/>
<GATEWAY_IP_ADDRESS VALUE="0.0.0.0"/>
<DNS_NAME VALUE="foghat"/>
<DOMAIN_NAME VALUE="nexus.ilotest.com"/>
<PRIM_DNS_SERVER VALUE="192.168.1.5"/>
<SEC_DNS_SERVER VALUE="0.0.0.0"/>
<TER_DNS_SERVER VALUE="0.0.0.0"/>
<PRIM_WINS_SERVER VALUE="0.0.0.0"/>
<SEC_WINS_SERVER VALUE="0.0.0.0"/>
<SNTP_SERVER1 VALUE="192.168.1.2"/>
<SNTP_SERVER2 VALUE=""/>
<TIMEZONE VALUE="Greenwich"/>
<STATIC_ROUTE_1 DEST="0.0.0.0"
                MASK="0.0.0.0"
                GATEWAY="0.0.0.0"/>
<STATIC_ROUTE_2 DEST="0.0.0.0"
                MASK="0.0.0.0"
                GATEWAY="0.0.0.0"/>
<STATIC_ROUTE_3 DEST="0.0.0.0"
                MASK="0.0.0.0"
                GATEWAY="0.0.0.0"/>
<IPV6_ADDRESS   VALUE="2001:2:1::14"
                PREFIXLEN="64"
                ADDR_SOURCE="STATIC"
                ADDR_STATUS="ACTIVE"/>
<IPV6_ADDRESS   VALUE="fe80::9e8e:99ff:fe18:752"
                PREFIXLEN="64"
                ADDR_SOURCE="SLAAC"
                ADDR_STATUS="ACTIVE"/>
<IPV6_ADDRESS   VALUE="2001:2:1:0:9e8e:99ff:fe18:752"
                PREFIXLEN="64"
                ADDR_SOURCE="SLAAC"
                ADDR_STATUS="ACTIVE"/>
<IPV6_STATIC_ROUTE_1
                IPV6_DEST="2001:2:2::20"
                PREFIXLEN="64"
                IPV6_GATEWAY="fe80::1:2:3"
                ADDR_STATUS="ACTIVE"/>
<IPV6_STATIC_ROUTE_2
```

```
                    IPV6_DEST="::"
                    PREFIXLEN="0"
                    IPV6_GATEWAY="::"
                    ADDR_STATUS="INACTIVE"/>
    <IPV6_STATIC_ROUTE_3
                    IPV6_DEST="2001:1001:2002:3003::"
                    PREFIXLEN="64"
                    IPV6_GATEWAY="fe80::1:2:3"
                    ADDR_STATUS="ACTIVE"/>
    <IPV6_PRIM_DNS_SERVER VALUE="2001:1:2::5"/>
    <IPV6_SEC_DNS_SERVER VALUE="2001:2:1::5"/>
    <IPV6_TER_DNS_SERVER VALUE="::"/>
    <IPV6_DEFAULT_GATEWAY VALUE="::"/>
    <IPV6_PREFERRED_PROTOCOL VALUE="Y"/>
    <IPV6_ADDR_AUTOCFG VALUE="Y"/>
    <IPV6_REG_DDNS_SERVER VALUE="Y"/>
    <DHCPV6_STATELESS_ENABLE VALUE="Y"/>
    <DHCPV6_STATEFUL_ENABLE VALUE="Y"/>
    <DHCPV6_RAPID_COMMIT VALUE="N"/>
    <DHCPV6_DOMAIN_NAME VALUE="N"/>
    <DHCPV6_SNTP_SETTINGS VALUE="N"/>
    <DHCPV6_DNS_SERVER VALUE="N"/>
    <ILO_NIC_AUTO_SELECT VALUE="LINKACT"/>
    <ILO_NIC_AUTO_SNP_SCAN VALUE="0"/>
    <ILO_NIC_AUTO_DELAY VALUE="90"/>
    <ILO_NIC_FAIL_OVER VALUE="DISABLED"/>
    <ILO_NIC_FAIL_OVER_DELAY VALUE="300"/>
    <SNP_PORT VALUE="1"/>
</GET_NETWORK_SETTINGS>
```

If the request is unsuccessful, you might receive the following message:

```
<RESPONSE
STATUS = "0x0001"
MSG = "Error Message"/>
```

- For IPV6_ADDRESS the ADDR_STATUS=”string”, will report status of “Pending”, “Active”, or “Failed” for each address. Pending indicates the Duplicate Address Detection (DAD) test is still in progress, Failed indicates that a duplicate address was found on the network and the address is not currently in use by iLO, and Active indicates that DAD passed and the address is in use by iLO.
- For IPV6_ADDRESS the ADDR_SOURCE=”string” will report status of “Static”, “SLAAC”, or “DHCPv6”, indicating the configuration source for that address. SLAAC indicates RFC 4862 Stateless Address Auto Configuration.
- For IPV6_STATIC_ROUTE_[1:3] the ADDR_STATUS=”string” will report status of “Active” or “Failed” for each static route configured. Active indicates the route was accepted by the networking stack and is in use. Failed indicates the route was rejected by the networking stack, typically this is due to a “No route to source” error for the specified gateway. In this case, iLO will periodically retry setting the static route as long as it remains configured (a route to the gateway may be discovered in the future through router advertisements or further iLO address configuration.)

MOD_NETWORK_SETTINGS

Use MOD_NETWORK_SETTINGS to modify network settings. For this command to parse correctly, the command must appear within a RIB_INFO command block, and RIB_INFO MODE must be set to write. The user must have the Configure iLO Settings privilege to execute this command.

The iLO scripting firmware does not attempt to decipher if the network modifications are appropriate for the network environment. When modifying network settings, be aware of the network commands provided to the management processor. In some cases, the management processor ignores commands and no error is returned.

For example, when a script includes the command to enable DHCP and a command to modify the IP address, the IP address is ignored. Changing the network settings to values that are not correct for the network environment might cause a loss of connectivity to iLO.

iLO reboots in response to changes made to the following:

- All IPv4 settings
- Some settings for IPv6, including the following (if the parameter change requires a reboot):
  - IPV6_PREFERRED_PROTOCOL
  - IPV6_ADDR_AUTOCFG
  - DHCPv6 (all)
- Settings for SNTP and time zone, including the following (only if the parameter change requires a reboot):
  - DHCP_SNTP_SETTINGS
  - DHCPv6_SNTP_SETTINGS
  - SNTP_SERVER1
  - SNTP_SERVER2
  - TIMEZONE

For example:

```
<RIBCL VERSION="2.0">
   <LOGIN USER_LOGIN="adminname" PASSWORD="password">
      <RIB_INFO MODE="write">
         <MOD_NETWORK_SETTINGS>
            <ENABLE_NIC value="Yes"/>
            <REG_DDNS_SERVER value="Yes"/>
            <PING_GATEWAY value="No"/>
            <DHCP_DOMAIN_NAME value="Yes"/>
            <SPEED_AUTOSELECT value="YES"/>
            <NIC_SPEED value="100"/>
            <FULL_DUPLEX value="Yes"/>
            <DHCP_ENABLE value="No"/>
            <IP_ADDRESS value="172.20.60.152"/>
            <SUBNET_MASK value="255.255.255.0"/>
            <GATEWAY_IP_ADDRESS value="172.20.60.1"/>
            <DNS_NAME value="demoilo"/>
            <DOMAIN_NAME value="internal.com"/>
            <DHCP_GATEWAY value="Yes"/>
            <DHCP_DNS_SERVER value="Yes"/>
            <DHCP_WINS_SERVER value="Yes"/>
            <DHCP_STATIC_ROUTE value="Yes"/>
            <REG_WINS_SERVER value="Yes"/>
            <PRIM_DNS_SERVER value="0.0.0.0"/>
            <SEC_DNS_SERVER value="0.0.0.0"/>
            <TER_DNS_SERVER value="0.0.0.0"/>
            <PRIM_WINS_SERVER value="0.0.0.0"/>
            <SEC_WINS_SERVER value="0.0.0.0"/>
            <STATIC_ROUTE_1 DEST="0.0.0.0" GATEWAY="0.0.0.0"/>
            <STATIC_ROUTE_2 DEST="0.0.0.0" GATEWAY="0.0.0.0"/>
            <STATIC_ROUTE_3 DEST="0.0.0.0" GATEWAY="0.0.0.0"/>
            <DHCP_SNTP_SETTINGS value="Yes"/>
```

```
            <SNTP_SERVER1 value="0.0.0.0"/>
            <SNTP_SERVER2 value="0.0.0.0"/>
            <TIMEZONE value="Greenwich(GMT)"/>
            <!-- This tag can be used on an iLO blade server to force iLO  -->
            <!-- to attempt to get an IP address from the signal backplane -->
            <!-- in a server enclosure.  The IP address must be set prior  -->
            <!-- with Mod_Enc_Bay_IP_Settings.xml                          -->
            <ENCLOSURE_IP_ENABLE VALUE="Yes"/>
            <!--            iLO 4 - Version 2.00 and later                -->
            <!--            iLO 3 - None.                                 -->
            <!--            iLO 2 - None.                                 -->
            <!--  VALUES "DISABLED" "LINKACT" "RCVDATA" "DHCP"            -->
            <ILO_NIC_AUTO_SELECT VALUE="DISABLED"/>
            <SNP_PORT VALUE="1"
            <ILO_NIC_AUTO_SNP_SCAN VALUE="0"/>
            <ILO_NIC_AUTO_DELAY VALUE="90"/>
            <ILO_NIC_FAIL_OVER VALUE="DISABLED"/>
            <ILO_NIC_FAIL_OVER_DELAY VALUE="300"/>
        </MOD_NETWORK_SETTINGS>
      </RIB_INFO>
   </LOGIN>
</RIBCL>
```

Modify VLAN for the embedded LOM example:

```
<RIBCL version="2.0">
 <LOGIN USER_LOGIN="adminname" PASSWORD="password">
  <RIB_INFO MODE="WRITE" >
   <MOD_NETWORK_SETTINGS>
     <ENABLE_NIC value=”Yes”/>
     <SHARED_NETWORK_PORT VALUE="Yes"/>
     <VLAN_ENABLED VALUE="Yes" />
     <VLAN_ID VALUE="1"/>
   </MOD_NETWORK_SETTINGS>
  </RIB_INFO>
 </LOGIN>
</RIBCL>
```

Modify VLAN for the FlexibleLOM example:

```
<RIBCL version="2.21">
 <LOGIN USER_LOGIN="adminname" PASSWORD="password">
  <RIB_INFO MODE="WRITE" >
   <MOD_NETWORK_SETTINGS>
    <ENABLE_NIC value="Yes"/>
    <SHARED_NETWORK_PORT VALUE="FlexibleLOM"/>
    <VLAN_ENABLED VALUE="Yes" />
    <VLAN_ID VALUE="1" />
   </MOD_NETWORK_SETTINGS>
  </RIB_INFO>
 </LOGIN>
</RIBCL>
```

RBSU POST IP example:

```
<RIBCL version="2.0">
 <LOGIN USER_LOGIN="adminname" PASSWORD="password">
  <RIB_INFO MODE="write" >
   <MOD_GLOBAL_SETTINGS>
    <RBSU_POST_IP VALUE="Y"/>
   </MOD_GLOBAL_SETTINGS>
  </RIB_INFO>
 </LOGIN>
</RIBCL>
```

Shared network port example:

NOTE:

Besides being present in the sample script MOD_NETWORK_SETTINGS.xml, shared network port configuration is included in the sample script `Shared_Network_Port.xml`.

```
<RIBCL version="2.0">
 <LOGIN USER_LOGIN="adminname" PASSWORD="password">
  <RIB_INFO MODE="WRITE" >
   <MOD_NETWORK_SETTINGS>
    <SHARED_NETWORK_PORT VALUE="N"/>
            <!--            iLO 4 - Version 2.00 and later          -->
            <!--            iLO 3 - None.                           -->
            <!--            iLO 2 - None.                           -->
            <!--  VALUES "", "1", "2"                               -->
            <!--
            <SNP_PORT VALUE="1"/>
             -->
   </MOD_NETWORK_SETTINGS>
  </RIB_INFO>
 </LOGIN>
</RIBCL>
```

IPv6_ADDRESS support

MOD_NETWORK_SETTINGS supports IPv6. This section of the sample script (shown below) is commented out by default. Uncomment the parameters as needed to enable them, and disable (comment out) the equivalent IPv4 parameters. See "IPv6 MOD_NETWORK_SETTINGS parameters" in **MOD_NETWORK_SETTINGS parameters** for information on the parameters and their values.

```
            <IPV6_ADDRESS VALUE="2001:DB8:2:1::15" PREFIXLEN="64"/>
            <IPV6_ADDRESS VALUE="2001:DB8:2:2::15" PREFIXLEN="64"/>
            <IPV6_ADDRESS VALUE="FC00:DB8:2:3::15" PREFIXLEN="64"/>
            <IPV6_ADDRESS VALUE="FC00:DB8:2:2::15"
                          PREFIXLEN="64"
                          ADDR_SOURCE="STATIC"
                          ADDR_STATUS="ACTIVE"/>
            <IPV6_STATIC_ROUTE_1
                          IPV6_DEST="::"
                          PREFIXLEN="0"
                          IPV6_GATEWAY="::"
```

```
                ADDR_STATUS="INACTIVE"/>
<IPV6_STATIC_ROUTE_2
                IPV6_DEST="::"
                PREFIXLEN="0"
                IPV6_GATEWAY="::"
                ADDR_STATUS="INACTIVE"/>
<IPV6_STATIC_ROUTE_3
                IPV6_DEST="2001:DB8:2002:3003::"
                PREFIXLEN="64"
                IPV6_GATEWAY="2001:DB8:1::40"
                ADDR_STATUS="ACTIVE"/>
<IPV6_PRIM_DNS_SERVER VALUE="2001:DB8:2:1::13"/>
<IPV6_SEC_DNS_SERVER VALUE="::"/>
<IPV6_TER_DNS_SERVER VALUE="::"/>
<IPV6_DEFAULT_GATEWAY VALUE="::"/>
<IPV6_PREFERRED_PROTOCOL VALUE="Y"/>
<IPV6_ADDR_AUTOCFG VALUE="Y"/>
<IPV6_REG_DDNS_SERVER VALUE="Y"/>
<SNTP_SERVER1 VALUE="2001:DB8:2:1::13"/>
<SNTP_SERVER2 VALUE="2001:DB8:1::13"/>
<!--            Support for the following 5 tags:              -->
<!--            iLO 4 - Version 1.30 and later.                -->
<!--            iLO 3 - Version 1.60 and later.                -->
<!--            iLO 2 - None                                   -->
<DHCPV6_STATELESS_ENABLE VALUE="Y"/>
<DHCPV6_STATEFUL_ENABLE VALUE="Y"/>
<DHCPV6_RAPID_COMMIT VALUE="N"/>
<DHCPV6_SNTP_SETTINGS VALUE="N"/>
<DHCPV6_DNS_SERVER VALUE="Y"/>
<DHCPV6_DOMAIN_NAME VALUE=”Y”/>
```

MOD_NETWORK_SETTINGS runtime errors

Possible MOD_NETWORK_SETTINGS error messages include:

- `iLO information is open for read-only access. Write access is required for this operation.`
- `User does not have correct privilege for action. CONFIG_ILO_PRIV required.`
- `iLO may not be disabled on this server.`

  This message is sent if ENABLE_NIC is set to No and the system is a blade.

MOD_NETWORK_SETTINGS parameters

If the following parameters are not specified, then the parameter value for the specified setting is preserved. Zero values are not permitted in some fields. Consequently, an empty string deletes the current value in some fields.

ENABLE_NIC enables the NIC to reflect the state of iLO. The values are `Yes` or `No`. It is case insensitive.

SHARED_NETWORK_PORT sets the Shared Network Port value. The values are `LOM`, `FlexibleLOM`, `Yes`, or `No`. The Shared Network Port feature is only available on servers with hardware, NIC firmware, and iLO firmware that supports this feature. This command is supported on all 300, 500, 700 and 900 ML/DL servers, though not all values, (`LOM` or `FlexibleLOM`), are supported on all servers.

- No—Enables a NIC with a jack on the back of the server (a dedicated network port).
- Yes—Enables a NIC that is built into the server (a shared network port). The NIC handles server network traffic and can, if ILO is configured to do so, handle iLO traffic at the same time.

- LOM—Enables a NIC that is built into the server (a shared network port). The NIC handles server network traffic and can, if ILO is configured to do so, handle iLO traffic at the same time. Not all servers support a LOM.
- FlexibleLOM—Enables an optional NIC that plugs into a special slot on the server. The NIC handles server network traffic and can, if iLO is configured to do so, handle iLO traffic at the same time. Not all servers support a FlexibleLOM.

When using the iLO Shared Network Port, flashing the iLO firmware through the XML interface takes approximately 7 minutes to complete. Flashing the firmware using Shared Network Port with iLO does not take any longer to complete than using the dedicated iLO management port.

VLAN_ENABLED—Enables Shared Network Port VLAN ID tagging. The possible values are `Yes` or `No`.

VLAN_ID—Sets the VLAN ID value. Values must be between 1 and 4094.

REG_DDNS_SERVER VALUE instructs iLO to register the management port with a DDNS server. The possible values are `Yes` or `No`.

PING_GATEWAY—When set to `Y`, this causes iLO to send four ICMPv4 echo request packets to the IPv4 gateway when iLO initializes. This keeps the ARP cache entry for iLO updated on the router responsible for routing packets for iLO.

DHCP_DOMAIN_NAME—When set to `Y`, iLO uses the domain name provided by the DHCPv4 server. If both DHCP_DOMAIN_NAME and DHCPV6_DOMAIN_NAME are set to `N`, iLO uses a static value for the domain name, which is set in DOMAIN_NAME.

SPEED_AUTOSELECT is a Boolean parameter to enable or disable the iLO transceiver to auto-detect the speed (NIC_SPEED) and duplex (FULL_DUPLEX) of the network. This parameter is optional, and the Boolean string must be set to `Yes` to enable the speed auto-detect. If this parameter is used, the Boolean string value must not be left blank. The possible values are `Yes` or `No`. The parameter value is case insensitive.

NIC_SPEED is used to set the transceiver speed if SPEED_AUTOSELECT is set to No. The possible values are `10`, `100`, or `Automatic`. If SPEED_AUTOSELECT is set to `N`, and NIC_SPEED is set to `Automatic`, the current value is retained. In other words, if SPEED_AUTOSELECT is set to `N`, then `Automatic` is not an applicable value for NIC_SPEED.

FULL_DUPLEX is used to decide if iLO is to support full-duplex or half-duplex mode. It is only applicable if SPEED_AUTOSELECT was set to `No`. The possible values are `Yes`, `No`, or `Automatic`. If SPEED_AUTOSELECT is set to `N`, and FULL_DUPLEX is set to `Automatic`, the current value is retained. In other words, if SPEED_AUTOSELECT is set to `N`, then `Automatic` is not an applicable value for FULL_DUPLEX. The parameter value is case insensitive.

DHCP_ENABLE is used to enable DHCP. The possible values are `Yes` or `No`. The parameter value is case insensitive.

IP_ADDRESS is used to select the IP address for iLO if DHCP is not enabled. If an empty string is entered, the current value is deleted.

SUBNET_MASK is used to select the subnet mask for iLO if DHCP is not enabled. If an empty string is entered, the current value is deleted.

GATEWAY_IP_ADDRESS is used to select the default gateway IP address for iLO if DHCP is not enabled. If an empty string is entered, the current value is deleted.

DNS_NAME is used to specify the DNS name for iLO. The value can be from 1 to 49 characters. If an empty string is entered, the current value is deleted. Note that other interfaces this is referred to as the Hostname.

DOMAIN_NAME is used to specify the domain name for the network where iLO resides. The value can be from 1 to 64 characters. If an empty string is entered, the current value is deleted. If both DHCP_DOMAIN_NAME and DHCPV6_DOMAIN_NAME are set to `N`, iLO uses the static value from DOMAIN_NAME.

DHCP_GATEWAY specifies if the DHCP-assigned gateway address is to be used. The possible values are `Yes` or `No`. The parameter value is case sensitive. This selection is only valid if DHCP is enabled.

DHCP_DNS_SERVER specifies if the DHCP-assigned DNS server is to be used. The possible values are `Yes` or `No`. The parameter value is case sensitive. This selection is only valid if DHCP is enabled.

DHCP_WINS_SERVER specifies if the DHCP-assigned WINS server is to be used. The possible values are `Yes` or `No`. The parameter value is case sensitive. This selection is only valid if DHCP is enabled.

DHCP_STATIC_ROUTE specifies if the DHCP-assigned static routes are to be used. The possible values are `Yes` or `No`. The parameter value is case sensitive. This selection is only valid if DHCP is enabled.

REG_WINS_SERVER specifies whether the iLO NIC must be registers with a WINS server. The possible values are `Yes` or `No`. The parameter value is case sensitive.

PRIM_DNS_SERVER specifies the IP address of the primary DNS server. This parameter is only relevant if the DHCP-assigned DNS server address feature is disabled. If an empty string is entered, the current value is deleted.

SEC_DNS_SERVER specifies the IP address of the secondary DNS server. This parameter is only relevant if the DHCP-assigned DNS server address feature is disabled. If an empty string is entered, the current value is deleted.

TER_DNS_SERVER specifies the IP address of the tertiary DNS server. This parameter is only relevant if the DHCP-assigned DNS server address feature is disabled. If an empty string is entered, the current value is deleted.

PRIM_WINS_SERVER specifies the IP address of the primary WINS server. This parameter is only relevant if the DHCP-assigned WINS server address feature is disabled. If an empty string is entered, the current value is deleted.

SEC_WINS_SERVER specifies the IP address of the secondary WINS server. This parameter is only relevant if the DHCP-assigned WINS server address feature is disabled. If an empty string is entered, the current value is deleted.

STATIC_ROUTE_1, STATIC_ROUTE_2, and STATIC_ROUTE_3 are used to specify the destination and gateway IP addresses of the static routes. The following two parameters are used within the static route commands. If an empty string is entered, the current value is deleted.

- DEST specifies the destination IP addresses of the static route. This parameter is only relevant if the DHCP-assigned static route feature is disabled. If an empty string is entered, the current value is deleted.
- GATEWAY specifies the gateway IP addresses of the static route. This parameter is only relevant if the DHCP-assigned static route feature is disabled. If an empty string is entered, the current value is deleted.

DHCP_SNTP_SETTINGS is used to determine whether iLO is to get the SNTP time servers and timezone from the DHCP server or whether the user enters that information manually.

SNTP_SERVER1 specifies the IP address of an IPv4 or IPv6 SNTP server or the FQDN of an SNTP server. The FQDN must adhere to the DNS standard, for example time.nist.gov. The iLO firmware contacts this server for the UTC time. If iLO is unable to contact this server, it attempts to contact the Secondary Time Server. This parameter is only relevant if DHCP_SNTP_SETTINGS is set to `No`. If an empty string is entered, the current value is deleted.

SNTP_SERVER2 specifies the IP address of an IPv4 or IPv6 SNTP server or the FQDN of an SNTP server. The FQDN must adhere to the DNS standard, for example time.nist.gov. The iLO firmware contacts this server for the UTC time. If iLO cannot contact the Primary Time Server, it contacts this server. This parameter is only relevant if DHCP_SNTP_SETTINGS is set to `No`. If an empty string is entered, the current value is deleted.

TIMEZONE specifies the current time zone. Your entry for TIMEZONE in RIBCL must match exactly with an item from the Time Zone list in the iLO 5 web interface. To view a list of time zones, in the iLO 5 web interface, navigate to the **SNTP** tabs of either the **iLO Dedicated Network Port** or the **iLO Shared Network Port** pages. View the **Time Zone** list in the **SNTP Settings** section. Note that you cannot open the Time Zone list if

either of the settings for **Use DHCPv4 Supplied Time Settings** or **Use DHCPv6 Supplied Time Settings** are enabled.

ILO_NIC_AUTO_SELECT allows iLO to automatically select between either the shared or dedicated network ports at startup. The feature looks for network activity on the ports, and the first port found with network activity is selected for use. Any changes to this setting do not take effect until the iLO is reset.

NOTE:

When iLO is searching the NICs for activity, it periodically switches between the available physical NICs. If any of the physical NICs are connected to an unsecured network it may be possible for unauthorized access attempts to occur. Hewlett Packard Enterprise strongly recommends that whenever iLO is connected to any network:

- Use strong passwords for iLO access
- Never connect the ILO dedicated NIC to an unsecured network
- If the server NIC that is shared with iLO is connected to an unsecured network, use VLAN tagging on the iLO portion of the shared NIC and make sure that VLAN is connected to a secure network only.

ILO_NIC_AUTO_SNP_SCAN scans multiple SNP ports during NIC auto-selection when supported by hardware. Valid values are 0 and 2. When the value is set to 0, iLO scans currently configured SNP port. When the value is set to 2, iLO scans the SNP ports 1 and 2. If an empty string is entered, iLO scans the currently configured port.

ILO_NIC_AUTO_DELAY specifies the number of seconds to test each NIC connection before moving to the next while scanning. Valid values are 90 to 1800. If not specified, the delay will default to 90 seconds. Empty string is invalid.

ILO_NIC_FAIL_OVER configures NIC Fail-over feature. Valid values are DISABLED, LINKACT, RCVDATA and DHCP. Empty string disables the feature. To enable this feature, ILO_NIC_AUTO_SELECT tag must also be present and must be a value other than DISABLED.

ILO_NIC_FAIL_OVER_DELAY specifies the number of seconds to monitor each NIC connection before considering the connection as failed and switching to the next NIC. Valid values are 30 to 3600. If not specified, the delay will default to 300 seconds. Empty string is invalid.

SNP_PORT selects which physical NIC port to be used by the iLO Shared Network Port connection, if a port other than 1 is supported. Valid values are `1` and `2`. If port 2 is chosen but not supported, port 1 is selected automatically. Note that even if more than 2 ports are available, for example with a LOM adapter, the iLO shared network port could only be mapped to the either of the first two ports (if supported.)

IPv6 MOD_NETWORK_SETTINGS parameters

If the following parameters are not specified, then the parameter value for the specified setting is preserved. Zero values are not permitted in some fields. Consequently, an empty string deletes the current value in some fields.

IPV6_ADDRESS is used to configure a static IPv6 address on iLO. When IPV6_ADDRESS entries are included in a script, all previously configured IPv6 static addresses are deleted. Only the addresses specified in the script will be in use by iLO after the script successfully completes. All static address entries on iLO can be cleared by specifying a single blank IPV6_ADDRESS entry.

- ADDR_SOURCE may be included for ease in turning around GET_NETWORK_SETTINGS output as input to MOD_NETWORK_SETTINGS. However, if the value is not **`STATIC`** the entire entry is ignored.
- ADDR_STATUS may be included for ease in turning using GET_NETWORK_SETTINGS output as input to MOD_NETWORK_SETTINGS. The value is always ignored as input.

IPV6_STATIC_ROUTE_[1:3] is used to configure static routes for IPv6 on iLO.

- IPV6_DEST specifies the destination address prefix, limited by PREFIXLEN. Must be a valid literal IPv6 address in string form.
- IPV6_GATEWAY specifies the IPv6 address to which the prefixes should be routed. Must be a valid literal IPv6 address in string form.
- ADDR_STATUS is used for ease in turning GET_NETWORK_SETTINGS output around as input to MOD_NETWORK_SETTINGS, but is always ignored as input.

NOTE:

To clear a single static route, enter blank addresses (“::”) for IPV6_DEST and IPV6_GATEWAY, with “0” (zero) PREFIXLEN.

IPV6_PRIM_DNS_SERVER, IPV6_SEC_DNS_SERVER, and IPV6_TER_DNS_SERVER are used to specify primary, secondary, and tertiary IPv6 DNS server addresses. Values must be valid literal IPv6 addresses in string form. These addresses are used in addition to the IPv4 DNS server addresses. Clear address entries by specifying blank IPv6 addresses (“::”). When iLO Client applications are configured to prefer IPv6 (see IPV6_PREFFERED_PROTOCOL) the order of use will be:

1. IPV6_PRIM_DNS_SERVER
2. PRIM_DNS_SERVER
3. IPV6_SEC_DNS_SERVER
4. SEC_DNS_SERVER
5. IPV6_TER_DNS_SERVER
6. TER_DNS_SERVER

When IPv4 protocol is preferred by iLO clients, the order of IPv6 and IPv4 is reversed for each of primary, secondary, and then tertiary settings respectively.

IPV6_DEFAULT_GATEWAY allows you to add an IPv6 address to the default gateway address list maintained by the ILO network stack. This is primarily for environments when no RA (router advertised) messages are present on the network. The value must be a valid literal IPv6 address in string form. Clear address entry by specifying a blank IPv6 address (“::”).

IPV6_ADDR_AUTOCFG enables or disables RFC 4862 SLAAC (Stateless Address Auto Configuration). Value must be either **Y** (enabled) or **N** (disabled). When enabled, iLO creates IPv6 addresses for itself from RA prefixes as appropriate. When disabled, only the link-local address is automatically configured. Router advertisements are still monitored but not used for SLAAC address creation.

IPV6_REG_DDNS_SERVER enables or disables automatic DNS server IPv6 address registration. Value must be either **Y** (enabled) or **N** (disabled). When enabled, iLO attempts to register AAAA and PTR records for its IPv6 addresses with the DNS server.

IPV6_PREFERRED_PROTOCOL enables or disables using IPv6 addresses as preferred. Value must be either **Y** (enabled) or **N** (disabled). When enabled, iLO client applications use IPv6 service addresses before IPv4 service addresses when both are configured. Client applications affected by this setting currently are the DNS name resolver and SNTP. In SNTP, if FQDNs are configured, and the DNS name resolver returns both A (IPv4) and AAAA (IPv6) records, the addresses are tried in order specified by this setting. For the DNS name resolver, if both IPv4 and IPv6 DNS addresses are configured, this setting determines the order of use for the primary addresses, then the secondary addresses, and finally the tertiary addresses.

DHCPV6_STATELESS_ENABLE and DHCPV6_STATEFUL_ENABLE modifies the operational mode of DHCPv6. The values for both of these parameters can be either **Y** (enabled) or **N** (disabled).

- DHCPV6_STATEFUL_ENABLE is analagous to DHCPv4, and enables the configuration of a node address and additional parameters such as NTP server location and time zone.
- DHCPV6_STATELESS_ENABLE enables the configuration of parameters such as NTP server location but does not provide for the configuration of a node address. This mode may be used with IPv6 Stateless Address Auto-Configuration (SLAAC) to provide configuration data that cannot otherwise be provided.

DHCPV6_STATELESS_ENABLE and DHCPV6_STATEFUL_ENABLE work together in a DHCPv6 environment. In most environments, if DHCPV6_STATEFULL_ENABLE is enabled (which provides a subset of information available via DHCPV6_STATEFUL_ENABLE) this implies that DHCPV6_STATELESS_ENABLE should also be enabled. Value must be either **Y** (enabled) or **N** (disabled).

DHCPV6_RAPID_COMMIT is used when DHCPV6_STATEFUL_ENABLE is enabled. It provides a reduction in the amount of DHCPv6 network traffic needed to assign addresses, but should not be used if more than one DHCPv6 server is present in the network for the purpose of assigning addresses. DHCPv6 database errors may result if more than one server can assign iLO an IPv6 address and Rapid Commit mode is enabled. Value must be either **Y** (enabled) or **N** (disabled).

DHCPV6_SNTP_SETTINGS specifies whether DHCPv6 Stateless-assigned NTP server addresses are used or whether the user enters that information manually. Value must be either **Y** (enabled) or **N** (disabled).

DHCPV6_DNS_SERVER specifies whether the DHCPv6 Stateless-assigned DNS server adresses are used. Value must be either **Y** (enabled) or **N** (disabled).

DHCPV6_DOMAIN_NAME—Determines whether iLO uses the domain name provided by the DHCPv6 server. Value must be either **Y** (enabled) or **N** (disabled). If both DHCP_DOMAIN_NAME and DHCPV6_DOMAIN_NAME are set to `N`, iLO uses a static value for the domain name, which is set in DOMAIN_NAME.

GET_GLOBAL_SETTINGS

The GET_GLOBAL_SETTINGS command requests the respective iLO global settings. For this command to parse correctly, the command must appear within a RIB_INFO command block, and RIB_INFO MODE can be set to `read`.

For example:

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

GET_GLOBAL_SETTINGS parameters

None

GET_GLOBAL_SETTINGS runtime errors

None

GET_GLOBAL_SETTINGS return messages

A possible GET_GLOBAL_SETTINGS return message is as follows:

```
<GET_GLOBAL_SETTINGS>
<!-- A session timeout value of zero means that the timeout is set to infinite.
-->
    <SESSION_TIMEOUT VALUE="0"/>
    <F8_PROMPT_ENABLED VALUE="Y"/>
    <F8_LOGIN_REQUIRED VALUE="N"/>
    <RIBCL_STATUS VALUE="Y"/>
    <WEBSERVER_STATUS VALUE="Y"/>
    <WEBGUI_STATUS VALUE="Y"/>
```

```
    <REMOTE_CONSOLE_STATUS VALUE="Y"/>
    <VIRTUAL_MEDIA_STATUS VALUE="Y"/>
    <HTTPS_PORT VALUE="443"/>
    <HTTP_PORT VALUE="80"/>
    <REMOTE_CONSOLE_PORT VALUE="17990"/>
    <VIRTUAL_MEDIA_PORT VALUE="17988"/>
    <SNMP_ACCESS_ENABLED VALUE="N"/>
    <SNMP_PORT VALUE="161"/>
    <SNMP_TRAP_PORT VALUE="162"/>
    <SSH_PORT VALUE="22"/>
    <SSH_STATUS VALUE="Y"/>
    <SERIAL_CLI_STATUS VALUE="Enabled-Authentication Required"/>
    <SERIAL_CLI_SPEED VALUE="9600"/>
    <VSP_LOG_ENABLE VALUE="Y"/>
    <MIN_PASSWORD VALUE="8"/>
    <AUTHENTICATION_FAILURE_LOGGING VALUE="Enabled-every 3rd failure"/>
    <AUTHENTICATION_FAILURE_DELAY_SECS VALUE="10"/>
    <AUTHENTICATION_FAILURES_BEFORE_DELAY VALUE="1"/>
    <LOCK_CONFIGURATION VALUE="N"/>
    <RBSU_POST_IP VALUE="Y"/>
    <ENFORCE_AES VALUE="N"/>
    <IPMI_DCMI_OVER_LAN_ENABLED VALUE="Y"/>
    <REMOTE_SYSLOG_ENABLE VALUE="Y"/>
    <REMOTE_SYSLOG_PORT VALUE="514"/>
    <REMOTE_SYSLOG_SERVER_ADDRESS VALUE="172.1.1.1"/>
    <ALERTMAIL_ENABLE VALUE="Y"/>
    <ALERTMAIL_EMAIL_ADDRESS VALUE="user@domain.com"/>
    <ALERTMAIL_SENDER_DOMAIN VALUE="domain.com"/>
    <ALERTMAIL_SMTP_PORT VALUE="25"/>
    <ALERTMAIL_SMTP_SERVER VALUE="smtp.domain.com"/>
    <PROPAGATE_TIME_TO_HOST VALUE="Y"/>
    <IPMI_DCMI_OVER_LAN_PORT VALUE="623"/>
</GET_GLOBAL_SETTINGS>
```

MOD_GLOBAL_SETTINGS

The MOD_GLOBAL_SETTINGS command modifies global settings. For this command to parse correctly, the command must appear within a RIB_INFO command block, and RIB_INFO MODE must be set to write. The user must have the Configure iLO Settings privilege to execute this command.

The iLO device (not the server) resets automatically to make changes to port settings effective. Setting the ILO_FUNCT_ENABLED to `No` disables the iLO management functions. To re-enable iLO functionality, use the UEFI System Utilities. For more information, see the *UEFI System Utilities User Guide for HPE ProLiant Gen10 and Synergy Servers* in the HPE Information Library at **http://www.hpe.com/info/UEFI/docs**.

Use `HPQLOCFG.EXE` version 5.00 or later with the following scripts.

Example:

```
<RIBCL VERSION="2.0">
   <LOGIN USER_LOGIN="adminname" PASSWORD="password">
      <RIB_INFO MODE="write">
         <MOD_GLOBAL_SETTINGS>
            <SESSION_TIMEOUT value="0"/>
            <F8_PROMPT_ENABLED value="Yes"/>
            <!--  Firmware support information for next 5 tags:      -->
              <!--      iLO 5 - All versions.                          -->
```

```
<RIBCL_STATUS VALUE="Y"/>
<WEBSERVER_STATUS VALUE="Y"/>
<WEBGUI_STATUS VALUE="Y"/>
<REMOTE_CONSOLE_STATUS VALUE="Y"/>
<VIRTUAL_MEDIA_STATUS VALUE="Y"/>
<HTTP_PORT value="80"/>
<HTTPS_PORT value="443"/>
<REMOTE_CONSOLE_PORT value="17990"/>
<MIN_PASSWORD value="8"/>
<ILO_FUNCT_ENABLED value="Yes"/>
<VIRTUAL_MEDIA_PORT value="17988"/>
<F8_LOGIN_REQUIRED value="No"/>
<SSH_PORT value="22"/>
<SSH_STATUS value="Yes"/>
<SERIAL_CLI_STATUS value="3"/>
<SERIAL_CLI_SPEED value="1"/>
<RBSU_POST_IP value="Y"/>
<ENFORCE_AES value="N"/>
<AUTHENTICATION_FAILURE_LOGGING value="3"/>
<!--  Firmware support information for next 2 tags:      -->
  <!--      iLO 5 - All versions.                         -->
  <!--      iLO 4 - Version 2.30 and later.               -->
<!-- <AUTHENTICATION_FAILURE_DELAY_SECS value="10"/>     -->
<!-- <AUTHENTICATION_FAILURES_BEFORE_DELAY value="1"/>   -->
<!--  Firmware support information for next 3 tags:      -->
  <!--      iLO 5 - All versions.                         -->
  <!--      iLO 4 - 1.10 or later.                        -->
<SNMP_ACCESS_ENABLED value = "No"/>
<SNMP_PORT value="161"/>
<SNMP_TRAP_PORT value="162"/>
<!--  Firmware support information for next 7 tags:      -->
  <!--      iLO 5 - All versions.                         -->
  <!--      iLO 4 - 1.20 or later.                        -->
<REMOTE_SYSLOG_ENABLE VALUE="Yes"/>
<REMOTE_SYSLOG_PORT VALUE="514"/>
<REMOTE_SYSLOG_SERVER_ADDRESS VALUE="172.20.60.152"/>
<ALERTMAIL_ENABLE VALUE="yes"/>
<ALERTMAIL_EMAIL_ADDRESS VALUE="user@domain.com"/>
<ALERTMAIL_SENDER_DOMAIN VALUE="domain.com"/>
<ALERTMAIL_SMTP_SERVER VALUE="smtp.domain.com" />
<!--  Firmware support information for next tag:         -->
  <!--      iLO 5 - All versions.                         -->
  <!--      iLO 4 - 1.30 or later.                        -->
<ALERTMAIL_SMTP_PORT VALUE="25"/>
<!--  Firmware support information for next tag:         -->
  <!--      iLO 5 - All versions.                         -->
  <!--      iLO 4 - 1.20 or later.                        -->
  <!--      iLO 3 - 1.55 or later.                        -->
<IPMI_DCMI_OVER_LAN_ENABLED value="y"/>
<!--  Firmware support information for next tag:         -->
  <!--      iLO 5 - All versions.                         -->
  <!--      iLO 4 - 2.50 or later.                        -->
<IPMI_DCMI_OVER_LAN_PORT value="623"/>
<!--  Firmware support information for next tag:         -->
  <!--      iLO 5 - All versions.                         -->
  <!--      iLO 4 - 1.20 or later.                        -->
<VSP_LOG_ENABLE VALUE="yes" />
```

