Unified Baseboard Management Controller
System Manager and Programming Guide

May 2023

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Managing U-BMC Systems

Many One Stop Systems (OSS) products use a Unified Baseboard Management Controller (U-BMC) for system management, monitoring, and control. U-BMC is designed with a unified system approach in mind. The U-BMC can operate as a standalone BMC in a hyper-converged system, which consists of a root complex and intelligent endpoint devices. It can also be used as part of a unified approach to more complex scale-up or scale-out multi-chassis solutions, which may consist of several U-BMC or BMC devices across multiple servers, expansion systems, and switched fabric solutions. This allows for a "single pane of glass" monitoring solution for the user.

The U-BMC resides inside an OSS system and operates as a self-contained system that is connected to system resources to monitor sensors and the physical state of the system, provide that data to the user out-of-band of main system operations, and allow for management and control of these resources. The U-BMC provides access for system administrators to view the event logs or subscribe to event services to receive notifications and the tools to resolve or set policies to avoid system issues.

The U-BMC provides a web-based monitoring tool in a Graphical User Interface (GUI) that can be accessed from a mobile or desktop browser with network connectivity to the U-BMC. The U-BMC provides a Command Line Interface (CLI) to allow remote connections from a system administration console or terminal application. The U-BMC primarily uses the Redfish API for programmatic, remote communication; however, the U-BMC accepts Intelligent Platform Management Interface (IPMI) commands as an alternative to programmatic access. See the following sections in this document for more information about how to use the U-BMC:

- Managing the System with the OSS U-BMC Graphical User Interface (GUI)
- Managing the System with the OSS U-BMC Command Line Interface (CLI)
- Managing the System with the OSS U-BMC Redfish API
- Managing the System with the OSS U-BMC Intelligent Platform Management Interface (IPMI)

Managing the System with the OSS U-BMC Graphical User Interface (GUI)

The U-BMC provides a web-based monitoring tool in a Graphical User Interface (GUI) that can be accessed from a mobile or desktop browser with network connectivity to the U-BMC.

Please note that certain features may be available on certain systems and not on others due to the nature of the system being monitored, whether it be a server, expansion system, or multi-chassis solution, or the feature level that has been ordered or licensed by the user. Additionally, features, specifications, and license requirements are subject to change at any time. To ensure that you are using the most recent version of this document, please access the manual from the support section of the OSS website, which is available at https://onestopsystems.com.

The following sections describe the GUI in detail. It is assumed that you have already set up the network connection and can connect with a supported browser.

Browser support

OSS supports most recent browser versions. This includes the following specific versions:

Browser	Supported Versions
Chrome	Latest
Firefox	Latest and extended support release
Edge	2 most recent major versions
Safari	2 most recent major versions
iOS	2 most recent major versions
Android	2 most recent major versions

Getting Started

These sections will assist you in getting up and running with the U-BMC GUI, getting connected to the U-BMC, and performing basic power operations. These topics will be covered in more detail.

Ethernet Network Connectivity

To take advantage of the management functions of the U-BMC GUI and CLI, you can connect the U-BMC to an Ethernet network. The U-BMC can support multiple network interfaces. You have the option to configure the **LAN 1** interface with either DHCP or a static IP address. By default, the **LAN 1** interface is configured to use DHCP. When you connect the U-BMC to a network with DHCP enabled, the U-BMC will be automatically assigned an IP address. You can locate the U-BMC on the network using the default hostname "UBMC" or through the IP address assigned by DHCP.

The **LAN 2** Ethernet port on the system uses a fixed static IP address of 10.119.119.1/24. This port is best suited for a dedicated management network connection to the U-BMC from a system in a standalone environment, such as a lab or a test bench, where the system is not connected to a network with DHCP enabled.

The other LAN ports on the U-BMC can be configured after you have established a connection to the U-BMC GUI or CLI. For more details about configuring the LAN ports, see the section in this document on **Network Settings**.

Power ON/OFF

The U-BMC GUI offers a straightforward method to power on or off the system. You can perform power operations using the **System Power and Reset** page, which is found under the **Settings** section in the top navigation.

A short press of the power button will turn on the system and issue a graceful shutdown request to the operating system when pressed again. However, a long press of the power button will shut down the system immediately, but this carries the risk of potential data loss.

Operating System Installation

You can access the operating system installation process via the Console link located on the Dashboard page of the U-BMC GUI. Clicking this link will launch a new browser tab that connects to the U-BMC's internal system motherboard console. To access the programs used for operating system installation or perform other Image Redirection operations, you will need to enter the same login credentials used for the U-BMC GUI. Once logged in, you can locate the Remote Control and use it to mount the installation media.

For additional guidance, please refer to the documentation for the internal system's motherboard.

Logging in to the GUI
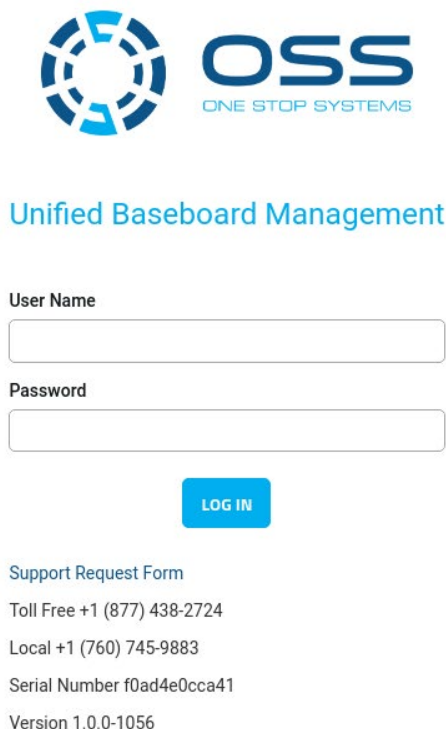
Connecting to the U-BMC GUI requires the following:

- The computer has a supported web browser installed.
- The computer has an IP address on a network with the U-BMC so that they can reach each other.
- The user has a username and password linked to an account on the U-BMC.

The username and password are both set to **admin** by default.

NOTE: Consider changing the default administrator password to ensure that the U-BMC is not using a well-known password. If you forget your account password, you can connect to the serial port and factory reset the U-BMC by logging in with the username "reset" and the password "reset".

In the browser address bar, type the URL of the U-BMC that you want to connect to, for example, **10.10.10.16**. You will be greeted with the login page where you enter your **User Name** and **Password**. Click **Log In**.

Session Count

Only one user can be logged in to a particular user account at a time. You cannot share your user account with multiple browsers at the same time. If you are logged in to the U-BMC's GUI and you try to log in to the U-BMC's GUI from another browser, the first browser will be logged out.

You can open multiple tabs in the same browser, but you may experience performance degradation if you have too many tabs open to the U-BMC or too many users logged in to the U-BMC GUI.

Session timeout

Session timeout is the amount of time that a user can be logged in to the U-BMC GUI without any activity. If the user is inactive for the specified amount of time, the user is automatically logged out of the U-BMC GUI. The default session timeout is 30 minutes. You cannot change the session timeout.

While your browser is open, you can continue to use the U-BMC GUI without being logged out. If you close your browser without logging out, you will be logged out of the U-BMC GUI after the session timeout period.

Role-based Authorization

The GUI allows read-only users, operators, and administrators to login, and their privilege role authorizes them to see some pages and execute some commands. There are three authorization privilege roles: **User**, **Operator**, and **Administrator**.

- **User Role**
    System components are read-only.
    Can change their own password.
- **Operator Role**
    It has all the permissions of a **User**.
    System configuration changes are allowed.
    Operator role users are not allowed to make changes to other users.
    Operator role users are not allowed to reset to factory default settings.
- **Administrator Role**
    All permissions to change system components.
    Only administrators can create/delete users or change usernames.
    Administrator role users are allowed to reset to factory default settings.

Dashboard

The dashboard provides an overview of the system settings, various system attributes, readings from physical sensors, and summarizes server health. Once the system is configured, this page will show essential information about system health and is the main page you will use to monitor it.

You can click on the links in the **System Health** section to find more information about the physical sensors. The **Quick Tasks** section links you directly to the settings page where you can change the settings for the **Locator LED** and the **System Power State**. The **Quick Links** section contains links that take you directly to the page where you can monitor the system **Console**, or to where you can view **All Sensors** in a single page.

PCIe Ports

The **PCIe Ports** section shows the status of the PCIe ports on the system. The PCIe ports are labeled with the port number, link speed and link width. The status of the PCIe port is shown in the icon. The status can be one of the following:

- **OK** - The PCIe port is connected and operating normally. A filled circle indicates that the link width is equal to the maximum.
- **Underutilized** - The PCIe port is connected, but the link width is less than the maximum. An empty circle indicates that the link width is less than the maximum.
- **Not Active** - The PCIe port is not connected to a device.
- **Off** - The chassis power is off.

Console

On systems with an internal BMC, the **Console** link on the dashboard page takes you to the internal system's BMC login page. The username and password are both set to **admin** by default, but when you change your admin password in the GUI, the console password will also be changed.

If there is no internal computer system BMC, the **Console** link will not be available.

Occasionally, you may need to use the console to perform tasks that are not available in the GUI. OSS provides the **Console** link as an update tool that can be used to update the BIOS and firmware on the internal system's motherboard. Tasks that can be performed with the console include:

- Install the operating system for the first time.
- Update the BIOS and firmware.
- Troubleshoot BIOS or boot-related issues.
- Troubleshoot the operating system.

If you need to use the console to perform a BIOS or firmware update, only OSS-qualified BIOS and firmware updates should be used. Using an unqualified BIOS or firmware update can cause the system to become unstable or inoperable.

GUI Navigation

The GUI is broken down into 4 sections, and the main navigation for each of these is shown at the top of each page. They are labelled **Dashboard**, **System Summary**, **Settings**, and **Maintenance**. Except for the dashboard, each section is separated into more pages that can be navigated using the left navigation panel. If you are using a browser on a mobile device, you may find that the left navigation panel has been hidden, and an icon on the top left of the navigation bar is shown with three horizontal lines. You can click on this icon to open the left navigation panel.

The **System Summary** section is used to monitor sensors, discover more information about the system using the **Device Tree**, and to troubleshoot event notifications using the **Event Log**.

The **Settings** section is used to view and change various U-BMC settings including network access, U-BMC services, system motherboard power, adding and deleting users, and more. You will need administrator or operator permission to modify the settings in this section.

The **Maintenance** section is used to perform U-BMC maintenance actions, such as updating the U-BMC software, turning on the **Locator LED**, performing a **Factory Reset**, and gathering support information with the **Service Report**. You can find a history of the commands that were executed and find out which user has logged into the system with the **Audit Log**. You will need administrator or operator permission to modify the settings in this section.
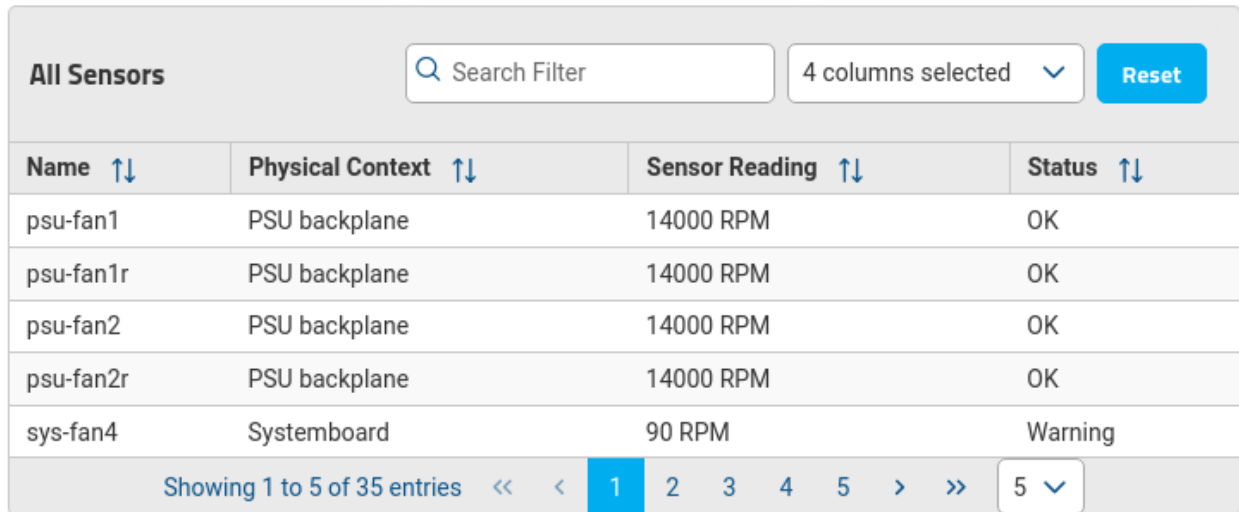
Footer

The page footer contains indicator lights which monitor the **Power** state of the computer system, the **Health** state of the U-BMC and the entire chassis, and the LED **Locator** status light reflects the state of the LED used to locate the system in a physical environment.

