Western Digital.

User Guide

Resource Manager Data Center Edition

Software Version 1.0.0
Document D018-000755-000
Revision 01
September 2023

Table of Contents

Revision History

Date	Revision	Comment
September 2023	01	Initial release

Notices

Western Digital Technologies, Inc. or its affiliates' (collectively “Western Digital”) general policy does not recommend the use of its products in life support applications wherein a failure or malfunction of the product may directly threaten life or injury. Per Western Digital Terms and Conditions of Sale, the user of Western Digital products in life support applications assumes all risk of such use and indemnifies Western Digital against all damages.

This document is for information use only and is subject to change without prior notice. Western Digital assumes no responsibility for any errors that may appear in this document, nor for incidental or consequential damages resulting from the furnishing, performance or use of this material.

Absent a written agreement signed by Western Digital or its authorized representative to the contrary, Western Digital explicitly disclaims any express and implied warranties and indemnities of any kind that may, or could, be associated with this document and related material, and any user of this document or related material agrees to such disclaimer as a precondition to receipt and usage hereof.

Each user of this document or any product referred to herein expressly waives all guaranties and warranties of any kind associated with this document any related materials or such product, whether expressed or implied, including without limitation, any implied warranty of merchantability or fitness for a particular purpose or non-infringement. Each user of this document or any product referred to herein also expressly agrees Western Digital shall not be liable for any incidental, punitive, indirect, special, or consequential damages, including without limitation physical injury or death, property damage, lost data, loss of profits or costs of procurement of substitute goods, technology, or services, arising out of or related to this document, any related materials or any product referred to herein, regardless of whether such damages are based on tort, warranty, contract, or any other legal theory, even if advised of the possibility of such damages.

This document and its contents, including diagrams, schematics, methodology, work product, and intellectual property rights described in, associated with, or implied by this document, are the sole and exclusive property of Western Digital. No intellectual property license, express or implied, is granted by Western Digital associated with the document recipient's receipt, access and/or use of this document or the products referred to herein; Western Digital retains all rights hereto.

Western Digital, the Western Digital design, the Western Digital logo, and Ultrastar are registered trademarks or trademarks of Western Digital Corporation or its affiliates in the US and/or other countries. Ansible, CentOS, and Red Hat Enterprise Linux are trademarks or registered trademarks of Red Hat, Inc. or its subsidiaries in the United States and other countries. Ubuntu is a registered trademark of Canonical Ltd. Debian is a trademark owned by Software in the Public Interest, Inc. Microsoft, Microsoft Edge, and Windows Server are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries. Chrome is a trademark of Google LLC. Firefox is a trademark of the Mozilla Foundation in the U.S. and other countries. Elasticsearch is a trademark of Elasticsearch BV, registered in the U.S. and in other countries. Linux® is the registered trademark of Linus Torvalds in the U.S. and other countries. "Python" is a trademark or registered trademark of the Python Software Foundation. All other marks are the property of their respective owners.

Not all products are available in all regions of the world. Pictures shown may vary from actual products. Product specifications subject to change without notice.

Western Digital
5601 Great Oaks Parkway
San Jose, CA 95119

Points of Contact

For further assistance with a Western Digital product, contact Western Digital Datacenter Platforms technical support. Please be prepared to provide the following information, as applicable: part number (P/N), serial number (S/N), product name and/or model number, software version, and a brief description of the issue.

Email:
support@hgst.com

Website:
https://portal.wdc.com/s/

UK Import Representation Contact

Western Digital UK Limited
PO Box 471
Leatherhead KT22 2LU
UK

Telephone: +44 1372 366000

EU Import Representation Contact

Western Digital EU Limited
PO Box 13379
Swords, Co
Dublin, Ireland

Overview

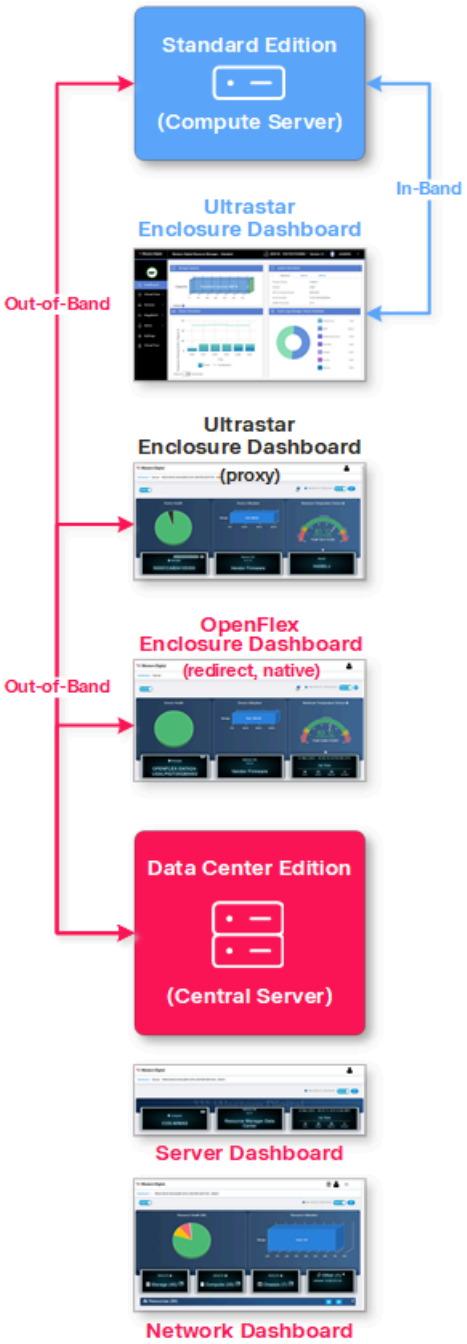
The topics in this section provide an overview of the Resource Manager Data Center Edition application.

In This Chapter:

1.1 Resource Manager Data Center Edition Overview

Resource Manager Data Center Edition is a comprehensive, out-of-band monitoring and management application designed for Western Digital storage platforms. It operates on a central management server, discovering health and utilization data for all compatible devices on a network, and presenting device information and management capabilities to a browser in a convenient dashboard format.

Figure 1: Deployment Overview



1.2 Supported Platforms

The Resource Manager Data Center Edition application supports configuration and management of the following platforms.

Product Family	Product Name	Firmware
Ultrastar®	Data102	4008-020 (SEP) & 4.0.31 (OOBM)
	Data60	
OpenFlex®	Data24	5.0.0
	Data24 3200	1.0.0

Note: For supported hardware components, please refer to your platform's *Compatibility Matrix* and the Resource Manager Data Center Edition *Release Notes*. Unless otherwise noted, Resource Manager Data Center Edition is compatible with each platform's supported components.

1.3 Compatible Operating Systems

The host server must be running one of the following operating systems in order to host the Resource Manager Data Center Edition application.

Operating System	Version
CentOS	8.5
Red Hat® Enterprise Linux® (RHEL)	8.5, 8.6, 9.0
Ubuntu	18.04, 20.04, 22.04
Debian	10.9, 11, 11.2
Windows Server®	2019, 2022

1.4 Compatible Browsers

One of the following browsers are required to run the Resource Manager Data Center Edition application.

Browser	Version
Google Chrome	113.0.5672.93 and later
Mozilla Firefox	102.11.0esr and later
Microsoft Edge	113.0.1774.42 and later

1.5 Third-Party Software

If not already installed, the following additional software will be installed on the host server by the Resource Manager Data Center Edition installer so that the host can run the Resource Manager Data Center Edition application.

Table 1: Third-Party Software

Installation Type	Linux	Windows
Basic	N/A	N/A
Advanced & **Docker**	Elasticsearch (8.5.3) Ansible-Core (2.13.7) Ansible® (6.7.0) Python (3.8)	Elasticsearch (8.5.3)

Note: For Linux installations, required third-party software may be installed automatically online. For Windows and Docker installations, required third-party software is bundled with Resource Manager Data Center Edition.

Note: The advanced and Docker installations of Resource Manager Data Center Edition include Elasticsearch for orchestration and analytics. Please ensure that the host server meets the following **minimum** system requirements for operation of Elasticsearch:

- 8GB RAM
- 4 CPU cores
- 100GB of storage capacity per 100 devices discovered

1.6 Third-Party Licenses

Resource Manager Data Center Edition may include or use open source software subject to open source licenses. If required by the applicable open source license, Western Digital may provide the open source code to you on request either electronically or on a physical storage medium for a charge covering the cost of performing such distribution, which may include the cost of media, shipping, and handling.

For Resource Manager Data Center Edition open source licensing information, please see Viewing & Downloading Logs & Notices *(page 50)* for instructions on downloading the notices file. For licensing information of third-party software provided in the installer, please consult the documentation and features of that software.

Installation

The topics in this section provide instructions for installing the Resource Manager Data Center Edition application.

In This Chapter:

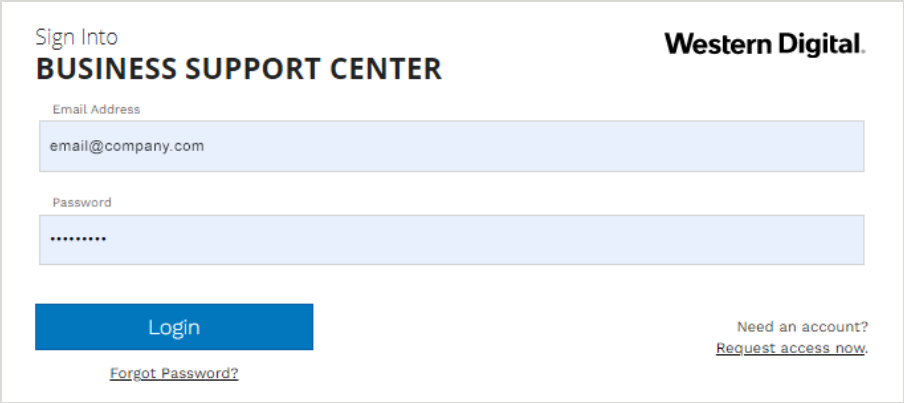
2.1 Downloading Resource Manager Data Center Edition

This procedure provides instructions for downloading the Resource Manager Data Center Edition application from the Western Digital Business Support Center.

Step 1: Open a web browser and navigate to: https://portal.wdc.com/s/.

The login page for the **Western Digital Business Support Center** will be displayed:

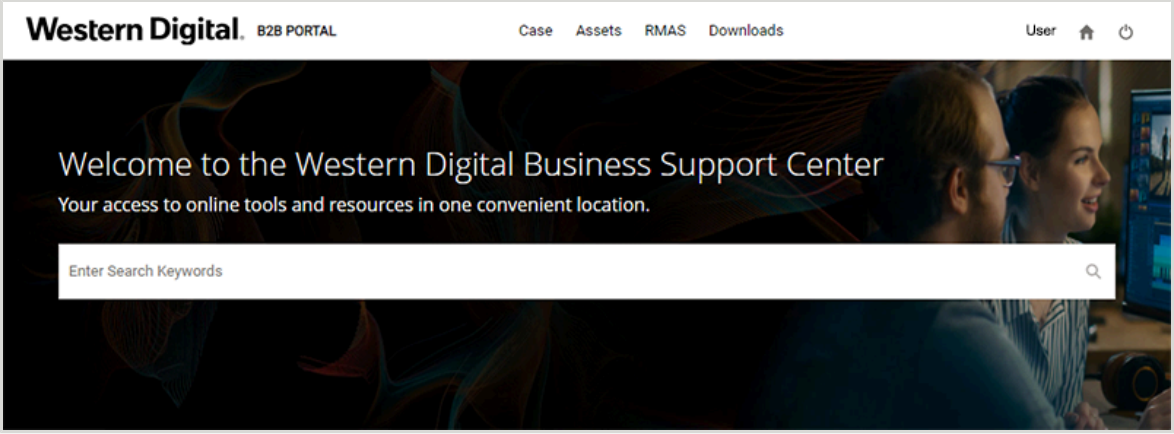
Figure 2: Login Page



Step 2: Enter a valid email address and password into the **Email Address** and **Password** fields. Then click the **Login** button.

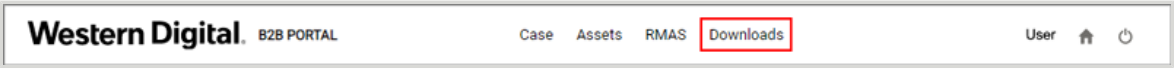
The **Western Digital B2B Portal** page will be displayed:

Figure 3: Western Digital B2B Portal



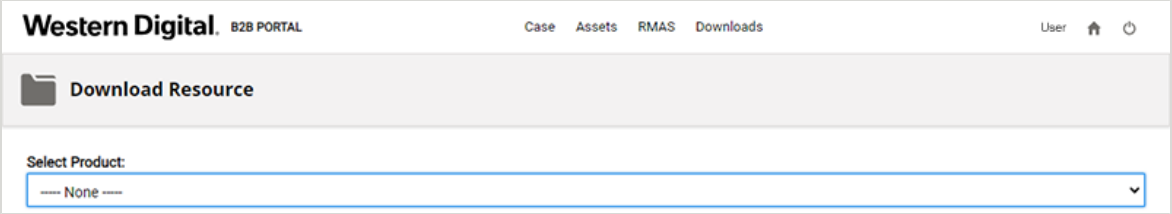
Step 3: Click **Downloads** at the top of the page:

Figure 4: Downloads Link



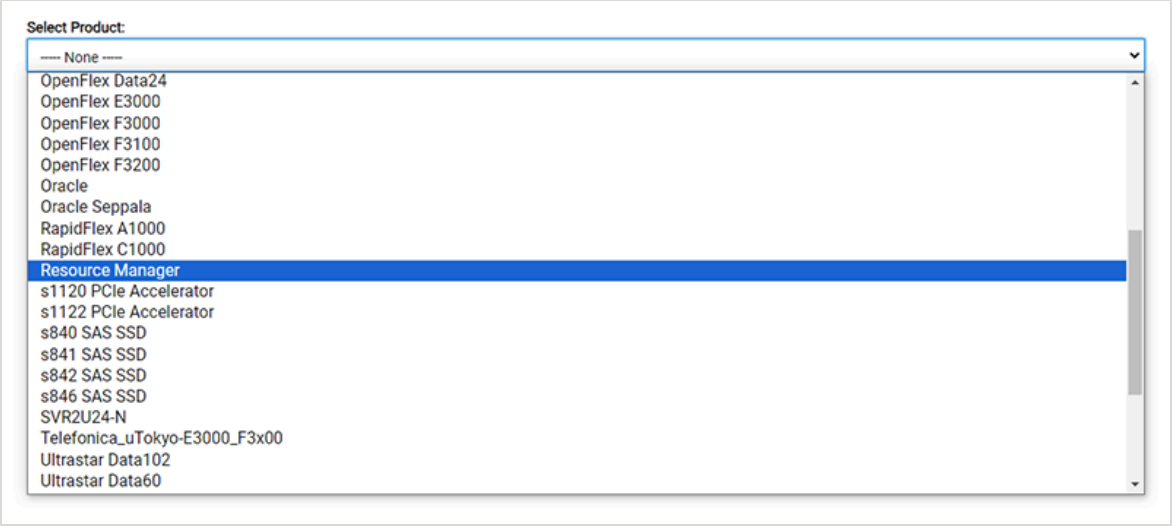
The **Download Resource** page will be displayed:

Figure 5: Download Resource Page



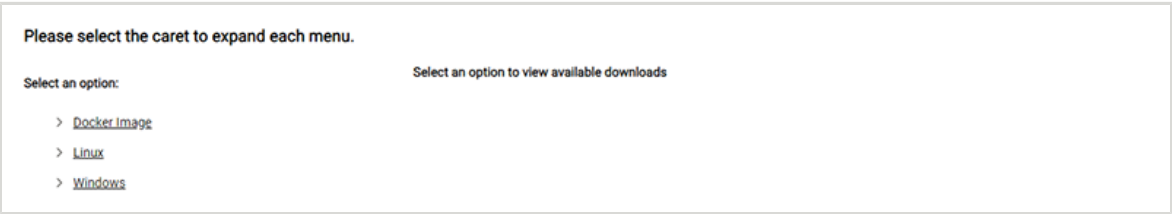
Step 4 : Use the **Select Product** drop-down list to select the **Resource Manager** option:

Figure 6: Selecting Resource Manager



An operating system selection list will appear:

Figure 7: OS Selection List



Step 5 : Under **Select an option**, use the arrows to expand the menus for your operating system and the current version of the Resource Manager Data Center Edition. Then click the link for **Software**. A compressed file for the selected operating system will be displayed on the right.

Figure 8: Docker Image

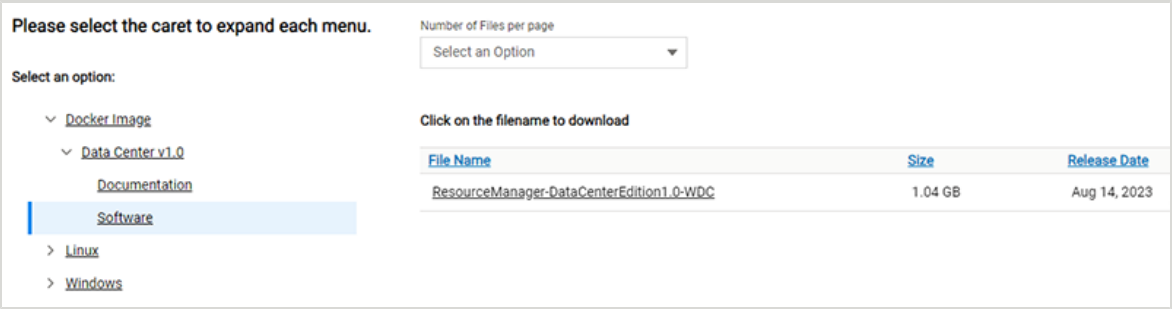


Figure 9: Linux Compressed File

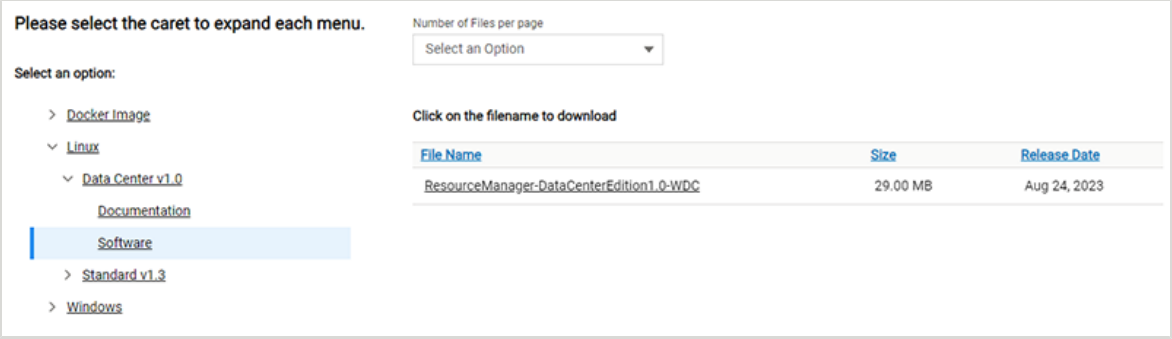
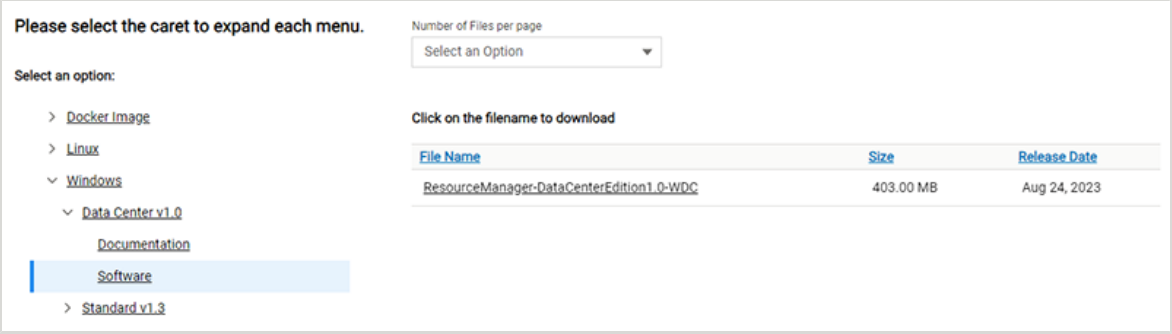


Figure 10: Windows Compressed File



Step 6 : Click the filename to download the compressed file.

Step 7 : Unzip/extract the file to the desired directory on the host server.

Result: The Resource Manager Data Center Edition application has now been downloaded from the Western Digital Business Support Center.

What to do next: Proceed to Installation Options & Features *(page 9)* to choose the appropriate installation type for your needs.

2.2 Installation Options & Features

The following table shows the differences in available features between the installation options for Resource Manager Data Center Edition.

Table 2: Installation Options & Features

Features	Basic Install	Advanced Install	Docker Install
Overall platform health summary	Yes	Yes	Yes
Management firmware events	Yes	Yes	Yes
Platform sensor information	Yes	Yes	Yes
Platform zoning	Yes	Yes	Yes
IOM-based management	Yes	Yes	Yes
Platform drive statistics	Yes	Yes	Yes
REST-based API web service and client	Yes	Yes	Yes
Network Operations Center (NOC) view	Yes	Yes	Yes
Multi-node management	Yes	Yes	Yes
Asset management view	No	Yes	Yes
Centralized remote management	Yes	Yes	Yes
Authentication services	Yes	Yes	Yes
Persistent storage	No	Yes	Yes
Policy management	No	Yes	Yes
Notification services (SMTP, SNMP traps)	No	Yes	Yes
Group operations / orchestration	No	Linux only	Yes

2.3 Linux – Basic Installation

This procedure provides instructions for a basic installation of the Resource Manager Data Center Edition application on a host server with a Linux operating system.

Step 1: Open a command line and navigate to the directory where the installation file was unzipped/extracted.

Step 2: Run the installation script.

```
# ./install_rmdc.sh
```

The user will be prompted to choose the basic or advanced installation.

```
1 - Basic
2 - Advanced
Please enter the number corresponding to the above installation types to
 proceed with the installation :
```

Step 3: Input `1` for the basic installation.

```
1
```

The Western Digital End User License Agreement will be presented, and the user will be prompted to accept the license agreement terms and conditions.

```
...
```

```
Do you agree All License Agreement Terms and Conditions?(y/n)
```

Step 4: If you agree, enter `y` to accept the agreement.

```
y
```

The installation script will install Resource Manager Data Center Edition, notify the user when the installation is complete, and return to the command line prompt.

```
...
RMDC installation complete.
#
```

Result: The Resource Manager Data Center Edition application is now installed on the Linux OS.

2.4 Linux – Advanced Installation

This procedure provides instructions for an advanced installation of the Resource Manager Data Center Edition application on a host server with a Linux operating system.

Before you begin:

Note: The advanced installation of Resource Manager Data Center Edition includes Elasticsearch for orchestration and analytics. Please ensure that the host server meets the following **minimum** system requirements for operation of Elasticsearch:

- 8GB RAM
- 4 CPU cores
- 100GB of storage capacity per 100 devices discovered

Note: Asset data collected in Elasticsearh will be deleted 30 days after collection.

Step 1: Open a command line and navigate to the directory where the installation file was unzipped/extracted.

Step 2: Run the installation script.

```
# ./install_rmdc.sh
```

The user will be prompted to choose the basic or advanced installation.

```
1 - Basic
2 - Advanced
Please enter the number corresponding to the above installation types to
 proceed with the installation :
```

Step 3: Input `2` for the advanced installation.

```
2
```

The Western Digital End User License Agreement will be presented, and the user will be prompted to accept the license agreement terms and conditions.

```
...
```

```
Do you agree All License Agreement Terms and Conditions?(y/n)
```

Step 4: If you agree, enter `y` to accept the agreement.

```
y
```

The installation script will install Resource Manager Data Center Edition, notify the user when the installation is complete, and return to the command line prompt.

```
...
RMDC and Orchestration application installation complete.
#
```

Result: The Resource Manager Data Center Edition application is now installed on the Linux OS.

2.5 Linux – Docker Installation

This procedure provides instructions for installing the Resource Manager Data Center Edition application on a host server with a Linux operating system using Docker.

Note: For any troubleshooting or configuration changes that require restarting Docker, a restart script is included. The usage menu can be accessed using the `-h` or `--help` option:

```
# ./rmdc_container.sh --help
Usage:rmdc_containers.sh [ -s | --start    Start RMDC containers  ]
                         [ -p | --stop     Stop RMDC containers   ]
                         [ -r | --restart  Restart RMDC containers]
                         [ -h | --help     Help Info              ]
```

Step 1: Navigate to https://docs.docker.com/desktop/install/linux-install/ and follow the instructions for downloading and installing the Docker Engine.

Step 2: Open a command line and issue the `docker version` and `docker compose version` commands to ensure that the installation was successful.

```
# docker version
Client: Docker Engine - Community
 Version:           24.0.5
 API version:       1.43
 Go version:        go1.20.6
 Git commit:        ced0996
 Built:             Fri Jul 21 20:35:18 2023
 OS/Arch:           linux/amd64
 Context:           default

Server: Docker Engine - Community
 Engine:
  Version:          24.0.5
  API version:      1.43 (minimum version 1.12)
  Go version:       go1.20.6
  Git commit:       a61e2b4
  Built:            Fri Jul 21 20:35:18 2023
  OS/Arch:          linux/amd64
  Experimental:     false
 containerd:
```

```
  Version            1.6.21
  GitCommit:         3dce8eb055cbb6872793272b4f20ed16117344f8
 runc:
  Version:           1.1.7
  GitCommit:         v1.1.7-0-g860f061
 docker-init:
  Version:           0.19.0
  GitCommit:         de40ad0
```

```
# docker compose version
Docker Compose version v2.20.2
```

Step 3: After the Docker installation has been verified, run the installer script for the Western Digital containers.

```
# ./install_rmdc_containers.sh
```

Note: Use the `-h` or `--help` option to see the usage menu for the installer script:

```
Usage:install_rmdc_containers.sh [ -i | --ip    Docker host IP]
                                 [ -h | --help  Help Info]
```

Result: The Resource Manager Data Center Edition application is now installed on the Linux OS.

2.6 Windows – Basic Installation

This procedure provides instructions for a basic installation of the Resource Manager Data Center Edition application on a host server with a Windows operating system.

Step 1: Open a command prompt with administrator privileges and navigate to the directory where the installation file was unzipped/extracted.

Step 2: Run the installation script.

```
C:\>install_rmdc.bat
```

The user will be prompted to choose the basic or advanced installation.

```
1 - Basic
2 - Advanced
Please enter the number corresponding to the above installation types to
 proceed with the installation : [1,2]?
```

Step 3: Input `1` for the basic installation.

```
1
```

The Western Digital End User License Agreement will be presented, and the user will be prompted to agree to the license agreement terms and conditions.

```
...
Do you agree All License Agreement Terms and Conditions [Y,N]?
```

Step 4: If you agree, enter `Y` to accept the agreement.

```
Y
```

The installation script will install Resource Manager Data Center Edition, notify the user when the installation is complete, and return to the command prompt.

```
...
RMDC installation completed.
C:\>
```

Result: The Resource Manager Data Center Edition application is now installed on the Windows OS.

2.7 Windows – Advanced Installation

This procedure provides instructions for an advanced installation of the Resource Manager Data Center Edition application on a host server with a Windows operating system.

Before you begin:

Note: The advanced installation of Resource Manager Data Center Edition includes Elasticsearch for orchestration and analytics. Please ensure that the host server meets the following **minimum** system requirements for operation of Elasticsearch:

- 8GB RAM
- 4 CPU cores
- 100GB of storage capacity per 100 devices discovered

Note: Asset data collected in Elasticsearh will be deleted 30 days after collection.

Step 1: Open a command prompt with administrator privileges and navigate to the directory where the installation file was unzipped/extracted.

Step 2: Run the installation script.

```
C:\>install_rmdc.bat
```

The user will be prompted to choose the basic or advanced installation.

```
1 - Basic
2 - Advanced
Please enter the number corresponding to the above installation types to
 proceed with the installation : [1,2]?
```

Step 3: Input `2` for the advanced installation.

```
2
```

The Western Digital End User License Agreement will be presented, and the user will be prompted to agree to the license agreement terms and conditions.

```
...
Do you agree All License Agreement Terms and Conditions [Y,N]?
```

Step 4: If you agree, enter `Y` to accept the agreement.

```
Y
```

The installation script will install Resource Manager Data Center Edition, notify the user when the installation is complete, and return to the command prompt.

```
...
RMDC installation completed.
C:\>
```

Result: The Resource Manager Data Center Edition application is now installed on the Windows OS.

2.8 Windows – Docker Installation

This procedure provides instructions for installing the Resource Manager Data Center Edition application on a host server with a Windows operating system using Docker.

Note: The Docker installation of Resource Manager Data Center Edition is supported by Windows Server 2022 but not Windows Server 2019.

Note: For any troubleshooting or configuration changes that require restarting Docker, a restart script is included. The usage menu can be accessed using the `-h` or `--help` option:

```
C:\>rmdc_container.bat --help
Usage:rmdc_containers.bat [ -s | --start    Start RMDC containers  ]
                          [ -p | --stop     Stop RMDC containers   ]
                          [ -r | --restart  Restart RMDC containers]
                          [ -h | --help     Help Info              ]
```

Step 1: Navigate to https://docs.docker.com/desktop/install/windows-install/ and follow the instructions for downloading and installing the Docker Desktop.

Note: Please use the WSL based installation (default option) when installing the Docker Desktop.

Step 2: For Linux based containers to work in Windows, a few options must be enabled in the Windows PowerShell commands. Navigate to https://www.addictivetips.com/windows-tips/how-to-run-linux-docker-containers-on-windows-server/ and follow the steps in the PowerShell console and the instructions for enabling the "Virtual Machine Platform".

Step 3: After the "Virtual Machine Platform" is setup properly, ensure that the Docker Engine is running successfully and Docker Desktop lauches without issues.

Step 4: Open a command prompt with administrator privileges and use the Windows installer script to install the Western Digital containers.

```
C:\>install_rmdc_docker.bat
```

Note: Use the `-h` or `--help` option to see the usage menu for the installer script:

```
Usage:install_rmdc_docker.bat [ -i | --ip    Docker host IP]
```

```
                                [ -h | --help  Help Info]
```

Network & Device Access

The topics in this section provide information and instructions for accessing the network, devices on the network, and network-level operations that can be performed with the Resource Manager Data Center Edition.

In This Chapter:

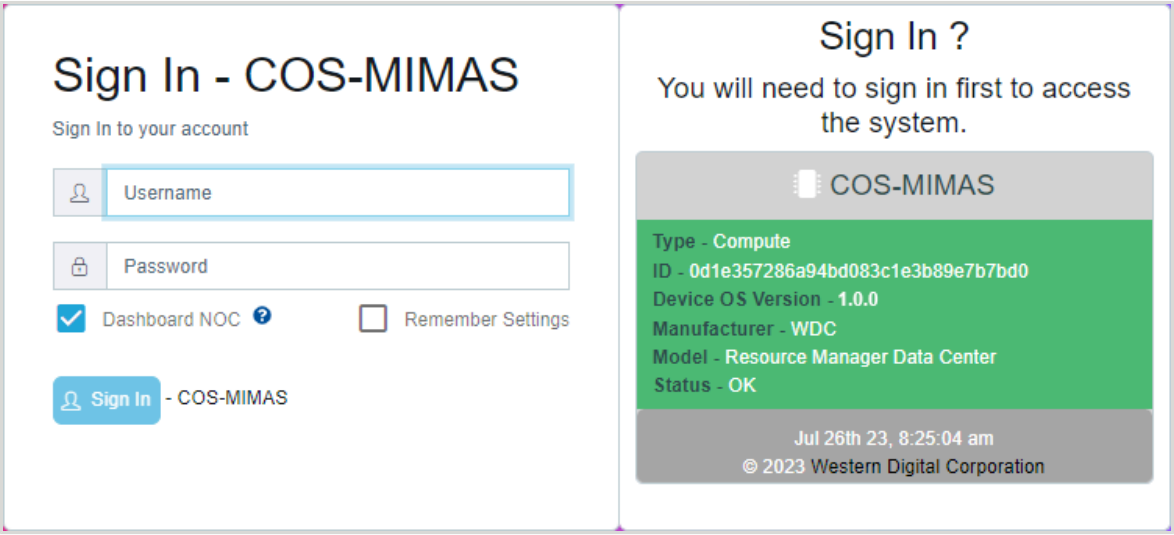
3.1 Logging in to the Network Dashboard

This procedure provides instructions for logging in to the network dashboard through a central management server hosting the Resource Manager Data Center Edition.

Step 1: Open a browser and enter the IP address of the management server into the address bar, followed by `/login`. For example: `<serverIP>/login`.

The login screen for the management server will appear:

Figure 11: Management Server Login Screen



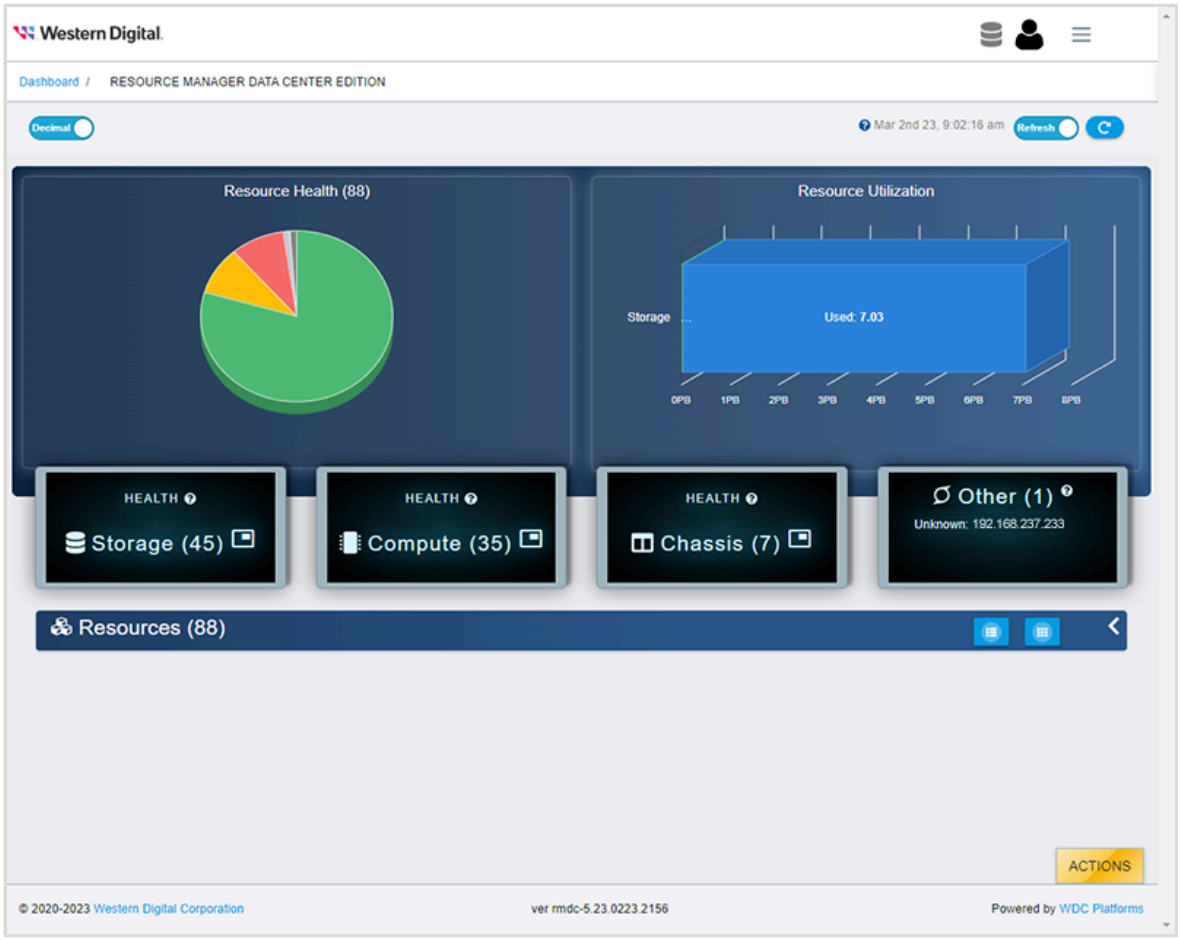
Note: By default, the **Dashboard NOC** checkbox is checked. This enables the network dashboard page to continually display in *Network Operations Center* mode without session timeout.

Step 2: Enter a valid username and password, and click the **Sign In** button.

Note: The default username/password is `admin`/`admin`.

The Resource Manager Data Center Edition will scan all compatible devices on the network and display the results in a dashboard format:

Figure 12: The Network Dashboard



What to do next: Proceed to Overview of Network Dashboard *(page 20)*.

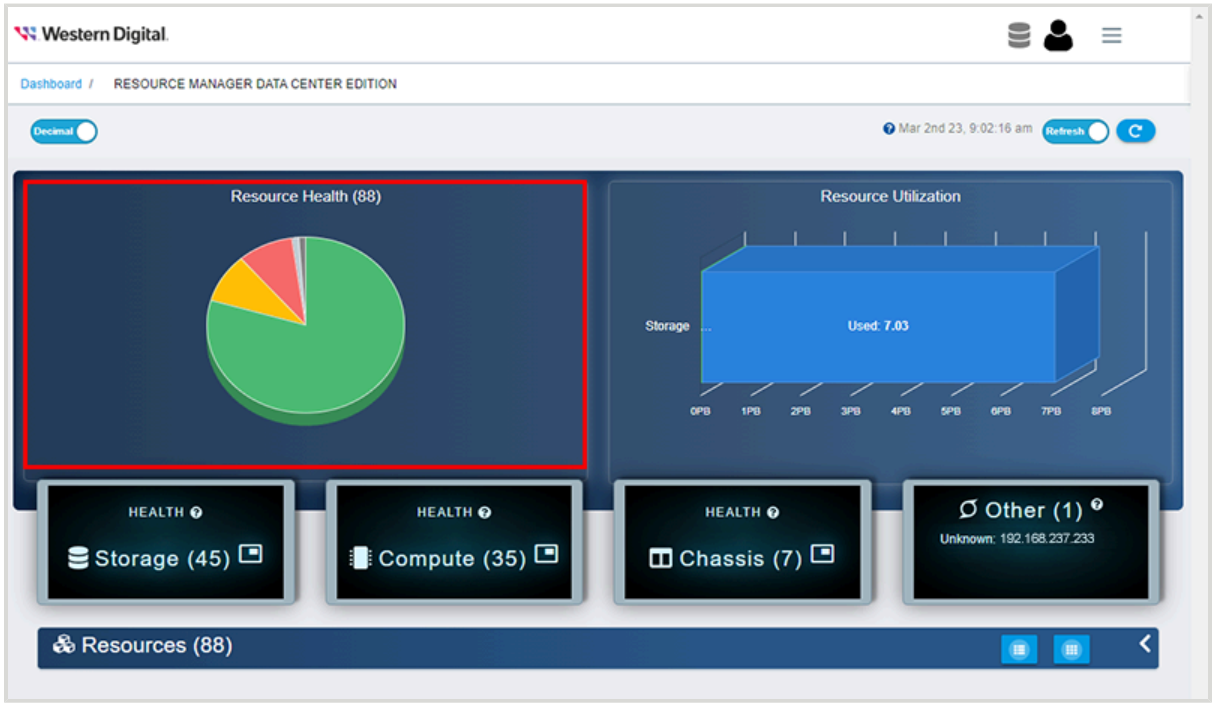
3.2 Overview of Network Dashboard

The network dashboard is a summary page that displays health and utilization data for all compatible devices on the network.

