

Installation and User Guide

Microsemi OpenStack Horizon Plugin

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1 Revision History

The revision history describes the changes that were implemented in the document. The changes are listed by revision, starting with the most current publication.

1.1 Revision 1.0

Revision 1.0 of this document was published in January 2019. This was the first publication.

2 Conventions Used in this Document

The following table lists the conventions used in Microsemi OpenStack Horizon Plugin to make it clear for you.

Table 1 • Conventions Used in this Document

Terms	Description
Systems	<p>Represents a collection of storage systems.</p> <p>A system is an intelligent device, which contains an integrated collection of storage controllers, storage devices, libraries, and any required control software, that provides storage services to one or more computers.</p> <p>A system is also known as a server or a storage system.</p>
StorageControllers	<p>Represents a collection of storage controllers.</p> <p>A storage controller is a device for handling storage requests that includes a processor or sequencer programmed to autonomously process a substantial portion of I/O requests directed to storage devices. A storage controller is also known as adapter, Host Bus Adapter, controller, RAID controller or I/O card.</p> <p>It includes StoragePools, Volumes, and Drives along with their respective branches.</p> <p>A storage controller is named as 'Controller <Controller ID>'. For example, 'Controller 1', 'Controller 2', and so on.</p>
StoragePools	<p>Represents a collection of storage pools.</p> <p>A storage pool is collection of one or more storage devices connected to the storage controller.</p> <p>A storage pool is also known as a container or an array. For example, array is named as 'A', 'B', 'C', and so on.</p>
Volumes	<p>Represents a collection of volumes.</p> <p>A volume is a set of disk blocks presented to an operating environment as a range of consecutively numbered logical blocks with disk-like storage and I/O semantics.</p> <p>A volume is also known as a Logical Drive, LD, Logical Unit, LU, LUN, or StorageVolume. Volume is named as 'LogicalDrv 1', 'LogicalDrv 2', and so on.</p>
Drives	<p>Represents a collection of physical drives.</p> <p>A drive is a non-volatile, randomly accessible, re-writable data storage device. This includes magnetic disks and solid-state disks.</p> <p>A drive is also known as hard disk, disk, hard drive or hard disk drive. Drive is named as Slot <Slot Number> [<ConnectorName>, E<Enclosure Id>]. For example, Slot 1 [CN0, E1], Slot 2 [CN0, E1], and so on.</p>
Chassis	<p>Represents a collection of enclosures.</p> <p>An enclosure is a specialized chassis used to power, hold drives and provide a communication channel with one or more systems.</p> <p>An enclosure is also known as a storage enclosure or disk drive enclosure. Chassis is named as Enclosure <Enclosure ID> [C <ConnectedControllerId>, <ConnectorName>]. For example, Enclosure 1 [C1, CN0], Enclosure 2 [C1, CN0], and so on.</p>

3 Introduction to Microsemi OpenStack Horizon Plugin

Microsemi OpenStack Horizon Plugin is a monitoring tool that allows you to explore your storage resources. You can view details about Controllers, Storage Pools, Volumes, Drives, Chassis, and Systems (hosts) in your storage space, with Horizon's "look and feel" and native navigation.

Note: Microsemi OpenStack Horizon Plugin supports basic configuration options, such as firmware upgrade options on controllers, drives, and enclosures. To manage your storage space, such as creating or deleting a physical drive or designating a hot spare, you must use the Microsemi maxView Storage Manager GUI or CLI (ARCCONF).

3.1 Prerequisites

Ensure to install the following applications before you start using the Microsemi's Horizon plugin:

- Install [OpenStack Queens](#)
- Install [Microsemi Adaptec](#) adapter on the storage node you want to manage
- Install [SmartPQI Driver](#)

3.2 Supported Controllers

The following controllers support Microsemi OpenStack Horizon Plugin:

- SmartRAID 3100 Controller Series
- SmartHBA 2100 Controller Series

3.3 Supported Operating Systems

Microsemi OpenStack Horizon Plugin supports the following operating system:

- On Ubuntu 16.04 LTS (x64)

3.4 Installing the Microsemi OpenStack Horizon Plugin

Follow the instructions in this section to install Microsemi OpenStack Horizon Plugin on an Ubuntu 16.04 LTS (x64).

3.4.1 Downloading the Installer

Complete the following steps to download the installation package for your operating system(s):

1. Open a browser window, then type start.microsemi.com in the address bar.
2. Click **SmartRAID 3100** or **SmartHBA 2100** link and click anyone of the links under **Microsemi Adaptec SmartRAID 3100 SAS/SATA 12 Gb - RAID**.
3. Click the **Storage Manager Downloads** link and select **Microsemi OpenStack Horizon Plugin** from the list.
4. Click **Download Now** and select the accept the **License agreement** check box.
5. When the download completes, extract the contents of the installer archive file to a temporary location.
6. Refer to the [Installing the Plugin on Ubuntu OS](#) section for installation instructions.

3.4.2 Installing the Plugin on Ubuntu OS

Before starting with the installation process, see the *ReadMe.txt* file for limitations and troubleshooting instructions.