The **Power** light is blue when the system is powered on and is black when the system is powered off. The **Health** light is blue when the system is healthy and is red when the system is unhealthy. The **Locator** light is blue when the LED is on and is black when the LED is off.

Table controls

There are several tables in the GUI that display sensor information or entries in a log. Each of these tables has a common set of controls that can be used to navigate the data in the table.

All Sensors		Q Search Filter	4 columns selected ∨	Reset
Name ↑↓	**Physical Context** ↑↓	**Sensor Reading** ↑↓	**Status** ↑↓	
psu-fan1	PSU backplane	14000 RPM	OK	
psu-fan1r	PSU backplane	14000 RPM	OK	
psu-fan2	PSU backplane	14000 RPM	OK	
psu-fan2r	PSU backplane	14000 RPM	OK	
sys-fan4	Systemboard	90 RPM	Warning	

Showing 1 to 5 of 35 entries   «   ‹   **1**   2   3   4   5   ›   »   5 ∨

Here is a description of the common table controls:

- Type a search term in the **Search Filter** text box to update the items that are shown in the table.
- The column selection dropdown box can be used to show and hide columns. Some columns may be hidden, so use this control to modify the visibility. Column visibility settings will be saved and are personalized for each browser used.
- Use the **Reset** button to clear the search filter, reset the column sort order, and to reset the column visibility to the default setting.
- Each heading of the table can be clicked to sort the table in ascending or descending order. You can add more columns to the sort order using CTRL-Click.
- Pagination controls:
  - Use the << arrow icon to jump to the first page, >> to jump to the last page, and <, > arrows to move a single page backward or forward.
  - Click the page number to jump to a specific page.
  - The dropdown box can be changed to show *All*, *5*, *10*, or *20* items per page.

Sensor Readings

The U-BMC keeps an updated view of the various physical sensors that you can monitor in real time. The **All Sensors** page will show the current values of **Fan Sensors**, **Temperature Sensors**, and **Voltage Sensors** combined in a single table. The different sensor types are also shown on their own pages to allow you to read more detail about each sensor type.

Find the **All Sensors** page by first clicking on **System Summary** in the top navigation, followed by clicking on **All Sensors** in the left navigation.

Device Tree

The **Device Tree** page can be used to discover detailed information about each device in the system. When the page is first shown, all the devices' data will need to be requested. You will be shown a plus icon next to the items in the device tree that still need to be requested before the data can be shown. Click on the plus icon to request the data and a progress animation will be shown until the data is ready.

Find the **Device Tree** page by first clicking on **System Summary** in the top navigation, followed by clicking on **Device Tree** in the left navigation.

Event Log

The **Event Log** page has a table that contains all the event notifications that have been sent to the event service subscribers. An administrator or operator user can set up the event service subscribers from the **Event Service** page. The event service allows you to add an email address or an HTTP server to the event subscribers. Event subscribers will be notified of future events as they happen.

Find the **Event Log** page by clicking the **Event Log** button in the top bar, or by clicking on **System Summary** in the top navigation, followed by clicking on **Event Log** in the left navigation.

The severity of event notifications is **OK** (informational), **Warning**, and **Critical**. The event log table contains a column for **Timestamp** to show when in your browser's local time zone the condition occurred, a column for **Event Source** that shows the device or action that caused the condition, and a column for a short **Description** of the condition.

The **Event Log** tracks the delivery status of each event notification. You can view the delivery status of the event notification using the arrow icon on the left side of the row. Clicking this icon will reveal details about the event notification, so you can troubleshoot issues.

Clearing the Event Log

An administrator or operator user can clear the event log using the **Clear Event Log** button. This button is at the top of the event log table and is not visible to read-only users.

Settings Overview

The U-BMC has many settings that are summarized in the settings **Overview** page. This page is available to all users to allow them to see all the system settings briefly. The left navigation panel will hide those entries that are not available to read-only users.

The pages within the **Settings** section allow you to change the following:

- **Time Settings** - Date and time, time zone, and NTP servers
- **Network Settings** - U-BMC Network IP addresses, U-BMC hostname and domain
- **Fan Speed** - Fan speed control
- **System Services** - U-BMC SSH service, IPMI service, and KVMIP service
- **System Power and Reset** - Computer system power state
- **Users** - U-BMC user accounts
- **Event Service** - Event service subscriptions and SMTP service
- **Theme** - GUI theme color and text size

Find the settings **Overview** page by clicking on **Settings** in the top navigation, followed by clicking on **Overview** in the left navigation.

Time Settings

The **Time Settings** page allows you to change the date, time, and time zone of the U-BMC. You can configure **Network Time Protocol (NTP)** servers to automatically set the time and date using an NTP server.

Find the **Time Settings** page by clicking on **Settings** in the top navigation, followed by clicking on **Time Settings** in the left navigation.

Date and Time

Disabling the NTP service allows you to manually change the date and time. To change the date and time, click the text within the **Date and Time** input box. You are free to type in the date and time desired or pick a day from the calendar pop-up. The calendar pop-up allows you to click the month and use the arrows to change the month, or you can click the year to rapidly change the year. Click **Set Date and Time** to confirm your changes. A successful message is returned when the value has been updated, and any failures will provide a helpful message.

Time Zone

You can change the **Time Zone** by searching for the time zone in the input box. To search time zones, click the text within the **Time Zone** and begin typing your search. The search results are

automatically updated in the list. Alternatively, you can click the dropdown arrow to find your time zone using a list of all time zones. Click the search result to select the desired time zone. Click **Set Time Zone** to confirm your choice.

NTP Server

You can provide a list of up to 3 NTP servers to use to set your date and time automatically. If the NTP service is disabled, you can manually set the U-BMC date and time. You can remove an NTP server from the list by emptying an input box, for example, **NTP Server 1**. Click **Save NTP Settings** to update the changes to the NTP service state and NTP server list.

NOTE: You should set the correct time and date to avoid an issue with the software update process that compares current date on the U-BMC with the release date of the software update package.

Network Settings

The **Network Settings** page allows you to change the **IP address** and other related Ethernet network settings for the U-BMC, including **IP Address Assignment** (DHCP or Static), **Subnet Mask**, **Gateway**, **MTU Size**, and **DNS Servers**. These settings modify the network path to which you access the GUI, so use caution when updating these values. The **Network Settings** page also allows you to change the **Host Name** and **Domain Name** of the U-BMC.

Find the **Network Settings** page by clicking on **Settings** in the top navigation, followed by clicking on **Network Settings** in the left navigation.

Interface Selection

If you have multiple Ethernet interfaces that you'd like to configure, you can select the interface to configure using the accordion menu. The **Ethernet Interfaces** section will show the current settings for the selected Ethernet interface. Each Ethernet interface has its properties displayed when the accordion menu is expanded. All Ethernet interfaces names are shown in the accordion menu, along with some basic information about the interfaces, such as their **MAC Address** and **Link Status**.

Once you've selected the interface, the accordion menu expands to display the current settings for that interface. You can then modify the settings for that interface as needed. Each of the settings is described in the following sections.

Dynamic Host Configuration (DHCP)

There are many fields that are automatically changed when using **DHCP IP Address Assignment**, including **IP Address**, **Subnet Mask**, and **Gateway**. In addition, it might be true that your DHCP server is providing a list of **DNS Servers** to use when configuring the Ethernet network interface. If you want to provide your own DNS server list, you can override the DNS server settings that come from the DHCP server. You can disable the **DHCP DNS Settings** toggle switch, which will enable the **DNS Servers** input box list for you to enter your desired DNS server addresses. Up to 2 DNS servers are supported.

Static IP Address

An administrator can change the **IP Address Assignment** to **Static**, and will then have the option to set the **IP Address**, **Subnet Mask**, and **Gateway**.

Save Ethernet Configuration Changes

To update the network settings, click the **Save Ethernet Settings** button. A confirmation dialog is shown to ensure that your intention is to allow the settings to change.

NOTE: These settings modify the network path you use to access the GUI, so use caution when updating these values.

Hostname and Domain Name
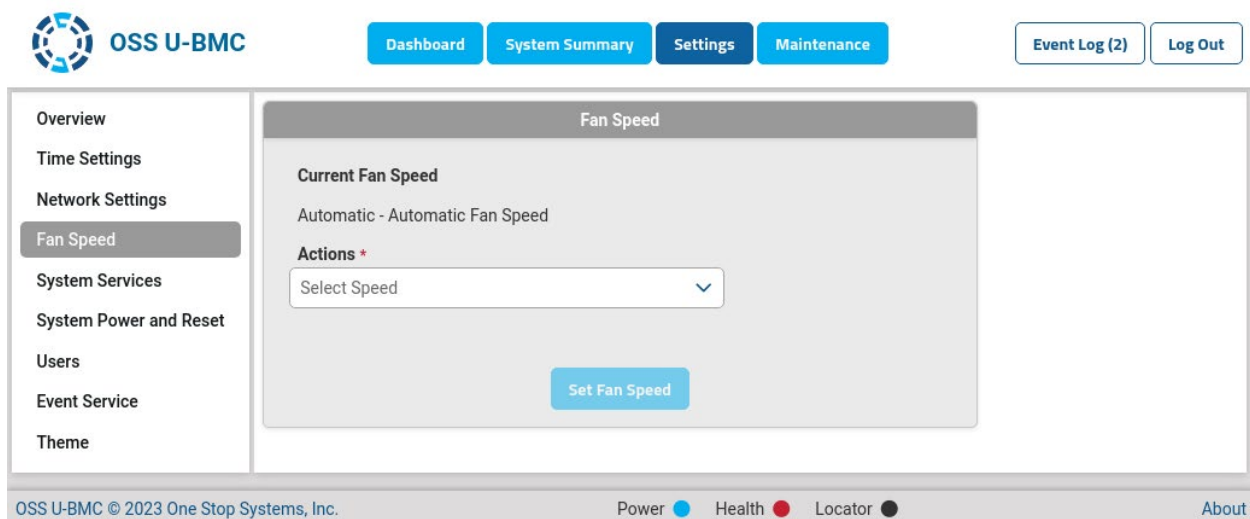
The **Hostname** for the U-BMC is used to distinguish the U-BMC from other hosts on the network. You can also provide a **Domain Name** to help with name resolution when you are executing a` software update command using the **Software Update from Site** command.

NOTE: The U-BMC will reconfigure hostname and domain name settings automatically, and this may affect the network connection to the U-BMC. It can take up to 30 seconds for the U-BMC to reconfigure the network settings after changing the hostname or domain name.

Fan Speed

The **Fan Speed** page allows you to change the **Current Fan Speed**. The fan speed setting can take the value of **Automatic** or **Performance**. The **Automatic** setting will allow the U-BMC to control the fan speed based on the temperature of the system. The **Performance** setting will set the fan speed to the maximum speed.

Find the **Fan Speed** page by clicking on **Settings** in the top navigation, followed by clicking on **Fan Speed** in the left navigation.

To change the fan speed, select the desired fan speed from the **Actions** dropdown menu. Click **Set Fan Speed** to confirm your choice. A successful message is returned when the value has been updated.

System Services

The **System Services** page allows administrators and operators to change the state of the **SSH Service**, **IPMI Service**, and **KVMIP Console Service**. Disabling these services can help to limit exposure to network attacks on open ports. SSH is used to connect to the U-BMC CLI, and IPMI is used for remote management using IPMI tools. The KVMIP Console Service is used to access the operating system over the network. You must enable this service to install the operating system or to mount virtual media.

Find the **System Services** page by clicking on **Settings** in the top navigation, followed by clicking on **Network Settings** in the left navigation.

The current value of the service is shown next to the toggle button, for example, **SSH Service Enabled** will be shown when the SSH service is active and listening to connections on the **SSH Service port** indicated.