Resource Health

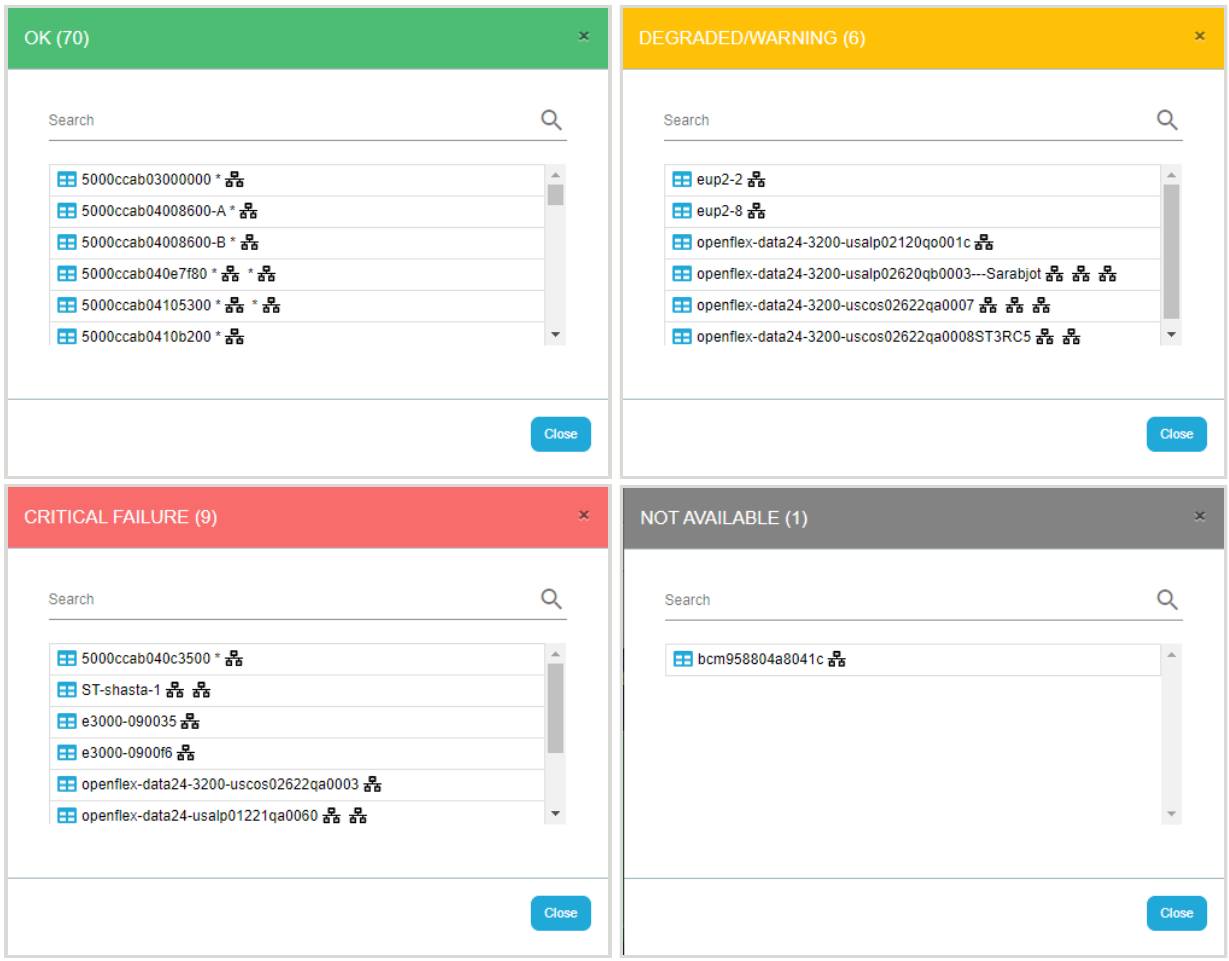
The **Resource Health** section displays a pie chart that groups the health states of devices into color-coded segments.

Figure 13: Resource Health Pie Chart



For additional details, click one of the segments. This will bring up a window with a detailed listing of the devices in that state:

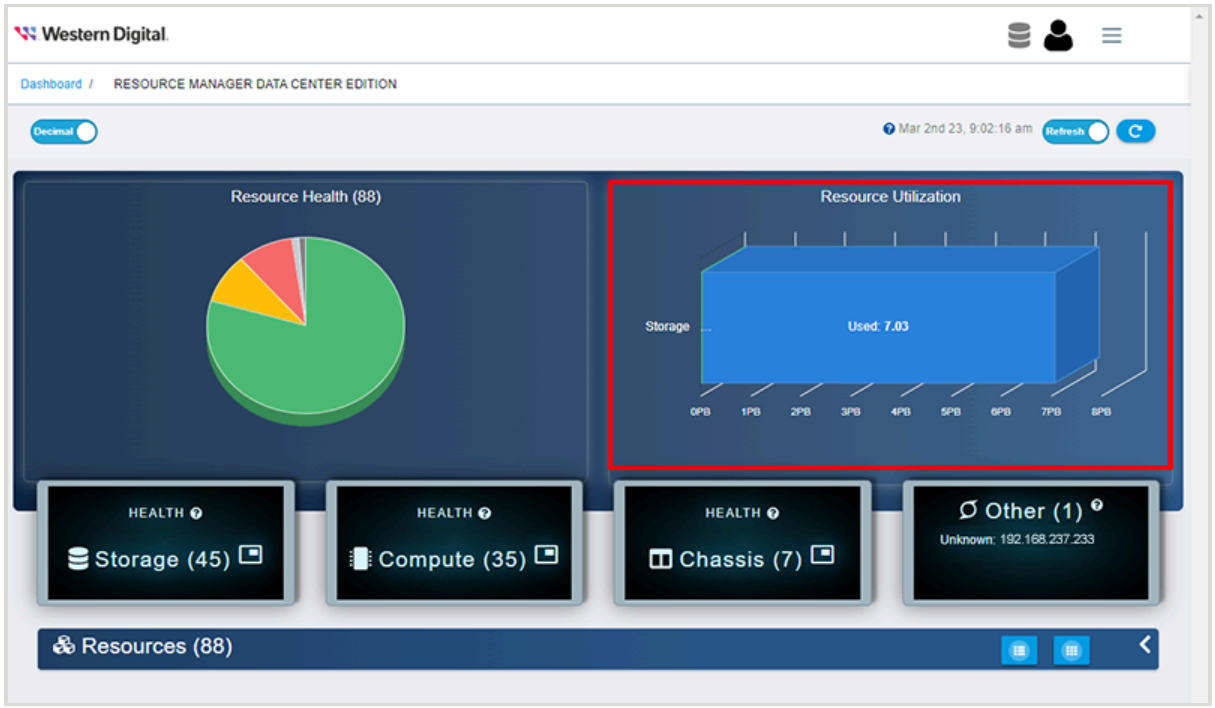
Figure 14: Health States



Resource Utilization

The **Resource Utilization** section displays an aggregate of the total, free, and used storage across all storage devices discovered on the network.

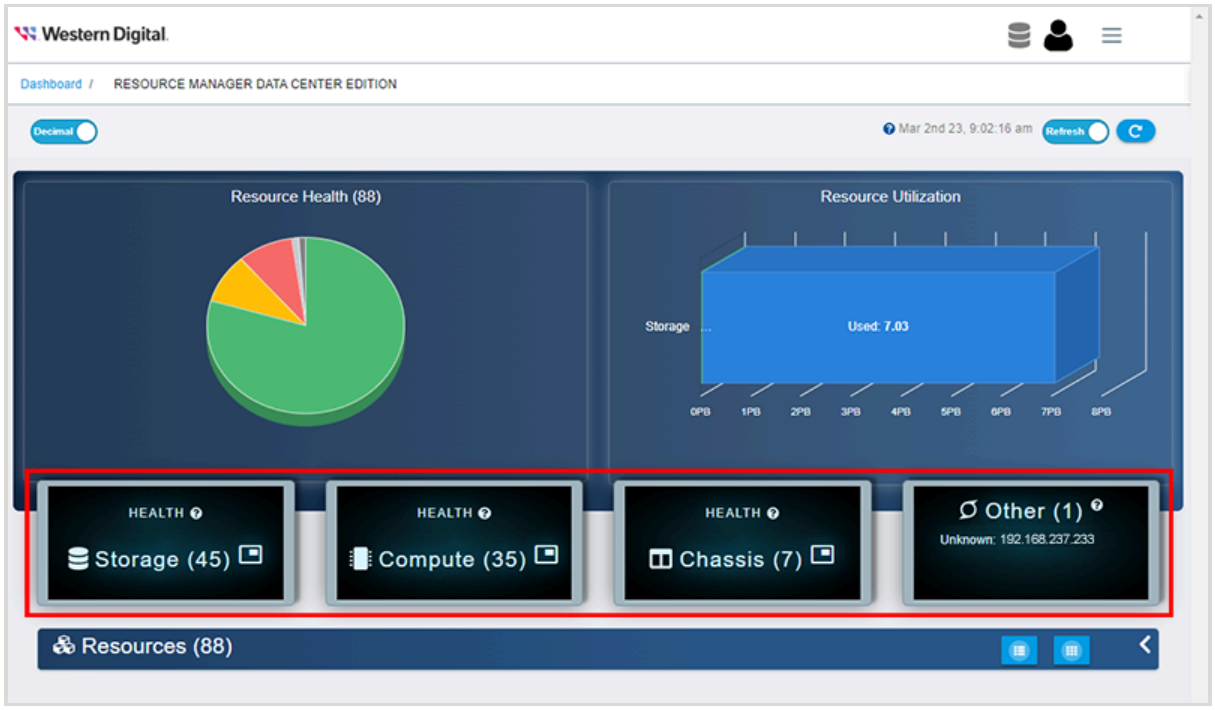
Figure 15: Resource Utilization Chart



Health by Device Type

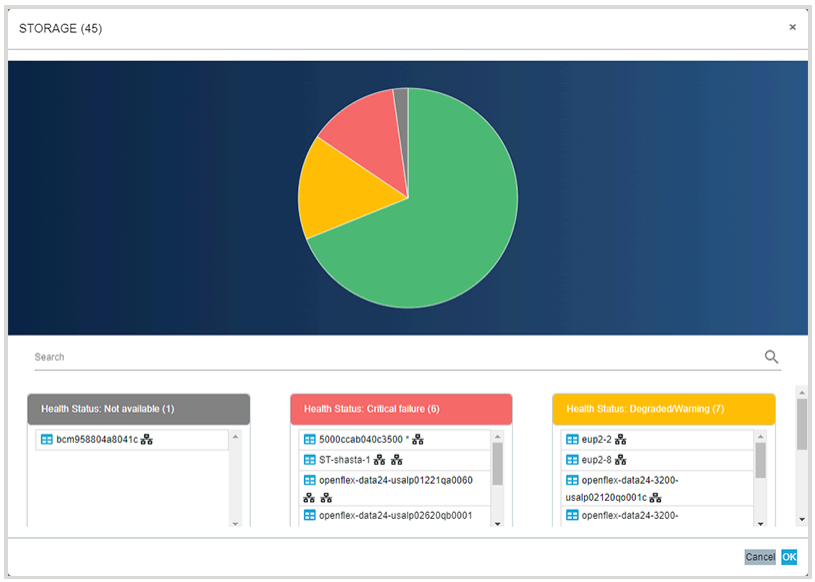
The center section of the dashboard contains health status information, organized by device type.

Figure 16: Health by Device Type



For additional details, click one of the panels. This will bring up a window with a detailed listing of the devices and health states for that device type:

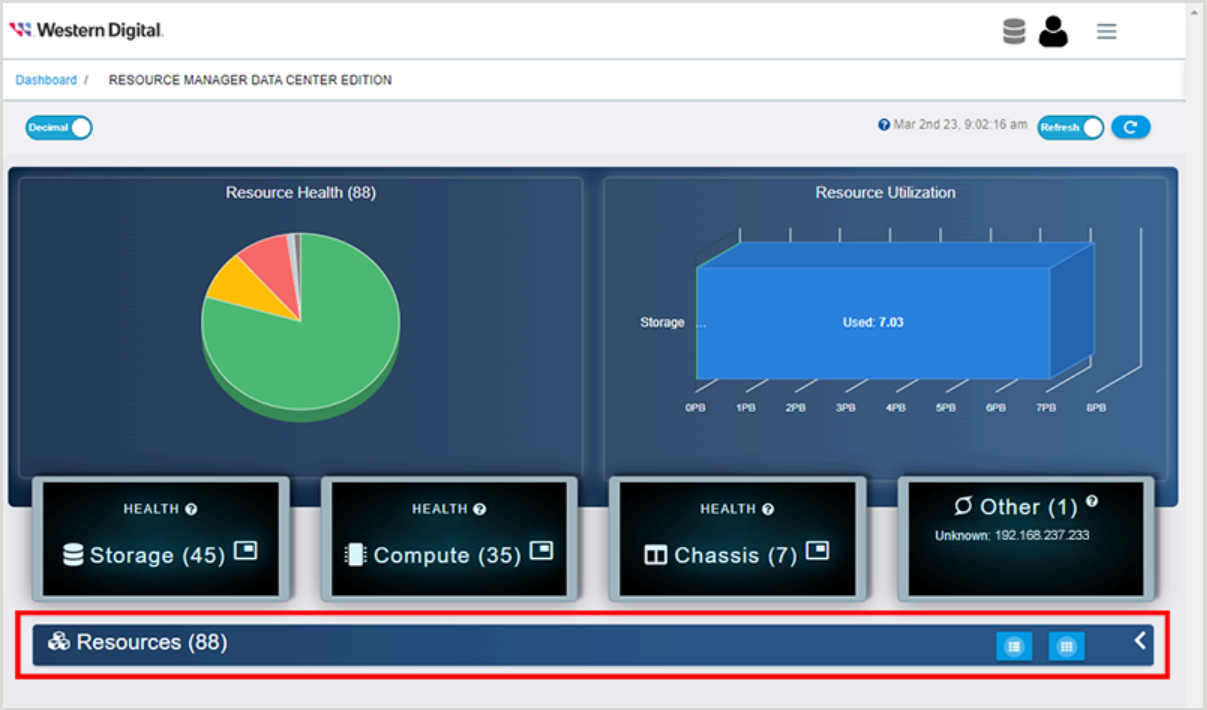
Figure 17: Health by Device Type



Resources

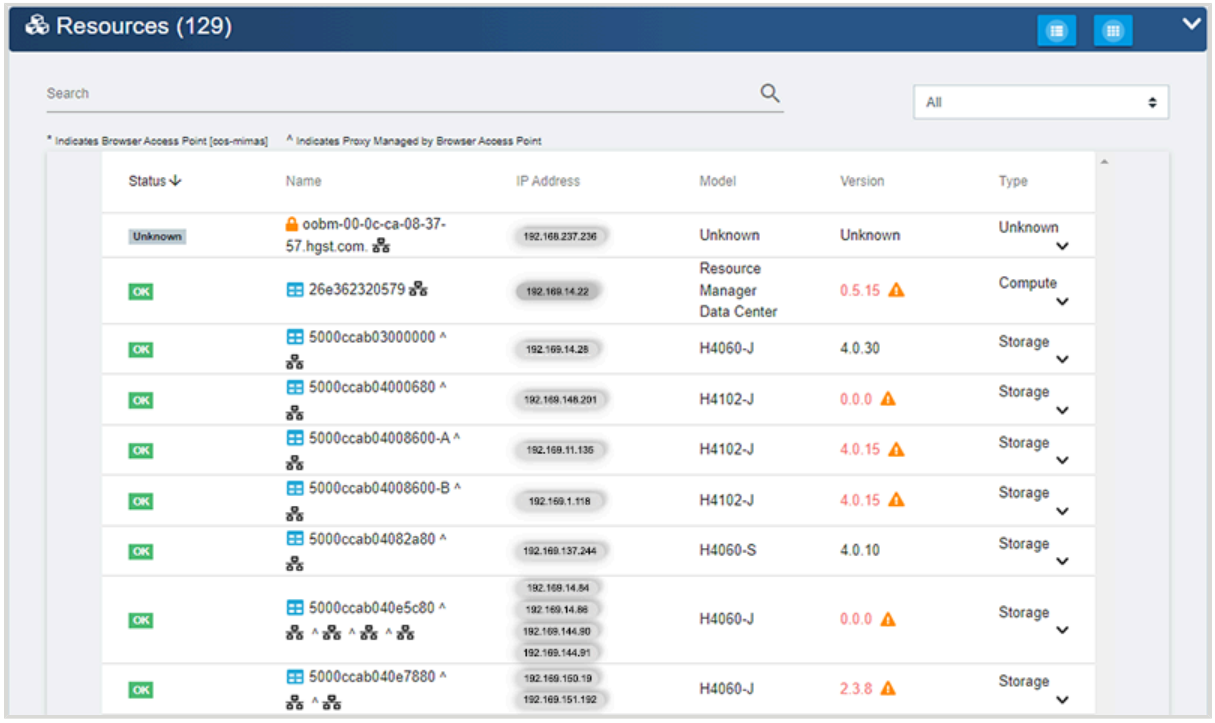
The **Resources** section provides a list of all the compatible devices (resources) discovered on the network.

Figure 18: Resources



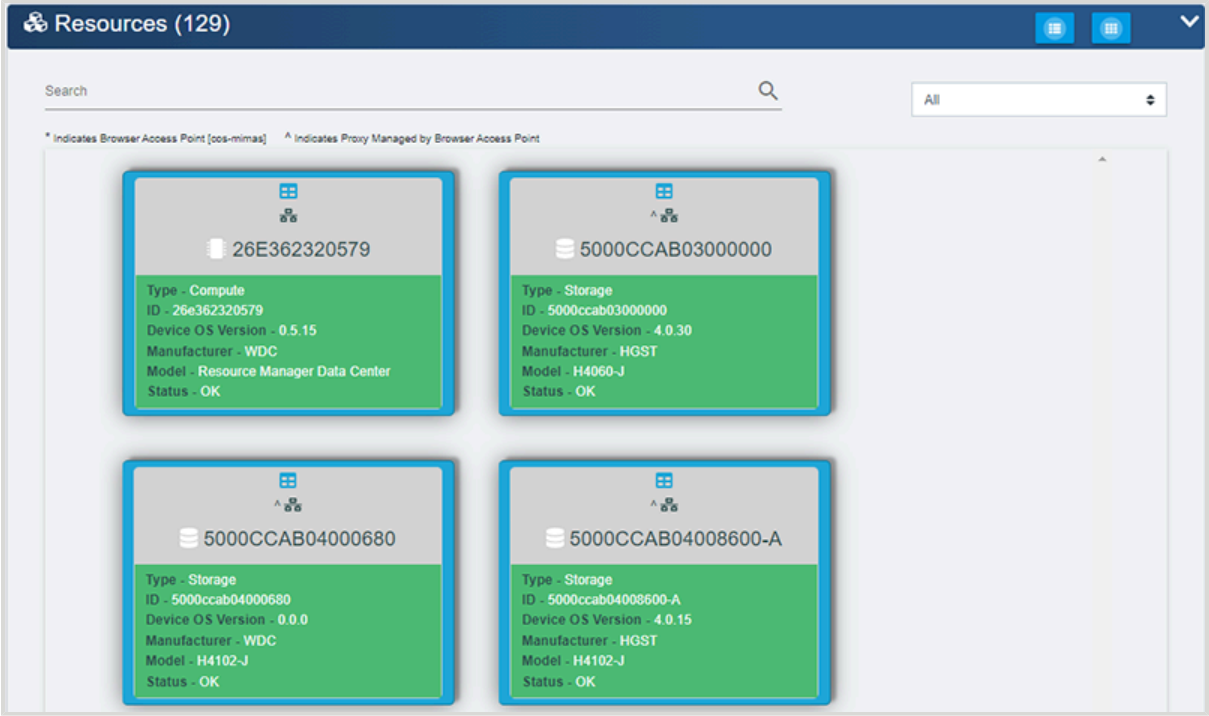
If needed, click the **Resources** bar to expand the list. By default, resources are presented in a list view and sorted by the severity of their health status:

Figure 19: Resources



If desired, click the **Grid View** icon to display resources in a grid view:

Figure 20: Resources

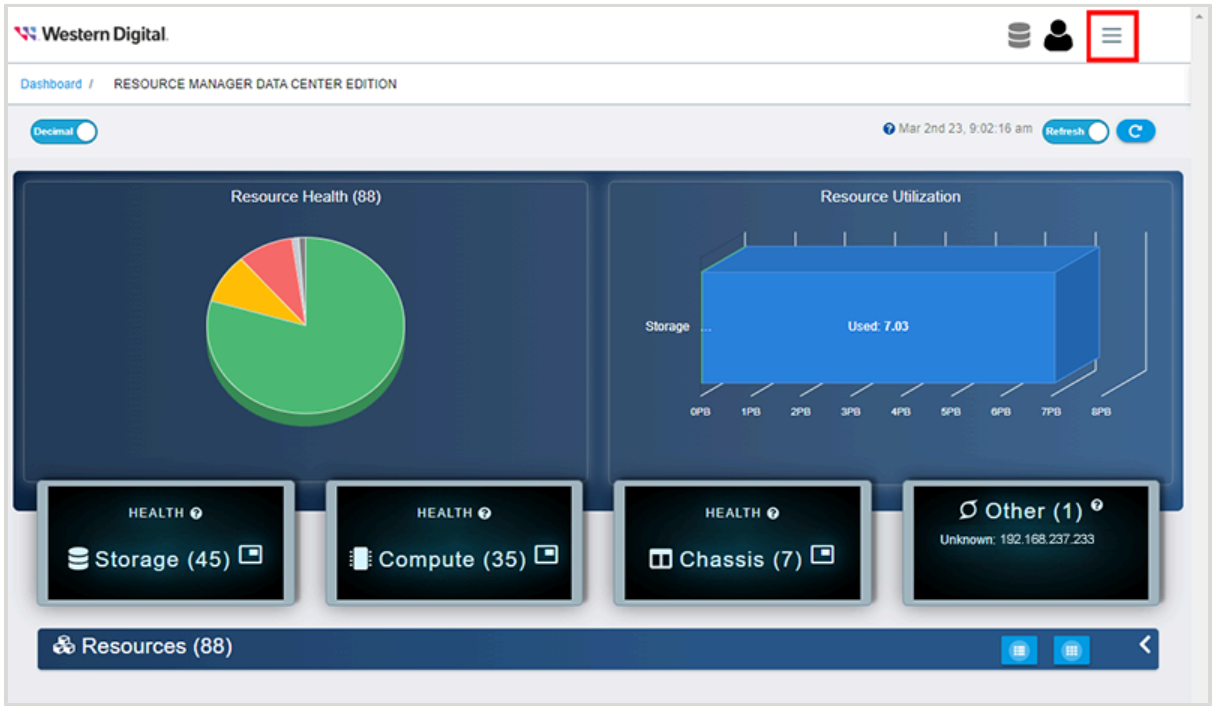


For more information on logging in to devices on the resource list, see Navigating to a Management Server Dashboard *(page 42)*, Navigating to an Enclosure Dashboard (Data Center Edition) *(page 44)*, or Navigating to an Enclosure Dashboard (Standard Edition) *(page 46)*.

Settings

The upper-right section of the dashboard contains a **Settings** icon.

Figure 21: The Settings Menu

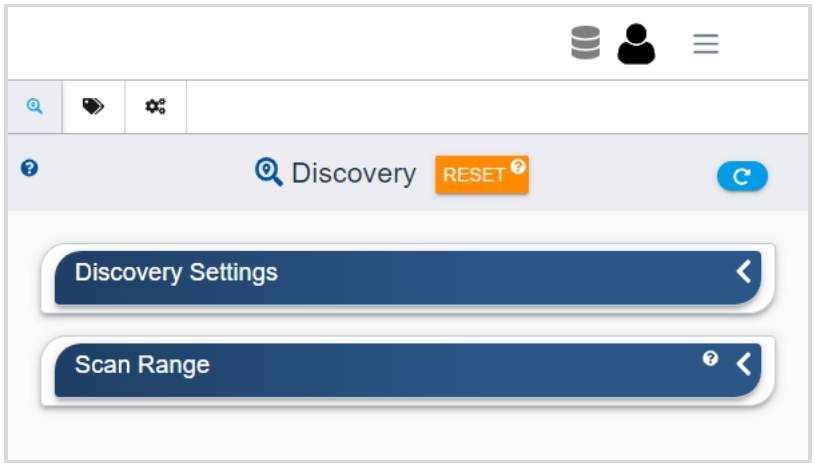


Clicking the **Settings** icon will expand the settings section, which contains tabs for **Discovery**, **Group Management**, and **Group Administration**.

Discovery

The **Discovery** tab contains controls for configuring the scan for resources, with sections for **Discovery Settings** and **Scan Range**.

Figure 22: The Discovery Tab

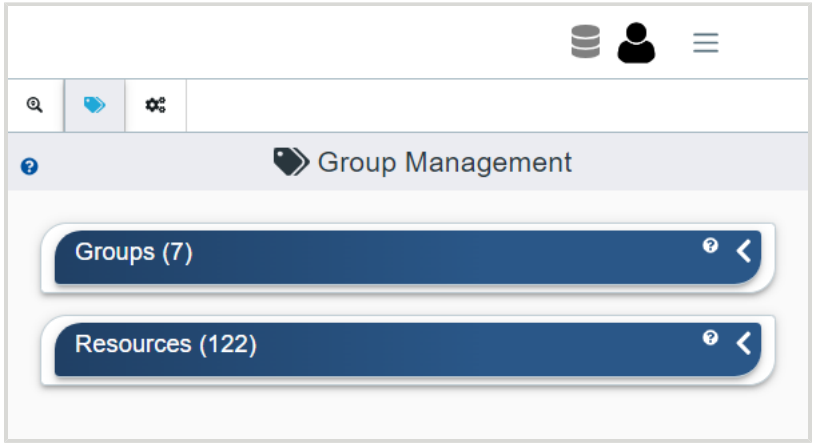


For more information on configuring discovery settings, see Configuring Discovery Settings *(page 30)*.

Group Management

The **Group Management** tab contains controls for creating groups of resources in order to perform operations on multiple resources simultaneously.

Figure 23: The Group Management Tab

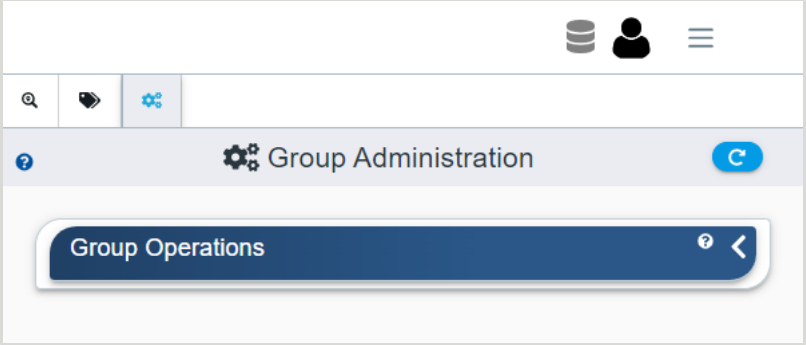


For more information on configuring group management settings, see Creating a Management Group *(page 33)*.

Group Administration

The **Group Administration** tab contains controls for administering operations to the groups of resources created on the **Group Management** tab.

Figure 24: The Group Administration Tab



For more information on configuring group administration settings, see Administering Group Operations *(page 38)*.

3.3 Configuring Discovery Settings

This procedure provides instructions for configuring the settings of the nework scan used to discover supported devices.

Before you begin:

- Follow the instructions for Logging in to the Network Dashboard *(page 18)*.

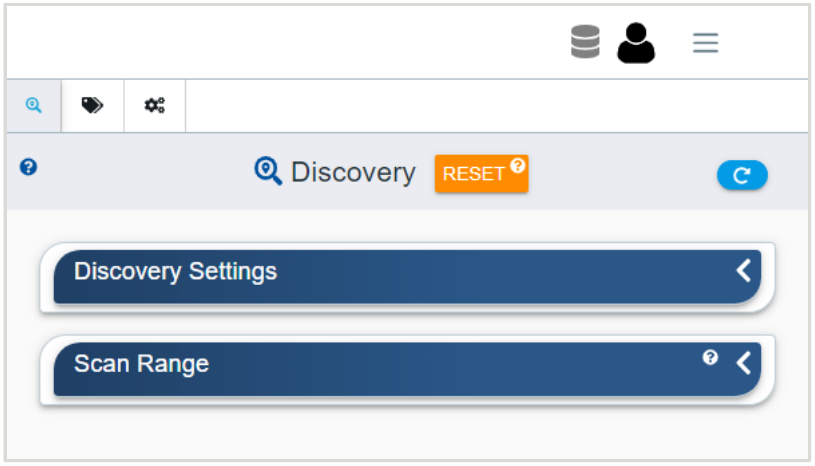
Step 1: From the upper right corner of the network dashboard, click the **Settings** icon.

Figure 25: Settings Icon

The **Settings** section will appear on the right side of the screen, displaying the last visited tab.

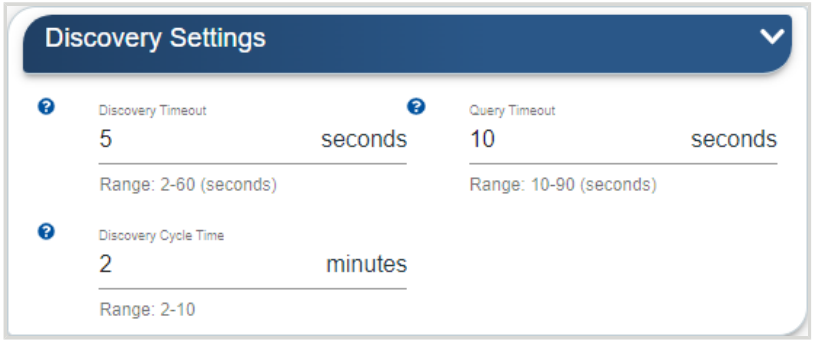
Step 2: If needed, click the **Discovery** tab to view the discovery settings.

Figure 26: Discovery Settings



Step 3: Click to expand the **Discovery Settings** section.

Figure 27: Discovery Settings



Step 4: Use the available fields as follows to configure the settings for the discovery scan:

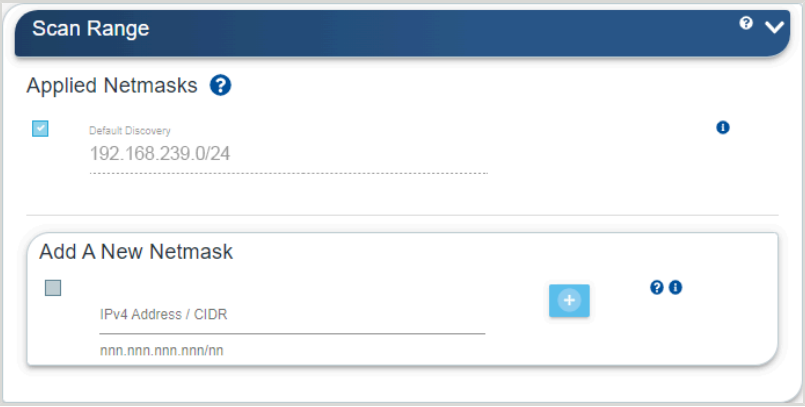
Discovery Timeout: This value determines the *ping* wait time allocated per discovery request to receive a positive response for each **Scan Range** entry. A longer value is suggested when scanning across larger distance networks. Each positive result is captured and used for the query request to retreive the information.

Query Timeout: This value determines the *query for information* wait time allocated per query request to receive the information for each discovered platform/device. A longer value is suggested when scanning across larger distance networks. Once all discovered platform/device information is gathered, the results will be displayed in the **Resources** section at the bottom of the main screen.

Discovery Cycle Time: This value determines how often the entries in the **Scan Range** section are sent to discover resources on the network. See step 5 *(page 31)* for scan range entry instructions.

Step 5 : Click to expand the **Scan Range** section.

Figure 28: Scan Range Section



The scan range determines the width of the network scan for platform/device discovery based on the *IPv4 Address / CIDR* entries and uses the **Discovery Timeout** and **Query Timeout** values during the scanning process. The default scan range is based on the subnet this application is running (e.g. 10.20.30.0/24), where the first three octets indicate the "subnet" and the "/24" indicates the whole subnet (e.g. last octet range of 1 to 254). There can be many disparate scan entries to cover multiple networks across multiple sites, as long as this application has visibility into those networks.

Step 6 : Use the **Add A New Netmask** section to create a new scan range entry to apply to the overall set of enabled scan range entries.

The entry should be based on the *IPv4 Address / CIDR* format. *Invalid Format* will be displayed until the new entry meets the proper criteria. Scan ranges that overlap previous entries will display an **Overlap** icon ( ) at all enabled entries that overlap the network range.

a. If needed, hover over the **Information** icon ( ) on the right to view a CIDR calculator that shows the useable IP address scan range, indicated by *First IP* and *Last IP* values.

b. Use the **Plus** icon to add the new netmask entry to the settings:

Figure 29: Plus Icon

c. Click the checkbox to include the new netmask in the discovery process:

Figure 30: Checkbox

d. Use the **Minus** icon to remove a netmask entry from the settings:

Figure 31: Minus Icon

Result: The settings of the discovery nework scan have now been configured.

3.4 Creating a Management Group

This procedure provides instructions for creating a group of resources for the purpose of administering a group operation.

Before you begin:

- Follow the instructions for Logging in to the Network Dashboard *(page 18)*.

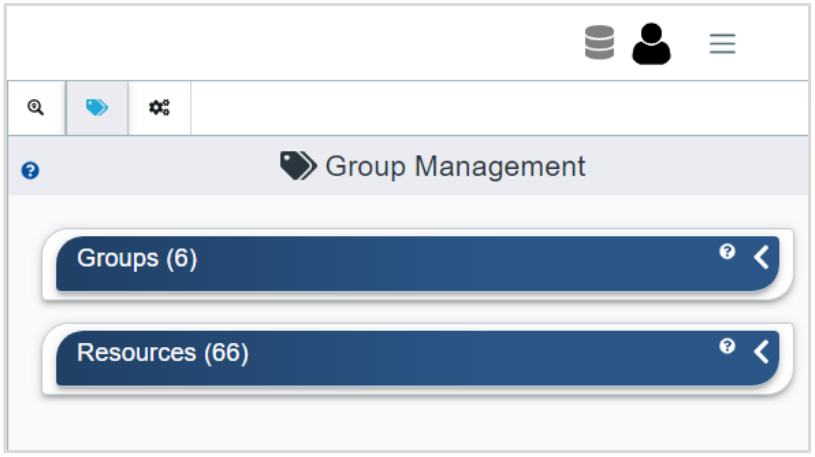
Step 1: From the upper right corner of the network dashboard, click the **Settings** icon.

Figure 32: Settings Icon

The **Settings** section will appear on the right side of the screen, displaying the last visited tab.

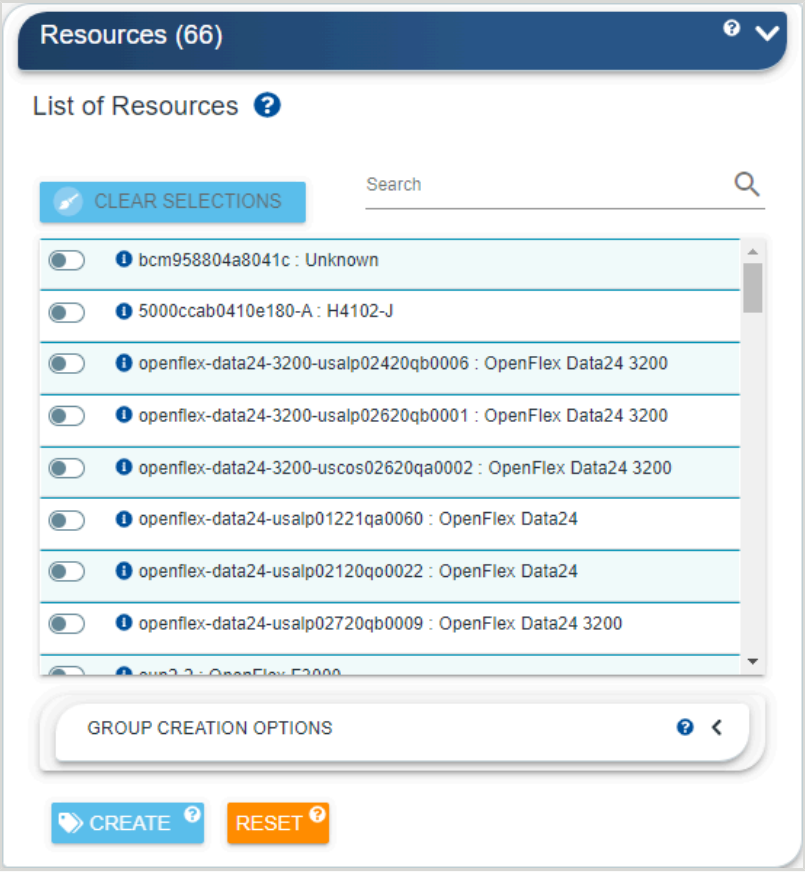
Step 2: If needed, click the **Group Management** tab to view the group management settings.