```
            <!--  Firmware support information for next tag:         -->
              <!--      iLO 5 - All versions.                         -->
              <!--      iLO 4 - 1.30 or later.                        -->
              <!--      iLO 3 - 1.60 or later.                        -->
            <PROPAGATE_TIME_TO_HOST VALUE="Y" />
         </MOD_GLOBAL_SETTINGS>
      </RIB_INFO>
   </LOGIN>
</RIBCL>
```

NOTE:

The parameters F8_PROMPT_ENABLED and F8_LOGIN_REQUIRED refer to previously assigned function keys for starting UEFI/RBSU in earlier generations of HPE systems. For iLO 5, the key to press for this function has changed to F9 (System Utilities). To ensure backward compatibility, the RIBCL parameter names have not been changed.

The Virtual Serial Port supports automatically enabling and disabling software flow control. By default, this behavior is disabled. You can enable this configuration option using the RIBCL only. To enable this option, execute the following script:

```
<RIBCL VERSION="2.0">
 <LOGIN USER_LOGIN="Administrator" PASSWORD="password">
  <RIB_INFO MODE="write">
   <MOD_GLOBAL_SETTINGS>
    <VSP_SOFTWARE_FLOW_CONTROL value="Yes"/>
   </MOD_GLOBAL_SETTINGS>
   <RESET_RIB />
  </RIB_INFO>
 </LOGIN>
</RIBCL>
```

MOD_GLOBAL_SETTINGS parameters

The following parameters are optional. If you do not specify a parameter, then the parameter value for the specified setting is preserved.

NOTE:

If any port changes are detected, iLO reboots to apply the changes after the script has completed successfully.

SESSION_TIMEOUT—Determines the maximum session timeout value in minutes. The accepted values are 0, 15, 30, 60, and 120. A value of 0 specifies infinite timeout.

F8_PROMPT_ENABLED—Determines if the F8 prompt for ROM-based configuration appears during POST. The possible values are `Yes` or `No`.

F8_LOGIN_REQUIRED—Determines if login credentials are required to access the RBSU for iLO. The possible values are `Yes` or `No`.

NOTE:

The parameters F8_PROMPT_ENABLED and F8_LOGIN_REQUIRED refer to previously assigned function keys for starting UEFI/RBSU in earlier generations of HPE systems. For iLO 5, the key to press for this function has changed to F9 (System Utilities). To ensure backward compatibility, the RIBCL parameter names have not been changed.

RIBCL_STATUS— Specifies whether RIBCL commands can be used to communicate with iLO. This setting is enabled by default. Valid values are `Yes` or `No`.

WEBSERVER_STATUS— Allows you to enable or disable access through the iLO web server. If you set this value to disabled, iLO will not listen for communication on the Web Server Non-SSL Port or the Web Server SSL port. The following features will not work when the web server is disabled: RIBCL, iLO RESTful API, remote console, iLO Federation, and the iLO web interface. Valid values are `Yes` or `No`.

WEBGUI_STATUS— Specifies whether the iLO web interface can be used to communicate with iLO. This setting is enabled by default. Valid values are `Yes` or `No`.

REMOTE_CONSOLE_STATUS— Allows you to enable or disable access through the iLO remote consoles. Valid values are `Yes` or `No`.

VIRTUAL_MEDIA_STATUS— Allows you to enable or disable the iLO Virtual Media feature. Valid values are `Yes` or `No`.

HTTP_PORT—Specifies the HTTP port number.

HTTPS_PORT—Specifies the HTTPS (SSL) port number.

REMOTE_CONSOLE_PORT—Specifies the port used for remote console.

MIN_PASSWORD—Specifies how many characters are required in all user passwords. The value can be from zero to 39 characters.

ILO_FUNCT_ENABLED—Determines if the Lights-Out functionality is enabled or disabled for iLO. The possible values are `Yes` or `No`. This parameter is case insensitive.

NOTE:

After setting this parameter to `No`, you can use the UEFI System Utilities to re-enable iLO functionality. For more information, see the UEFI System Utilities User Guide for HPE ProLiant Gen10 and Synergy Servers in the HPE Information Library at **http://www.hpe.com/info/UEFI/docs**.

VIRTUAL_MEDIA_PORT—Specifies the port used for virtual media.

AUTHENTICATION_FAILURE_LOGGING—Specifies logging criteria for failed authentications.

Possible values include:

- **0** —Disabled
- **1** —Enabled (records every authentication failure)
- **2** —Enabled (records every second authentication failure)
- **3** —Enabled (records every third authentication failure: this is the default value.)
- **5** —Enabled (records every fifth authentication failure)

AUTHENTICATION_FAILURE_DELAY_SECS—The time, in seconds, that logging in is unavailable when the number of AUTHENTICATION_FAILURES_BEFORE_DELAY is reached.

AUTHENTICATION_FAILURES_BEFORE_DELAY—The number of times authentication can fail before logging in is unavailable for a period of time (set in AUTHENTICAITON_FAILURE_DELAY_SECS).

SSH_STATUS—Determines if SSH is enabled. The valid values are `Yes` or `No`, which enable or disable SSH functionality.

SSH_PORT—Specifies the port used for SSH connection to iLO. The processor must be reset if this value is changed.

SERIAL_CLI_STATUS—Specifies the status of the CLI. The possible values include:

- **0** —No change
- **1** —Disabled
- **2** —Enabled (no authentication required)
- **3** —Enabled (authentication required)

SERIAL_CLI_SPEED—Specifies the CLI port speed.

NOTE:

The serial port speed set using this parameter must match the speed of the serial port set in the RBSU.

The possible values include:

- **0** —No change
- **1** —9,600 bps
- **2** —19,200 bps
- **3** —38,400 bps
- **4** —57,600 bps
- **5** —115,200 bps

RBSU_POST_IP—Determines whether the iLO IP address is displayed during server POST process. The valid values are **Y** or **1** (enabled) and **N** or **0** (disabled).

SNMP_ACCESS_ENABLED—Determines whether iLO should respond to external SNMP requests. Valid values are **Y** (enabled) or **N** (disabled). If disabled, the iLO Management Engine continues to operate and the information displayed in the iLO web interface is updated, but no alerts are generated and SNMP access is not permitted.

SNMP_PORT—Sets the port used for SNMP communications. The industry standard (default) SNMP port is 161 for SNMP access. Value must be a valid port.

SNMP_TRAP_PORT—Sets the port to which SNMP traps (alerts) are sent. The industry standard (default) SNMP trap port is 162. Value must be a valid port.

REMOTE_SYSLOG_ENABLE—Determines whether iLO should send event notification messages to a Syslog server. Valid values are **Y** (enabled) or **N** (disabled)

REMOTE_SYSLOG_PORT—Sets the port number through which the Syslog server listens.

REMOTE_SYSLOG_SERVER_ADDRESS—Sets the IP address, FQDN, IPv6 name, or short name of the server running the Syslog service.

ALERTMAIL_ENABLE—Determines whether ILO should send alert conditions detected independently of the host operating system via email. The valid values are **Y** (enabled) or **N** (disabled).

ALERTMAIL_EMAIL_ADDRESS—Sets the destination email address for iLO email alerts. Value must be a single email address no longer than 63 characters, and must be in standard email address format.

ALERTMAIL_SENDER_DOMAIN—Sets the domain name to be used in the sender (From) email address. Value is formed by using the iLO name as the hostname and the subject string as the domain name. If this value is left blank or not specified, the iLO domain name is used (which may not be accepted by all SMTP servers.) The maximum string length is 63 characters.

ALERTMAIL_SMTP_SERVER—Sets the IP address or DNS name of the SMTP server or the MSA. This server cooperates with the MTA to deliver the email. The maximum string length is 63 characters. Note that the SMTP server specified must support unauthenticated SMTP connections on port 25.

ALERTMAIL_SMTP_PORT—Sets the port that the SMTP server uses for unauthenticated SMTP connections. The default value is 25.

IPMI_DCMI_OVER_LAN_ENABLED—Determines whether you can send industry-standard IPMI and DCMI commands over the LAN using a client-side application. Server-side IPMI/DCMI applications are still functional even when this setting is disabled. The valid values are **Y** (enabled) or **N** (disabled).

IPMI_DCMI_OVER_LAN_PORT—Sets the port used for IPMI communications. The industry standard (default) IPMI port is 623. Valid value is between 1 and 65535.

VSP_LOG_ENABLE—Determines whether the virtual serial port output from the server is captured. Valid values are **Y** (enabled) or **N** (disabled). The parameter is not case sensitive.

PROPAGATE_TIME_TO_HOST—Determines whether iLO sets the system host time to match the iLO time. Valid values are **Y** (enabled) or **N** (disabled). If enabled, the propagation time set occurs whenever the iLO is cold-booted. The parameter is not case sensitive.

MOD_GLOBAL_SETTINGS runtime errors

Possible MOD_GLOBAL_SETTINGS error messages include:

- `The IPMI port value specified is invalid. Values supported are between 1 and 65535.`
- `The IPMI_DCMI_OVER_LAN_PORT value must not be left blank.`
- `iLO information is open for read-only access. Write access is required for this operation.`
- `User does not have correct privilege for action. CONFIG_ILO_PRIV required.`
- `Unrecognized keyboard model.`
- `The SNMP_PORT value specified is invalid. Values supported are between 1 and 65535.`
- `The SNMP_PORT value specified is invalid. This port number cannot be used.`
- `The SNMP_PORT value must not be left blank.`
- `The SNMP_TRAP_PORT value specified is invalid. Values supported are between 1 and 65535.`
- `The SNMP_TRAP_PORT value specified is invalid. This port number cannot be used.`
- `The SNMP_TRAP_PORT value must not be left blank.`
- `Error while reading or writing SNMP data.`
- `iLO may not be disabled on this server.`

  This message is sent if ILO_FUNCT_ENABLED is set to No and the system is a blade.

A possible MOD_GLOBAL_SETTINGS warning message includes:

- `SNMP_ACCESS is disabled, SNMP_PORT and SNMP_TRAP_PORT will not be changed.`

BROWNOUT_RECOVERY

The BROWNOUT_RECOVERY command turns the brownout recovery feature on or off. For this command to parse correctly, it must appear within a RIB_INFO command block, and must appear within a MOD_GLOBAL_SETTINGS command block. RIB_INFO MODE must be set to write. This command requires `HPQLOCFG.EXE` version 1.00 or later. The user must have the Configure iLO Settings privilege to execute this command.

For example:

```
<RIBCL VERSION="2.0">
 <LOGIN USER_LOGIN="Administrator" PASSWORD="password">
  <RIB_INFO MODE="write">
   <MOD_GLOBAL_SETTINGS>
     <BROWNOUT_RECOVERY VALUE="Yes"/>
   </MOD_GLOBAL_SETTINGS>
  </RIB_INFO>
 </LOGIN>
</RIBCL>
```

BROWNOUT_RECOVERY parameters

`<BROWNOUT_RECOVERY VALUE="No"/>`—Disables brownout recovery

`<BROWNOUT_RECOVERY VALUE="Yes"/>`—Enables brownout recovery

BROWNOUT_RECOVERY runtime errors

None

GET_SNMP_IM_SETTINGS

The GET_SNMP_IM_SETTINGS command requests the respective iLO SNMP IM settings. For this command to parse correctly, the GET_SNMP_IM_SETTINGS command must appear within a RIB_INFO command block, and RIB_INFO MODE can be set to read.

For example:

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

GET_SNMP_IM_SETTINGS parameters

None

GET_SNMP_IM_SETTINGS runtime errors

None

GET_SNMP_IM_SETTINGS return messages

A possible GET_SNMP_IM_SETTINGS return message is:

```
<GET_SNMP_IM_SETTINGS>
    <SNMP_ACCESS VALUE="Enable"/>
    <SNMP_ADDRESS_1 VALUE=""/>
    <SNMP_ADDRESS_1_ROCOMMUNITY VALUE=""/>
    <SNMP_ADDRESS_1_TRAPCOMMUNITY VERSION="" VALUE=""/>
    <SNMP_ADDRESS_2 VALUE=""/>
    <SNMP_ADDRESS_2_ROCOMMUNITY VALUE=""/>
    <SNMP_ADDRESS_2_TRAPCOMMUNITY VERSION="" VALUE=""/>
    <SNMP_ADDRESS_3 VALUE=""/>
    <SNMP_ADDRESS_3_ROCOMMUNITY VALUE=""/>
    <SNMP_ADDRESS_3_TRAPCOMMUNITY VERSION="" VALUE=""/>
    <SNMP_V3_ENGINE_ID VALUE=""/>
    <SNMP_PORT VALUE="161"/>
    <SNMP_TRAP_PORT VALUE="162"/>
    <TRAP_SOURCE_IDENTIFIER VALUE="iLO Hostname"/>
    <RIB_TRAPS VALUE="Y"/>
    <OS_TRAPS VALUE="N"/>
    <COLD_START_TRAP_BROADCAST VALUE="Y"/>
    <SNMP_V1_TRAPS VALUE="Y"/>
    <SNMP_PASSTHROUGH_STATUS VALUE="N"/>
    <WEB_AGENT_IP_ADDRESS VALUE=""/>
    <CIM_SECURITY_MASK VALUE="3"/>
```

```
    <SNMP_SYS_CONTACT VALUE=""/>
    <SNMP_SYS_LOCATION VALUE=""/>
    <AGENTLESS_MANAGEMENT_ENABLE VALUE="Y"/>
    <SNMP_SYSTEM_ROLE VALUE=""/>
    <SNMP_SYSTEM_ROLE_DETAIL VALUE=""/>
    <SNMP_USER_PROFILE INDEX="1">
        <SECURITY_NAME VALUE=""/>
        <AUTHN_PROTOCOL VALUE="0"/>
        <AUTHN_PASSPHRASE VALUE=""/>
        <PRIVACY_PROTOCOL VALUE="0"/>
        <PRIVACY_PASSPHRASE VALUE=""/>
    </SNMP_USER_PROFILE>
    <SNMP_USER_PROFILE INDEX="2">
        <SECURITY_NAME VALUE=""/>
        <AUTHN_PROTOCOL VALUE="0"/>
        <AUTHN_PASSPHRASE VALUE=""/>
        <PRIVACY_PROTOCOL VALUE="0"/>
        <PRIVACY_PASSPHRASE VALUE=""/>
    </SNMP_USER_PROFILE>
    <SNMP_USER_PROFILE INDEX="3">
        <SECURITY_NAME VALUE=""/>
        <AUTHN_PROTOCOL VALUE="0"/>
        <AUTHN_PASSPHRASE VALUE=""/>
        <PRIVACY_PROTOCOL VALUE="0"/>
        <PRIVACY_PASSPHRASE VALUE=""/>
    </SNMP_USER_PROFILE>
</GET_SNMP_IM_SETTINGS>
```

MOD_SNMP_IM_SETTINGS

MOD_SNMP_IM_SETTINGS is used to modify SNMP and Insight Manager settings. For this command to parse correctly, the command must appear within a RIB_INFO command block, and RIB_INFO MODE must be set to write. The user must have the Configure iLO Settings privilege to execute this command.

For example:

```
<RIBCL VERSION="2.0">
   <LOGIN USER_LOGIN="adminname" PASSWORD="password">
    <RIB_INFO MODE="write">
     <MOD_SNMP_IM_SETTINGS>
       <WEB_AGENT_IP_ADDRESS VALUE=""/>
       <SNMP_ADDRESS_1 VALUE="192.168.125.121"/>
       <SNMP_ADDRESS_2 VALUE="192.168.125.122"/>
       <SNMP_ADDRESS_3 VALUE="192.168.125.123"/>
       <OS_TRAPS VALUE="No"/>
       <SNMP_PASSTHROUGH_STATUS VALUE="No"/>
       <RIB_TRAPS VALUE="No"/>
       <CIM_SECURITY_MASK VALUE="3"/>
           <!--   Firmware support information for the below tags:   -->
           <!--     iLO 5 - 1.10 or later.                           -->
           <!--     iLO 4 - All versions.                            -->
           <!--     iLO 3 - None.                                    -->
           <!--     iLO 2 - None.                                    -->
       <SNMP_ADDRESS_1_ROCOMMUNITY VALUE="public1"/>
       <SNMP_ADDRESS_1_TRAPCOMMUNITY VERSION="v1" VALUE="trapcomm1"/>
       <SNMP_ADDRESS_2_ROCOMMUNITY VALUE="public2"/>
       <SNMP_ADDRESS_2_TRAPCOMMUNITY VERSION="v2c" VALUE="trapcomm2"/>
```

```
        <SNMP_ADDRESS_3_ROCOMMUNITY VALUE="public3"/>
        <SNMP_ADDRESS_3_TRAPCOMMUNITY VERSION="1" VALUE="trapcomm3"/>
        <AGENTLESS_MANAGEMENT_ENABLE value="Yes"/>
        <SNMP_SYS_CONTACT VALUE="Mr. System Administrator"/>
        <SNMP_SYS_LOCATION VALUE="HP Data Center, Hockley, TX"/>
        <SNMP_SYSTEM_ROLE VALUE="Brief Role Description [60 characters]"/>
        <SNMP_SYSTEM_ROLE_DETAIL VALUE="Extended role description [500
characters]"/>
        <COLD_START_TRAP_BROADCAST value="No"/>
            <!--   Firmware support information for next tag:         -->
            <!--     iLO 5 - 1.10 or later.                            -->
            <!--     iLO 4 - 1.10 or later.                            -->
            <!--     iLO 3 - None.                                     -->
            <!--     iLO 2 - None.                                     -->
            <!--   Acceptable values for TRAP_SOURCE_IDENTIFIER:       -->
            <!--     iLO Hostname, OS Hostname                 -->
        <TRAP_SOURCE_IDENTIFIER value = "iLO Hostname"/>
            <!--   Firmware support information for next tags:        -->
            <!--     iLO 5 - 1.10 or later.                            -->
            <!--     iLO 4 - 1.20 or later.                            -->
            <!--     iLO 3 - None.                                     -->
            <!--     iLO 2 - None.                                     -->
            <!--    Acceptable values for AUTHN_PROTOCOL: 0 or 1       -->
            <!--      0 is for MD5, 1 is for SHA                       -->
            <!--    Acceptable values for PRIVACY_PROTOCOL: 0 or 1     -->
            <!--      0 is for DES, 1 is for AES                       -->
        <SNMP_ACCESS_ENABLED value = "Y"/>
        <SNMP_PORT value="161"/>
        <SNMP_TRAP_PORT value="162"/>
        <SNMP_V1_TRAPS VALUE="Yes"/>
        <SNMP_V3_ENGINE_ID VALUE="0x12345678"/>
        <SNMP_USER_PROFILE INDEX = "1">
          <SECURITY_NAME VALUE="Security_Name_1"/>
          <AUTHN_PROTOCOL VALUE="0"/>
          <AUTHN_PASSPHRASE VALUE="Authentication Pass Phrase 1"/>
          <PRIVACY_PROTOCOL VALUE="0"/>
          <PRIVACY_PASSPHRASE VALUE="Privacy Pass Phrase 1"/>
        </SNMP_USER_PROFILE>
        <SNMP_USER_PROFILE INDEX = "2">
          <SECURITY_NAME VALUE="Security_Name_2"/>
          <AUTHN_PROTOCOL VALUE="0"/>
          <AUTHN_PASSPHRASE VALUE="Authentication Pass Phrase 2"/>
          <PRIVACY_PROTOCOL VALUE="0"/>
          <PRIVACY_PASSPHRASE VALUE="Privacy Pass Phrase 20"/>
        </SNMP_USER_PROFILE>
        <SNMP_USER_PROFILE INDEX = "3">
          <SECURITY_NAME VALUE="Security_Name_3"/>
          <AUTHN_PROTOCOL VALUE="0"/>
          <AUTHN_PASSPHRASE VALUE="Authentication Pass Phrase 3"/>
          <PRIVACY_PROTOCOL VALUE="0"/>
          <PRIVACY_PASSPHRASE VALUE="Privacy Pass Phrase 3"/>
        </SNMP_USER_PROFILE>
    </MOD_SNMP_IM_SETTINGS>
  </RIB_INFO>
  </LOGIN>
</RIBCL>
```

MOD_SNMP_IM_SETTINGS parameters

All of the following parameters are optional. If a parameter is not specified, then the parameter value for the specified setting is preserved.

SNMP_ADDRESS_1, SNMP_ADDRESS_2, and SNMP_ADDRESS_3 are the addresses that receive traps sent to the user. Each of these parameters can be any valid IP address.

SNMP_ADDRESS_1_ROCOMMUNITY, SNMP_ADDRESS_2_ROCOMMUNITY, and SNMP_ADDRESS_3_ROCOMMUNITY configure the SNMP read-only community string. Values can include a community string, optionally followed by an IP address or FQDN.

SNMP_ADDRESS_1_TRAPCOMMUNITY, SNMP_ADDRESS_2_TRAPCOMMUNITY, and SNMP_ADDRESS_3_TRAPCOMMUNITY configures the SNMP trap community string.

RIB_TRAPS determines if the user is allowed to receive SNMP traps that are generated by the RIB. The possible values are `Yes` and `No`. By default, the value is set to `No`.

SNMP_SYS_CONTACT specifies the system administrator or server owner. The string can be a maximum of 49 characters long, and can include information such as a name, email address, or phone number.

SNMP_SYS_LOCATION specifies the physical location of the server. The string can be a maximum of 49 characters long.

SNMP_SYSTEM_ROLE describes the server role or function, and can be a maximum of 64 characters long.

SNMP_SYSTEM_ROLE_DETAIL describes specific tasks the server might perform, and can be a maximum of 512 characters long.

CIM_SECURITY_MASK accepts the integers 0–4. The possible values are:

- **0**—No change
- **1**—None (no data is returned)
- **2, 3, 4**—Enabled (medium — 3)

COLD_START_TRAP_BROADCAST specifies whether to broadcast to the subnet broadcast IP address if there are no trap destinations configured for SNMP_ADDRESS_1, SNMP_ADDRESS_2, or SNMP_ADDRESS_3. Valid values are **Yes** or **No**.

TRAP_SOURCE_IDENTIFIER allows the substitution of the OS Hostname for the sysName when SNMP traps are generated from iLO. Value must be a valid iLO hostname or OS hostname.

SNMP_ACCESS_ENABLED enables SNMP access. Valid values are **`Y`** (enabled) and **`N`** (disabled).

SNMP_PORT sets the port on which SNMP should communicate.

SNMP_TRAP_PORT sets the port on which SNMP traps are sent.

SNMP_V1_TRAPS sets whether SNMPv1 traps are sent. Valid values are **`Y`** and **`N`**.

SNMP_V3_ENGINE_ID sets the unique identifier of an SNMP engine belonging to a SNMP agent entity. Value must be hexadecimal string, between 6 and 32 characters long (for example, 0x01020304abcdef). The value must be an even length, excluding the preceding “0x.”

SNMP_USER_PROFILE INDEX sets the number **`(1, 2, or 3)`** for one of three available user profiles for SNMPv3 authentication, and includes the following:

- SECURITY_NAME sets the user profile name. Value must be 1 to 32 alphanumeric characters long, and must have no spaces.
- AUTHN_PROTOCOL sets the message digest algorithm to use for encoding the authorization passphrase. The message digest is calculated over an appropriate portion of an SNMP message and included as part of the message sent to the recipient. Valid values are **0** (for MD5) or **1** (for SHA).
- AUTHN_PASSPHRASE sets the passphrase to be used for sign operations. Value must be 8 to 49 characters long.

- PRIVACY_PROTOCOL sets the encryption algorithm to be used for encoding the privacy passphrase. A portion of an SNMP message in encrypted before transmission. Valid values are **0** (for DES) or **1** (for AES).
- PRIVACY_PASSPHRASE sets the passphrase used for encrypt operations. Value must be 8 to 49 characters long. If this value is omitted, the value for AUTHN_PASSPHRASE is used.

NOTE:

The following tags are deprecated in iLO 5:

- OS_TRAPS,
- AGENTLESS_MANAGEMENT_ENABLE,
- WEB_AGENT_IP_ADDRESS and
- SNMP_PASSTHROUGH_STATUS

MOD_SNMP_IM_SETTINGS runtime errors

Possible MOD_SNMP_IM_SETTINGS error messages include:

- `RIB information is open for read-only access. Write access is required for this operation.`
- `User does not have correct privilege for action. CONFIG_ILO_PRIV required.`
- `The TRAP_SOURCE_IDENTIFIER value must not be left blank.`
- `TRAP_SOURCE_IDENTIFIER VALUE is too long.`
- `The value specified is invalid.`
- `SNMP V1 Traps can not be disabled in SNMP Pass-thru mode.`
- `SNMP_V3_ENGINE VALUE is too long.`
- `SECURITY_NAME VALUE is too long.`
- `AUTHN_PROTOCOL valid values are 0:MD5 or 1:SHA.`
- `AUTHN_PROTOCOL can not be left blank.`
- `AUTHN_PASSPHRASE VALUE is too long.`
- `PRIVACY_PROTOCOL valid values are 0:DES or 1:AES.`
- `PRIVACY_PROTOCOL can not be left blank.`
- `PRIVACY_PASSPHRASE VALUE is too long.`
- `PRIVACY_PASSPHRASE VALUE needs a minimum of 8 characters.`
- `INDEX can not be left blank.`

SEND_SNMP_TEST_TRAP

Use the SEND_SNMP_TEST_TRAP command to send a test SNMP trap to the configured alert destinations. For this command to parse correctly, 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">
         <SEND_SNMP_TEST_TRAP/>
      </RIB_INFO>
   </LOGIN>
</RIBCL>
```

SEND_SNMP_TEST_TRAP runtime errors

- `iLO information is open for read-only access. Write access is required for this operation.`
- `User does NOT have correct privilege for action. CONFIG_ILO_PRIV required.`
- `The iLO is not configured for this command.`
- `Internal error.`
- `Error while reading or writing SNMP data.`

SEND_SNMP_TEST_TRAP return messages

No information is returned other than a `no error` message.

MOD_ENCRYPT_SETTINGS

The MOD_ENCRYPT_SETTINGS command is used to set the communication settings for the Enterprise Secure Key Manager (ESKM). For this command to parse correctly, the command must appear within a RIB_INFO command block, and RIB_INFO MODE must be set to write. The user must have the Configure iLO Settings privilege to execute this command. For example:

```
<RIBCL VERSION="2.0">
   <LOGIN USER_LOGIN="adminname" PASSWORD="password">
      <RIB_INFO MODE="write">
         <MOD_ENCRYPT_SETTINGS>
            <ESKM_USER_LOGIN VALUE="username"/>
            <ESKM_PASSWORD VALUE="password"/>
            <ILO_GROUP_NAME VALUE="groupname"/>
            <ESKM_CERT_NAME VALUE=”certname”/>
            <ENABLE_REDUNDANCY VALUE = "Y"/>
            <ESKM_PRIMARY_SERVER_ADDRESS VALUE="0.0.0.0"/>
            <ESKM_PRIMARY_SERVER_PORT VALUE="0"/>
            <!-- Secondary Server Address & Port values are optional -->
            <ESKM_SECONDARY_SERVER_ADDRESS VALUE=""/>
            <ESKM_SECONDARY_SERVER_PORT VALUE=""/>
         </MOD_ENCRYPT_SETTINGS>
      </RIB_INFO>
   </LOGIN>
</RIBCL>
```

IMPORTANT:

Incorrect or mismatched port settings can disable the ability to connect to the iLO. Verify the values before executing this command.

MOD_ENCRYPT_SETTINGS parameters

ESKM_USER_LOGIN is the Local User name with administrator permissions that is configured on the ESKM. This is the ESKM **deployment user**. This parameter is case sensitive and must not be blank.

ESKM_PASSWORD is the password for the Local User name with administrator permissions that is configured on the ESKM. This parameter is case sensitive and can be a combination of any printable characters.

ESKM_CERT_NAME is the name of the local certificate authority certificate in ESKM. It is typically named *Local CA*. iLO will retrieve the certificate and use it to authenticate the ESKM server(s) for all transactions going forward.

ILO_GROUP_NAME is the Local Group created on the ESKM for use with iLO user accounts and the keys iLO imports into the ESKM. When keys are imported, they are automatically accessible to all devices assigned to the same group.

ENABLE_REDUNDANCY determines whether redundancy is enabled. Valid values are **Y** (enabled) or **N** (disabled).

ESKM_PRIMARY_SERVER_ADDRESS is the IP address of the main ESKM server. The value must be a valid IP address. If this parameter is empty or left blank then it will clear an already set ESKM primary server address.

ESKM_PRIMARY_SERVER_PORT is the port on which to communicate with the main ESKM server. The value must be a valid port number from 1 to 65535. If this parameter is empty or left blank then it will clear an already set ESKM primary server port.

ESKM_SECONDARY_SERVER_ADDRESS is the IP address of a secondary (backup) ESKM server. The value must be valid IP address, however if this parameter is not used it can be left blank.

ESKM_SECONDARY_SERVER_PORT is the port on which to communicate with the secondary ESKM server. The value must be a valid port number from 1 to 65535, however if this parameter is not used it can be left blank.

MOD_ENCRYPT_SETTINGS runtime errors

Possible MOD_ENCRYPT_SETTINGS error messages include:

- `The ESKM_USER_LOGIN VALUE is too long.`
- `The ESKM_USER_LOGIN VALUE must not be left blank.`
- `The ESKM_PASSWORD VALUE is too long.`
- `The ESKM_PASSWORD VALUE must not be left blank.`
- `The ILO_GROUP_NAME VALUE is too long.`
- `The ILO_GROUP_NAME VALUE must not be left blank.`
- `The ESKM_PRIMARY_SERVER_ADDRESS VALUE is too long.`
- `The ESKM_PRIMARY_SERVER_PORT VALUE specified is invalid. Values supported are between 1 and 65535.`
- `The ESKM_SECONDARY_SERVER_ADDRESS VALUE is too long.`
- `The ESKM_SECONDARY_SERVER_PORT VALUE specified is invalid. Values supported are between 1 and 65535.`

GET_ENCRYPT_SETTINGS

Use the GET_ENCRYPT_SETTINGS command to display the current encryption settings for a Lights-out device. For this command to parse correctly, 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_ENCRYPT_SETTINGS/>
      </RIB_INFO>
   </LOGIN>
</RIBCL>
```

The following operations are performed to verify the configuration settings before displaying the primary and secondary ESKM server details:

- iLO connects to the primary ESKM server (and secondary ESKM server, if configured) over SSL.
- iLO tries to authenticate to the ESKM by using the configured credentials and account.
- iLO confirms that the version of the ESKM software is compatible with iLO.

If any of the operations fail, the primary and secondary ESKM server details are displayed as NULL even though they are configured in iLO.

GET_ENCRYPT_SETTINGS parameters

None

GET_ENCRYPT_SETTINGS runtime errors

None

GET_ENCRYPT_SETTINGS return messages

Possible GET_ENCRYPT_SETTINGS return messages includes:

```
<RIBCL VERSION="2.23">
<RESPONSE
    STATUS="0x0000"
    MESSAGE='No error'
     />
<GET_ENCRYPT_SETTINGS>
    <ENABLE_REDUNDANCY VALUE="N"/>
    <ESKM_CERT_NAME VALUE=""/>
    <ESKM_PRIMARY_SERVER_ADDRESS VALUE=""/>
    <ESKM_PRIMARY_SERVER_PORT VALUE="0"/>
    <ESKM_SECONDARY_SERVER_ADDRESS VALUE=""/>
    <ESKM_SECONDARY_SERVER_PORT VALUE="0"/>
    <ESKM_ACC_NAME VALUE="ilo-fc15b4975e90"/>
    <ESKM_CERT_ISSUER VALUE=""/>
    <ESKM_CERT_SUB VALUE=""/>
    <ESKM_GRP_NAME VALUE=""/>
</GET_ENCRYPT_SETTINGS>
</RIBCL>
```

UPDATE_RIB_FIRMWARE and UPDATE_FIRMWARE

The UPDATE_FIRMWARE or UPDATE_RIB_FIRMWARE command copies a specified file to iLO, starts the upgrade process, and reboots the board after the image has been successfully flashed.

Note that the two commands are used to update different components:

- UPDATE_RIB_FIRMWARE flashes only the iLO firmware.
- UPDATE_FIRMWARE flashes other components, such as the CPLD, Power PIC, ROM, and more.

WARNING:

Do not use both the UPDATE_RIB_FIRMWARE and the UPDATE_FIRMWARE commands in the same script.

For this command to parse correctly, the command must appear within a RIB_INFO command block, and RIB_INFO MODE must be set to write. The user must have the Configure iLO Settings privilege to execute this command.

Example 1:

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

```
        <!--    Firmware support information for next tag:            -->
        <!--    iLO 5 - All versions. For servers with TPM enabled.    -->
        <!--    iLO 4 - All versions. For servers with TPM enabled.    -->
        <!--    iLO 3 - All versions. For servers with TPM enabled.    -->
        <!--    iLO 2 - 1.70 and later. For servers with TPM enabled.  --
>
        <TPM_ENABLED VALUE="Yes"/>
        <UPDATE_RIB_FIRMWARE IMAGE_LOCATION="<path>\<firmware_filename>"/>
      </RIB_INFO>
   </LOGIN>
</RIBCL>
```

When you send an XML script to update firmware, it verifies the Trusted Platform Module (TPM) configuration status of option ROM measuring. If it is enabled, the iLO firmware returns the same warning message as stated in the web interface. You can add the TPM_ENABLE command to the script file. Hewlett Packard Enterprise recommends using XML script syntax to execute firmware updates. To enable the firmware update to continue, you must set TPM_ENABLE to a value of `Y` or `Yes`.

Example 2:

```
<RIBCL VERSION="2.0">
 <LOGIN USER_LOGIN="Administrator" PASSWORD="password">
  <RIB_INFO MODE="write">
   <TPM_ENABLE ="Yes"/>
   <UPDATE_FIRMWARE IMAGE_LOCATION="<path>\<firmware filename>"/>
  </RIB_INFO>
 </LOGIN>
</RIBCL>
```

UPDATE_FIRMWARE parameters

IMAGE_LOCATION is the full path file name of the firmware upgrade file.

TPM_ENABLE enables the firmware to continue updating when the option ROM measuring is enabled. To enable the firmware update to continue, you must set TPM_ENABLE to a value of `Y` or `Yes`.

UPDATE_FIRMWARE runtime errors

Possible UPDATE_FIRMWARE error messages include:

- `iLO information is open for read-only access. Write access is required for this operation.`
- `Unable to open the firmware image update file.`
- `Unable to read the firmware image update file.`
- `The firmware upgrade file size is too big.`
- `The firmware image file is not valid.`
- `A valid firmware image has not been loaded.`
- `The flash process could not be started.`
- `IMAGE_LOCATION must not be blank.`
- `User does not have correct privilege for action. CONFIG_ILO_PRIV required.`

NOTE:

If an attempt to use this command fails with errors that involve write access operations, syntax, logins, or configuration privileges, wait for at least 60 seconds before trying again.

UPDATE_LANG_PACK

The UPDATE_LANG_PACK command updates the language of an iLO device with a specified language pack file. Replace USER_LOGIN and PASSWORD with values appropriate for your environment. For this command to parse correctly, the command must appear within a RIB_INFO command block, and RIB_INFO MODE must be set to write. The user must have the Configure iLO Settings privilege to execute this command.

NOTE:

iLO 5 requires version 2.20 or later of the iLO language pack, and you can install multiple language packs. When version 2.20 or later of a language pack is installed, then installing a new language pack of the same language (version 2.20 or later) replaces the currently installed language pack. Language packs are not supported on servers that do not have NAND flash memory. To continue using language packs on servers without NAND, use iLO 4 2.10 or earlier. When you upgrade from an earlier version of iLO 4 to version iLO 5, previously installed language packs are deleted.

For example:

```
<RIBCL VERSION="2.0">
  <LOGIN USER_LOGIN="adminname" PASSWORD="password">
    <RIB_INFO MODE="write">
       <!-- Firmware support information for next tag:             -->
       <!--   iLO 5 - All versions. For servers with TPM enabled.  -->
       <!--   iLO 4 - All versions. For servers with TPM enabled.  -->
       <TPM_ENABLED VALUE="Yes"/>
       <UPDATE_LANG_PACK IMAGE_LOCATION="<path>\<filename>"/>
    </RIB_INFO>
  </LOGIN>
</RIBCL>
```

UPDATE_LANG_PACK parameters

IMAGE_LOCATION is the full path and file name of the language pack upgrade file.

TPM_ENABLED enables the language pack to continue updating when the option ROM measuring is enabled. To enable the language update to continue, you must set TPM_ENABLE to a value of **`Y`** or **`Yes`**.

UPDATE_LANG_PACK runtime errors

Possible UPDATE_LANG_PACK error messages include:

- `IMAGE_LOCATION cannot be longer than 255 characters.`
- `The firmware image file is not valid.`
- `Open flash part failed.`
- `Flash failed.`
- `Image is not available or not valid.`

NOTE:

If an attempt to use this command fails with errors that involve write access operations, syntax, logins, or configuration privileges, wait for at least 60 seconds before trying again.

GET_FW_VERSION

The GET_FW_VERSION command requests the respective iLO firmware information. For this command to parse correctly, the command must appear within a RIB_INFO command block, and RIB_INFO MODE must be set to read. The user must have the Configure iLO Settings privilege to execute this command.

For example:

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

GET_FW_VERSION parameters

None

GET_FW_VERSION runtime errors

None

GET_FW_VERSION return messages

The following information is returned within the response:

```
<GET_FW_VERSION
    FIRMWARE_VERSION = firmware version
    FIRMWARE_DATE = firmware date
    MANAGEMENT_PROCESSOR = management processor type
    LICENSE_TYPE = iLO license type
/>
```

LICENSE

The LICENSE command activates or deactivates iLO advanced features. For this command to parse correctly, the command must appear within a RIB_INFO command block, and RIB_INFO MODE must be set to write. The user must have the Configure iLO Settings privilege to execute this command.

NOTE:

For more information see the **HPE iLO Licensing Guide** at:

http://www.hpe.com/support/iLOLicenseGuide-en

You do not have to use a licensing key on a ProLiant BL Class server. Advanced features are automatically activated.

For example:

```
<RIBCL VERSION="2.0">
 <LOGIN USER_LOGIN="adminname" PASSWORD="password">
  <RIB_INFO MODE="write">
   <LICENSE>
    <ACTIVATE KEY="11111222223333344444555555"/>
   </LICENSE>
  </RIB_INFO>
 </LOGIN>
</RIBCL>
```

LICENSE parameters

ACTIVATE KEY followed by a valid value signals the activation of the iLO advanced pack licensing.

KEY specifies the license key value. The key must be entered as one continuous string. Commas, periods, or other characters must not separate the key value. The key only accepts 25 characters; other characters entered to separate key values are interpreted as a part of the key, and results in the wrong key being entered.

LICENSE runtime errors

Possible LICENSE error messages include:

- `License key error.`
- `License is already active.`
- `User does not have correct privilege for action. CONFIG_ILO_PRIV required.`

INSERT_VIRTUAL_MEDIA

This command notifies iLO of the location of a diskette image. The INSERT_VIRTUAL_MEDIA command must display within a RIB_INFO element, and RIB_INFO must be in write mode. You must purchase the iLO Advanced license to enable this feature.

For example:

```
<RIBCL VERSION="2.0">
  <LOGIN USER_LOGIN="adminname" PASSWORD="password">
   <RIB_INFO MODE="write">
    <!--         Firmware support information for next tag:              -->
    <!--             iLO 5 - All versions. For servers with TPM enabled.-->
    <!--             iLO 4 - All versions.                              -->
    <!--             iLO 3 - All versions.                              -->
    <!--             iLO 2 - All versions.                              -->
    <INSERT_VIRTUAL_MEDIA DEVICE="FLOPPY" IMAGE_URL="http://<URL>" />
  </RIB_INFO>
 </LOGIN>
</RIBCL>
```

INSERT_VIRTUAL_MEDIA parameters

DEVICE specifies the Virtual Media device target. The possible values are FLOPPY or CDROM. If the DEVICE is not specified, FLOPPY is assumed. This value is case-sensitive.

IMAGE_URL specifies the URL for the diskette image. The URL format is as follows:

`protocol://username:password@hostname:port/filename,cgi-helper`

- `protocol` is mandatory and must be either `http` or `https`.
- `username:password` is optional.
- `hostname` is mandatory.
- `port` is optional.
- `filename` is mandatory.
- `cgi-helper` is optional. This enables the virtual floppy to be writable.

In addition, the filename field can contain tokens that expand to host-specific strings:

- `%m` expands to the iLO MAC address.
- `%i` expands to the iLO IP address in dotted-quad form.
- `%h` expands to the iLO hostname.

For example:

```
http://john:abc123@imgserver.company.com/disk/win98dos.bin,/cgi-bin/hpvfhelp.pl
```

```
http://imgserver.company.com/disk/boot%m.bin
```

This command specifies only the location of the image to be used. For the image to be connected to the server, the appropriate BOOT_OPTION must be specified using the SET_VM_STATUS command. If BOOT_OPTION is set to BOOT_ONCE and the server is rebooted, any subsequent server reboots eject the image.

INSERT_VIRTUAL_MEDIA runtime errors

The possible INSERT_VIRTUAL_MEDIA error messages include:

- `iLO information is open for read-only access. Write access is required for this operation.`
- `IMAGE_URL must not be left blank.`
- `User does not have correct privilege for action. VIRTUAL_MEDIA_PRIV required.`
- `Unable to parse Virtual Media URL`
- `An invalid Virtual Media option has been given.`
- `Virtual Media already connected through a script. You must eject or disconnect before inserting new media.`

EJECT_VIRTUAL_MEDIA

EJECT_VIRTUAL_MEDIA ejects the Virtual Media image if one is inserted. The EJECT_VIRTUAL_MEDIA command must display within a RIB_INFO element and RIB_INFO must be in write mode. You must purchase the iLO Advanced license to enable this feature.

For example:

```
<RIBCL VERSION="2.0">
   <LOGIN USER_LOGIN="adminname" PASSWORD="password">
      <RIB_INFO MODE="write">
         <!--        Firmware support information for next tag:       -->
         <!--            iLO 4 - All versions.                        -->
         <!--            iLO 3 - All versions.                        -->
         <!--            iLO 2 - All versions.                        -->
         <EJECT_VIRTUAL_MEDIA DEVICE="FLOPPY"/>
      </RIB_INFO>
   </LOGIN>
</RIBCL>
```

EJECT_VIRTUAL_MEDIA parameters

DEVICE specifies the Virtual Media device target. The possible values are FLOPPY or CDROM. If the DEVICE is not specified, FLOPPY is assumed. This value is case-sensitive.

EJECT_VIRTUAL_MEDIA runtime errors

Possible EJECT_VIRTUAL_MEDIA errors are:

- `iLO information is open for read-only access. Write access is required for this operation.`
- `User does not have correct privilege for action. VIRTUAL_MEDIA_PRIV required.`
- `No image present in the Virtual Media drive.`
- `An invalid Virtual Media option has been given.`

GET_VM_STATUS

GET_VM_STATUS returns the Virtual Media drive status. This command must display within a RIB_INFO element.

For example:

```
<RIBCL VERSION="2.0">
   <LOGIN USER_LOGIN="adminname" PASSWORD="password">
      <RIB_INFO MODE="read">
         <!--        Firmware support information for next tag:           -->
         <!--            iLO 5 - All versions. For servers with TPM enabled.  --
>
         <!--            iLO 4 - All versions.                            -->
         <!--            iLO 3 - All versions.                            -->
         <!--            iLO 2 - All versions.                            --
>
         <GET_VM_STATUS DEVICE="FLOPPY"/>
      </RIB_INFO>
   </LOGIN>
</RIBCL>
```

GET_VM_STATUS parameters

DEVICE specifies the Virtual Media device target. The possible values are FLOPPY or CDROM. If the DEVICE is not specified, FLOPPY is assumed. These values are not case-sensitive.

GET_VM_STATUS runtime errors

The possible GET_VM_STATUS error is:

```
An invalid Virtual Media option has been given.
```

GET_VM_STATUS return messages

The return message displays the current state of the Virtual Media. The VM_APPLET parameter shows if a virtual media device is already connected through the Integrated Remote Console, Java Integrated Remote Console, or the iLO graphical interface. If the VM_APPLET = CONNECTED, then the (non-URL based) Virtual Media is already in use and cannot be connected through scriptable Virtual Media or Virtual Media XML commands.

NOTE:

Only URL-based Virtual Media can be connected through scriptable Virtual Media or Virtual Media XML. However, URL-based Virtual Media will display as DISCONNECTED through VM_APPLET even if an URL-based VM is configured via the iLO, Integrated Remote Console, Java Integrated Remote Console, CLI, or RIBCL.

The DEVICE parameter tells which device this return message is for. The BOOT_OPTION shows the current setting; BOOT_ALWAYS means that the server always use the Virtual Media device for booting, BOOT_ONCE means that the server boots to the Virtual Device once and then disconnects the Virtual Media on the subsequent server reboot, and NO_BOOT means that the Virtual Media does not connect during a server reboot. The WRITE_PROTECT_FLAG parameter shows if the Virtual Media image can be written to. The IMAGE_INSERTED parameter tells if the Virtual Media device is connected via the scriptable Virtual Media or the Virtual Media XML command.

A possible GET_VM_STATUS return message is:

```
VM_APPLET = CONNECTED | DISCONNECTED
DEVICE = FLOPPY | CDROM
BOOT_OPTION = BOOT_ALWAYS | BOOT_ONCE | NO_BOOT
WRITE_PROTECT_FLAG = YES | NO
IMAGE_INSERTED = YES | NO
IMAGE_URL="<URL>"
```

NOTE:

If the BOOT_ONCE boot option is selected, all scriptable virtual media parameters are reset to default settings after the server boots. Specifically BOOT_OPTION = NO_BOOT, WRITE_PROTECT = NO, and IMAGE_INSERTED = NO.

SET_VM_STATUS

The SET_VM_STATUS command sets the Virtual Media drive status. This command must appear within a RIB_INFO element, and RIB_INFO must be set to write. All the parameters in the command are optional. You must purchase the iLO Advanced license to enable this feature.

For example:

```
<RIBCL VERSION="2.0">
   <LOGIN USER_LOGIN="adminname" PASSWORD="password">
      <RIB_INFO MODE="write">
         <SET_VM_STATUS DEVICE="FLOPPY">
            <VM_BOOT_OPTION VALUE="BOOT_ONCE"/>
            <VM_WRITE_PROTECT VALUE="YES" />
         </SET_VM_STATUS>
      </RIB_INFO>
   </LOGIN>
</RIBCL>
```

SET_VM_STATUS parameters

DEVICE specifies the Virtual Media device target. The possible values are FLOPPY or CDROM. If the DEVICE is not specified, FLOPPY is assumed. The value is not case-sensitive.

VM_BOOT_OPTION specifies the connection and boot option parameter for the Virtual Media.

CONNECT and DISCONNECT are two possible values for VM_BOOT_OPTION. The CONNECT and DISCONNECT settings can be used to control the Virtual Media devices in the same way that they are controlled in the Virtual Media applet. Whenever the CONNECT or DISCONNECT parameters are set, the Virtual Media device immediately connects or disconnects, respectively, to the server. Before setting any additional boot options as described below, connect the image by setting the VM_BOOT_OPTION value to CONNECT.

Other possible values for VM_BOOT_OPTION include BOOT_ALWAYS, BOOT_ONCE, or NO_BOOT. These values control how the Virtual Media device behaves during the boot phase of the server. Setting these values does not affect the current state of the Virtual Media device. These settings only take affect if the Virtual Media device is connected at server boot.

- CONNECT sets the VM_BOOT_OPTION to CONNECT. The Virtual Media device is immediately connected to the server. Setting the VM_BOOT_OPTION to CONNECT is equivalent to clicking the device **Connect** button on the Virtual Media Applet. After setting the VM_BOOT_OPTION to `CONNECT`, the VM_GET_STATUS command shows the VM_BOOT_OPTION as BOOT_ALWAYS. This is by design and

shows that the Virtual Media device is connected like the Virtual Media device in the applet which is always connected during all server boots.

- DISCONNECT sets the VM_BOOT_OPTION to DISCONNECT. The Virtual Media device is immediately disconnected from the server. Setting the VM_BOOT_OPTION to DISCONNECT is equivalent to clicking the device **Disconnect** button on the Virtual Media Applet. Additionally, setting the VM_BOOT_OPTION to `DISCONNECT` is equivalent to issuing the EJECT_VIRTUAL_MEDIA command. When the VM_BOOT_OPTION is set to `DISCONNECT`, the Virtual Media device does not connect and the following Virtual Media device settings are reset to their default values:
  - `BOOT_OPTION = NO_BOOT`
  - `IMAGE_INSERTED = NO`
- BOOT_ALWAYS sets the VM_BOOT_OPTION to BOOT_ALWAYS. The Virtual Media device is always connected during server boot. The Virtual Media device is not connected immediately when the VM_BOOT_OPTION is set. The Virtual Media device is connected on the next server boot after setting of the VM_BOOT_OPTION.
- BOOT_ONCE sets the VM_BOOT_OPTION to BOOT_ONCE. The Virtual Media device is connected during the next server boot, but on any subsequent server boots, it does not connect. The BOOT_ONCE option is intended to boot one time to the Virtual Media device, use that device while the server is running, and then not have the Virtual Media device available on subsequent server reboots. The Virtual Media device is not connected immediately when the VM_BOOT_OPTION is set. The Virtual Media device is connected on the next server boot following the setting of the VM_BOOT_OPTION. After the server has booted once with the Virtual Media device connected, on the subsequent server reboot, the Virtual Media device does not connect and the following Virtual Media device settings reset to their default values:
  - `BOOT_OPTION = NO_BOOT`
  - `IMAGE_INSERTED = NO`
- NO_BOOT sets the VM_BOOT_OPTION to NO_BOOT. The Virtual Media device is not connected during the next server boot. The Virtual Media device is not disconnected immediately when the VM_BOOT_OPTION is set. The Virtual Media device is disconnected on the next server boot following the setting of the VM_BOOT_OPTION. After the server has booted, the Virtual Media device does not connect and the following Virtual Media device settings reset to their default values:
  - `BOOT_OPTION = NO_BOOT`
  - `IMAGE_INSERTED = NO`

VM_WRITE_PROTECT sets the write protect flag value for the Virtual Floppy. This value is not significant for the Virtual Media CD-ROM. The possible values are `Y` or `N`.

SET_VM_STATUS runtime errors

The possible runtime errors are:

- `iLO information is open for read-only access. Write access is required for this operation.`
- `User does not have correct privilege for action. VIRTUAL_MEDIA_PRIV required.`
- `An invalid Virtual Media option has been given.`

CERTIFICATE_SIGNING_REQUEST

This command requests a certificate from iLO. When this command is received, iLO generates a certificate signing request. The request is returned to the user enclosed in a CERTIFICATE_SIGNING_REQUEST tag. This command requires `HPQLOCFG.EXE` version 1.00 or later.

You can choose the default, or custom script.

The default response is:

```
<RIBCL VERSION="2.0">
```

```
 <LOGIN USER_LOGIN = "adminname" PASSWORD = "password">
  <RIB_INFO MODE = "write">
   <CERTIFICATE_SIGNING_REQUEST/>
  </RIB_INFO>
 </LOGIN>
</RIBCL>
```

The custom response is:

```
<RIBCL VERSION="2.0">
  <LOGIN USER_LOGIN="adminname" PASSWORD="password">
    <RIB_INFO MODE="write">
<!-- Default                                                    -->
<!--    <CERTIFICATE_SIGNING_REQUEST/>                          -->
<!-- Custom CSR                                                 -->
     <CERTIFICATE_SIGNING_REQUEST>
         <CSR_STATE VALUE =""/>
         <CSR_COUNTRY VALUE ="US"/>
         <CSR_LOCALITY VALUE ="Houston"/>
         <CSR_ORGANIZATION VALUE ="Hewlett-Packard Company"/>
         <CSR_ORGANIZATIONAL_UNIT VALUE =""/>
         <CSR_COMMON_NAME VALUE ="test.com"/>
     </CERTIFICATE_SIGNING_REQUEST>
    </RIB_INFO>
  </LOGIN>
</RIBCL>
```

CERTIFICATE_SIGNING_REQUEST parameters (for custom CSR)

CSR_STATE - Specifies state in which the company or organization that owns the iLO subsystem is located.

CSR_COUNTRY - Specifies the two-character country code for the country in which the company or organization that owns the iLO subsystem is located.

CSR_LOCALITY - Specifies the city or locality in which the company or organization that owns the iLO subsystem is located.

CSR_ORGANIZATION - Specifies the name of the company or organization that owns the iLO subsystem.

CSR_ORGANIZATIONAL_UNIT - The unit within the company or organization that owns the iLO subsystem

CSR_COMMON_NAME - The FQDN of the iLO subsystem.

CERTIFICATE_SIGNING_REQUEST errors

Possible error messages for CERTIFICATE_SIGNING_REQUEST for custom CSR scripts include:

- `CSR_STATE is too long.`
- `Need a value for the CSR_STATE tag.`
- `CSR_COUNTRY is too long.`
- `Need a value for the CSR_COUNTRY tag.`
- `CSR_LOCALITY is too long.`
- `Need a value for the CSR_LOCALITY tag.`
- `CSR_ORGANIZATION is too long.`
- `Need a value for the CSR_ORGANIZATION tag.`
- `CSR_ORGANIZATIONAL_UNIT is too long.`
- `CSR_COMMON_NAME is too long.`

- `Need a value for the CSR_COMMON_NAME tag.`
- `User does NOT have correct privilege for action. CONFIG_ILO_PRIV required.`

When you first request a new CSR, or if the system is already working on another CSR, you will see this message:

```
The iLO subsystem is currently generating a Certificate Signing Request(CSR),
run script after 10 minutes or more to receive the CSR.
```

IMPORT_CERTIFICATE

The IMPORT_CERTIFICATE command imports a signed certificate into iLO. The signed certificate must be a signed version of a certificate signing request. This command requires `HPQLOCFG.EXE` version 1.00 or later.

For example:

```
<RIBCL VERSION="2.0">
 <LOGIN USER_LOGIN = "adminname" PASSWORD = "password">
  <RIB_INFO MODE = "write">
   <IMPORT_CERTIFICATE>
    <!--  Replace the following text and comments with the certificate    -->
    <!--  INCLUDE the full header and full footer of the certificate      -->
    <!--  For example:    -->
      -----BEGIN CERTIFICATE-----
    <!--  Ceritificate Data         -->
      -----END CERTIFICATE-----
   </IMPORT_CERTIFICATE>
   <!--  The iLO will be reset after the certificate has been imported.   -->
   <RESET_RIB/>
  </RIB_INFO>
 </LOGIN>
</RIBCL>
```

IMPORT_CERTIFICATE parameters

None

IMPORT_CERTIFICATE errors

The possible IMPORT_CERTIFICATE error messages include:

- `iLO information is open for read-only access. Write access is required for this operation.`
- `Error reading certificate: The imported certificate is invalid.`

AHS_CLEAR_DATA

The AHS_CLEAR_DATA command clears the Active Health System information from the AHS log. For this command to parse correctly, the command must appear within a RIB_INFO command block, and RIB_INFO MODE must be set to write. Use HPQLOCFG version 1.00 or later when executing this command. The user must have the Configure iLO Settings privilege to execute this command.

For example:

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

```
      <!-- Command to clear AHS data.            -->
      <AHS_CLEAR_DATA/>
    </RIB_INFO>
  </LOGIN>
</RIBCL>
```

AHS_CLEAR_DATA parameters

None

AHS_CLEAR_DATA runtime errors

None

GET_AHS_STATUS

Use the GET_AHS_STATUS command to determine whether AHS is enabled or disabled. For this command to parse correctly, the command must appear within a RIB_INFO command block, and RIB_INFO MODE can be set to read or write. Use HPQLOCFG version 1.00 or later when executing this command. The user must have the Configure iLO Settings privilege to execute this command.

For example:

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

GET_AHS_STATUS parameters

None

GET_AHS_STATUS runtime errors

None

SET_AHS_STATUS

Use the SET_AHS_STATUS command to enable or disable AHS logging. For this command to parse correctly, the command must appear within a RIB_INFO command block, and RIB_INFO MODE must be set to write. Use HPQLOCFG version 1.00 or later when executing this command. The user must have the Configure iLO Settings privilege to execute this command.

NOTE:

This command resets the iLO when the AHS logging status is changed the status from `Disabled` to `Enabled`. However, if the command results in no status change (for example, if setting the status to `Enable` when the status is already enabled) the iLO will not reset.

For example:

```
<RIBCL VERSION="2.0">
  <LOGIN USER_LOGIN="adminname" PASSWORD="password">
```

```
    <RIB_INFO MODE="write">
      <!-- Set to "Enable" or "Disable".     -->
      <SET_AHS_STATUS="Disable"/>
    </RIB_INFO>
  </LOGIN>
</RIBCL>
```

SET_AHS_STATUS parameters

SET_AHS_STATUS—Controls AHS logging. Valid values are **`Enable`** or **`Disable`**.

SET_AHS_STATUS runtime errors

Some possible error messages for SET_AHS_STATUS:

- `AHS is already enabled.`
- `AHS is already disabled.`

TRIGGER_BB_DATA

Use this script to initiate Active Health System data submission to the Insight Remote Support server. Use HPQLOCFG.EXE ver 1.00 or later with this command. The user must have the Configure iLO Settings privilege to execute this command.

For example:

```
<RIBCL VERSION="2.0">
 <LOGIN USER_LOGIN="adminname" PASSWORD="password">
    <RIB_INFO MODE="write">
      <!-- Command to initiate AHS data submission.            -->
      <TRIGGER_BB_DATA>
         <MESSAGE_ID value="nnn . . . nnn"/>
         <BB_DAYS value="n"/>
      </TRIGGER_BB_DATA>
    </RIB_INFO>
 </LOGIN>
</RIBCL>
```

TRIGGER_BB_DATA parameters

- MESSAGE_ID is a UUID format used to match the Active Health System package with the request. It is returned in the submission package SOAP envelope header.
- BB_DAYS is the number of days to include in the transmission, up to a maximum of the last seven days not including the present day. Possible values are **1** to**7**.

TRIGGER_BB_DATA runtime errors

None

DISABLE_ERS

Use this command to un-register the server from Insight Remote Support or from Insight Online. Use HPQLOCFG.EXE ver 1.00 or later with this command.

```
<RIBCL VERSION="2.0">
  <LOGIN USER_LOGIN="adminname" PASSWORD="password">
```

```
    <RIB_INFO MODE="write">
      <!-- Command to unregister the server.   -->
      <DISABLE_ERS/>
    </RIB_INFO>
  </LOGIN>
</RIBCL>
```

DISABLE_ERS parameters

None

DISABLE_ERS runtime errors

None

GET_ERS_SETTINGS

Use this command to retrieve the current Insight Remote Support settings. Use HPQLOCFG.EXE ver 1.00 or later with this command.

```
<RIBCL VERSION="2.0">
  <LOGIN USER_LOGIN="adminname" PASSWORD="password">
    <RIB_INFO MODE="read">
      <!-- Command to retrieve the current ERS settings.       -->
      <GET_ERS_SETTINGS/>
   </RIB_INFO>
  </LOGIN>
</RIBCL>
```

GET_ERS_SETTINGS parameters

None

GET_ERS_SETTINGS runtime errors

None

SET_ERS_IRS_CONNECT

Use this comand to connect to the Insight Remote Support server, and to register the server. Use HPQLOCFG.EXE ver 1.00 or later with this command.

```
<RIBCL VERSION="2.22">
  <LOGIN USER_LOGIN="adminname" PASSWORD="password">
    <RIB_INFO MODE="write">
      <!-- Command to connect ERS to IRS and register the server.-->
        <SET_ERS_IRS_CONNECT>
          <ERS_DESTINATION_URL value = "00.0.00.000"/>
          <ERS_DESTINATION_PORT value = "0000"/>
       </SET_ERS_IRS_CONNECT>
     </RIB_INFO>
  </LOGIN>
</RIBCL>
```

SET_ERS_IRS_CONNECT parameters

ERS_DESTINATION_URL—The host name or IP address of IRS server.

ERS_DESTINATION_PORT—The port number of the IRS server.

SET_ERS_IRS_CONNECT runtime errors

None

TRIGGER_L2_COLLECTION

Use this command to initiate an L2 data collection submission to the Insight Remote Support server. Use HPQLOCFG.EXE ver 1.00 or later with this command.

```
<RIBCL VERSION="2.0">
  <LOGIN USER_LOGIN="adminname" PASSWORD="password">
    <RIB_INFO MODE="write">
      <TRIGGER_L2_COLLECTION>
         <MESSAGE_ID value="nnn . . . nnn"/>
      </TRIGGER_L2_COLLECTION>
    </RIB_INFO>
  </LOGIN>
</RIBCL>
```

TRIGGER_L2_COLLECTION parameters

MESSAGE_ID—Message UUID format used to match the test Service Event with this request. It is returned in the submission package SOAP envelope header.

TRIGGER_L2_COLLECTION runtime errors

None

TRIGGER_TEST_EVENT

Use this command to initiate a test service event submission to the Insight Remote Support server. Use HPQLOCFG.EXE ver 1.00 or later with this command.

```
<RIBCL VERSION="2.0">
  <LOGIN USER_LOGIN="adminname" PASSWORD="password">
    <RIB_INFO MODE="write">
        <TRIGGER_TEST_EVENT >
         <MESSAGE_ID value="nnn . . . nnn"/>
       </TRIGGER_TEST_EVENT>
    </RIB_INFO>
  </LOGIN>
</RIBCL>
```

TRIGGER_TEST_EVENT parameters

MESSAGE_ID—Message UUID format used to match the test Service Event with this request. It is returned in the submission package SOAP envelope header.

TRIGGER_TEST_EVENT runtime errors

None

SET_ERS_DIRECT_CONNECT

Enter this command to begin the registration of your device to HPE Insight Online using Direct Connect. You must have the Configure iLO Settings privilege to modify iLO Remote Support settings, and a valid HPE Passport Account is required to run this command. If you do not have an account, sign up at **http://www.hpe.com/info/insightonline**.

For example:

```
<RIBCL VERSION="2.0">
    <LOGIN USER_LOGIN="adminname" PASSWORD="password">
        <RIB_INFO MODE="write">
            <SET_ERS_DIRECT_CONNECT>
               <ERS_HPP_USER_ID value="HpUID"/>
               <ERS_HPP_PASSWORD value="HpPass"/>
               <!-- if proxy is needed, enter the proxy information:
               <ERS_WEB_PROXY_URL value="proxy.sample.hp.com"/>
               <ERS_WEB_PROXY_PORT value="8080"/>
               <ERS_WEB_PROXY_USERNAME value="proxy_user"/>
               <ERS_WEB_PROXY_PASSWORD value="proxy_pass"/> -->
               </SET_ERS_DIRECT_CONNECT>
        </RIB_INFO>
    </LOGIN>
</RIBCL>
```

After running SET_ERS_DIRECT_CONNECT, a final command is required to complete the regisration process. See **DC_REGISTRATION_COMPLETE** on page 139 for more information.

SET_ERS_DIRECT_CONNECT parameters

ERS_HPP_USER_ID—HPE Passport Account user ID.

ERS_HPP_PASSWORD—HPE Passport Account password.

If your device uses a web proxy server to access the Internet, enter the following:

- ERS_WEB_PROXY_URL—Web proxy server host name or IP address.
- ERS_WEB_PROXY_PORT—Port number on which to communicate with the web proxy server.
- ERS_WEB_PROXY_USERNAME—Username for web proxy server authentication.
- ERS_WEB_PROXY_PASSWORD—Password for web proxy server authentication.

NOTE:

You can set your web proxy server configuration separately using the **SET_ERS_WEB_PROXY** command. Remember to leave the web proxy section of the script commented out if not configuring web proxy settings in the same script as SET_ERS_DIRECT_CONNECT.

SET_ERS_DIRECT_CONNECT runtime errors

Possible error messages returned for this command are:

- `Device is already registered.`
- `HP Passport password entered is incorrect.`
- `HP Passport account is locked out due to excessive login authentication failures.`
- `User has reached half the maximum allowed HP Passport login authentication failures.`
- `HP Passport password has expired.`

- `Invalid Proxy Settings`
- `Cannot connect to proxy server.`
- `Cannot connect to remote host.`

DC_REGISTRATION_COMPLETE

To fully register your device, first enter the **SET_ERS_DIRECT_CONNECT** command, and then finish registering for Insight Remote Support by using the Direct Connect command DC_REGISTRATION_COMPLETE. You must have the Configure iLO Settings privilege to modify iLO Remote Support settings.

For example:

```
<RIBCL VERSION="2.22">
    <LOGIN USER_LOGIN="adminname" PASSWORD="password">
        <RIB_INFO MODE="write">
            <DC_REGISTRATION_COMPLETE/>
        </RIB_INFO>
    </LOGIN>
</RIBCL>
```

DC_REGISTRATION_COMPLETE parameters

None

DC_REGISTRATION_COMPLETE runtime errors

Possible errors messages returned for this command include:

- `iLO information is open for read-only access. Write access is required for this operation.`
- `Internal Error`
- `Error reading ERS configuration`
- `ERS is disabled`
- `Invalid Command For Connect Model`

SET_ERS_WEB_PROXY

Enter the SET_ERS_WEB_PROXY command to update the proxy settings for your device, or to configure proxy settings for the first time. The proxy settings are only applicable to Direct Connect registration. You must have the Configure iLO Settings privilege to modify the iLO Remote Support settings.

For example:

```
<RIBCL VERSION="2.0">
    <LOGIN USER_LOGIN="adminname" PASSWORD="password">
        <RIB_INFO MODE="write">
            <SET_ERS_WEB_PROXY>
               <ERS_WEB_PROXY_URL value="192.0.2.10"/>
               <ERS_WEB_PROXY_PORT value="8080"/>
               <ERS_WEB_PROXY_USERNAME value="proxy_user"/>
               <ERS_WEB_PROXY_PASSWORD value="proxy_pass"/>
            </SET_ERS_WEB_PROXY>
        </RIB_INFO>
    </LOGIN>
</RIBCL>
```

SET_ERS_WEB_PROXY parameters

To configure your device to use a web proxy server to access the Internet, enter the following:

- ERS_WEB_PROXY_URL—Web proxy server host name or IP address.
- ERS_WEB_PROXY_PORT—Port number on which to communicate with the web proxy server.
- ERS_WEB_PROXY_USERNAME—Username for web proxy server authentication.
- ERS_WEB_PROXY_PASSWORD—Password for web proxy server authentication.

SET_ERS_WEB_PROXY runtime errors

Possible error messages returned for this command are:

- `Invalid Proxy Settings`

SET_LANGUAGE

Use this command to set the default language on iLO. Use HPQLOCFG.EXE version 1.00 or later with this command.

```
<RIBCL VERSION="2.0">
  <LOGIN USER_LOGIN="adminname" PASSWORD="password">
    <RIB_INFO MODE="write">
      <SET_LANGUAGE LANG_ID="EN"/>
    </RIB_INFO>
  </LOGIN>
</RIBCL>
```

SET_LANGUAGE parameters

LANG_ID is the two letter designation for a language. This parameter is not case sensitive, and must not be blank.

Possible values for LANG_ID are:

- EN (English)
- JA (Japanese)
- ZH (Simplified Chinese)

SET_LANGUAGE runtime errors

A possible error message returned for this command is:

- `Could not set the Default Language.`

GET_LANGUAGE

Use this command to read the default language on iLO. Use HPQLOCFG.EXE version 1.00 or later with this command.

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

```
</RIBCL>
```

GET_LANGUAGE parameters

None

GET_LANGUAGE runtime errors

None

GET_ALL_LANGUAGES

Use this command to read all languages on iLO. Use HPQLOCFG.EXE version 1.00 or later with this command.

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

GET_ALL_LANGUAGES parameters

None

GET_ALL_LANGUAGES runtime errors

None

GET_ASSET_TAG

Use this command to get the asset tag. Use HPQLOCFG.EXE version 1.00 or later with this command.

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

GET_ASSET_TAG parameters

None

GET_ASSET_TAG runtime errors

- `Problem reading the EV`

  —There was a problem reading the EV. Retry the procedure later.
- `There is no EV by the name given`

  —The EV is not present. One possible cause is that the EV was never set using SET_ASSET_TAG.

When no tag has been set, GET_ASSET_TAG returns this informational message:

```
No Asset Tag Information.
```

SET_ASSET_TAG

Use this command to set or clear the asset tag. Use HPQLOCFG.EXE version 1.00 or later with this command.

You must have the following privileges to execute this command: Virtual Media, Virtual Power and Reset, Remote Console.

```
<RIBCL VERSION="2.0">
  <LOGIN USER_LOGIN="adminname" PASSWORD="password">
    <SERVER_INFO MODE="write">
      <!-- Enter a string to set the asset tag, or an empty string   -->
      <!-- to clear the asset tag. -->
      <SET_ASSET_TAG VALUE ="Asset Tag"/>
    </SERVER_INFO>
  </LOGIN>
</RIBCL>
```

SET_ASSET_TAG parameters

SET_ASSET_TAG sets or clears the asset tag. Enter a string to add or modify the asset tag, or enter an empty string to clear the asset tag.

SET_ASSET_TAG runtime errors

A possible SET_ASSET_TAG error message is:

```
Problem manipulating EV
```

This message means that the asset tag was not set. Retry the procedure later.

Other possible error message for SET_ASSET_TAG include:

- `Post in progress, EV unavailable.`
- `EV name too large.`
- `EV data too large.`
- `There is no such EV.`
- `EV is not supported.`
- `EV is not initialized.`
- `ROM is busy, EV unavailable.`
- `User does NOT have correct privilege for action. VIRTUAL_MEDIA_PRIV required.`
- `User does NOT have correct privilege for action. RESET_SERVER_PRIV required.`
- `User does NOT have correct privilege for action. REMOTE_CONS_PRIV required.`
- `String too long, maximum string length is 32 characters.`

GET_SECURITY_MSG

Use this command to retrieve the security message for the iLO login screen.

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

```
  </LOGIN>
</RIBCL>
```

GET_SECURITY_MSG parameters

None

GET_SECURITY_MSG return messages

The following information is returned with the response:

- SECURITY_MSG value=”Enabled” or “Disabled”
- SECURITY_MSG_TEXT:

```
<SECURITY_MSG_TEXT>
  <![CDATA[The security message appears here, set using
SET_SECURITY_MESSAGE.]]>
</SECURITY_MSG_TEXT>
```

GET_SECURITY_MSG runtime errors

None

SET_SECURITY_MSG

Use this command to configure the security text message in the iLO Login Banner. The Login Security Banner feature allows you to configure the security banner displayed on the iLO login screen. You need to have configure iLO Setting privileges to make changes to the banner.

```
<RIBCL VERSION="2.0">
  <LOGIN USER_LOGIN="adminname" PASSWORD="password">
    <RIB_INFO MODE="write">
      <SET_SECURITY_MSG>
        <SECURITY_MSG value="y"/>
        <SECURITY_MSG_TEXT>
             <![CDATA[ message ]]>
       </SECURITY_MSG_TEXT>
      </SET_SECURITY_MSG>
    </RIB_INFO>
  </LOGIN>
</RIBCL>
```

SET_SECURITY_MSG parameters

SECURITY_MSG—Boolean value, must be either **`Yes`** (enabled) or **`No`** (disabled). When the value is No, the security message is removed.

SECURITY_MSG_TEXT—CDATA text message to appear when SECURITY_MSG is set to Yes. Enter the text of the message between `<![CDATA[` and `]]>`.

SET_SECURITY_MSG runtime errors

The value for the SECURITY_MESSAGE parameter must a **`Y`** or an **`N`**, otherwise the command reports an error. You may also see this error:

```
User does NOT have correct privilege for action. CONFIG_ILO_PRIV required.
```

HOTKEY_CONFIG

The HOTKEY_CONFIG command configures the remote console hot key settings in iLO. For this command to parse correctly, the command must appear within a RIB_INFO command block, and RIB_INFO MODE must be set to write. The user must have the configure iLO privilege to execute this command.

Upper or lower case values are automatically changed to the proper case as needed (lower case is changed to upper case if needed, and upper case is changed to lower case if needed.) If you use double or single quotes, it must be different from the delimiter. Specifying a blank string removes the current value.

NOTE:

Each hot key can have up to five selections (for example, CTRL_T="CTRL,ALT,ESC,F2,F4").

Do not use spaces (“ “) in the values; to set a space in a value type SPACE.

Use this command to configure hotkeys in iLO. Use HPQLOCFG.EXE version 5.00 or later with this command. Replace USER_LOGIN and PASSWORD values with values that are appropriate for your environment.

```
<RIBCL VERSION="2.0">
   <LOGIN USER_LOGIN="adminname" PASSWORD="password">
      <RIB_INFO MODE="write">
         <HOTKEY_CONFIG>
            <CTRL_T value="CTRL,ALT,ESC"/>
            <CTRL_U value="L_SHIFT,F10,F12"/>
            <CTRL_V value=""/>
            <CTRL_W value=""/>
            <CTRL_X value=""/>
            <CTRL_Y value=""/>
         </HOTKEY_CONFIG>
      </RIB_INFO>
   </LOGIN>
</RIBCL>
```

HOTKEY_CONFIG parameters

The following parameters are optional. If a parameter is not specified, then the parameter value remains as previously set. Separated multiple setting values with commas (see example script above.) Up to five keystrokes can be configured for each hot key.

- CTRL+T
- CTRL+U
- CTRL+V
- CTRL+W
- CTRL+X
- CTRL+Y

Supported hot keys

The Program Remote Console Hot Keys page allows you to define up to six different sets of hot keys for use during a Remote Console session. Each hot key represents a combination of up to five different keys which are sent to the host machine whenever the hot key is pressed during a Remote Console session. The selected key combination (all keys pressed at the same time) are transmitted in its place. The following table lists keys available to combine in a Remote Console hot key sequence.

ESC	F1	–	d	s	BACKSPACE
L_ALT	F2	(	e	t	SYS RQ
R_ALT	F3	)	f	u	1
L_SHIFT	F4	*	g	v	2
R_SHIFT	F5	+	h	w	3
INS	F6	:	I	x	4
DEL	F7	<	j	y	5
HOME	F8	>	k	z	6
END	F9	=	l	;	7
PG UP	F10	[	m	‘	8
PG DN	F11	]	n	L_CTRL	9
ENTER	F12	\	o	R_CTRL	0
TAB	SPACE	a	p	NUM PLUS	NONE
BREAK	/	b	q	NUM MINUS	L_GUI
COMMA	.	c	r	SCRL LCK	R_GUI

HOTKEY_CONFIG runtime errors

The possible HOTKEY_CONFIG error messages include:

- `iLO information is open for read-only access. Write access is required for this operation.`
- `The hot key parameter specified is not valid.`
- `Invalid number of hot keys. The maximum allowed is five.`
- `User does not have correct privilege for action. CONFIG_ILO_PRIV required.`
- `Failed to update the hot key.`

GET_HOTKEY_CONFIG

Use this command to retrieve hotkeys available for use in remote console sessions. Use HPQLOCFG.EXE version 1.00 or later with this command. Replace USER_LOGIN and PASSWORD values with values that are appropriate for your environment.

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

GET_HOTKEY_CONFIG parameters

None

GET_HOTKEY_CONFIG runtime errors

A possible GET_HOTKEY_CONFIG error message is:

```
Unable to get the hot keys.
```

GET_HOTKEY_CONFIG return messages

An example of the information returned with the response:

```
<GET_HOTKEY_CONFIG>
    <CTRL_T VALUE="L_CTRL,L_ALT,ESC,NONE,NONE"/>
    <CTRL_U VALUE="L_SHIFT,F10,F12,NONE,NONE"/>
    <CTRL_V VALUE="NONE,NONE,NONE,NONE,NONE"/>
    <CTRL_W VALUE="NONE,NONE,NONE,NONE,NONE"/>
    <CTRL_X VALUE="NONE,NONE,NONE,NONE,NONE"/>
    <CTRL_Y VALUE="NONE,NONE,NONE,NONE,NONE"/>
</GET_HOTKEY_CONFIG>
```

PROFILE_APPLY

You can script automated server configuration packages (deployment settings) to install multiple servers through iLO using PROFILE scripts.

Use PROFILE_APPLY to apply deployment settings in iLO. Use HPQLOCFG.EXE version 5.00 or later with this command. Replace USER_LOGIN and PASSWORD values with values that are appropriate for your environment.