SSH, IPMI and KVMIP Services

To enable and disable these services, change the toggle button, and click **Save SSH Service Settings**, **Save IPMI Service Settings**, or **Save KVMIP Service Settings**.

NOTE: When both the SSH and IPMI services are disabled, you will not have remote access to the OSS U-BMC Command Line Interface (CLI), and the U-BMC will not allow access using other command line tools that use IPMI. Remote management access will then be limited to the

serial console and the GUI. You may also disable HTTP service using the U-BMC CLI to limit exposure to network attacks on the open HTTP(S) ports.

Users

The **Users** page allows an administrator to add and remove U-BMC user accounts. Both the operator and the read-only user will only be allowed to change their password from the **Users** page.

Find the **Users** page by clicking on **Settings** in the top navigation, followed by clicking on **Users** in the left navigation.

The list of users is shown on the **Users** page where you can find their online/offline status.

Add Users

An administrator can create users by clicking the **Add User** button. An **Add User** dialog is shown where you can type the new user's details: **User Name**, **Password**, and choose their **Role** privileges. Once you have entered all the new user details, click **Add User** to create the user. After the user is successfully added, the list of users is updated to reflect the changes.

Edit Users

To change a user's **Password**, **Role**, or **User Name**, click the pencil icon to open the **Edit User** dialog.

Click on the tab for the attribute you want to change. Once you input your desired changes, click the button to accept the changes. The result of these commands will show a success or failure message in the dialog. If you are making more changes to this user, the dialog will remain open. When you are finished making changes, click the close icon in the top of the dialog window to dismiss the dialog.

Delete Users

To delete a user, click on the pencil icon. The **Edit User** dialog is shown. Click on the **Delete** tab. The dialog will confirm that you want to delete the user, and after you click the button **Click to Confirm**, click the **Delete User** button. The list of users is updated to show the changes.

NOTE: The U-BMC will prevent you from deleting and prevent you from changing the role permissions of the last administrator user.

Terminate User Session

An administrator can terminate another user's session. Click on the **Online** user status button. The **Terminate Session** button appears which you can click to terminate the user's session.

Event Service

The **Event Service** page allows an administrator or operator user to make changes to the SMTP event service and the HTTP Redfish event service. Once configured, the SMTP event service will deliver email messages to **Email Subscribers**. The email messages contain alert status notifications from the devices in the U-BMC to allow you to troubleshoot issues as they arise. The event service page allows you to configure HTTP server subscribers as well. The **Redfish HTTP POST Event Subscribers** will receive alert status notifications the same as the SMTP event service. Once you have configured the event service, you can verify your settings by using the **Send Test Event** button to mimic the arrival of a new event notification.

Find the **Event Service** page by clicking on **Settings** in the top navigation, followed by clicking on **Event Service** in the left navigation.


Adding Email Subscribers

An administrator or operator user can use the **Add Subscriber** button to add **Email Subscribers**. Find the **Add Subscriber** button above the **Email Subscribers** table. Click the **Add Subscriber** button to open the **Add Email Subscriber** dialog. Change the input box using a valid email address, for example, myuser@mysmtphost.com. Click the **Add Email Subscriber** button to add the subscriber. The **Email Subscriber** table is updated to show the changes.

Removing Email Subscribers

An administrator or operator user can delete email subscribers by first navigating to the **Event Service** page. Click on the **Delete** button next to the subscriber. The **Delete Email Subscriber** dialog box is shown. Use the **Click to confirm** button to confirm that you really want to delete the email subscriber and click the **Delete Email Subscriber** button. The **Email Subscriber** table is updated to show the changes.

Configuring an SMTP Relay Server

To set up the U-BMC to send emails to **Email Subscribers**, you will need to configure the U-BMC to contact an external **SMTP Server**. You can use either a cloud-based server, or an SMTP relay server in your on-premises network. Once you have your SMTP server configuration details:

1. Modify the input boxes for **Email From Address**, **SMTP User Name**, **SMTP Server Address**, and **Port**.
2. Click **Save SMTP Event Service Settings**.
3. After sending the command to save the settings, a message is shown to indicate the success or failure of the settings changes.
4. To validate that your saved settings, use the **Send Test Event** button to verify that your email subscribers receive the message.

NOTE: If the emails are not sent successfully, you can find more information by inspecting the test event's details in the **Event Log**. Click the arrow icon in the left column to expand the row and show more details.

Configuring Redfish HTTP Subscribers

Event service notifications are sent to **Redfish HTTP POST Event Subscribers** if you have added an HTTP server subscriber to receive notifications. The HTTP server should be configured to listen for requests using the HTTP POST method and be configured to receive messages whose HTTP request body is a JSON object. You can add subscriptions for multiple HTTP servers, and an event notification is sent each HTTP subscriber. The HTTP server subscriber can be either an HTTP or HTTPS server.

To add a new HTTP subscriber:

1. Click **Add HTTP Server** on the **Event Service** page.
2. The **Add HTTP POST Subscriber** dialog is opened.
3. You can click the **URL Form Type** to change how you enter the HTTP subscriber details.
4. You can enter the **Server Address**, **Server Port**, and **URL Path** in separate fields, or you can type the **URL** into the form.
5. Click the **Add Server** button to add the **HTTP POST Subscriber**.

6. After sending the command to add the subscriber, the **HTTP Servers** table is updated with the new value.
7. You can click the **Send Test Event** button to verify that your server subscription settings are correct.

System Power and Reset

The **System Power and Reset** page allows administrator and operator users to change the **Current Power State** of the system.

Find the **System Power and Reset** page by clicking on **Settings** in the top navigation, followed by clicking on **System Power and Reset** in the left navigation.
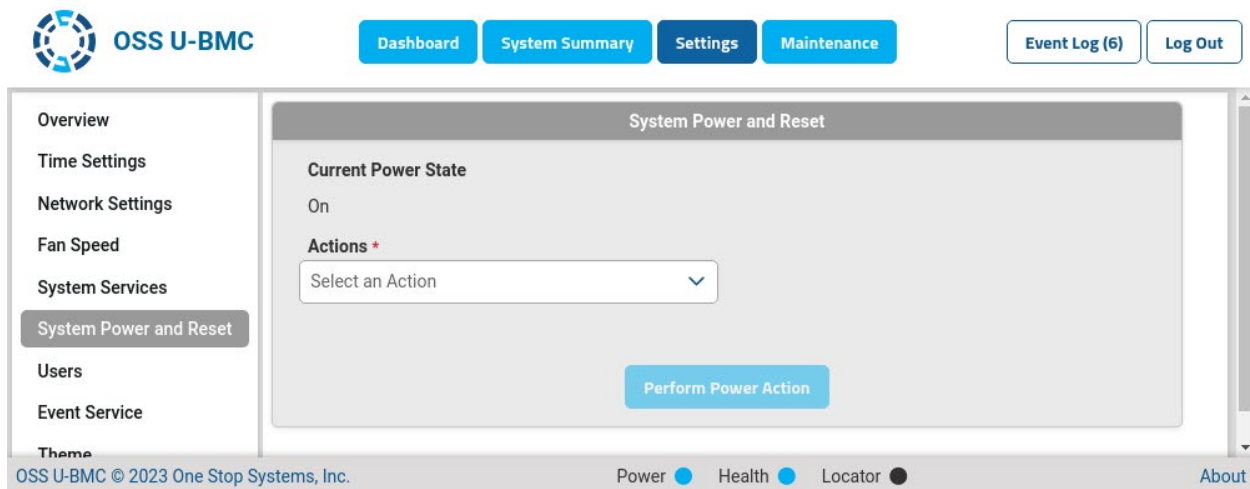
To change the **Power State** of the system's motherboard:

1. Change the **Actions** dropdown menu and choose the desired action, for example, choose **Short Power Button Press** to power on the system's motherboard.
2. Click on **Perform Power Action**. The confirmation dialog opens to confirm your choice.
3. Click on the power action button, such as **Short Power Button Press**, to confirm your choice, or **Cancel** to dismiss the dialog without changing the power state.
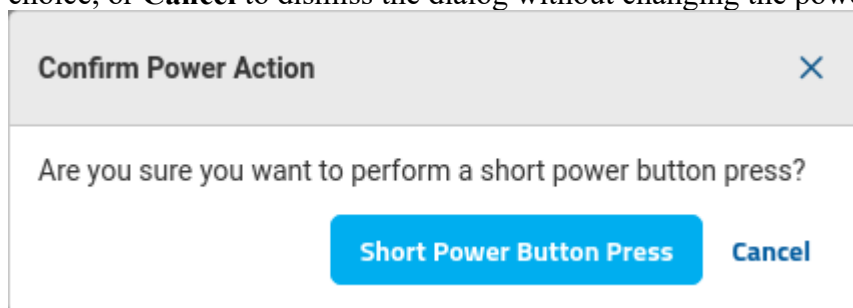
Theme

Theme settings can be personalized and are saved for each browser. You can change the theme colors and the text size of the GUI using the **Theme Picker** dropdown.

Find the **Theme** page by clicking on **Settings** in the top navigation, followed by clicking on **Theme** in the left navigation.
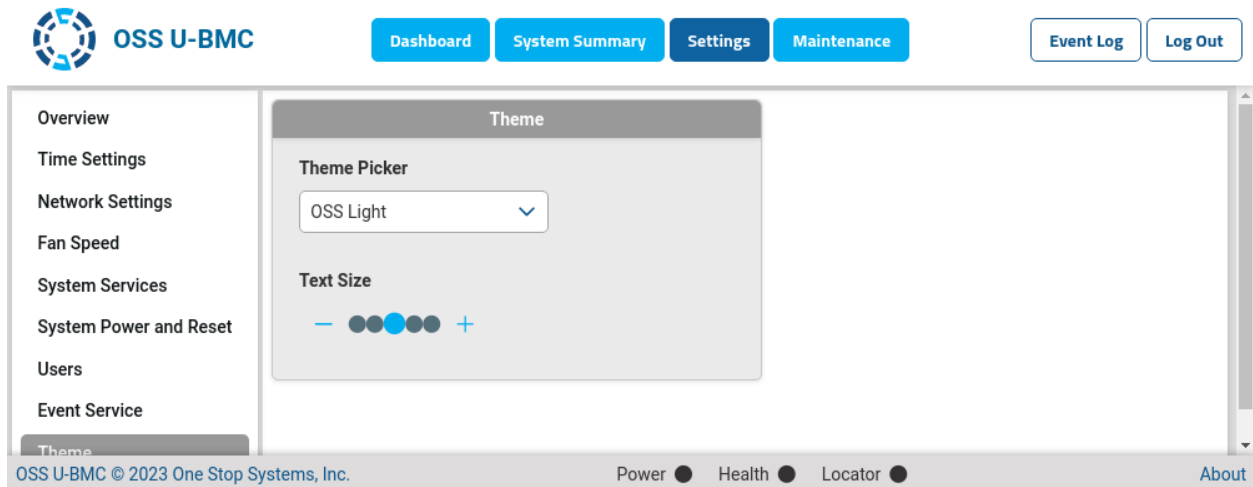
U-BMC Reset

An administrator or operator user can reset the U-BMC. The U-BMC controls an internal system motherboard which has its own BMC. This reset action is also performed on the system motherboard's BMC.