Figure 33: Group Management Settings



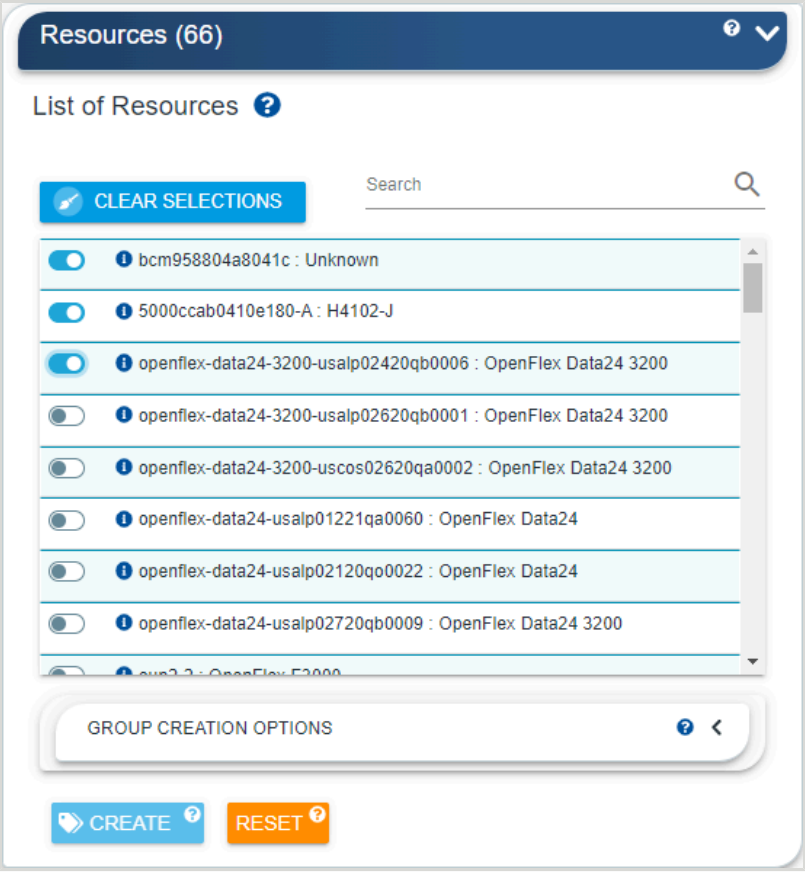
Step 3: Click to expand the **Resources** section.

Figure 34: Resources Section



Step 4 : From the list of discovered resources, use the toggle switches to select which resources will be included in a group.

Figure 35: Selected Resources



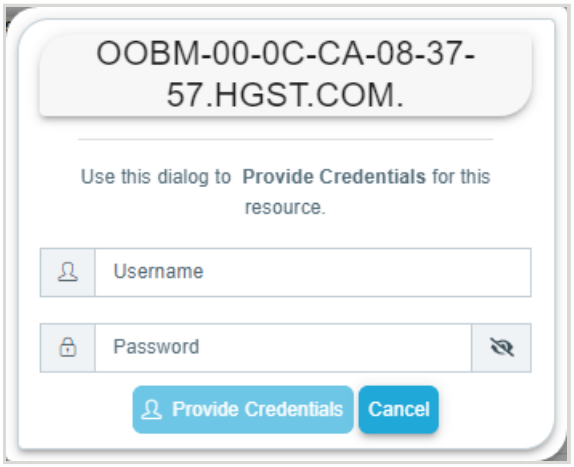
Important: It is possible to create a group of resources that are not of the same type (i.e. a "mixed" group). When administering operations to mixed groups, some operations will not be possible. For example, updating Ultrastar enclosure firmware on a mixed group that contains an OpenFlex enclosure will not be allowed.

Note: When a resource's login credentials don't match those of the Resource Manager Data Center Edition on the management server, the resource's status will appear as *Unauthorized* and a *Lock* icon will be displayed:

Figure 36: Lock Icon

Clicking the *Lock* icon will bring up a dialog box, allowing the user to provide login credentials for that resource.

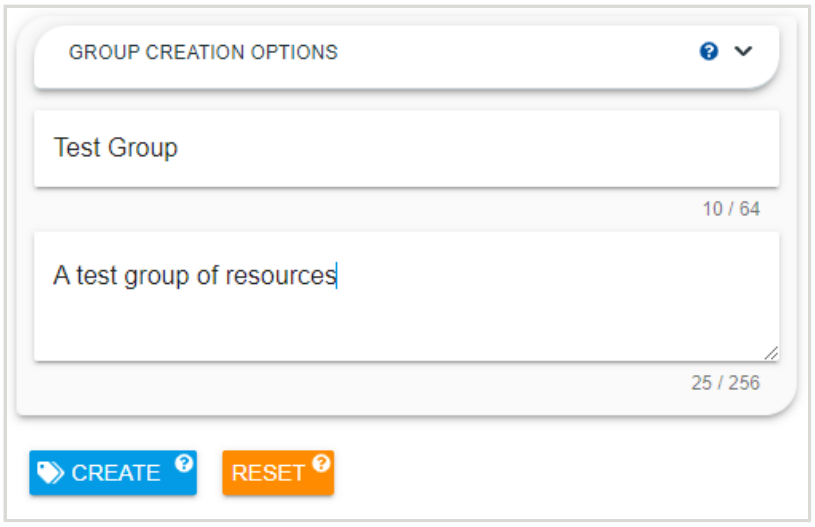
Figure 37: Locked Resource Login Dialog Box



If login credentials are provided, the information for this resource will become available on the next discovery scan.

Step 5 : To give the resource group a name and description, click to expand the **Group Creation Options** section, and enter a name and description into the available fields.

Figure 38: Group Creation Options

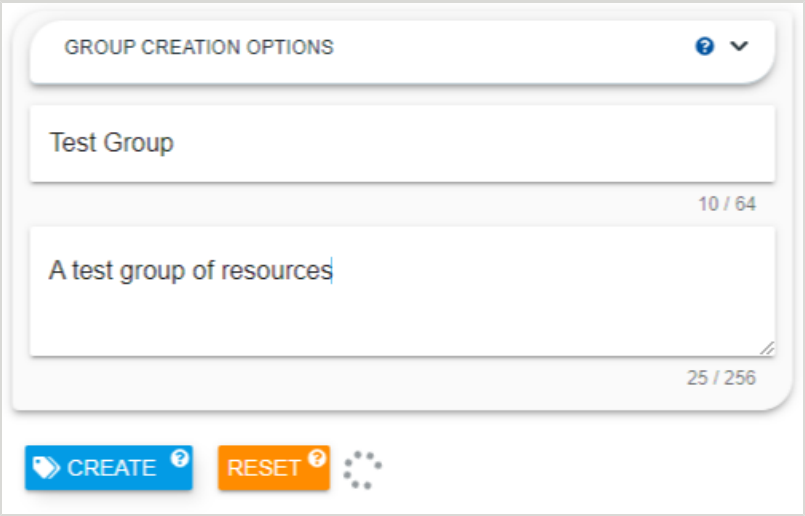


Step 6 : Click the **Create** button.

Figure 39: Create Button

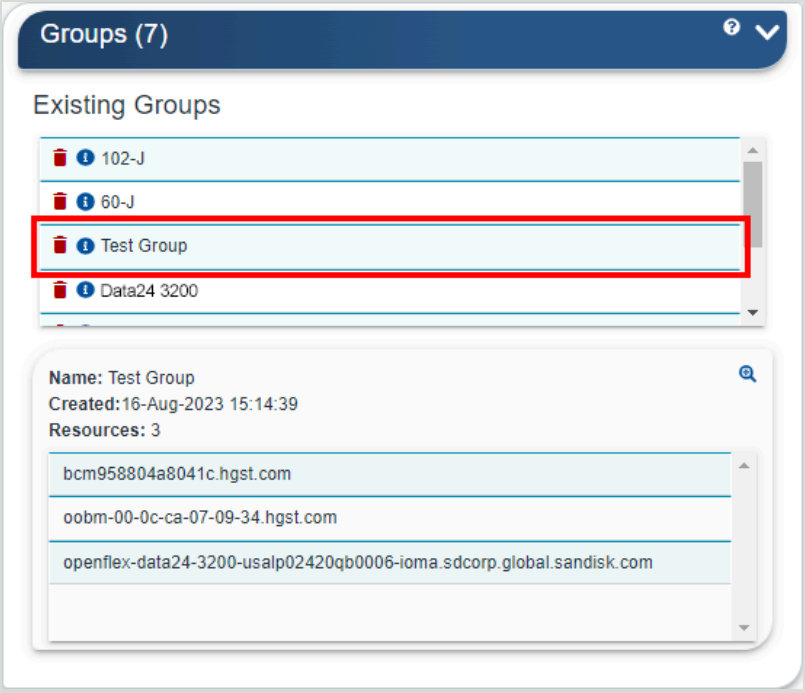
A progress icon will briefly appear while the group is being created. Afterward, the group will become a selectable option in the **Groups** section.

Figure 40: Group Creation Progress Icon



Step 7 : Click to expand the **Groups** section and verify that the new group is available.

Figure 41: Expanded Groups Section



Result: The newly created group is now available for administering group operations to the included resources.

3.5 Administering Group Operations

This procedure provides instructions for administering an operation to a group of resources and tracking the operation progress.

Before you begin:

1. Follow the instructions for Logging in to the Network Dashboard *(page 18)*
2. Follow the instructions for Creating a Management Group *(page 33)*

Note: This procedure demonstrates applying a **Locate LED** task to a group of resources.

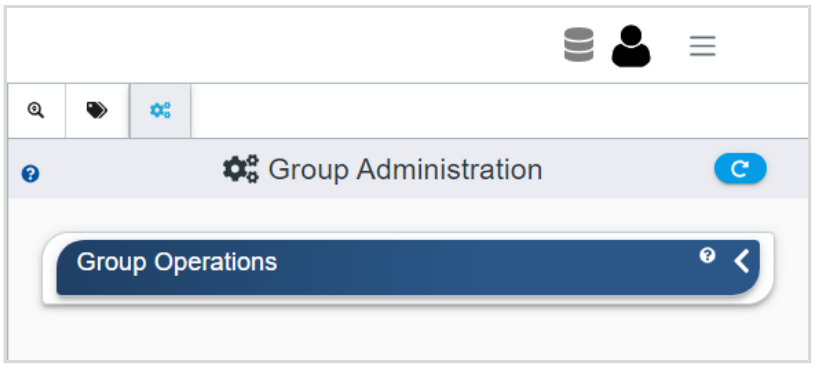
Step 1: From the upper right corner of the network dashboard, click the **Settings** icon.

Figure 42: Settings Icon

The **Settings** section will appear on the right side of the screen, displaying the last visited tab.

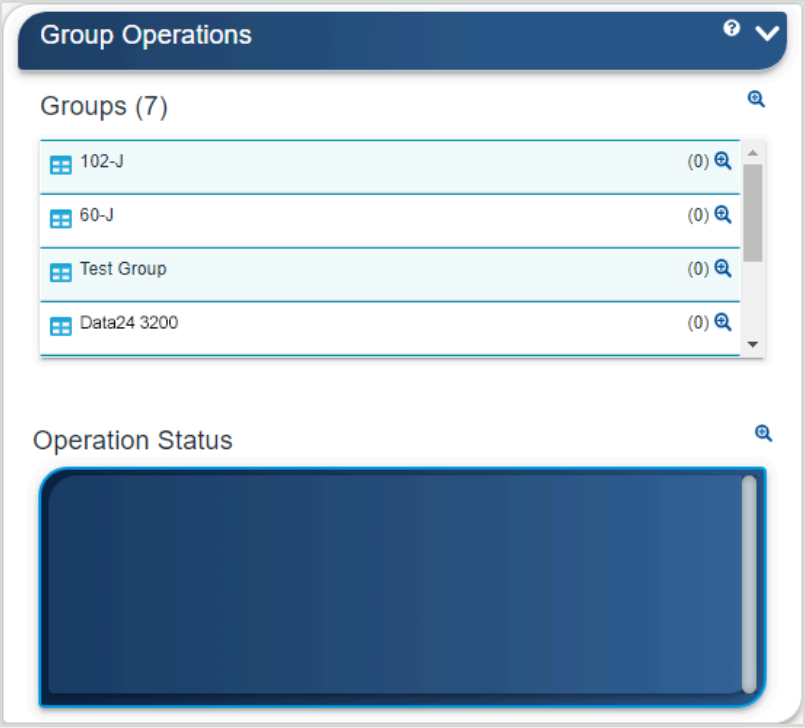
Step 2: If needed, click the **Group Administration** tab to view the group aministration settings.

Figure 43: Group Administration Settings



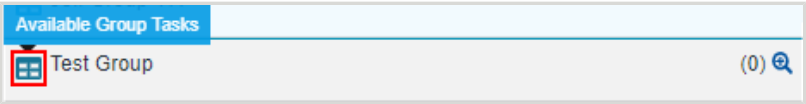
Step 3: Click to expand the **Group Operations** section.

Figure 44: Expanded Group Operations Section



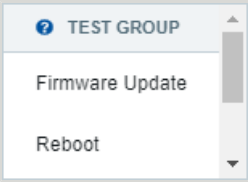
Step 4 : Click the **Group Tasks** icon for the desired group.

Figure 45: Group Tasks Icon



A list of available tasks will be displayed.

Figure 46: Available Group Tasks



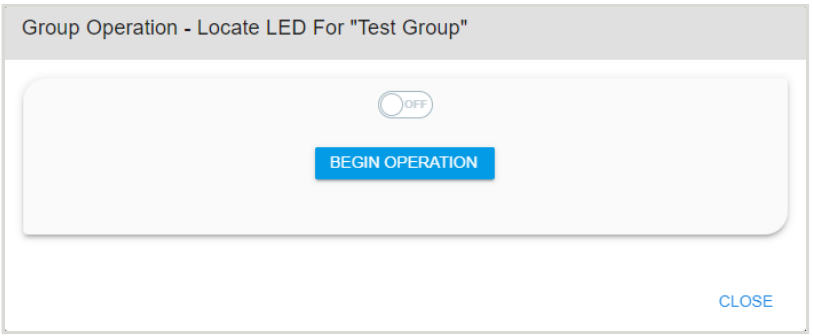
Important: The available tasks are based on the resources that make up the group. Some options may be grayed-out if they cannot be performed on every resource in the group (i.e. updating Ultrastar enclosure firmware on a group that contains an OpenFlex enclosure).

Important: Other options may be allowed even when devices in the group cannot comply with the request (i.e. enabling a locate LED on a device that is in sleep mode or whose LED is already enabled). In such instances, the request will be ignored by those devices.

Step 5 : Scroll to the desired task and click to select it.

A new window will be displayed for that group operation:

Figure 47: Group Operation Window

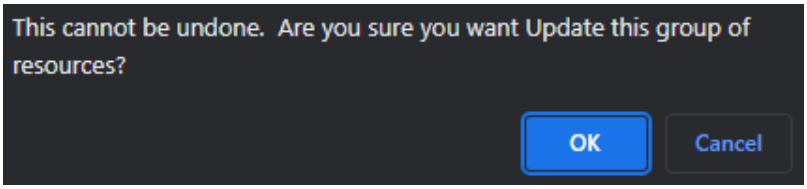


Step 6 : Provide the required information (specific to the task), and click the **Begin Operation** button.

Figure 48: Begin Operation Button

The user will be prompted to confirm the operation:

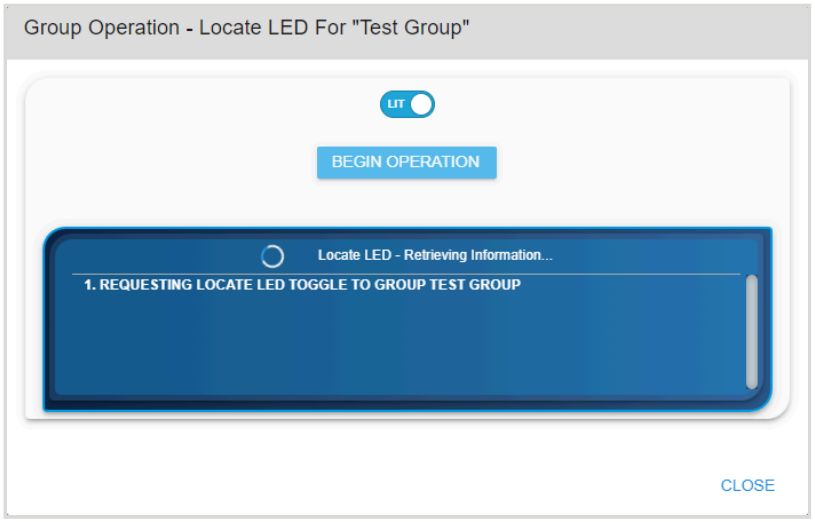
Figure 49: Confirm Operation



Step 7 : Click the **OK** button to confirm the operation.

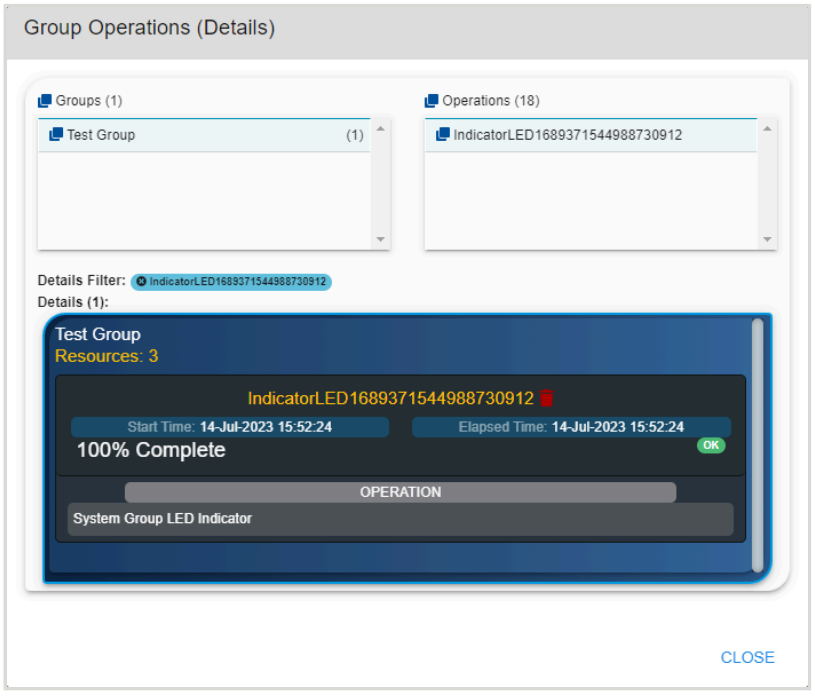
The **Group Operation** window will display the progress of the operation:

Figure 50: Group Operation In Progress



When the operation is complete, the **Group Operations** window will update to show the completed operation:

Figure 51: Group Operation Complete



Step 8 : Click **CLOSE** to close the **Group Operations** window and return to the **Group Administration** settings tab.

Result: The group administration settings have now been configured.

3.6 Navigating to a Management Server Dashboard

This procedure provides instructions for navigating to a central management server's dashboard.

Before you begin:

- Follow the instructions for Logging in to the Network Dashboard *(page 18)*.

Step 1: From the **Resources** list, identify the resource (server) to be accessed.

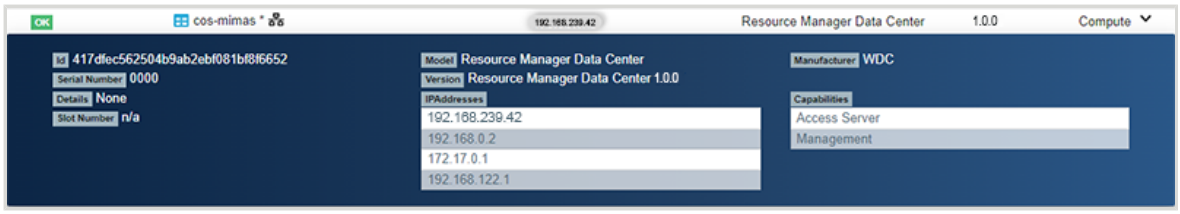
Figure 52: Management Server Details

Tip: Enter the name of the server into the **Search** field to narrow down the **Resources** list for faster searching:

Figure 53: Search Field

Step 2: If needed, click anywhere on the resource row to expand the server details.

Figure 54: Expanded Management Server Details



Step 3: Click the **Device Actions** icon.

Figure 55: Device Actions Icon

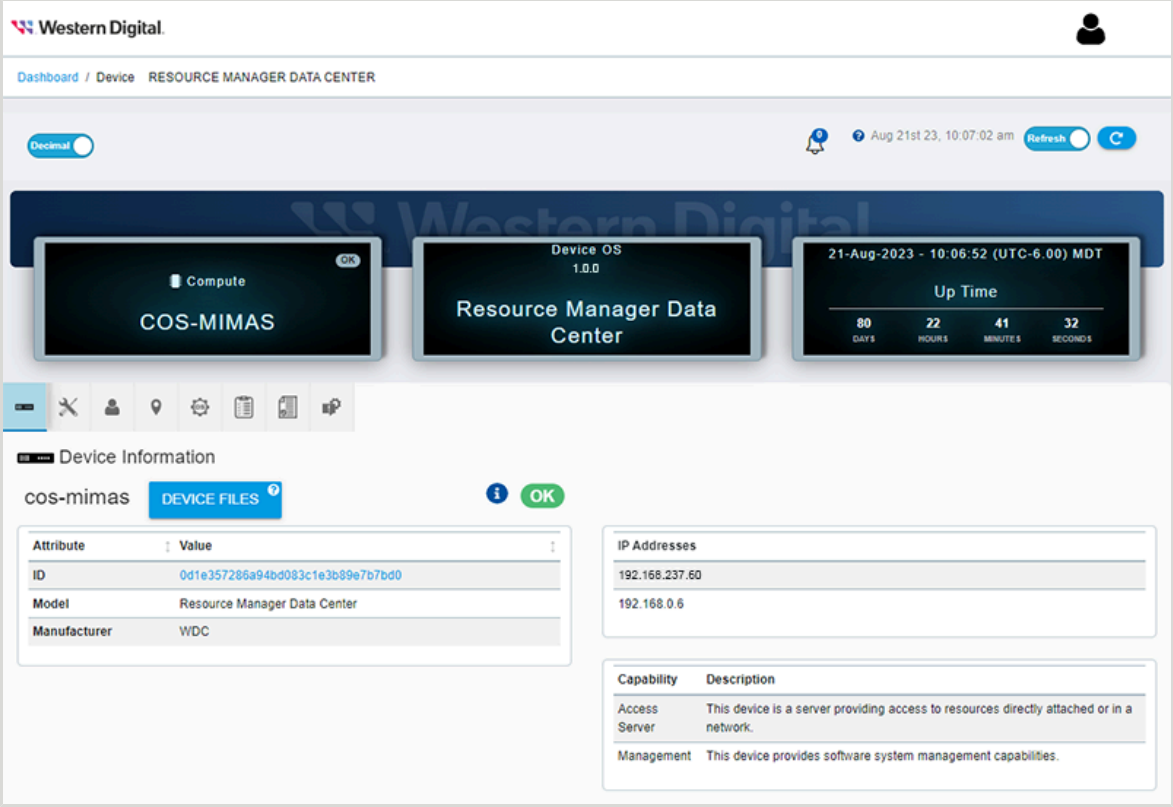
The **Device Actions** window will appear, with options for accessing the server in the current window or a new tab/window.

Figure 56: Device Actions Window

Step 4: Click to select your preferred option.

The server dashboard will appear.

Figure 57: Management Server Dashboard



Step 5 : If desired, bookmark this dashboard in your browser for future use.

What to do next: Proceed to Server Management *(page 48)* for instuctions on performing server-level management operations.

3.7 Navigating to an Enclosure Dashboard (Data Center Edition)

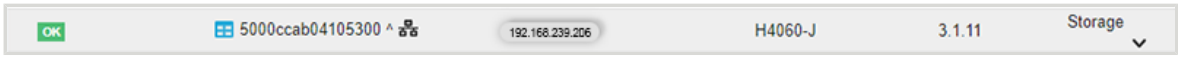
This procedure provides instructions for navigating to an enclosure's dashboard, as presented by a server running Resource Manager Data Center Edition.

Before you begin:

- Follow the instructions for Logging in to the Network Dashboard *(page 18)*.

Step 1: From the **Resources** list, identify the resource (enclosure) to be accessed. The following example is an Ultrastar Data60 storage enclosure.

Figure 58: Enclosure Details

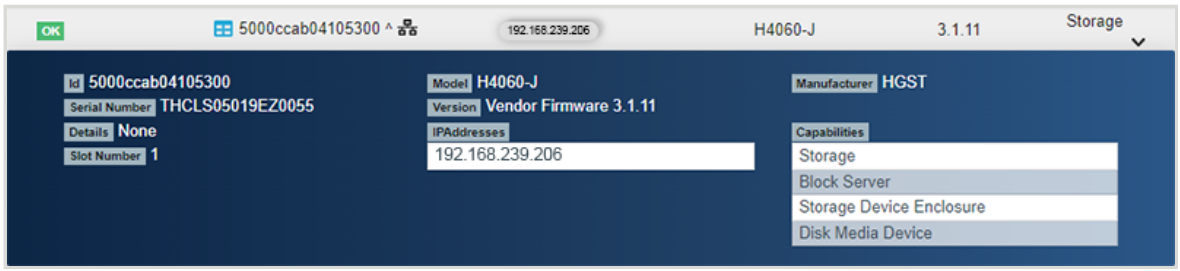


Tip: Enter the name of the enclosure into the **Search** field to narrow down the **Resources** list for faster searching:

Figure 59: Search Field

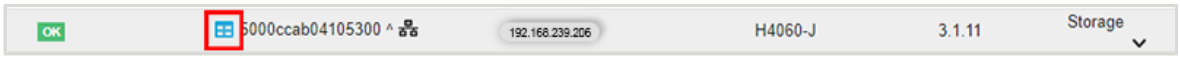
Step 2: If needed, click anywhere on the row to expand the enclosure details.

Figure 60: Expanded Enclosure Details



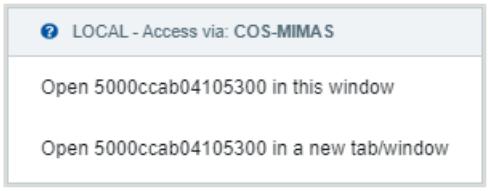
Step 3: Click the **Device Actions** icon.

Figure 61: Device Actions Icon



The **Device Actions** window will appear, with options for accessing the enclosure in the current window or a new tab/window.

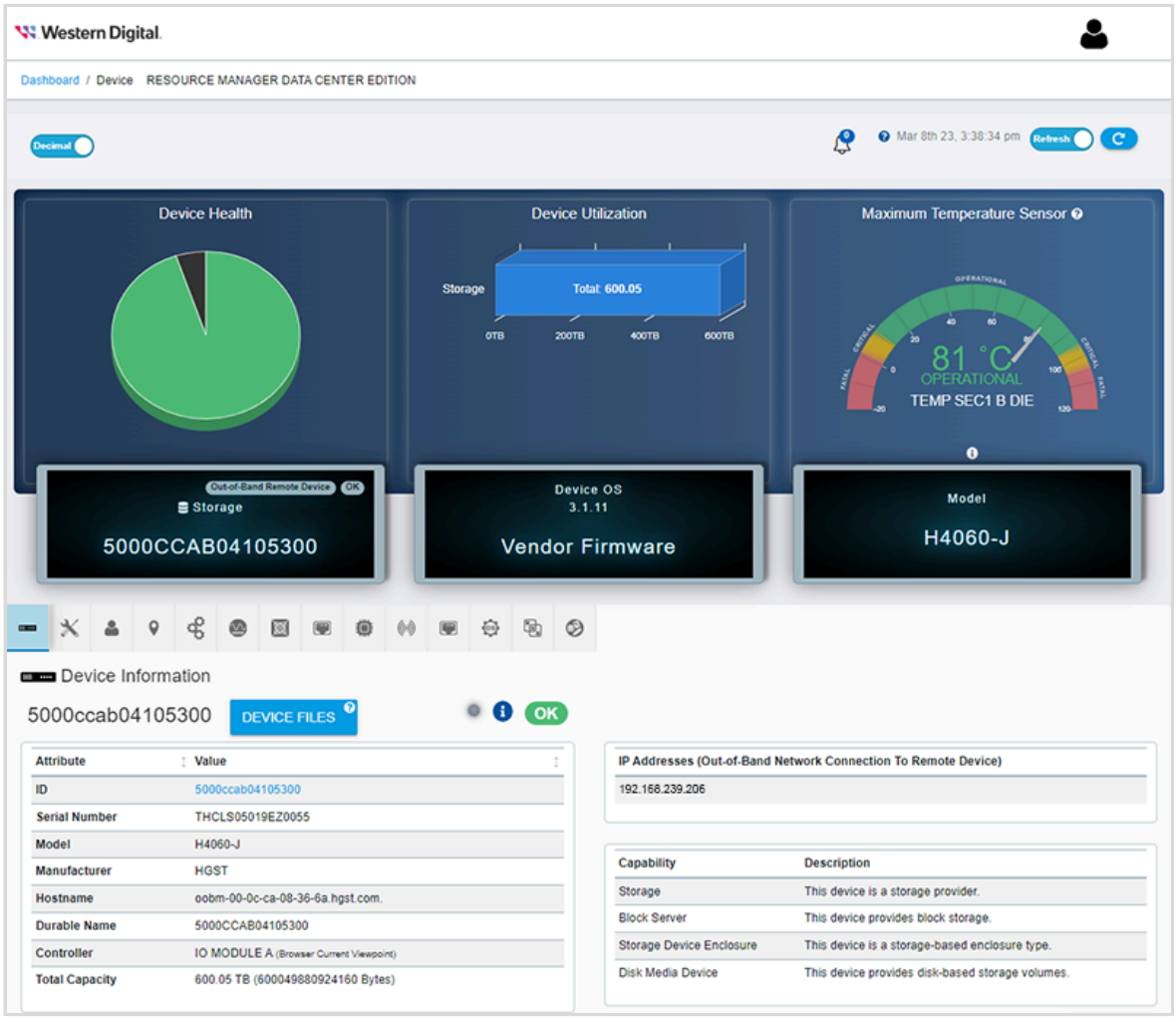
Figure 62: Device Actions Window



Step 4 : Click to select your preferred option.

The enclosure's dashboard will appear.

Figure 63: Enclosure Dashboard



Step 5 : If desired, bookmark this dashboard in your browser for future use.

What to do next: Proceed to Ultrastar Enclosure Out-of-Band Management *(page 166)* or OpenFlex Enclosure Management *(page 107)* for instuctions on performing enclosure-level management operations for your platform type.

3.7.1 Navigating to an Enclosure Dashboard (Standard Edition)

This procedure provides instructions for navigating to an enclosure's dashboard, as presented by a directly attached compute server running Resource Manager Standard Edition.

Before you begin:

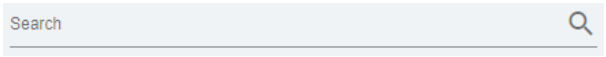
- Follow the instructions for Logging in to the Network Dashboard *(page 18)*.

Step 1: From the **Resources** list, identify the resource (enclosure) to be accessed. The following example is an Ultrastar Data60 storage enclosure.

Figure 64: Enclosure Details

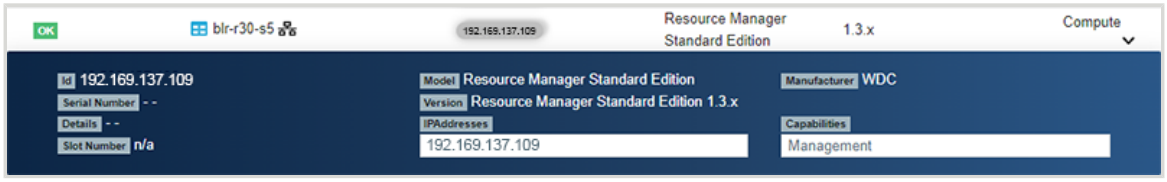
Tip: Enter the name of the enclosure into the **Search** field to narrow down the **Resources** list for faster searching:

Figure 65: Search Field



Step 2: If needed, click anywhere on the row to expand the enclosure details.

Figure 66: Expanded Enclosure Details

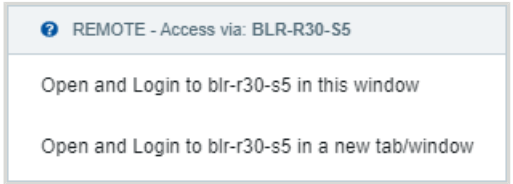


Step 3: Click the **Device Actions** icon.

Figure 67: Device Actions Icon

The **Device Actions** window will appear, with options for accessing the enclosure in the current window or a new tab/window.

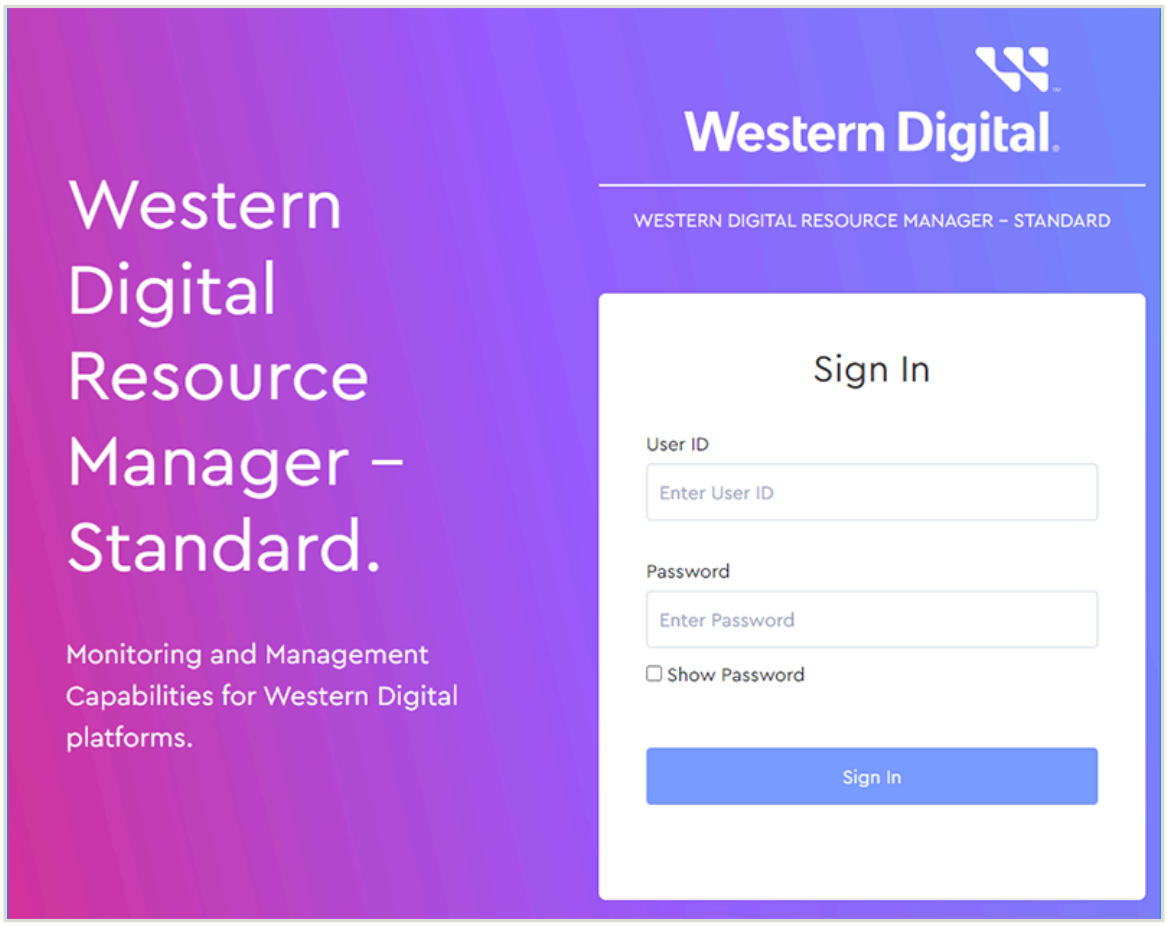
Figure 68: Device Actions Window



Step 4 : Click to select your preferred option.

The enclosure's login screen will appear.

Figure 69: Standard Edition Login Screen



What to do next: See the Resource Manager Standard Edition *User Guide* for instructions on managing enclosures using the Standard Edition software.

Server Management

This chapter provides information and instructions for management operations that can be performed on the central managemnet server using Resource Manager Data Center Edition.

In This Chapter:

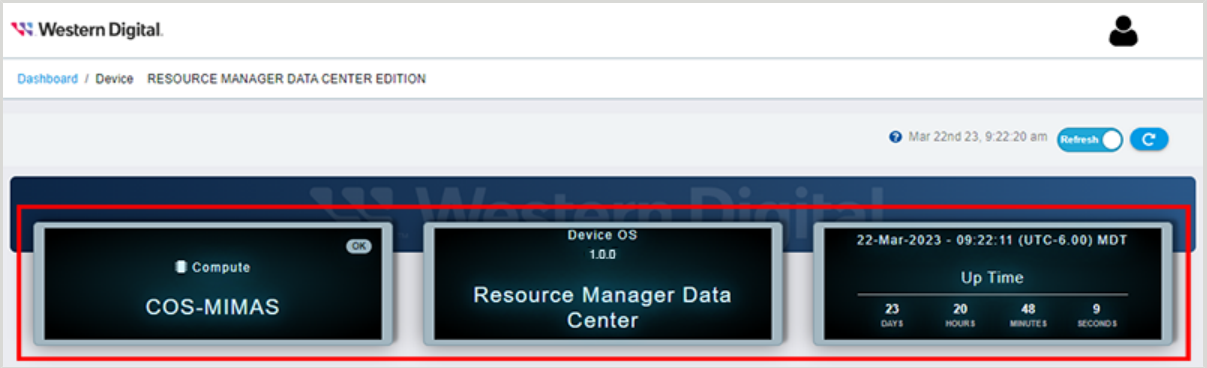
4.1 Overview of Management Server Dashboard

The management server dashboard contains information and controls for managing the server that hosts the Resource Manager Data Center Edition.