To install Microsemi OpenStack Horizon Plugin on Ubuntu Linux:

1. Refer to the [Downloading the Installer](#) section to download the installer.
2. Install the Microsemi OpenStack Horizon Plugin:
`dpkg -i microsemihorizonplugin_1.00-*-Queens_amd64.deb`
3. Enter the openstack-dashboard installation directory. The default installation directory is:
`/usr/share/openstack-dashboard`
4. If the installation directory differs from the default one, enter that directory path.
5. The installation creates a microsemi directory under the Horizon's working directory:
`/var/lib/openstack-dashboard/`
6. If the Horizon working directory is not the one mentioned above, create a directory 'microsemi' under its working directory and make 'Horizon' user as its owner by running the following command:
`chown -R horizon:horizon /<openstack-dashboard working directory>/microsemi`
7. After a successful installation, the Apache server restarts automatically. It also installs the Microsemi Restful Server as part of the installation process.

4 Using the Microsemi OpenStack Horizon Plugin

This section explains the main features and their uses of Microsemi OpenStack Horizon Plugin. It also describes how to log in to Microsemi OpenStack Horizon Plugin and use its features as required. You can use Microsemi OpenStack Horizon Plugin to:

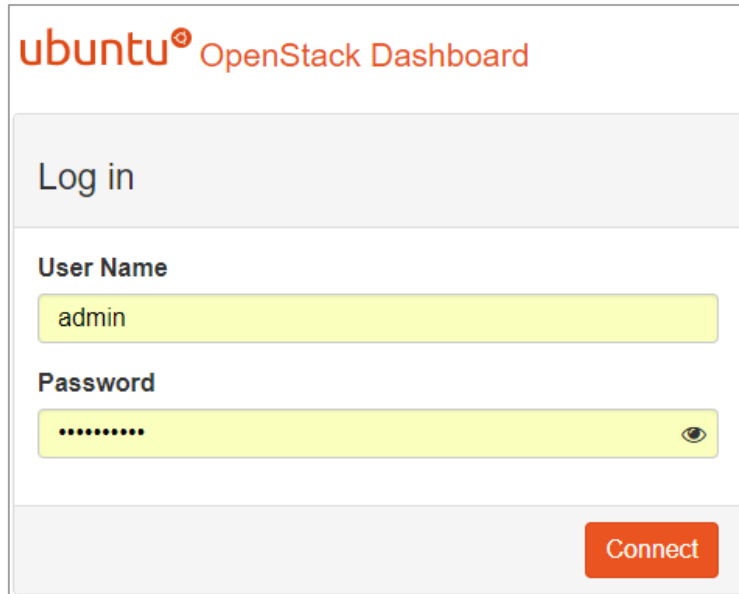
- View information about Controllers, Storage Pools, Volumes, Drives, and Chassis.
- Upgrade Firmware images as required.
- Monitor events that take place in a server.

4.1 Logging in to OpenStack Horizon Plugin

To login to OpenStack Horizon Plugin:

1. Launch the OpenStack Horizon on a browser. The login page is displayed.
2. Enter the credentials to access the application, as shown in the following figure.

Figure 1 • OpenStack Login



The screenshot shows the OpenStack Dashboard login interface. At the top, it says "ubuntu OpenStack Dashboard". Below that is a "Log in" section. There are two input fields: "User Name" with the value "admin" and "Password" with a masked password (represented by dots). A "Connect" button is located at the bottom right of the form.

Note: The login credentials are set while installing the plugin itself.

3. Click **Connect**.

4.2 Using the MSCC Storage Manager Dashboard

MSCC Storage Manager dashboard has two panes: left- and right-pane.

- **Left-pane:** displays the navigation group of MSCC Storage Manager. Click **Systems** under MSCC Storage Manager to view the panel with a list of discovered servers under a network. The navigation tree lists the hierarchical view of the servers discovered in the MSCC Storage Manager.

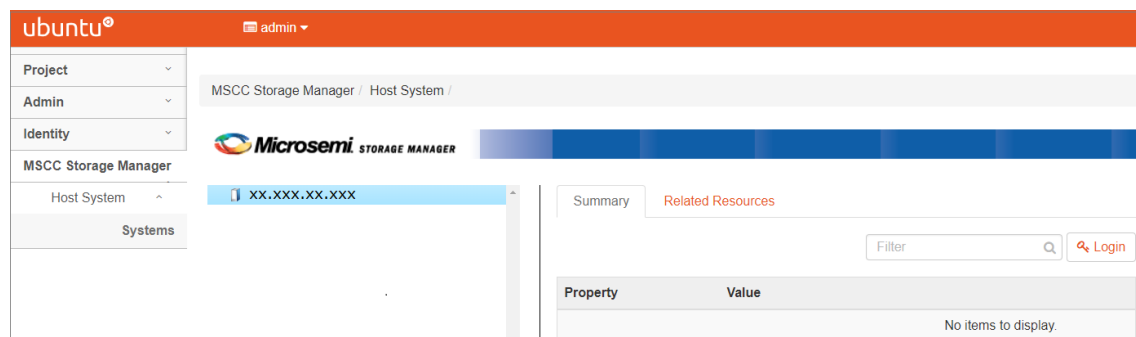
For example, the following structure gives you an idea of how a server and its storage details can be viewed in a network using MSCC Storage Manager.