Find the **U-BMC Reset** page by clicking on **Maintenance** in the top navigation, followed by clicking on **U-BMC Reset** in the left navigation.
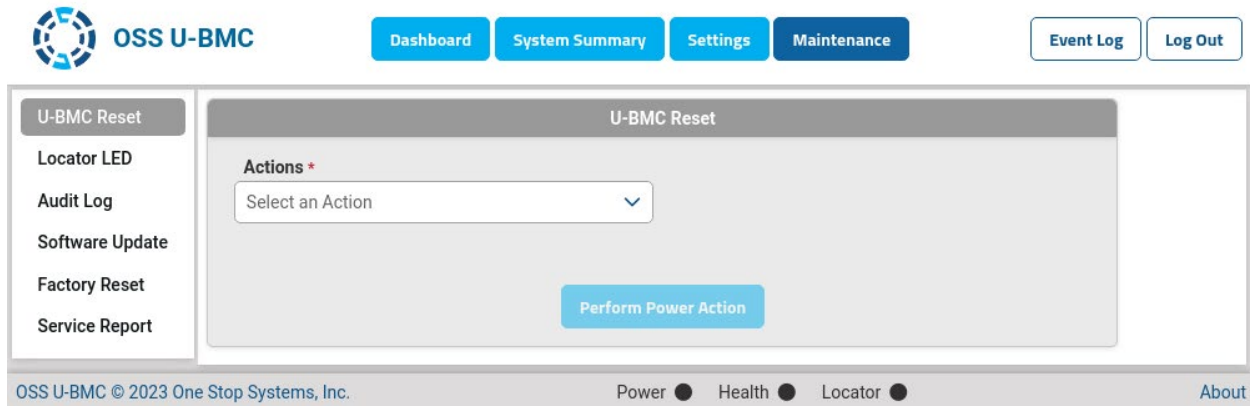
To reset both the U-BMC and the internal system motherboard's BMC:

1. From the **U-BMC Reset** page, choose the power command from the **Actions** dropdown.
2. Click on **Perform Power Action** to open the confirmation dialog.
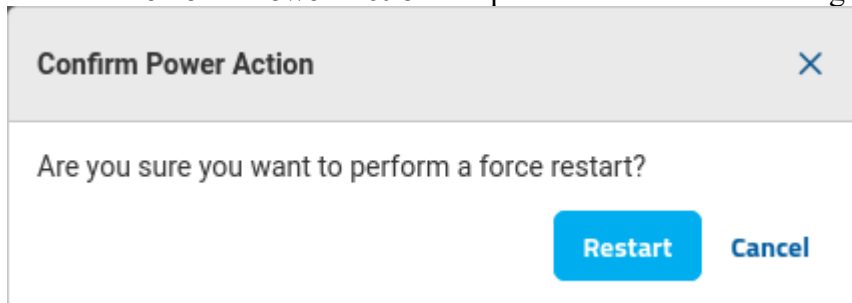
3. Click on the power action button, for example **Restart**, to reset the U-BMC, or click **Cancel** to dismiss the dialog without issuing the action.
4. After sending the reset command to the system, a successful message is shown.

Locator LED

The **Locator LED** page allows an administrator or operator user to change the LED lights to help locate the physical system accessed from the GUI. The brightness of the front panel's LEDs can also be changed from this page.

Find the **Locator LED** page by clicking on **Maintenance** in the top navigation, followed by clicking on **Locator LED** in the left navigation.
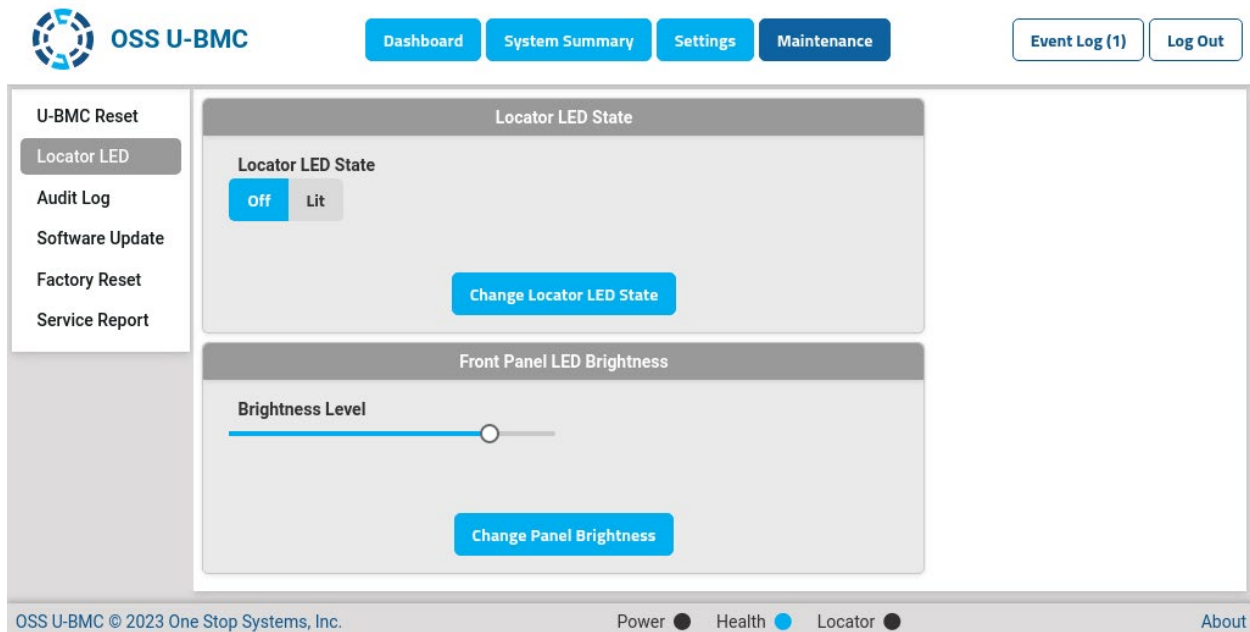
The **Locator LED State** section of this page will show the current state of the LED which is either **Off** or **Lit**. To change the **Locator LED** state:

1. Choose the desired state from the button group: click on **Off** or **Lit**.
2. Click on **Change Locator LED State** to change the settings of the locator LED. A blue light on the front panel will be illuminated indicating the **Lit** state of this LED.

The **Front Panel LED Brightness** section of this page shows the current **Brightness Level** in a slider. You can change the brightness by:

1. Using the slider, change the level to the left to decrease the brightness, or move to the right to increase the brightness.
2. Click on **Change Panel Brightness** to save the settings for panel brightness. The front panel's LEDs will adjust to your settings.

Audit Log

The **Audit Log** page contains a table with log entries that track administrative actions. The user's IP address and username will be shown in the audit log to help track how the system has been used.

Find the **Audit Log** page by clicking on **Maintenance** in the top navigation, followed by clicking on **Audit Log** in the left navigation.

Administrator and operator users can clear the audit log by clicking on the **Clear Audit Log** button.

Software Update

The **Software Update** page allows administrators and operators to update the U-BMC software. Software update packages are contained in files with the file extension ".iop". You must keep this file extension as it is used to validate that you have uploaded the correct file type. The software update process begins by uploading a file to the U-BMC. You can upload the software update ".iop" file in a couple of separate ways, either by using your local machine to upload the file to the U-BMC, or by employing an FTP, HTTP, or HTTPS server so that the U-BMC can fetch the software update file. You may consider choosing the fastest option depending on the network transfer rate of the software update file between your workstation and the U-BMC.

Find the **Software Update** page by clicking on **Maintenance** in the top navigation, followed by clicking on **Software Update** in the left navigation.

Software Update from File Upload

One method of beginning the software update is using your workstation's browser to upload the file to the U-BMC. To upload the software update file:

1. Click on the **Choose** button to open the browser's file chooser dialog.
2. Choose a file with the ".iop" file extension. The name of the file will appear in the **Software Update File** list.

3. Click on the **Upload** button to begin updating the software. Once the software update command has finished, a message is shown to indicate the successful progress. The GUI will begin a countdown before restarting to allow you to cancel the U-BMC restart after the software has been updated. The U-BMC must be restarted in order to apply the software update. It may be necessary to refresh your browser to see the changes in the GUI.

Software Update from Site

Another method for updating the software on the U-BMC is to provide a URI that points to the software update file.

This feature can be used to update any number of U-BMC devices by using a single software update file. The URI can point to a file on a local or remote server. The U-BMC will fetch the file from the URI and apply the software update. If you supply the values, the optional username and password will be used to log in to the site.

To instruct the U-BMC to download the software update file from a site URI:

1. Type the site's URI into the **Software Update Image URI** input box.
2. Optionally, you may provide a **User Name** and **Password** to use to log in to the site.
3. Click the **Update Software** button to begin the software update process. Once the software update command has finished, a message is shown to indicate the successful progress. The GUI will begin a countdown before restarting to allow you to cancel the U-BMC restart after the software has been updated. The U-BMC must be restarted to apply the software update. It may be necessary to refresh your browser to see the changes in the GUI.

Factory Reset

Administrator and operator users can reset the U-BMC to its factory default state. You can use this command to reset all configuration changes that have been made to the U-BMC. This command will not affect the internal system's motherboard's BMC. You can also use the factory reset command to reset a forgotten password, but this has the side effect of removing all users.

Find the **Factory Reset** page by clicking on **Maintenance** in the top navigation, followed by clicking on **Factory Reset** in the left navigation.
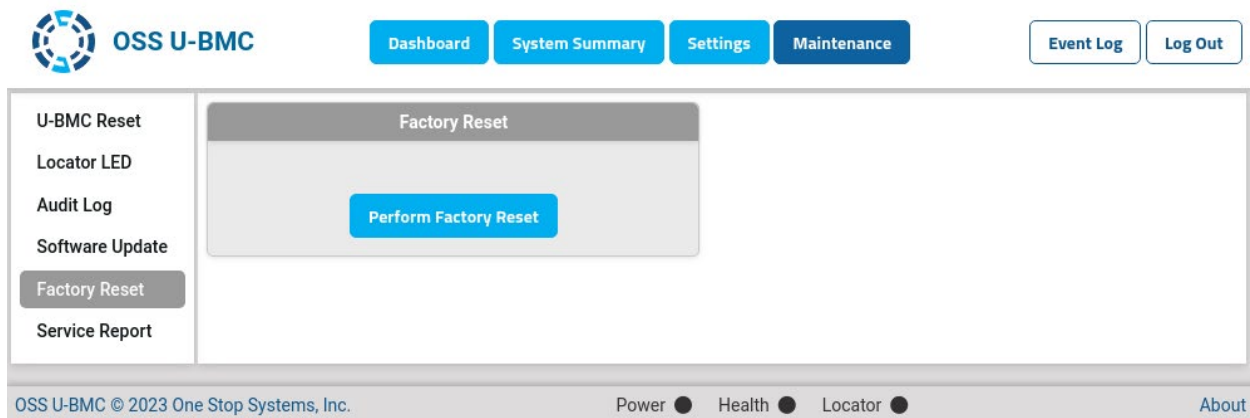
To perform a factory reset:

1. Click on **Perform Factory Reset** to open the confirmation dialog.
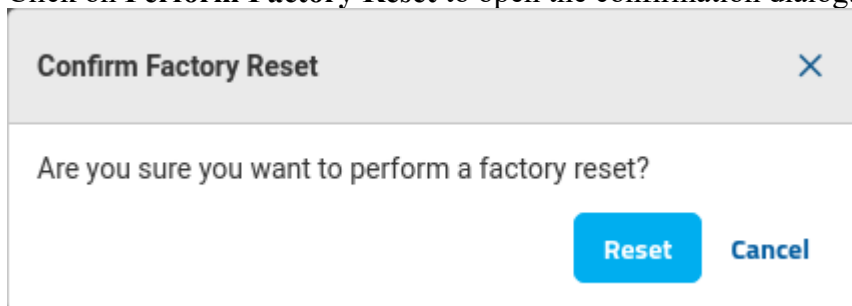
2. Click on **Reset** to start the factory reset, or click **Cancel** to dismiss the dialog and cancel the factory reset.
3. After the command is sent, a message is shown indicating the success or failure of the command. You should refresh your browser after a factory reset, because the HTTP server's SSH keys will be regenerated.

Service Report

The **Service Report** page contains a table with entries representing the service report archives created. The service report archives contain information about the U-BMC's hardware and software that can be used to help diagnose problems with the U-BMC.

Find the **Service Report** page by clicking on **Maintenance** in the top navigation, followed by clicking on **Service Report** in the left navigation.

Create Service Report

To create a service report archive:

1. Click on **Create Service Report** to begin creating a service report archive. A message will be shown indicating the success or failure of the command.
2. Once the service report archive has been created, it will be listed in the table on the **Service Report** page. You can download the service report archive by clicking on the **Download** button in the table.

You can delete the service report archive by clicking on the **Delete** button in the table.

Managing the System with the OSS U-BMC Command Line Interface (CLI)

The command line interface (CLI) is a text-based method for accessing the configuration and management options of the system. You can access the CLI using secure shell (SSH) or by connecting a serial console over USB.

CLI Overview

The U-BMC CLI commands are divided into several namespaces, and each namespace has commands such as `update`, or `ls`. To use these commands, you must first switch to the namespace where the command applies, such as using the `bmc` command, for example:

```
> bmc -q
/bmc/>
```

In the example above, the `bmc` command was executed to switch namespace, and the `-q` flag was used so the command output is quiet. Once you have entered a namespace the prompt text will be shown as `/bmc/>`. The prompt text shown before the cursor indicates the current namespace that further commands such as `ls` and `update` will apply to.