```
<RIBCL VERSION="2.2">
  <LOGIN USER_LOGIN="adminname" PASSWORD="password">
    <RIB_INFO MODE="write">
      <PROFILE_APPLY>
        <PROFILE_DESC_NAME VALUE="profile_desc_name"/>
        <PROFILE_OPTIONS VALUE="none"/>
        <PROFILE_ACTION VALUE="Stage"/>
      </PROFILE_APPLY>
    </RIB_INFO>
  </LOGIN>
</RIBCL>
```

PROFILE_APPLY parameters

NOTE:

All text fields must not contain inner quotes or new-line characters.

- PROFILE_DESC_NAME is the descriptive name of the profile. The value must be unique on the server, and be a maximum of 27 characters long. Only alphanumerics and underscores are accepted; spaces, periods, and slashes are invalid. An empty string is invalid.
- PROFILE_OPTIONS is currently unused — always set it to **`none`**. An empty string is invalid.
- PROFILE_ACTION is a toggle that controls whether the profile is immediately applied or is staged until the next reboot. Valid values are **`Stage`** and **`Apply_Now`**.

PROFILE_APPLY runtime errors

These errors may appear:

- `PROFILE_DESC_NAME is too long.`
- `PROFILE_DESC_NAME is not valid. Only alphanumeric characters and underscore are allowed.`
- `PROFILE_OPTIONS is too long.`
- `PROFILE_ACTION is too long.`
- `Problem manipulating EV`
- `There are missing parameters in the xml script.`
- `The PROFILE_ACTION does not have a valid value.`
- `User does NOT have correct privilege for action. CONFIG_ILO_PRIV required.`
- `The value specified is invalid.`
- `Internal error.`
- `Retry later.`
- `Invalid, do not repeat.`
- `Profile descriptor name is not correct.`
- `Profile descriptor too large.`
- `Profile Descriptor is read only or write only.`
- `Profile descriptor has not been found.`
- `Profile descriptor is currently unavailable.`
- `The iLO is not configured for this command.`
- `Blob Store is not yet initialized.`
- `Feature not supported`
- `No data available`
- `Post in progress, EV unavailable.`
- `EV name too large.`
- `EV data too large.`
- `There is no such EV.`
- `EV is not supported.`
- `EV is not initialized.`
- `ROM is busy, EV unavailable.`
- Need a value for the PROFILE_OPTIONS tag.
- Need a value for the PROFILE_DESC_NAME tag.

PROFILE_APPLY_GET_RESULTS

Use this command to retrieve the results from the PROFILE_APPLY script. Use HPQLOCFG.EXE version 1.00 or later with this command. Replace USER_LOGIN and PASSWORD values with values that are appropriate for your environment.

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

PROFILE_APPLY_GET_RESULTS parameters

None

PROFILE_APPLY_GET_RESULTS runtime errors

These errors may appear:

- The value specified is invalid.
- Internal error.
- Retry later.
- Invalid, do not repeat.
- Profile descriptor name is not correct.
- Profile descriptor too large.
- Profile Descriptor is read only or write only.
- Profile descriptor has not been found.
- Profile descriptor is currently unavailable.
- The iLO is not configured for this command.
- Blob Store is not yet initialized.
- Feature not supported
- No data available

PROFILE_DELETE

Use this command to delete a deployment profile. Use HPQLOCFG.EXE version 1.00 or later with this command. Replace USER_LOGIN and PASSWORD values with values that are appropriate for your environment.

```
<RIBCL VERSION="2.2">
  <LOGIN USER_LOGIN="adminname" PASSWORD="password">
    <RIB_INFO MODE="write">
      <PROFILE_DELETE>
        <PROFILE_DESC_NAME VALUE="profile_desc_name"/>
      </PROFILE_DELETE>
    </RIB_INFO>
  </LOGIN>
</RIBCL>
```

PROFILE_DELETE parameters

PROFILE_DESC_NAME is the descriptive name of the profile. The value must be unique on the server, and be less than or equal to 27 characters long. Only alphanumerics and underscores are accepted; spaces, periods, and slashes are invalid. An empty string is invalid.

PROFILE_DELETE runtime errors

These errors may appear:

- PROFILE_DESC_NAME is too long.
- PROFILE_DESC_NAME is not valid. Only alphanumeric characters and underscore are allowed.
- There are missing parameters in the xml script.
- User does NOT have correct privilege for action. CONFIG_ILO_PRIV required.
- The value specified is invalid.
- Internal error.
- Retry later.

- Invalid, do not repeat.
- Profile descriptor name is not correct.
- Profile descriptor too large.
- Profile Descriptor is read only or write only.
- Profile descriptor has not been found.
- Profile descriptor is currently unavailable.
- The iLO is not configured for this command.
- Blob Store is not yet initialized.
- Feature not supported
- No data available

PROFILE_LIST

Use this command to list all the Profile Descriptors and the data stored in them in the perm directory of the blobstore (for example, the values stored in PROFILE_DESC_NAME, PROFILE_NAME, PROFILE_DESCRIPTION, PROFILE_SCHEMA, PROFILE_LINK, and PROFILE_URL.) Use HPQLOCFG.EXE version 1.00 or later with this command. Replace USER_LOGIN and PASSWORD values with values that are appropriate for your environment.

NOTE:

A high number of stored profile descriptors may cause a delay as the data is gathered and returned.

```
<RIBCL VERSION="2.2">
  <LOGIN USER_LOGIN="adminname" PASSWORD="password">
    <RIB_INFO MODE="read">
      <PROFILE_LIST/>
    </RIB_INFO>
  </LOGIN>
</RIBCL>
```

PROFILE_LIST parameters

None

PROFILE_LIST runtime errors

These errors may appear:

- The value specified is invalid.
- Internal error.
- Retry later.
- Invalid, do not repeat.
- Profile descriptor name is not correct.
- Profile descriptor too large.
- Profile Descriptor is read only or write only.
- Profile descriptor has not been found.
- Profile descriptor is currently unavailable.
- The iLO is not configured for this command.
- Blob Store is not yet initialized.
- Feature not supported
- No data available

PROFILE_DESC_DOWNLOAD

Use this command to write a deployment profile description, download a specific blob, and write the blob to the blobstore. Use HPQLOCFG.EXE version 1.00 or later with this command. Replace USER_LOGIN and PASSWORD values with values that are appropriate for your environment.

```
<RIBCL VERSION="2.2">
  <LOGIN USER_LOGIN="adminname" PASSWORD="password">
    <RIB_INFO MODE="write">
      <PROFILE_DESC_DOWNLOAD>
        <PROFILE_DESC_NAME VALUE="profile_desc_name"/>
        <PROFILE_NAME VALUE="profile free form text name"/>
        <PROFILE_DESCRIPTION VALUE="Profile free form text description"/>
        <PROFILE_SCHEMA VALUE="intelligentprovisioning.1.0.0"/>
        <BLOB_NAMESPACE VALUE="perm"/>
        <BLOB_NAME VALUE="internal_unique_name"/>
        <PROFILE_URL VALUE="http(s)://uri_path_to_blob"/>
      </PROFILE_DESC_DOWNLOAD>
    </RIB_INFO>
  </LOGIN>
</RIBCL>
```

PROFILE_DESC_DOWNLOAD parameters

NOTE:

All text fields must not contain inner quotes or new-line characters.

- PROFILE_DESC_NAME is the descriptive name of the profile. The value must be unique on the server, and be less than 27 characters long. Only alphanumerics and underscores are accepted — spaces, periods, and slashes are invalid.
- PROFILE_NAME is the name of the profile. This value is optional, and accepts free-form text. Empty strings are invalid, and the string can be 512 characters long.
- PROFILE_DESCRIPTION is a decription of the profile. This value is optional, and accepts free-form text. Empty strings are invalid.
- PROFILE_SCHEMA is the schema for which this script is compliant. The value should always be **`intelligentprovisioning.1.0.0`**. Empty strings are invalid.
- BLOB_NAMESPACE is an internal iLO storage indicator. Used in conjunction with BLOB_NAME when PROFILE_URL is not used.
- BLOB_NAME is the name iLO will use to store the profile internally. This value can be a maximum of 31 characters long. Only alphanumerics and underscores are accepted; spaces, periods, and slashes are invalid. Hewlett Packard Enterprise recommends that you use the same value as PROFILE_DESC_NAME. Used in conjunction with BLOB_NAMESPACE when PROFILE_URL is not used.
- PROFILE_URL is the URL from which iLO will attempt to download the profile for local storage if BLOB_NAMESPACE and BLOB_NAME are not used.

PROFILE_DESC_DOWNLOAD runtime errors

The following errors may appear:

- `PROFILE_DESC_NAME is too long.`
- `PROFILE_DESC_NAME is not valid. Only alphanumeric characters and underscore are allowed.`
- `PROFILE_NAME is too long.`
- `PROFILE_DESCRIPTION is too long.`
- `PROFILE_SCHEMA is too long.`

- There are missing parameters in the xml script.
- Need a value for the PROFILE_URL tag.
- Need a value for the PROFILE_DESC_NAME tag.
- Incorrect url.
- Failed to connect to the url.
- User does NOT have correct privilege for action. CONFIG_ILO_PRIV required.
- The value specified is invalid.
- Internal error.
- Retry later.
- Invalid, do not repeat.
- Profile descriptor name is not correct.
- Profile descriptor too large.
- Profile Descriptor is read only or write only.
- Profile descriptor has not been found.
- Profile descriptor is currently unavailable.
- The iLO is not configured for this command.
- Blob Store is not yet initialized.
- Feature not supported
- No data available

FIPS_ENABLE

Use this script to enable the Federal Information Processing Standard Enforce AES/3DES Encryption setting. Use HPQLOCFG.EXE version 5.00 or later with this command. Replace USER_LOGIN and PASSWORD values with values that are appropriate for your environment.

WARNING:

All active connections (including Remote Console and Virtual Media sessions) to the iLO device are dropped immediately when this script executes.

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

NOTE:

To disable FIPS, use the **FACTORY_DEFAULTS** command.

FIPS_ENABLE parameters

None

FIPS_ENABLE runtime errors

When running the FIPS_ENABLE command, FIPS status is checked. If FIPS is already enabled, the following message appears:

```
FIPS is already enabled.
```

NOTE:

Running this command while the iLO 5 security state is set to CNSA/SuiteB will also return the message that FIPS is already enabled.

GET_FIPS_STATUS

Use this script to retrieve the current **Enforce AES/3DES Encryption** status. Use HPQLOCFG.EXE version 1.00 or later with this command. Replace USER_LOGIN and PASSWORD values with values that are appropriate for your environment.

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

GET_FIPS_STATUS parameters

None

GET_FIPS_STATUS runtime errors

None

GET_FIPS_STATUS return messages

A possible GET_FIPS_STATUS return message is:

```
<GET_FIPS_STATUS>
    <FIPS_MODE VALUE="Disabled"/>
</GET_FIPS_STATUS>
```

The value for FIPS_MODE can be “Enabled” or “Disabled”.

GET_ALL_LICENSES

Use the GET_ALL_LICENSES command to retrieve license type, key, installation date, and class. Use HPQLOCFG.EXE version 1.00 or later with this command. Replace USER_LOGIN and PASSWORD values with values that are appropriate for your environment.

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

GET_ALL_LICENSES parameters

None

GET_ALL_LICENSES runtime errors

None

GET_ALL_LICENSES return messages

A possible GET_ALL_LICENSES return message is:

```
<?xml version="1.0"?>
<RIBCL VERSION="2.22">
<RESPONSE
    STATUS="0x0000"
    MESSAGE='No error'
    />
<GET_ALL_LICENSES>
    <LICENSE>
         <LICENSE_TYPE VALUE= "iLO Advanced"/>
         <LICENSE_KEY VALUE= "<advanced license key value>"/>
                     <LICENSE_INSTALL_DATE VALUE="Tue Jan 17 15:57:30 2017"/>
         <LICENSE_CLASS VALUE="FQL"/>
         <LICENSE_STATE VALUE="<State>"/>
         <LICENSE_TIER VALUE="<Tier>"/>
    </LICENSE>
</GET_ALL_LICENSES>
</RIBCL>
```

FACTORY_DEFAULTS

Use this command to set the iLO device to factory default settings. Use HPQLOCFG.EXE version 1.00 or later with this command. Replace USER_LOGIN and PASSWORD values with values that are appropriate for your environment.

WARNING:

Resetting an iLO device to factory defaults changes the the DNS name to the default, and the iLO device can be accessed using only the default Administrator user account and default password. Without these defaults, iLO access must be reconfigured using the RBSU.

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

FACTORY_DEFAULTS parameters

None

FACTORY_DEFAULTS runtime errors

None

IMPORT_SSH_KEY

The IMPORT_SSH_KEY command imports an SSH_KEY and associated iLO username into iLO. This command requires HPQLOCFG.EXE version 5.00 or later.

After generating an SSH key using ssh-keygen, puttygen.exe, or another SSH key generating utility to produce a 1024 bit DSA key, and creating the key.pub file, perform the following:

1. Locate the key.pub file and insert the contents between

   ```
   -----BEGIN SSH KEY-----
   ```

   and

   ```
   -----END SSH KEY-----
   ```

   The file begins with:

   ```
   ssh-dss .
   ```

2. At the end of the key, append a space and the name of a valid iLO 5 username as displayed on the Modify User page. For example:

   ```
   xxx_some-text_xxx ASmith
   ```

The username is case-sensitive and must match the iLO 5 username to associate the SSH key with the correct user.

```
<RIBCL VERSION="2.0">
 <LOGIN USER_LOGIN="adminname" PASSWORD="password">
  <RIB_INFO MODE="write">
   <IMPORT_SSH_KEY>
-----BEGIN SSH KEY-----
ssh-dss
ASampleKeyAAALftnNE12JR8T8XQqyzqc1tt6FLFRXLRM5PJpOf/IG4hN45
+x+JbaqkhH+aKqFjlfO1NjszHrFN26H1AhWOjY2bEwj2wlJzBMAhXwnPQelQsCnJDf+
zCzbDn+5Va86+qWxm0lsDEChvZPM6wpjkXvHwuInjxTzOGQTq++vmYlo1/AAAAFQC1M
FaZjE995QhX9H1DaDzpsVTXvwAAAIA6ec/hAkas2N762jtlHvSuvZaQRzu49DOtjXVI
pNdJAhTC8O2505PzkGLf5qhrbDnusclCvoH7DuxyHjeOUVxbC5wFQBcGF4VnpYZ8nGQ
Gt9TQ0iUV+NRwn4CR5ESoi63zTJIvKIYZDT2ISeXhF2iU6txjZzdeEm7vQz3slaY3dg
AAAIAQ46i6FBzJAYXziF/qmWMt4y6SlylOQDAsxPKk7rpxegv8RlTeon/aeL7ojb9GQ
2xnEN5gobaNZxKz2d4/jwg3+qgTDT6V1G+b7+nEI/XHIc717/7oqgiOv4VE3WxN+HE9
JWsv2jwUpAzRGqJOoojRG/CCru0K+jgTOf/di1o0sw== ASmith
-----END SSH KEY-----
   </IMPORT_SSH_KEY>
  </RIB_INFO>
 </LOGIN>
</RIBCL>
```

IMPORT_SSH_KEY parameters

None

IMPORT_SSH_KEY runtime errors

A possible IMPORT_SSH_KEY error message includes:

- `iLO information is open for read-only access. Write access is required for this operation.`

DIR_INFO

The DIR_INFO command can only appear within a LOGIN command block. When the command is parsed, it reads the local directory information database into memory and prepares to edit it. Only commands that are DIR_INFO type commands are valid inside the DIR_INFO command block. The DIR_INFO command generates a response that indicates to the host application whether the database was successfully read or not. If the database is open for writing by another application, then this call fails.

DIR_INFO requires the MODE parameter with a value of read or write. MODE is a specific string parameter with a maximum length of 10 characters that specifies what you intend to do with the information.

Write mode enables both reading and writing of iLO information. Read mode prevents modification of the iLO information.

For example:

```
<DIR_INFO MODE="read">
…… DIR_INFO commands ……
</DIR_INFO>
```

GET_DIR_CONFIG

The GET_DIR_CONFIG command requests the respective iLO directory settings. For this command to parse correctly, the GET_DIR_CONFIG command must appear within a DIR_INFO command block, and DIR_INFO MODE can be set to read or write.

For example:

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

NOTE: The information returned by GET_DIR_CONFIG has not been enhanced to support the extended group privileges available from the iLO 5 web interface. For more information about user and group privileges in iLO 5, see the HPE iLO 5 User Guide in the HPE Information Library at **http://www.hpe.com/info/ilo/docs**.

GET_DIR_CONFIG parameters

None

GET_DIR_CONFIG runtime errors

None

GET_DIR_CONFIG return messages

Directory integration works with Lights-Out schema with or without extensions (schema-free). Depending on your directory configuration, the response to GET_DIR_CONFIG may contain different data.

Possible GET_DIR_CONFIG return messages are:

- A directory services (with schema extension) return message:

```
<GET_DIR_CONFIG>
<DIR_AUTHENTICATION_ENABLED VALUE="Y"/>
<DIR_LOCAL_USER_ACCT VALUE="Y"/>
<DIR_GENERIC_LDAP_ENABLED VALUE="N"/>
<DIR_SERVER_ADDRESS VALUE= "adserv.demo.com"/>
<DIR_SERVER_PORT VALUE= "636"/>
<DIR_OBJECT_DN VALUE="CN=SERVER1_RIB,OU=RIB,DC=HPRIB, DC=LABS"/>
<DIR_USER_CONTEXT_1 VALUE="CN=Users0,DC=HPRIB0, DC=LABS"/>
<DIR_USER_CONTEXT_2 VALUE="CN=Users1,DC=HPRIB1, DC=LABS"/>
<DIR_USER_CONTEXT_3 VALUE= ""/>
```

```
<DIR_USER_CONTEXT_4 VALUE= ""/>
<DIR_USER_CONTEXT_5 VALUE= ""/>
<DIR_USER_CONTEXT_6 VALUE= ""/>
<DIR_USER_CONTEXT_7 VALUE= ""/>
<DIR_USER_CONTEXT_8 VALUE= ""/>
<DIR_USER_CONTEXT_9 VALUE= ""/>
<DIR_USER_CONTEXT_10 VALUE= ""/>
<DIR_USER_CONTEXT_11 VALUE= ""/>
<DIR_USER_CONTEXT_12 VALUE= ""/>
<DIR_USER_CONTEXT_13 VALUE= ""/>
<DIR_USER_CONTEXT_14 VALUE= ""/>
<DIR_USER_CONTEXT_15 VALUE= ""/>
<DIR_ENABLE_GRP_ACCT VALUE= "N"/>
<DIR_GRPACCT1_NAME VALUE= "Administrators"/>
<DIR_GRPACCT1_PRIV VALUE= "1,2,3,4,5,6"/>
<DIR_GRPACCT1_SID VALUE= ""/>
<DIR_GRPACCT2_NAME VALUE= "Authenticated Users"/>
<DIR_GRPACCT2_PRIV VALUE= "6"/>
<DIR_GRPACCT2_SID VALUE= "S-1-5-11"/>
<DIR_KERBEROS_ENABLED VALUE="N"/>
<DIR_KERBEROS_REALM VALUE=""/>
<DIR_KERBEROS_KDC_ADDRESS VALUE= ""/>
<DIR_KERBEROS_KDC_PORT VALUE= "88"/>
</GET_DIR_CONFIG>
```

- A schema-free directory (without schema extension) return message:

```
<GET_DIR_CONFIG>
<DIR_AUTHENTICATION_ENABLED VALUE="Y"/>
<DIR_LOCAL_USER_ACCT VALUE="Y"/>
<DIR_GENERIC_LDAP_ENABLED VALUE="N">
<DIR_SERVER_ADDRESS VALUE="adserv.demo.com"/>
<DIR_SERVER_PORT VALUE= "636"/>
<DIR_OBJECT_DN VALUE= ""/>
<DIR_USER_CONTEXT_1 VALUE="CN=Users,DC=demo,DC=com"/>
<DIR_USER_CONTEXT_2 VALUE= ""/>
<DIR_USER_CONTEXT_3 VALUE= ""/>
<DIR_USER_CONTEXT_4 VALUE= ""/>
<DIR_USER_CONTEXT_5 VALUE= ""/>
<DIR_USER_CONTEXT_6 VALUE= ""/>
<DIR_USER_CONTEXT_7 VALUE= ""/>
<DIR_USER_CONTEXT_8 VALUE= ""/>
<DIR_USER_CONTEXT_9 VALUE= ""/>
<DIR_USER_CONTEXT_10 VALUE= ""/>
<DIR_USER_CONTEXT_11 VALUE= ""/>
<DIR_USER_CONTEXT_12 VALUE= ""/>
<DIR_USER_CONTEXT_13 VALUE= ""/>
<DIR_USER_CONTEXT_14 VALUE= ""/>
<DIR_USER_CONTEXT_15 VALUE= ""/>
<DIR_ENABLE_GRP_ACCT VALUE= "Y"/>
<DIR_GRPACCT1_NAME VALUE="CN=iLOAdmins,CN=Users,DC=demo,DC=com"/>
<DIR_GRPACCT1_PRIV VALUE="1,2,3,4,5"/>
<DIR_GRPACCT1_SID VALUE= "S-1-0"/>
<DIR_KERBEROS_ENABLED VALUE="N"/>
<DIR_KERBEROS_REALM VALUE=""/>
<DIR_KERBEROS_KDC_ADDRESS VALUE= ""/>
```

```
<DIR_KERBEROS_KDC_PORT VALUE= "88"/>
</GET_DIR_CONFIG>
```

- A Kerberos-enabled directory return message:

```
<GET_DIR_CONFIG>
<DIR_AUTHENTICATION_ENABLED VALUE="N"/>
<DIR_LOCAL_USER_ACCT VALUE="Y"/>
<DIR_SERVER_ADDRESS VALUE= ""/>
<DIR_SERVER_PORT VALUE= "636"/>
<DIR_OBJECT_DN VALUE= ""/>
<DIR_USER_CONTEXT_1 VALUE= ""/>
<DIR_USER_CONTEXT_2 VALUE= ""/>
<DIR_USER_CONTEXT_3 VALUE= ""/>
<DIR_USER_CONTEXT_4 VALUE= ""/>
<DIR_USER_CONTEXT_5 VALUE= ""/>
<DIR_USER_CONTEXT_6 VALUE= ""/>
<DIR_USER_CONTEXT_7 VALUE= ""/>
<DIR_USER_CONTEXT_8 VALUE= ""/>
<DIR_USER_CONTEXT_9 VALUE= ""/>
<DIR_USER_CONTEXT_10 VALUE= ""/>
<DIR_USER_CONTEXT_11 VALUE= ""/>
<DIR_USER_CONTEXT_12 VALUE= ""/>
<DIR_USER_CONTEXT_13 VALUE= ""/>
<DIR_USER_CONTEXT_14 VALUE= ""/>
<DIR_USER_CONTEXT_15 VALUE= ""/>
<DIR_ENABLE_GRP_ACCT VALUE= "N"/>
<DIR_GRPACCT1_NAME VALUE= "Administrators"/>
<DIR_GRPACCT1_PRIV VALUE= "1,2,3,4,5,6"/>
<DIR_GRPACCT1_SID VALUE= ""/>
<DIR_GRPACCT2_NAME VALUE= "Authenticated Users"/>
<DIR_GRPACCT2_PRIV VALUE= "6"/>
<DIR_GRPACCT2_SID VALUE= "S-1-5-11"/>
<DIR_GRPACCT3_NAME VALUE= "user0"/>
<DIR_GRPACCT3_PRIV VALUE= "1,2,3,4,5,6"/>
<DIR_GRPACCT3_SID VALUE= "S-1-5-21-123456789-123456789-
1234567890-1234"/>
<DIR_KERBEROS_ENABLED VALUE="Y"/>
<DIR_KERBEROS_REALM VALUE="EXAMPLE.NET"/>
<DIR_KERBEROS_KDC_ADDRESS VALUE= "kdc.example.net"/>
<DIR_KERBEROS_KDC_PORT VALUE= "88"/>
</GET_DIR_CONFIG>
```

MOD_DIR_CONFIG

The MOD_DIR_CONFIG command modifies the directory settings on iLO. For this command to parse correctly, the MOD_DIR_CONFIG command must appear within a DIR_INFO command block, and DIR_INFO MODE must be set to write. The user must have the Configure iLO Settings privilege to execute this command.

The MOD_DIR_CONFIG is used in different ways depending on the environment. See MOD_DIRECTORY.XML (example below) for an example suitable for use in an environment with directory integration and existing schemas. See **MOD_SCHEMALESS_DIRECTORY.XML** for an example suitable for use in a schemaless directory configuration.

For example:

```
<RIBCL VERSION="2.0">
   <LOGIN USER_LOGIN="adminname" PASSWORD="password">
      <DIR_INFO MODE="write">
         <MOD_DIR_CONFIG>
            <DIR_AUTHENTICATION_ENABLED value="Yes"/>
            <DIR_LOCAL_USER_ACCT value="Yes"/>
            <!--  NOTE:  For schemaless Directory configuration, please   -->
            <!--  ensure  that the following settings are modified as     -->
            <!--  required so that user can logon with Email format and   -->
            <!--  Netbios formats successfully:                            -->
            <!--    1. DIR_SERVER_ADDRESS value need  to be set to         -->
            <!--       directory server DNS Name or FQDN(Full qualified    -->
            <!--       Domain Name)                                        -->
            <!--  Please check and update the following iLO Network       -->
            <!--  Settings .                                               -->
            <!--    1. The domain name of iLO should match the domain of  -->
            <!--       the directory server.                               -->
            <!--    2. One of the primary, secondary or Tertiary DNS      -->
            <!--       server must have the same IP address as the         -->
            <!--       Directory server.                                   -->
            <DIR_SERVER_ADDRESS value="dlilo1.mycompu.com"/>
            <DIR_SERVER_PORT value="636"/>
            <DIR_OBJECT_DN value="CN=server1_rib,OU=RIB, DC=mycompu,DC=com"/>
            <DIR_OBJECT_PASSWORD value="password"/>
            <DIR_USER_CONTEXT_1 value="CN=Users,DC=mycompu, DC=com"/>
            <DIR_USER_CONTEXT_2 value="CN=Users2,DC=mycompu, DC=com"/>
            <DIR_USER_CONTEXT_3 value="CN=Users3,DC=mycompu, DC=com"/>
            <!--        Firmware support information for next 12 tags:    -->
            <!--            iLO 5 - All versions.                          -->
            <!--            iLO 4 - All versions.                          -->
            <!--            iLO 3 - All versions.                          -->
            <!--            iLO 2 - 1.77 and later.                        -->
            <DIR_USER_CONTEXT_4 value="CN=Users4,DC=mycompu, DC=com"/>
            <DIR_USER_CONTEXT_5 value="CN=Users5,DC=mycompu, DC=com"/>
            <DIR_USER_CONTEXT_6 value="CN=Users6,DC=mycompu, DC=com"/>
            <DIR_USER_CONTEXT_7 value="CN=Users7,DC=mycompu, DC=com"/>
            <DIR_USER_CONTEXT_8 value="CN=Users8,DC=mycompu, DC=com"/>
            <DIR_USER_CONTEXT_9 value="CN=Users9,DC=mycompu, DC=com"/>
            <DIR_USER_CONTEXT_10 value="CN=Users10,DC=mycompu, DC=com"/>
            <DIR_USER_CONTEXT_11 value="CN=Users11,DC=mycompu, DC=com"/>
            <DIR_USER_CONTEXT_12 value="CN=Users12,DC=mycompu, DC=com"/>
            <DIR_USER_CONTEXT_13 value="CN=Users13,DC=mycompu, DC=com"/>
            <DIR_USER_CONTEXT_14 value="CN=Users14,DC=mycompu, DC=com"/>
            <DIR_USER_CONTEXT_15 value="CN=Users15,DC=mycompu, DC=com"/>
            <!--NOTE: Set the value to "NO" to enable the HP Extended     -->
            <!--      Schema and Value "YES" to enable Default Directory  -->
            <!--      Login. To set Group Accounts and privileges for     -->
            <!--      Default Schema run Mod_Schemaless_Directory.xml.    -->
            <DIR_ENABLE_GRP_ACCT value = "yes"/>
            <DIR_GENERIC_LDAP_ENABLED VALUE="yes">
     <!-- Firmware support information for next 5 tags: -->
     <!-- iLO 5 - All versions.                         -->
     <!-- iLO 4 - All versions.                         -->
     <!-- iLO 3 - 1.20 and later.                       -->
```

```
    <!-- iLO 2 - None.                                  -->
    <DIR_KERBEROS_ENABLED value="Yes"/>
    <DIR_KERBEROS_REALM VALUE="realmname.domain.dom"/>
    <DIR_KERBEROS_KDC_ADDRESS VALUE="realmkdc.domain.dom"/>
    <DIR_KERBEROS_KDC_PORT VALUE="88"/>
    <DIR_KERBEROS_KEYTAB>
    -----BEGIN KEYTAB-----
    VGhpcyBpcyBhIHRlc3Qgb2YgdGhlIEJhc2U2NCBlbmNvZGVyLiAgVGhpcy
    BpcyBvbmx5IGEgdGVz
    dC4=
    -----END KEYTAB-----
    </DIR_KERBEROS_KEYTAB>
    </MOD_DIR_CONFIG>
   </DIR_INFO>
  </LOGIN>
 </RIBCL>
```

NOTE:

To modify only the kerberos authentication, start with the sample script `Mod_Kerberos_Config.xml`.

NOTE:

Do not use the following tags when using directory integration with schema extension:

- DIR_ENABLE_GRP_ACCT
- DIR_GRPACCT1_NAME
- DIR_GRPACCT1_PRIV

Do not use the following tags when using schema-free directories:

- DIR_OBJECT_DN
- DIR_OBJECT_PASSWORD

Schemaless directory example (MOD_SCHEMALESS_DIR.XML)

```
<!--         RIBCL Sample Script for HP Lights-Out Products          -->
<!--Copyright (c) 2003,2016 Hewlett-Packard Development Company, L.P.-->

<!-- Description:  This is a sample XML script to modify the current -->
<!--               schemaless directory configuration on following   -->
<!--               device:                                           -->
<!--                 Integrated Lights-Out 5 (iLO 5)                 -->
<!--                 Integrated Lights-Out 4 (iLO 4)                 -->
<!--                 Integrated Lights-Out 3 (iLO 3)                 -->
<!--                 Integrated Lights-Out 2 (iLO 2)                 -->

<!-- NOTE:  You will need to replace the USER_LOGIN and PASSWORD     -->
<!--        values with values that are appropriate for your         -->
<!--        environment.                                             -->

<!-- NOTE:  Run Mod_directory.xml to enable Directory login,         -->
<!--        And to set the directory server address.                 -->

<!--               The Privilege values are:                         -->
<!--                   1 = Administer User Accounts                  -->
<!--                   2 = Remote Console Access                     -->
```

```
<!--                  3 = Virtual Power and Reset                  -->
<!--                  4 = Virtual Media                            -->
<!--                  5 = Configure iLO settings                   -->
<!--                  6 = Login Privilege                          -->
<!--              Values "6" is supported by iLO 3 and iLO 4       -->
<!--              firmware only.                                   -->

<!--        See "HP Integrated Lights-Out Management Processor     -->
<!--        Scripting and Command Line Resource Guide" for more    -->
<!--        information on scripting and the syntax of the RIBCL   -->
<!--        XML.                                                   -->

<!--        Firmware support information for this script:          -->
<!--            iLO 5 - All versions.                              -->
<!--            iLO 4 - All versions.                              -->
<!--            iLO 3 - All versions.                              -->
<!--            iLO 2 - Version 1.10 or later.                     -->

<RIBCL VERSION="2.0">
   <LOGIN USER_LOGIN="admin" PASSWORD="admin123">
      <DIR_INFO MODE = "write">
         <MOD_DIR_CONFIG>
            <DIR_ENABLE_GRP_ACCT value = "Yes"/>

            <DIR_GRPACCT1_NAME value = "test1"/>
            <DIR_GRPACCT1_PRIV value = "3,4,5"/>
            <!--      Firmware support information for next tag:        -->
            <!--       iLO 5 - All versions.                            -->
            <!--       iLO 4 - All versions.                            -->
            <!--       iLO 3 - Version 1.20 or later only               --
>
            <DIR_GRPACCT1_SID value= "S-1-0"/>

            <DIR_GRPACCT2_NAME value = "test2"/>
            <DIR_GRPACCT2_PRIV value = "2,3,5"/>
            <!--      Firmware support information for next tag:        -->
            <!--       iLO 5 - All versions.                            -->
            <!--       iLO 4 - All versions.                            -->
            <!--       iLO 3 - Version 1.20 or later only               --
>
            <DIR_GRPACCT2_SID value= "S-2-0"/>

            <DIR_GRPACCT3_NAME value = "test3"/>
            <DIR_GRPACCT3_PRIV value = "1,3,4"/>
            <!--      Firmware support information for next tag:        -->
            <!--       iLO 5 - All versions.                            -->
            <!--       iLO 4 - All versions.                            -->
            <!--       iLO 3 - Version 1.20 or later only               -->

            <DIR_GRPACCT3_SID value= "S-3-0"/>

            <DIR_GRPACCT4_NAME value = "test4"/>
            <DIR_GRPACCT4_PRIV value = "3,6"/>
            <!--      Firmware support information for next tag:        -->
            <!--       iLO 5 - All versions.                            -->
            <!--       iLO 4 - All versions.                            -->
            <!--       iLO 3 - Version 1.20 or later only               -->
```

```
            <DIR_GRPACCT4_SID value= "S-4-0"/>

            <DIR_GRPACCT5_NAME value = "test5"/>
            <DIR_GRPACCT5_PRIV value = "2,3"/>
            <!--      Firmware support information for next tag:         -->
            <!--       iLO 5 - All versions.                             -->
            <!--       iLO 4 - All versions.                             -->
            <!--       iLO 3 - Version 1.20 or later only                -->

            <DIR_GRPACCT5_SID value= "S-5-0"/>

            <DIR_GRPACCT6_NAME value = "test6"/>
            <DIR_GRPACCT6_PRIV value = "1,3,4,6"/>
            <!--      Firmware support information for next tag:         -->
            <!--       iLO 5 - All versions.                             -->
            <!--       iLO 4 - All versions.                             -->
            <!--       iLO 3 - Version 1.20 or later only                -->

            <DIR_GRPACCT6_SID value= "S-6-0"/>

            <!-- alternative method for ilo3/4 only -->
            <!-- <DIR_GRPACCT INDEX="1">                 -->
            <!--       <NAME VALUE="string"/>                 -->
            <!--       <SID VALUE="S-1-0"/>                -->
            <!--       <LOGIN_PRIV VALUE="Y"/>                 --
>
            <!-- </DIR_GRPACCT>                     -->

         </MOD_DIR_CONFIG>
      </DIR_INFO>
   </LOGIN>
</RIBCL>
```

MOD_DIR_CONFIG parameters

All of the following parameters are optional. If a parameter is not specified, then the parameter value for the specified setting is preserved.

DIR_AUTHENTICATION_ENABLED enables or disables directory authentication. The possible values are `Yes` and `No`.

DIR_ENABLE_GRP_ACCT causes iLO to use schema-less directory integration. The possible values are `Yes` and `No`.

DIR_GENERIC_LDAP_ENABLED enables or disables OpenLDAP support. This works only in schema-free mode. The possible values are `Yes` and `No`.

When using schema-free directory integration, iLO supports variable privileges associated with different directory groups. These groups are contained in the directory, and the corresponding member iLO privileges are stored in iLO.

DIR_KERBEROS_ENABLED enables or disables Kerberos authentication. The possible values are `Yes` and `No`.

DIR_KERBEROS_REALM specifies the Kerberos realm for which the domain controller is configured. By convention, the Kerberos realm name for a given domain is the domain name converted to uppercase.

DIR_KERBEROS_KDC_ADDRESS specifies the location of the domain controller. The domain controller location is specified as an IP address or DNS name.

DIR_KERBEROS_KDC_PORT specifies the port number used to connect to the domain controller. The Kerberos port number is 88, but the domain controller can be configured for a different port number.

DIR_KERBEROS_KEYTAB specifies the contents of the keytab file which is a binary file containing pairs of principals and encrypted passwords. In the Windows environment, the keytab file is generated with a ktpass utility. After generating a binary keytab file using the appropriate utility, use a Base64 encoder to convert the binary file to ASCII format.

Place the Base64 contents between:

```
-----BEGIN KEYTAB-----
```

and

```
-----END KEYTAB-----
```

- DIR_GRPACCT1_NAME identifies a group container in the directory, such as Administrators, Users, or Power Users.
- DIR_GRPACCT1_PRIV numerically identifies iLO privileges for members of the group. You can mix and match privileges by including more than one value. These privileges are expressed as a comma separated list of numbers (1,2,3,4,5,6) which correlate to:
  - **1**—Administer Group Accounts
  - **2**—Remote Console Access
  - **3**—Virtual Power and Reset
  - **4**—Virtual Media
  - **5**—Configure 5 Settings
  - **6**—Login Privilege

  NOTE:

  Do not use the following tags when using directory integration with schema extension:

  - DIR_ENABLE_GRP_ACCT
  - DIR_GRPACCT1_NAME
  - DIR_GRPACCT1_PRIV
  - DIR_GENERIC_LDAP_ENABLED

  Do not use the following tags when using schema-free directories

  - DIR_OBJECT_DN
  - DIR_OBJECT_PASSWORD

DIR_LOCAL_USER_ACCT enables or disables local user accounts. The possible values are `Yes` and `No`.

DIR_SERVER_ADDRESS specifies the location of the directory server. The directory server location is specified as an IP address or DNS name.

DIR_SERVER_PORT specifies the port number used to connect to the directory server. This value is obtained from the directory administrator. The secure LDAP port is 636, but the directory server can be configured for a different port number.

DIR_OBJECT_DN specifies the unique name of iLO in the directory server. This value is obtained from the directory administrator. Distinguished names are limited to 256 characters.

DIR_OBJECT_PASSWORD specifies the password associated with the iLO object in the directory server. Passwords are limited to 39 characters.

DIR_USER_CONTEXT_1, DIR_USER_CONTEXT_2, and DIR_USER_CONTEXT_15 specify searchable contexts used to locate the user when the user is trying to authenticate using directories. If the user is not located using the first path, then the parameters specified in the second and third paths are used. The values

for these parameters are obtained from the directory administrator. Directory User Contexts are limited to 128 characters each.

MOD_DIR_CONFIG runtime errors

Possible MOD_DIR_CONFIG error messages include:

- `Directory information is open for read-only access. Write access is required for this operation.`
- `User does not have correct privilege for action. CONFIG_ILO_PRIV required.`

IMPORT_LDAP_CA_CERTIFICATE

Use this command to import a directory server's CA certificate to iLO. On successful import of the certificate, the directory server certificate validation option is enabled. This feature ensures that iLO connects to the correct directory server during LDAP authentication. Use HPQLOCFG.EXE version 1.00 or later with this command. Replace USER_LOGIN and PASSWORD values with values that are appropriate for your environment.

For example:

```
<RIBCL VERSION="2.0">
   <LOGIN USER_LOGIN="adminname" PASSWORD="password">
      <DIR_INFO MODE="write">
         <IMPORT_LDAP_CA_CERTIFICATE>
-----BEGIN CERTIFICATE-----
<!--      Certificate Data          -->
-----END CERTIFICATE-----
         </IMPORT_LDAP_CA_CERTIFICATE>
      </DIR_INFO>
   </LOGIN>
</RIBCL>
```

IMPORT_LDAP_CA_CERTIFICATE parameters

None

IMPORT_LDAP_CA_CERTIFICATE runtime errors

The possible IMPORT_LDAP_CA_CERTIFICATE error messages include:

- `iLO information is open for read-only access. Write access is required for this operation.`
- `User does NOT have correct privilege for action. CONFIG_ILO_PRIV required.`
- `Failed to import the certificate.`

GET_LDAP_CA_CERTIFICATE_STATUS

Use this command to check if an LDAP server's CA certificate is currently loaded or not. Use HPQLOCFG.EXE version 1.00 or later with this command. Replace USER_LOGIN and PASSWORD values with values that are appropriate for your environment. For example:

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

GET_LDAP_CA_CERTIFICATE_STATUS parameters

None

GET_LDAP_CA_CERTIFICATE_STATUS runtime errors

None

GET_LDAP_CA_CERTIFICATE_STATUS return messages

A possible GET_LDAP_CA_CERTIFICATE_STATUS return message is:

```
<GET_LDAP_CA_CERTIFICATE_STATUS>
    <LDAP_CA_CERTIFICATE_STATUS VALUE="Not Loaded"/>
</GET_LDAP_CA_CERTIFICATE_STATUS>
```

Or

```
<GET_LDAP_CA_CERTIFICATE_STATUS>
    <LDAP_CA_CERTIFICATE_STATUS VALUE="Loaded"/>
</GET_LDAP_CA_CERTIFICATE_STATUS>
```

MOD_KERBEROS

The MOD_KERBEROS command modifies the directory settings in iLO. For this command to parse correctly, the MOD_KERBEROS command must appear within a MOD_DIR_CONFIG command block, and DIR_INFO MODE must be set to `write`. The user must have the Configure iLO Settings privilege to execute this command.

For example:

```
<RIBCL VERSION="2.0">
  <LOGIN USER_LOGIN="adminname" PASSWORD="password">
    <DIR_INFO MODE="write">
      <MOD_DIR_CONFIG>
        <DIR_KERBEROS_ENABLED value="Yes"/>
        <DIR_KERBEROS_REALM VALUE="realmname.domain.dom"/>
        <DIR_KERBEROS_KDC_ADDRESS VALUE="realmkdc.domain.dom"/>
        <DIR_KERBEROS_KDC_PORT VALUE="88"/>
        <DIR_KERBEROS_KEYTAB>
-----BEGIN KEYTAB-----
VGhpcyBpcyBhIHRlc3Qgb2YgdGhlIEJhc2U2NCBlbmNvZGVyLiAgVGhpcy
BpcyBvbmx5IGEgdGVz
dC4=
-----END KEYTAB-----
         </DIR_KERBEROS_KEYTAB>
      </MOD_DIR_CONFIG>
    </DIR_INFO>
  </LOGIN>
</RIBCL>
```

START_DIR_TEST

The START_DIR_TEST command enables you to validate the configured directory settings. For this command to parse correctly, the START_DIR_TEST command must appear within a DIR_INFO command block, and DIR_INFO MODE must be set to write. The user must have the Configure iLO Settings privilege to execute this command.

NOTE:

The directory test results are reset when directory settings are saved, or when the directory tests are started.