- IP Address: xx.xxx.xx.xxx
 - StorageControllers
 - Controller 1
 - A
 - B
 - C
 - Volumes
 - LogicalDrv 1
 - LogicalDrv 2
 - LogicalDrv 3
 - Drives
 - Slot 1 [CN0, E1]
 - Slot 5 [CN0, E1]
 - Slot 9 [CN0, E1]
 - Chassis
 - Enclosure 1 [C1, CN0]

To understand more about each term in the hierarchy, see the [Conventions Used in this Document](#) section.

- **Right-pane:** displays the Summary, Related Resources, and Events tabs.
 - The Summary tab displays details of the selected resource.
 - The Related Resources tab indicates the relationship or association with other resources and helps you navigate to them.
 - The Events tab gives the consolidated details of events generated on all resources when the server node is selected.

Figure 2 • MSCC Storage Manager Dashboard



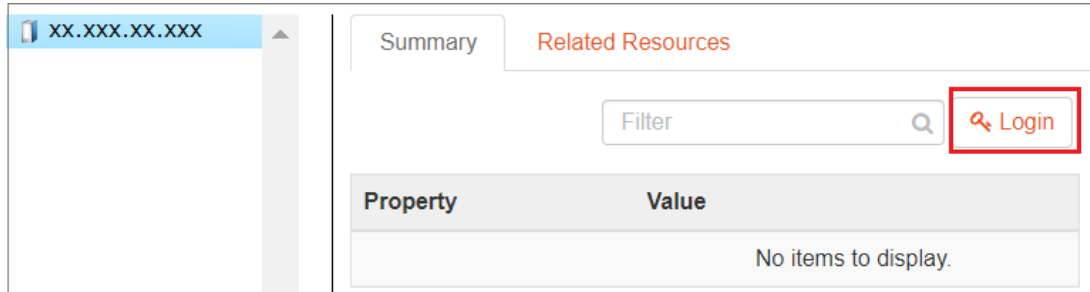
4.2.1 Logging in to the Server

You may need to login to view the details of a server that is monitored in the network.

To authenticate with the server:

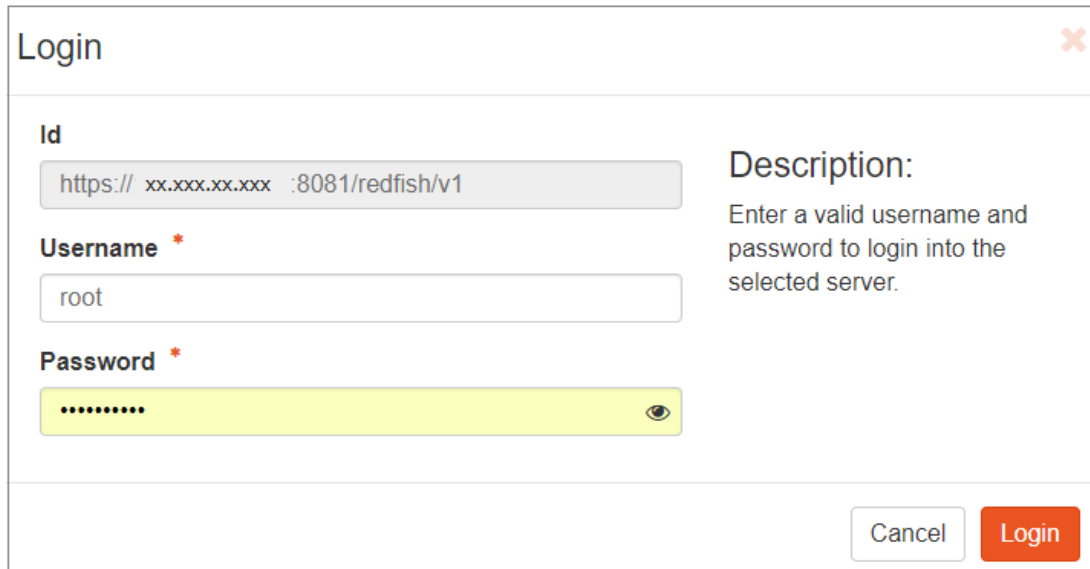
1. Click **Login** on the Summary tab header. The login page is displayed.
Note: The Login icon is displayed only when the server is not authenticated or when the existing session is terminated for some reasons.

Figure 3 • Logging in to a Server



2. Enter the valid server credentials in the required fields.
3. Click **Login**.

Figure 4 • Logging in to the Selected Server



4.2.2 Viewing the Resource Summary

The Summary tab displays the details of the selected resource.