Connecting to the CLI

A connection is made to the CLI through SSH or USB serial using a terminal emulator application such as PuTTY. PuTTY can be used to create a connection with SSH or to create a connection through the serial console.

Secure Shell (SSH)

Connecting to the U-BMC using SSH requires the following:

- The computer has an interactive terminal emulator application with an SSH client installed.
- The computer has an IP address on a network with the U-BMC so that they can reach each other.
- There is a known username and password for making a connection.

The default username and password is **admin**.

Here is an example of how to connect to the U-BMC using the `ssh` command:

```
# ssh admin@UBMC
Copyright (c) 2021 One Stop Systems.
...
Welcome to the Rigel BMC.

admin@UBMC />
```

USB Serial

When connecting to the serial console, you can use the same credentials that are used to connect with SSH.

The serial console allows you to reset the U-BMC to its factory default state in case of a forgotten password. To reset the U-BMC to its factory default state, you must connect to the serial console and log in with the username "reset" and password "reset". Once you have logged in, you can use the `reset_to_factory_default` command to reset the U-BMC to its factory default state. You must also supply the --trust_me_i_am_an_engineer flag to the command to confirm that you are sure you want to reset to factory default.

NOTE: Consider limiting physical access to only those who are trusted.

Serial Port Location

The USB serial port is identified as the port labeled **Serial** on the I/O shield of the system.

On a Linux system, the USB serial device can be found by executing the `dmesg` command and inspecting the output for the device name. For example:

```
# dmesg
...
[93917.801259] usb 2-2: pl2303 converter now attached to ttyUSB0
```

The USB serial device name for the above is `ttyUSB0`.

Serial Connection Settings

A computer with a serial connection program should use these settings:

- Bps/Par/Bits: 115200 8N1
- Speed (bits per second/baud): 115200
- Data bits: 8
- Parity: None
- Stop bits: 1
- Flow control: None

Other connection settings:

- Carrier-watch: Off
- Handshake: None
- Prefixing: All
- Streaming: Off

Role-based Authorization

The CLI supports role-based authorization. Each role (users, operators, and administrators) can log in, and their privilege to execute some commands is limited based on their role.

User Authorized Privileges

There are three authorization privilege roles: **User**, **Operator**, and **Administrator**.

- **User Role**
  System components are read-only
  Can change their own password
- **Operator Role**
  Has all the permissions of a **User**
  System configuration changes are allowed
  Operator role users are not allowed to make changes to other users
  Operator role users are not allowed to reset to factory default settings
- **Administrator Role**
  All permissions to change system components
  Only administrators can create/delete users or change usernames
  Administrator role users are allowed to reset to factory default settings

Editing the Command Line

Entering Commands

A CLI command is a series of *keywords*, *parameters* and *arguments* that are typed into the terminal's text buffer. The command is executed and processed by the system using the enter key.

```
/> KEYWORD --PARAMETER ARGUMENT [Press Enter]
```

A CLI command may contain a **Common Command** keyword or a **Namespace** keyword. Once you have switched to a namespace context, a **Subcommand** keyword that applies to the namespace context is an allowed keyword.

```
/> NAMESPACE
NAMESPACE/> SUBCOMMAND --PARAMETER ARGUMENTS
```

The arguments to a parameter may be optional, required, and positional arguments do not require a parameter. The command help can be used in the CLI to assist you with the correct usage of the available arguments. You can obtain the help for a keyword by executing the `help` command with the keyword as an argument. The example below shows how to switch to the `interfaces` namespace and get help for the `configure` subcommand keyword:

```
/> interfaces -q
/interfaces/> help configure
usage: configure [--ifname {}] [--dhcp] [--ip IP] [--netmask NETMASK]
                 [--gateway GATEWAY]
                 [--nameservers NAMESERVERS [NAMESERVERS ...]] [--mtu MTU]
                 [--force]
```

As in the above example, the following conventions are used to show command line usage:

- 2 dashes, `--`, are shown before parameter names. Parameters may also take an argument(s), shown as an uppercased word or list of uppercased words.
- Square brackets, `[]`, are shown around optional parameters and arguments. Not all parameters are required to form a complete CLI command.
- Uppercased words, like `ARGUMENT`, are shown after parameters that take an argument value.
- Ellipsis, `...`, are shown to indicate that repeated arguments are allowed for a parameter. You may specify multiple arguments to a parameter separated with a space, for example: `--nameservers 1.ntp.org 2.ntp.org`
- Curly braces, `{}`, are shown around arguments to some parameters. You can use tab completion to assist you in supplying the correct value.

If an argument is required and not supplied on the command line, an appropriate message will be shown:

```
/interfaces/> configure --ip 192.168.1.100
The interface name is required.
/interfaces/> ls
lan1
lan2
/interfaces/> configure --ip 192.168.1.100 --ifname lan1
```

Tab Completion

Incomplete command lines can be automatically completed using the tab key. While editing a CLI command, the tab key can be used to complete all the parts of a CLI command: keywords, parameters, and arguments. If a command line is incomplete or has invalid parameters and arguments, then an appropriate error message is displayed. This helps you to enter the correct command.

When pressing tab, the system will help you to complete a keyword by printing a list of keywords that match the letters in the command line. If there is only one match for the keyword, then the keyword is completed automatically.

When pressing tab after 2 dashes, `--`, the system will attempt to automatically complete the parameter. If tab is pressed after a parameter that accepts an ID, a list of valid IDs is shown, or it is replaced with the ID if the autocompletion finds a single match.

Repeating Commands

After successfully executing a CLI command, it is recorded in the history. Using the command history allows you to recall previous commands to edit, review, or reissue them.

To scroll through the history, use the up/down arrows on your keyboard.

Keyboard Shortcuts

There are several helpful keyboard shortcuts. The notation below, Ctrl+p for example, shows that the control key and the P key must be pressed at the same time. Hold the control key down while pressing the P key to invoke the shortcut. If there are multiple keyboard shortcuts for an action, then the keyboard shortcut will use "OR" to separate the alternates.

Keyboard Shortcut	Action
Ctrl+p OR Up Arrow	Recalls the history of the command line most recently entered. This keyboard shortcut may be repeated several times to move through the history in reverse sequence.
Ctrl+n OR Down Arrow	Recalls the history of the command line that occurred later, up to the most current empty text entry buffer.
Ctrl+c	Cancels entry of the command line text currently typed into the text entry buffer. A new empty text buffer is printed to the terminal to accept the next command line input.
Ctrl+m OR Enter	Sends the command line text to the system for processing.
Ctrl+k	The application has an internal clipboard feature. Pressing Ctrl+k will cut the text after the text entry insertion point and place the text on the internal clipboard. The internal clipboard is represented as a ring buffer, so cutting more text into the buffer places additional entries in the ring buffer.
Ctrl+y	Pastes text into the command line from the application internal clipboard. Text is pasted at the current position of the text entry insertion point.
Alt+y	Rotates the pasted text from the internal clipboard's ring buffer. This command must immediately follow a Ctrl+y paste command. Any other keyboard action that follows the Ctrl+y paste action will cancel the ability to rotate the ring buffer with Alt+y.
Ctrl+h	Delete one character backward (same as backspace).
Ctrl+a OR Home	Moves the text entry insertion point to the beginning of the current text entry buffer.

Ctrl+e OR End	Moves the text entry insertion point to the end of the current text entry buffer.
Ctrl+b OR Left Arrow	Moves the text entry insertion point backward one letter.
Ctrl+f OR Right Arrow	Moves the text entry insertion point forward one letter.
Alt+Left Arrow	Moves the text entry insertion point backward one word.
Alt+Right Arrow	Moves the text entry insertion point forward one word.
Ctrl+r	Enters a text entry mode that allows you to incrementally search the history of commands as indicated with the CLI prompt text `(reverse-i-search)`. Incremental searches begin before you have finished typing the search string. As each character of the search string is typed, the command line displays the next entry from the history matching the string typed so far. Press enter to accept the search and send the command to the system.
Ctrl+g	Aborts the incremental search text entry mode as indicated with the CLI prompt text returning to normal, for example `admin@UBMC />`.

Common Commands

There are a few commands that can be used in any context, regardless of whichever namespace has been chosen. These common commands include the following:

- Command "cd"
- Command "cls"
- Command "exit"
- Command "health"
- Command "help"
- Command "quit"

Command "cd"

Switch namespace context. Use the `--verbose` flag to show namespace details after switching context to the namespace.

Example:

```
/> cd NAMESPACE --verbose
```

Command "cls"

Clear the screen.

Example:

```
/> cls
```

Command "exit"

Exit this application.

Example:

```
/> exit
```

Command "health"

Display the system health summary.

Example:

```
/> health
 Sensor          Sensor Type    Health
 BAT             Voltage        Critical
 FAN1            Fan            Warning
 FAN5            Fan            Critical
 CPU Temp        Thermal        Warning
 ipmi_feeder     system         Critical
```

NOTE: The serial number will be important to hold onto when contacting customer support representatives. The bmc command can be used to obtain the serial number, for example:

```
/> bmc
 Description     Value
 ...             ...
 Serial Number   f0ad4e0ccb2c
```

Command "help"

List available command keywords or provide detailed help for a specific command. The optional positional argument COMMAND is used to retrieve help for a specific command.

Example:

```
/> help --verbose COMMAND
```

Command "quit"

Exit this application.

Example:

```
/> quit
```

Command Line Namespaces

What follows is a reference for all namespaces, subcommands, and arguments. This section contains the following topics:

- Namespace "auditlog"
- Namespace "bmc"
- Namespace "chassis"
- Namespace "eventlog"
- Namespace "event_service"
- Namespace "event_subscriptions"
- Namespace "fans"
- Namespace "interfaces"
- Namespace "pcie"
- Namespace "psus"
- Namespace "servicereport"
- Namespace "systems"
- Namespace "terminal"
- Namespace "thermals"
- Namespace "users"
- Namespace "voltages"

Namespace "auditlog"

The `auditlog` namespace can be used to list and clear the audit log. Use `-q` to enter the namespace without listing the audit log.

Available Subcommands in "auditlog":

- **clear** - Clear the audit log.
- **get** - Show audit log entry details.
- **iterate** - Iterate the audit log entries.
- **ls** - Iterate the audit log entries.

```
/> auditlog
 Id  Username  Event Start              Action
 1   admin     2022-07-27T15:29:21+00:00  Basic authentication success: admin
/auditlog/>
```

Clear Log Entries

Clear the audit log.

Example:

```
/auditlog/> clear
```

Get Detail

Show audit log entry details.

Example:

```
/auditlog/> get ID
```

List

Iterate the audit log entries. Optionally, use the `-l` flag to output a table showing full details.

Example:

```
/auditlog/> iterate
/auditlog/> ls
```

Namespace "bmc"

The `bmc` namespace can be used to change generic `bmc` settings like hostname, time zone as well as rebooting the `bmc` and resetting the configuration to factory default. Use -q to enter the namespace without listing the current configuration.

NOTE: The serial number will be important to hold onto when contacting customer support representatives.

Available Subcommands in "bmc":

- **discover** - Discover all available U-BMC devices in the network.
- **firmware_update** - Update the U-BMC firmware. The image used for the update needs to reside on an HTTP(S) or FTP server. After completing the update, the U-BMC will reboot. The URL can be ftp://server/some/path or http://server/some/path. The USERNAME and PASSWORD will be used to log in to the URL.
- **iterate** - Show the BMC related settings.
- **ls** - Show the BMC related settings.
- **reset** - Reset the U-BMC power.
- **reset_to_factory_default** - Reset the U-BMC to factory default. The factory reset command wipes all settings, and the U-BMC behaves as if it were booted for the first time. Use this option when you lost your password(s) or when you want to (re)start with a pristine clean system.

- **update** - Update a BMC setting or service.
  See help update for details about updating BMC settings.
  NOTE: changing the timezone or hostname will disconnect
  SSH server sessions.

```
/> bmc
 Service        Port           Enabled
 SSH            22             True
 IPMI           623            True
 HTTP(S)        80 / 443       True
 KVMIP          5229           False


 Description          Value
 NTP Client Enabled   True
 NTP Servers          ntp.ubuntu.com
 Timezone             Etc/UTC
 DateTime Offset      +00:00
 DateTime             2023-01-20T22:40:00+00:00
 Hostname             UBMC
 FQDN                 UBMC
 Firmware Version     1.0.0-930
 Serial Number        f0ad4e0ccb2c
/bmc/>
```

Discover

Discover all available U-BMC devices in the network.