```
<RIBCL VERSION="2.0">
   <LOGIN USER_LOGIN="adminname" PASSWORD="password">
      <DIR_INFO MODE="write">
         <START_DIR_TEST>
            <DIR_ADMIN_DISTINGUISHED_NAME VALUE="ad_admin_username"/>
            <DIR_ADMIN_PASSWORD VALUE="password"/>
            <TEST_USER_NAME VALUE="test_user_name"/>
            <TEST_USER_PASSWORD VALUE="password"/>
        </START_DIR_TEST>
      </DIR_INFO>
   </LOGIN>
</RIBCL>
```

START_DIR_TEST parameters

All of the following parameters are optional. If a parameter is not specified, then the parameter value for the specified setting will be left empty.

- DIR_ADMIN_DISTINGUISHED_NAME searches the directory for iLO objects, roles, and search contexts. This user must have the right to read the directory.
- DIR_ADMIN_PASSWORD authenticates the directory administrator.
- TEST_USER_NAME tests login and access rights to iLO. This name does not need to be fully distinguished because user search contexts can be applied. This user must be associated with a role for this iLO.
- TEST_USER_PASSWORD authenticates the test user.

START_DIR_TEST runtime errors

Possible START_DIR_TEST error messages include:

- `Directory information is open for read-only access. Write access is required for this operation.`
- `User does not have correct privilege for action. CONFIG_ILO_PRIV required.`

ABORT_DIR_TEST

The ABORT_DIR_TEST command stops a running directory test. For this command to parse correctly, the ABORT_DIR_TEST command must appear within a DIR_INFO command block, and DIR_INFO MODE must be set to write. The user must have the Configure iLO Settings privilege to execute this command.

```
<RIBCL VERSION="2.0">
   <LOGIN USER_LOGIN="adminname" PASSWORD="password">
      <DIR_INFO MODE="write">
         <ABORT_DIR_TEST/>
      </DIR_INFO>
   </LOGIN>
</RIBCL>
```

ABORT_DIR_TEST runtime errors

Possible ABORT _DIR_TEST error messages include:

- `iLO information is open for read-only access. Write access is required for this operation.`
- `User does not have correct privilege for action. CONFIG_ILO_PRIV required.`

GET_DIR_TEST_RESULTS

The GET_DIR_TEST_RESULTS command requests the results of directory tests. For this command to parse correctly, the GET_DIR_TEST_RESULTS command must appear within a DIR_INFO command block, and DIR_INFO MODE must be set to read. The user must have the Configure iLO Settings privilege to execute this command.

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

GET_DIR_TEST_RESULTS runtime errors

Possible GET_DIR_TEST_RESULTS error messages include:

- `This iLO information is read only. Write is not allowed.`
- `User does not have correct privilege for action. CONFIG_ILO_PRIV required.`
- `Directory test is in progress, please try after some time.`
- `Directory test is not running.`
- `Directory test aborted.`
- `Aborting Directory test.`

RACK_INFO

The RACK_INFO command can only appear within a LOGIN command block. When the command is parsed, it reads the rack infrastructure database into memory and prepares to edit it. Only commands that are RACK_INFO type commands are valid inside the RACK_INFO command block. The RACK_INFO command generates a response that indicates to the host application whether the database was successfully read. If the database is open for writing by another application, then this call will fail.

This command block is only valid on ProLiant BL Class Servers, and requires the MODE parameter with a value of read or write. The MODE parameter value is a specific string with a maximum length of 10 characters that specifies what you intend to do with the information.

Write mode enables both reading and writing of iLO information. Read mode prevents modification of the iLO information. The possible RACK_INFO error messages include:

- `Invalid Mode.`
- `Server is not a rack server; rack commands do not apply.`

For example:

```
<RACK_INFO MODE="read">
…… RACK_INFO commands ……
</RACK_INFO>
```

GET_RACK_SETTINGS

The GET_RACK_SETTING command requests the rack settings for an iLO. For this command to parse correctly, the GET_RACK_SETTINGS command must appear wthin a RACK_INFO command block, and RACK_INFO MODE can be set to read or write.

```
<RIBCL VERSION="2.0">
  <LOGIN USER_LOGIN="Administrator" PASSWORD="password">
    <RACK_INFO MODE="read">
      <GET_RACK_SETTINGS/>
    </RACK_INFO>
  </LOGIN>
</RIBCL>
```

GET_RACK_SETTINGS parameters

None

GET_RACK_SETTINGS runtime errors

A possible error message includes:

- `Server is NOT a rack server; Rack commands do not apply.`

GET_RACK_SETTINGS return messages

A possible GET_RACK_SETTINGS return message is:

```
<?xml version="1.0"?>
<RIBCL VERSION="2.22">
    <RESPONSE
        STATUS="0x0000"
        MESSAGE='No error'
     />
 <GET_RACK_SETTINGS>
    <RACK_NAME VALUE="Don_PowerCap_Rack"/>
    <ENCLOSURE_NAME VALUE="OA-001CC45F6A59"/>
    <ENCLOSURE_SN VALUE="2UX74403NS"/>
    <ENCLOSURE_UUID VALUE="092UX74403NS"/>
    <BAY VALUE="6"/>
    <ENCLOSURE_TYPE VALUE="BladeSystem c3000 Enclosure"/>
 </GET_RACK_SETTINGS>
</RIBCL>
```

BLADESYSTEM_INFO

The BLADESYSTEM_INFO command only appears within a LOGIN command block. Only commands that are BLADESYSTEM_INFO type commands are valid inside the BLADESYSTEM_INFO command block.

This command block is only valid on ProLiant BL c-Class blade servers. BLADESYSTEM_INFO requires the MODE parameter with a value of read or write. MODE is a specific string parameter with a maximum length of 10 characters that specifies what you intend to do with the information.

Write mode enables both reading and writing of information to the blade system. Read mode prevents modification of the blade system information.

The possible BLADESYSTEM_INFO error messages include:

- `Invalid Mode`
- `Server is not a rack server; rack commands do not apply`

For example:

```
<BLADESYSTEM_INFO MODE="read">
…… BLADESYSTEM_INFO commands ……
</BLADESYSTEM_INFO>
```

GET_OA_INFO

The GET_OA_INFO command requests the Onboard Administrator information from the enclosure where iLO is located. For this command to parse correctly, the GET_OA_INFO command must appear within a BLADESYSTEM_INFO command block, and BLADESYSTEM_INFO MODE can be set to read or write.

For example:

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

GET_OA_INFO parameters

None

GET_OA_INFO runtime errors

A possible error message includes:

- `Server is NOT a rack server; Rack commands do not apply.`

GET_OA_INFO return messages

A possible GET_OA_INFO return message is:

```
<GET_OA_INFO>
<ipAddress>192.168.1.105</ipAddress/>
<macAddress>00:22:44:55:33:77</macAddress/>
<System_Health>1</System_Health>
<uidStatus>On</uidStatus>
<RACK>South Park</RACK>
<ENCL>Kenny</ENCL>
<Location>7</Location>
</GET_OA_INFO>
```

SERVER_INFO

The SERVER_INFO command can only appear within a LOGIN command block. Only commands that are SERVER_INFO type commands are valid inside the SERVER_INFO command block.

SERVER_INFO requires the MODE parameter with a value of read or write. MODE is a specific string parameter with a maximum length of 10 characters that specifies what you intend to do with the information.

Write mode enables both the reading and writing of iLO information. Read mode prevents modification of iLO information.

For example:

```
<SERVER_INFO MODE="read">
…… SERVER_INFO commands ……
</SERVER_INFO>
```

Reset server example:

```
<RIBCL VERSION="2.0">
 <LOGIN USER_LOGIN="adminname" PASSWORD="password">
  <SERVER_INFO MODE="write">
   <RESET_SERVER/>
  </SERVER_INFO>
 </LOGIN>
</RIBCL>
```

Set host power example:

```
<RIBCL VERSION="2.0">
 <LOGIN USER_LOGIN="adminname" PASSWORD="password">
  <SERVER_INFO MODE="write">
    <!-- Modify the HOST_POWER attribute to toggle power on the host server -->
    <!-- HOST_POWER="No"  (Turns host server power off)                     -->
    <!-- A graceful shutdown will be attempted for ACPI-aware               -->
    <!-- operating systems configured to support graceful shutdown.         -->
    <!-- HOST_POWER="Yes" (Turns host server power on)                      -->
   <SET_HOST_POWER HOST_POWER="No"/>
  </SERVER_INFO>
 </LOGIN>
</RIBCL>
```

GET_TPM_STATUS

Use GET_TPM_STATUS to retrieve the status of the HPE Trusted Platform Module. The response includes whether a TPM is supported, if a TPM is present, and whether the TPM is enabled (indicated by YES or NO). The specified user must have a valid iLO account to execute RIBCL commands. For this command to parse correctly, the command must appear within a SERVER_INFO command block. You can set SERVER_INFO MODE to `read` or `write`.

For example:

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

GET_TPM_STATUS parameters

None

GET_TPM_STATUS runtime errors

None

GET_TPM_STATUS return messages

A possible GET_TPM_STATUS return message includes:

```
<?xml version="1.0"?>
<RIBCL VERSION="2.23">
<RESPONSE
    STATUS="0x0000"
    MESSAGE='No error'
     />
<GET_TPM_STATUS>
    <TPM_SUPPORTED VALUE="Yes"/>
    <TPM_PRESENT VALUE="Yes"/>
    <TPM_ENABLED VALUE="Yes"/>
    <TRUSTED_MODULE_TYPE VALUE="TPM 2.0"/>
    <TPM_CHIP_IDENTIFIER VALUE="STMicro"/>
    <TRUSTED_MODULE_VERSION VALUE="73"/>
</GET_TPM_STATUS>
</RIBCL>
```

GET_CURRENT_BOOT_MODE

Use GET_CURRENT_BOOT_MODE to retrieve the current boot mode. The response will include either `legacy` boot mode or `UEFI` boot mode. The specified user must have a valid iLO account to execute RIBCL commands. For this command to parse correctly, the command must appear within a SERVER_INFO command block, and SERVER_INFO MODE can be set to either `read` or `write`. For example:

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

Possible return values are `LEGACY` or `UEFI`.

GET_CURRENT_BOOT_MODE parameters

None

GET_CURRENT_BOOT_MODE runtime errors

None

GET_CURRENT_BOOT_MODE return messages

A possible GET_CURRENT_BOOT_MODE return message includes:

```
<?xml version="1.0"?>
<RIBCL VERSION="2.23">
<RESPONSE
    STATUS="0x0000"
    MESSAGE='No error'
     />
<GET_CURRENT_BOOT_MODE>
```

```
    <BOOT_MODE VALUE="UEFI"/>
</GET_CURRENT_BOOT_MODE>
</RIBCL>
```

GET_PENDING_BOOT_MODE

Use GET_PENDING_BOOT_MODE to retrieve the pending boot mode, which becomes active on the next server reboot. The specified user must have a valid iLO account to execute RIBCL commands. For this command to parse correctly, the command must appear within a SERVER_INFO command block, and SERVER_INFO MODE can be set to either `read` or `write`.

For example:

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

Possible return values are `LEGACY`, `UEFI`, or `UNKNOWN`.

GET_PENDING_BOOT_MODE parameters

None

GET_PENDING_BOOT_MODE runtime errors

None

GET_PENDING_BOOT_MODE return messages

```
<RIBCL VERSION="2.23">
<RESPONSE
    STATUS="0x0000"
    MESSAGE='No error'
     />
<GET_PENDING_BOOT_MODE>
    <BOOT_MODE VALUE="LEGACY"/>
</GET_PENDING_BOOT_MODE></RIBCL>
```

SET_PENDING_BOOT_MODE

Use SET_PENDING_BOOT_MODE to set the mode for the next server boot. The specified user must have a valid iLO account to execute RIBCL commands. For this command to parse correctly, the command must appear within a SERVER_INFO command block, and SERVER_INFO MODE must be set to write.

For example:

```
<RIBCL VERSION="2.0">
 <LOGIN USER_LOGIN="adminname" PASSWORD="password">
   <SERVER_INFO MODE="write">
    <SET_PENDING_BOOT_MODE VALUE="LEGACY"/>
   </SERVER_INFO>
```

```
 </LOGIN>
</RIBCL>
```

SET_PENDING_BOOT_MODE parameters

SET_PENDING_BOOT_MODE sets the mode for the next server boot. Valid values include **`LEGACY`** or **`UEFI`**.

SET_PENDING_BOOT_MODE runtime errors

Possible error messages include:

- `This system is UEFI only.`
- `This system is Legacy only.`
- `Unable to determine if system supports UEFI, try again.`

GET_PERSISTENT_BOOT

The GET_PERSISTENT_BOOT command returns the current boot order, regardless of UEFI or Legacy mode. The specified user must have a valid iLO account to execute RIBCL commands. For this command to parse correctly, the command must appear within a SERVER_INFO command block, and SERVER_INFO MODE can be set to either `read` or `write`.

For example:

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

GET_PERSISTENT_BOOT return messages

A possible GET_PERSISTENT_BOOT return message when LEGACY is enabled includes:

```
<?xml version="1.0"?>
<RIBCL VERSION="2.23">
<RESPONSE
    STATUS="0x0000"
    MESSAGE='No error'
     />
<PERSISTENT_BOOT>
  <DEVICE value="CDROM"/>
  <DEVICE value="HDD"/>
  <DEVICE value="FLOPPY"/>
  <DEVICE value="USB"/>
  <DEVICE value="NETWORK1"/>
  <DEVICE value="NETWORK2"/>
  <DEVICE value="NETWORK3"/>
  <DEVICE value="NETWORK4"/>
  <DEVICE value="NETWORK5"/>
  <DEVICE value="NETWORK6"/>
  <DEVICE value="NETWORK7"/>
  <DEVICE value="NETWORK8"/>
  <DEVICE value="NETWORK9"/>
  <DEVICE value="NETWORK10"/>
  <DEVICE value="NETWORK11"/>
```

```
  <DEVICE value="NETWORK12"/>
</PERSISTENT_BOOT>
</RIBCL>
```

A possible GET_PERSISTENT_BOOT return message when UEFI is enabled includes:

```
<RIBCL VERSION="2.23">
<RESPONSE
    STATUS="0x0000"
    MESSAGE='No error'
     />
<PERSISTENT_BOOT>
    <DEVICE value="Boot0009" DESCRIPTION="Embedded FlexibleLOM 1 Port 1 : HPE
Ethernet 1Gb 4-port 331FLR Adapter - NIC (IPv4) "/>
    <DEVICE value="Boot000A" DESCRIPTION="Front USB 1 : Imation Nano Pro"/>
    <DEVICE value="Boot000D" DESCRIPTION="Windows Boot Manager"/>
    <DEVICE value="Boot0007" DESCRIPTION="Embedded SAS : Smart Array P830i
Controller - 68 GB, RAID 0 Logical Drive(Target:0, Lun:0)"/>
    <DEVICE value="Boot0008" DESCRIPTION="Embedded FlexibleLOM 1 Port 1 : HPE
Ethernet 1Gb 4-port 331FLR Adapter - NIC (IPv6) "/>
</PERSISTENT_BOOT>
</RIBCL>
```

SET_PERSISTENT_BOOT (Legacy)

On non-UEFI systems, or UEFI systems in legacy mode, the SET_PERSISTENT_BOOT command takes one or more boot parameters and sets the normal boot order. If you do not list every option, the remaining options are shifted towards the bottom of the list. The specified user must have a valid iLO account to execute RIBCL commands. For this command to parse correctly, the command must appear within a SERVER_INFO command block, and SERVER_INFO MODE must be set to write.

NOTE:

This code modifies EVs. The one time boot EV is:

`CQTBT1.`

This was modified to set the one-time boot and to display the current status.

For example:

```
<RIBCL VERSION="2.0">
 <LOGIN USER_LOGIN="adminname" PASSWORD="password">
   <SERVER_INFO MODE="write">
     <SET_PERSISTENT_BOOT>
      <DEVICE value = "FLOPPY"/>
      <DEVICE value = "CDROM"/>
     </SET_PERSISTENT_BOOT>
   </SERVER_INFO>
 </LOGIN>
</RIBCL>
```

SET_PERSISTENT_BOOT parameters

The `value` sets the default boot order. Valid values are:

- CDROM
- FlexibleLOM

- EmbeddedLOM
- NIC
- HDD
- SA_HDD
- USB_HDD
- PCI_DEVICE

SET_PERSISTENT_BOOT runtime errors

Some possible error messages you may see when running this command:

- `Post in progress, EV unavailable.`
- `EV name too large.`
- `EV data too large.`
- `There is no such EV.`
- `EV is not supported.`
- `EV is not initialized.`
- `ROM is busy, EV unavailable.`

SET_PERSISTENT_BOOT (UEFI)

On UEFI systems, SET_PERSISTENT_BOOT command takes one or more UEFI boot parameters and sets the normal boot order. If you do not list every option, the remaining options are shifted toward the bottom of the list. The specified user must have a valid iLO account to execute RIBCL commands. For this command to parse correctly, the command must appear within a SERVER_INFO command block, and SERVER_INFO MODE must be set to write.

For example:

```
<RIBCL VERSION="2.0">
 <LOGIN USER_LOGIN="adminname" PASSWORD="password">
   <SERVER_INFO MODE="write">
     <SET_PERSISTENT_BOOT>
       <DEVICE value = "Boot0008"/>
       <DEVICE value = "Boot0009"/>
       <DEVICE value = "Boot000A"/>
       <DEVICE value = "Boot000D"/>
     </SET_PERSISTENT_BOOT>
   </SERVER_INFO>
 </LOGIN>
</RIBCL>
```

NOTE:

Before using the SET_PERSISTENT_BOOT command in UEFI mode, use GET_PERSISTENT_BOOT to retrieve the list of available boot selections. A server in UEFI mode does not have unique selections, as opposed to a non-UEFI server, or a UEFI server running in legacy mode.

SET_PERSISTENT_BOOT parameters

Base the parameters sent with the SET_PERSISTENT_BOOT command on the BootXXXX values available returned by the GET_PERSISTENT_BOOT command. For example, assume the following is returned from the GET command, indicating Boot0009 is the primary boot selection:

```
<PERSISTENT_BOOT>
    <DEVICE value="Boot0009" DESCRIPTION="Embedded FlexibleLOM 1 Port 1 : HPE
```

```
Ethernet 1Gb 4-port 331FLR Adapter - NIC (IPv4) "/>
    <DEVICE value="Boot000A" DESCRIPTION="Front USB 1 : Imation Nano Pro"/>
    <DEVICE value="Boot000D" DESCRIPTION="Windows Boot Manager"/>
    <DEVICE value="Boot0007" DESCRIPTION="Embedded SAS : Smart Array P830i
Controller - 68 GB, RAID 0 Logical Drive(Target:0, Lun:0)"/>
    <DEVICE value="Boot0008" DESCRIPTION="Embedded FlexibleLOM 1 Port 1 : HPE
Ethernet 1Gb 4-port 331FLR Adapter - NIC (IPv6) "/>
</PERSISTENT_BOOT>
```

The UEFI boot order is based on the order of the device values. To change the UEFI boot order, for example so that the Windows Boot Manager is first:

```
<RIBCL VERSION="2.0">
 <LOGIN USER_LOGIN="adminname" PASSWORD="password">
   <SERVER_INFO MODE="write">
     <SET_PERSISTENT_BOOT>
       <DEVICE value = "Boot000D"/>
       <DEVICE value = "Boot0009"/>
       <DEVICE value = "Boot000A"/>
       <DEVICE value = "Boot0007"/>
     </SET_PERSISTENT_BOOT>
   </SERVER_INFO>
 </LOGIN>
</RIBCL>
```

Alternatively, you can list only the device value that should be first (`<DEVICE value = "Boot000D" />`). Any devices not specified in the SET command are moved to the end of the list, just as they are handled in Legacy mode.

NOTE:

The DEVICE values are case sensitive, and must be entered when using SET_PERSISTENT_BOOT exactly as they are shown in the return from GET_PERSISTENT_BOOT.

SET_PERSISTENT_BOOT runtime errors

Some possible error messages you may see when running this command:

- `DEVICE is invalid.`
- `Invalid device choice.`
- `No UEFI Target boot device with the specified BootXXXX is available`
- `Unable to allocate memory.`
- `Boot mode is unknown.`

GET_ONE_TIME_BOOT

The GET_ONE_TIME_BOOT command retrieves the current setting for the one time boot. The specified user must have a valid iLO account to execute RIBCL commands. For this command to parse correctly, the command must appear within a SERVER_INFO command block, and SERVER_INFO MODE must be set to read.

For example:

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

```
 </LOGIN>
</RIBCL>
```

GET_ONE_TIME_BOOT return messages

A possible GET_ONE_TIME_BOOT return message includes:

```
<?xml version="1.0"?>
<RIBCL VERSION="2.23">
<RESPONSE
    STATUS="0x0000"
    MESSAGE='No error'
     />
<ONE_TIME_BOOT>
  <BOOT_TYPE VALUE="UEFI_SHELL"/>
</ONE_TIME_BOOT>
</RIBCL>
```

Possible BOOT_TYPE values include:

- `NORMAL`
- `FLOPPY`
- `CDROM`
- `HDD`
- `USB`
- `RBSU`
- `NETWORK`
- `UEFI_SHELL`
- `INTELLIGENT_PROVISIONING`
- `<Boot`*`XXXX`*`>`

NOTE:

`Boot<`*`XXXX`*`>` is a possible response on systems that support UEFI and are not in Legacy mode. This type of response also includes a DESCRIPTION, which includes the title of the device and other details.

NOTE:

If the return message shows `BOOT_TYPE VALUE="INVALID"`, you may have selected a one time boot mode in the iLO web interface that is not supported by iLO 5 RIBCL or on the command line, such as HTTP Boot.

SET_ONE_TIME_BOOT

The SET_ONE_TIME_BOOT command configures a single boot from a specific device. The specified user must have a valid iLO account to execute RIBCL commands. For this command to parse correctly, the command must appear within a SERVER_INFO command block, and SERVER_INFO MODE must be set to write.

NOTE:

This code modifies EVs.

The one–time boot is accomplished by reading and modifying CQTBT1, CQTBOOTNEXT, and CQTESS, and reading CQHBOOTORDER to determine the valid boot devices.

For example:

```
<RIBCL VERSION="2.0">
 <LOGIN USER_LOGIN="adminname" PASSWORD="password">
   <SERVER_INFO MODE="write">
    <SET_ONE_TIME_BOOT value = "UEFI_SHELL"/>
   </SERVER_INFO>
 </LOGIN>
</RIBCL>
```

SET_ONE_TIME_BOOT parameters

The `value` sets a specified device as the source for a single boot. Valid values include the following:

- `NORMAL`
- `CDROM`
- `HDD`
- `USB`
- `RBSU`
- `NETWORK`
- `UEFI_SHELL`

  NOTE:

  UEFI_SHELL is only valid on systems that support UEFI.

- `Intelligent_Provisioning`
- `Boot<XXXX>`

  NOTE:

  `Boot<XXXX>` is only valid on systems that support UEFI and are not in Legacy mode. Use **GET_PERSISTENT_BOOT** to see available values.

iLO 5 options:

- `EMB-MENU`—Displays the default boot menu
- `EMB-ACU`—Boots into ACU
- `EMB-HPSUM-AUTO`—Boots HPSUM in automatic update mode
- `RBSU`—Boots into the system RBSU.

NOTE:

In the iLO 5 web interface, it is possible to set an HTTP boot. This boot mode is not supported on the command line or RIBCL scripts.

SET_ONE_TIME_BOOT runtime errors

Some possible error messages you may see when running this command:

- `Post in progress, EV unavailable.`
- `EV name too large.`
- `EV data too large.`
- `There is no such EV.`
- `EV is not supported.`
- `EV is not initialized.`

- `ROM is busy, EV unavailable.`
- `Unable to determine if system supports UEFI, try again.`
- `UEFI is not available on this system.`

GET_SDCARD_STATUS

Use GET_SDCARD_STATUS to determine whether an SD (secure digital) card is connected to the server. The specified user must have a valid iLO account to execute RIBCL commands. For this command to parse correctly, the command must appear within a SERVER_INFO command block. You can set the SERVER_INFO MODE to `read` or `write`.

For example:

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

Possible values returned include:

- `PRESENT`
- `NOT PRESENT`
- `UNKNOWN`

GET_SDCARD_STATUS return messages

A possible GET_SDCARD_STATUS return message includes:

```
<?xml version="1.0"?>
<RIBCL VERSION="2.23">
<RESPONSE
    STATUS="0x0000"
    MESSAGE='No error'
     />
<GET_SDCARD_STATUS>
  <SDCARD_STATUS VALUE="PRESENT"/>
</GET_SDCARD_STATUS>
</RIBCL>
```

GET_SUPPORTED_BOOT_MODE

Use GET_SUPPORTED_BOOT_MODE to retrieve the supported boot modes. The specified user must have a valid iLO account to execute RIBCL commands. For this command to parse correctly, the command must appear within a SERVER_INFO command block. You can set the SERVER_INFO MODE to `read` or `write`.

For example:

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

Possible values returned include:

- LEGACY_ONLY
- UEFI_ONLY
- LEGACY_UEFI
- UNKNOWN

GET_SUPPORTED_BOOT_MODE return messages

A possible GET_SUPPORTED_BOOT_MODE return message includes:

```
<?xml version="1.0"?>
<RIBCL VERSION="2.23">
<RESPONSE
    STATUS="0x0000"
    MESSAGE='No error'
     />
<GET_SUPPORTED_BOOT_MODE>
    <SUPPORTED_BOOT_MODE VALUE="LEGACY_ONLY"/>
</GET_SUPPORTED_BOOT_MODE>
</RIBCL>
```

GET_SUPPORTED_BOOT_MODE runtime errors

None

GET_SERVER_NAME

Use GET_SERVER_NAME command to retrieve the host server name used by iLO.

For example:

```
<RIBCL version="2.0">
 <LOGIN USER_LOGIN="Administrator" PASSWORD="password">
  <SERVER_INFO MODE="READ" >
   <GET_SERVER_NAME />
  </SERVER_INFO>
 </LOGIN>
</RIBCL>
```

The iLO firmware maintains consistency between the various places the server name is used. The host RBSU has a two-line limitation of 14 characters each, or 28 characters of total server name text length.

Normally, HPE ProLiant Management Agents are used to forward the server name attribute to iLO. This command can be used in instances where management agents are not used. However, the host operating system remains unaffected.

GET_SERVER_NAME return message

GET_SERVER_NAME returns the currently stored server name, operating system name, and the operating system version, if available. The server name is a quoted ASCII string and cannot be a network name.

For example:

```
<SERVER_NAME VALUE="WIN-DPOHJLI9DO8" />
```

```
<SERVER_OSNAME VALUE="Windows Server 2008 R2, x64 Enterprise Edition Service
Pack 1"/>
```

```
<SERVER_OSVERSION VALUE="6.1"/>
```

GET_SERVER_NAME runtime errors

None

SERVER_NAME

The SERVER_NAME command is used to assign the Server Name attribute shown in the user interface and host RBSU. This setting is not forwarded to the host operating system and does not affect the host operating system.

You must have the Configure iLO Settings privilege to change this attribute using the scripting interface. The SERVER_INFO section must be set to WRITE mode or an error is returned.

For example:

```
<RIBCL version="2.0">
 <LOGIN USER_LOGIN="Administrator" PASSWORD="password">
  <SERVER_INFO MODE="write" >
  <SERVER_NAME VALUE = "Exchange05" />
  </SERVER_INFO>
 </LOGIN>
</RIBCL>
```

SERVER_NAME parameters

VALUE is a quoted ASCII string less than 50 characters in total length.

SERVER_NAME return message

If this attribute is successfully set, no specific message returns.

SERVER_NAME runtime errors

- If the configure iLO settings privilege is absent, a runtime error is returned:

  `User does NOT have correct privilege for action. CONFIG_ILO_PRIV required.`
- If SERVER_INFO is not opened for write, a runtime error is returned.

  `Server information is open for read-only access. Write access is required for this operation.`

GET_SERVER_FQDN

The GET_SERVER_FQDN command is used to retrieve the fully qualified domain name of the server.

For example:

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

GET_SERVER_FQDN

None

GET_SERVER_FQDN

A typical response for this command might include the following:

```
<?xml version="1.0"?>
<RIBCL VERSION="2.23">
<RESPONSE
    STATUS="0x0000"
    MESSAGE='No error'
     />
<SERVER_FQDN VALUE="server.example.com" />
</RIBCL>
```

SERVER_FQDN

The command SERVER_FQDN sets the fully qualified domain name for the server. IP addresses are also accepted. You must have the Configure iLO Settings privilege to change this attribute using the scripting interface. The SERVER_INFO section must be set to `write` or an error is returned.

For example:

```
<RIBCL VERSION="2.0">
  <LOGIN USER_LOGIN="adminname" PASSWORD="password">
    <SERVER_INFO MODE="write">
                <SERVER_FQDN value="server.example.com" />
    </SERVER_INFO>
  </LOGIN>
</RIBCL>
```

SERVER_FQDN parameters

SERVER_FQDN—Value must be the FQDN or IP address of the host server.

SERVER_FQDN return messages

If the attributes are successfully set, no specific messages return.

SERVER_FQDN runtime errors

- `User does NOT have correct privilege for action. CONFIG_ILO_PRIV required.`

GET_PRODUCT_NAME

The GET_PRODUCT_NAME command returns the name and model of the queried server. The specified user must have a valid iLO account to execute RIBCL commands. For this command to parse correctly, the command must appear within a SERVER_INFO command block. You can set the SERVER_INFO MODE to read or write.

For example:

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

GET_PRODUCT_NAME runtime errors

None.

GET_PRODUCT_NAME return messages

A possible GET_PRODUCT_NAME return message includes:

```
<RIBCL VERSION="2.22">
<RESPONSE
    STATUS="0x0000"
    MESSAGE='No error'
     />
  <GET_PRODUCT_NAME>
    <PRODUCT_NAME VALUE ="ProLiant BL420c Gen8"/>
  </GET_PRODUCT_NAME>
</RIBCL>
```

GET_EMBEDDED_HEALTH

The GET_EMBEDDED_HEALTH command is used to retrieve server health information. For this command to parse correctly, the GET_EMBEDDED_HEALTH command must appear within a SERVER_INFO command block. You can set SERVER_INFO MODE to read or write.

For example:

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

An expanded version is also available (see example below). Not all tags are required, however if no tags are specified then the command operates as if all the tags are listed and outputs all of the embedded health data:

```
<RIBCL VERSION="2.22">
  <LOGIN USER_LOGIN="adminname" PASSWORD="password">
    <SERVER_INFO MODE="read">
      <GET_EMBEDDED_HEALTH>
        <GET_ALL_FANS/>
        <GET_ALL_TEMPERATURES/>
        <GET_ALL_POWER_SUPPLIES/>
        <GET_ALL_VRM/>
        <GET_ALL_PROCESSORS/>
        <GET_ALL_MEMORY/>
        <GET_ALL_NICS/>
        <GET_ALL_STORAGE/>
        <GET_ALL_HEALTH_STATUS/>
          <!-- Following tag is for iLO 4 1.30 or later.              -->
        <GET_ALL_FIRMWARE_VERSIONS/>
      </GET_EMBEDDED_HEALTH>
    </SERVER_INFO>
  </LOGIN>
</RIBCL>
```

GET_EMBEDDED_HEALTH parameters

None

GET_EMBEDDED_HEALTH return messages

NOTE:

PART NUMBER (for MEMORY_DETAILS) is only returned for HPE Smart Memory.

For a sample return message, see **Sample return for GET_EMBEDDED_HEALTH** on page 230.

NOTE:

Variable POWER_SUPPLIES tags

- The POWER_SUPPLIES tags HP_POWER_DISCOVERY_SERVICES_REDUNDANCY_STATUS and HIGH_EFFICIENCY_MODE appear only for blade servers.
- The following POWER_SUPPLIES tags appear only when SNMP is available, otherwise they are replaced by the tags SUPPLY_LABEL AND SUPPLY_STATUS:
  - PRESENT
  - PDS
  - HOTPLUG_CAPABLE
  - MODEL
  - SPARE
  - SERIAL_NUMBER
  - CAPACITY
  - FIRMWARE_VERSION
- The following POWER_SUPPLIES tags appear only when an iPDU is present:
  - POWER_DISCOVERY_SERVICES_IPDU_SUMMARY
  - IPDU
  - BAY
  - STATUS
  - PART_NUMBER
  - SERIAL_NUMBER
  - MAC_ADDRESS
  - IPDU_LINK

GET_POWER_READINGS

The GET_POWER_READINGS command is used to get the power readings from the server power supply.

For example:

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

GET_POWER_READINGS parameters

None

GET_POWER_READINGS return messages

Two types of responses are available from the GET_POWER_READINGS command, depending on whether or not an advanced license is applied.

If an advanced license is not applied, a typical response is:

```
<?xml version="1.0"?>
<RIBCL VERSION="2.22">
<RESPONSE
STATUS="0x0000"
MESSAGE='No error'
/>
<GET_POWER_READINGS>
<PRESENT_POWER_READING VALUE="275" UNIT="Watts"/>
</GET_POWER_READINGS>
</RIBCL>
```

If an advanced license is applied, a typical response is:

```
<?xml version="1.0"?>
<RIBCL VERSION="2.22">
<RESPONSE
STATUS="0x0000"
MESSAGE='No error'
/>
<GET_POWER_READINGS>
<PRESENT_POWER_READING VALUE="275" UNIT="Watts"/>
<AVERAGE_POWER_READING VALUE="278" UNIT="Watts"/>
<MAXIMUM_POWER_READING VALUE="283" UNIT="Watts"/>
<MINIMUM_POWER_READING VALUE="270" UNIT="Watts"/>
</GET_POWER_READINGS>
</RIBCL>
```

GET_PWREG

The GET_PWREG command gets the power alert threshold for iLO 5 devices. For this command to parse correctly, the GET_PWREG command must appear within a SERVER_INFO command block, and SERVER_INFO MODE can be set to read or write. You must purchase the iLO Advanced license to enable this feature.

For example:

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

GET_PWREG parameters

None

GET_PWREG return messages

A GET_PWREG return message includes:

```
<RESPONSE STATUS="0x0000" MSG="No Errors"/>
<GET_PWREG>
<PCAP MODE="OFF"></PCAP>
<EFFICIENCY_MODE>"3"</EFFICIENCY_MODE>
<PWRALERT TYPE="AVERAGE" THRESHOLD="600" DURATION="60"></PWRALERT>
<GET_HOST_POWER HOST_POWER="ON"/>
</GET_PWREG>
```

Where:

- PCAP mode is either set to MAN followed by a positive integer, or set to OFF.
- EFFICIENCY_MODE is a number between 1 and 4:
  - 1 — PWRREGMODE_OS_CONTROL
  - 2 — PWRREGMODE_STATIC_LOW
  - 3 — PWRREGMODE_DYNAMIC
  - 4 — PWRREGMODE_STATIC_HIGH
- GET_HOST_POWER reports whether the virtual power button is enabled.

GET_PWREG runtime errors

Possible GET_PWREG runtime errors:

- `Feature not supported.`
- `This feature requires a supported license key.`

SET_PWREG

The SET_PWREG command sets the power alert threshold for iLO 5 devices. For this command to parse correctly, the SET_PWREG command must appear within a SERVER_INFO command block, and SERVER_INFO MODE can be set to write. You must purchase the iLO Advanced license to enable this feature.

For example:

```
<RIBCL VERSION="2.0">
   <LOGIN USER_LOGIN="adminame" PASSWORD="password">
      <SERVER_INFO MODE="write">
         <SET_PWREG>
            <PWRALERT TYPE="PEAK"/>
            <PWRALERT_SETTINGS THRESHOLD="200" DURATION="35"/>
         </SET_PWREG>
      </SERVER_INFO>
   </LOGIN>
</RIBCL>
```

SET_PWREG parameters

PWRALERT TYPE—Valid values are:

- DISABLED—No power alerts are set.
- PEAK—Represents the half-second average power reading during the sample.
- AVERAGE—Represents the mean power reading during the sample.

PWRALERT_SETTINGS

- THRESHOLD—Sets the alert threshold, in watts.
- DURATION—Sets the length of the sample time, in minutes, starting at 5. Duration will always be in 5 minute intervals up to 240 minutes maximum. Any positive integer can be used, but it will be rounded off to the nearest 5.

SET_PWREG runtime errors

Possible SET_PWREG error messages include:

- `Server information is open for read-only access. Write access is required for this operation.`
- `Internal error.`
- `The value specified is invalid.`
- `This feature requires a supported license key.`
- `User does NOT have correct privilege for action. CONFIG_ILO_PRIV required.`
- `The PWRALERT value is invalid.`
- `The THRESHOLD value is invalid.`
- `The DURATION value is invalid. Values supported are between 1 and 240.`
- `Invalid integer.`

GET_POWER_CAP

The GET_POWER_CAP command is used to get the power cap of the server. For this command to parse correctly, the GET_POWER_CAP command must appear within a SERVER_INFO command block. You can set the SERVER_INFO MODE to read or write. You must purchase the iLO Advanced license to enable this feature.

For example:

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

GET_POWER_CAP parameters

None

GET_POWER_CAP return messages

A cap value of zero indicates a power cap is not currently set on the server.

SET_POWER_CAP

The SET_POWER_CAP command is used to set a power cap on the server. For this command to parse correctly, the SET_POWER_CAP command must appear within a SERVER_INFO command block, and

SERVER_INFO MODE must be set to write. You must have the Configure iLO Settings privilege to execute this command.

You cannot set this property if a dynamic power cap is set for the server. Dynamic power capping is set and modified using either Onboard Administrator or Insight Power Manager. You must purchase the iLO Advanced license to enable this feature.

For example, enabling the power cap:

```
<RIBCL VERSION="2.0">
 <LOGIN USER_LOGIN="adminname" PASSWORD="password">
  <SERVER_INFO MODE="write">
   <SET_POWER_CAP POWER_CAP="300"/>
  </SERVER_INFO>
 </LOGIN>
</RIBCL>
```

SET_POWER_CAP parameters

SET_POWER_CAP POWER_CAP is the power cap on the server. Valid power cap values are determined using a power test run on the server at boot. The possible values are 0 to disable the power cap, or a numeric value in watts (as determined in the power test.)

SET_POWER_CAP runtime errors

The possible SET_POWER_CAP error messages include:

- `Server information is open for read-only access. Write access is required for this operation.`
- `Power Regulator feature is not supported on this server.`
- `User does not have correct privilege for action.`
- `The power cap value is invalid.`

GET_HOST_POWER_SAVER_STATUS

The GET_HOST_POWER_SAVER_STATUS command requests the state of the processor power regulator feature of the server. For this command to parse correctly, the GET_HOST_POWER_SAVER_STATUS command must appear within a SERVER_INFO command block. You can set SERVER_INFO MODE to read or write.

For example:

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

GET_HOST_POWER_SAVER_STATUS parameters

None

GET_HOST_POWER_SAVER_STATUS runtime errors

The possible GET_HOST_POWER_SAVER_STATUS error messages include:

```
Feature not supported
```

GET_HOST_POWER_SAVER_STATUS return messages

Information is returned within one of the following responses:

- `<GET_HOST_POWER_SAVER HOST POWER_SAVER= "OFF"/>`
- `<GET_HOST_POWER_SAVER HOST POWER_SAVER= "MIN"/>`
- `<GET_HOST_POWER_SAVER HOST POWER_SAVER= "AUTO"/>`
- `<GET_HOST_POWER_SAVER HOST POWER_SAVER= "MAX"/>`

SET_HOST_POWER_SAVER

The SET_HOST_POWER_SAVER command is used to set the Power Regulator Setting for the server processor. For this command to parse correctly, the SET_HOST_POWER_SAVER command must appear within a SERVER_INFO command block, and SERVER_INFO MODE must be set to write. The user must have the Virtual Power and Reset privilege to execute this command.

NOTE:

If you set the HOST_POWER_SAVER parameter to `1`, you must reboot the server to enable the change.

For example:

```
<RIBCL VERSION="2.0">
 <LOGIN USER_LOGIN="adminname" PASSWORD="password">
  <SERVER_INFO MODE="write">
   <!-- Modify the HOST_POWER_SAVER attribute to modify
        power saver on the host server -->
   <SET_HOST_POWER_SAVER HOST_POWER_SAVER="1"/>
  </SERVER_INFO>
 </LOGIN>
</RIBCL>
```

SET_HOST_POWER_SAVER parameters

The HOST_POWER_SAVER command controls the Dynamic Power Saver feature of the server processor if the feature is supported. The possible values are:

- **1**

  —Operating system control mode
- **2**

  —HPE Static Low Power mode
- **3**

  —HPE Dynamic Power Savings mode
- **4**

  —HPE Static High Performance mode

NOTE:

If you set the HOST_POWER_SAVER parameter to `1`, you must reboot the server to enable the change.

SET_HOST_POWER_SAVER runtime errors

The possible SET_HOST_POWER error messages include:

- `Server information is open for read-only access. Write access is required for this operation.`
- `Power Regulator feature is not supported on this server.`
- `User does not have correct privilege for action. CONFIG_ILO_PRIV required.`

GET_HOST_POWER_STATUS

The GET_HOST_POWER_STATUS command requests the power state of the server. For this command to parse correctly, the GET_HOST_POWER_STATUS command must appear within a SERVER_INFO command block. You can set SERVER_INFO MODE to read or write.

For example:

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

GET_HOST_POWER_STATUS parameters

None

GET_HOST_POWER_STATUS runtime errors

The possible GET_HOST_POWER_STATUS error messages include:

- `Host power is OFF.`
- `Host power is ON.`

GET_HOST_POWER_STATUS Return Messages

The following information is returned within the response:

```
<GET_HOST_POWER
HOST_POWER="OFF"/>
```

SET_HOST_POWER

The SET_HOST_POWER command is used to toggle the power button of server. For this command to parse correctly, the SET_HOST_POWER command must appear within a SERVER_INFO command block, and SERVER_INFO MODE must be set to write. The user must have the Virtual Power and Reset privilege to execute this command.

For example:

```
<RIBCL VERSION="2.0">
 <LOGIN USER_LOGIN="adminname" PASSWORD="password">
  <SERVER_INFO MODE="write">
   <!--  Modify the HOST_POWER attribute to toggle power on the host server  --
>
```

```
   <!--  HOST_POWER="No"  (Turns host server power off)                    --
>
   <!--  A graceful shutdown will be attempted for ACPI-aware              --
>
   <!--  operating systems configured to support graceful shutdown.        --
>
   <!--  HOST_POWER="Yes" (Turns host server power on)                     --
>
   <SET_HOST_POWER HOST_POWER="No"/>
  </SERVER_INFO>
 </LOGIN>
</RIBCL>
```

SET_HOST_POWER Parameters

HOST_POWER enables or disables the Virtual Power Button. The possible values are `Yes` or `No`.

SET_HOST_POWER Runtime Errors

The possible SET_HOST_POWER error messages include:

- `Server information is open for read-only access. Write access is required for this operation.`
- `Virtual Power Button feature is not supported on this server.`
- `Host power is already ON.`
- `Host power is already OFF.`
- `User does not have correct privilege for action. RESET_SERVER_PRIV required.`

GET_HOST_PWR_MICRO_VER

The GET_HOST_PWR_MICRO_VER command provides the power micro version number. The GET_HOST_PWR_MICRO_VER command must appear within a SERVER_INFO command block to parse correctly. You can set the SERVER_INFO MODE to read or write.

For example:

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

GET_HOST_PWR_MICRO_VER parameters

None

GET_HOST_PWR_MICRO_VER runtime errors

The possible GET_HOST_PWR_MICRO_VER error messages include:

- `Error`—If the power micro cannot be read (hardware problem).
- `Power Off`—If the server is powered off. The power micro is still displayed.
- `N/A`—If the server does not support a power micro.

GET_HOST_PWR_MICRO_VER return messages

- No errors and displays version information:

```
<GET_HOST_PWR_MICRO_VER>
<PWR_MICRO VERSION="2.3"/>
</GET_HOST_PWR_MICRO_VER>
```

- Failed to read power micro version:

```
<GET_HOST_PWR_MICRO_VER>
<PWR_MICRO VERSION="Error"/>
</GET_HOST_PWR_MICRO_VER>
```

- Power micro not supported on the server:

```
<GET_HOST_PWR_MICRO_VER>
<PWR_MICRO VERSION="UNKNOWN"/>
</GET_HOST_PWR_MICRO_VER>
```

RESET_SERVER

The RESET_SERVER command forces a warm boot of the server if the server is currently on. For this command to parse correctly, the RESET_SERVER command must appear within a SERVER_INFO command block, and SERVER_INFO MODE must be set to write. The user must have the Virtual Power and Reset privilege to execute this command.

For example:

```
<RIBCL VERSION="2.0">
 <LOGIN USER_LOGIN="adminname" PASSWORD="password">
  <SERVER_INFO MODE="write">
   <RESET_SERVER/>
  </SERVER_INFO>
 </LOGIN>
</RIBCL>
```

RESET_SERVER error messages

The possible RESET_SERVER error messages include:

- `Server information is open for read-only access. Write access is required for this operation.`
- `Host power is already OFF.`
- `User does NOT have correct privilege for action. RESET_SERVER_PRIV required.`

RESET_SERVER parameters

None

PRESS_PWR_BTN

The PRESS_PWR_BTN command is used to simulate a physical press (or press and hold) of the server power button. For this command to parse correctly, the PRESS_PWR_BTN command must appear within a SERVER_INFO command block, and SERVER_INFO MODE must be set to write. The user must have the Virtual Power and Reset privilege to execute this command.

For example:

```
<RIBCL VERSION="2.0">
```

```
   <LOGIN USER_LOGIN="adminname" PASSWORD="password">
      <SERVER_INFO MODE="write">
         <PRESS_PWR_BTN/>
      </SERVER_INFO>
   </LOGIN>
</RIBCL>
```

PRESS_PWR_BTN parameters

None

PRESS_PWR_BTN runtime errors

The possible error messages include:

- `Server information is open for read-only access. Write access is required for this operation.`
- `User does not have correct privilege for action. RESET_SERVER_PRIV required.`

HOLD_PWR_BTN

The HOLD_PWR_BTN command is used to simulate a physical press and hold of the server power button. For this command to parse correctly, the HOLD_PWR_BTN command must appear within a SERVER_INFO command block, and SERVER_INFO MODE must be set to write. The user must have the Virtual Power and Reset privilege to execute this command.

For example:

```
<RIBCL VERSION="2.0">
 <LOGIN USER_LOGIN="adminname" PASSWORD="password">
  <SERVER_INFO MODE="write">
    <HOLD_PWR_BTN/>
    <HOLD_PWR_BTN TOGGLE="YES"/>
  </SERVER_INFO>
 </LOGIN>
</RIBCL>
```

HOLD_PWR_BTN parameters

Without the TOGGLE parameter, the HOLD_PWR_BTN command powers off a running server. If the server power is off, the server power will remain off. The affect of using the command with the TOGGLE parameter defines the action to take based on the current power state of the server. The following occurs based on the value of TOGGLE:

- When the server power is on, a `Yes` value for TOGGLE will turn the power off.
- When the server power is off, a `Yes` value for TOGGLE will turn the power on.
- When the server power is off, a `No` value for TOGGLE will leave the power off.

HOLD_PWR_BTN runtime errors

The possible error messages include:

- `Server information is open for read-only access. Write access is required for this operation.`
- `User does not have correct privilege for action. RESET_SERVER_PRIV required.`

COLD_BOOT_SERVER

The COLD_BOOT_SERVER command forces a cold boot of the server, if the server is currently on. For this command to parse correctly, the COLD_BOOT_SERVER command must appear within a SERVER_INFO command block, and SERVER_INFO MODE must be set to write. The user must have the Virtual Power and Reset privilege to execute this command.

For example:

```
<RIBCL VERSION="2.0">
 <LOGIN USER_LOGIN="adminname" PASSWORD="password">
  <SERVER_INFO MODE="write">
   <COLD_BOOT_SERVER/>
  </SERVER_INFO>
 </LOGIN>
</RIBCL>
```

COLD_BOOT_SERVER parameters

None

COLD_BOOT_SERVER runtime errors

The possible error messages include:

- `Server information is open for read-only access. Write access is required for this operation.`
- `Host power is already OFF.`
- `User does not have correct privilege for action. RESET_SERVER_PRIV required.`

WARM_BOOT_SERVER

The WARM_BOOT_SERVER command forces a warm boot of the server, if the server is currently on. For this command to parse correctly, the WARM_BOOT_SERVER command must appear within a SERVER_INFO command block, and SERVER_INFO MODE must be set to write. The user must have the Virtual Power and Reset privilege to execute this command.

For example:

```
<RIBCL VERSION="2.0">
 <LOGIN USER_LOGIN="adminname" PASSWORD="password">
  <SERVER_INFO MODE="write">
   <WARM_BOOT_SERVER/>
  </SERVER_INFO>
 </LOGIN>
</RIBCL>
```

WARM_BOOT_SERVER parameters

None

WARM_BOOT_SERVER runtime errors

Possible error messages include:

- `Server information is open for read-only access. Write access is required for this operation.`
- `Host power is already OFF.`
- `User does not have correct privilege for action. RESET_SERVER_PRIV required.`

SERVER_AUTO_PWR

The SERVER_AUTO_PWR command is used to set the automatic power on and power on delay settings. Any power delays set using this command are invoked after iLO is running.

For example:

```
<RIBCL VERSION="2.0">
  <LOGIN USER_LOGIN="Administrator" PASSWORD="password">
    <SERVER_INFO MODE="write">
      <!-- Enable automatic power on -->
      <SERVER_AUTO_PWR VALUE="On"/>
    </SERVER_INFO>
  </LOGIN>
</RIBCL>
```

NOTE:

Enabling a power on delay using the SERVER_AUTO_PWR command requires you to run the script twice. First, run the script and set the SERVER_AUTO_PWR value to **`On`**. Next, run the script with a value of **`15`**, **`30`**, **`45`**, **`60`** to set up the power on delay.

SERVER_AUTO_PWR parameters

The available values for the VALUE parameter are:

- `Yes`

  —Enables automatic power on (APO) with a minimum delay.
- `No`

  —APO restores last power state.
- `15, 30, 45, 60`

  —Sets APO delay time in seconds.
- `Random`

  —Sets an automatic power on with a random delay of up to 2 minutes.
- `On`

  —APO always powers on.
- `Off`

  —APO always remains off.
- `Restore`

  —Restores last power state before power interruption.

SERVER_AUTO_PWR runtime errors

The possible errors include:

- User does not have correct privilege for action. Configure iLO privilege is required
- SERVER_INFO mode is not WRITE
- The value specified for SERVER_AUTO_PWR is invalid or not accepted on blades

GET_SERVER_AUTO_PWR

The GET_SERVER_AUTO_PWR command is used to get the automatic power on and power on delay settings of the server. The command is supported by all iLO 5 firmware versions.

For example:

```
<RIBCL VERSION="2.0">
 <LOGIN USER_LOGIN="Administrator" PASSWORD="password">
  <SERVER_INFO MODE="read">
   <GET_SERVER_AUTO_PWR />
  </SERVER_INFO>
 </LOGIN>
</RIBCL>
```

GET_SERVER_AUTO_PWR parameters

None

GET_SERVER_AUTO_PWR return message

Possible GET_SERVER_AUTO_PWR return is:

```
<?xml version="1.0"?>
<RIBCL VERSION="2.22">
<RESPONSE
    STATUS="0x0000"
    MESSAGE='No error'
     />
<GET_SERVER_AUTO_PWR>
<!--
    Automatically Power On Server is enabled to power-on.
    Power On Delay is random.
-->
<SERVER_AUTO_PWR VALUE="ON" />
</GET_SERVER_AUTO_PWR>
</RIBCL>
```

GET_UID_STATUS

The GET_UID_STATUS command requests the state of the server UID. For this command to parse correctly, the GET_UID_STATUS command must appear within a SERVER_INFO command block. You can set SERVER_INFO MODE to read.

For example:

```
<RIBCL VERSION="2.0">
 <LOGIN USER_LOGIN="adminname" PASSWORD="password">
```

```
  <SERVER_INFO MODE="read">
   <GET_UID_STATUS />
  </SERVER_INFO>
 </LOGIN>
</RIBCL>
```

GET_UID_STATUS parameters

None

GET_UID_STATUS response

The following information is returned within the response:

```
<GET_UID_STATUS UID="OFF"/>
```

Or

```
<GET_UID_STATUS UID="Flashing"/>
```

UID_CONTROL

The UID_CONTROL command toggles the server UID. For this command to parse correctly, the UID_CONTROL command must appear within a SERVER_INFO command block, and SERVER_INFO MODE must be set to write.

For example:

```
<RIBCL VERSION="2.0">
 <LOGIN USER_LOGIN="adminname" PASSWORD="password">
  <SERVER_INFO MODE="write">
   <!--  Modify the UID attribute to toggle UID on the host server   -->
   <!--  UID="No"   (Turns host server UID off)                      -->
   <!--  UID="Yes"  (Turns host server UID on)                       -->
   <UID_CONTROL UID="Yes"/>
  </SERVER_INFO>
 </LOGIN>
</RIBCL>
```

UID_CONTROL parameters

UID determines the state of the UID. A value of `Yes` turns the UID light on, and a value of `No` turns the UID light off.

UID_CONTROL errors

The possible UID_CONTROL error messages include:

- `Server UID is already ON.`
- `Server UID is already OFF.`
- `Server UID status cannot be changed while UID is blinking.`

SET_PERS_MOUSE_KEYBOARD_ENABLED

The SET_PERS_MOUSE_KEYBOARD_ENABLED command sets the persistent mouse and keyboard setting. The possible values are `Y` (enabled) or `N` (disabled). For this command to parse correctly, the

command must appear within a SERVER_INFO command block. You must set SERVER_INFO MODE to write.

```
<RIBCL VERSION="2.0">
  <LOGIN USER_LOGIN="adminname" PASSWORD="password">
    <SERVER_INFO MODE="write">
      <SET_PERS_MOUSE_KEYBOARD_ENABLED VALUE="y"/>
    </SERVER_INFO>
  </LOGIN>
</RIBCL>
```

SET_PERS_MOUSE_KEYBOARD_ENABLED parameters

SET_PERS_MOUSE_KEYBOARD_ENABLED—Configures persistent keyboard and mouse. Valid values are **Y** (enabled) and **N** (disabled).

SET_PERS_MOUSE_KEYBOARD_ENABLED runtime errors

The possible runtime errors are:

- `There was an error on setting the persistent mouse and keyboard.`
- `iLO information is open for read-only access. Write access is required for this operation.`
- `User does NOT have correct privilege for action. CONFIG_ILO_PRIV required.`
- `Invalid Boolean` (Appears when a parameter value other than `Y` or `N` is used.)

GET_PERS_MOUSE_KEYBOARD_ENABLED

GET_PERS_MOUSE_KEYBOARD_ENABLED returns the persistent mouse and keyboard status. A return value of `Y` indicates that persistent mouse and keyboard is enabled. A return value of `N` indicates it is disabled.

For example:

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

GET_PERS_MOUSE_KEYBOARD_ENABLED parameters

None

GET_PERS_MOUSE_KEYBOARD_ENABLED return messages

A possible GET_PERS_MOUSE_KEYBOARD_ENABLED message is:

```
<RIBCL VERSION="2.22">
<RESPONSE
    STATUS="0x0000"
    MESSAGE='No error'
     />
<GET_PERS_MOUSE_KEYBOARD_ENABLED>
    <PERSMOUSE_ENABLED VALUE="Y"/>
```

```
</GET_PERS_MOUSE_KEYBOARD_ENABLED>
</RIBCL>
```

GET_SERVER_POWER_ON_TIME

The GET_SERVER_POWER_ON_TIME command is used to retrieve the virtual clock value, in minutes, since the server was last powered on. For this command to parse correctly, the GET_SERVER_POWER_ON_TIME command must appear within a SERVER_INFO command block. You can set SERVER_INFO MODE to read or write.

For example:

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

GET_SERVER_POWER_ON_TIME parameters

None.

GET_SERVER_POWER_ON_TIME return message

A possible GET_SERVER_POWER_ON_TIME return is:

```
<SERVER_POWER_ON_MINUTES VALUE="33815" />
```

CLEAR_SERVER_POWER_ON_TIME

The CLEAR_SERVER_POWER_ON_TIME command is used to clear the virtual clock counter without power-cycling the server. For this command to parse correctly, the CLEAR_SERVER_POWER_ON_TIME command must appear within a SERVER_INFO command block, and SERVER_INFO MODE must be set to write.

For example:

```
<RIBCL VERSION="2.0">
   <LOGIN USER_LOGIN="Administrator" PASSWORD="password">
      <SERVER_INFO MODE="write">
         <CLEAR_SERVER_POWER_ON_TIME />
      </SERVER_INFO>
   </LOGIN>
</RIBCL>
```

CLEAR_SERVER_POWER_ON_TIME parameters

None.

CLEAR_SERVER_POWER_ON_TIME return message

None.

NOTE:

To verify the command, use the GET_SERVER_POWER_ON_TIME comand and verify it returns the following message:

```
<SERVER_POWER_ON_MINUTES VALUE="0" />
```

SSO_INFO

The SSO_INFO MODE command can only appear within a LOGIN command block. Only commands that are SSO_INFO MODE-type commands are valid inside the SSO_INFO MODE command block.

SSO_INFO MODE requires the MODE parameter with a value of read or write. MODE is a specific string parameter with a maximum length of 10 characters that specifies what you intend to do with the information.

Write mode enables both reading and writing of iLO information. Read mode prevents modification of the iLO information. You must have the Configure iLO Settings privilege to execute this command.

For example:

```
<SSO_INFO MODE="write">

…… SSO_INFO commands ……

</SSO_INFO>
```

Deleting a SSO SIM Server Record by index number example:

```
<RIBCL VERSION="2.0">
 <LOGIN USER_LOGIN="Administrator" PASSWORD="password">
  <SSO_INFO MODE="write">
   <DELETE_SERVER INDEX="6" />
  </SSO_INFO>
 </LOGIN>
</RIBCL>
```

GET_SSO_SETTINGS

The GET_SSO_SETTINGS command is used to retrieve SSO settings for iLO. For this command to parse correctly, the GET_SSO_SETTINGS command must appear within a SSO_INFO command block, and SSO_INFO MODE can be set to read or write.

For example:

```
<RIBCL VERSION="2.0">
 <LOGIN USER_LOGIN="Administrator" PASSWORD="password">
  <SSO_INFO MODE="read">
   <GET_SSO_SETTINGS/>
  </SSO_INFO>
 </LOGIN>
</RIBCL>
```

NOTE: The information returned by GET_SSO_SETTINGS has not been enhanced to support the extended privileges available from the iLO 5 web interface. For more information about user and group privileges in iLO 5, see the HPE iLO 5 User Guide in the HPE Information Library at **http://www.hpe.com/info/ilo/docs**.

GET_SSO_SETTINGS parameters

None

GET_SSO_SETTINGS return messages

The following is an example of an SSO settings response from a configured iLO device. There are 0 or more SSO_SERVER records reflecting the number of stored server records in each.

```
<GET_SSO_SETTINGS>
<TRUST_MODE VALUE="CERTIFICATE" />
<USER_ROLE LOGIN_PRIV="Y" />
<USER_ROLE REMOTE_CONS_PRIV="N" />
<USER_ROLE RESET_SERVER_PRIV="N" />
<USER_ROLE VIRTUAL_MEDIA_PRIV="N" />
<USER_ROLE CONFIG_ILO_PRIV="N" />
<USER_ROLE ADMIN_PRIV="N" />
<OPERATOR_ROLE LOGIN_PRIV="Y" />
<OPERATOR_ROLE REMOTE_CONS_PRIV="Y" />
<OPERATOR_ROLE RESET_SERVER_PRIV="Y" />
<OPERATOR_ROLE VIRTUAL_MEDIA_PRIV="Y" />
<OPERATOR_ROLE CONFIG_ILO_PRIV="N" />
<OPERATOR_ROLE ADMIN_PRIV="N" />
<ADMINISTRATOR_ROLE LOGIN_PRIV="Y" />
<ADMINISTRATOR_ROLE REMOTE_CONS_PRIV="Y" />
<ADMINISTRATOR_ROLE RESET_SERVER_PRIV="Y" />
<ADMINISTRATOR_ROLE VIRTUAL_MEDIA_PRIV="Y" />
<ADMINISTRATOR_ROLE CONFIG_ILO_PRIV="Y" />
<ADMINISTRATOR_ROLE ADMIN_PRIV="Y" />
<SSO_SERVER INDEX="0"
      ISSUED_TO="viv.hp.com"
      ISSUED_BY="viv.hp.com"
      VALID_FROM="061108192059Z"
      VALID_UNTIL="161108192059Z">
-----BEGIN CERTIFICATE-----
.
.
.
-----END CERTIFICATE-----
</SSO_SERVER>
<SSO_SERVER INDEX="1">
ant.hp.com
</SSO_SERVER>
</GET_SSO_SETTINGS>
```

MOD_SSO_SETTINGS

The MOD_SSO_SETTINGS command is used to modify the SSO settings for iLO 5. For this command to parse correctly, the MOD_SSO_SETTINGS command must appear within a SSO_INFO command block, and SSO_INFO MODE must be set to write. The user must have the Configure iLO Settings privilege to execute this command.

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

For example:

```
<RIBCL VERSION="2.0">
```

```
 <LOGIN USER_LOGIN="Administrator" PASSWORD="password">
  <SSO_INFO MODE="write">
   <MOD_SSO_SETTINGS>
    <!-- Specify the desired trust mode Options: DISABLED(default),
      CERTIFICATE (recommended), NAME, or ALL                      -->
    <TRUST_MODE="CERTIFICATE" />
    <!-- Specify the privileges assigned to the user role          -->
    <USER_ROLE LOGIN_PRIV="Y" />
    <USER_ROLE REMOTE_CONS_PRIV="N" />
    <USER_ROLE RESET_SERVER_PRIV="N" />
    <USER_ROLE VIRTUAL_MEDIA_PRIV="N" />
    <USER_ROLE CONFIG_ILO_PRIV="N" />
    <USER_ROLE ADMIN_PRIV="N" />
    <!-- Specify the privileges assigned to the operator role      -->
    <OPERATOR_ROLE LOGIN_PRIV="Y" />
    <OPERATOR_ROLE REMOTE_CONS_PRIV="Y" />
    <OPERATOR_ROLE RESET_SERVER_PRIV="Y" />
    <OPERATOR_ROLE VIRTUAL_MEDIA_PRIV="Y" />
    <OPERATOR_ROLE CONFIG_ILO_PRIV="N" />
    <OPERATOR_ROLE ADMIN_PRIV="N" />
    <!-- Specify the privileges assigned to the administrator role -->
    <ADMINISTRATOR_ROLE LOGIN_PRIV="Y" />
    <ADMINISTRATOR_ROLE REMOTE_CONS_PRIV="Y" />
    <ADMINISTRATOR_ROLE RESET_SERVER_PRIV="Y" />
    <ADMINISTRATOR_ROLE VIRTUAL_MEDIA_PRIV="Y" />
    <ADMINISTRATOR_ROLE CONFIG_ILO_PRIV="Y" />
    <ADMINISTRATOR_ROLE ADMIN_PRIV="Y" />
    <ADMINISTRATOR_ROLE ADMIN_PRIV="Y" />
   </MOD_SSO_SETTINGS>
  </SSO_INFO>
 </LOGIN>
</RIBCL>
```

MOD_SSO_SETTINGS parameters

TRUST_MODE sets the Single Sign-On trust mode. The current setting is unchanged if this setting is omitted from the script. Accepted values are:

- `Disabled`

  —Disables SSO on this processor.
- `Certificate`

  —Accepts only SSO requests authenticated using a certificate.
- `Name`

  —Trusts SSO requests from the named SIM Server.
- `All`

  —Accepts any SSO request from the network.

Role names are used to associate iLO privileges. The specified privileges are set accordingly for that role, and a privilege that is omitted is unchanged. Enable a privilege for the role using the argument `Y` and disable the privilege for the role using the argument `N`.

There are three roles for privilege assignment. Omitting a role leaves the current assignment unchanged:

- `USER_ROLE`

—Privileges associated with User

- `OPERATOR_ROLE`

  —Privileges associated with Operator

- `ADMINISTRATOR_ROLE`

  —Privileges associated with Administrator

For each role, you can manipulate multiple privileges. The privilege is specified within the role tag. If a privilege is omitted, the current value is unchanged. Each privilege assignment is Boolean and can be set to `Y` (privilege granted) or `N` (privilege denied). For more details on account privileges, see the **User Administration** section of the iLO User Guide on the Hewlett Packard Enterprise website at **http://www.hpe.com/info/ilo/docs**.

- `LOGIN_PRIV`

  —Allows login for this role.

- `REMOTE_CONS_PRIV`

  —Grants access to remote console resources.

- `RESET_SERVER_PRIV`

  —Grants access to power and reset controls.

- `VIRTUAL_MEDIA_PRIV`

  —Grants access to virtual media resources.

- `CONFIG_ILO_PRIV`

  —Allows settings modification.

- `ADMIN_PRIV`

  —Allows local user account modification.

MOD_SSO_SETTINGS runtime errors

Possible MOD_SSO_SETTINGS error messages include:

- `Incorrect firmware version. SSO is only supported on iLO 4 v1.01 firmware or later.`
- `User does not have correct privilege for action. CONFIG_ILO_PRIV required.`
- `SSO_INFO must be in write mode.`

SSO_SERVER

The SSO_SERVER command is used to create SIM Trusted SSO Server records. For this command to parse correctly, it must appear within an SSO_INFO command block, and SSO_INFO MODE must be set to write. You must have the Configure iLO Settings privilege to execute this command. This command can be combined with MOD_SSO_SETTINGS.

You can specify multiple SSO server records by using multiple instances of this command. The servers are added in the order that the records are specified. Duplicate records might be rejected and generate an error. The number of records stored by the lights-out processor depends on the size of the entries because certificates do not have a fixed size. Multiple certificates can normally be stored.

There are three ways to add a SIM Trusted Server record using the SSO_SERVER command:

- The server can be specified by network name (requires SSO trust level set to trust by name or trust all, but is not supported for trust by certificate). Use the fully qualified network name.
- The server certificate can be imported by iLO 5 (the LOM processor requests the certificate from the specified SIM server using anonymous HTTP request). The iLO 5 processor must be able to contact the SIM server on the network at the time this command is processed for this method to work.
- The server certificate can be directly installed on iLO 5. However, you must obtain the x.509 certificate in advance. This method enables you to configure the iLO 5 in advance of placing it on the network with the SIM server. The method also enables you to verify the contents of the SIM server certificate. For additional methods of obtaining the certificate from the SIM server, see the iLO User Guide on the Hewlett Packard Enterprise information library at **http://www.hpe.com/info/ilo/docs** or the SIM User Guide at: **http://www.hpe.com/info/hpsim/docs**.

For example:

```
<RIBCL VERSION="2.0">
 <LOGIN USER_LOGIN="Administrator" PASSWORD="password">
  <SSO_INFO MODE="write">
   <!-- Add an SSO server record using the network name
    (works for TRUST_MODE NAME or ALL) -->
   <SSO_SERVER NAME="hpsim1.hp.net" />
   <!-- Add an SSO server record using indirect iLO import
    from the network name     -->
   <SSO_SERVER IMPORT_FROM="hpsim2.hp.net" />
   <!-- Add an SSO server certificate record using direct
    import of certificate data -->
   <IMPORT_CERTIFICATE>
     -----BEGIN CERTIFICATE-----
     .
     .
     .
     -----END CERTIFICATE-----
   </IMPORT_CERTIFICATE>
  </SSO_INFO>
 </LOGIN>
</RIBCL>
```

SSO_SERVER parameters

NAME indicates that the server is being specified by network name. It receives a quoted string containing the fully qualified network name of the SIM Trusted Server. The name is not validated by iLO until an SSO login is attempted. For example, the syntax to add a SIM Trusted Server name:

```
<SSO_SERVER NAME="hpsim1.hp.net" />
```

IMPORT_FROM indicates that iLO must request the SIM Trusted Server certificate from SIM. This request is implemented using an anonymous HTTP request similar to:

```
http://<sim network address>:280/GetCertificate
```

The iLO firmware requests the certificate when this command is processed. If the SIM server is unreachable, then an error occurs.

For example, the syntax to have iLO import a server certificate resembles:

```
<SSO_SERVER IMPORT_FROM="hpsim2.hp.net" />
```

IMPORT_CERTIFICATE indicates that iLO must import the literal .PEM encoded x.509 certificate data that follows. The data is encoded in a block of text that includes:

```
-----BEGIN CERTIFICATE-----
```

and

```
-----END CERTIFICATE-----
```

For example, the syntax to import a SIM Trusted Server certificate resembles the following:

```
<SSO_SERVER>
 -----BEGIN CERTIFICATE-----
 MIIC3TCCAkYCBESzwFUwDQYJKoZIhvcNAQEFBQAwgbUxCzAJBgNVBAYTAlVTMRMwE...
 kXzhuVzPfWzQ+a2E9tGAE/YgNGTfS9vKkVLUf6QoP/RQpYpkl5BxrsN3gM/PeT3zrxyTleE=
 -----END CERTIFICATE-----
</SSO_SERVER>
```

The certificate is validated by iLO to ensure that it can be decoded before it is stored. An error results if the certificate is a duplicate or corrupt.

The iLO firmware does not support certificate revocation and does not honor certificates that appear expired. You must remove revoked or expired certificates.

SSO_SERVER runtime errors

A runtime error is generated if the:

- Certificate is a duplicate.
- Certificate is corrupt.
- SIM server cannot be contacted using IMPORT_FROM.
- SIM Trusted Server database is full (you must delete other records to make sufficient room to add a new entry).
- Trust mode is set incorrectly.

DELETE_SERVER

The DELETE_SERVER command is used to remove a SIM Trusted SSO Server record. For this command to parse correctly, it must appear within an SSO_INFO command block, and SSO_INFO MODE must be set to write. You must have the Configure iLO Settings privilege to execute this command.

You can specify multiple SSO server records by using multiple instances of this command. Delete records in the highest-to-lowest order if you want to delete multiple records at the same time.

For example:

```
<RIBCL VERSION="2.0">
 <LOGIN USER_LOGIN="Administrator" PASSWORD="password">
  <SSO_INFO MODE="write">
   <DELETE_SERVER INDEX="6" />
  </SSO_INFO>
 </LOGIN>
</RIBCL>
```

DELETE_SERVER parameters

INDEX indicates the record number to delete. This number is consistent with the index returned using a GET_SSO_SETTINGS command. The index is 0-based; that is the first record is index 0, the second record is index 1, and so on.

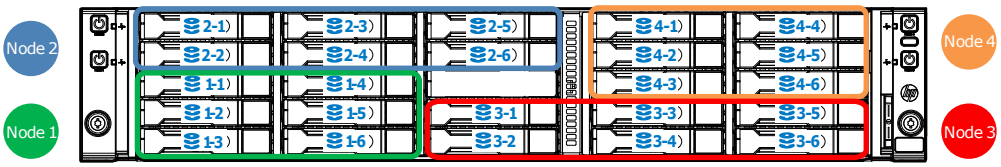
DELETE_SERVER runtime errors

A runtime error is generated if the index is invalid.

HARD_DRIVE_ZONE

HARD_DRIVE_ZONE command blocks include drive bay mapping assignments, which assign drive bays in the system to particular nodes or host ports in the chassis.

For example, on an HPE ProLiant XL170r Gen9 Server with a 24–drive bay configuration and four server nodes, drive bays are allocated by default as shown:



HARD_DRIVE_ZONE commands can only appear within the HARD_DRIVE_ZONE block of a LOGIN command block. Only HARD_DRIVE_ZONE commands are valid inside the HARD_DRIVE_ZONE command block.

HARD_DRIVE_ZONE command blocks require the MODE parameter with a value of read or write. MODE is a specific string parameter with a maximum length of 10 characters that specifies what you intend to do with the information.

Write mode enables both the reading and writing of iLO information. Read mode prevents modification of iLO information.

For example:

```
<LOGIN USER_LOGIN="administrator" PASSWORD="password">
  <HARD_DRIVE_ZONE MODE="read">
... HARD_DRIVE_ZONE commands...
  </HARD_DRIVE_ZONE>
```

NOTE:

HARD_DRIVE_ZONE commands are available only on systems that support it. Check your server model's specifications for compatibility.

ZONE_FACTORY_DEFAULTS

The ZONE_FACTORY_DEFAULTS command reverts the drive bay mapping for all host ports to the factory default map. The specified iLO user must have Administrative privileges to execute this command. For this command to parse correctly, it must appear within a HARD_DRIVE_ZONE command block, and the mode value must be set to write.

NOTE:

The new mapping is not active until after the system is power cycled.

For example:

```
<RIBCL VERSION="2.23">
   <LOGIN USER_LOGIN="administrator" PASSWORD="password">
  <HARD_DRIVE_ZONE MODE="write">
            <ZONE_FACTORY_DEFAULTS>
                <TYPE_ID value="1"/>
```

```
                <SEP_NODE_ID value="0"/>
            </ZONE_FACTORY_DEFAULTS>
  </HARD_DRIVE_ZONE>
   </LOGIN>
</RIBCL>
```

ZONE_FACTORY_DEFAULTS parameters

TYPE_ID—Represents the type of Storage Enclosure Processor (SEP) configuration. The TYPE_ID must be the same as the TYPE_ID returned by the `READ_BACKPLANE_INFO` command.

Type ID Value	System Configuration	Description
1	TYPE I	One SEP (with multiple bays) shared across multiple compute nodes.
2	TYPE II	Multiple SEPs connected to multiple nodes in a 1-to-1 mapping.
3	TYPE III	Multiple SEPs with more than one SEP connected with each other, shared across multiple nodes – but no more than one SEP is directly connected to a node.
4	TYPE IV	Similar to TYPE III, except that more than one SEP is directly connected to a node.

SEP_NODE_ID—The node ID in which the SEP resides. Use the `READ_BACKPLANE_INFO` command to find the correct value.

ZONE_FACTORY_DEFAULTS runtime errors

- `Hard Drive Zone failed to write information to Backplane controller.`
- `User information is open for read-only access. Write access is required for this operation`
- `User does NOT have correct privilege for action. ADMIN_PRIV required.`
- `Hard Drive Zoning not available on this system.`

READ_BACKPLANE_INFO

The `READ_BACKPLANE_INFO` command is used to read hard drive backplane information. The return shows the current node to host port mapping, the number of host ports, and the drive bays available on the backplane. For this command to parse correctly, it must appear within a HARD_DRIVE_ZONE command block, and the mode value must be set to read.

For example:

```
<RIBCL VERSION="2.23">
  <LOGIN USER_LOGIN="administrator" PASSWORD="password">
      <HARD_DRIVE_ZONE MODE="read">
         <READ_BACKPLANE_INFO/>
      </HARD_DRIVE_ZONE>
  </LOGIN>
</RIBCL>
```

READ_BACKPLANE_INFO parameters

None.

READ_BACKPLANE_INFO runtime errors

- `Hard Drive Backplane Info read failed.`
- `Hard Drive Zoning not available on this system.`

READ_BACKPLANE_INFO return messages

The following response is typical of data returned by the `READ_BACKPLANE_INFO` command:

```
<?xml version="1.0"?>
<RIBCL VERSION="2.23">
<RESPONSE
    STATUS="0x0000"
    MESSAGE='No error'
     />
     <READ_BACKPLANE_INFO>
         <TYPE_ID>"1"</TYPE_ID>
         <SEP_NODE_ID>"4"</SEP_NODE_ID>
         <WWID>"50014380318db27f"</WWID>
         <SEP_ID>"0000"</SEP_ID>
         <BACKPLANE_NAME>"HPE BACKPLANE"</BACKPLANE_NAME>
         <FW_REV>"0.20"</FW_REV>
         <BAY_CNT>"24"</BAY_CNT>
         <START_BAY>"1"</START_BAY>
         <END_BAY>"24"</END_BAY>
         <HOST_PORT_CNT>"4"</HOST_PORT_CNT>
         <HOST_PORT value="1">
             <NODE_NUM>"1"</NODE_NUM>
             <SLOT_NUM>"1"</SLOT_NUM>
         </HOST_PORT>
         <HOST_PORT value="2">
             <NODE_NUM>"2"</NODE_NUM>
             <SLOT_NUM>"1"</SLOT_NUM>
         </HOST_PORT>
         <HOST_PORT value="3">
             <NODE_NUM>"3"</NODE_NUM>
             <SLOT_NUM>"1"</SLOT_NUM>
         </HOST_PORT>
         <HOST_PORT value="4">
             <NODE_NUM>"4"</NODE_NUM>
             <SLOT_NUM>"1"</SLOT_NUM>
         </HOST_PORT>
     </READ_BACKPLANE_INFO>
</RIBCL>
```

READ_ZONE_TABLE

The READ_ZONE_TABLE command reads the current host port to bay mapping. This command can be used to read a complete map table before modifying a map.

- The HOST_PORT value is the host port used for the bays that follow it. A HOST_PORT value of `UNASSIGNED` denotes any bay that is not assigned to a host port. Unassigned ports are free to be assigned to a host port.
- The BAY value is the bay number of the drive bay.

The HOST_PORT and BAY values cannot exceed the values shown in READ_BACKPLANE_INFO.