Figure 5 • Summary Details

Summary		Related Resources	Events
		Filter <input type="text"/>	
Displaying 51 items			
Property	Value		
URI	/redfish/v1/Systems/000016040000000000000000000001		
Id	000016040000000000000000000001		
Name	Direct Attached Storage System		
SystemType	OS		
AssetTag	Free from asset tag		
STATUS:			
State	Enabled		
Health	OK		
HealthRollUp	OK		
IndicatorLED	Unknown		
PowerState	On		
BootSource	None		

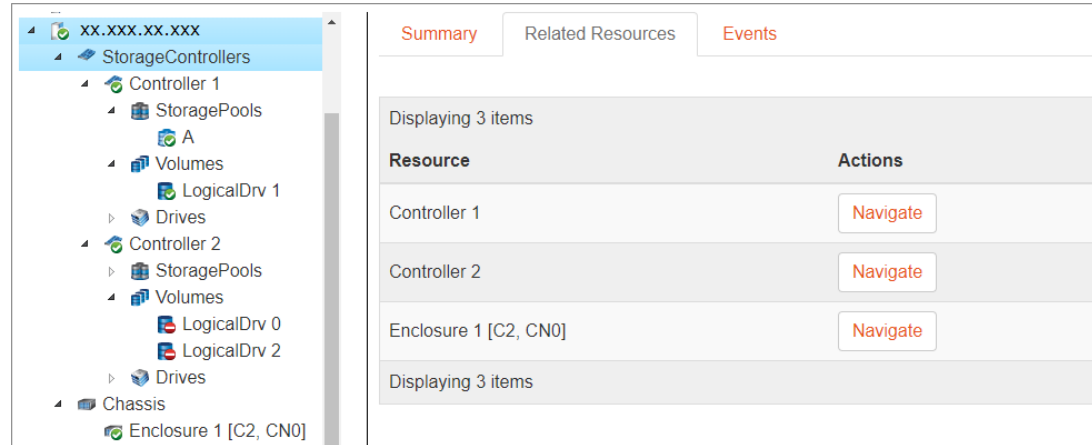
Note: In the Summary pane, the colon (:) symbol is used to represent the levels of data displayed for a property. For example, if a property name is followed by a single colon, it represents the first level of information for the property. Or, if it is followed by a double colon (::), then it represents the second level of information for the same property.

4.2.3 Viewing Related Resources

The Related Resources tab displays related resources, such as storage pools associated with a logical drive, the logical drives on a controller, or the controllers on a host. The Related Resources are categorized as Storage Pools, Drives, Spare Drives, and Volumes.

- Click **Navigate** under **Actions** to view the summary of related resources.

Figure 6 • Viewing Related Resource Details



4.2.4 Viewing Events

The Events tab shows the consolidated events of all the resources when a host server is selected in the navigation tree. The Event Log lists activity occurring in your storage space, with the most recent events listed at the top.

- **StatusChange:** The status of the resource has changed. For example, when the health of a resource is changed from 'OK' to 'Warning' or 'Critical.'
- **ResourceUpdated:** The value of the resource has been updated. For example, when a change in the property settings of a resource happens.
- **ResourceAdded:** A resource has been added. For example, a new Drive is inserted; a new StoragePool or a Volume is created.
- **ResourceRemoved:** A resource has been removed. For example, an existing Drive is removed from the system; deletion of a StoragePool or Volume.
- **Alert:** An existing condition that requires attention. For example, when a chassis is opened, button is pushed, cable is unplugged or threshold exceeds.

4.2.4.1 Subscribing to Events

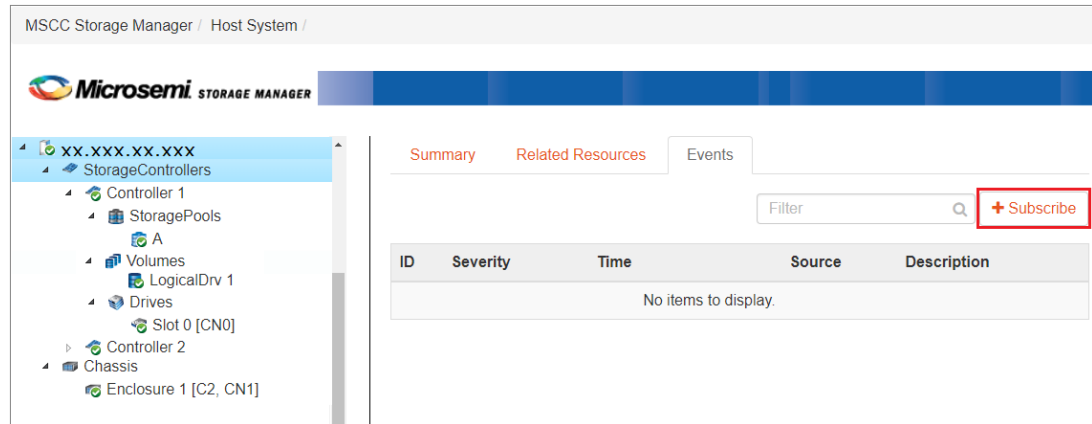
The Subscribe feature allows you to choose events for which you want to monitor events as they occur. Depending on the severity of the events, the issues are categorized accordingly.

Note: This Subscribe button is visible only on System node.