Example:

```
/bmc/> discover
 Host Name     Origin Interface       IPv4 Address
 i-4UP         lan1                   192.168.1.55
 i-rigel3      lan1                   192.168.1.240
```

Firmware Update

Update the U-BMC firmware. The image used for the update needs to reside on an HTTP(S) or
FTP server. After completing the update, the U-BMC will reboot. The URL can be
`ftp://server/some/path` or `http://server/some/path`. The USERNAME and PASSWORD will
be used to log in to the URL.

```
/bmc/> firmware_update --url URL
/bmc/> firmware_update --url URL --username USERNAME --password PASSWORD
```

Example:

```
/bmc/> firmware_update
```

List

Show the BMC related settings. Optionally, use the `-l` flag to output a table showing full details.

Example:

```
/bmc/> iterate
/bmc/> ls
```

Reset Power

Reset the U-BMC power. Accepts either graceful (default), or force `ACTION` argument.

Example:

```
/bmc/> reset --action graceful
/bmc/> reset --action force
```

Reset Factory Default

Reset the U-BMC to factory default. The factory reset command wipes all settings, and the U-BMC behaves as if it were booted for the first time. Use this option when you lost your password(s) or when you want to (re)start with a pristine clean system.

Example:

```
/bmc/> reset_to_factory_default
```

Update U-BMC Settings

The update subcommand can be executed in the `bmc` namespace to update the U-BMC settings.

KVMIP

Enable the KVMIP service.

Example:

```
/bmc/> update --enable_ntp
/bmc/> update --disable_kvmip
```

SSH

Change the SSH service state. Disabling both SSH and HTTPS limits your access to only the serial console! Confirm that this is acceptable by using the `trust_me_i_am_an_engineer` option.

Example:

```
/bmc/> update --enable_ssh
/bmc/> update --disable_ssh --trust_me_i_am_an_engineer
```

IPMI

Change the IPMI service state.

Example:

```
/bmc/> update --enable_ipmi
/bmc/> update --disable_ipmi
```

HTTP

Change the HTTP service state. Disabling both SSH and HTTPS limits your access to only the serial console. Confirm that this is acceptable by using the `trust_me_i_am_an_engineer` option.

Example:

```
/bmc/> update --enable_http
/bmc/> update --disable_http --trust_me_i_am_an_engineer
```

NTP

Change the NTP servers using a space separated list containing one or more NTP servers. Syntax: `ntp0.nl.net ntp1.nl.net`

Example:

```
/bmc/> update --ntp_servers NTP_SERVERS [NTP_SERVERS ...]
```

Change the NTP service state.

Example:

```
/bmc/> update --enable_ntp
/bmc/> update --disable_ntp
```

Date and Time

Change the date and time on the system. The NTP service must be disabled before executing this command. Syntax: `2022-01-31T04:47:18`

Example:

```
/bmc/> update --datetime DATETIME
```

Hostname

Change the hostname of the U-BMC. Changing the hostname will disconnect the SSH session.

Example:

```
/bmc/> update --hostname HOSTNAME
```

FQDN

Change the hostname to a Fully Qualified Domain Name (FQDN). Changing the FQDN will disconnect the SSH session.

Example:

```
/bmc/> update --fqdn FQDN
```

Time Zone

Set the time zone of the U-BMC. Use the tab key on your keyboard for autocompletion. Changing the time zone may disconnect the SSH session.

Example:

```
/bmc/> update --timezone TIMEZONE
```

Namespace "chassis"

The `chassis` namespace can be used to investigate `chassis` metrics and control the `chassis` power. Controlling the `chassis` power is different from controlling the system board power. It allows to force off all components in the `chassis` and can turn the system On or Off even when the system BMC is no longer responding.

Use the `-q` flag to silently switch to the `chassis` namespace.

Available Subcommands in "chassis":

- **iterate** - Iterate the `chassis`.
- **ls** - Iterate the `chassis`.
- **power** - Change the power state of the `chassis`. While the "systems" namespace can be used to control the BMC of a system the `chassis` power control provides absolute control over the `chassis` power. The `chassis` power command can be used to turn the chassis on or off even when the system's BMC is no longer responding.

```
/> chassis
 Chassis      Manufacturer      Model      Serial Number   Health      Power
 4UP-0        One Stop Systems  4UP        00022572011c    Critical    On
/chassis/>
```

List

Iterate the chassis. Optionally, use the `-l` flag to output a table showing full details.

Example:

```
/chassis/> iterate
/chassis/> ls
```

Chassis Power

Change the power state of the chassis.

While the systems namespace can be used to control the BMC of a system, the chassis power control provides absolute control over the chassis power. The chassis power command can be used to turn the chassis on or off even when the systems BMC is no longer responding. This may be the case after updating the systems BMC firmware.

Examples:

Pressing the reset button on the chassis will reset the system board and all components in the chassis. The system board will be powered on again after a short delay.

```
/chassis/> power --push_reset_button
```

A short press of the power button will turn the chassis and system board on if it is off.

```
/chassis/> power --push_power_button
```

A long press of the power button will turn the chassis and system board off.

```
/chassis/> power --hold_power_button
```

Namespace "eventlog"

The `eventlog` namespace can be used to list and clear the event log. Use `-q` to enter the namespace without listing the `eventlog`.

Available Subcommands in "eventlog":

- **clear** - Clear the event log.

- **get** - Show event log entry details.
- **iterate** - Iterate the event log entries.
- **ls** - Iterate the event log entries.

```
/> eventlog
 Id    Name          Event time            Sensor Type     Sensor Number    Severity
 2     BAT           2022-11-18 15:28:16   Voltage         0                Critical
 3     FAN1          2022-11-18 15:28:18   Fan             96               Warning
 4     FAN5          2022-11-18 15:28:18   Fan             100              Critical
 5     CPU Temp      2022-11-18 15:28:18   Thermal         48               Warning
 6     BAT           2022-11-18 15:30:20   Voltage         12               Critical
/eventlog/>
```

Clear Log Entries

This will remove all entries from the event log.

Example:

```
/eventlog/> clear
```

Get Detail

Show event log entry details.

Example:

```
/eventlog/> get ID
```

List

Iterate the event log entries. Optionally, use the `-l` flag to output a table showing full details.

Example:

```
/eventlog/> iterate
/eventlog/> ls
```

Namespace "event_service"

The `event_service` namespace can be used to list and change the event service configuration. This includes the SMTP settings. Use -q to enter the namespace without listing the event configuration.

Available Subcommands in "event_service":

- **list** - Get the event service settings.

- **ls** - Get the event service settings.
- **test_event** - Generate an event for testing email delivery and/or the Redfish ReST API event service.
- **update** - The update command can be executed in the `event_service` namespace to update the event service settings. Both arguments smtp_from and smtp_address are required if not already set.

```
/> event_service
 Attribute                          Value
 Retry interval (sec)               60
 Delivery retry attempts            3
 Service Health                     OK
 Service State                      Enabled
 SMTP username
 SMTP password
 SMTP Port                          None
 SMTP Server address
 SMTP Sender (from) address
 SMTP Connection Protocol           AutoDetect
 SMTP Authentication                None
 SMTP Supported Authentication      None, Login, Plain, CRAM_MD5
 SMTP Supported Transports          AutoDetect, None, StartTLS, TLS_SSL
 SMTP Enabled                       True
 REST Enabled                       True
 Service Enabled                    True
/event_service/>
```

Event Service Settings

Get the event service settings.

Example:

```
/event_service/> list
/event_service/> ls
```

Test Event Service

Generate an event for testing email delivery and/or the Redfish ReST API event service. This command will generate an event with the event severity `Warning` and the event message `TestEvent`.

Example:

```
/event_service/> test_event
```

Update Event Service Settings

The `update` subcommand can be executed in the `event_service` namespace to update the event service settings. The arguments `smtp_from` and `smtp_address` are required if not already set.

SMTP Service State

Changes the state of the SMTP email events service. This feature allows the event service to send events to email subscribers.

Example:

```
/event_service/> update --enable_smtp
/event_service/> update --disable_smtp
```

SMTP Username

The username used to authenticate against the SMTP server when sending emails to subscribers. The arguments `smtp_username` and `smtp_password` are required if not already set.

Example:

```
/event_service/> update --smtp_username SMTP_USERNAME
```

SMTP Password

The password used to authenticate against the SMTP server when sending emails to subscribers. The arguments `smtp_username` and `smtp_password` are required if not already set.

Example:

```
/event_service/> update --smtp_password SMTP_PASSWORD
```

SMTP Server Address

The SMTP service IP address or DNS name.

Sets the SMTP server address location of the SMTP server used to send event emails to email subscribers. The arguments `smtp_from` and `smtp_address` are required if not already set.

Example:

```
/event_service/> update --smtp_address SMTP_ADDRESS
```

SMTP Server Port

The SMTP server port.

Example:

```
/event_service/> update --smtp_port SMTP_PORT
```

SMTP From Address

The SMTP sender (from) email address. The arguments `smtp_from` and `smtp_address` are required if not already set.

Example:

```
/event_service/> update --smtp_from SMTP_FROM
```

SMTP Connection Protocol

The SMTP connection protocol. Acceptable values for `PROTOCOL` are `AutoDetect`, `None`, `StartTLS`, and `TLS_SSL`.

Example:

```
/event_service/> update --connection_protocol PROTOCOL
```

SMTP Authentication Protocol

The SMTP authentication protocol. Acceptable values for `PROTOCOL` are `None`, `Login`, `Plain`, and `CRAM_MD5`.

Example:

```
/event_service/> update --smtp_auth PROTOCOL
```

Namespace "event_subscriptions"

The `event_subscriptions` namespace can be used to change event subscriptions. Available options are iterate (default), create, and delete. Use `-q` to enter the namespace without listing the event subscriptions.

Available Subcommands in "event_subscriptions":

- **create** - Create a new subscription to the event service. The event subscription format can either be an email address or a ReST POST HTTP server address.
- **delete** - Delete a subscription using the ID.
- **iterate** - Iterate the configured event subscriptions.
- **ls** - Iterate the configured event subscriptions.

```
/> event_subscriptions
```

```
Id    Destination                                       Protocol
1     alerts@example.com                                SMTP
4     alerts@example.com                                SMTP
32    https://alerts.example.com/redfish-post/listener  Redfish
3     https://alerts.example.LOLsh-post/listener        Redfish
3a    https.com/redfish-post/listener                   Redfish
/event_subscriptions/>
```

Create Event Subscription

Create a new subscription to the event service. The event subscription format can either be an email address or a ReST POST HTTP server address.

Examples:

Send event messages to this email address.

```
/event_subscriptions/> create --email_to EMAIL_TO
```

Send ReST POST notifications to the specified URL. The HTTP POST request will contain a JSON body with the event details.

```
/event_subscriptions/> create --rest_url REST_URL
```

This is an example of the JSON body that will be posted to the REST_URL resource.

```
{
  "OriginOfCondition": "/redfish/v1/Systems/1/LogServices/Log/Entries/4",
  "Message": "CPU Temp entered state: Warning",
  "MessageId": "0x002",
  "EventTimestamp": "2022-08-04T17:30:51+00:00",
  "EventId": 4,
  "RedfishRetry": 0,
  "RedfishLastError": ""
}
```

Delete Subscription

Delete a subscription using the ID.

Example:

```
/event_subscriptions/> delete --subscription ID
```

List

Iterate the configured event subscriptions. Optionally, add the -l flag to list the event subscriptions in long format.

Example:

```
/event_subscriptions/> iterate
/event_subscriptions/> ls
```

Namespace "fans"

The `fans` namespace can be used to manage fans. Available options are iterate (default) and get. Use `-q` to enter the namespace without listing the fans.