```
<RIBCL VERSION="2.23">
  <LOGIN USER_LOGIN="administrator" PASSWORD="password">
```

```
      <HARD_DRIVE_ZONE MODE="read">
         <READ_ZONE_TABLE/>
      </HARD_DRIVE_ZONE>
  </LOGIN>
</RIBCL>
```

READ_ZONE_TABLE parameters

None.

READ_ZONE_TABLE runtime errors

- `Hard Drive Zone table read failed.`

READ_ZONE_TABLE return messages

The following response is typical of data returned by the READ_ZONE_TABLE command:

```
<?xml version="1.0"?>
<RIBCL VERSION="2.23">
<RESPONSE
    STATUS="0x0000"
    MESSAGE='No error'
     />
     <READ_ZONE_TABLE>
         <TYPE_ID value="1"/>
         <SEP_NODE_ID value="0"/>
         <HOST_PORT value="1"/>
             <BAY value="1"/>
             <BAY value="2"/>
             <BAY value="3"/>
             <BAY value="4"/>
             <BAY value="5"/>
             <BAY value="6"/>
         <HOST_PORT value="2"/>
             <BAY value="7"/>
             <BAY value="8"/>
             <BAY value="9"/>
             <BAY value="10"/>
             <BAY value="11"/>
             <BAY value="12"/>
         <HOST_PORT value="3"/>
             <BAY value="13"/>
             <BAY value="14"/>
             <BAY value="15"/>
             <BAY value="16"/>
             <BAY value="17"/>
             <BAY value="18"/>
         <HOST_PORT value="UNASSIGNED"/>
             <BAY value="19"/>
             <BAY value="20"/>
             <BAY value="21"/>
             <BAY value="22"/>
             <BAY value="23"/>
             <BAY value="24"/>
     </READ_ZONE_TABLE>
</RIBCL>
```

WRITE_ZONE_TABLE

The WRITE_ZONE_TABLE command is used to change the host port to drive bay mapping.

NOTE:

Hewlett Packard Enterprise recommends that you use the READ_BACKPLANE_INFO and READ_ZONE_TABLE commands before attempting to change the zoning on the system. READ_ZONE_TABLE returns the current mapping, and the output can be used as a template when forming the new zone map. READ_BACKPLANE_INFO also shows the node to host port mapping, and the number of bays and host ports.

You must include the entire map of all bays when using the WRITE_ZONE_TABLE command. Place unused bays under the **UNASSIGNED** HOST_PORT. The system must be power cycled before the new zone mapping is active.

The iLO user must have Administrative privileges to execute this command. For this command to parse correctly, it must appear within an HARD_DRIVE_ZONE command block, and the mode value must be set to write.

The following example maps six drive bays to each of the first three nodes in the chassis, maps five drive bays on the fourth node and leaves drive bay 24 unassigned.

```
<RIBCL VERSION="2.23">
   <LOGIN USER_LOGIN="administrator" PASSWORD="password">
         <HARD_DRIVE_ZONE MODE="write">
          <WRITE_ZONE_TABLE>
             <TYPE_ID value="1"/>
             <SEP_NODE_ID value="0"/>
             <HOST_PORT value="1"/>
              <BAY value="1"/>
              <BAY value="2"/>
              <BAY value="3"/>
              <BAY value="4"/>
              <BAY value="5"/>
              <BAY value="6"/>
             <HOST_PORT value="2"/>
              <BAY value="7"/>
              <BAY value="8"/>
              <BAY value="9"/>
              <BAY value="10"/>
              <BAY value="11"/>
              <BAY value="12"/>
             <HOST_PORT value="3"/>
              <BAY value="13"/>
              <BAY value="14"/>
              <BAY value="15"/>
              <BAY value="16"/>
              <BAY value="17"/>
              <BAY value="18"/>
             <HOST_PORT value="4"/>
              <BAY value="19"/>
              <BAY value="20"/>
              <BAY value="21"/>
              <BAY value="22"/>
              <BAY value="23"/>
             <HOST_PORT value="UNASSIGNED"/>
              <BAY value="24"/>
          </WRITE_ZONE_TABLE>
```

```
        </HARD_DRIVE_ZONE>
    </LOGIN>
</RIBCL>
```

WRITE_ZONE_TABLE parameters

TYPE_ID—Represents the type of Storage Enclosure Processor (SEP) configuration. The TYPE_ID must be the same as the TYPE_ID returned by the `READ_BACKPLANE_INFO` command.

Type ID Value	System Configuration	Description
1	TYPE I	One SEP (with multiple bays) shared across multiple compute nodes.
2	TYPE II	Multiple SEPs connected to multiple nodes in a 1-to-1 mapping.
3	TYPE III	Multiple SEPs with more than one SEP connected with each other, shared across multiple nodes – but no more than one SEP is directly connected to a node.
4	TYPE IV	Similar to TYPE III, except that more than one SEP is directly connected to a node.

SEP_NODE_ID—The node ID in which the SEP resides.

HOST_PORT—The host port to which bays are assigned. Use the READ_BACKPLANE_INFO command and refer to the returned value for HOST_PORT_CNT to see the maximum number of host ports.

BAY—Drive bays. The maximum number cannot exceed the number of chassis drive bays. Use the READ_BACKPLANE_INFO command and refer to the returned values for BAY_CNT, START_BAY, and END_BAY to determine maximum number of drive bays and start and end points.

WRITE_ZONE_TABLE runtime errors

- `User information is open for read-only access. Write access is required for this operation`
- `User does NOT have correct privilege for action. ADMIN_PRIV required.`
- `Hard Drive Zone table write failed.`
- `Hard Drive Zoning not available on this system.`
- `Hard Drive Zone failed to write information to Backplane controller.`
- `Hard Drive Zone invalid port.`

Secure Shell

SSH overview

SSH is a program for logging into and executing commands on a remote machine, which includes security with authentication, encryption, and data integrity features. The iLO firmware can support simultaneous access from five SSH clients. After SSH is connected and authenticated, the command line interface is available.

iLO supports:

- SSH protocol version 2.
- PuTTY, a free version of the SSHprotocol, available for download on the Internet. Hewlett Packard Enterprise recommends using version 0.54 or later.
- OpenSSH, which is a free version of the SSH protocol available for download on the Internet.

When upgrading the firmware, a one-time 25-second delay occurs before SSH functionality is available. During this time, iLO generates the 1024-bit DSA keys. These keys are saved by iLO for future use. If iLO is reset to factory defaults, the DSA keys are erased and are regenerated on the next boot.

Supported SSH features

The library supports only version 2 (SSH-2) of the protocol. **Supported SSH Features** shows the SSH features supported by iLO.

Table 40: Supported SSH Features

Feature	Supported Algorithm
Server host key algorithms	ssh-dsa
Encryption (same set supported both ways)	3des-cbc, aes128-cbc
Hashing algorithms	hmac-sha1, hmac-md5
Public key algorithms	ssh-dsa
Key exchange	Diffie-hellman-group1-sha1
Compression	None
Language	English
Client/User authentication method	Password
Authentication timeout	2 minutes
Authentication attempts	3
Default SSH port	22

Using Secure Shell

Using SSH

1. Open an SSH window.
2. When prompted, enter the IP address or DNS name, login name, and password.

Using OpenSSH

To start an OpenSSH client in Linux, use:

```
ssh -l loginname ipaddress/dns name
```

Using PuTTY

- To start a PuTTY session, double-click the PuTTY icon in the directory where PuTTY is installed.
- To start a PuTTY session from the command line, do the following:
  - Start a connection to a server called `host` by entering:

    ```
    putty.exe [-ssh | -rlogin | -raw] [user@]host
    ```
  - Start an existing saved session called `sessionname` by entering:

    ```
    putty.exe -load sessionname
    ```

SSH key authorization

SSH key-based authentication enables SIM to connect to LOM devices through SSH and be authenticated and authorized to perform administrative-level tasks. The CLP is utilized to perform tasks. SIM can perform these tasks on multiple LOM devices nearly simultaneously, at scheduled times. SIM provides a menu-driven interface to manage and configure multiple targets. Enhancements to SIM are provided by tool definition files.

SIM can perform actions on target devices utilizing an SSH interface that requires private key-based authentication. If SIM is enabled to integrate more fully with LOM devices, SSH key-based authentication is implemented in iLO.

A SIM instance is established as a trusted SSH client by installing the public key in iLO. This is completed either manually through a Web-based GUI, or automatically with the `mxagentconfig` utility.

SSH keys do not need to be created to use SSH in interactive mode. For information about using SSH in interactive mode, see **SSH overview** on page 211.

Tool definition files

TDEF files extend the menu system of HPE Systems Insight Manager (SIM) to provide the command line commands that SIM transmits to iLO through an SSH connection.

`Mxagentconfig` utility

`Mxagentconfig` is a utility used to export and install SIM public SSH keys into other systems. This utility simplifies the process and can install the public key on many systems simultaneously. `Mxagentconfig` makes an SSH connection to iLO, authenticates with a user name and password, and transmits the necessary public key. The iLO firmware stores this key as a trusted SSH client key.

Importing SSH keys from PuTTY

The public key file format generated by PuTTY is not compatible with iLO. The following example illustrates, a PuTTY generated public key file:


```
---- BEGIN SSH2 PUBLIC KEY ----
Comment: "Administrator"
AAAAB3NzaC1yc2EAAAABJQAAAIB0x0wVO9itQB11o+tHnY3VvmsGgwghCyLOVzJl
3A9F5yzKj+RXJVPxOGusAhmJwF8PBQ9wV5E0Rumm6gNOaPyvAMJCG/l0PW7Fhac1
VLt8i5F3Lossw+/LWa+6H0da13TF2vq3ZoYFUT4esC6YbAACM7kLuGwxF5XMNR2E
Foup3w==
---- END SSH2 PUBLIC KEY ----
```


Note that this sample key conforms to RFC 4716 (SSH Public Key File Format). The iLO interface supports two key formats, OpenSSH 2 and RFC 4716. A third format is supported only in scripting, see **IMPORT_SSH_KEY**.

The iLO firmware expects public key file information on a single line. You can use the PuTTY Key Generator utility (puttygen.exe) to generate and properly format a key file for import into iLO.

Procedure

1. Double-click the PuTTY Key Generator icon to launch the utility.
2. Select the type of key to generate, either SSH-2 RSA or SSH-2 DSA.
3. Click **Generate**.

   On the key area, move the mouse around to generate the key. You must keep moving the mouse until the key generation process completes.
4. Click **Save public key** and then enter a file name when prompted.
5. Click **Save private key** and then enter a file name when prompted. Note that you have the option to enter and confirm a Key passphrase.
6. Open your public key in a text editor, and copy the contents to the clipboard.
7. Log in to iLO (if not already open).
8. On the iLO SSH Key Adminstration page, select a user from the Authorized SSH Keys list, and then click **Authorize New Key**.

   A DSA Public Key Import Data box appears.
9. Paste the PEM encoded DSA public key in the box, and then click **Import Public Key**.

   A new Public Key Hash appears for the user in the list of authorized SSH keys.
10. Launch PuTTY.
11. Select **Session**, and then configure your iLO IP address.
12. Select **Connection** > **SSH** > **Auth**.
13. Click **Browse**, and then locate the private key file.
14. Click **Open**.

    The iLO firmware prompts for a user name.
15. Enter the logon name associated with the public key.

    The public key in iLO authenticates with the private key in PuTTY. If the keys match, you are logged in to iLO without using a password.

    Keys can be created with a key passphrase. If a key passphrase was used to generate the public key, you are prompted for the key passphrase before you log in to iLO.

Importing SSH keys generated using ssh-keygen

Prerequisites

- SSH key created using `ssh-keygen`
- `Key.pub` file created

Procedure

1. Locate and open the `key.pub` file with a text editor. The file begins with the text `ssh-dsa`.
2. Save and close the file.

The key file is ready to import and authorize.

PERL scripting

Using PERL with the XML scripting interface

The scripting interface provided enables administrators to manage virtually every aspect of the device in an automated fashion. Primarily, administrators use tools like HPQLOCFG to assist deployment efforts. Administrators using a non-Windows client can use PERL scripts to send XML scripts to the iLO devices. Administrators can also use PERL to perform more complex tasks than HPQLOCFG can perform.

This section discusses how to use PERL scripting in conjunction with the Lights-Out XML scripting language. PERL scripts require a valid user ID and password with appropriate privileges.

A package containing various and comprehensive sample scripts is available for download on the Hewlett Packard Enterprise website:

- Windows sample scripts: **http://www.hpe.com/support/windows-sample-scripts**
- Linux sample scripts: **http://www.hpe.com/support/linux-perl-sample-scripts**

XML enhancements

If you are using a utility other than HPQLOCFG (such as PERL), the following steps help ensure that the iLO 5 firmware returns properly formatted XML. You must incorporate the following tag into the script sent to iLO 5:

```
<LOCFG version="2.0"/>
```

You can place this tag in either the PERL script or the XML script. Placement of this tag is important. If you place this tag in the PERL script, the tag must be sent after `<?xml version="1.0"?>` and before the XML script is sent. If you place the tag in the XML script, the tag must be placed before `<RIBCL version="2.0">`. If you are using the PERL script provided by Hewlett Packard Enterprise, you can add the bold line in the following example to return properly formatted XML syntax.

For example:

- PERL script modification

```
…
# Open the SSL connection and the input file
my $client = new IO::Socket::SSL->new(PeerAddr => $host);
open(F, "<$file") || die "Can't open $file\n";
# Send the XML header and begin processing the file
print $client '<?xml version="1.0"?>' . "\r\n";
#Send tag to iLO firmware to insure properly formatted XML is returned.
print $client '<LOCFG version="2.0"/>' . "\r\n";
…
```

- XML script modification

```
<!-- The bold line could be added for the return of properly
 formatted XML. -->
<LOCFG version="2.0"/>
<RIBCL version="2.0">
 <LOGIN USER_LOGIN="Adminname" PASSWORD = "password">
  <!--Add XML script here-->
 </LOGIN>
```

```
</RIBCL>
```

Opening an SSL connection

Perl scripts must open an SSL connection to the device HTTPS port, by default port 443.

For example:

```
use Socket;
use Net::SSLeay qw(die_now die_if_ssl_error);
Net::SSLeay::load_error_strings();
Net::SSLeay::SSLeay_add_ssl_algorithms();
Net::SSLeay::randomize();

#
# opens an ssl connection to port 443 of the passed host

#
sub openSSLconnection($)
{
my $host = shift;
my ($ctx, $ssl, $sin, $ip, $nip);
if (not $ip = inet_aton($host))
{
print "$host is a DNS Name, performing lookup\n" if $debug;
$ip = gethostbyname($host) or die "ERROR: Host $hostname not found.\n";
}
$nip = inet_ntoa($ip);
print STDERR "Connecting to $nip:443\n";
$sin = sockaddr_in(443, $ip);
socket  (S, &AF_INET, &SOCK_STREAM, 0) or die "ERROR: socket: $!";
connect (S, $sin) or die "connect: $!";
$ctx = Net::SSLeay::CTX_new() or die_now("ERROR: Failed to create SSL_CTX $! ");
Net::SSLeay::CTX_set_options($ctx, &Net::SSLeay::OP_ALL);
die_if_ssl_error("ERROR: ssl ctx set options");
$ssl = Net::SSLeay::new($ctx) or die_now("ERROR: Failed to create SSL $!");
Net::SSLeay::set_fd($ssl, fileno(S));
Net::SSLeay::connect($ssl) and die_if_ssl_error("ERROR: ssl connect");
print STDERR 'SSL Connected ';
print 'Using Cipher: ' . Net::SSLeay::get_cipher($ssl) if $debug;
print STDERR "\n\n";

return $ssl;
}
```

Sending the XML header and script body

After the connection is established, the first line of script sent must be an XML document header, which tells the device HTTPS web server that the following content is an XML script. The header must match the header used in the example exactly. After the header has been completely sent, the remainder of the script can be sent. In this example, the script is sent all at once.

For example:

```
# usage: sendscript(host, script)
# sends the xmlscript script to host, returns reply
sub sendscript($$)
{
my $host = shift;
my $script = shift;
my ($ssl, $reply, $lastreply, $res, $n);
$ssl = openSSLconnection($host);

# write header
$n = Net::SSLeay::ssl_write_all($ssl, '<?xml version="1.0"?>'."\r\n");
print "Wrote $n\n" if $debug;
# write script

$n = Net::SSLeay::ssl_write_all($ssl, $script);
print "Wrote $n\n$script\n" if $debug;
$reply = "";
$lastreply = "";
READLOOP:
while(1)
{
$n++;
$reply .= $lastreply;
$lastreply = Net::SSLeay::read($ssl);
die_if_ssl_error("ERROR: ssl read");
if($lastreply eq "")
{
sleep(2); # wait 2 sec for more text.
$lastreply = Net::SSLeay::read($ssl);
last READLOOP if($lastreply eq "");
}
sleep(2); # wait 2 sec for more text.
$lastreply = Net::SSLeay::read($ssl);
last READLOOP if($lastreply eq "");
}
print "READ: $lastreply\n" if $debug;
if($lastreply =~ m/STATUS="(0x[0-9A-F]+)"[\s]+MESSAGE='(.*)
'[\s]+\/>[\s]*(([\s]|.)*?)<\/RIBCL>/)
{
if($1 eq "0x0000")
{
print STDERR "$3\n" if $3;
}
else
print STDERR "ERROR: STATUS: $1, MESSAGE: $2\n";
{

}
}
}
$reply .= $lastreply;
closeSSLconnection($ssl);
return $reply;
```

```
}
```

PERL scripts can also send a portion of the XML script, wait for the reply, and send more XML later. Using this technique, it is possible to use the reply produced by an earlier command as input to a later command. However, the PERL script must send data within a few seconds or the device times out and disconnects.

When using the XML scripting interface with PERL scripts, the following restrictions apply:

Procedure

1. PERL scripts must send the XML header before sending the body of the script.
2. PERL scripts must provide script data fast enough to prevent the device from timing out.
3. Only one XML document is allowed per connection, which means one pair of RIBCL tags.
4. The device does not accept additional XML tags after a syntax error occurs. To send additional XML, a new connection must be established.

iLO ports

Enabling the Shared Network Port feature through XML scripting

For information on how to use the `SHARED_NETWORK_PORT` command to enable the iLO 5 Shared Network Port through XML scripting, see **RIBCL XML Scripting Language** on page 73.

The following sample script configures the iLO to select the Shared Network Port. You can customize this script to your needs. All non-blade platforms support some variation of this script. Use `LOM` or `FlexibleLOM` for the SHARED_NETWORK_PORT VALUE. If you pick a value that your platform does not support, the script generates an error when it is run.

```
<RIBCL version="2.0">
 <LOGIN USER_LOGIN="adminname" PASSWORD="password">
  <RIB_INFO MODE="WRITE">
   <MOD_NETWORK_SETTINGS>
    <!-- Desired NIC: Substitute: -->
    <!-- iLO NIC <SHARED_NETWORK_PORT VALUE="N"/> -->
    <!-- Embedded Host NIC <SHARED_NETWORK_PORT VALUE="LOM"/> -->
    <!-- Optional Host NIC <SHARED_NETWORK_PORT VALUE="FlexibleLOM"/> -->
   <SHARED_NETWORK_PORT VALUE="Y" />
   </MOD_NETWORK_SETTINGS>
  </RIB_INFO>
 </LOGIN>
</RIBCL>
```

Re-enabling the dedicated NIC management port

You can re-enable the iLO-dedicated NIC management port using the User Interface, RBSU, CLP, or XML scripting.

For information about how to use the `SHARED_NETWORK_PORT` command, see **RIBCL XML Scripting Language** on page 73

To re-enable the dedicated management port using RBSU:

Procedure

1. Connect the dedicated NIC management port to a LAN from which the server is managed.
2. Reboot the server.
3. When prompted during POST, press the **F9** key to enter System Utilities.
4. Navigate to **System Utilities** > **System Configuration** > **iLO 5 Configuration Utility** > **Network options**.
5. Change the **Network Interface Adapter** to `On`.

   There are two other available choices, depending on the whether you have the add-on adapter installed. Use LOM for an embedded NIC, and use Flex LOM for the add-on adapter. The shared network port is not supported on HPE Blade or Synergy Gen10 servers.
6. Press the **F10** key to save the configuration.
7. Press one of the following keys to complete the procedure:

- **F7** — Load Defaults
- **F10** — Save
- **F12** — Save and Exit

After iLO resets, the dedicated NIC management port is active.

To re-enable the dedicated iLO port using XML, use the following sample RIBCL script. The sample script configures iLO to select the iLO Network Port. You can modify the script for your specific needs. Using this script on platforms that do not support the Shared Network Port causes an error.

For example:

```
<RIBCL version="2.0">
<LOGIN USER_LOGIN="adminname" PASSWORD="password">
<RIB_INFO MODE="WRITE">
    <MOD_NETWORK_SETTINGS>
        <SHARED_NETWORK_PORT VALUE="N" />
    </MOD_NETWORK_SETTINGS>
</RIB_INFO>
</LOGIN>
</RIBCL>
```

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:

  www.hpe.com/support/AccessToSupportMaterials

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

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Sample script and command reference

The HP Lights-Out XML Scripting Sample bundle contains sample scripts that you can modify as needed for use in your environment. The table below lists all the available sample scripts and the related command for each.

Table 41: Sample scripts and related commands

Sample script	Related Command
Abort_Directory_test.xml	ABORT_DIR_TEST
Add_Federation_Group.xml	ADD_FEDERATION_GROUP
add_sso_rec.xml	SSO_SERVER
Add_User.xml	ADD_USER
Administrator_reset_pw.xml	MOD_USER
Cert_Request.xml	CERTIFICATE_SIGNING_REQUEST
Change_Password.xml	MOD_USER
Clear_AHS_Data.xml	AHS_CLEAR_DATA
Clear_EventLog.xml	CLEAR_EVENTLOG
Clear_IML.xml	CLEAR_IML
Clear_Power_On_Time.xml	CLEAR_SERVER_POWER_ON_TIME
Computer_Lock_Config.xml	COMPUTER_LOCK_CONFIG
Delete_Federation_Group.xml	DELETE_FEDERATION_GROUP
Delete_SSH_Key.xml	MOD_USER
delete_sso_rec.xml	DELETE_SERVER
Delete_User.xml	DELETE_USER
Eject_Virtual_Media.xml	EJECT_VIRTUAL_MEDIA DEVICE
ERS_AHS_Submit.xml	TRIGGER_BB_DATA
ERS_DC_CompleteRegistration.xml	DC_REGISTRATION_COMPLETE
ERS_DC_RegisterDevice.xml	SET_ERS_DIRECT_CONNECT
ERS_DC_SetWebProxy.xml	SET_ERS_WEB_PROXY
ERS_Disable.xml	DISABLE_ERS

Table Continued

ERS_Get_Settings.xml	GET_ERS_SETTINGS
ERS_IRS_Enable.xml	SET_ERS_IRS_CONNECT
ERS_L2_Collection_Submit.xml	TRIGGER_L2_COLLECTION
ERS_Test_Event_Submit.xml	TRIGGER_TEST_EVENT
Factory_Defaults.xml	FACTORY_DEFAULTS
Get_AHS_Status.xml	GET_AHS_STATUS
Get_All_Languages.xml	GET_ALL_LANGUAGES
Get_All_Licenses.xml	GET_ALL_LICENSES
Get_All_Users.xml	GET_ALL_USERS
Get_All_User_Info.xml	GET_ALL_USER_INFO
Get_Asset_Tag.xml	GET_ASSET_TAG
Get_Boot_Mode.xml	GET_PENDING_BOOT_MODE
Get_Current_Boot_Mode.xml	GET_CURRENT_BOOT_MODE
Get_Directory.xml	GET_DIR_CONFIG
Get_Directory_Test_Results	GET_DIR_TEST_RESULTS
Get_Embedded_Health.xml	GET_EMBEDDED_HEALTH
Get_EmHealth.xml	GET_EMBEDDED_HEALTH
Get_Encrypt.xml	GET_ENCRYPT_SETTINGS
Get_Federation_All_Groups.xml	GET_FEDERATION_ALL_GROUPS
Get_Federation_All_Groups_Info.xml	GET_FEDERATION_ALL_GROUPS_INFO
Get_Federation_Group.xml	GET_FEDERATION_GROUP
Get_Federation_Multicast_Options.xml	GET_FEDERATION_MULTICAST
Get_FIPS_Status.xml	GET_FIPS_STATUS
Get_FW_Version.xml	GET_FW_VERSION
Get_Global.xml	GET_GLOBAL_SETTINGS
Get_Host_APO.xml	GET_SERVER_AUTO_PWR
Get_Host_Data.xml	GET_HOST_DATA

Table Continued

Get_Host_Power.xml	GET_HOST_POWER_STATUS
Get_Host_Power_Saver.xml	GET_HOST_POWER_SAVER_STATUS
Get_Host_Pwr_Micro_Ver.xml	GET_HOST_PWR_MICRO_VER
Get_Hotkey_Config.xml	GET_HOTKEY_CONFIG
Get_iLO_Log.xml	GET_EVENT_LOG
Get_IML.xml	GET_EVENT_LOG
Get_language.xml	GET_LANGUAGE
Get_Network.xml	GET_NETWORK_SETTINGS
Get_OA_Info.xml	GET_OA_INFO
Get_One_Time_Boot_Order.xml	GET_ONE_TIME_BOOT
Get_Persistent_Boot_Order.xml	GET_PERSISTENT_BOOT
Get_Persmouse_Status.xml	GET_PERS_MOUSE_KEYBOARD_ENABLED
Get_PowerCap.xml	GET_POWER_CAP
Get_Power_On_Time.xml	GET_SERVER_POWER_ON_TIME
Get_Power_Readings.xml	GET_POWER_READINGS
Get_Product_Name.xml	GET_PRODUCT_NAME
Get_Pwreg_Alert_Threshold.xml	GET_PWREG
Get_Rack_Settings.xml	GET_RACK_SETTINGS
Get_SDCard_Status.xml	GET_SDCARD_STATUS
Get_Security_Msg.xml	GET_SECURITY_MSG
Get_Server_FQDN.xml	GET_SERVER_FQDN and GET_SMH_FQDN
Get_Server_Name.xml	GET_SERVER_NAME
Get_SNMP_IM.xml	GET_SNMP_IM_SETTINGS
Get_SSO_Settings.xml	GET_SSO_SETTINGS
Get_Supported_Boot_Mode.xml	GET_SUPPORTED_BOOT_MODE
Get_TPM_Status.xml	GET_TPM_STATUS
Get_UID_Status.xml	GET_UID_STATUS

Table Continued

Get_User.xml	GET_USER
Get_VM_Status.xml	GET_VM_STATUS
hd_zone_defaults.xml	ZONE_FACTORY_DEFAULTS
HD_zone_ReadBackplaneInfo.xml	READ_BACKPLANE_INFO
hd_zone_readzonetable.xml	READ_ZONE_TABLE
hd_zone_write_zone.xml	WRITE_ZONE_TABLE
Hotkey_Config.xml	HOTKEY_CONFIG
Import_Cert.xml	IMPORT_CERTIFICATE
Import_SSH_Key.xml	IMPORT_SSH_KEY
Insert_Virtual_Media.xml	INSERT_VIRTUAL_MEDIA
License.xml	LICENSE
Lock_Configuration.xml	MOD_GLOBAL_SETTINGS
Mod_Directory.xml	MOD_DIR_CONFIG
Mod_Encrypt_Settings.xml	MOD_ENCRYPT_SETTINGS
Mod_Federation_Group.xml	MOD_FEDERATION_GROUP
Mod_Global_Settings.xml	MOD_GLOBAL_SETTINGS
Mod_Kerberos_Config.xml	MOD_DIR_CONFIG
Mod_Network_Settings.xml	MOD_NETWORK_SETTINGS
Mod_Schemaless_Directory.xml	MOD_DIR_CONFIG
Mod_SNMP_IM_Settings.xml	MOD_SNMP_IM_SETTINGS
Mod_SSO_Settings.xml	MOD_SSO_SETTINGS
Mod_User.xml	MOD_USER
Mod_VLAN.xml	MOD_NETWORK_SETTINGS
Mod_VM_Port_Settings.xml	MOD_GLOBAL_SETTINGS
Profile_Apply.xml	PROFILE_APPLY
Profile_Apply_Get_Results.xml	PROFILE_APPLY_GET_RESULTS
Profile_Desc_Delete.xml	PROFILE_DELETE

Table Continued

Profile_Desc_Download.xml	PROFILE_DESC_DOWNLOAD
Profile_Desc_List.xml	PROFILE_LIST
RBSU_POST_IP.xml	MOD_GLOBAL_SETTINGS
Reset_RIB.xml	RESET_RIB
Reset_Server.xml	RESET_SERVER
Send_Snmp_Test_Trap.xml	SEND_SNMP_TEST_TRAP
Set_AHS_Status.xml	SET_AHS_STATUS
Set_Asset_tag.xml	SET_ASSET_TAG
Set_Boot_Mode.xml	SET_PENDING_BOOT_MODE
Set_Brownout.xml	MOD_GLOBAL_SETTINGS
Set_Federation_Multicast_Options.xml	SET_FEDERATION_MULTICAST
Set_FIPS_Enable.xml	FIPS_ENABLE
Set_Host_APO.xml	SERVER_AUTO_PWR
Set_Host_Power.xml	SET_HOST_POWER
Set_Host_Power_Saver.xml	SET_HOST_POWER_SAVER
Set_Language.xml	SET_LANGUAGE
Set_One_Time_Boot_Order.xml	SET_ONE_TIME_BOOT
Set_Persistent_Boot_Order.xml	SET_PERSISTENT_BOOT
Set_Persmouse_Status.xml	SET_PERS_MOUSE_KEYBOARD_ENABLED
Set_PowerCap.xml	SET_POWER_CAP
Set_Pwreg_Alert_Threshold.xml	SET_PWREG
Set_Security_Msg.xml	SET_SECURITY_MSG
Set_Server_FQDN.xml	SERVER_FQDN SMH_FQDN
Set_Server_Name.xml	SERVER_NAME

Table Continued

Set_Virtual_Power_BTN.xml	PRESS_PWR_BTN COLD_BOOT_SERVER WARM_BOOT_SERVER HOLD_PWR_BTN
Set_VM_Status.xml	SET_VM_STATUS
Shared_Network_Port.xml	MOD_NETWORK_SETTINGS
Start_Directory_test.xml	START_DIR_TEST
UID_Control.xml	UID_CONTROL
Update_Firmware.xml	UPDATE_RIB_FIRMWARE
Update_Language.xml	UPDATE_LANG_PACK

Sample return for GET_EMBEDDED_HEALTH

A possible GET_EMBEDDED_HEALTH return message is:


```
<GET_EMBEDDED_HEALTH_DATA>
     <FANS>
          <FAN>
               <ZONE VALUE = "System"/>
               <LABEL VALUE = "Fan 1"/>
               <STATUS VALUE = "OK"/>
               <SPEED VALUE = "9" UNIT="Percentage"/>
          </FAN>
          <FAN>
               <ZONE VALUE = "System"/>
               <LABEL VALUE = "Fan 2"/>
               <STATUS VALUE = "OK"/>
               <SPEED VALUE = "12" UNIT="Percentage"/>
          </FAN>
          <FAN>
               <ZONE VALUE = "System"/>
               <LABEL VALUE = "Fan 3"/>
               <STATUS VALUE = "OK"/>
               <SPEED VALUE = "11" UNIT="Percentage"/>
          </FAN>
          <FAN>
               <ZONE VALUE = "System"/>
               <LABEL VALUE = "Fan 4"/>
               <STATUS VALUE = "OK"/>
               <SPEED VALUE = "11" UNIT="Percentage"/>
          </FAN>
          <FAN>
               <ZONE VALUE = "System"/>
               <LABEL VALUE = "Fan 5"/>
               <STATUS VALUE = "OK"/>
               <SPEED VALUE = "11" UNIT="Percentage"/>
          </FAN>
          <FAN>
               <ZONE VALUE = "System"/>
               <LABEL VALUE = "Fan 6"/>
               <STATUS VALUE = "OK"/>
               <SPEED VALUE = "9" UNIT="Percentage"/>
          </FAN>
     </FANS>
     <TEMPERATURE>
          <TEMP>
               <LABEL VALUE = "01-Inlet Ambient"/>
               <LOCATION VALUE = "Ambient"/>
               <STATUS VALUE = "OK"/>
               <CURRENTREADING VALUE = "21" UNIT="Celsius"/>
               <CAUTION VALUE = "42" UNIT="Celsius"/>
               <CRITICAL VALUE = "50" UNIT="Celsius"/>
          </TEMP>
          <TEMP>
               <LABEL VALUE = "02-CPU 1"/>
               <LOCATION VALUE = "CPU"/>
```

```
        <STATUS VALUE = "OK"/>
        <CURRENTREADING VALUE = "40" UNIT="Celsius"/>
        <CAUTION VALUE = "70" UNIT="Celsius"/>
        <CRITICAL VALUE = "N/A"/>
    </TEMP>
    <TEMP>
        <LABEL VALUE = "03-CPU 2"/>
        <LOCATION VALUE = "CPU"/>
        <STATUS VALUE = "OK"/>
        <CURRENTREADING VALUE = "40" UNIT="Celsius"/>
        <CAUTION VALUE = "70" UNIT="Celsius"/>
        <CRITICAL VALUE = "N/A"/>
    </TEMP>
    <TEMP>
        <LABEL VALUE = "04-P1 DIMM 1-6"/>
        <LOCATION VALUE = "Memory"/>
        <STATUS VALUE = "Not Installed"/>
        <CURRENTREADING VALUE = "N/A"/>
        <CAUTION VALUE = "N/A"/>
        <CRITICAL VALUE = "N/A"/>
    </TEMP>
    <TEMP>
        <LABEL VALUE = "05-P1 DIMM 7-12"/>
        <LOCATION VALUE = "Memory"/>
        <STATUS VALUE = "OK"/>
        <CURRENTREADING VALUE = "30" UNIT="Celsius"/>
        <CAUTION VALUE = "89" UNIT="Celsius"/>
        <CRITICAL VALUE = "N/A"/>
    </TEMP>
    <TEMP>
        <LABEL VALUE = "06-P2 DIMM 1-6"/>
        <LOCATION VALUE = "Memory"/>
        <STATUS VALUE = "Not Installed"/>
        <CURRENTREADING VALUE = "N/A"/>
        <CAUTION VALUE = "N/A"/>
        <CRITICAL VALUE = "N/A"/>
    </TEMP>
    <TEMP>
        <LABEL VALUE = "07-P2 DIMM 7-12"/>
        <LOCATION VALUE = "Memory"/>
        <STATUS VALUE = "OK"/>
        <CURRENTREADING VALUE = "28" UNIT="Celsius"/>
        <CAUTION VALUE = "89" UNIT="Celsius"/>
        <CRITICAL VALUE = "N/A"/>
    </TEMP>
    <TEMP>
        <LABEL VALUE = "08-HD Max"/>
        <LOCATION VALUE = "System"/>
        <STATUS VALUE = "OK"/>
        <CURRENTREADING VALUE = "35" UNIT="Celsius"/>
        <CAUTION VALUE = "60" UNIT="Celsius"/>
        <CRITICAL VALUE = "N/A"/>
    </TEMP>
    <TEMP>
        <LABEL VALUE = "09-Exp Bay Drive"/>
        <LOCATION VALUE = "System"/>
        <STATUS VALUE = "Not Installed"/>
```

```
     <CURRENTREADING VALUE = "N/A"/>
     <CAUTION VALUE = "N/A"/>
     <CRITICAL VALUE = "N/A"/>
</TEMP>
<TEMP>
     <LABEL VALUE = "10-Chipset"/>
     <LOCATION VALUE = "System"/>
     <STATUS VALUE = "OK"/>
     <CURRENTREADING VALUE = "44" UNIT="Celsius"/>
     <CAUTION VALUE = "105" UNIT="Celsius"/>
     <CRITICAL VALUE = "N/A"/>
</TEMP>
<TEMP>
     <LABEL VALUE = "11-PS 1 Inlet"/>
     <LOCATION VALUE = "Power Supply"/>
     <STATUS VALUE = "OK"/>
     <CURRENTREADING VALUE = "31" UNIT="Celsius"/>
     <CAUTION VALUE = "N/A"/>
     <CRITICAL VALUE = "N/A"/>
</TEMP>
<TEMP>
     <LABEL VALUE = "12-PS 2 Inlet"/>
     <LOCATION VALUE = "Power Supply"/>
     <STATUS VALUE = "Not Installed"/>
     <CURRENTREADING VALUE = "N/A"/>
     <CAUTION VALUE = "N/A"/>
     <CRITICAL VALUE = "N/A"/>
</TEMP>
<TEMP>
     <LABEL VALUE = "13-VR P1"/>
     <LOCATION VALUE = "System"/>
     <STATUS VALUE = "OK"/>
     <CURRENTREADING VALUE = "38" UNIT="Celsius"/>
     <CAUTION VALUE = "115" UNIT="Celsius"/>
     <CRITICAL VALUE = "120" UNIT="Celsius"/>
</TEMP>
<TEMP>
     <LABEL VALUE = "14-VR P2"/>
     <LOCATION VALUE = "System"/>
     <STATUS VALUE = "OK"/>
     <CURRENTREADING VALUE = "35" UNIT="Celsius"/>
     <CAUTION VALUE = "115" UNIT="Celsius"/>
     <CRITICAL VALUE = "120" UNIT="Celsius"/>
</TEMP>
<TEMP>
     <LABEL VALUE = "15-VR P1 Mem"/>
     <LOCATION VALUE = "System"/>
     <STATUS VALUE = "OK"/>
     <CURRENTREADING VALUE = "33" UNIT="Celsius"/>
     <CAUTION VALUE = "115" UNIT="Celsius"/>
     <CRITICAL VALUE = "120" UNIT="Celsius"/>
</TEMP>
<TEMP>
     <LABEL VALUE = "16-VR P1 Mem"/>
     <LOCATION VALUE = "System"/>
     <STATUS VALUE = "OK"/>
     <CURRENTREADING VALUE = "33" UNIT="Celsius"/>
```