To subscribe to event types:

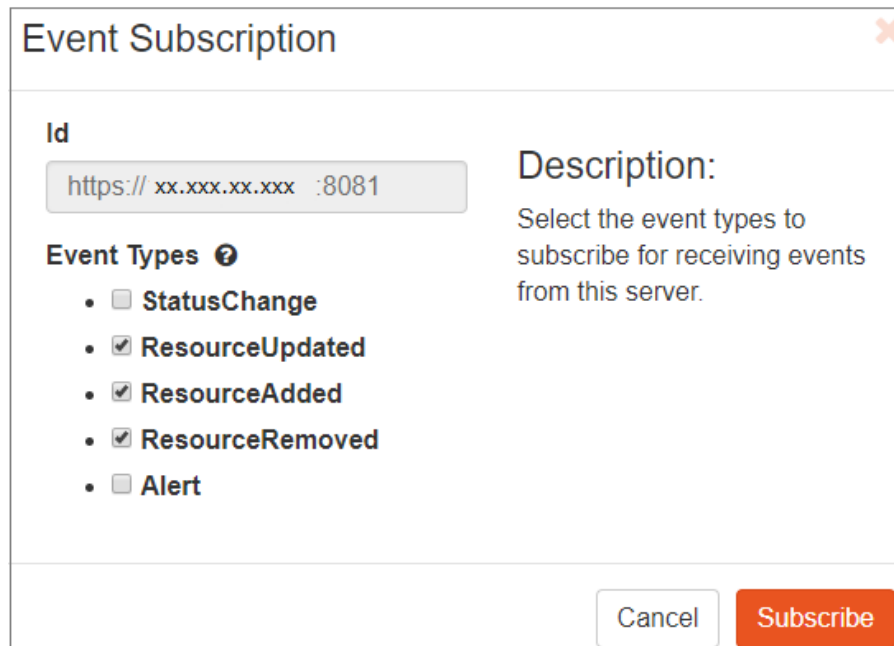
1. Click **Subscribe** on the top-right corner of the **Events** tab.

Figure 7 • Events Log for a Selected Resource



The **Events Subscription** pop-up is displayed.

Figure 8 • Subscribing to Events



2. Select the check box against each event type for which you want to receive notification.
3. Click **Subscribe**.

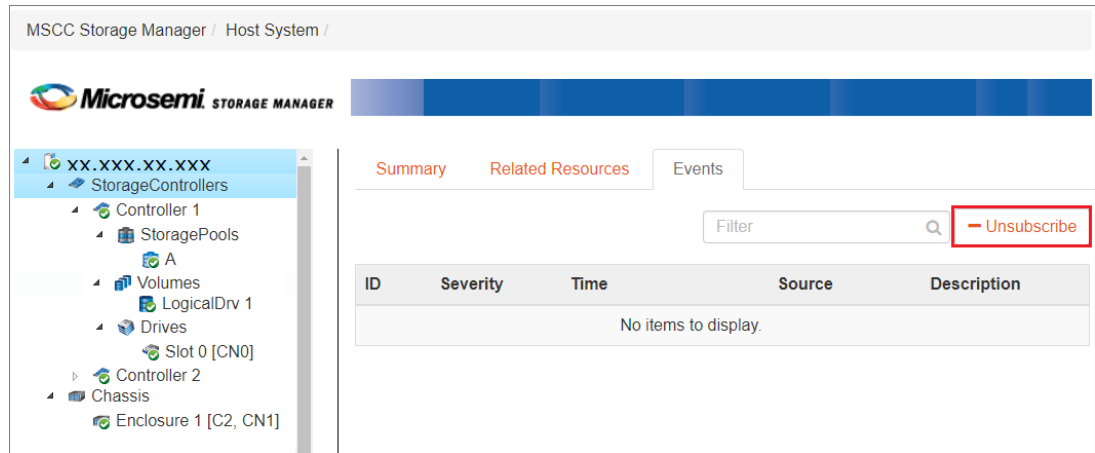
4.2.4.1.1 Unsubscribing to Events

If you do not want to receive notifications for certain subscribed events, you can unsubscribe the events.

To unsubscribe event types:

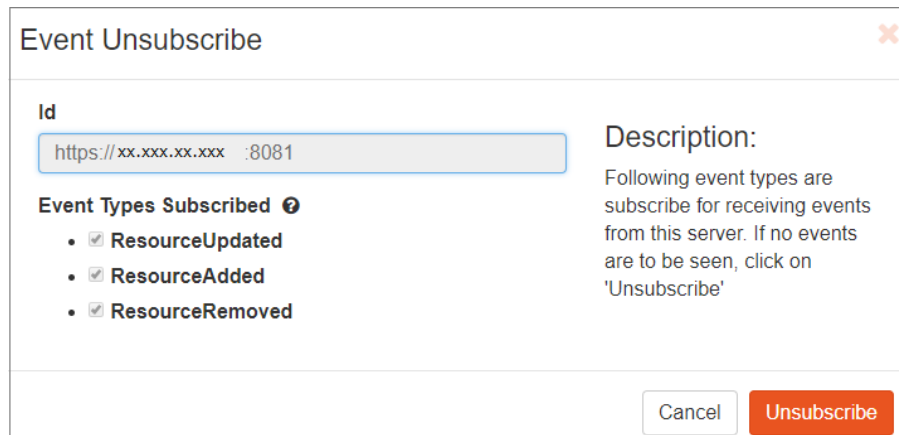
1. Click **Unsubscribe** in the top-right of the Events tab.

Figure 9 • Unsubscribe to Events



The **Events Unsubscribe** pop-up is displayed. You can see the subscribed event types are listed.