Available Subcommands in "fans":

- **fan_control** - Change the fan control mode to Automatic or Performance. When Performance is selected the fans will run at max RPM. Automatic control will change the fan RPM depending on the temperature.
- **get** - Retrieve detailed information about a fan.
- **iterate** - List all the fan IDs.
- **ls** - List all the fan IDs.

```
/> fans
Fan control mode: Automatic
 Name            Physical Context    Lower NC    RPM        Health
 FAN1            Systemboard         100         90         Warning
 FAN2            Systemboard         100         6600       OK
 FAN3            Systemboard         100         6500       OK
 FAN5            Systemboard         100         6          Critical
 FAN7            Systemboard         100         6600       OK
 gpu-fan1        PSU backplane       1470        14000      OK
 gpu-fan1r       PSU backplane       1470        14000      OK
 gpu-fan2        PSU backplane       1470        14000      OK
 gpu-fan2r       PSU backplane       1470        14000      OK
/fans/>
```

Fan Speed Control

Change the fan control mode to Automatic or Performance. When Performance is selected the fans will run at max RPM. Automatic control will change the fan RPM depending on the temperature.

Example:

```
/fans/> fan_control --mode Automatic
/fans/> fan_control --mode Performance
```

Get Detail

Retrieve detailed information about a fan.

Example:

```
/fans/> get SENSOR_NAME
```

List

List all the fan IDs. Optionally, add the `-l` flag to list the fans in long format.

Example:

```
/fans/> iterate
/fans/> ls
```

Namespace "interfaces"

The `interfaces` namespace can be used to manage Ethernet interface configurations. Available options are disable, get, iterate, ls, and update. Use `-q` to enter the namespace without listing the `interfaces`.

Available Subcommands in "interfaces":

- **configure** - Update the interface configuration.
- **disable** - Remove the interface configuration and disable it.
- **get** - Retrieve details about an Ethernet interface.
- **iterate** - Iterate the Ethernet `interfaces`.
- **ls** - Iterate the Ethernet `interfaces`.
- **update** - Update the interface configuration.

```
/> interfaces
 Name    Address         Subnetmask       MTU     Mbps    Origin      State
 lan1    192.168.1.72    255.255.255.0    1500    1000    DHCP        Up
 lan2                                     1500    0       Static      Down
 lan3                                     1500    0       Static      Down
 lan4    169.254.119.1   255.255.255.0    1500    1000    Static      Up

 Description              Configuration
 Static Nameserver(s)
 Default Gateway          192.168.1.1
/interfaces/>
```

Disable Interface

Remove the interface configuration and disable it.

Example:

```
/interfaces/> disable IFNAME
```

Get Detail

Retrieve details about an Ethernet interface.

Example:

```
/interfaces/> get IFNAME
```

List

Iterate the Ethernet interfaces. Optionally, add the `-l` flag to list the interfaces in long format.

Example:

```
/interfaces/> iterate
/interfaces/> ls
```

Update Ethernet Interface

The update subcommand can be executed in the `interfaces` namespace to update the Ethernet interface settings. For each of the subcommands, the `IFNAME` is required as in the following example:

```
/interfaces/> update --ifname IFNAME ...
```

Alias: `configure`.

DHCP Address

Configure the interface to use DHCP for automatic IP assignment.

Example:

```
/interfaces/> update --ifname IFNAME --dhcp
```

Static IPv4 Address

Sets the IPv4 address and subnet mask of the interface. Do not check for IP address conflicts if the `--force` flag is present. The default netmask is `255.255.255.0`.

Example:

```
/interfaces/> update --ifname IFNAME --ip IP --netmask NETMASK
/interfaces/> update --ifname IFNAME --ip IP --netmask NETMASK --force
```

Gateway

Sets the IPv4 gateway.

Example:

```
/interfaces/> update --ifname IFNAME --gateway GATEWAY
```

DNS Server

One or more global DNS servers to query first. Set to `[]` or `0.0.0.0` to remove the global nameservers.

Example:

```
/interfaces/> update --nameservers NAMESERVERS [NAMESERVERS ...]
```

MTU Size

The interface MTU size (defaults to 1500).

Example:

```
/interfaces/> update --ifname IFNAME --mtu MTU
```

Namespace "pcie"

The `pcie` namespace can be used to retrieve PCIe related info. The available option is to iterate. Use `-q` to enter the namespace without listing the PCIe switches.

Available Subcommands in "pcie":

- **iterate** - List all the PCIe switches.
- **ls** - List all the PCIe switches.

```
/> pcie
Switch: sw1 Health: OK
 Port          Port Type    Active Link   Maximum Link   Current      Health
                            Width         Width          Protocol
 sw1_uplink1  Upstream     0             0              PCIe Gen1    OK
 sw1_slot2    Downstream   0             0              PCIe Gen1    OK
 sw1_slot1    Downstream   0             0              PCIe Gen1    OK
 sw1_uplink2  Upstream     0             0              PCIe Gen1    OK
 sw1_gpu1     Downstream   0             0              PCIe Gen1    Warning
 sw1_gpu2     Downstream   0             0              PCIe Gen1    Warning
```

```
Switch: sw2 Health: OK
 Port           Port Type    Active Link    Maximum Link    Current       Health
                             Width          Width           Protocol
 sw2_slot4      Downstream   0              0               PCIe Gen1     OK
 sw2_slot3      Downstream   0              0               PCIe Gen1     OK
 sw2_uplink3    Upstream     0              0               PCIe Gen1     OK
 sw2_gpu3       Downstream   0              0               PCIe Gen1     Warning
 sw2_gpu4       Downstream   0              0               PCIe Gen1     Warning
 sw2_uplink4    Upstream     0              0               PCIe Gen1     OK
/pcie/>
```

List

List all the PCIe switches. Optionally, use the `-l` flag to output a table showing full details.

Example:

```
/pcie/> iterate
/pcie/> ls
```

Namespace "psus"

The `psus` namespace can be used to retrieve power supply information. Available options are iterate (default) and get. Use `-q` to enter the namespace without listing the power supplies.

Available Subcommands in "psus":

- **get** - Retrieve details about a power supply.
- **iterate** - Iterate the power supplies.
- **ls** - Iterate the power supplies.

```
/> psus
 Name   Manufacturer   Line In    Output    Max Output (Watts)   Health
                       (Volts)    (Watts)
 psu1   GOSPOWER       206        200       2600                 OK
 psu2   GOSPOWER       0          0         2600                 Critical
/psus/>
```

Get Detail

Retrieve details about a power supply.

Example:

```
/psus/> get NAME
```

List

Iterate the power supplies. Optionally, use the `-l` flag to output a table showing full details.

Example:

```
/psus/> iterate
/psus/> ls
```

Namespace "servicereport"

The `servicereport` namespace can be used to create, delete and list service reports. The service report archive can be used to analyze problems. Use -q to enter the `servicereport` namespace without listing the reports.

Available Subcommands in "servicereport":

- **create** - Create a service report that can be used for analyzing U-BMC problems.
- **delete** - Delete a service report.
- **iterate** - Show a list of service reports.
- **ls** - Show a list of service reports.

```
/> servicereport
 Filename                        Url                               Size MB
 20221201_21:15:19.133208.txz   /svc/20221201_21:15:19.133208.txz  5.67
/servicereport/>
```

Create Service Report

Create a service report that can be used for analyzing U-BMC problems.

Example:

```
/servicereport/> create
```

Delete Service Report

Delete a service report.

Example:

```
/servicereport/> delete
```

List

Show a list of service reports.

Example:

```
/servicereport/> iterate
/servicereport/> ls
```

Namespace "systems"

The `systems` namespace can be used to retrieve system-specific information. Use `-q` to enter the namespace without listing the current configuration.

When no systems are available, the following message is displayed:

```
admin@i-4UP /> systems
No systems available.
```

Available Subcommands in "systems":

- **iterate** - Iterate the `systems` in this chassis.
- **ls** - Iterate the `systems` in this chassis.
- **power** - Change the system power to the requested state. The SYSTEM argument identifies the system that needs to be changed. Supported actions are: On, ForceOff, GracefulShutdown, GracefulRestart, ForceRestart.

```
/> systems
 Description              Value
 Name                     Asrock
 Power State              On
 Health                   OK
 Serial Number            To Be Filled By O.E.M.
 -- PROCESSORS --
 Available Processors     1
 Processor Type           AMD EPYC 7502 32-Core Processor , 3350 Mhz, 32
                          Core(s), 64 Logical Processor(s)
 -- MEMORY --
 DIMM Speed(Mhz)          2933
 DIMM Capacity(MiB)       65536
 DIMM Manufacturer        Micron Technology
 Total Number Of DIMMs    8
 Total Memory Capacity(MiB)  524288
 -- STORAGE --
 Model                    ADATA_IM2P32A8-512GCTB5
 Serial Number            2M022LAS6GHH
 Protocol                 NVMe
 Capacity (Bytes)         512110190592
 Blocksize (Bytes)        512
 LifeLeftPercent          100
 Failure Predicted        False
 Health                   OK
/systems/>
```

List

Iterate the systems in this chassis. Optionally, use the `-l` flag to output a table showing full details.

Example:

```
/systems/> iterate
/systems/> ls
```

Power State

Change the system power to the requested state. The `SYSTEM` argument identifies the system that needs to be changed. Supported `ACTIONS` are `ForceOff`, `ForceRestart`, `GracefulRestart`, `GracefulShutdown`, and `On`.

Example:

```
/systems/> power --system SYSTEM --action ACTION
```

Namespace "terminal"

The `terminal` namespace can be used to change the `terminal` colors, and `terminal` type. Available options are show_settings, table_alt_color, basic_ansi, basic_xterm, full_color, and save. Use `-q` to enter the namespace without listing the current `terminal` settings.

Available Subcommands in "terminal":

- **basic_ansi** - Change the `terminal` settings to use only basic ANSI output.
- **basic_xterm** - Change `terminal` settings to show tables using standard XTerm colors.
- **full_color** - Change `terminal` settings to show tables using 256 colors.
- **ls** - Show the `terminal` related settings.
- **save** - Persist the active `terminal` settings for this user. When the `terminal` connection (serial) does not allow the saved settings, the `terminal` will revert to basic output.
- **show_settings** - Show the `terminal` related settings.
- **table_alt_color** - Set the alternating table row color. The default value is WHITE.

```
/> terminal
 Description                        Value
 Colors Enabled                     True
 Basic ansi output                  False
 Alternating table background color  WHITE
/terminal/>
```

Basic ANSI

Change the terminal settings to use only basic ANSI output.

Example:

```
/terminal/> basic_ansi
```

Basic xterm

Change terminal settings to show tables using standard XTerm colors.

Example:

```
/terminal/> basic_xterm
```

Full Color

Change terminal settings to show tables using 256 colors.

Example:

```
/terminal/> full_color
```

List

Show the terminal related settings.

Example:

```
/terminal/> ls
/terminal/> show_settings
```

Save

Persist the active terminal settings for this user. When the terminal connection (serial) does not allow the saved settings, the terminal will revert to basic output.

Example:

```
/terminal/> save
```

Table Alt Color

Set the alternating table row color. The default value is WHITE.

Example:

```
/terminal/> table_alt_color --color COLOR
```

Namespace "thermals"

The `thermals` namespace can be used to manage thermal sensors. Available options are iterate (default) and get. Use `-q` to enter the namespace without listing the sensors.

Available Subcommands in "thermals":

- **get** - Retrieve details about a thermal sensor.
- **iterate** - Iterate the thermal sensors.
- **ls** - Iterate the thermal sensors.

In the table below, `NC` stands for non-critical threshold for the temperature sensor.

```
/> thermals
Name                 Lower NC  Upper NC  Physical Context  Temp(C)  Health
CPU Temp             5         93        Systemboard       94       Warning
Card Side Temp       5         68        Systemboard       27       OK
MB Temp              5         55        Systemboard       22       OK
Onboard LAN Temp     5         103       Systemboard       37       OK
PSU backplane-temp   5         45        PSU backplane     30       OK
PSU1 TEMP            5         50        Systemboard       14       OK
PSU2 TEMP            5         50        Systemboard       14       OK
TEMP_CPU1_DDR4A      5         84        Systemboard       32       OK
TEMP_CPU1_DDR4B      5         84        Systemboard       32       OK
TEMP_CPU1_DDR4C      5         84        Systemboard       32       OK
TEMP_CPU1_DDR4D      5         84        Systemboard       31       OK
TEMP_CPU1_DDR4E      5         84        Systemboard       31       OK
TEMP_CPU1_DDR4F      5         84        Systemboard       32       OK
TEMP_CPU1_DDR4G      5         84        Systemboard       31       OK
TEMP_CPU1_DDR4H      5         84        Systemboard       31       OK
U-BMC CPU            5         85        Armada processor  46       OK
midplane-gpu1_temp   5         85        midplane          20       OK
midplane-gpu2_temp   5         85        midplane          20       OK
midplane-gpu3_temp   5         85        midplane          20       OK
midplane-gpu4_temp   5         85        midplane          20       OK
midplane-sw1_temp    5         85        midplane          20       OK
midplane-sw2_temp    5         85        midplane          20       OK
midplane-temp1       5         80        midplane          30       OK
midplane-temp2       5         80        midplane          30       OK
/thermals/>
```

Get Detail

Retrieve details about a thermal sensor.