Server Information

The upper section of the dashboard contains panels that present basic server information, such as the network device name, Resource Manager Data Center Edition software version, and uptime statistics.

Figure 70: Server Information Panels



Server Management Controls

The bottom portion of the dashboard provides additional server information and management controls, which are organized into the following tabs:

- **Device Information**
- **Administration**
- **Accounts**
- **Location**
- **Device OS**
- **Policies**
- **Assets**

The following sections provide procedures for the most common management actions available from these tabs.

4.2 Device Information

The management server's **Device Information** tab provides general information about the server and its network role, including IP addresses and the version of Resource Manager Data Center Edition running on it.

4.2.1 Viewing & Downloading Logs & Notices

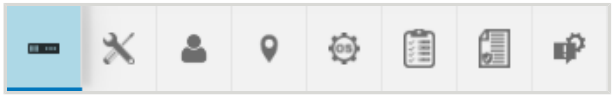
This procedure provides instructions for downloading logs and notices from the management server using the Resource Manager Data Center Edition.

Before you begin:

- Follow the instructions for Navigating to a Management Server Dashboard *(page 42)*.

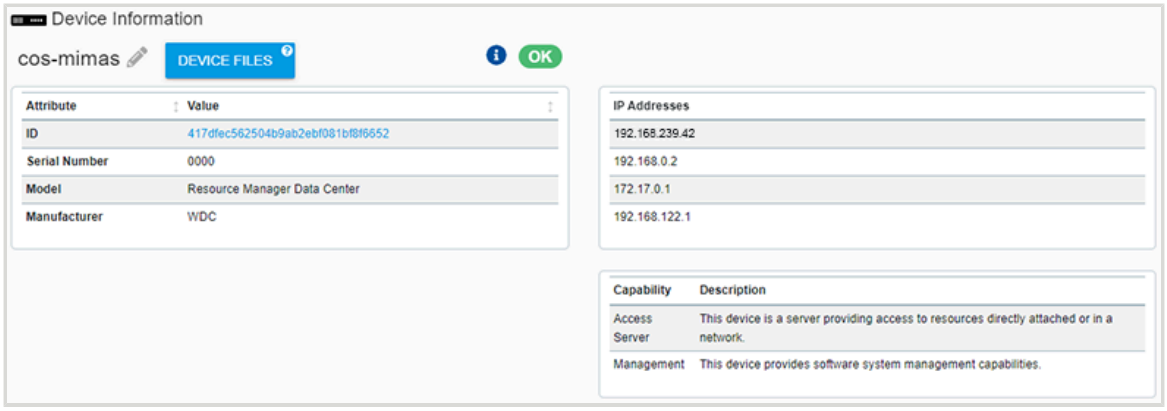
Step 1: From the server dashboard, click the **Device Information** tab.

Figure 71: Device Information Tab



The **Device Information** page will appear:

Figure 72: Device Information Page

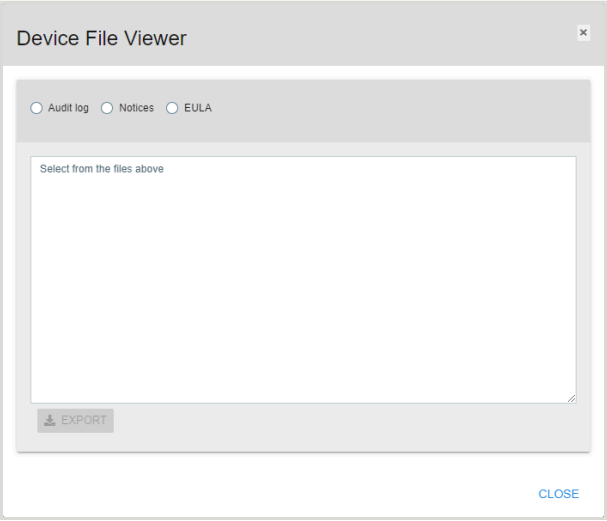


Step 2: Click the **Device Files** button.

Figure 73: Device Files Button

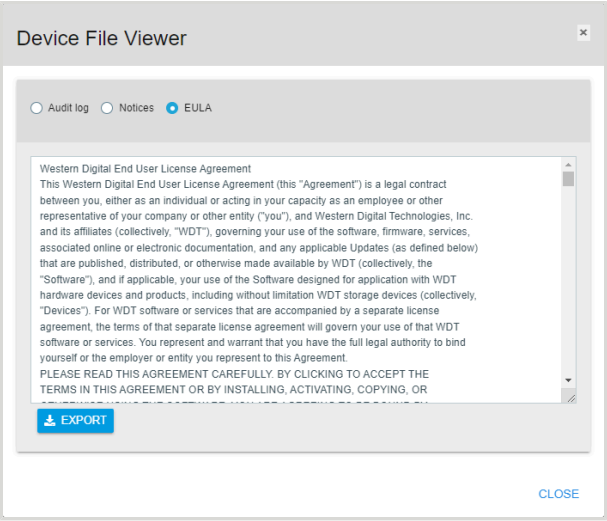
A **Device File Viewer** window will appear:

Figure 74: Device File Viewer



Step 3 : Use the radio buttons at the top to select the audit logs, notices, or the EULA to be viewed/ downloaded. The Resource Manager Data Center Edition will retreive the selected information.

Figure 75: Selecting Files



Step 4 : Click the **Export** button to download the selected files.

Figure 76: Export Button

The appropriate file type will be downloaded to your **Downloads** directory.

Step 5 : Click the **Close** button to close the **Device File Viewer**.

Result: The logs or notices have now been downloaded from the management server.

4.3 Administration

The management server's **Administration** tab provides controls for configuring administration settings, including LDAP/AD and SSL/TLS.

4.3.1 Software Factory Reset

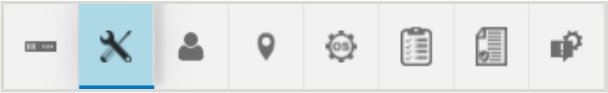
This procedure provides instructions for performing a factory reset of the Resource Manager Data Center Edition software.

Before you begin:

- Follow the instructions for Navigating to a Management Server Dashboard *(page 42)*.

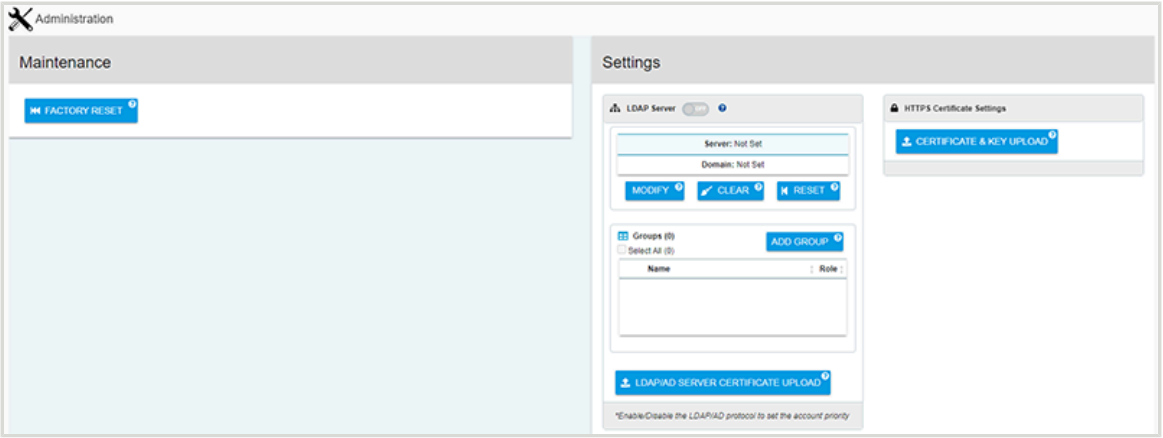
Step 1: From the server dashboard, click the **Administration** tab.

Figure 77: Administration Tab



The **Administration** page will appear:

Figure 78: Administration Page



Step 2: In the **Maintenance** section, click the **Factory Reset** button. This will return Resource Manager Data Center Edition to its original factory settings.

Figure 79: Reset Button

Result: The Resource Manager Data Center Edition has now been returned to factory settings.

4.3.2 Adding an LDAP/AD Group

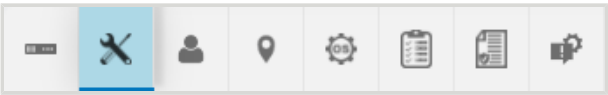
This procedure provides instructions for adding a Lightweight Directory Access Protocol (LDAP) or Active Directory (AD) group to the management server using the Resource Manager Data Center Edition.

Before you begin:

- Follow the instructions for Navigating to a Management Server Dashboard *(page 42)*.

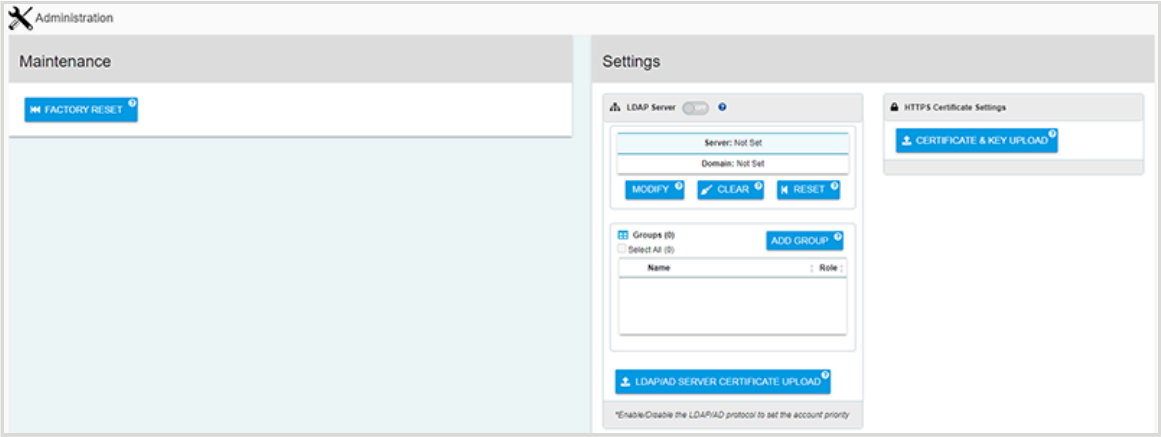
Step 1: From the server dashboard, click the **Administration** tab.

Figure 80: Administration Tab



The **Administration** page will appear:

Figure 81: Administration Page

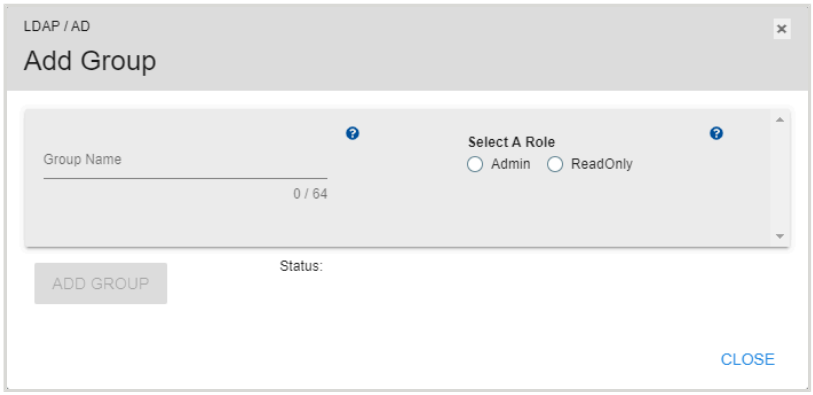


Step 2: In the **Settings** section, click the **Add Group** button.

Figure 82: Add Group Button

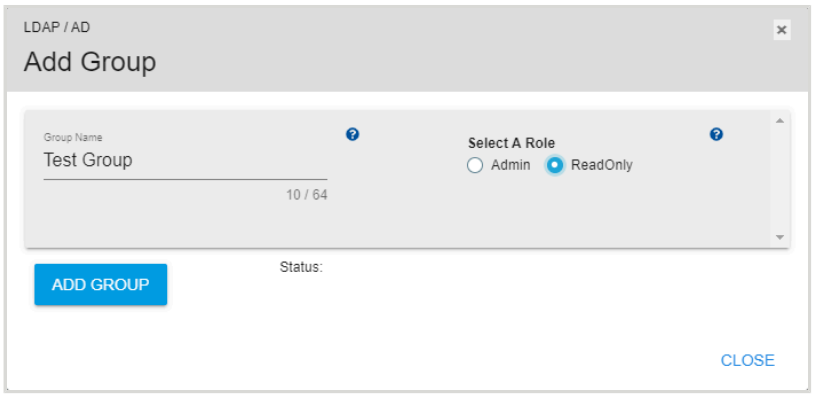
The **Add Group** window will appear:

Figure 83: Add Group Window



Step 3 : Type a name into the **Group Name** field, and use the radio buttons to select a role for the group.

Figure 84: Naming the Group

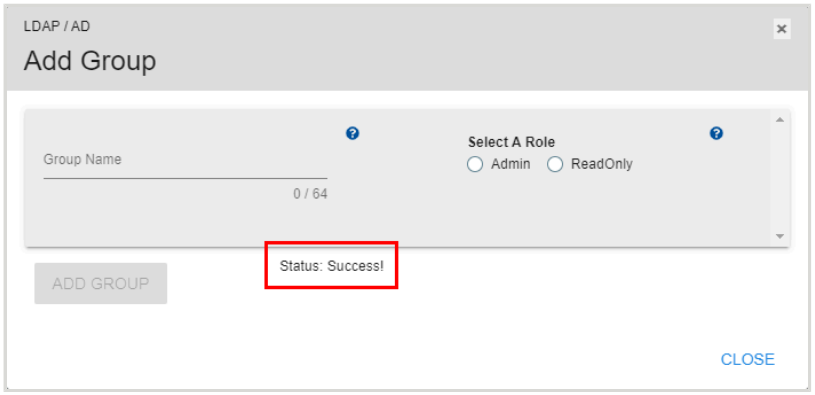


Step 4 : Click the **Add Group** button.

Figure 85: Add Group Button

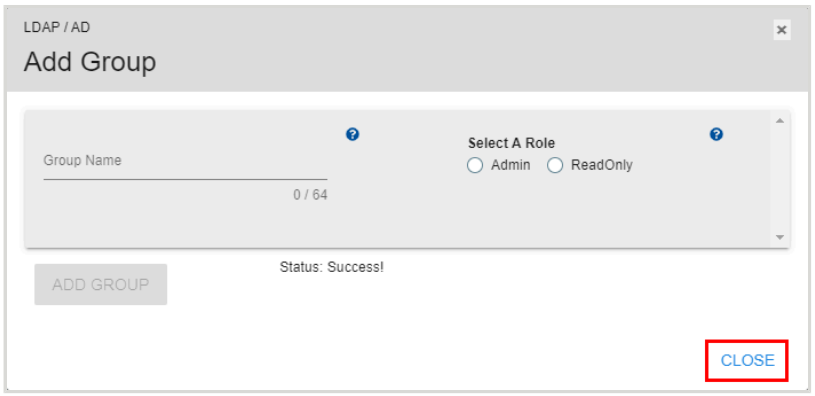
A success message will be displayed:

Figure 86: Successful Addition of Group



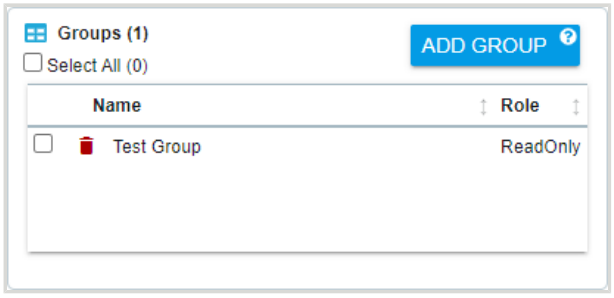
Step 5 : Click **Close** to close the **Add Group** window.

Figure 87: Closing the Add Group Window



Step 6 : In the **Settings** section, under **Groups**, verify that LDAP/AD group has been created.

Figure 88: Verifying the Group



Result: The LDAP/AD group has now been added to the server.

4.3.3 Configuring LDAP/AD Settings

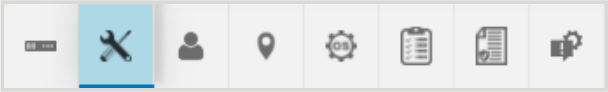
This procedure provides instructions for configuring Lightweight Directory Access Protocol (LDAP) or Active Directory (AD) connection settings on the management server using the Resource Manager Data Center Edition.

Before you begin:

1. Follow the instructions for Navigating to a Management Server Dashboard *(page 42)*.
2. Follow the instructions for Adding an LDAP/AD Group *(page 53)*.

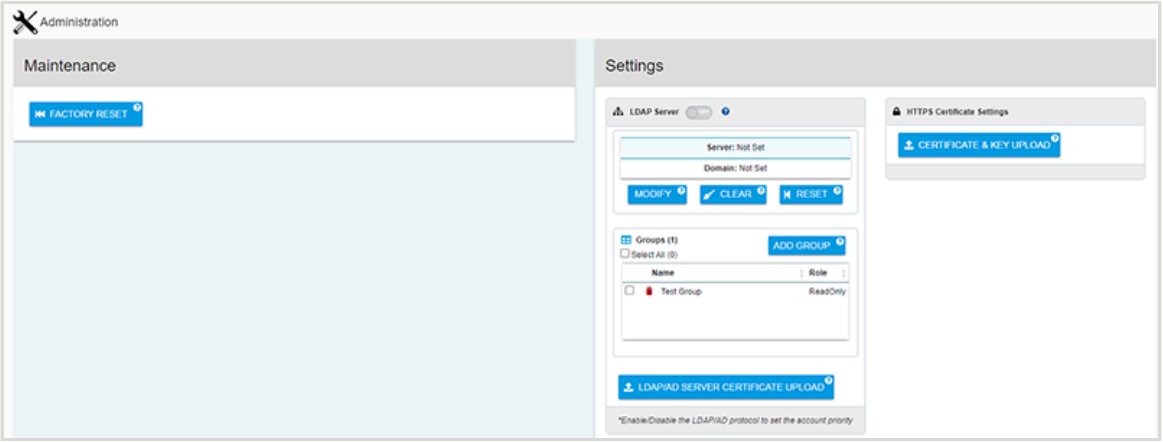
Step 1: From the server dashboard, click the **Administration** tab.

Figure 89: Administration Tab



The **Administration** page will appear:

Figure 90: Administration Page

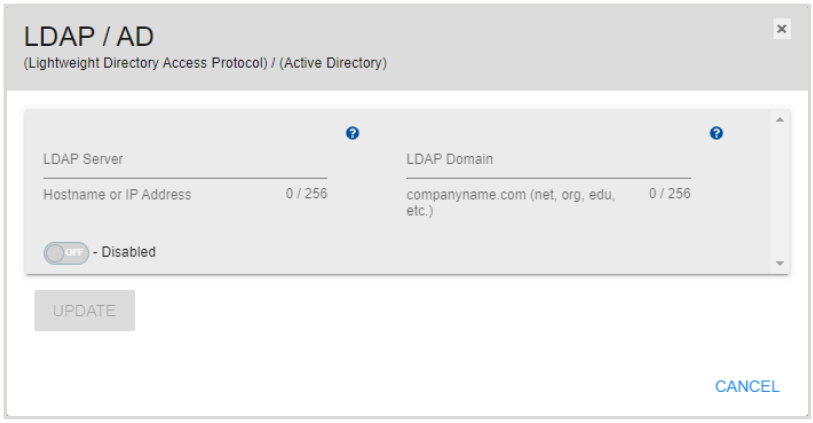


Step 2: In the **Settings** section, under **LDAP Server**, click the **Modify** button.

Figure 91: Modify Button

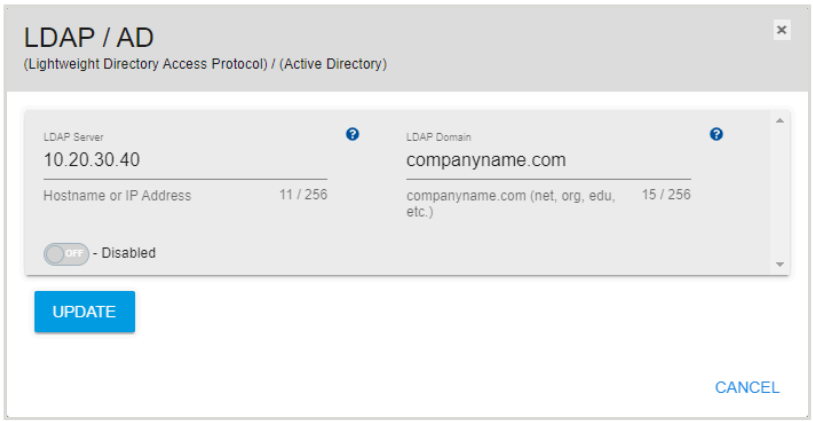
An **LDAP / AD** window will appear:

Figure 92: LDAP / AD Window



Step 3 : Type the hostname or IP address of the LDAP/AD server into the **LDAP Server** field, and type the LDAP/AD domain name into the **LDAP Domain** field.

Figure 93: Populated LDAP / AD Window

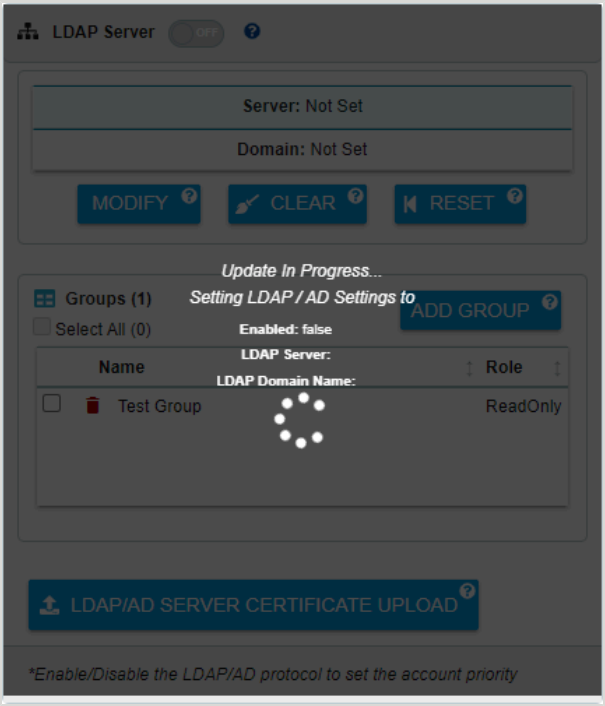


Step 4 : Click the **Update** button to save the LDAP/AD configuration.

Figure 94: Update Button

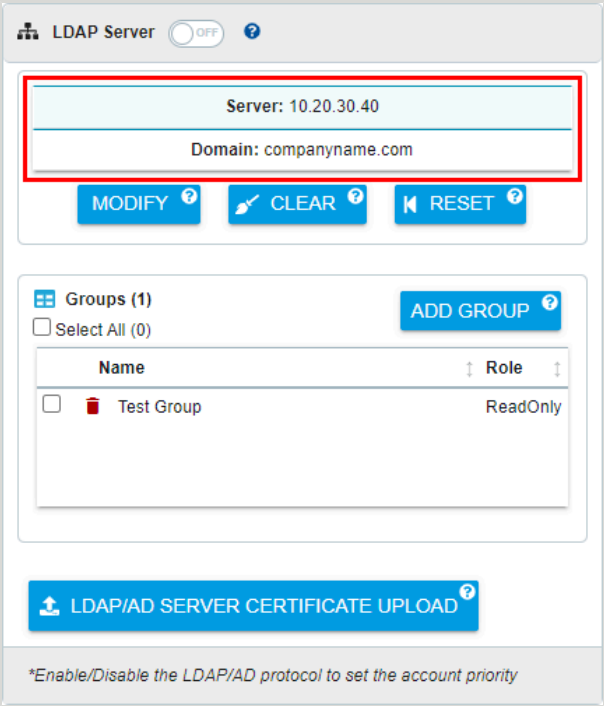
The **LDAP Server** section will be overlaid with a modal, showing that the update is in progress:

Figure 95: LDAP / AD Update Progress



When the update is complete, the **LDAP Server** section will display the new settings:

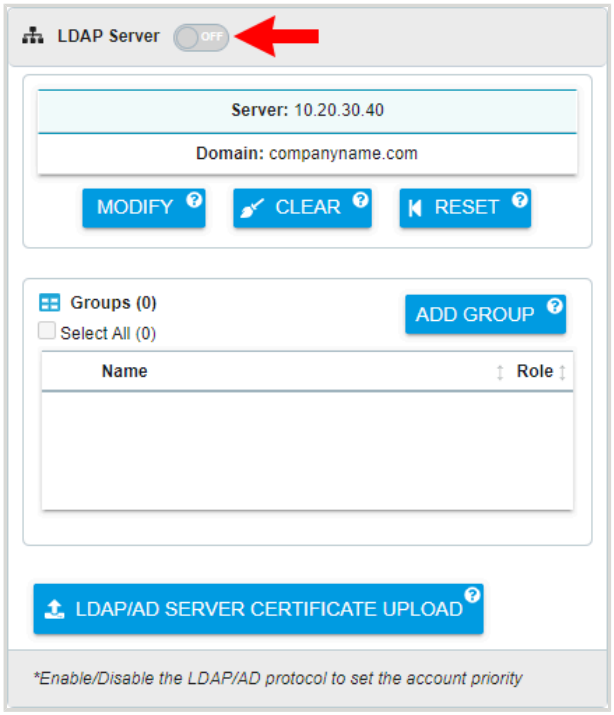
Figure 96: Updated LDAP / AD Settings



Step 5 : To enable the new configuration, click to toggle the **LDAP Server** switch to the **ON** position.

Note: To enable an LDAP/AD configuration, at least one LDAP/AD group must be configured.

Figure 97: Toggle Switch



Result: The Lightweight Directory Access Protocol (LDAP) or Active Directory (AD) connection settings have now been configured.

4.3.4 Uploading an LDAP/AD Certificate

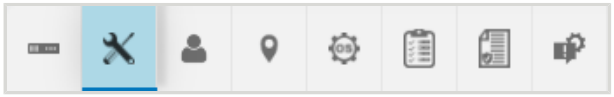
This procedure provides instructions for uploading a Lightweight Directory Access Protocol (LDAP) or Active Directory (AD) certificate to the management server using the Resource Manager Data Center Edition.

Before you begin:

1. Follow the instructions for Navigating to a Management Server Dashboard *(page 42)*.

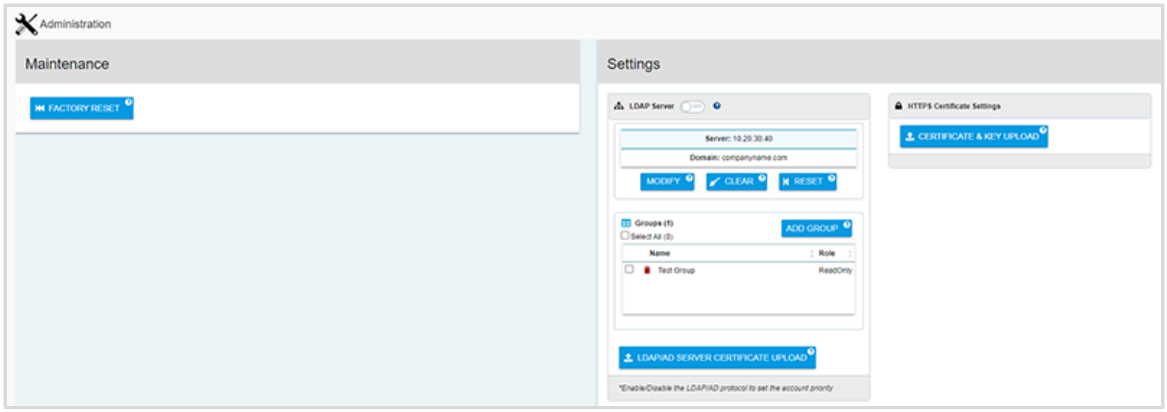
Step 1: From the server dashboard, click the **Administration** tab.

Figure 98: Administration Tab



The **Administration** page will appear:

Figure 99: Administration Page

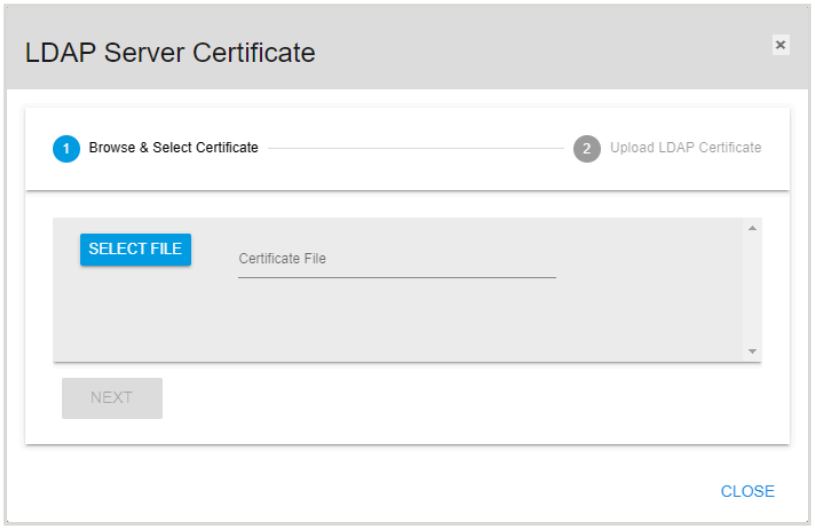


Step 2: In the **Settings** section, under **LDAP Server**, click the **LDAP/AD Server Certificate Upload** button.

Figure 100: LDAP/AD Server Certificate Upload Button

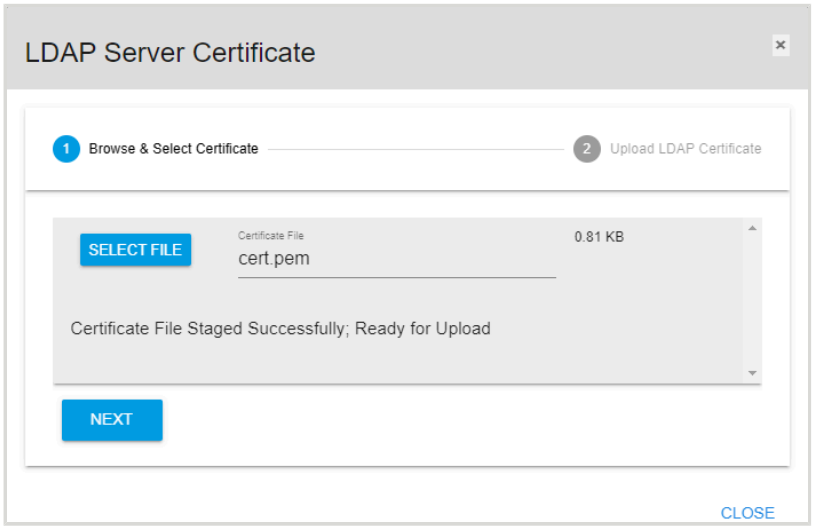
An **LDAP Server Certificate** window will appear, showing step 1 of 2:

Figure 101: LDAP / AD Window



Step 3 : Either type the certificate filename into the **Certificate File** field, or click the **Select File** button to browse to the certificate and select it.

Figure 102: Selected Certificate File

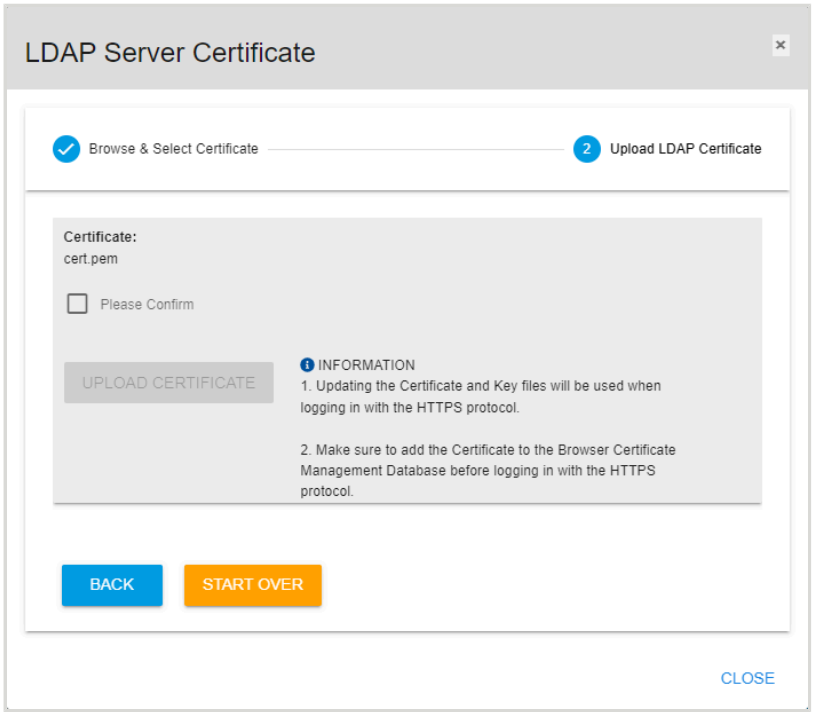


Step 4 : Click the **Next** button.

Figure 103: Next Button

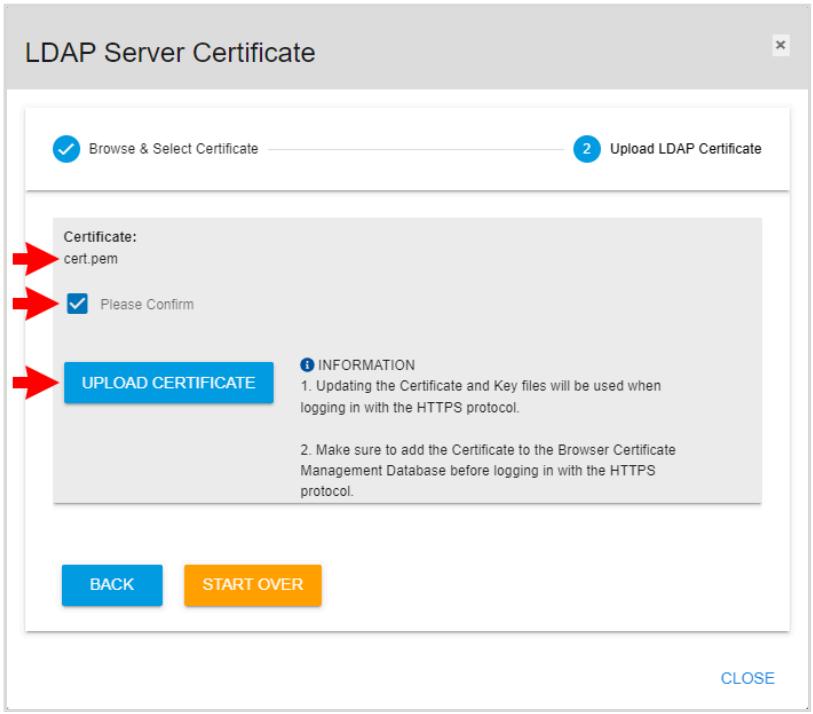
The **LDAP Server Certificate** window will proceed to step 2:

Figure 104: Confirm Certificate



Step 5 : Review the selected certificate file name. If correct, click the **Please Confirm** checkbox and then click the **Upload Certificate** button to upload the certificate.

Figure 105: Confirm Certificate Upload



Result: The Lightweight Directory Access Protocol (LDAP) or Active Directory (AD) certificate has now been uploaded to the management server.

4.3.5 Uploading an HTTPS Certificate & Key

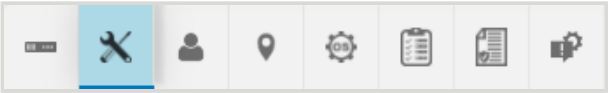
This procedure provides instructions for uploading an SSL/TLS certificate and key pair to the management server using the Resource Manager Data Center Edition.

Before you begin:

- Follow the instructions for Navigating to a Management Server Dashboard *(page 42)*.

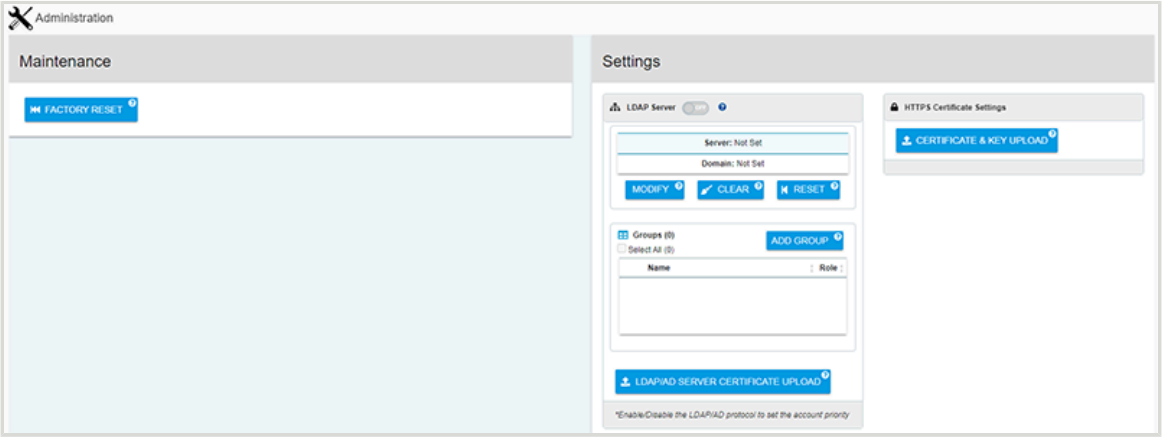
Step 1: From the server dashboard, click the **Administration** tab.