Figure 10 • Unsubscribing to Events



2. Click **Unsubscribe**. The event types are unsubscribed.

4.2.5 Upgrading Firmware

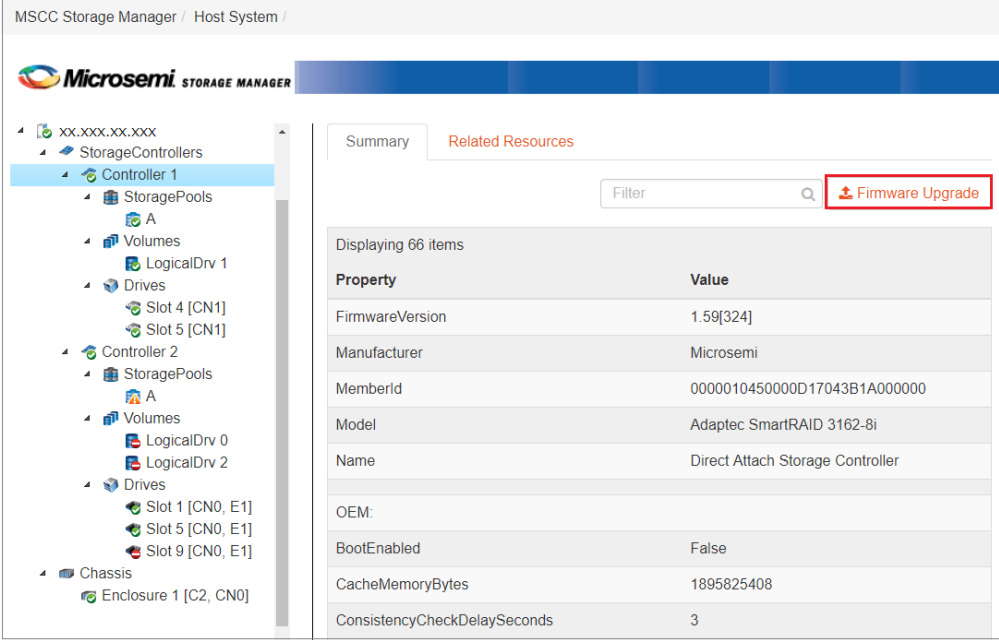
Microsemi OpenStack Horizon plugin enables you to upgrade the firmware images for controllers, drives, and chassis in your storage space. You can update the firmware images for devices of the same type with the help of this feature.

For example, if your storage space includes disk drives from two different manufactures, you must update the firmware for each manufacturer's drives separately, by running the wizard twice. Additionally, if you have more than one system in your storage space, you must upgrade the firmware for each system separately.

To update the firmware for controllers:

1. Select a controller in the left pane. The associated details of the selected resource are displayed on the right pane.
2. Click **Firmware Upgrade** in the top-right corner of the **Summary** tab.

Figure 11 • Upgrading Firmware for Controllers

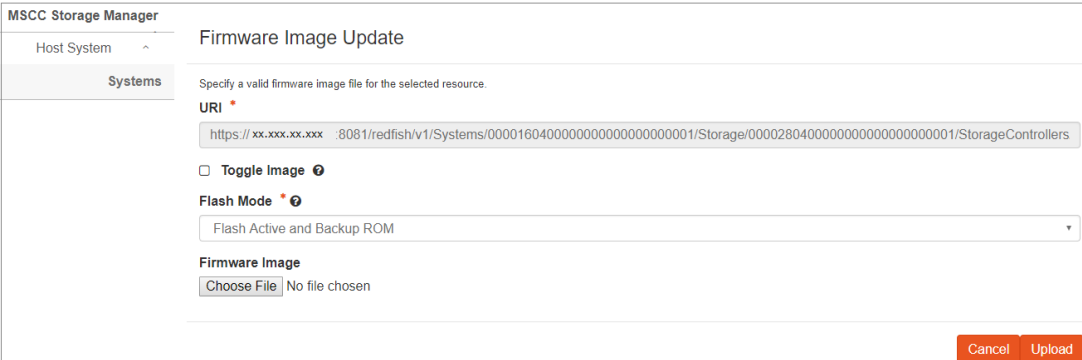


The screenshot shows the MSCC Storage Manager interface. On the left, a tree view shows the hierarchy: StorageControllers > Controller 1. The right pane is in the 'Summary' tab, displaying a table of properties for the selected controller. A red box highlights the 'Firmware Upgrade' button in the top right corner of the Summary tab.

Property	Value
FirmwareVersion	1.59[324]
Manufacturer	Microsemi
MemberId	000010450000D17043B1A000000
Model	Adaptec SmartRAID 3162-8i
Name	Direct Attach Storage Controller
OEM:	
BootEnabled	False
CacheMemoryBytes	1895825408
ConsistencyCheckDelaySeconds	3

The **Firmware Image Update** pop-up is displayed.

Figure 12 • Uploading the Firmware Image



The screenshot shows the 'Firmware Image Update' dialog box. It contains a text input field for the URI, a 'Toggle Image' checkbox, a 'Flash Mode' dropdown menu, and a 'Choose File' button. The 'Upload' button is highlighted in red.