Example:

```
/thermals/> get NAME
```

List

Iterate the thermal sensors. Optionally, use the `-l` flag to output a table showing full details.

Example:

```
/thermals/> iterate
/thermals/> ls
```

Namespace "users"

The `users` namespace can be used to retrieve, create and modify user accounts. Available options are iterate (default), get, create and update. Use `-q` to enter the namespace without listing the `users`.

Available Subcommands in "users":

- **add** - Create a new user account. The administrator role is required for this command.
- **create** - Create a new user account. The administrator role is required for this command.
- **delete** - Delete a user account. The administrator role is required for this command.
- **iterate** - Iterate user accounts.
- **ls** - Iterate user accounts.
- **update** - Update a user and change the role or password or rename the user.

```
/> users
 Username  UID   Description             Role           Locked
 admin     1001  Administrator account   Administrator  False
 oper      1002  Operator account        Operator       False
/users/>
```

Add User

Create a new user account. The administrator role is required for this command. The `ROLE` argument can take a value of `User`, `Operator`, or `Administrator`. The `USERNAME` argument must meet the following requirements:

- The username must be at least two characters long.
- The username must not exceed 30 characters.
- The characters `A-Z`, `a-z`, digits `0-9`, and the special characters _ . - are allowed.

The `PASSWORD` argument used when creating the user must meet the complexity requirements:

- A valid password must be at eight characters long
- A valid password must contain at least one digit

Alias: create

Example:

```
/users/> add --user USERNAME --password PASSWORD --role ROLE
```

Delete User

Delete a user account. The administrator role is required for this command. You must have at least one administrator user; removing the last administrator will not be allowed.

Example:

```
/users/> delete NAME
```

List

Iterate user accounts. Optionally, use the `-l` flag to output a table showing full details.

Example:

```
/users/> iterate
/users/> ls
```

Update User

Update a user to change the role, change the password, or rename the user. The administrator role is required for these subcommands.

Role Change

The `ROLE` argument is used to change the role of user and can be one of `User`, `Operator`, or `Administrator`. The `NAME` argument is the user that will be changed. You must have at least one administrator user, and removing the last administrator will not be allowed.

Example:

```
/users/> update NAME --role ROLE
```

Password Change

The `PASSWORD` argument is used to change the password of the user. The `NAME` argument is the user that will be changed.

Example:

```
/users/> update NAME --password PASSWORD
```

Rename User

The `NAME` argument is the user that will be changed. The `RENAME` argument is used to rename the user.

Example:

```
/users/> update NAME --rename RENAME
```

Namespace "voltages"

The `voltages` namespace can be used to retrieve voltage sensor information. Available options are iterate (default) and get. Use `-q` to enter the namespace without listing the voltage sensors.

Available Subcommands in "voltages":

- **get** - Retrieve details about a sensor.
- **iterate** - Iterate the voltage sensors.
- **ls** - Iterate the voltage sensors.

```
/> voltages
Name          Physical Context  Lower NC  Upper NC  Reading (Volts)  Health
1.8V          Systemboard       N/A       N/A       1.83             OK
1.8VSB        Systemboard       N/A       N/A       1.8              OK
12V           Systemboard       N/A       N/A       12               OK
3V            Systemboard       N/A       N/A       3.34             OK
3VSB          Systemboard       N/A       N/A       3.38             OK
5V            Systemboard       N/A       N/A       5.1              OK
5VSB          Systemboard       N/A       N/A       5.1              OK
BAT           Systemboard       N/A       N/A       2.6              Critical
LAN_0.83V     Systemboard       N/A       N/A       0.83             OK
VCCM ABCD     Systemboard       N/A       N/A       1.21             OK
VCCM EFGH     Systemboard       N/A       N/A       1.22             OK
VCPU          Systemboard       N/A       N/A       1.06             OK
VPPM ABCD     Systemboard       N/A       N/A       2.58             OK
VPPM EFGH     Systemboard       N/A       N/A       2.58             OK
VSOC          Systemboard       N/A       N/A       0.89             OK
psu1_vin      psu1              110.0     240.0     220.0            OK
psu1_vout     psu1              11.4      12.6      12.0             OK
psu2_vin      psu2              110.0     240.0     220.0            OK
psu2_vout     psu2              51.2      56.8      54.0             OK
psu3_vin      psu3              110.0     240.0     220.0            OK
psu3_vout     psu3              11.4      12.6      12.0             OK
psu4_vin      psu4              110.0     240.0     220.0            OK
psu4_vout     psu4              51.2      56.8      54.0             OK
v12v_standby  PSU backplane     11.4      12.6      12.0             OK
v1v8_standby  PSU backplane     1.71      1.89      1.8              OK
v3v3_standby  PSU backplane     3.1       3.5       3.3              OK
v5v_standby   PSU backplane     4.7       5.3       5.0              OK
vin-v0v9      midplane          11.4      12.6      12.0             OK
vin-v1v8      midplane          11.4      12.6      12.0             OK
vin-v3v3      midplane          11.4      12.6      12.0             OK
vout-v0v9     midplane          0.86      0.95      0.9              OK
vout-v1v8     midplane          1.71      1.89      1.8              OK
```

```
vout-v3v3      midplane            3.1        3.5        3.3              OK
/voltages/>
```

Get Details

Retrieve details about a sensor.

Example:

```
/voltages/> get NAME
```

List

Iterate the voltage sensors. Optionally, use the `-l` flag to output a table showing full details.

Example:

```
/voltages/> iterate
/voltages/> ls
```

Managing the System with the OSS U-BMC Redfish API

The OSS U-BMC Redfish API is a ReSTful API that provides a standard interface for managing the system. The API is based on the Redfish specification, which is an open industry standard for managing data center infrastructure. The Redfish standard is maintained by the DMTF (Distributed Management Task Force), located at http://www.dmtf.org.

The OSS U-BMC implementation of this API provides endpoints for the following Redfish resources:

- Accounts
- Chassis
- EventDestination
- EventService
- Managers
- PCIeSwitches
- Roles
- Sessions
- Systems
- UpdateService

The API is available on port 443 of the U-BMC and is secured using the same username and password as the CLI and GUI. The API is available at https://UBMC/redfish/v1/.

The API documentation is available in HTML format and can be viewed in a web browser. The documentation web page is rendered using the Swagger UI. The API documentation is available at https://UBMC/documentation/api and uses the same username and password as the CLI and GUI.

The documentation is also available in JSON format and can be used to generate client libraries for other programming languages. The JSON documentation is available at https://UBMC/swagger.json.

CAUTION: If you are using a shared computer, make sure to log out of the API when you are done by clearing your browser's basic authentication storage. You will need to clear the password cache manually using the advanced settings in your browser. In Chrome and Edge browsers, this is done by pressing `Ctrl+Shift+Delete` and selecting the options to **Clear passwords and other sign-in data** and time range **All time**. In the Firefox browser, this is done by pressing `Ctrl+Shift+Delete` and selecting the options to clear **Active logins** and time range **Everything**. Your password will be erased from the browser's cache, and you will need to re-enter it the next time you access the API at https://UBMC/documentation/api.

Managing the System with the OSS U-BMC Intelligent Platform Management Interface (IPMI)

Intelligent Platform Management Interface (IPMI) is a method of remote management. OSS provides some commands using this interface to control and monitor the U-BMC.

IPMI Commands

When executing IPMI commands, you will need to provide the IP address of the U-BMC, the username and password. The username and password are the same as the ones used to log into the U-BMC.

The IPMI commands are executed using the ipmitool command. The ipmitool command is available on most Linux distributions. If you are using a Windows machine, you can download the ipmitool source code and compile it for Windows. The ipmitool source code is available at https://github.com/ipmitool/ipmitool.

The following sections describe commands that are available to use with IPMI.

power status

Check the power status of the server.

Example:

```
$ ipmitool -U USERNAME -P PASSWORD -H UBMC_ADDRESS power status
Chassis Power is on
```

power on

Turn on the server.

Example:

```
$ ipmitool -U USERNAME -P PASSWORD -H UBMC_ADDRESS power on
```

power off

Turn off the server.

Example:

```
$ ipmitool -U USERNAME -P PASSWORD -H UBMC_ADDRESS power off
```

power cycle

Turn off the server and then turn it back on.

Example:

```
$ ipmitool -U USERNAME -P PASSWORD -H UBMC_ADDRESS power cycle
```

power reset

Reset the server.

Example:

```
$ ipmitool -U USERNAME -P PASSWORD -H UBMC_ADDRESS power reset
```

power soft

Soft reset the server.

Example:

```
$ ipmitool -U USERNAME -P PASSWORD -H UBMC_ADDRESS power soft
```

sdr

Display sensor data records.

Example:

```
$ ipmitool -U USERNAME -P PASSWORD -H UBMC_ADDRESS sdr
gpu-fan1        | 7300 RPM          | ok
gpu-fan1r       | 7300 RPM          | ok
...
```

sensor

Display sensor data.

Example:

```
$ ipmitool -U USERNAME -P PASSWORD -H UBMC_ADDRESS sensor
gpu-fan1          | 7300.000   | RPM         | ok    | 800.000   | 1100.000  |
1400.000  | na         | na          | na
```

lan print

Display LAN configuration parameters.

Example:

```
$ ipmitool -U USERNAME -P PASSWORD -H UBMC_ADDRESS lan print
IP Address Source       : DHCP Address
IP Address              : 192.168.1.236
Subnet Mask             : 255.255.255.0
MAC Address             : 00:05:25:72:00:30
...
```

lan print 2

Display LAN configuration parameters for interface 2.

Example:

```
$ ipmitool -U USERNAME -P PASSWORD -H UBMC_ADDRESS lan print 2
IP Address Source       : Static Address
IP Address              : 10.119.119.1
Subnet Mask             : 255.255.255.0
MAC Address             : 00:05:25:72:00:31
```

Glossary

You will find the following terms used consistently throughout both this document and the U-BMC software products.

ACPI - Advanced Configuration and Power Interface
API - Application Programming Interface
BIOS - Basic Input/Output System
BMC - Baseboard Management Controller
Chassis - A physical chassis that contains a system.
CLI - Command Line Interface
Computer System - A physical computer system.
DHCP - Dynamic Host Configuration Protocol
DNS - Domain Name System
FTP - File Transfer Protocol
FQDN - Fully Qualified Domain Name
GPU - Graphics Processing Unit
GUI - Graphical User Interface
HTTP - Hypertext Transfer Protocol
HTTPS - Hypertext Transfer Protocol Secure
IP - Internet Protocol
IP Address - A unique address assigned to a device on a network.
IPMI - Intelligent Platform Management Interface
IPMItool - A command line utility for IPMI.
LAN - Local Area Network
LAN Interface - A network interface that is used to connect to a LAN.
LED - Light Emitting Diode
MAC Address - A unique address assigned to a network interface.
NIC - Network Interface Card
NTP - Network Time Protocol
OS - Operating System
OSS - One Stop Systems, Inc.
PCIe - Peripheral Component Interconnect Express
PCIe Port - A physical port on a PCIe switch.
PCIe Switch - A device that connects multiple PCIe devices together.
PSU - Power Supply Unit; A device that supplies power to a system.
Redfish - An open industry standard for managing data center infrastructure.
Redfish API - An API that uses the Redfish protocol.
SDR - Sensor Data Record
Sensor - A device that measures a physical quantity and converts it to an electrical signal.
Serial Port - A physical port that is used to connect to a serial device.
SMTP - Simple Mail Transfer Protocol
SSH - Secure Shell
U-BMC - OSS Unified Baseboard Management Controller
URI - Uniform Resource Identifier
USB - Universal Serial Bus

UUID - Universally Unique Identifier

Web Browser - A program that is used to access web pages.