Figure 106: Administration Tab



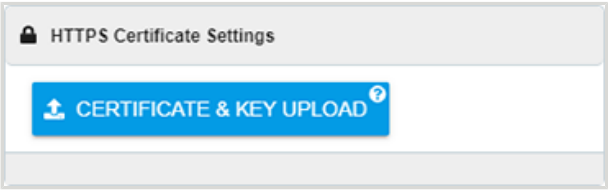
The **Administration** page will appear:

Figure 107: Administration Page



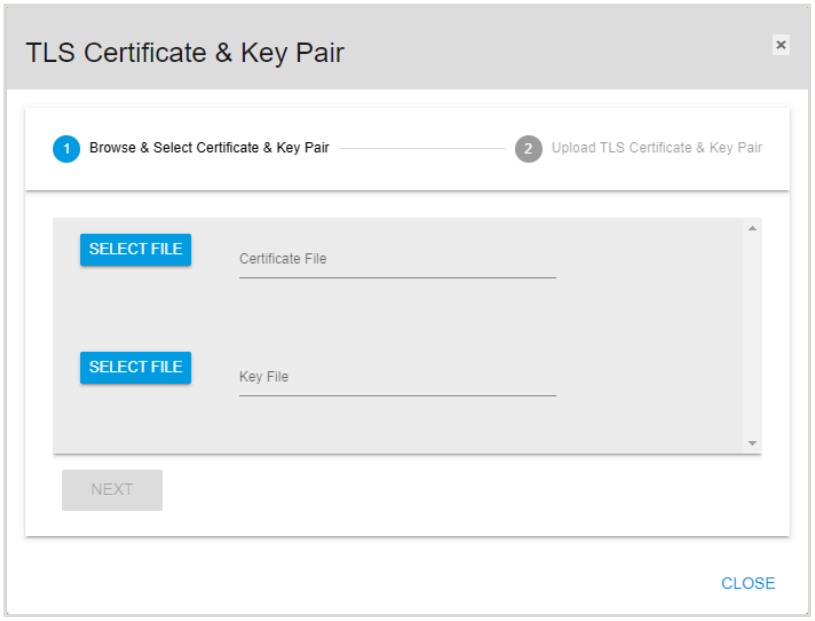
Step 2: Under **Settings**, in the **HTTPS Certificate Settings** section, click the **Certificate & Key Upload** button.

Figure 108: Certificate & Key Upload Button



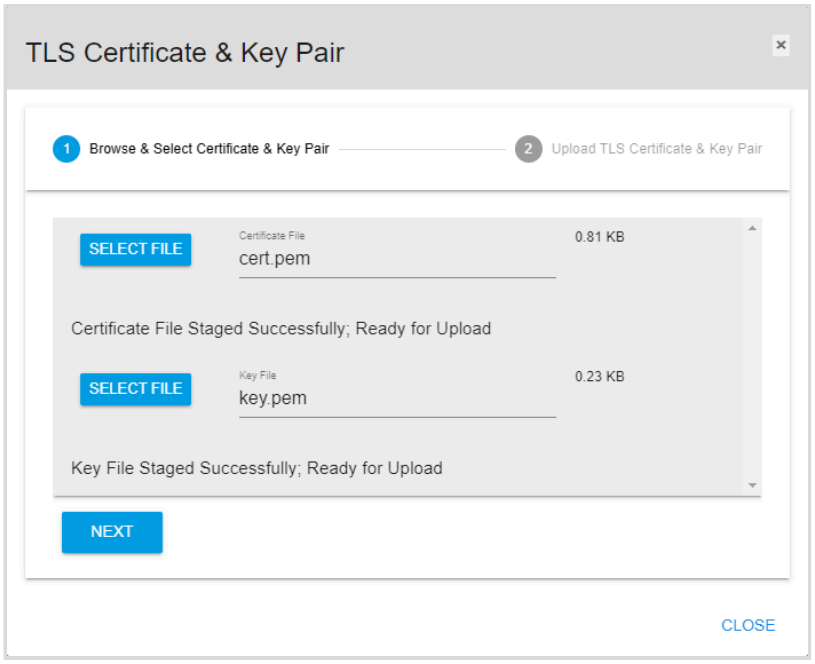
A **TLS Certificate & Key Pair** window will appear, showing step 1 of the upload process:

Figure 109: TLS Certificate & Key Pair Window



Step 3 : Click the **Select File** buttons to browse to the desired certificate and key files on the host system.

Figure 110: Certificate & Key Files Selected

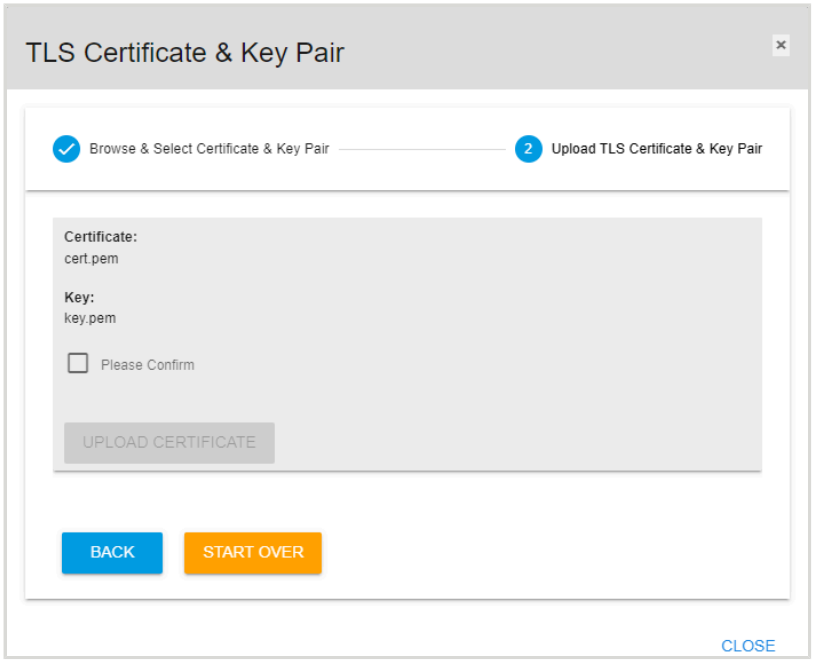


Step 4 : Click the **Next** button.

Figure 111: Next Button

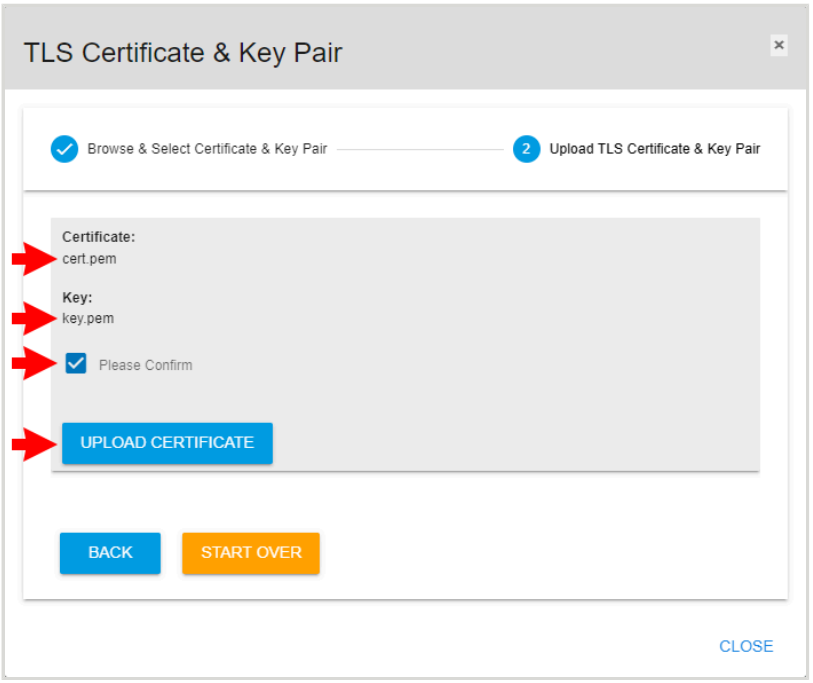
The **TLS Certificate & Key Pair** window will update to show step 2 of the upload process:

Figure 112: Confirm Certificate & Key Files



Step 5 : Review the selected certificate and key file names. If correct, click the **Please Confirm** checkbox and then click the **Upload Certificate** button to upload the pair of files.

Figure 113: Upload Certificate & Key Files



Result: The SSL/TLS certificate and key pair have now been uploaded to the management server.

4.4 Accounts

The management server's **Accounts** tab provides controls for configuring admin and user account access to the server.

4.4.1 Creating a User Account

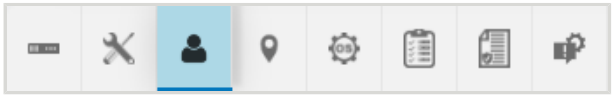
This procedure provides instructions for creating a user account on the management server using Resource Manager Data Center Edition.

Before you begin:

- Follow the instructions for Navigating to a Management Server Dashboard *(page 42)*.

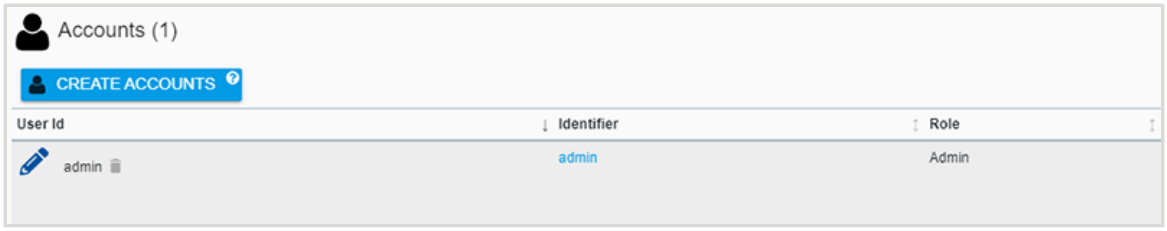
Step 1: From the server dashboard, click the **Accounts** tab.

Figure 114: Accounts Tab



The **Accounts** page will appear:

Figure 115: Accounts Page

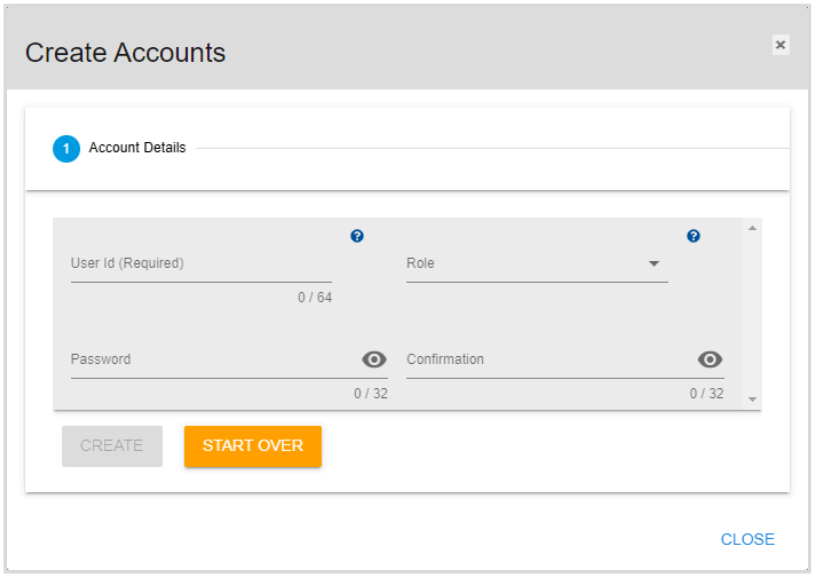


Step 2: Click the **Create Accounts** button.

Figure 116: Create Accounts Button

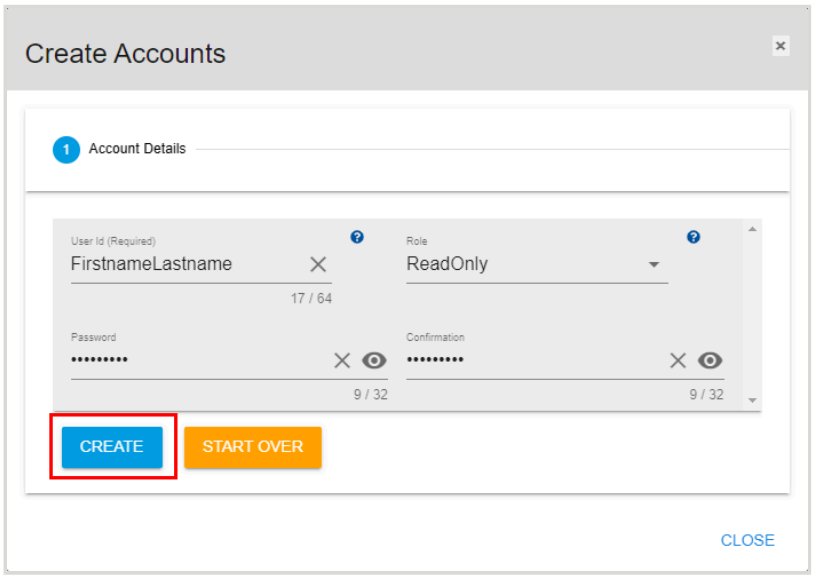
A **Create Accounts** window will appear:

Figure 117: Create Accounts Window



Step 3 : Use the available fields to enter a user ID, role, and password. Then click the **Create** button.

Figure 118: Account Details



Result: The user account has now been created on the management server.

4.4.2 Editing a User Account

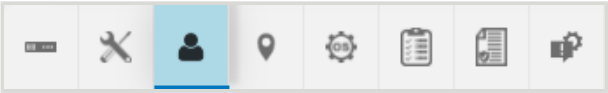
This procedure provides instructions for editing a user account on the management server using Resource Manager Data Center Edition.

Before you begin:

- Follow the instructions for Navigating to a Management Server Dashboard *(page 42)*.

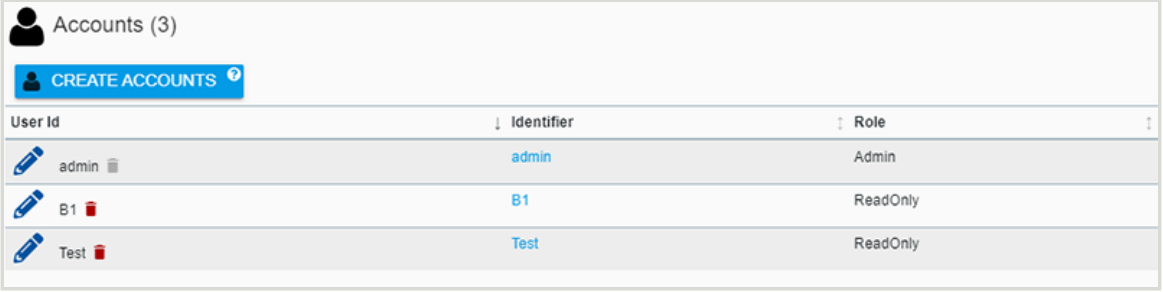
Step 1: From the server dashboard, click the **Accounts** tab.

Figure 119: Accounts Tab



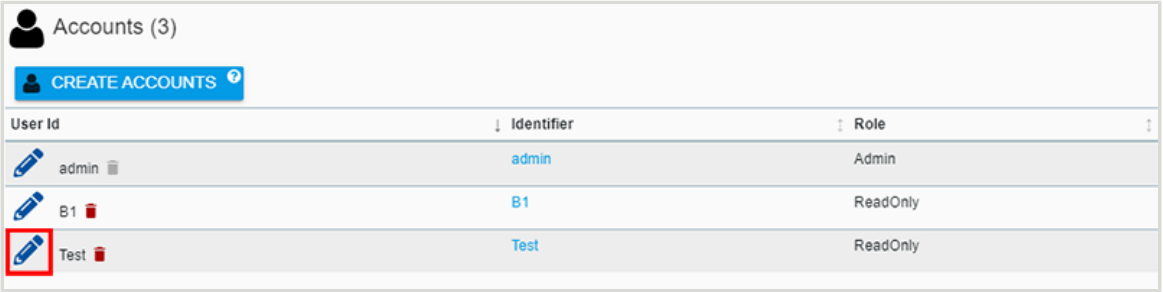
The **Accounts** page will appear:

Figure 120: Accounts Page



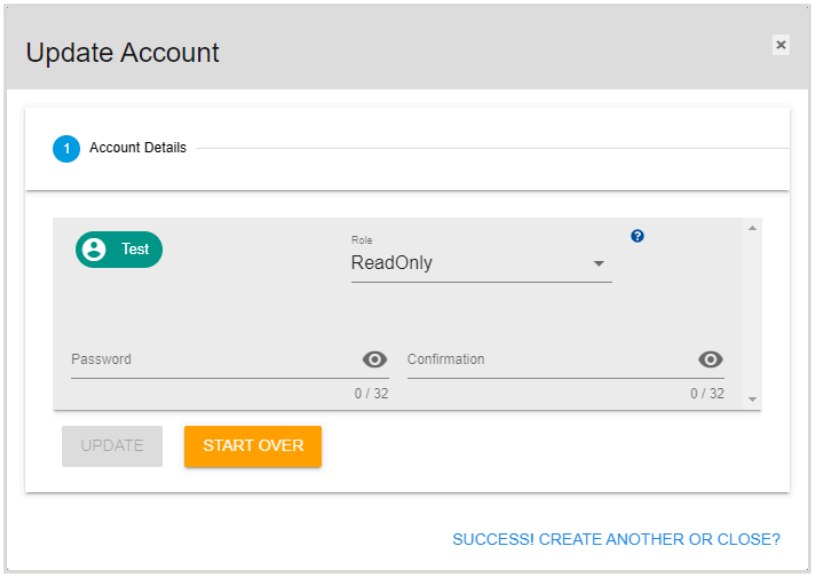
Step 2: Click the **Edit** icon for the account to be edited.

Figure 121: Edit Icon



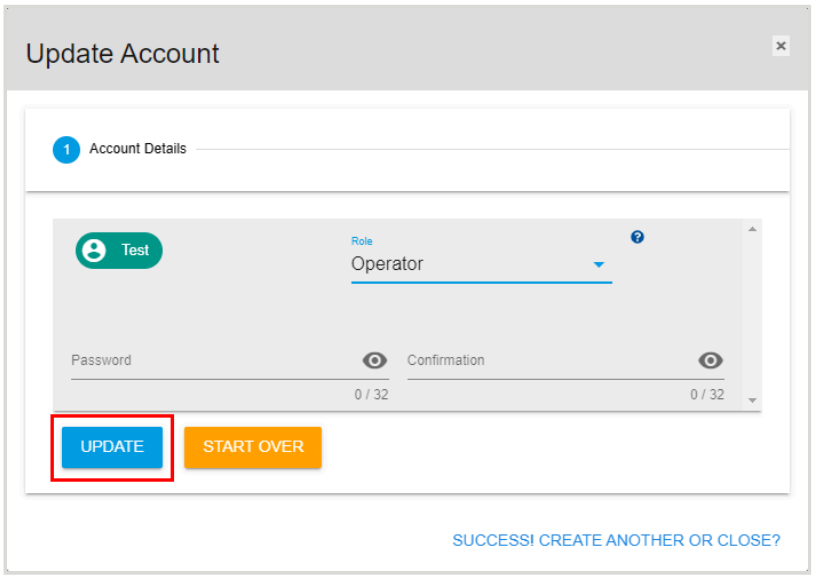
An **Update Account** window will appear:

Figure 122: Update Account Window



Step 3 : Use the available fields to edit the account role or password. Then click the **Update** button.

Figure 123: Update Account Details



Result: The management server's user account has now been edited.

4.4.3 Deleting a User Account

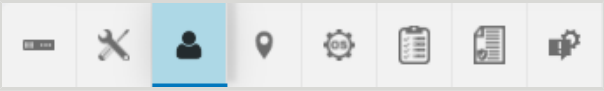
This procedure provides instructions for deleting a user account on the management server using Resource Manager Data Center Edition.

Before you begin:

- Follow the instructions for Navigating to a Management Server Dashboard *(page 42)*.

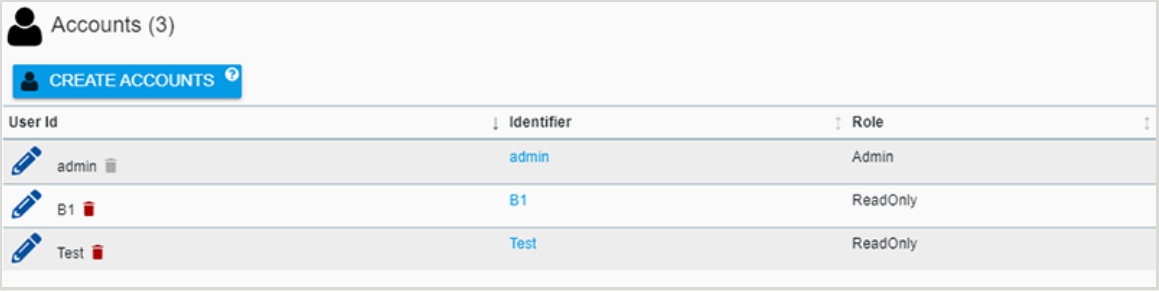
Step 1: From the server dashboard, click the **Accounts** tab.

Figure 124: Accounts Tab



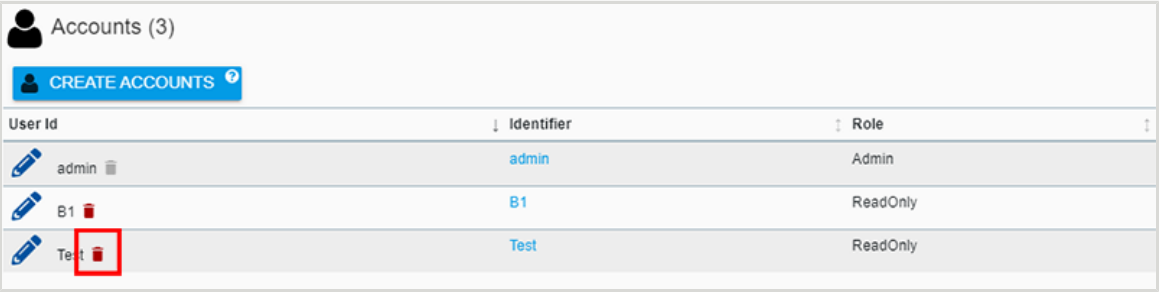
The **Accounts** page will appear:

Figure 125: Accounts Page



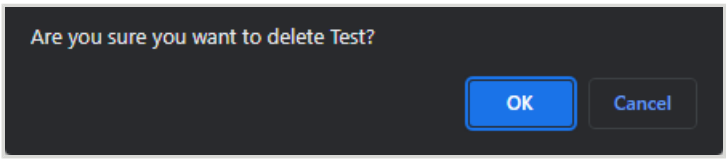
Step 2: Click the **Delete** icon for the account to be deleted.

Figure 126: Delete Icon



A dialogue box will appear, promting the user to confirm the deletion:

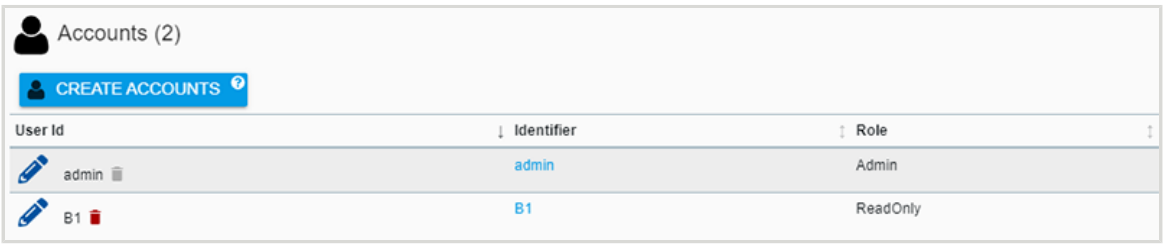
Figure 127: Confirm Account Deletion



Step 3 : Click **OK**.

After the deletion is processed, the **Accounts** page will refresh to show the remaining accounts:

Figure 128: Remaining Accounts



Result: The management server's user account has now been deleted.

4.5 Location

The management server's **Location** tab provides controls for configuring the server's physical location attributes.

4.5.1 Setting Location Attributes

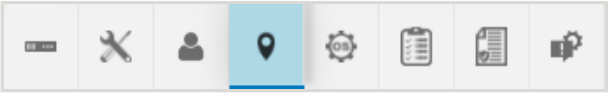
This procedure provides instructions for setting/modifying the location attributes of the management server using the Resource Manager Data Center Edition.

Before you begin:

- Follow the instructions for Navigating to a Management Server Dashboard *(page 42)*.

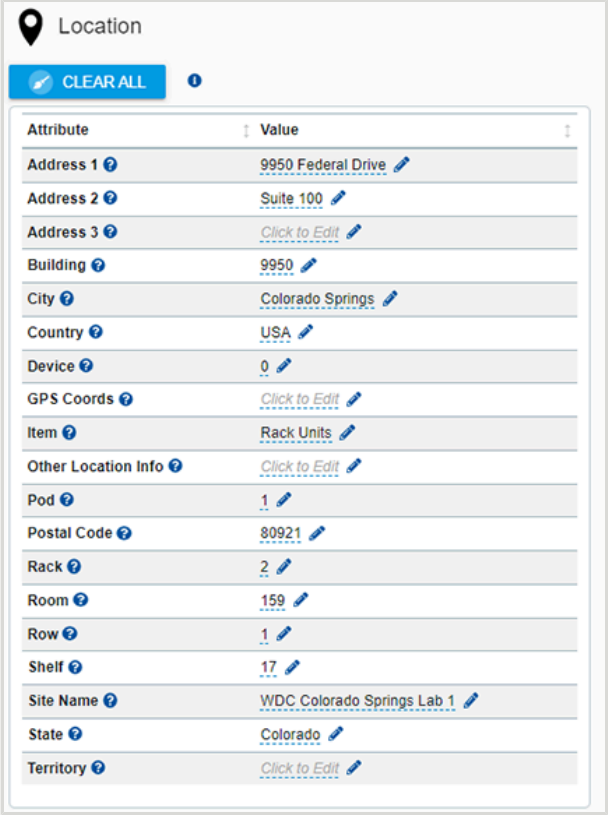
Step 1: From the server dashboard, click the **Location** tab.

Figure 129: Location Tab



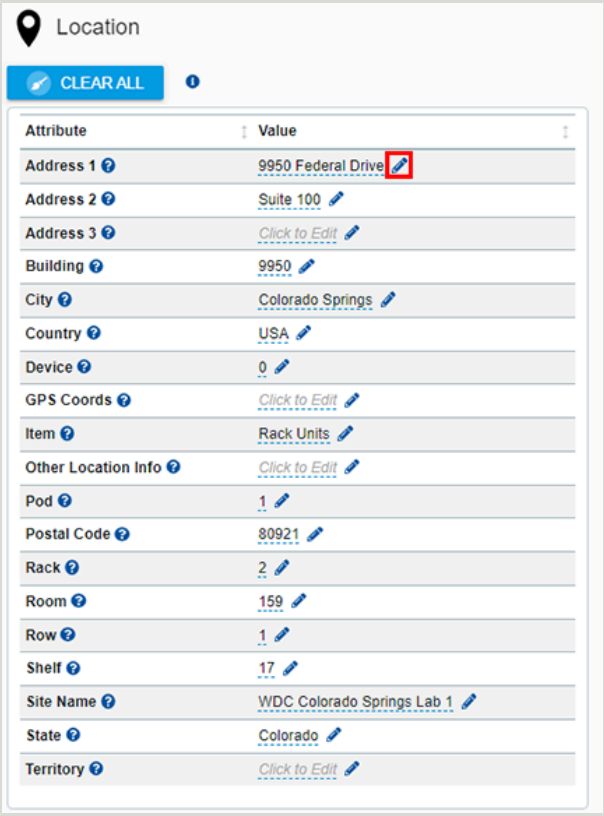
The **Location** page will appear:

Figure 130: Location Page



Step 2: To edit a location attribute, click the attribute's edit icon.

Figure 131: Edit Icon



Step 3: Repeat as needed to set/modify the remaining attributes.

Result: The location attributes of the management server have now been set.

4.6 Device OS

The management server's **Device OS** tab provides information about the currently installed version of Resource Manager Data Center Edition and controls for updating it.

4.6.1 Checking the Resource Manager Software Version

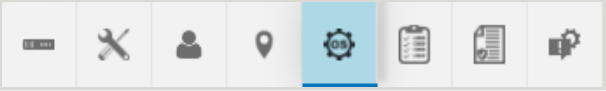
This procedure provides instructions for checking the version of the Resource Manager Data Center Edition software on the management server.

Before you begin:

- Follow the instructions for Navigating to a Management Server Dashboard *(page 42)*.

Step 1: From the server dashboard, click the **Device OS** tab.

Figure 132: Device OS Tab



The **Device OS** page will appear, displaying the version number:

Figure 133: Device OS Page

Result: The version of the Resource Manager Data Center Edition software has now been checked.

4.7 Assets

The management server's **Assets** tab provides searchable information about resources discovered on the same network as the server.

4.7.1 Checking the Status of Assets

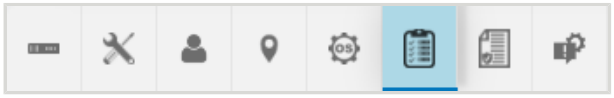
This procedure provides instructions for checking the status of assets (or resources) discovered by the network scan.

Before you begin:

- Follow the instructions for Navigating to a Management Server Dashboard *(page 42)*.

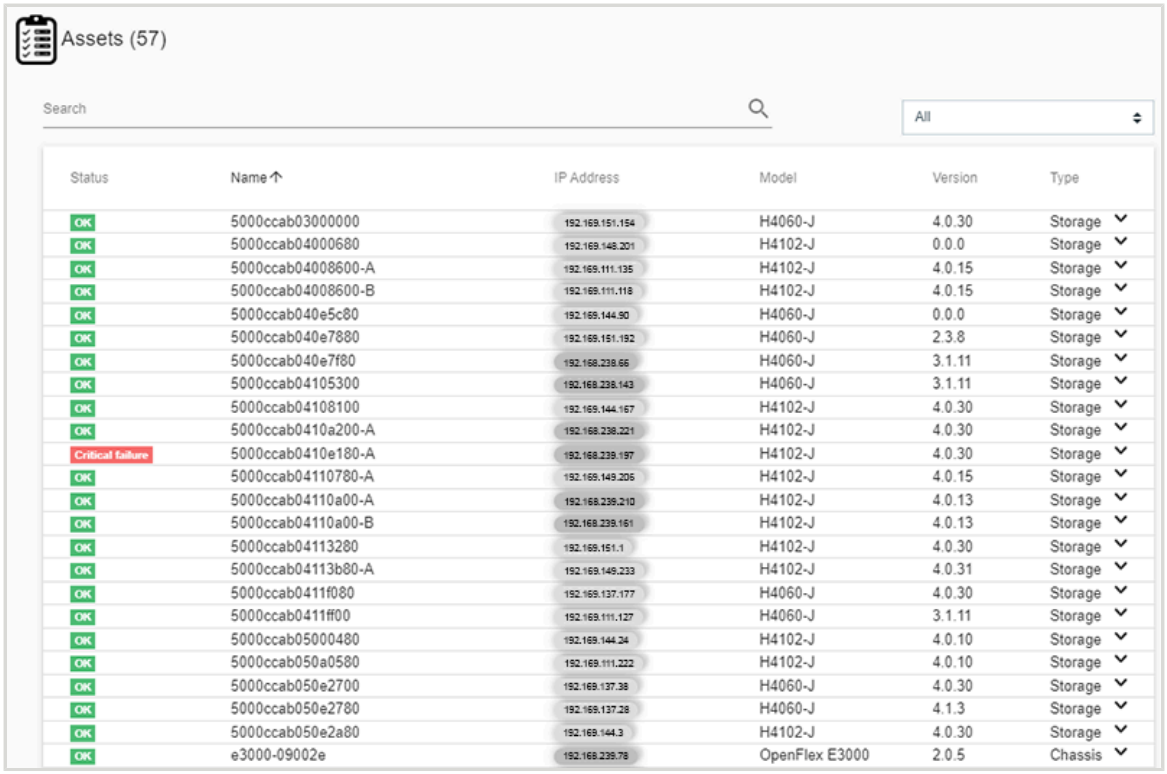
Step 1: From the server dashboard, click the **Assets** tab.

Figure 134: Assets Tab



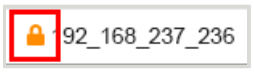
The **Assets** page will appear, providing a list of discovered assets with information such as resource names, IP addresses, and health status:

Figure 135: Assets Page



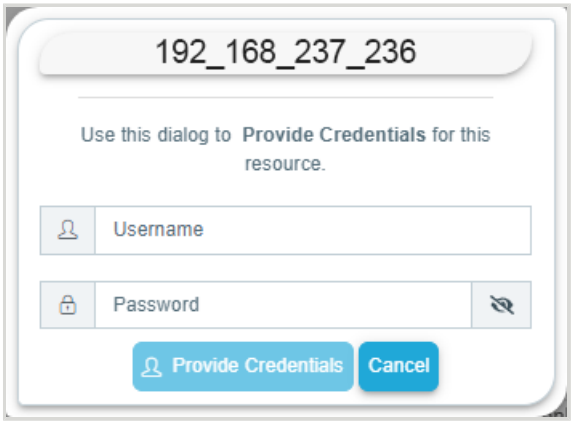
Note: In cases where an asset's login credentials don't match those of the Resource Manager Data Center Edition on the management server, the asset's status will appear as *Unauthorized* and a *Lock* icon will be displayed:

Figure 136: Lock Icon



Clicking the *Lock* icon will bring up a dialog box, allowing the user to provide login credentials for that asset.

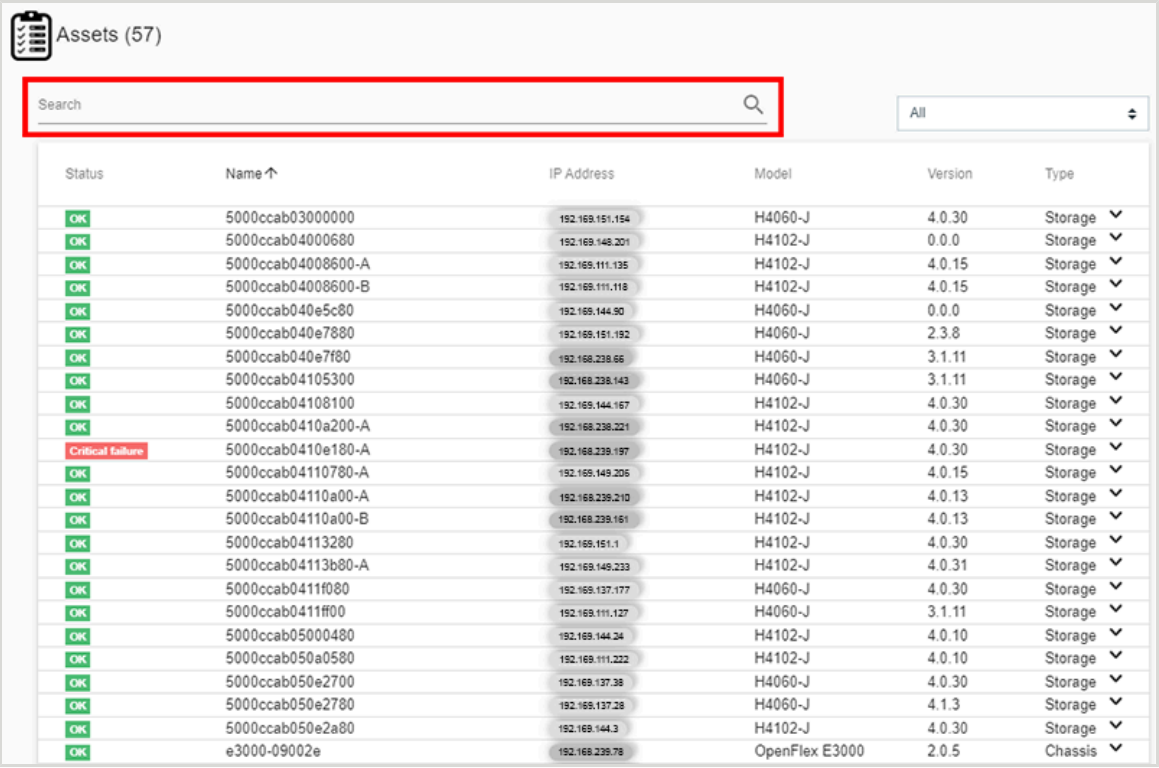
Figure 137: Locked Asset Login Dialog Box



If login credentials are provided, the information for this asset will become available on the next discovery scan.

Step 2: Use the **Search** field to limit the asset results by search criteria.

Figure 138: Search Field

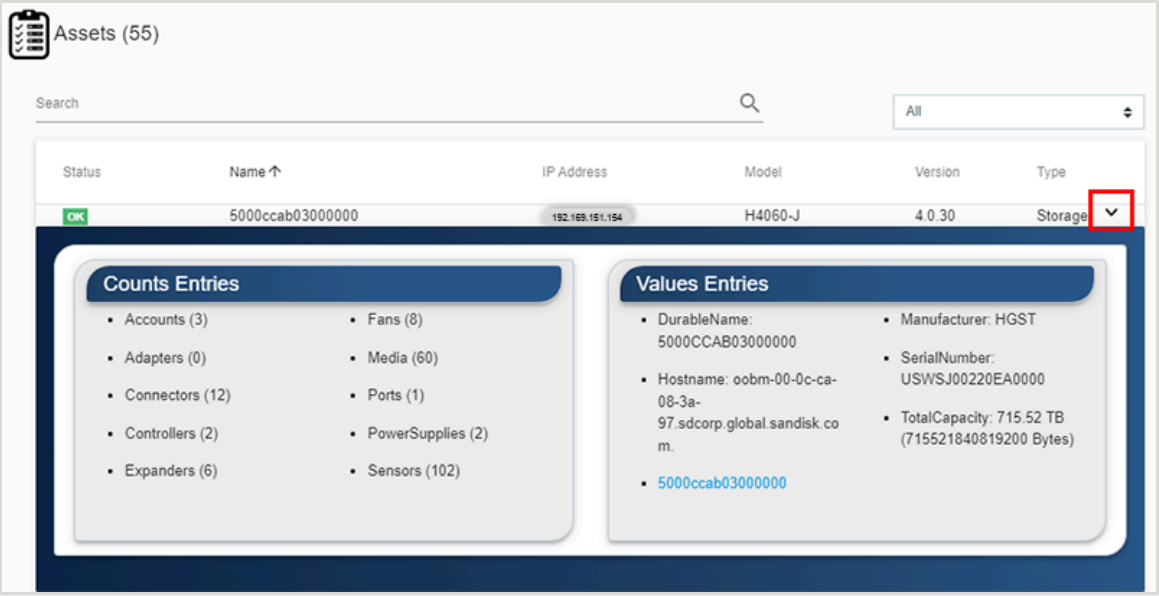


Important: The **Search** field provides a powerful "deep search" capability for inventory management. Search terms are compared to all attributes associated with an asset, as shown in the expanded asset information in step 3 *(page 79)*. For example, searching on a drive serial number will show which enclosure contains that drive.