URI: `https://xx.xxx.xx.xxx:8081/redfish/v1/Systems/00001604000000000000000000000001/Storage/000028040000000000000000000001/StorageControllers`

Toggle Image

Flash Mode: Flash Active and Backup ROM

Firmware Image: Choose File | No file chosen

Buttons: Cancel, Upload

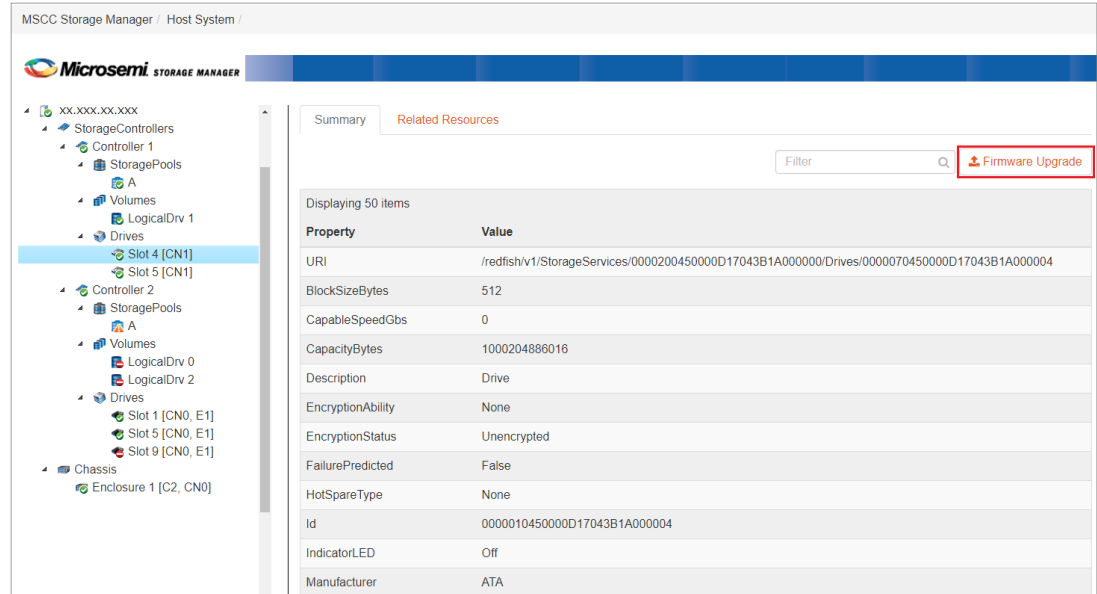
3. Select the **Toggle Image** check box if you want to swap the firmware image between Active ROM area and Backup ROM area or vice versa.
Note: If you select the **Toggle Image** check box, you can ignore the Flash Mode and File options.
4. Select the **Flash Mode** as **Flash Active and Backup ROM** from the list.
5. Click **Choose File** to browse to select the firmware image.
6. Click **Upload**.

To update the firmware for drives:

1. Select a drive in the left pane. The associated details of the selected resource are displayed on the right pane.

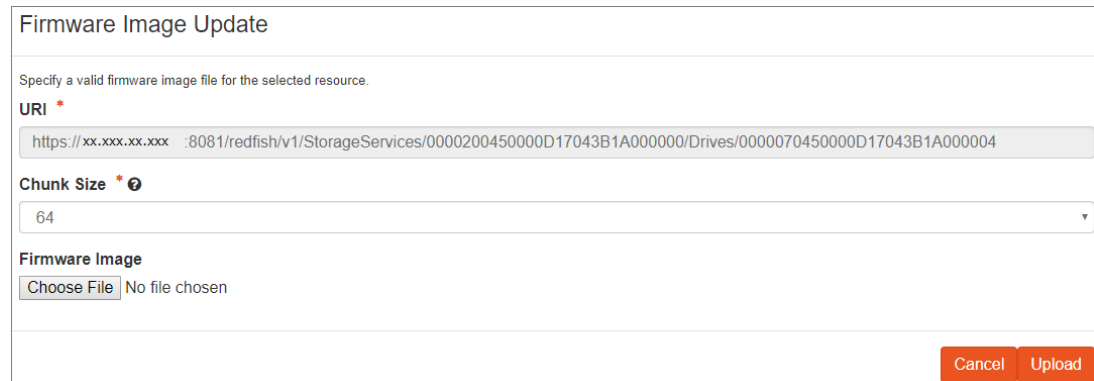
2. Click **Firmware Upgrade** in the top-right corner of the **Summary** tab.

Figure 13 • Upgrading Firmware for Drives



The **Firmware Image Update** pop-up is displayed.

Figure 14 • Uploading the Firmware Image



The dialog box is titled 'Firmware Image Update'. It contains a text area for a URI, a dropdown for 'Chunk Size' set to 64, and a 'Choose File' button. At the bottom right are 'Cancel' and 'Upload' buttons.

Specify a valid firmware image file for the selected resource.