```
     <CAUTION VALUE = "115" UNIT="Celsius"/>
     <CRITICAL VALUE = "120" UNIT="Celsius"/>
</TEMP>
<TEMP>
     <LABEL VALUE = "17-VR P2 Mem"/>
     <LOCATION VALUE = "System"/>
     <STATUS VALUE = "OK"/>
     <CURRENTREADING VALUE = "33" UNIT="Celsius"/>
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                <PART NUMBER = "N/A"/>
                <TYPE VALUE = "N/A"/>
                <SIZE VALUE = "N/A"/>
                <FREQUENCY VALUE = "N/A"/>
                <MINIMUM_VOLTAGE VALUE = "N/A"/>
                <RANKS VALUE = "N/A"/>
                <TECHNOLOGY VALUE = "N/A"/>
            </CPU_2>
            <CPU_2>
                <SOCKET VALUE = "11"/>
                <STATUS VALUE = "Not Present"/>
                <HP_SMART_MEMORY VALUE = "N/A" Type = "Unknown"/>
                <PART NUMBER = "N/A"/>
                <TYPE VALUE = "N/A"/>
                <SIZE VALUE = "N/A"/>
                <FREQUENCY VALUE = "N/A"/>
                <MINIMUM_VOLTAGE VALUE = "N/A"/>
                <RANKS VALUE = "N/A"/>
                <TECHNOLOGY VALUE = "N/A"/>
            </CPU_2>
            <CPU_2>
                <SOCKET VALUE = "12"/>
                <STATUS VALUE = "Good, In Use"/>
                <HP_SMART_MEMORY VALUE = "Yes" Type = "Smart"/>
                <PART NUMBER = "762200-081"/>
                <TYPE VALUE = "DIMM DDR4"/>
                <SIZE VALUE = "8192 MB"/>
                <FREQUENCY VALUE = "2133 MHz"/>
                <MINIMUM_VOLTAGE VALUE = "1.20 v"/>
                <RANKS VALUE = "2"/>
                <TECHNOLOGY VALUE = "RDIMM"/>
            </CPU_2>
        </MEMORY_DETAILS>
    </MEMORY>
    <NIC_INFORMATION>
        <iLO>
            <NETWORK_PORT VALUE = "iLO Dedicated Network Port"/>
            <PORT_DESCRIPTION VALUE = "iLO Dedicated Network Port"/>
            <LOCATION VALUE = "Embedded"/>
            <MAC_ADDRESS VALUE = "38:63:bb:3a:27:10"/>
            <IP_ADDRESS VALUE = "15.154.127.140"/>
            <STATUS VALUE = "OK"/>
```

```
</iLO>
<NIC>
     <NETWORK_PORT VALUE = "Port 1"/>
     <PORT_DESCRIPTION VALUE = "HP Ethernet 1Gb 4-port 331i Adapter"/>
     <LOCATION VALUE = "Embedded"/>
     <MAC_ADDRESS VALUE = "38:63:bb:40:56:48"/>
     <IP_ADDRESS VALUE = "N/A"/>
     <STATUS VALUE = "Unknown"/>
</NIC>
<NIC>
     <NETWORK_PORT VALUE = "Port 2"/>
     <PORT_DESCRIPTION VALUE = "HP Ethernet 1Gb 4-port 331i Adapter"/>
     <LOCATION VALUE = "Embedded"/>
     <MAC_ADDRESS VALUE = "38:63:bb:40:56:49"/>
     <IP_ADDRESS VALUE = "N/A"/>
     <STATUS VALUE = "Unknown"/>
</NIC>
<NIC>
     <NETWORK_PORT VALUE = "Port 3"/>
     <PORT_DESCRIPTION VALUE = "HP Ethernet 1Gb 4-port 331i Adapter"/>
     <LOCATION VALUE = "Embedded"/>
     <MAC_ADDRESS VALUE = "38:63:bb:40:56:4a"/>
     <IP_ADDRESS VALUE = "N/A"/>
     <STATUS VALUE = "Unknown"/>
</NIC>
<NIC>
     <NETWORK_PORT VALUE = "Port 4"/>
     <PORT_DESCRIPTION VALUE = "HP Ethernet 1Gb 4-port 331i Adapter"/>
     <LOCATION VALUE = "Embedded"/>
     <MAC_ADDRESS VALUE = "38:63:bb:40:56:4b"/>
     <IP_ADDRESS VALUE = "N/A"/>
     <STATUS VALUE = "Unknown"/>
</NIC>
<NIC>
     <NETWORK_PORT VALUE = "Port 1"/>
     <PORT_DESCRIPTION VALUE = "HP Ethernet 1Gb 4-port 366FLR Adapter
#3"/>
     <LOCATION VALUE = "Embedded"/>
     <MAC_ADDRESS VALUE = "8c:dc:d4:af:1c:ec"/>
     <IP_ADDRESS VALUE = "15.154.127.139"/>
     <STATUS VALUE = "OK"/>
</NIC>
<NIC>
     <NETWORK_PORT VALUE = "Port 2"/>
     <PORT_DESCRIPTION VALUE = "HP Ethernet 1Gb 4-port 366FLR Adapter
#3"/>
     <LOCATION VALUE = "Embedded"/>
     <MAC_ADDRESS VALUE = "8c:dc:d4:af:1c:ed"/>
     <IP_ADDRESS VALUE = "N/A"/>
     <STATUS VALUE = "Unknown"/>
</NIC>
<NIC>
     <NETWORK_PORT VALUE = "Port 3"/>
     <PORT_DESCRIPTION VALUE = "HP Ethernet 1Gb 4-port 366FLR Adapter
#3"/>
     <LOCATION VALUE = "Embedded"/>
     <MAC_ADDRESS VALUE = "8c:dc:d4:af:1c:ee"/>
```

```
                <IP_ADDRESS VALUE = "N/A"/>
                <STATUS VALUE = "Unknown"/>
            </NIC>
            <NIC>
                <NETWORK_PORT VALUE = "Port 4"/>
                <PORT_DESCRIPTION VALUE = "HP Ethernet 1Gb 4-port 366FLR Adapter
#3"/>
                <LOCATION VALUE = "Embedded"/>
                <MAC_ADDRESS VALUE = "8c:dc:d4:af:1c:ef"/>
                <IP_ADDRESS VALUE = "N/A"/>
                <STATUS VALUE = "Unknown"/>
            </NIC>
        </NIC_INFORMATION>
        <STORAGE>
            <CONTROLLER>
                <LABEL VALUE = "Controller on System Board"/>
                <STATUS VALUE = "OK"/>
                <CONTROLLER_STATUS VALUE = "OK"/>
                <SERIAL_NUMBER VALUE = "PDNLH0BRH8A25C"/>
                <MODEL VALUE = "Smart Array P440ar Controller"/>
                <FW_VERSION VALUE = "3.52"/>
                <CACHE_MODULE_STATUS VALUE = "OK"/>
                <CACHE_MODULE_SERIAL_NUM VALUE = "PDNLH0BRH8A25C"/>
                <CACHE_MODULE_MEMORY VALUE = "2097152 KB"/>
                <ENCRYPTION_STATUS VALUE = "Not Enabled"/>
                <ENCRYPTION_SELF_TEST_STATUS VALUE = "OK"/>
                <ENCRYPTION_CSP_STATUS VALUE = "OK"/>
                <DRIVE_ENCLOSURE>
                    <LABEL VALUE = "Port 1I Box 3"/>
                    <STATUS VALUE = "OK"/>
                    <DRIVE_BAY VALUE = "04"/>
                </DRIVE_ENCLOSURE>
                <DRIVE_ENCLOSURE>
                    <LABEL VALUE = "Port 2I Box 0"/>
                    <STATUS VALUE = "OK"/>
                    <DRIVE_BAY VALUE = "04"/>
                </DRIVE_ENCLOSURE>
                <LOGICAL_DRIVE>
                    <LABEL VALUE = "01"/>
                    <STATUS VALUE = "OK"/>
                    <CAPACITY VALUE = "231 GiB"/>
                    <FAULT_TOLERANCE VALUE = "RAID 0"/>
                    <LOGICAL_DRIVE_TYPE VALUE = "Data LUN"/>
                    <ENCRYPTION_STATUS VALUE = "Not Encrypted"/>
                    <PHYSICAL_DRIVE>
                        <LABEL VALUE = "Port 1I Box 3 Bay 2"/>
                        <STATUS VALUE = "OK"/>
                        <SERIAL_NUMBER VALUE = "9XF3EGT20000C5236EYR"/>
                        <MODEL VALUE = "MM0500FBFVQ"/>
                        <CAPACITY VALUE = "465 GiB"/>
                        <MARKETING_CAPACITY VALUE = "341 GB"/>
                        <LOCATION VALUE = "Port 1I Box 3 Bay 2"/>
                        <FW_VERSION VALUE = "HPD8"/>
                        <DRIVE_CONFIGURATION VALUE = "Configured"/>
                        <ENCRYPTION_STATUS VALUE = "Not Encrypted"/>
                        <MEDIA_TYPE VALUE = "HDD"/>
                    </PHYSICAL_DRIVE>
```

```
        <PHYSICAL_DRIVE>
            <LABEL VALUE = "Port 1I Box 3 Bay 1"/>
            <STATUS VALUE = "OK"/>
            <SERIAL_NUMBER VALUE = "9XF3EJE30000C523FA8T"/>
            <MODEL VALUE = "MM0500FBFVQ"/>
            <CAPACITY VALUE = "465 GiB"/>
            <MARKETING_CAPACITY VALUE = “341 GB”/>
            <LOCATION VALUE = "Port 1I Box 3 Bay 1"/>
            <FW_VERSION VALUE = "HPD8"/>
            <DRIVE_CONFIGURATION VALUE = "Configured"/>
            <ENCRYPTION_STATUS VALUE = "Not Encrypted"/>
            <MEDIA_TYPE VALUE = "HDD"/>
        </PHYSICAL_DRIVE>
    </LOGICAL_DRIVE>
    <LOGICAL_DRIVE>
        <LABEL VALUE = "02"/>
        <STATUS VALUE = "OK"/>
        <CAPACITY VALUE = "231 GiB"/>
        <FAULT_TOLERANCE VALUE = "RAID 0"/>
        <LOGICAL_DRIVE_TYPE VALUE = "Data LUN"/>
        <ENCRYPTION_STATUS VALUE = "Not Encrypted"/>
        <PHYSICAL_DRIVE>
            <LABEL VALUE = "Port 1I Box 3 Bay 2"/>
            <STATUS VALUE = "OK"/>
            <SERIAL_NUMBER VALUE = "9XF3EGT20000C5236EYR"/>
            <MODEL VALUE = "MM0500FBFVQ"/>
            <CAPACITY VALUE = "465 GiB"/>
            <MARKETING_CAPACITY VALUE = “341 GB”/>
            <LOCATION VALUE = "Port 1I Box 3 Bay 2"/>
            <FW_VERSION VALUE = "HPD8"/>
            <DRIVE_CONFIGURATION VALUE = "Configured"/>
            <ENCRYPTION_STATUS VALUE = "Not Encrypted"/>
            <MEDIA_TYPE VALUE = "HDD"/>
        </PHYSICAL_DRIVE>
        <PHYSICAL_DRIVE>
            <LABEL VALUE = "Port 1I Box 3 Bay 1"/>
            <STATUS VALUE = "OK"/>
            <SERIAL_NUMBER VALUE = "9XF3EJE30000C523FA8T"/>
            <MODEL VALUE = "MM0500FBFVQ"/>
            <CAPACITY VALUE = "465 GiB"/>
            <MARKETING_CAPACITY VALUE = “341 GB”/>
            <LOCATION VALUE = "Port 1I Box 3 Bay 1"/>
            <FW_VERSION VALUE = "HPD8"/>
            <DRIVE_CONFIGURATION VALUE = "Configured"/>
            <ENCRYPTION_STATUS VALUE = "Not Encrypted"/>
            <MEDIA_TYPE VALUE = "HDD"/>
        </PHYSICAL_DRIVE>
    </LOGICAL_DRIVE>
    <LOGICAL_DRIVE>
        <LABEL VALUE = "03"/>
        <STATUS VALUE = "OK"/>
        <CAPACITY VALUE = "231 GiB"/>
        <FAULT_TOLERANCE VALUE = "RAID 0"/>
        <LOGICAL_DRIVE_TYPE VALUE = "Data LUN"/>
        <ENCRYPTION_STATUS VALUE = "Not Encrypted"/>
        <PHYSICAL_DRIVE>
            <LABEL VALUE = "Port 1I Box 3 Bay 2"/>
```

```
            <STATUS VALUE = "OK"/>
            <SERIAL_NUMBER VALUE = "9XF3EGT20000C5236EYR"/>
            <MODEL VALUE = "MM0500FBFVQ"/>
            <CAPACITY VALUE = "465 GiB"/>
            <MARKETING_CAPACITY VALUE = “341 GB”/>
            <LOCATION VALUE = "Port 1I Box 3 Bay 2"/>
            <FW_VERSION VALUE = "HPD8"/>
            <DRIVE_CONFIGURATION VALUE = "Configured"/>
            <ENCRYPTION_STATUS VALUE = "Not Encrypted"/>
            <MEDIA_TYPE VALUE = "HDD"/>
        </PHYSICAL_DRIVE>
        <PHYSICAL_DRIVE>
            <LABEL VALUE = "Port 1I Box 3 Bay 1"/>
            <STATUS VALUE = "OK"/>
            <SERIAL_NUMBER VALUE = "9XF3EJE30000C523FA8T"/>
            <MODEL VALUE = "MM0500FBFVQ"/>
            <CAPACITY VALUE = "465 GiB"/>
            <MARKETING_CAPACITY VALUE = “341 GB”/>
            <LOCATION VALUE = "Port 1I Box 3 Bay 1"/>
            <FW_VERSION VALUE = "HPD8"/>
            <DRIVE_CONFIGURATION VALUE = "Configured"/>
            <ENCRYPTION_STATUS VALUE = "Not Encrypted"/>
            <MEDIA_TYPE VALUE = "HDD"/>
        </PHYSICAL_DRIVE>
    </LOGICAL_DRIVE>
    <LOGICAL_DRIVE>
        <LABEL VALUE = "04"/>
        <STATUS VALUE = "OK"/>
        <CAPACITY VALUE = "231 GiB"/>
        <FAULT_TOLERANCE VALUE = "RAID 0"/>
        <LOGICAL_DRIVE_TYPE VALUE = "Data LUN"/>
        <ENCRYPTION_STATUS VALUE = "Not Encrypted"/>
        <PHYSICAL_DRIVE>
            <LABEL VALUE = "Port 1I Box 3 Bay 2"/>
            <STATUS VALUE = "OK"/>
            <SERIAL_NUMBER VALUE = "9XF3EGT20000C5236EYR"/>
            <MODEL VALUE = "MM0500FBFVQ"/>
            <CAPACITY VALUE = "465 GiB"/>
            <MARKETING_CAPACITY VALUE = “341 GB”/>
            <LOCATION VALUE = "Port 1I Box 3 Bay 2"/>
            <FW_VERSION VALUE = "HPD8"/>
            <DRIVE_CONFIGURATION VALUE = "Configured"/>
            <ENCRYPTION_STATUS VALUE = "Not Encrypted"/>
            <MEDIA_TYPE VALUE = "HDD"/>
        </PHYSICAL_DRIVE>
        <PHYSICAL_DRIVE>
            <LABEL VALUE = "Port 1I Box 3 Bay 1"/>
            <STATUS VALUE = "OK"/>
            <SERIAL_NUMBER VALUE = "9XF3EJE30000C523FA8T"/>
            <MODEL VALUE = "MM0500FBFVQ"/>
            <CAPACITY VALUE = "465 GiB"/>
            <MARKETING_CAPACITY VALUE = “341 GB”/>
            <LOCATION VALUE = "Port 1I Box 3 Bay 1"/>
            <FW_VERSION VALUE = "HPD8"/>
            <DRIVE_CONFIGURATION VALUE = "Configured"/>
            <ENCRYPTION_STATUS VALUE = "Not Encrypted"/>
            <MEDIA_TYPE VALUE = "HDD"/>
```

```
                    </PHYSICAL_DRIVE>
               </LOGICAL_DRIVE>
          </CONTROLLER>
          <DISCOVERY_STATUS>
               <STATUS VALUE = "Discovery Complete"/>
          </DISCOVERY_STATUS>
     </STORAGE>
     <FIRMWARE_INFORMATION>
          <INDEX_1>
               <FIRMWARE_NAME VALUE = "iLO"/>
               <FIRMWARE_VERSION VALUE = "2.40 pass 30 Dec 02 2015"/>
          </INDEX_1>
          <INDEX_2>
               <FIRMWARE_NAME VALUE = "System ROM"/>
               <FIRMWARE_VERSION VALUE = "P89 v2.00 (10/10/2015)"/>
          </INDEX_2>
          <INDEX_3>
               <FIRMWARE_NAME VALUE = "Redundant System ROM"/>
               <FIRMWARE_VERSION VALUE = "P89 v2.00 (07/09/2015)"/>
          </INDEX_3>
          <INDEX_4>
               <FIRMWARE_NAME VALUE = "Intelligent Provisioning"/>
               <FIRMWARE_VERSION VALUE = "2.01.29"/>
          </INDEX_4>
          <INDEX_5>
               <FIRMWARE_NAME VALUE = "Intelligent Platform Abstraction Data"/>
               <FIRMWARE_VERSION VALUE = "20.1"/>
          </INDEX_5>
          <INDEX_6>
               <FIRMWARE_NAME VALUE = "Power Management Controller Firmware"/>
               <FIRMWARE_VERSION VALUE = "1.0.9"/>
               <FIRMWARE_FAMILY VALUE = "14h"/>
          </INDEX_6>
          <INDEX_7>
               <FIRMWARE_NAME VALUE = "Power Management Controller FW
Bootloader"/>
               <FIRMWARE_VERSION VALUE = "1.0"/>
          </INDEX_7>
          <INDEX_8>
               <FIRMWARE_NAME VALUE = "System Programmable Logic Device"/>
               <FIRMWARE_VERSION VALUE = "Version 0x33"/>
          </INDEX_8>
          <INDEX_9>
               <FIRMWARE_NAME VALUE = "SAS Programmable Logic Device"/>
               <FIRMWARE_VERSION VALUE = "Version 0x01"/>
          </INDEX_9>
          <INDEX_10>
               <FIRMWARE_NAME VALUE = "Server Platform Services (SPS)
Firmware"/>
               <FIRMWARE_VERSION VALUE = "3.0.6.267.1"/>
          </INDEX_10>
          <INDEX_11>
               <FIRMWARE_NAME VALUE = "HPE Smart Storage Battery 1 Firmware"/>
               <FIRMWARE_VERSION VALUE = "1.1"/>
          </INDEX_11>
          <INDEX_12>
               <FIRMWARE_NAME VALUE = "TPM Firmware"/>
```

```
                <FIRMWARE_VERSION VALUE = "3.17"/>
            </INDEX_12>
            <INDEX_13>
                <FIRMWARE_NAME VALUE = "Smart Array P440ar Controller"/>
                <FIRMWARE_VERSION VALUE = "3.52"/>
            </INDEX_13>
            <INDEX_14>
                <FIRMWARE_NAME VALUE = "HP Ethernet 1Gb 4-port 331i Adapter"/>
                <FIRMWARE_VERSION VALUE = "1.38.0"/>
            </INDEX_14>
            <INDEX_15>
                <FIRMWARE_NAME VALUE = "HP Ethernet 1Gb 4-port 366FLR Adapter
#3"/>
                <FIRMWARE_VERSION VALUE = "1.1200.0"/>
            </INDEX_15>
        </FIRMWARE_INFORMATION>
        <HEALTH_AT_A_GLANCE>
            <BIOS_HARDWARE STATUS= "OK"/>
            <FANS STATUS= "OK"/>
            <FANS REDUNDANCY= "Redundant"/>
            <TEMPERATURE STATUS= "OK"/>
            <POWER_SUPPLIES STATUS= "OK"/>
            <POWER_SUPPLIES REDUNDANCY= "Not Redundant"/>
            <BATTERY STATUS= "OK"/>
            <PROCESSOR STATUS= "OK"/>
            <MEMORY STATUS= "OK"/>
            <NETWORK STATUS= "OK"/>
            <STORAGE STATUS= "OK"/>
        </HEALTH_AT_A_GLANCE>
</GET_EMBEDDED_HEALTH_DATA>
```

Examples for remapping drive bays in Apollo 2000 systems

With the iLO administrator login credentials, an authorized administrator may execute iLO XML commands to view or update the association between HPE Apollo r2800 Chassis server slots/nodes and the drive bays.

The administrator must understand the possible data destructive results that can happen when drive bays are remapped in an existing system. Only administrators with the correct iLO Administrator login credentials will be allowed to change the drive bay mapping.

For the new drive bay mapping to become effective, all server nodes in the Apollo r2800 chassis must be powered down. At this point, the chassis firmware reconfigures the storage expander backplane and when the servers are powered back on, the new drive bay mapping will be in place. All servers must remain powered off for at least 5 seconds after the iLO XML commands to reconfigure the drive bay mapping are successfully executed.

IMPORTANT:

The drive bay mapping (zone table) is maintained in NVRAM on the Apollo r2800 power distribution board. If that board is replaced, the drive bay mapping must be setup again for the existing nodes in exactly the same way. The system administrator must record the drive bay configuration **before** replacing the power distribution board.

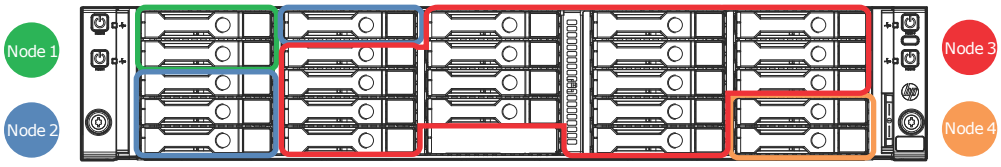
NOTE:

For specific syntax information related to drive bay mapping commands, see **HARD_DRIVE_ZONE** on page 205.

Example 1

In this example, a Apollo r2800 Chassis has four XL170r server nodes. The system administrator was to map the drive bays as follows:

- Drive bays 1 and 2 to XL170r node 1
- Drive bays 3 through 6 to XL170r node 2
- Drive bays 7 through 22 to XL170r node 3
- Drive bays 23 and 24 to XL170r node 4



Read backplane information

Using a script that includes the READ_BACKPLANE_INFO command, get the current mapping information from the Apollo r2800 Chassis.

Using the READ_BACKPLANE_INFO command

```
<!--  Script to read hard drive backplane info so user can  -->
<!--  determine node to host port mapping, number of bays,  -->
<!--  start and end bay number for setting up a zone table.  -->
```

```
<RIBCL VERSION="2.23">
  <LOGIN USER_LOGIN="admin" PASSWORD="password">
      <HARD_DRIVE_ZONE MODE="read">
         <READ_BACKPLANE_INFO/>
      </HARD_DRIVE_ZONE>
  </LOGIN>
</RIBCL>
```

Sample script return

```
<?xml version="1.0"?>
<RIBCL VERSION="2.23">
<RESPONSE
    STATUS="0x0000"
    MESSAGE='No error'
     />
     <READ_BACKPLANE_INFO>
         <TYPE_ID>"1"</TYPE_ID>
         <SEP_NODE_ID>"4"</SEP_NODE_ID>
         <WWID>"50014380318db27f"</WWID>
         <SEP_ID>"0000"</SEP_ID>
         <BACKPLANE_NAME>"HP Apollo 2000     "</BACKPLANE_NAME>
         <FW_REV>"0.20"</FW_REV>
         <BAY_CNT>"24"</BAY_CNT>
         <START_BAY>"1"</START_BAY>
         <END_BAY>"24"</END_BAY>
         <HOST_PORT_CNT>"4"</HOST_PORT_CNT>
         <HOST_PORT value="1">
             <NODE_NUM>"1"</NODE_NUM>
             <SLOT_NUM>"1"</SLOT_NUM>
         </HOST_PORT>
         <HOST_PORT value="2">
             <NODE_NUM>"2"</NODE_NUM>
             <SLOT_NUM>"1"</SLOT_NUM>
         </HOST_PORT>
         <HOST_PORT value="3">
             <NODE_NUM>"3"</NODE_NUM>
             <SLOT_NUM>"1"</SLOT_NUM>
         </HOST_PORT>
         <HOST_PORT value="4">
             <NODE_NUM>"4"</NODE_NUM>
             <SLOT_NUM>"1"</SLOT_NUM>
         </HOST_PORT>
     </READ_BACKPLANE_INFO>
</RIBCL>
```

Build a script

Use the backplane information to build a script to remap the bays to the nodes as required.

IMPORTANT:

The administrator must understand the possible results, including data destruction, that can happen when drive bays are remapped in an existing system. Only administrators with the correct iLO Administrator login credentials are allowed to change drive bay mapping.

For new drive bay mapping to become effective, all server nodes in the chassis must be powered down. When powered down, the chassis firmware reconfigures the storage expander backplane. When the servers are powered back on, the new drive bay mapping becomes active.

Sample remapping script

```
<!--    The following script maps the hard drive bays to the nodes    -->
<!--    as follows.  Use the Read Backplane Info command to determine -->
<!--    Node to Host Port mapping                                     -->
<!--                                                                  -->
<!--  Node 1 on Host port 1                                     -->
<!--    Drive Bays 1,2                                    -->
<!--  Node 2 on Host port 2                                     -->
<!--    Drive Bays 3-6                                    -->
<!--  Node 3 on Host port 3                                     -->
<!--    Drive Bays 7-22                                  -->
<!--  Node 4 on Host port 4                                     -->
<!--    Drive Bays 23,24                                 -->
<!--                                                                  -->
<RIBCL VERSION="2.23">
   <LOGIN USER_LOGIN="admin" PASSWORD="password">
 <HARD_DRIVE_ZONE MODE="write">
           <WRITE_ZONE_TABLE>
      <TYPE_ID value="1"/>
             <SEP_NODE_ID value="0"/>
             <HOST_PORT value="1"/>
              <BAY value="1"/>
              <BAY value="2"/>
             <HOST_PORT value="2"/>
              <BAY value="3"/>
              <BAY value="4"/>
              <BAY value="5"/>
              <BAY value="6"/>
             <HOST_PORT value="3"/>
              <BAY value="7"/>
              <BAY value="8"/>
              <BAY value="9"/>
              <BAY value="10"/>
              <BAY value="11"/>
              <BAY value="12"/>
              <BAY value="13"/>
              <BAY value="14"/>
              <BAY value="15"/>
              <BAY value="16"/>
              <BAY value="17"/>
              <BAY value="18"/>
              <BAY value="19"/>
              <BAY value="20"/>
              <BAY value="21"/>
              <BAY value="22"/>
             <HOST_PORT value="4"/>
```

```
            <BAY value="23"/>
            <BAY value="24"/>
    </WRITE_ZONE_TABLE>
 </HARD_DRIVE_ZONE>
   </LOGIN>
</RIBCL>
```

Verify the zone table

Using a script that includes the READ_ZONE_TABLE command, verify the changes to the zone table.

Sample verification script

```
<!--        Script to read current zone table                        -->

<RIBCL VERSION="2.23">
  <LOGIN USER_LOGIN="admin" PASSWORD="password">
      <HARD_DRIVE_ZONE MODE="read">
         <READ_ZONE_TABLE/>
      </HARD_DRIVE_ZONE>
  </LOGIN>
</RIBCL>
```

Sample verification script return

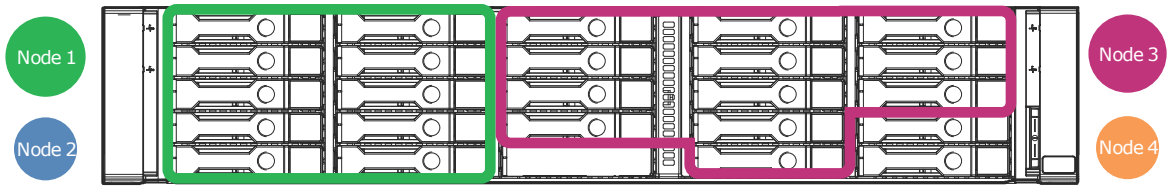
```
<?xml version="1.0"?>
<RIBCL VERSION="2.23">
<RESPONSE
    STATUS="0x0000"
    MESSAGE='No error'
     />
     <READ_ZONE_TABLE>
         <TYPE_ID value="1"/>
         <SEP_NODE_ID value="0"/>
         <HOST_PORT value="1"/>
             <BAY value="1"/>
             <BAY value="2"/>
         <HOST_PORT value="2"/>
             <BAY value="3"/>
             <BAY value="4"/>
             <BAY value="5"/>
             <BAY value="6"/>
         <HOST_PORT value="3"/>
             <BAY value="7"/>
             <BAY value="8"/>
             <BAY value="9"/>
             <BAY value="10"/>
             <BAY value="11"/>
             <BAY value="12"/>
             <BAY value="13"/>
             <BAY value="14"/>
             <BAY value="15"/>
             <BAY value="16"/>
             <BAY value="17"/>
             <BAY value="18"/>
             <BAY value="19"/>
             <BAY value="20"/>
             <BAY value="21"/>
```

```
            <BAY value="22"/>
        <HOST_PORT value="4"/>
            <BAY value="23"/>
            <BAY value="24"/>
     </READ_ZONE_TABLE>
</RIBCL>
<?xml version="1.0"?>
<RIBCL VERSION="2.23">
<RESPONSE
    STATUS="0x0000"
    MESSAGE='No error'
     />
</RIBCL>
```

Example 2

A Apollo r2800 Chassis containing two XL170r nodes installed in server slots 1 and 3. The System Administrator wants to map the drives bays as follows:

- Drive bays 1 through 10 to XL170r node 1.
- Drive bays 11 through 22 to the XL170r node 3.
- The Administrator purposefully leaves drive bays 23 and 24 unmapped. The Administrator understands that if drives are plugged into those drive bays, servers cannot access those drive bays until they are remapped (using iLO CLI commands or scripts) to a specific server node.



Enter the READ_BACKPLANE_INFO command to review and record the current drive bay mapping information. See the previous example for more information.

Build the script

Use the backplane information to build a script to remap the bays to the nodes as required.

IMPORTANT:

The administrator must understand the possible results, including data destruction, that can happen when drive bays are remapped in an existing system. Only administrators with the correct iLO Administrator login credentials are allowed to change drive bay mapping.

For new drive bay mapping to become effective, all server nodes in the chassis must be powered down. When powered down, the chassis firmware reconfigures the storage expander backplane. When the servers are powered back on, the new drive bay mapping becomes active.

Sample remapping script 2

```
<!-- The following script maps the hard drive bays to the nodes    -->
<!-- as follows.  Use the Read Backplane Info command to determine -->

<!--      Node to Host Port mapping                                 -->
<!--Node 1 on Host port 1                                           -->
<!--  Drive Bays 1-10                                               -->
```

```
<!--Node 2 on Host port 2                                          -->
<!--  No Drive Bays assigned                                       -->
<!--Node 3 on Host port 3                                          -->
<!--  Drive Bays 11-22                                             -->
<!--Node 4 on Host port 4                                          -->
<!--  No Drive Bays assigned                                       -->
<!--                    UNASSIGNED                                     -->
<!--                  Drive Bays 23,24                               -->

<RIBCL VERSION="2.23">
   <LOGIN USER_LOGIN="admin" PASSWORD="password">
    <HARD_DRIVE_ZONE MODE="write">
           <WRITE_ZONE_TABLE>
         <TYPE_ID value="1"/>
             <SEP_NODE_ID value="0"/>
             <HOST_PORT value="1"/>
              <BAY value="1"/>
              <BAY value="2"/>
              <BAY value="3"/>
              <BAY value="4"/>
              <BAY value="5"/>
              <BAY value="6"/>
              <BAY value="7"/>
              <BAY value="8"/>
              <BAY value="9"/>
              <BAY value="10"/>
             <HOST_PORT value="3"/>
              <BAY value="11"/>
              <BAY value="12"/>
              <BAY value="13"/>
              <BAY value="14"/>
              <BAY value="15"/>
              <BAY value="16"/>
              <BAY value="17"/>
              <BAY value="18"/>
              <BAY value="19"/>
              <BAY value="20"/>
              <BAY value="21"/>
              <BAY value="22"/>
             <HOST_PORT value="UNASSIGNED"/>
              <BAY value="23"/>
              <BAY value="24"/>
       </WRITE_ZONE_TABLE>
    </HARD_DRIVE_ZONE>
   </LOGIN>
</RIBCL>
```

Verify the zone table

Using a script that includes the READ_ZONE_TABLE command, verify the changes to the zone table.

Sample verification script 2

```
<!--        Script to read current zone table                       -->

<RIBCL VERSION="2.23">
  <LOGIN USER_LOGIN="admin" PASSWORD="password">
```

```
      <HARD_DRIVE_ZONE MODE="read">
         <READ_ZONE_TABLE/>
      </HARD_DRIVE_ZONE>
  </LOGIN>
</RIBCL>
```

Sample verification script return 2

```
<?xml version="1.0"?>
<RIBCL VERSION="2.23">
<RESPONSE
    STATUS="0x0000"
    MESSAGE='No error'
     />
     <READ_ZONE_TABLE>
         <TYPE_ID value="1"/>
         <SEP_NODE_ID value="0"/>
         <HOST_PORT value="1"/>
             <BAY value="1"/>
             <BAY value="2"/>
             <BAY value="3"/>
             <BAY value="4"/>
             <BAY value="5"/>
             <BAY value="6"/>
             <BAY value="7"/>
             <BAY value="8"/>
             <BAY value="9"/>
             <BAY value="10"/>
         <HOST_PORT value="3"/>
             <BAY value="11"/>
             <BAY value="12"/>
             <BAY value="13"/>
             <BAY value="14"/>
             <BAY value="15"/>
             <BAY value="16"/>
             <BAY value="17"/>
             <BAY value="18"/>
             <BAY value="19"/>
             <BAY value="20"/>
             <BAY value="21"/>
             <BAY value="22"/>
         <HOST_PORT value="UNASSIGNED"/>
             <BAY value="23"/>
             <BAY value="24"/>
     </READ_ZONE_TABLE>
</RIBCL>
<?xml version="1.0"?>
<RIBCL VERSION="2.23">
<RESPONSE
    STATUS="0x0000"
    MESSAGE='No error'
     />
</RIBCL>
```

Error messages

Hewlett Packard Enterprise strongly recommends that you use the READ_BACKPLANE_INFO command before attempting to modify the drive bay mapping in any system. Read and record the output from the command so that you can return to the original mapping if needed, and know the maximum values for all settings. The examples that follow show invalid scripts and the resulting error codes. Note the shaded values in the invalid scripts.

Invalid script 1: Incorrect port map

```
<!--    The following script maps the drive bays to the server nodes    -->
<!--    but has an error trying to use an invalid out of range port.    -->

<RIBCL VERSION="2.23">
   <LOGIN USER_LOGIN="admin" PASSWORD="password">
 <HARD_DRIVE_ZONE MODE="write">
          <WRITE_ZONE_TABLE>
      <TYPE_ID value="1"/>
             <SEP_NODE_ID value="0"/>
             <HOST_PORT value="5"/>
              <BAY value="1"/>
    </WRITE_ZONE_TABLE>
 </HARD_DRIVE_ZONE>
   </LOGIN>
</RIBCL>
```

Error response to invalid script 1

```
<?xml version="1.0"?>
<RIBCL VERSION="2.23">
<RESPONSE
    STATUS="0x00EA"
    MESSAGE='Hard Drive Zone invalid port.'
     />
</RIBCL>
```

Invalid script 2: Incorrect bay selection

```
<!--   The following script maps the drive bays to the server nodes    -->
<!--   but has an invalid drive bay number 25                          -->

<RIBCL VERSION="2.23">
   <LOGIN USER_LOGIN="admin" PASSWORD="password">
   <HARD_DRIVE_ZONE MODE="write">
       <WRITE_ZONE_TABLE>
          <TYPE_ID value="1"/>
          <SEP_NODE_ID value="0"/>
          <HOST_PORT value="1"/>
          <BAY value="1"/>
          <BAY value="25"/>
       </WRITE_ZONE_TABLE>
   </HARD_DRIVE_ZONE>
   </LOGIN>
</RIBCL>
```

Error response to invalid script 2

```
<?xml version="1.0"?>
<RIBCL VERSION="2.23">
<RESPONSE
    STATUS="0x00EA"
    MESSAGE='Hard Drive Zone invalid bay.'
     />
</RIBCL>
```

Ensure that each drive bay is assigned only once. In the example below, Drive Bay 10 is incorrectly mapped to two nodes.

Invalid script 3: One drive bay assigned to two nodes

```
<!-- The following invalid script maps the hard drive bays to the nodes    -->
<!-- as follows but assigns Drive Bay 10 to two nodes. -->

<!--      Node to Host Port mapping                                  -->
<!--Node 1 on Host port 1                                            -->
<!--  Drive Bays 1-10                                               -->
<!--Node 2 on Host port 2                                            -->
<!--  No Drive Bays assigned                                        -->
<!--Node 3 on Host port 3                                            -->
<!--  Drive Bays 10-22                                              -->
<!--Node 4 on Host port 4                                            -->
<!--  No Drive Bays assigned                                        -->
<!--                    UNASSIGNED                                       -->
<!--                  Drive Bays 23,24                                -->

<RIBCL VERSION="2.23">
   <LOGIN USER_LOGIN="admin" PASSWORD="password">
 <HARD_DRIVE_ZONE MODE="write">
           <WRITE_ZONE_TABLE>
      <TYPE_ID value="1"/>
             <SEP_NODE_ID value="0"/>
             <HOST_PORT value="1"/>
              <BAY value="1"/>
              <BAY value="2"/>
              <BAY value="3"/>
              <BAY value="4"/>
              <BAY value="5"/>
              <BAY value="6"/>
              <BAY value="7"/>
              <BAY value="8"/>
              <BAY value="9"/>
              <BAY value="10"/>
             <HOST_PORT value="3"/>
              <BAY value="10"/>
              <BAY value="11"/>
              <BAY value="12"/>
              <BAY value="13"/>
              <BAY value="14"/>
              <BAY value="15"/>
              <BAY value="16"/>
              <BAY value="17"/>
              <BAY value="18"/>
              <BAY value="19"/>
```

```
                <BAY value="20"/>
                <BAY value="21"/>
                <BAY value="22"/>
               <HOST_PORT value="UNASSIGNED"/>
                <BAY value="23"/>
                <BAY value="24"/>
        </WRITE_ZONE_TABLE>
    </HARD_DRIVE_ZONE>
   </LOGIN>
</RIBCL>
```

Error response to invalid script 3

```
<?xml version="1.0"?>
<RIBCL VERSION="2.23">
<RESPONSE
    STATUS="0x00EA"
    MESSAGE='Hard Drive Zone ???.'
     />
</RIBCL>
```

Frequently asked questions

Q: Will I lose drive data if I execute the WRITE_TABLE or ZONE_FACTORY DEFAULTS commands on a Apollo r2800 Chassis that contains drives which already contain data?

A: Yes. Note that the new drive bay mapping (zone table) only takes effect after all server nodes in the chassis are powered off and then restarted. These commands are only supported when run from a remote console with administrator login credentials.

Q: I ran the XML script to write a new zone table. Why hasn't the new drive bay mapping taken affect?

A: An new configuration that maps different drive bays to server node host ports only takes affect after all the server nodes in the chassis have been powered down for at least 5 seconds (at the same time). When a server node is restarted the new drive bay mapping becomes effective.

Q: If power to the system is interrupted while the administrator is attempting to run the iLO XML commands or script to modify the drive bay mapping, what happens?

A: The administrator should verify the current drive mapping configuration with the READ_ZONE_TABLE XML command and determine if the drive bay mapping is as expected. If it is not correct, the administrator must reapply the iLO XML commands or script and keep all server nodes powered off for at least 5 seconds.