Step 3 : For additional information about an asset, click the asset's table row or down-arrow.

The row will expand to provide additional information:

Figure 139: Additional Asset Info



Result: The status of discovered assets has now been checked.

4.8 Policies

The management server's **Policies** tab provides information and controls for configuring server policies.

4.8.1 Creating a Policy

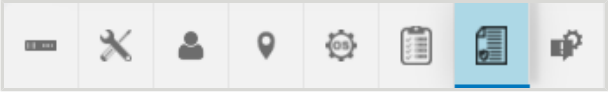
This procedure provides instructions for creating a policy on the management server.

Before you begin:

- Follow the instructions for Navigating to a Management Server Dashboard *(page 42)*.

Step 1: From the server dashboard, click the **Policies** tab.

Figure 140: Policies Tab



The **Policies** page will appear:

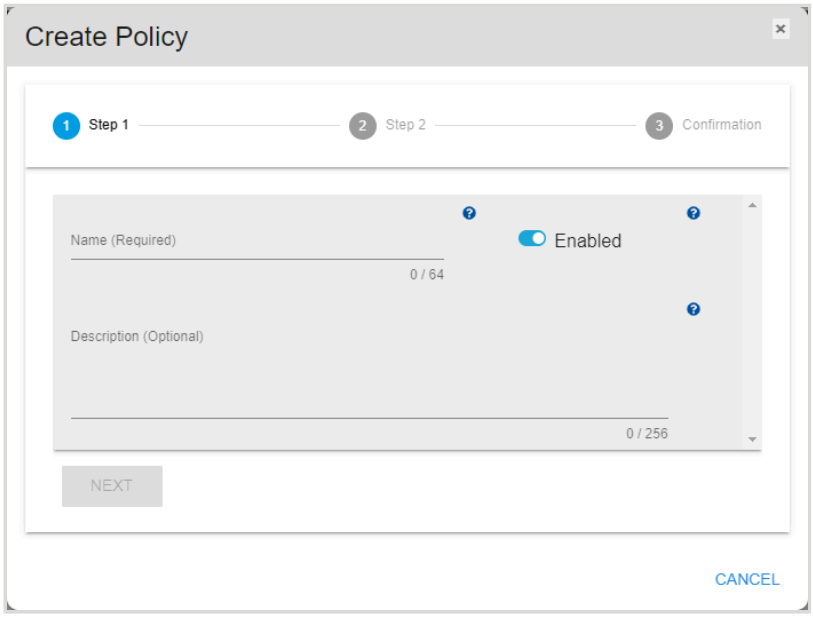
Figure 141: Policies Page

Step 2: Click the **Create Policy** button.

Figure 142: Create Policy Button

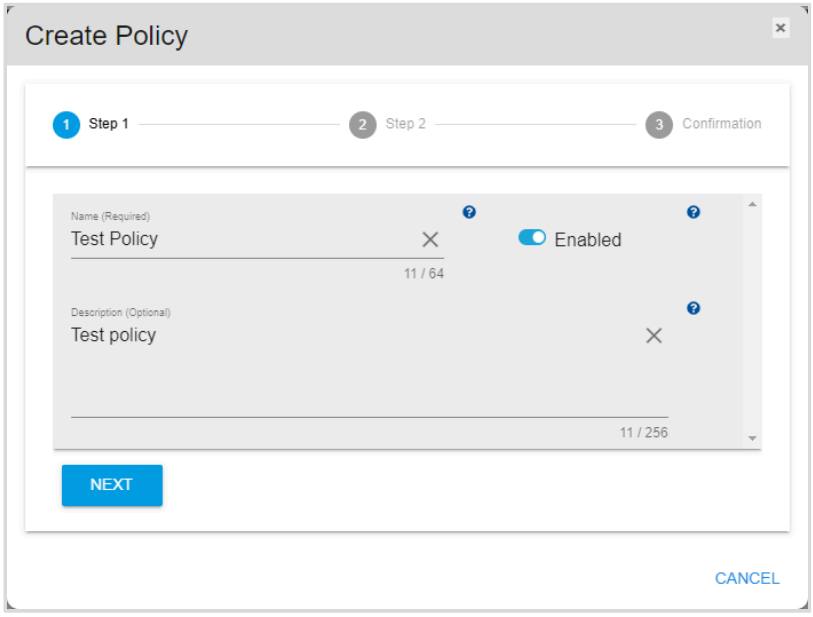
A **Create Policy** window will be displayed, showing step 1:

Figure 143: Create Policy Window



Step 3: Use the available fields to input a name and description for the policy, and use the toggle switch to enable or disable the policy once it is created.

Figure 144: Create Policy Window

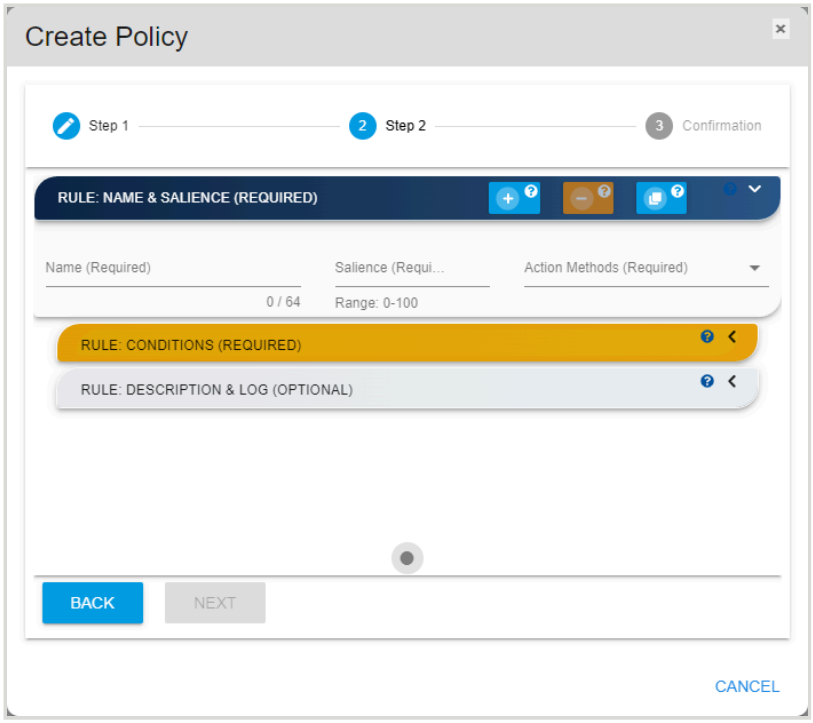


Step 4: Click the **Next** button.

Figure 145: Next Button

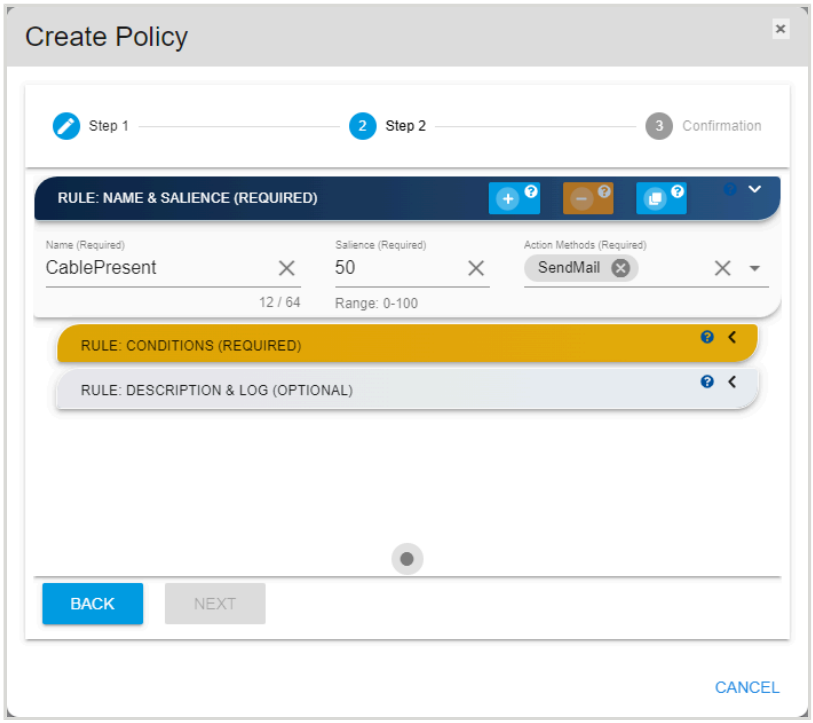
The **Create Policy** window will proceed to step 2:

Figure 146: Create Policy Window



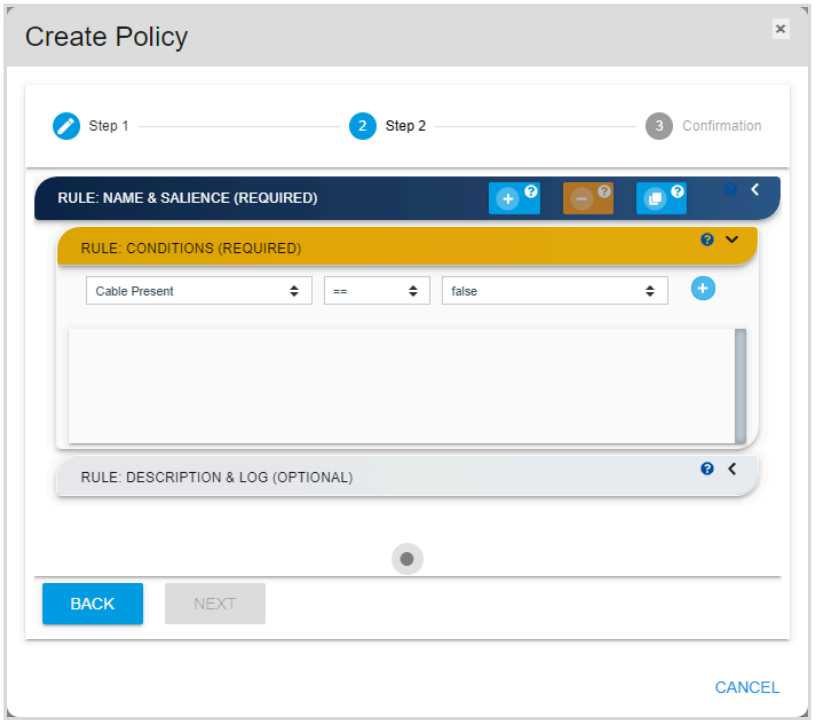
Step 5 : In the **Rule: Name & Salience** section, use the available fields to input a rule name, salience, and the action to be taken. This creates a rule within the policy.

Figure 147: Creating a Rule



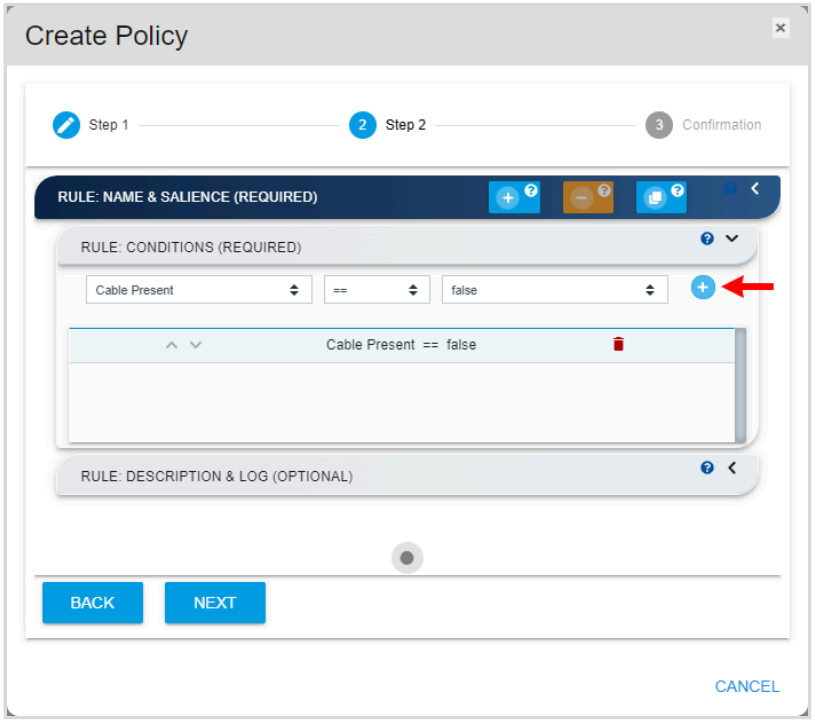
Step 6 : Click to expand the **Rule: Conditions** section, and use the available fields to define the conditions that will trigger the rule. The following example shows the condition of `Cable Present == false`.

Figure 148: Rule Conditions



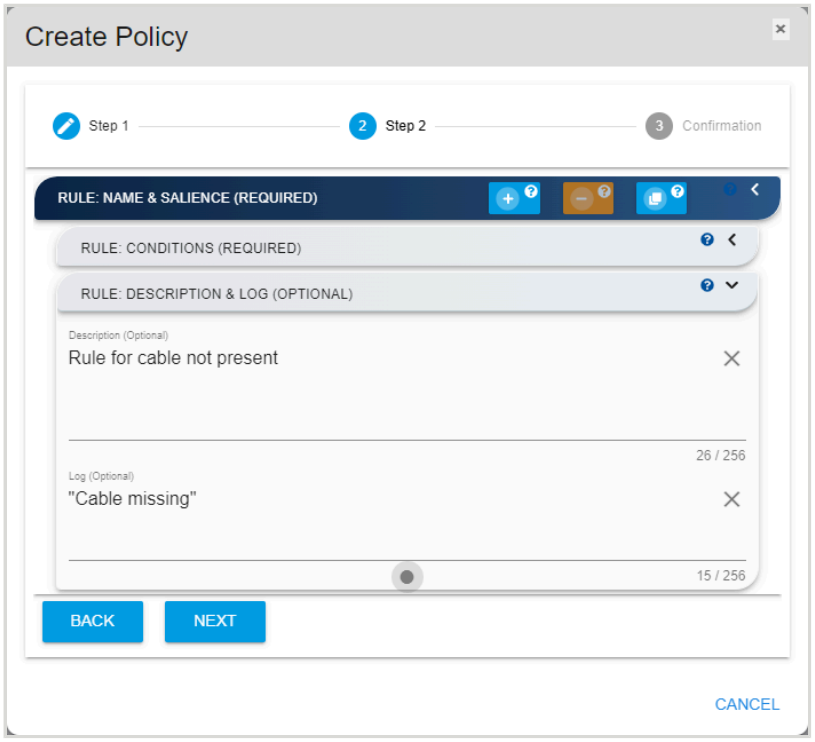
Step 7 : Click the plus icon to add the rule to the policy.

Figure 149: Rule Conditions



Step 8 : If needed, click to expand the **Rule: Description & Log** section. Use the available fields to input a description of the rule and a label for when this condition is logged.

Figure 150: Rule Conditions



Step 9 : To add another rule to the policy, click the **Add Rule** button. Then repeat steps 5 *(page 83)* through 8 *(page 86)* to name the rule and define its conditions.

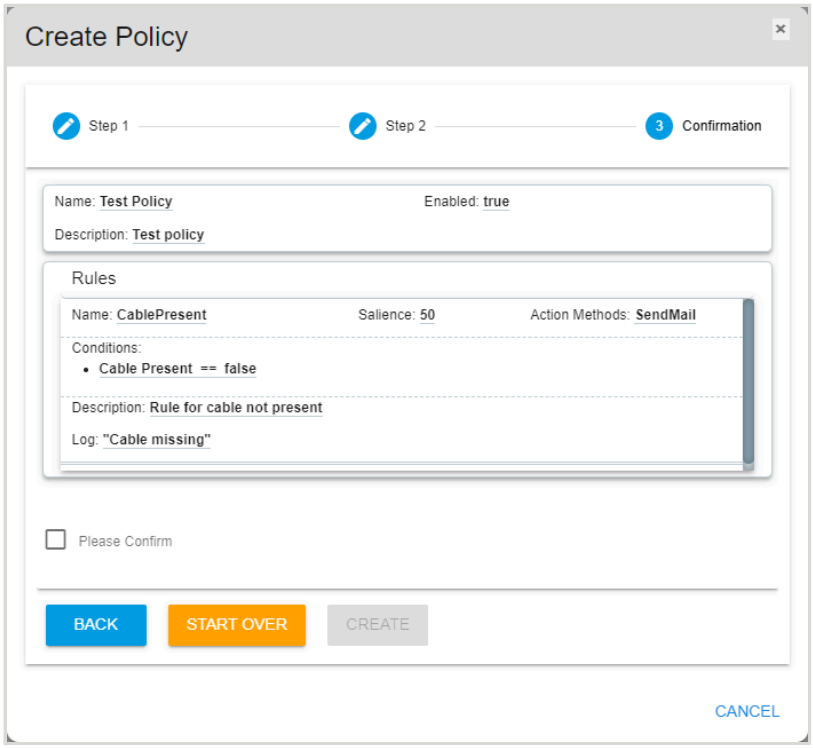
Figure 151: Add Rule Button

Step 10 : When all rules for the policy have been added, click the **Next** button.

Figure 152: Next Button

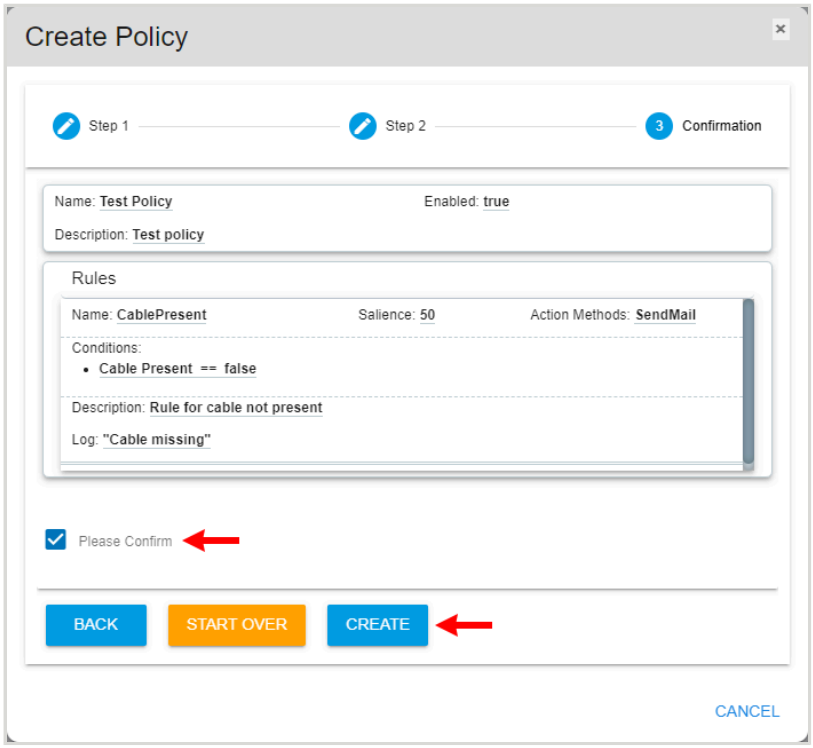
The **Create Policy** window will proceed to step 3.

Figure 153: Confirm Policy



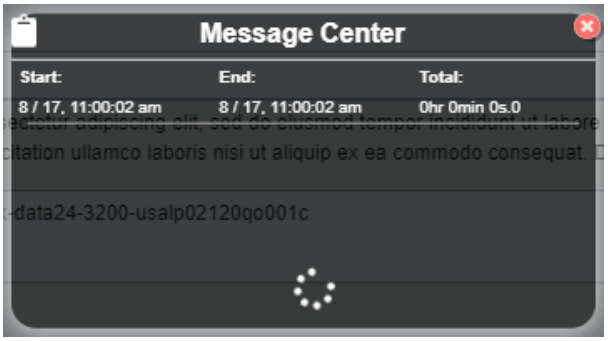
Step 11: Review the listed rule(s). If the information looks correct, click the **Please Confirm** checkbox and then click the **Create** button.

Figure 154: Create Policy



A popup window will appear, showing the progress of the policy creation.

Figure 155: Policy Creation Progress



Step 12 : When the progress window disappears, check the table on the **Policies** page to ensure that the newly created policy is displayed.

Figure 156: New Policy

Result: The policy has now been created on the management server.

4.8.2 Deleting a Policy

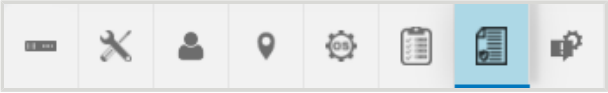
This procedure provides instructions for deleting a policy from the management server.

Before you begin:

- Follow the instructions for Navigating to a Management Server Dashboard *(page 42)*.

Step 1: From the server dashboard, click the **Policies** tab.

Figure 157: Policies Tab



The **Policies** page will appear:

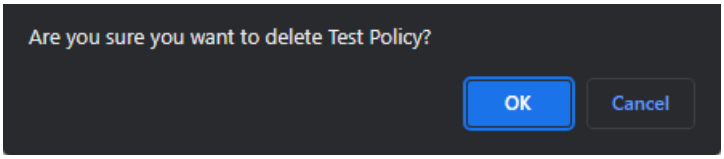
Figure 158: Policies Page

Step 2: Click the **Delete Policy** icon for the policy to be deleted.

Figure 159: Delete Policy Icon

A popup window will prompt the user to confirm the deletion:

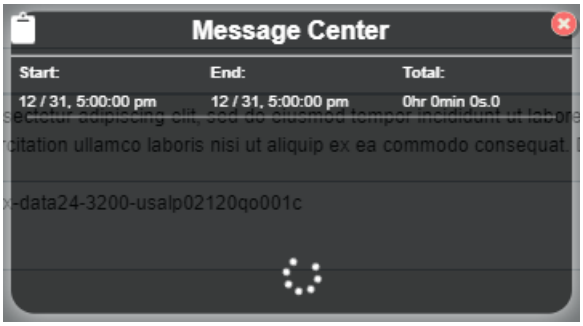
Figure 160: Delete Policy Icon



Step 3 : Click the **OK** button.

A popup window will appear, showing the progress of the policy deletion.

Figure 161: Policy Deletion Progress



Step 4 : When the progress window disappears, check the table on the **Policies** page to ensure that the policy is no longer listed.

Figure 162: Policies Page

Result: The policy has now been deleted from the management server.

4.9 Notifications

The management server's **Notifications** tab provides information and controls for configuring SMTP alerts and SNMP traps.

4.9.1 Creating an SMTP Alert

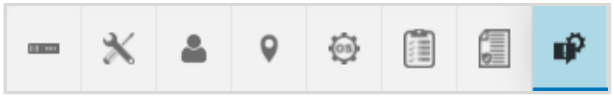
This procedure provides instructions for creating a Simple Mail Transfer Protocol (SMTP) alert on the management server.

Before you begin:

- Follow the instructions for Navigating to a Management Server Dashboard *(page 42)*.

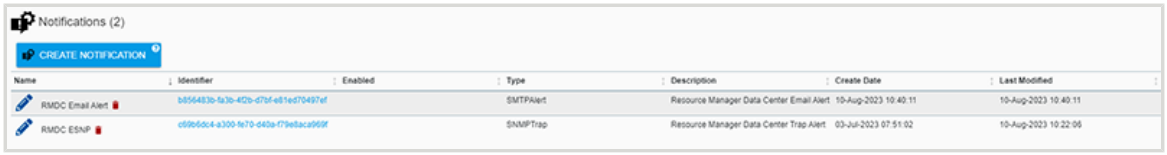
Step 1: From the server dashboard, click the **Notifications** tab.

Figure 163: Notifications Tab



The **Notifications** page will appear:

Figure 164: Notifications Page

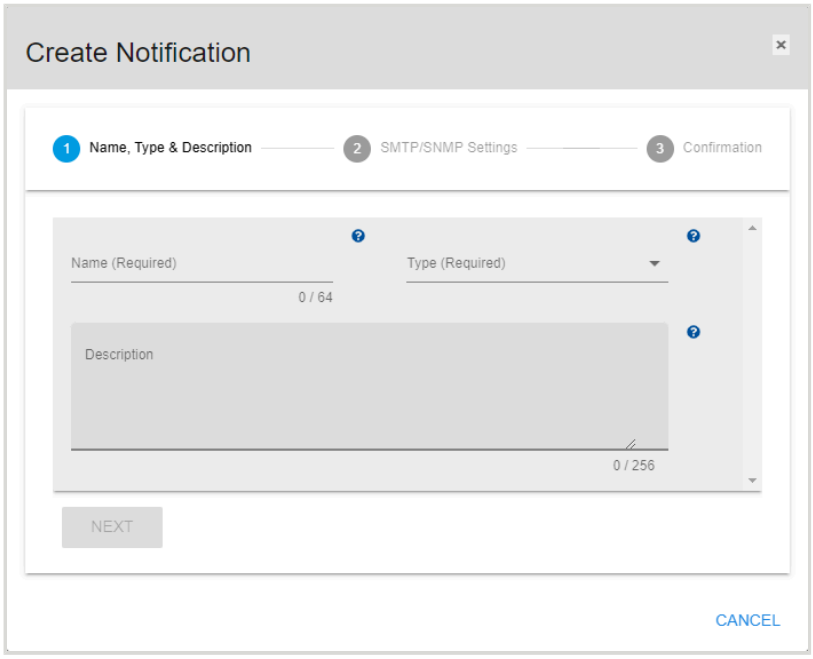


Step 2: Click the **Create Notification** button.

Figure 165: Create Notification Button

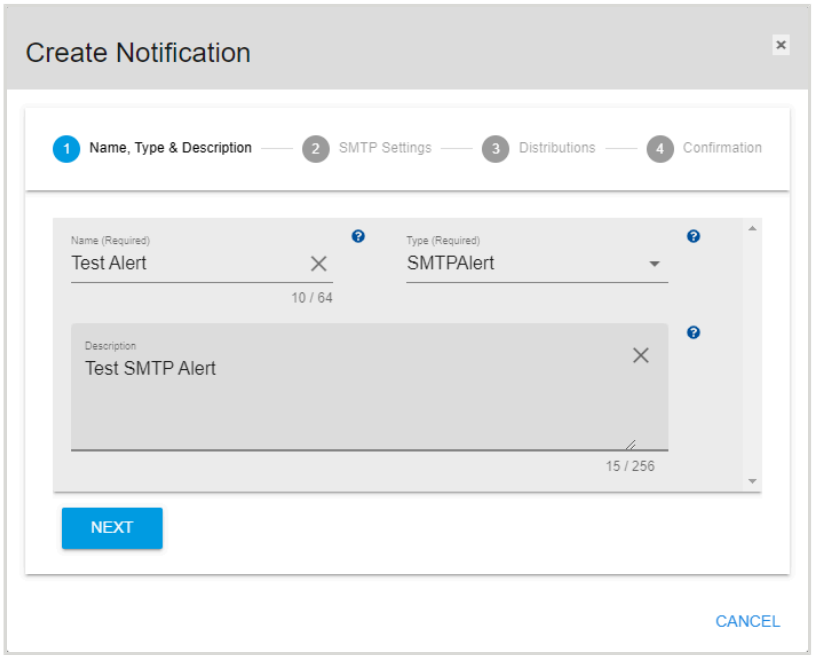
A **Create Notification** window will appear, showing step 1:

Figure 166: Create Notification Window



Step 3 : Use the available fields to select the **SMTP Alert** notification type, and input a name and description for the notification.

Figure 167: Notification Type

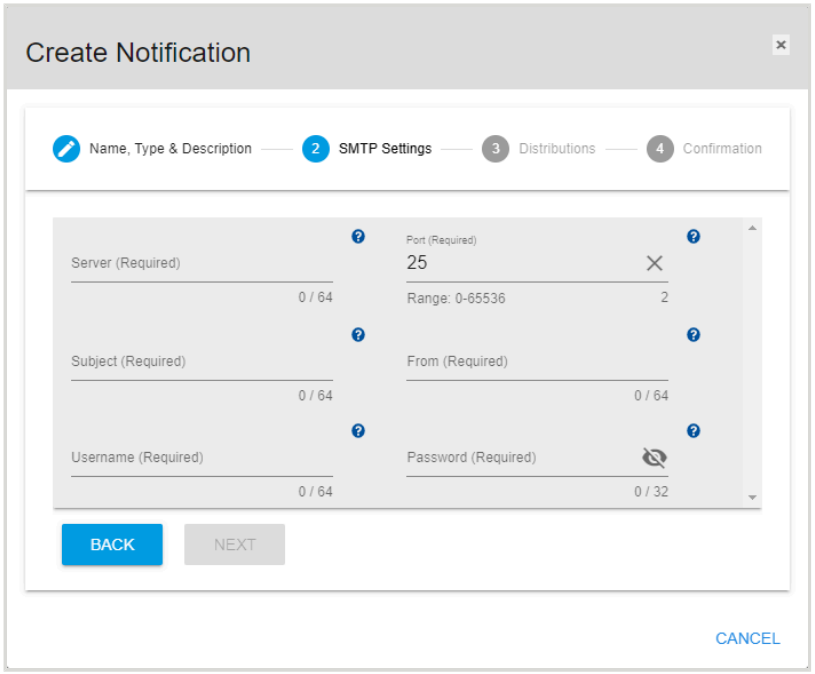


Step 4 : Click the **Next** button.

Figure 168: Next Button

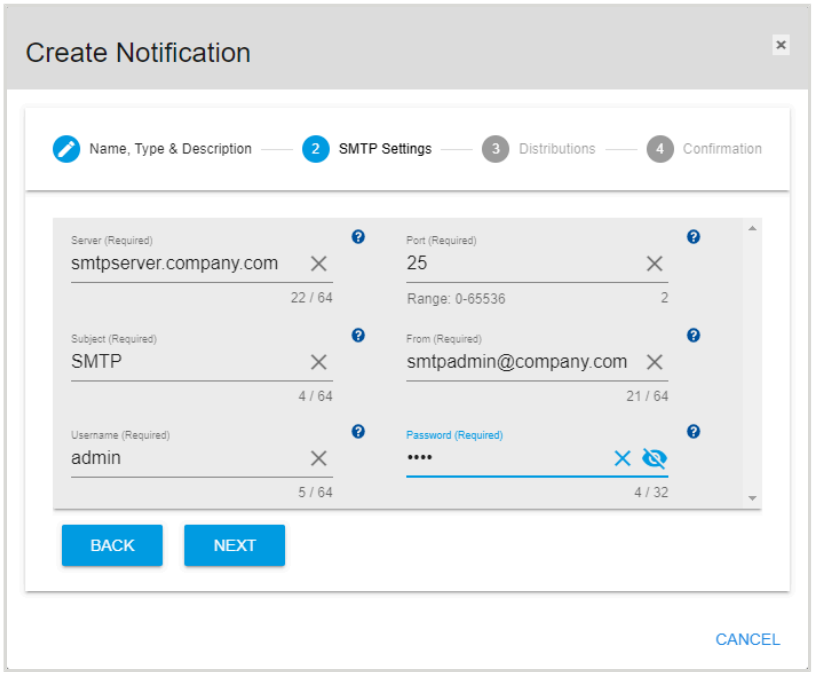
The **Create Notification** window will update to show step 2:

Figure 169: SMTP Settings



Step 5 : Use the available fields to input the required SMTP settings.

Figure 170: Populated SMTP Settings

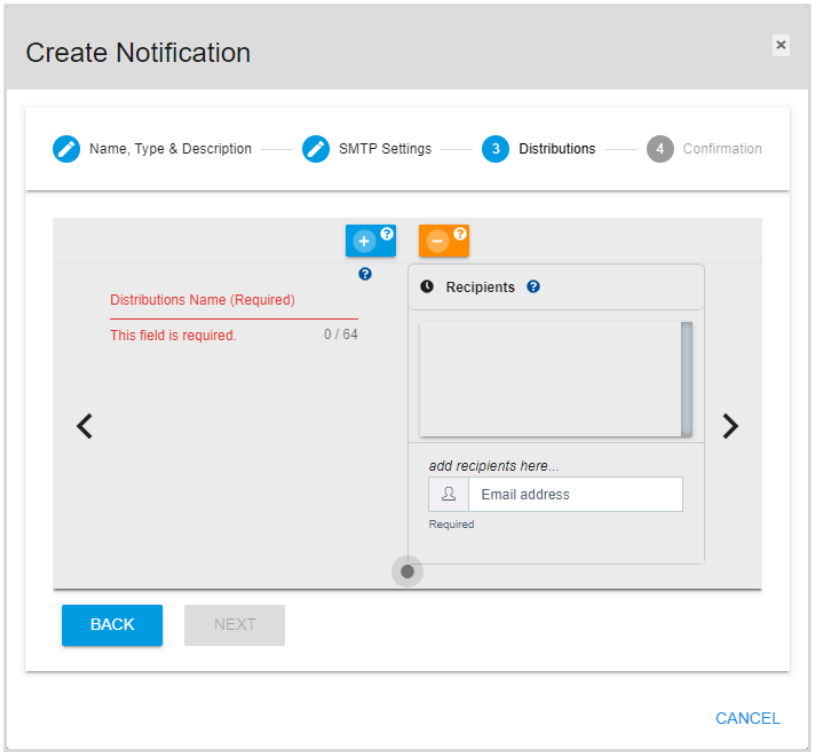


Step 6 : Click the **Next** button.

Figure 171: Next Button

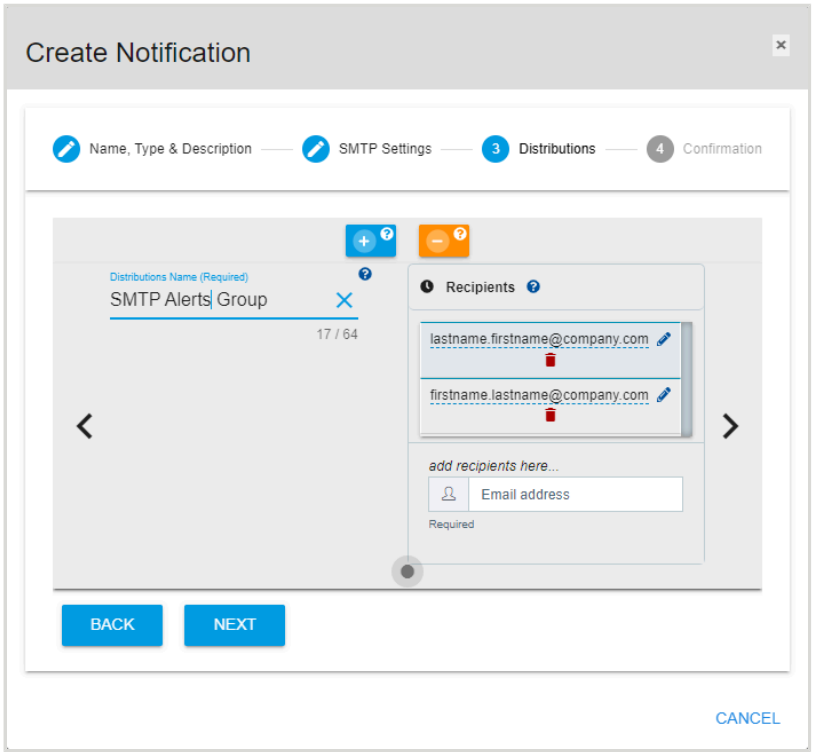
The **Create Notification** window will update to show step 3:

Figure 172: Distribution Settings



Step 7 : Use the **Email Address** field to input the addresses that will receive the alert. The addresses will then appear in the **Recipients** list. Use the **Distributions Name** field to name this email distribution group.

Figure 173: Populated Distribution Settings



Tip: Use the **Add Distribution** or **Remove Distribution** buttons to create additional email distribution groups or delete existing groups.

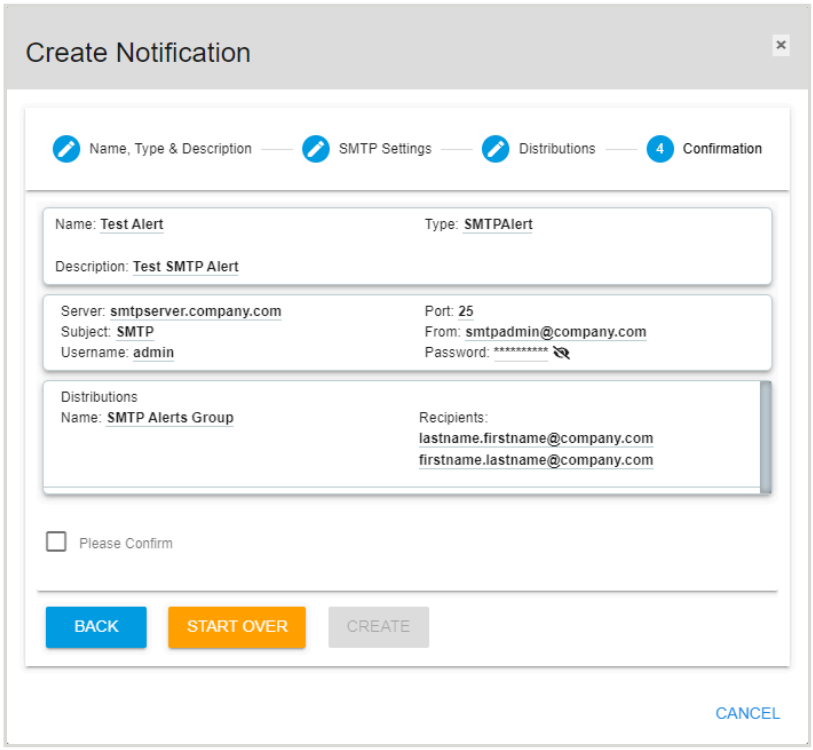
Figure 174: Add / Remove Distribution Buttons

Step 8 : Click the **Next** button.