URI *
https://xx.xxx.xx.xxx :8081/redfish/v1/StorageServices/0000200450000D17043B1A000000/Drives/0000070450000D17043B1A000004

Chunk Size *
64

Firmware Image
Choose File No file chosen

Cancel Upload

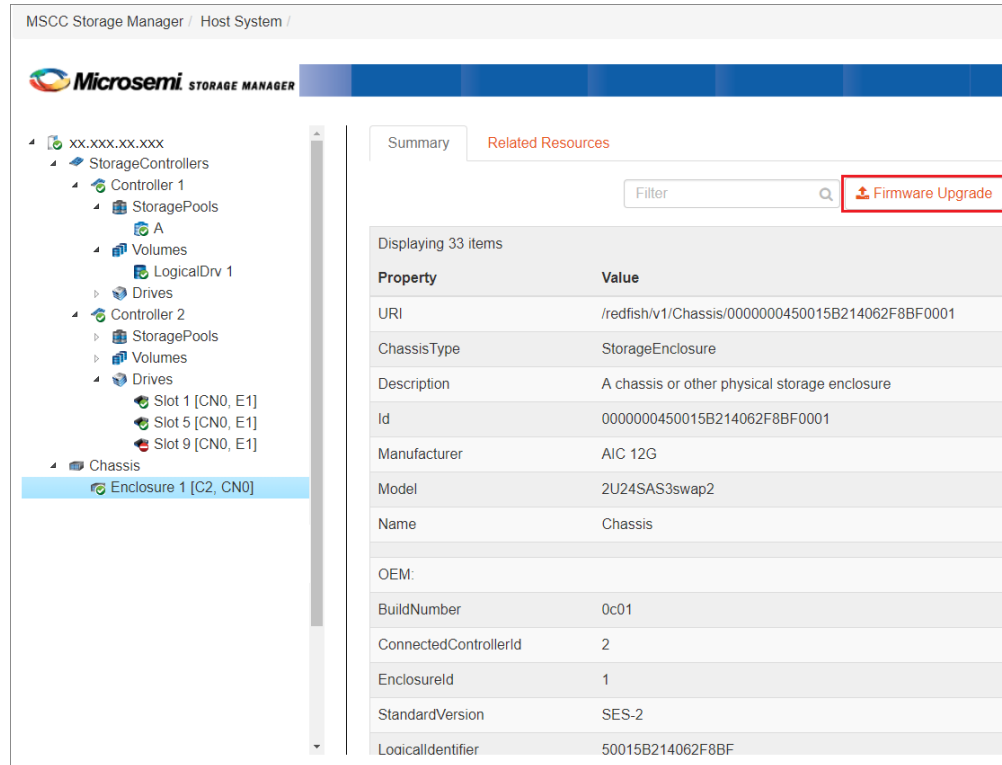
3. Select the **Chunk Size** from the list.
4. Click **Choose File** to browse to select the firmware image.
5. Click **Upload**.

To update the firmware for chassis:

1. Select a chassis in the left pane. The associated details of the selected resource are displayed on the right pane.

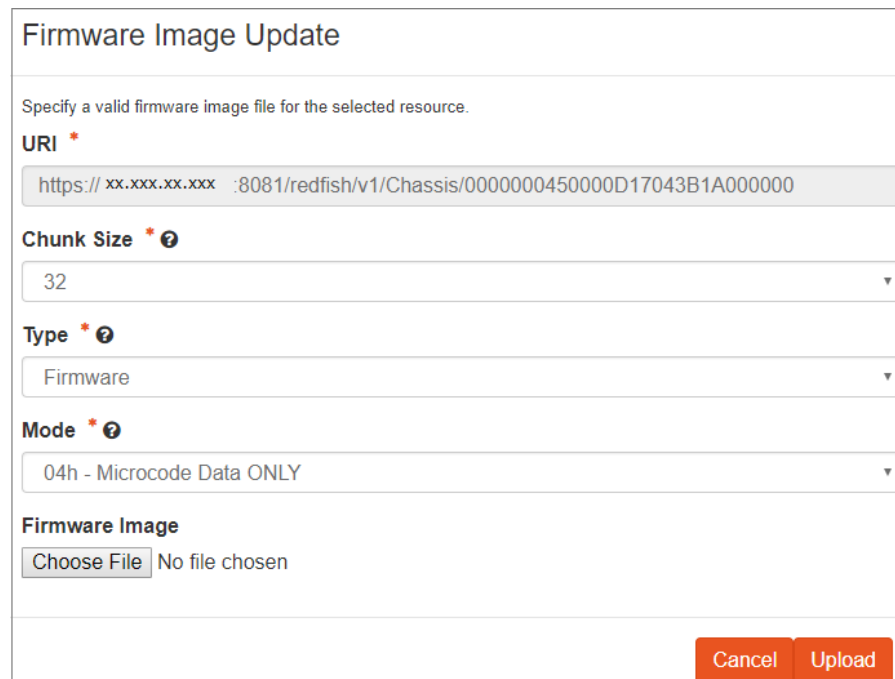
2. Click **Firmware Upgrade** in the top-right corner of the **Summary** tab.

Figure 15 • Upgrading Firmware for Chassis



The **Firmware Image Update** pop-up is displayed.

Figure 16 • Uploading the Firmware Image



3. Select the **Chunk Size, Type, and Mode** from the lists.
4. Click **Choose File** to browse to select the firmware image.
5. Click **Upload**.

5 Uninstalling Microsemi OpenStack Horizon Plugin

To uninstall Microsemi OpenStack Horizon Plugin:

- Run the following commands to clear the associated files of this plugin.
dpkg -r microsemihorizonplugin
dpkg -P microsemihorizonplugin

To verify that MSCC Storage Manager is uninstalled, login to OpenStack Horizon and see that the plugin is not listed on the OpenStack dashboard.

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