Figure 175: Next Button

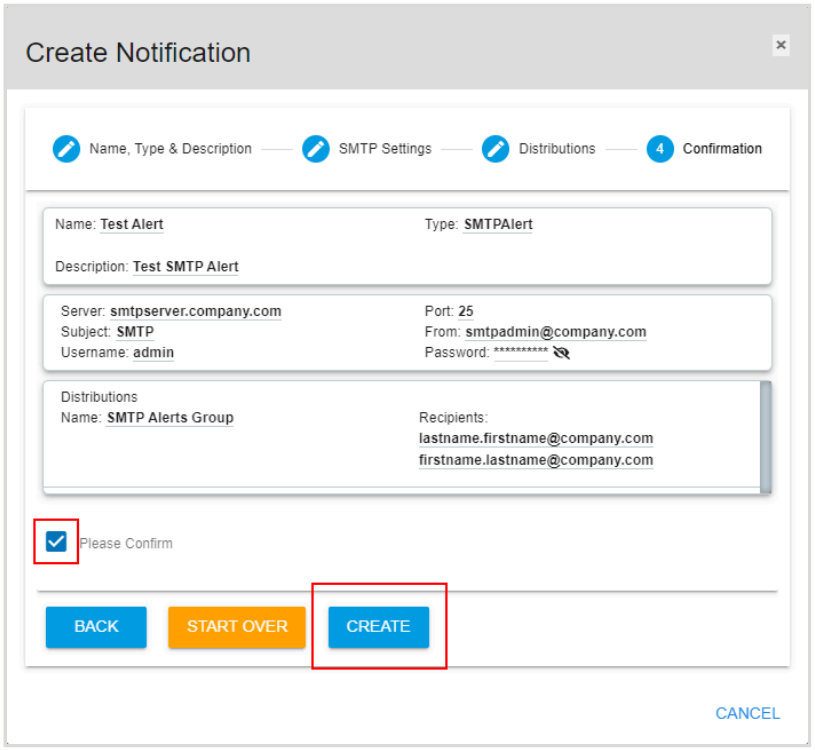
The **Create Notification** window will update to show step 4:

Figure 176: Notification Confirmation



Step 9 : Review the listed information. If correct, click the **Please Confirm** checkbox and then click the **Create** button.

Figure 177: Create SMTP Notification



When the notification has been created, it will appear in the notifications list:

Figure 178: SMTP Notification Created

Result: The SMTP notification has now been created on the management server.

4.9.2 Creating an SNMP Trap

This procedure provides instructions for creating a Simple Network Management Protocol (SNMP) trap on the management server.

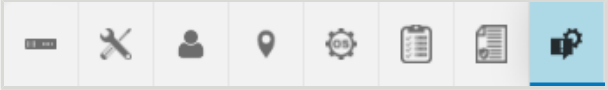
Before you begin:

- Follow the instructions for Navigating to a Management Server Dashboard *(page 42)*.

Important: Resource Manager Data Center Edition currently supports only SHA and DES authentication protocols for SNMP traps.

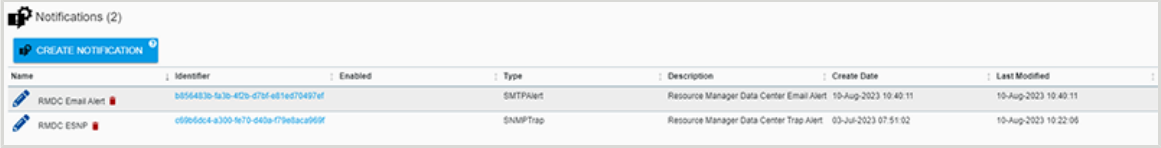
Step 1: From the server dashboard, click the **Notifications** tab.

Figure 179: Notifications Tab



The **Notifications** page will appear:

Figure 180: Notifications Page

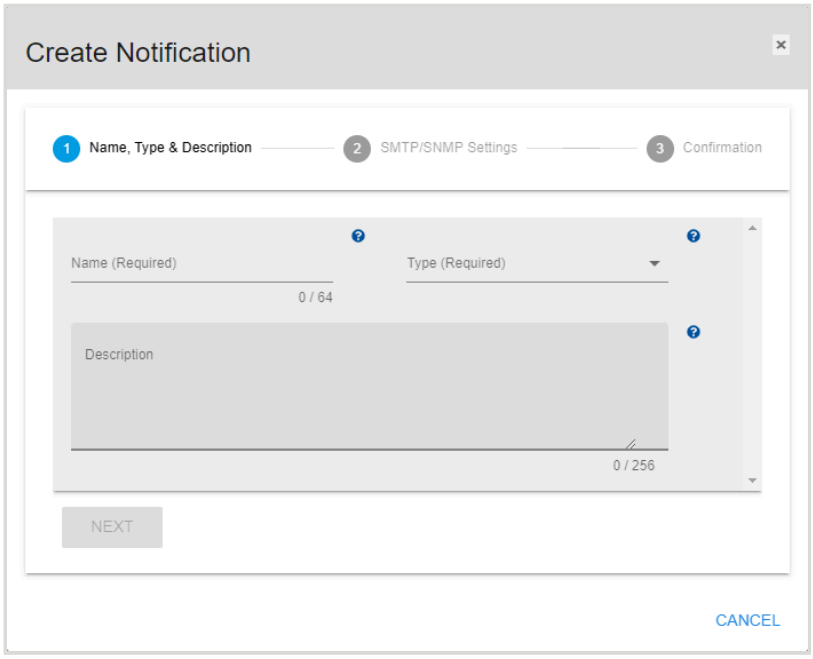


Step 2: Click the **Create Notification** button.

Figure 181: Create Notification Button

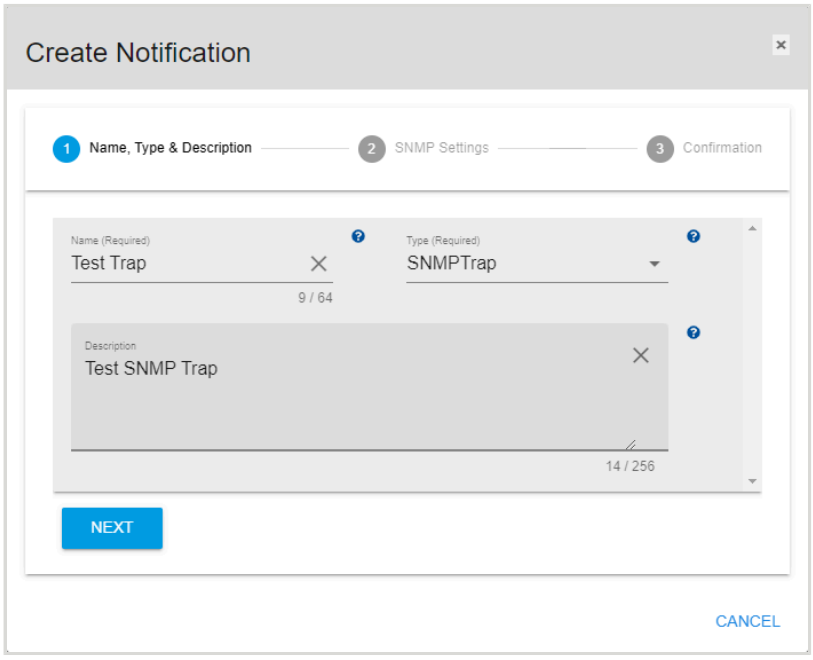
A **Create Notification** window will appear, showing step 1:

Figure 182: Create Notification Window



Step 3 : Use the available fields to select the **SNMP Trap** notification type, and input a name and description for the notification.

Figure 183: Notification Type

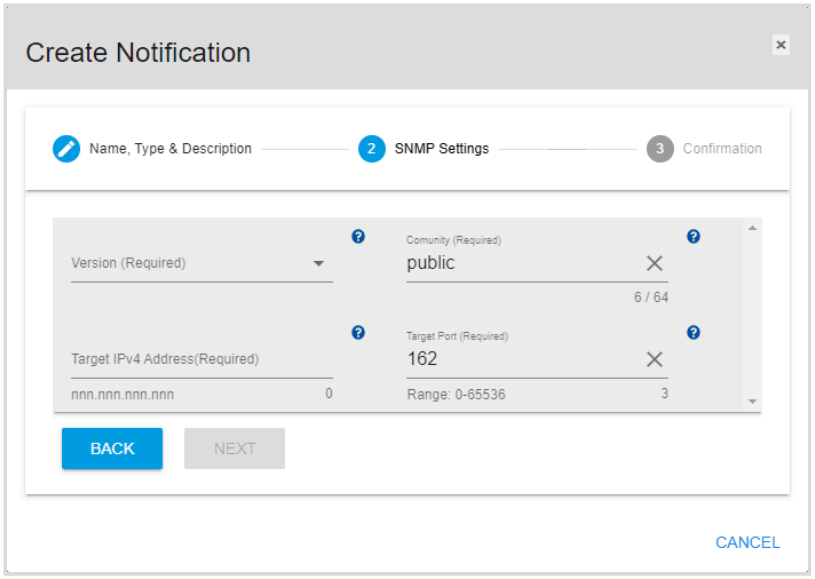


Step 4 : Click the **Next** button.

Figure 184: Next Button

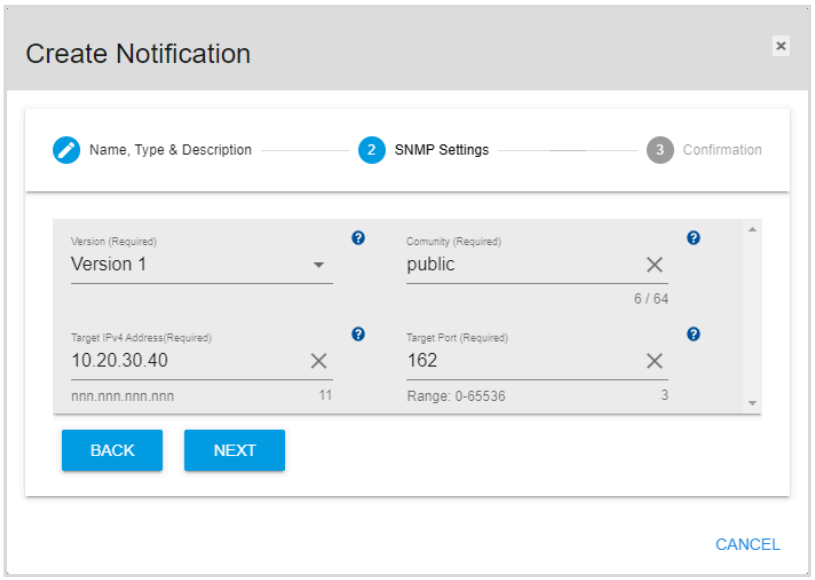
The **Create Notification** window will update to show step 2:

Figure 185: SNMP Settings



Step 5 : Use the available fields to input the required SNMP settings.

Figure 186: Populated SNMP Settings

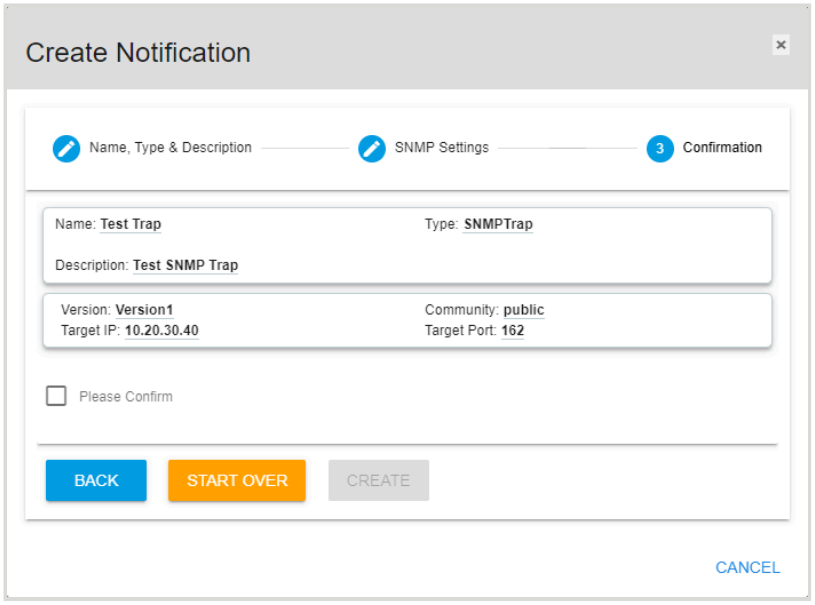


Step 6 : Click the **Next** button.

Figure 187: Next Button

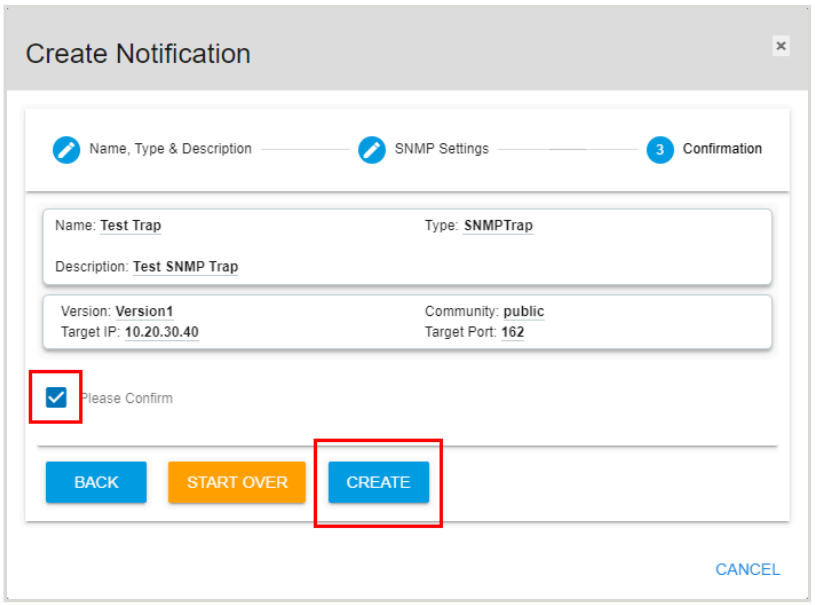
The **Create Notification** window will update to show step 3:

Figure 188: SNMP Confirmation



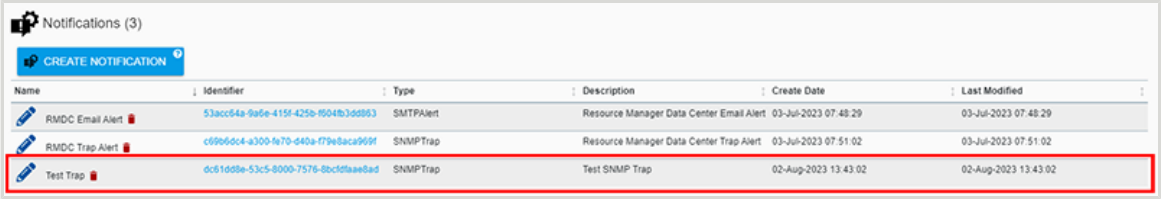
Step 7 : Review the listed information. If correct, click the **Please Confirm** checkbox and click the **Create** button.

Figure 189: Create SNMP Notification



When the notification has been created, it will appear in the notifications list:

Figure 190: SNMP Notification Created



Result: The SNMP trap has now been created on the management server.

4.9.3 Deleting a Notification

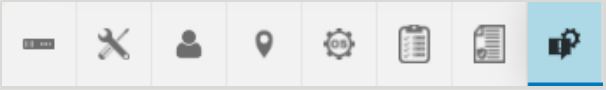
This procedure provides instructions for deleting a notification from the management server.

Before you begin:

- Follow the instructions for Navigating to a Management Server Dashboard *(page 42)*.

Step 1: From the server dashboard, click the **Notifications** tab.

Figure 191: Notifications Tab

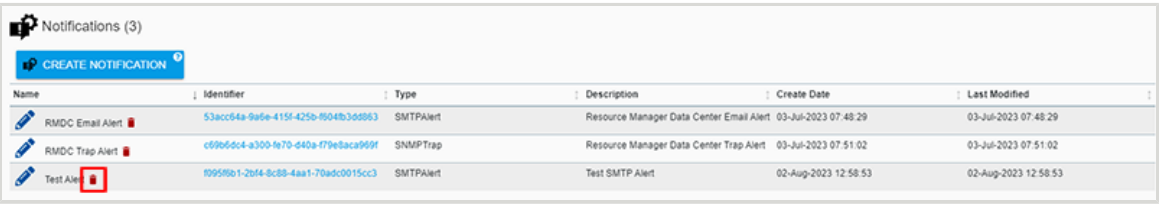


The **Notifications** page will appear:

Figure 192: Notifications Page

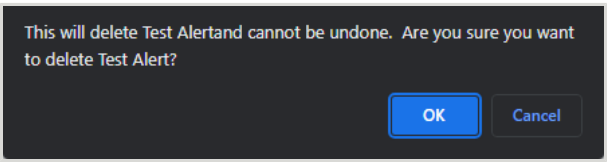
Step 2: Click the **Delete** icon next to the notification to be deleted.

Figure 193: Delete Icon



A popup will prompt the user to confirm the deletion:

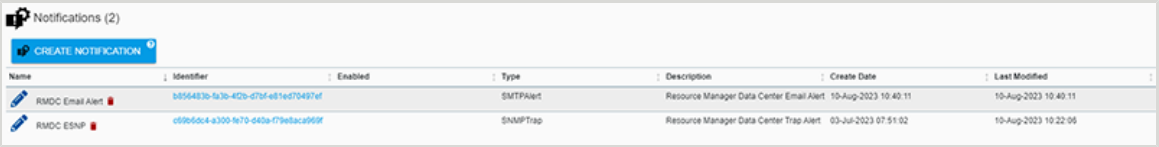
Figure 194: Confirm Deletion



Step 3: Click the **OK** button to confirm the deletion.

After the deletion has been processed, the notification will be removed from the **Notifications** page:

Figure 195: Notification Removed



Result: The notification has now been deleted from the management server.

OpenFlex Enclosure Management

This chapter provides instructions for managing OpenFlex products using the Resource Manager Data Center Edition.

In This Chapter:

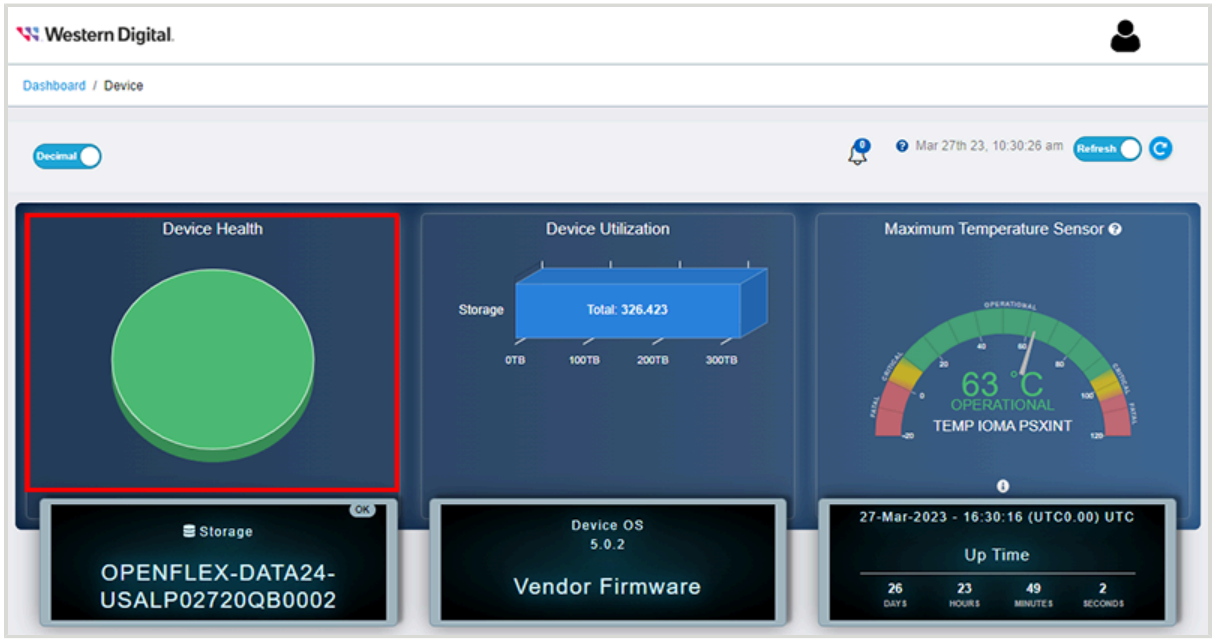
5.1 Overview of OpenFlex Dashboard

The upper portion of the dashboard for an OpenFlex enclosure provides a summary of the enclosure status.

Device Health

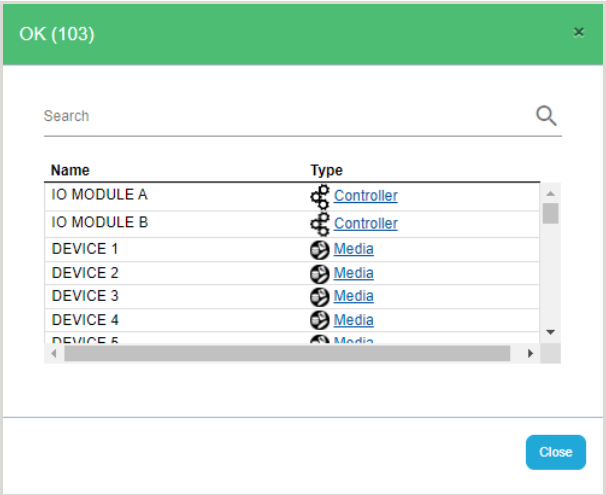
The **Device Health** section displays a pie chart that groups the health states of this enclosure's components, devices, and sensors into color-coded segments.

Figure 196: Device Health Pie Chart



For additional details, click one of the segments. This will bring up a window with a detailed listing of the components, devices, and sensors in that state:

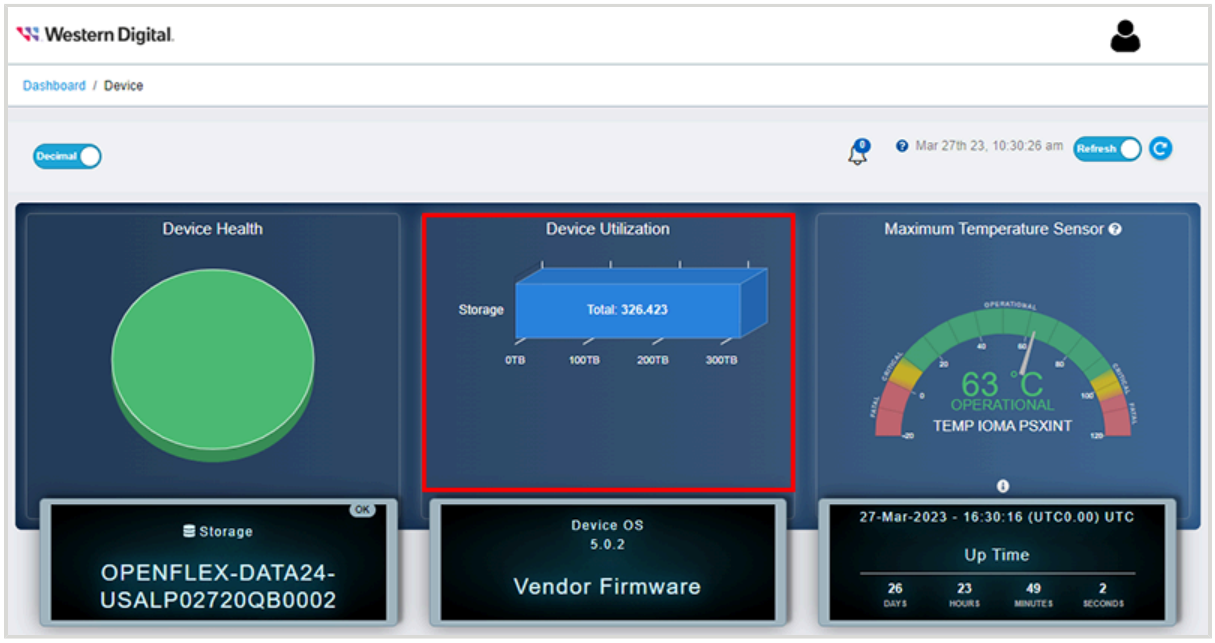
Figure 197: Components & Sensors Health Status



Device Utilization

The **Device Utilization** section displays an aggregate of the total, free, and used storage on this enclosure.

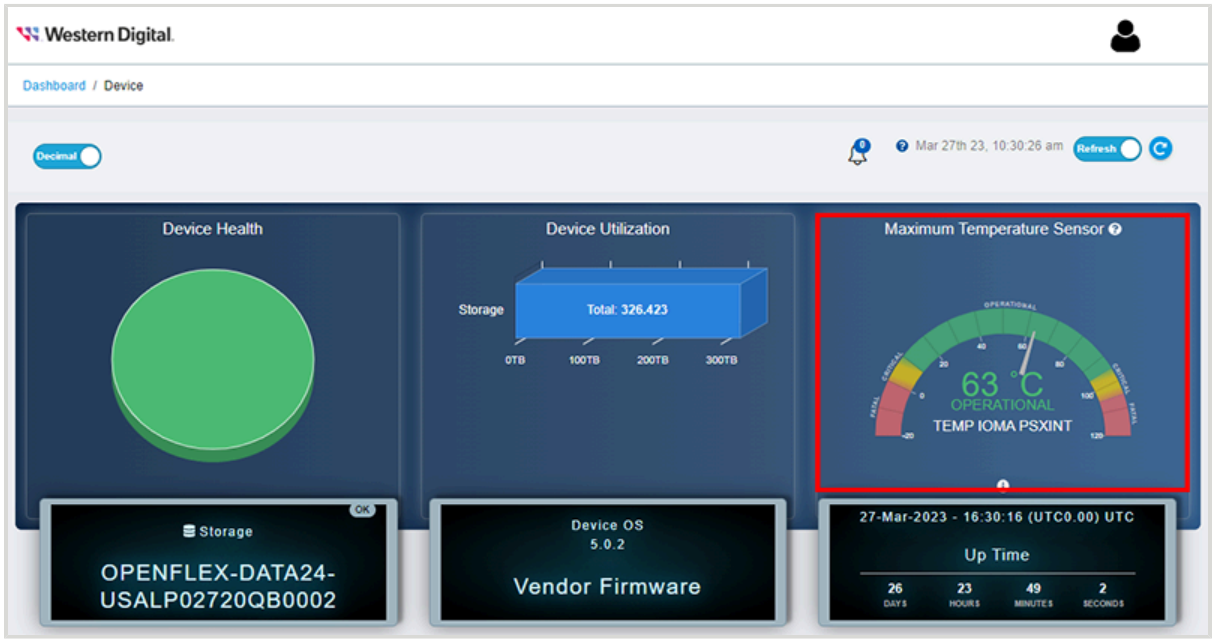
Figure 198: Device Utilization Chart



Maximum Temperature Sensor

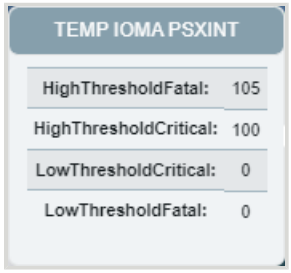
The **Maximum Temperature Sensor** section of the dashboard displays a temperature scale for the sensor with the highest temperature in the enclosure.

Figure 199: Maximum Temperature Scale



For additional details, click the **i** at the bottom of the panel. This will bring up a window showing the thresholds for that sensor:

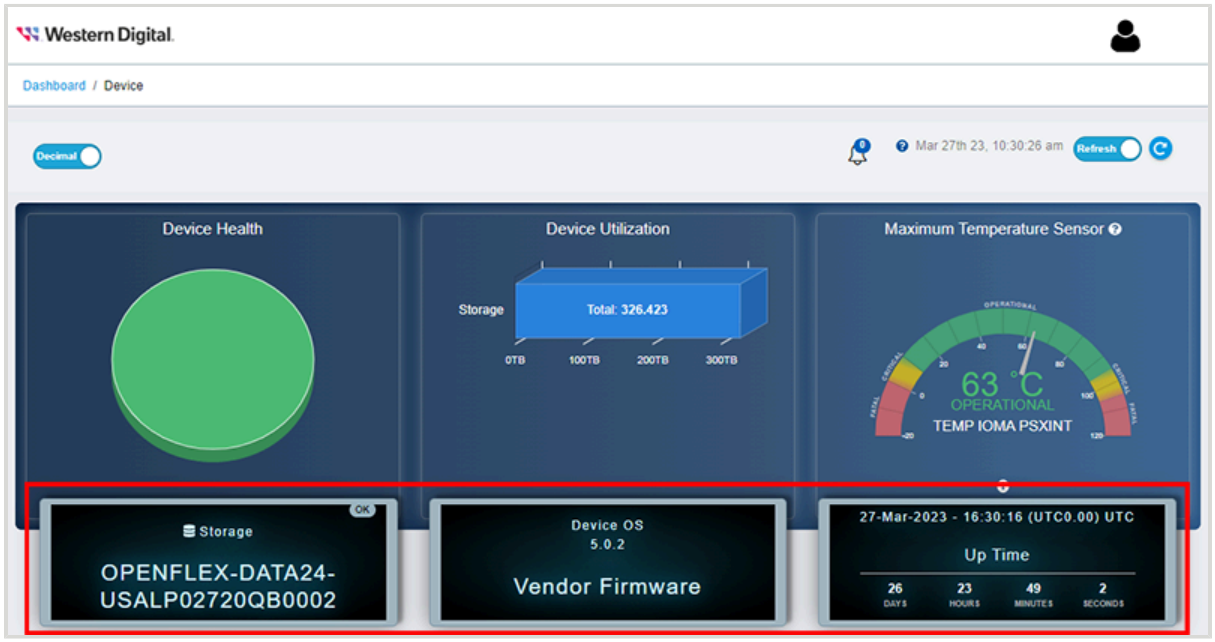
Figure 200: Sensor Temperature Thresholds



Device Information

The panels in the middle section provide information about the enclosure, including the device ID, firmware version, and uptime/runtime.

Figure 201: Device Details



Device Management Controls

The bottom portion of the dashboard provides enclosure management information and controls, which are organized into the following tabs:

- **Device Information**
- **Administration**
- **Accounts**
- **Location**
- **Controllers**
- **Power Supplies**
- **Cooling Devices**
- **Ports**
- **Sensors**
- **Device OS**
- **Media**

The following sections provide procedures for the most common management actions available from these tabs.

5.2 Device Information

The OpenFlex enclosure's **Device Information** tab provides general information about the enclosure and its network role, such as model, serial number, hostname, and IP addresses.

5.2.1 Viewing/Downloading Logs & Files

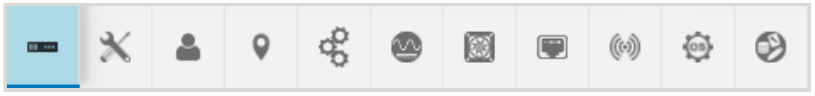
This procedure provides instructions for downloading logs, notices, firmware build information, and telemetry files from an OpenFlex enclosure using the Resource Manager Data Center Edition.

Before you begin:

- Follow the instructions for Navigating to an Enclosure Dashboard (Data Center Edition) *(page 44)*.

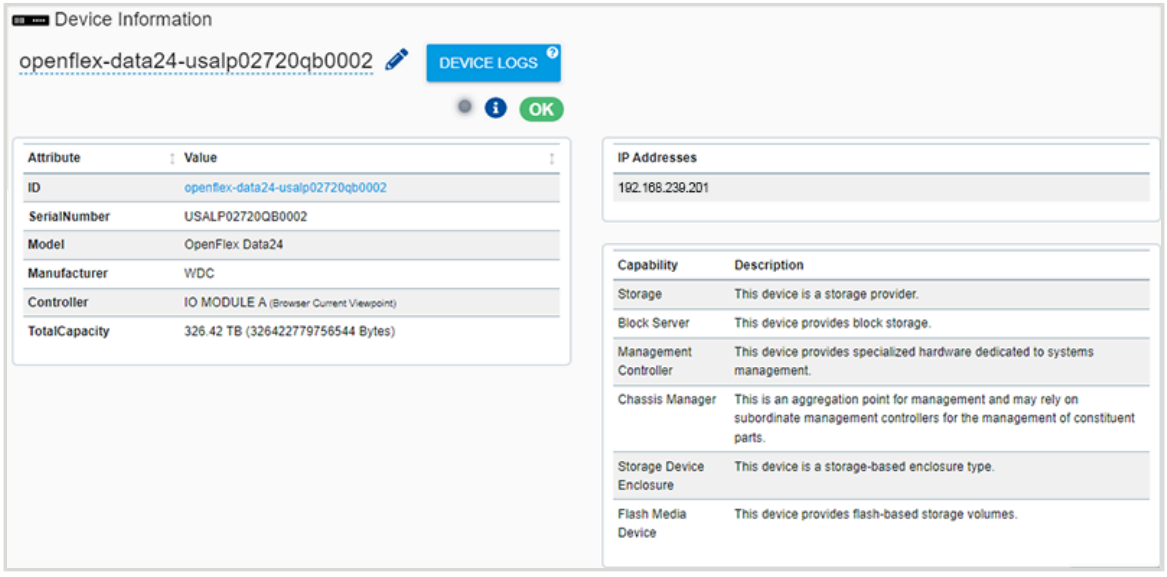
Step 1: From the enclosure dashboard, click the **Device Information** tab.

Figure 202: Device Information Tab



The **Device Information** page will appear:

Figure 203: Device Information Page

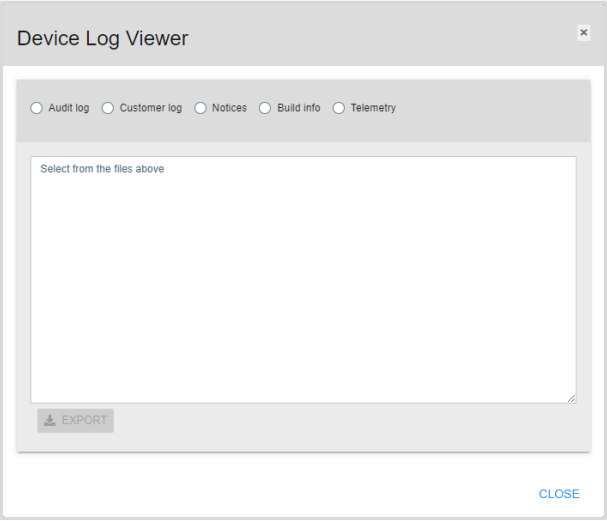


Step 2: Click the **Device Logs** button.

Figure 204: Device Logs Button

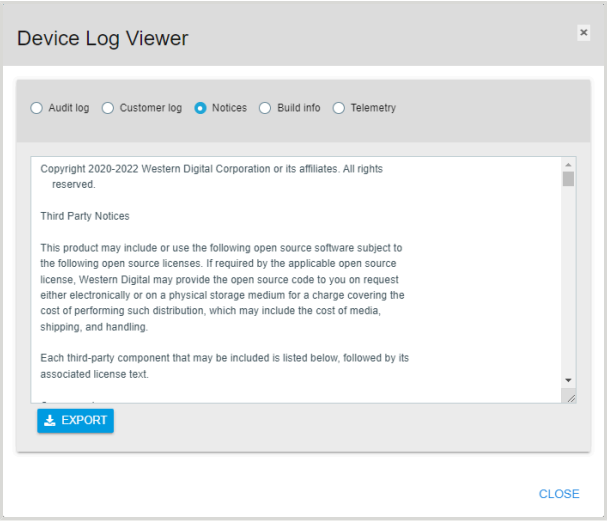
A **Device File Viewer** window will appear:

Figure 205: Device File Viewer



Step 3 : Use the radio buttons at the top to select the logs or files to be viewed/downloaded. The Resource Manager Data Center Edition will retreive the selected information.

Figure 206: Selecting Files



Step 4 : Click the **Export** button to download the selected files.

Figure 207: Export Button

The appropriate file type will be downloaded to your **Downloads** directory.

Step 5 : Click the **Close** button to close the **Device File Viewer**.

Result: The logs or files have now been downloaded from the OpenFlex enclosure.

5.2.2 Enabling the Enclosure Ident LED

This procedure provides instructions for enabling the identification LED of an OpenFlex enclosure using the Resource Manager Data Center Edition.

Before you begin:

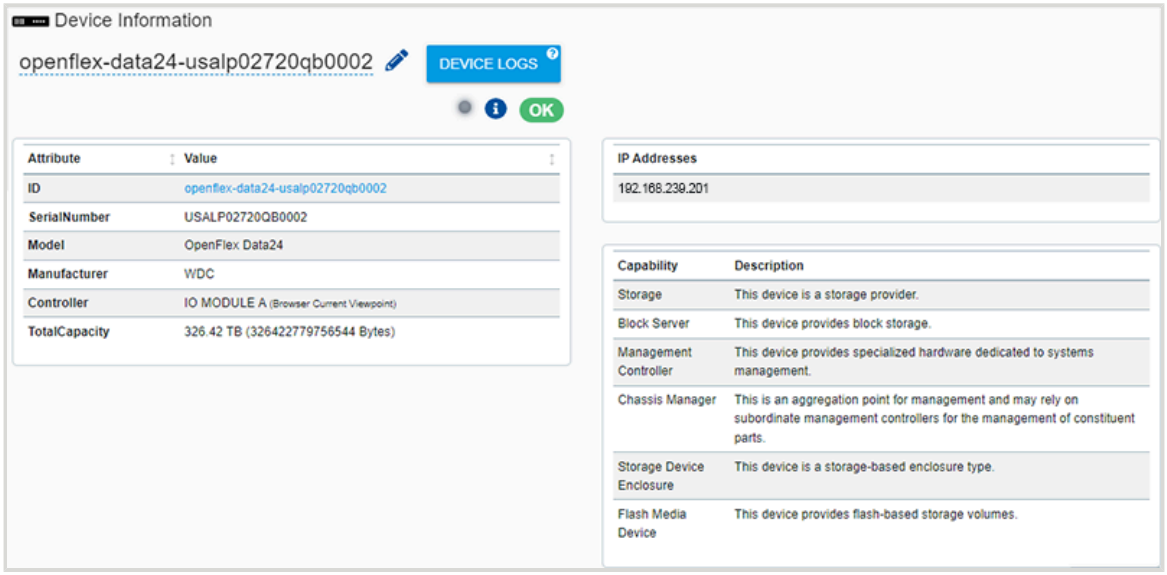
- Follow the instructions for Navigating to an Enclosure Dashboard (Data Center Edition) *(page 44)*.

Step 1: From the enclosure dashboard, click the **Device Information** tab.

Figure 208: Device Information Tab

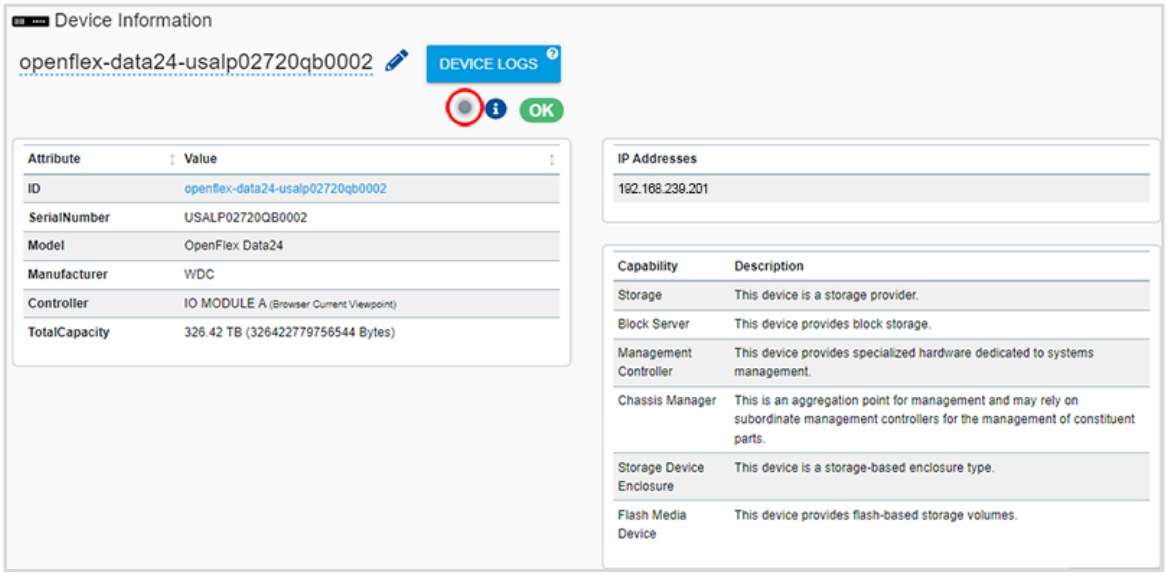
The **Device Information** page will appear:

Figure 209: Device Information Page



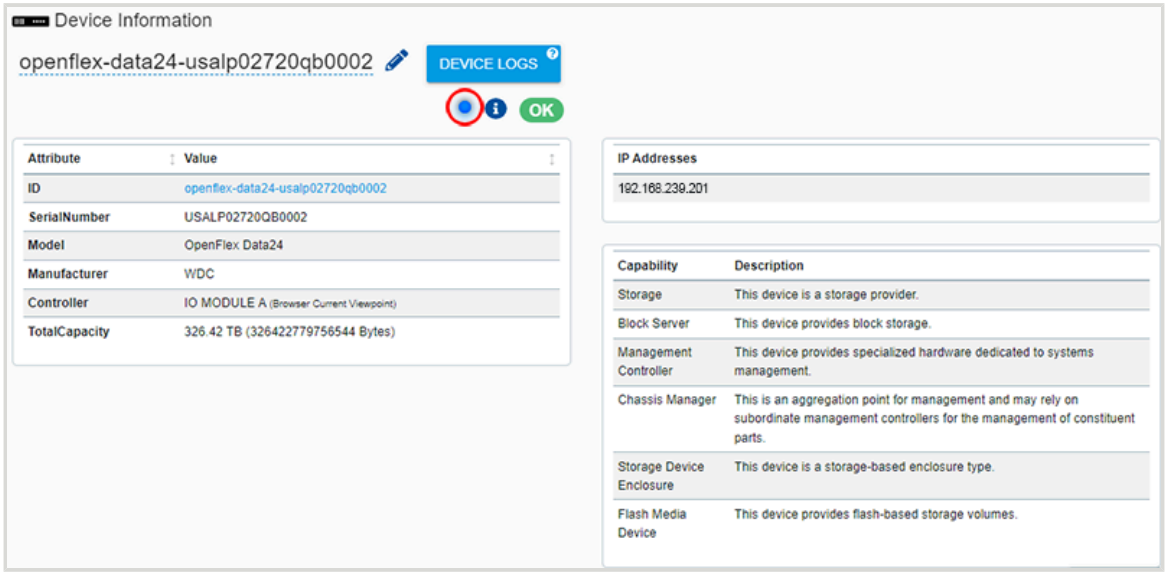
Step 2: Click the **Locator LED** button.

Figure 210: Locator LED Button



The enclosure's identification LED will pulse with a blue color, indicating that it is enabled:

Figure 211: Identification LED Enabled



Step 3 : To disable the LED, click it again.

Result: The identification LED of the OpenFlex enclosure has now been enabled.

5.3 Administration

The OpenFlex enclosure's **Administration** tab provides controls for administrative operations, such as rebooting the enclosure, LDAP/AD settings, and uploading an SSL/TLS certificate.

5.3.1 Rebooting the Enclosure

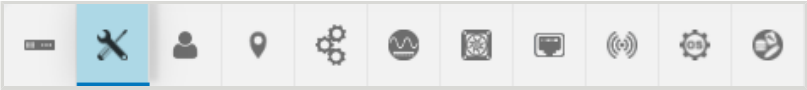
This procedure provides instructions for rebooting an OpenFlex enclosure using the Resource Manager Data Center Edition.

Before you begin:

- Follow the instructions for Navigating to an Enclosure Dashboard (Data Center Edition) *(page 44)*.

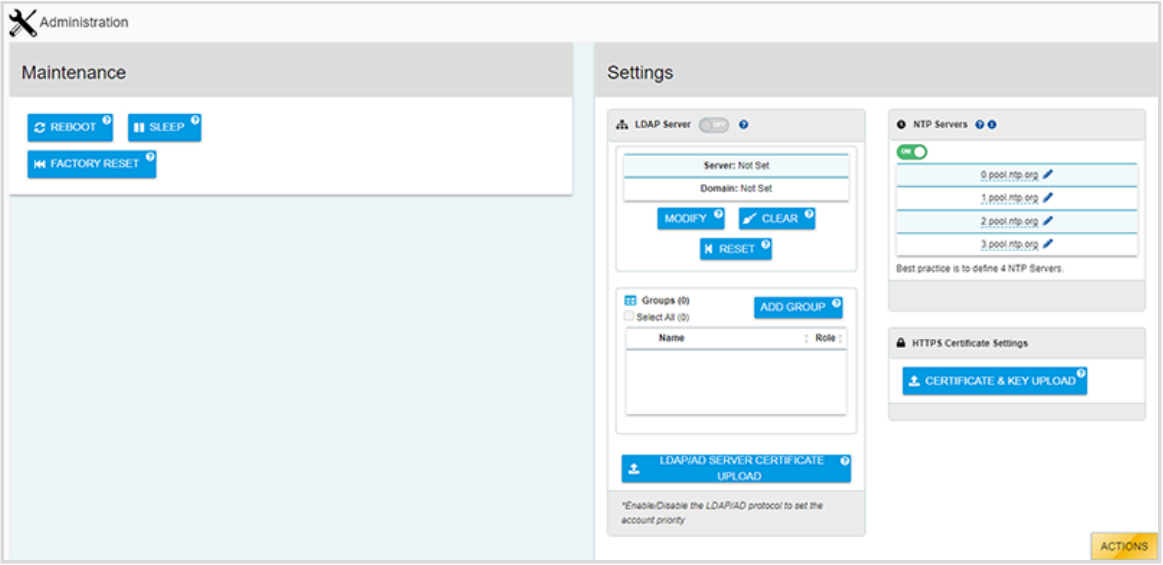
Step 1: From the enclosure dashboard, click the **Administration** tab.

Figure 212: Administration Tab



The **Administration** page will appear:

Figure 213: Administration Page



Step 2: Click the **Reboot** button.

Caution: Clicking the **Reboot** button will reboot the enclosure, making it unavailable until the reboot is completed.

Figure 214: Reboot Button

The enclosure will be rebooted, and will become available again when the reboot is completed.

Result: The OpenFlex enclosure has now been rebooted.

5.3.2 Enclosure Factory Reset

This procedure provides instructions for performing a factory reset of the OpenFlex enclosure using Resource Manager Data Center Edition software.

Before you begin:

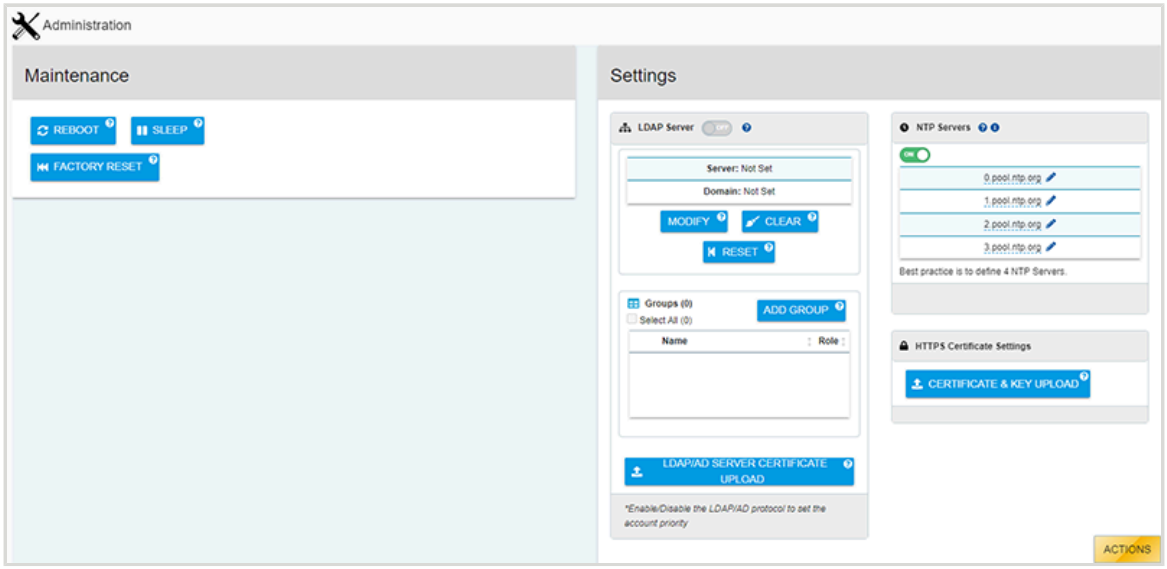
- Follow the instructions for Navigating to an Enclosure Dashboard (Data Center Edition) *(page 44)*.

Step 1: From the enclosure dashboard, click the **Administration** tab.

Figure 215: Administration Tab

The **Administration** page will appear:

Figure 216: Administration Page



Step 2: In the **Maintenance** section, click the **Factory Reset** button.

Figure 217: Reset Button

The enclosure will become unresponsive until it is returned to its original factory settings.

Result: The enclosure has now been reset.

5.3.3 Adding an LDAP/AD Group

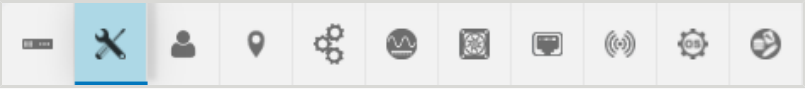
This procedure provides instructions for adding a Lightweight Directory Access Protocol (LDAP) or Active Directory (AD) group to an OpenFlex enclosure using the Resource Manager Data Center Edition.

Before you begin:

- Follow the instructions for Navigating to an Enclosure Dashboard (Data Center Edition) *(page 44)*.

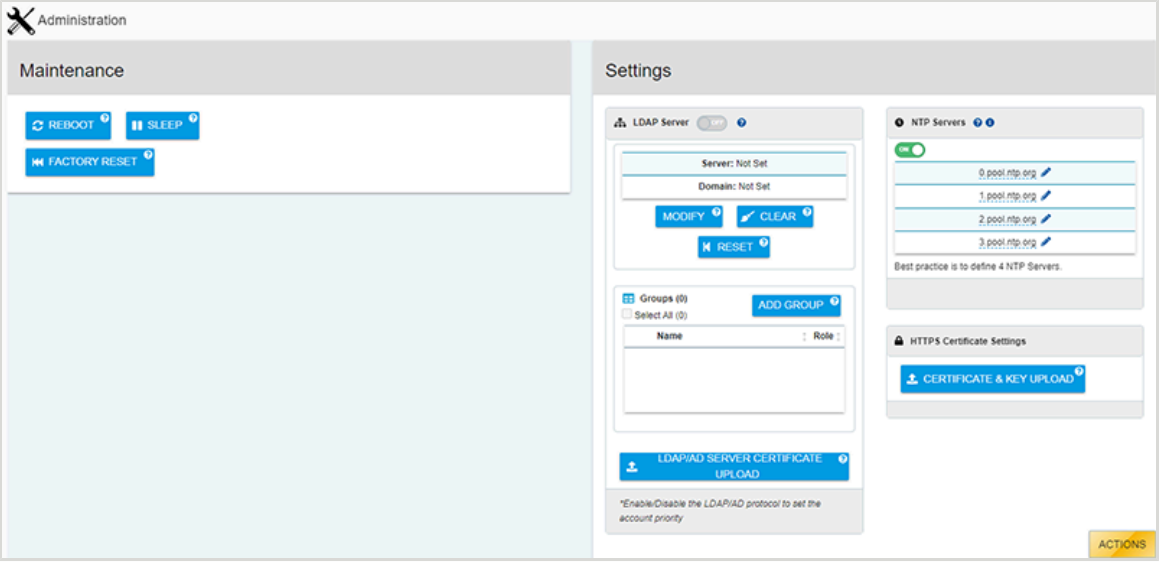
Step 1: From the enclosure dashboard, click the **Administration** tab.

Figure 218: Administration Tab



The **Administration** page will appear:

Figure 219: Administration Page

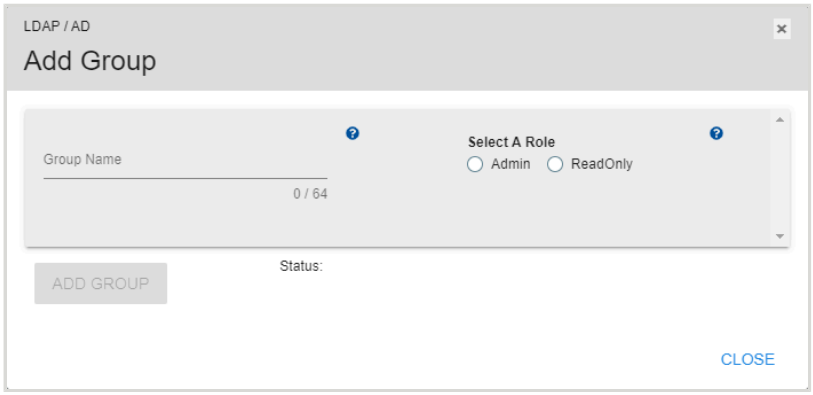


Step 2: In the **Settings** section, click the **Add Group** button.

Figure 220: Add Group Button

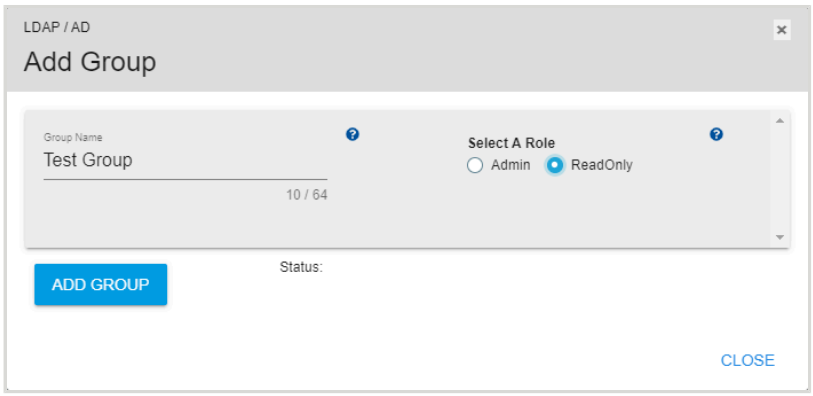
The **Add Group** window will appear:

Figure 221: Add Group Window



Step 3 : Type a name into the **Group Name** field, and use the radio buttons to select a role for the group.

Figure 222: Naming the Group

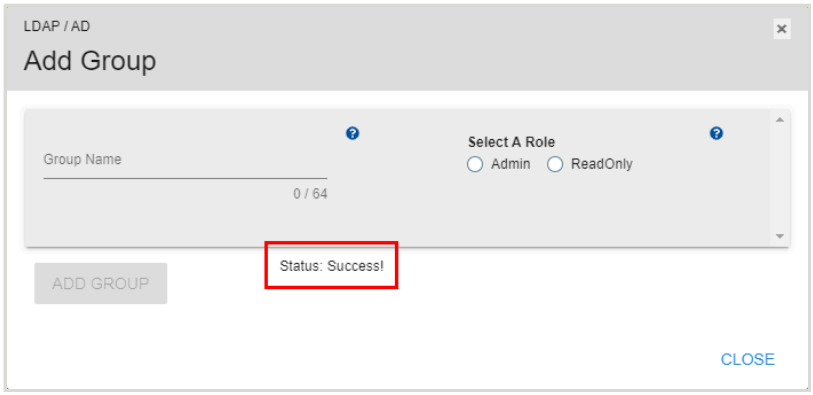


Step 4 : Click the **Add Group** button.

Figure 223: Add Group Button

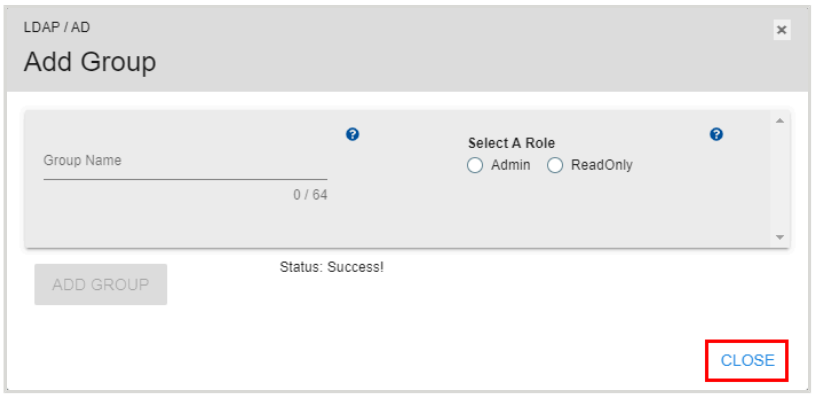
A success message will be displayed:

Figure 224: Successful Addition of Group



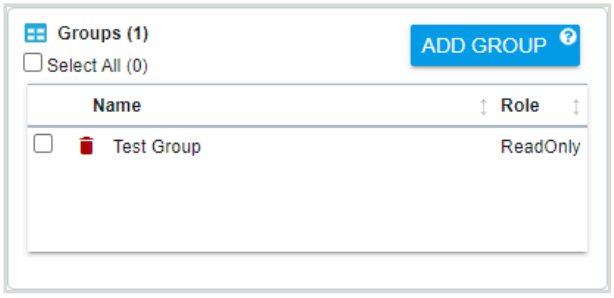
Step 5 : Click **Close** to close the **Add Group** window.

Figure 225: Closing the Add Group Window



Step 6 : In the **Settings** section, under **Groups**, verify that LDAP/AD group has been created.

Figure 226: Verifying the Group



Result: The LDAP/AD group has now been added to the enclosure.

5.3.4 Configuring LDAP/AD Settings

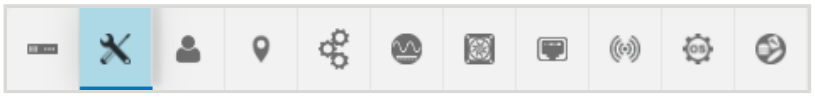
This procedure provides instructions for configuring Lightweight Directory Access Protocol (LDAP) or Active Directory (AD) connection settings on an OpenFlex enclosure using the Resource Manager Data Center Edition.

Before you begin:

1. Follow the instructions for Navigating to an Enclosure Dashboard (Data Center Edition) *(page 44)*.
2. Follow the instructions for Adding an LDAP/AD Group *(page 120)*.

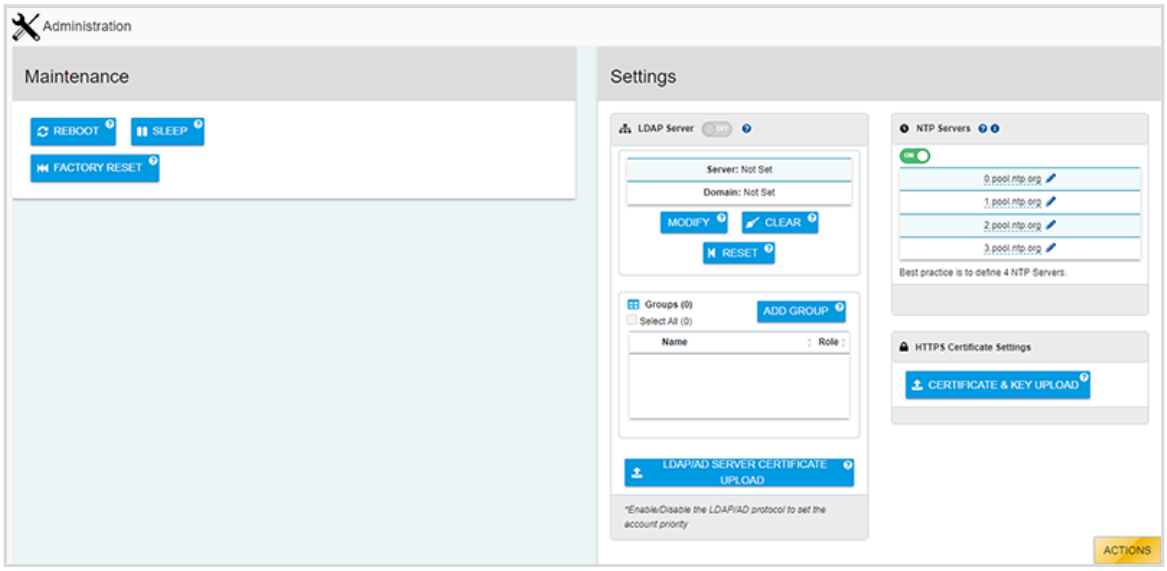
Step 1: From the enclosure dashboard, click the **Administration** tab.

Figure 227: Administration Tab



The **Administration** page will appear:

Figure 228: Administration Page

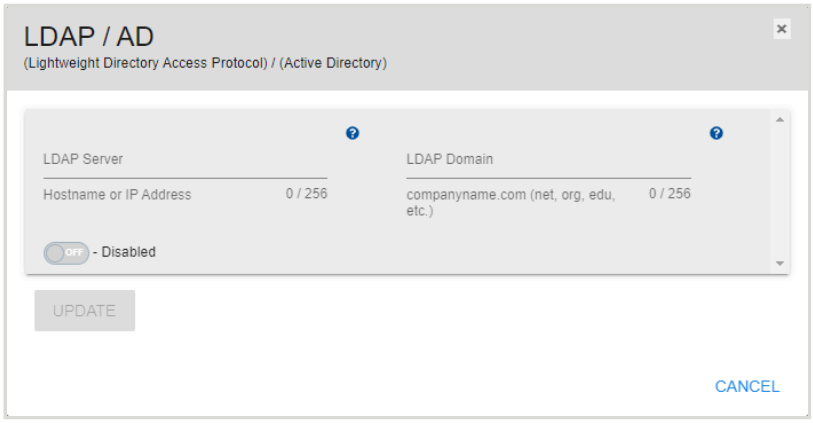


Step 2: In the **Settings** section, under **LDAP Server**, click the **Modify** button.

Figure 229: Modify Button

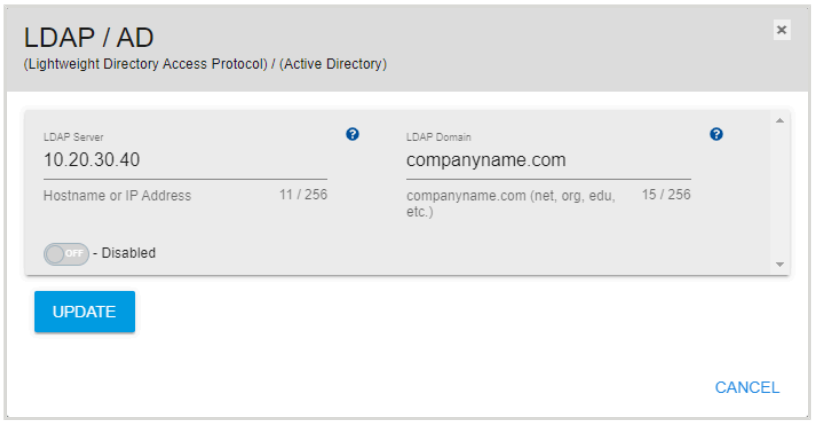
An **LDAP / AD** window will appear:

Figure 230: LDAP / AD Window



Step 3 : Type the hostname or IP address of the LDAP/AD server into the **LDAP Server** field., and type the LDAP/AD domain name into the **LDAP Domain** field.

Figure 231: Populated LDAP / AD Window

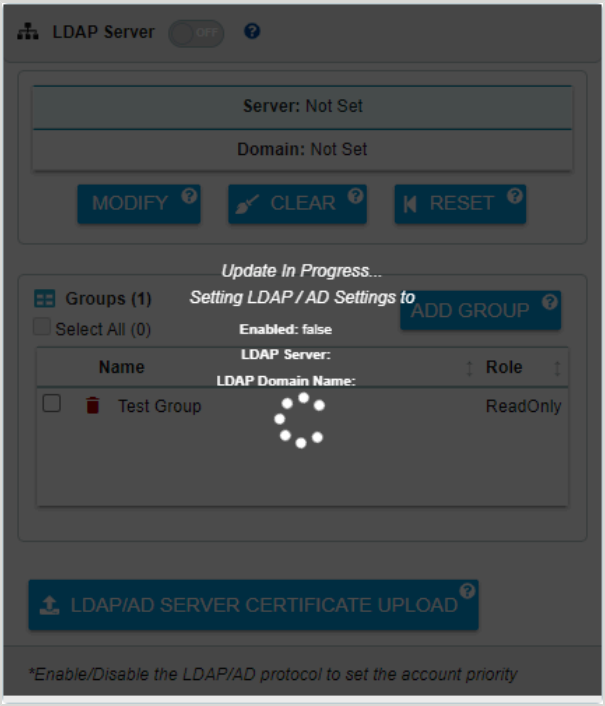


Step 4 : Click the **Update** button to save the LDAP/AD configuration.

Figure 232: Update Button

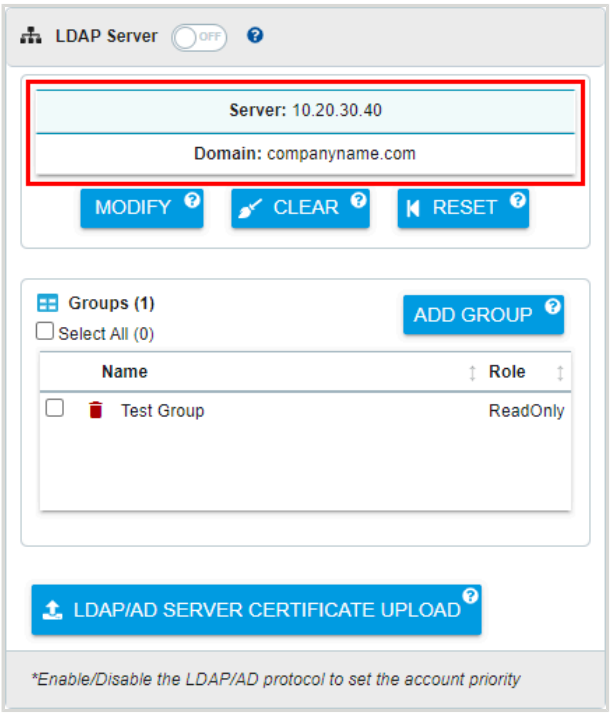
The **LDAP Server** section will be overlaid with a modal, showing that the update is in progress:

Figure 233: LDAP / AD Update Progress



When the update is complete, the **LDAP Server** section will display the new settings:

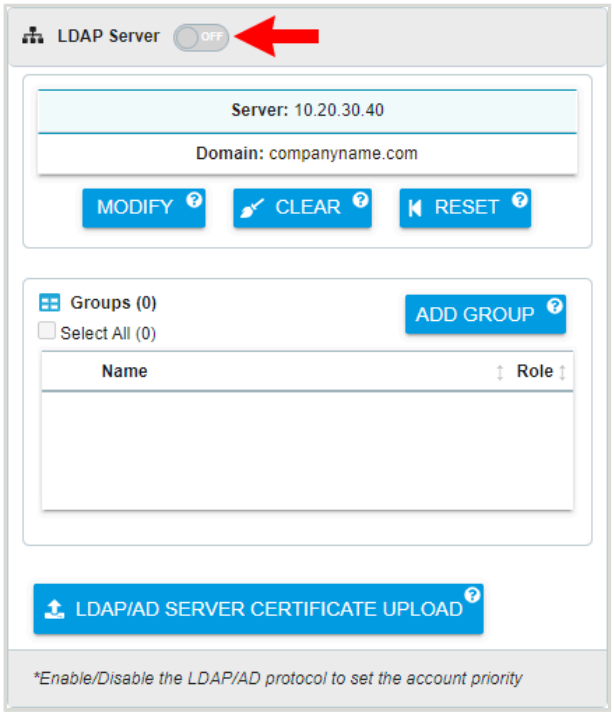
Figure 234: Updated LDAP / AD Settings



Step 5 : To enable the new configuration, click to toggle the **LDAP Server** switch to the **ON** position.

Note: To enable an LDAP/AD configuration, at least one LDAP/AD group must be configured.

Figure 235: Toggle Switch



Result: The Lightweight Directory Access Protocol (LDAP) or Active Directory (AD) connection settings have now been configured.

5.3.5 Uploading an LDAP/AD Certificate

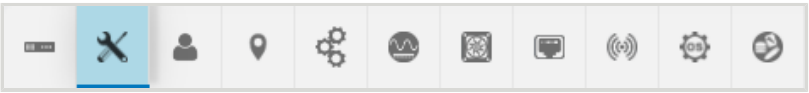
This procedure provides instructions for uploading a Lightweight Directory Access Protocol (LDAP) or Active Directory (AD) certificate to an OpenFlex enclosure using the Resource Manager Data Center Edition.

Before you begin:

1. Follow the instructions for Navigating to an Enclosure Dashboard (Data Center Edition) *(page 44)*.

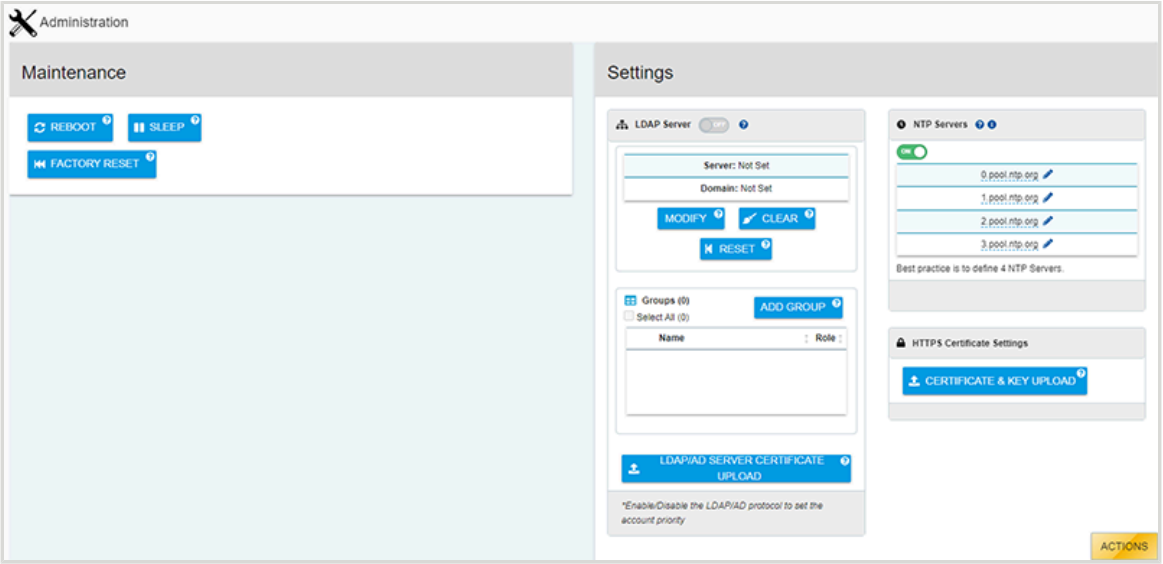
Step 1: From the enclosure dashboard, click the **Administration** tab.

Figure 236: Administration Tab



The **Administration** page will appear:

Figure 237: Administration Page

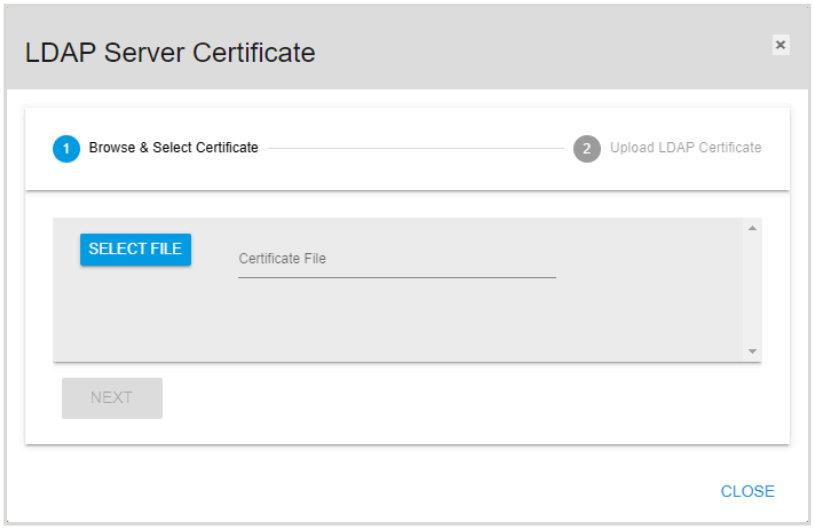


Step 2: In the **Settings** section, under **LDAP Server**, click the **LDAP/AD Server Certificate Upload** button.

Figure 238: LDAP/AD Server Certificate Upload Button

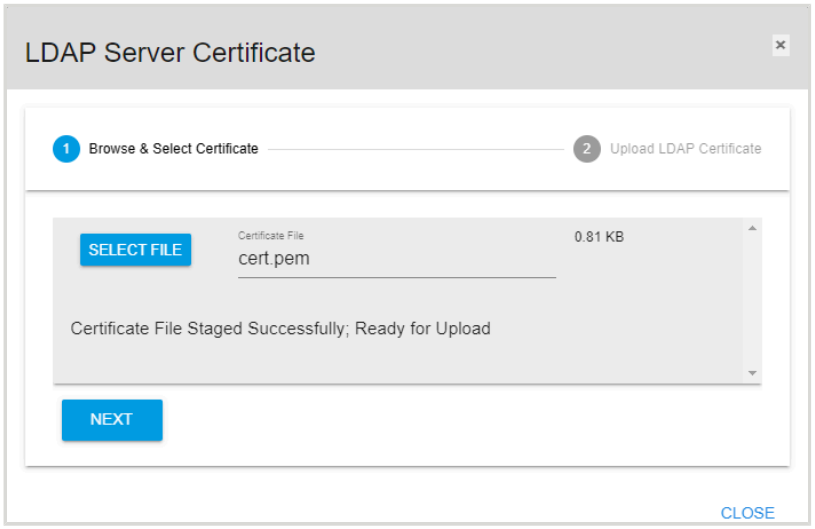
An **LDAP Server Certificate** window will appear, showing step 1 of 2:

Figure 239: LDAP / AD Window



Step 3 : Either type the certificate filename into the **Certificate File** field, or click the **Select File** button to browse to the certificate and select it.

Figure 240: Selected Certificate File

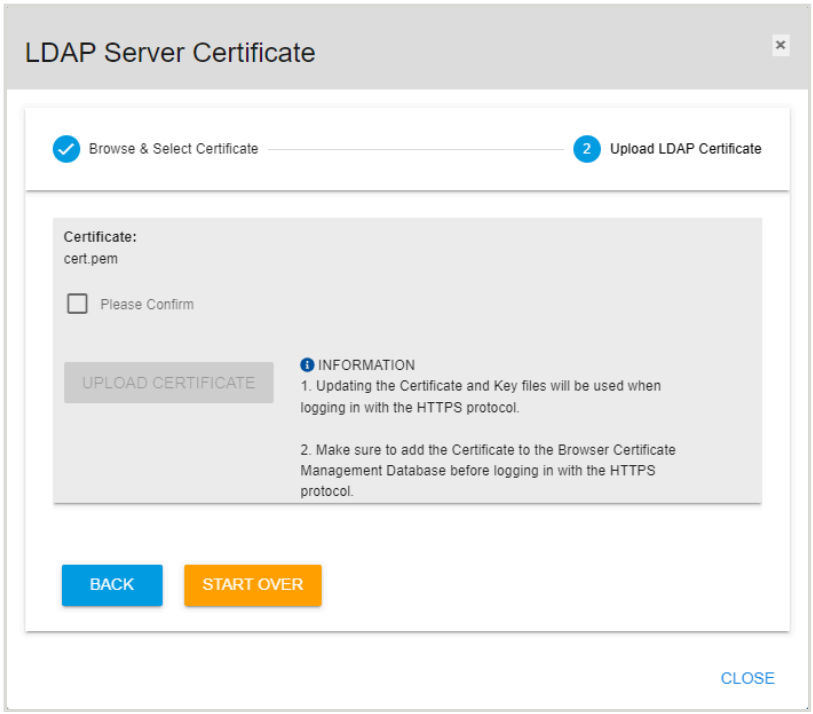


Step 4 : Click the **Next** button.

Figure 241: Next Button

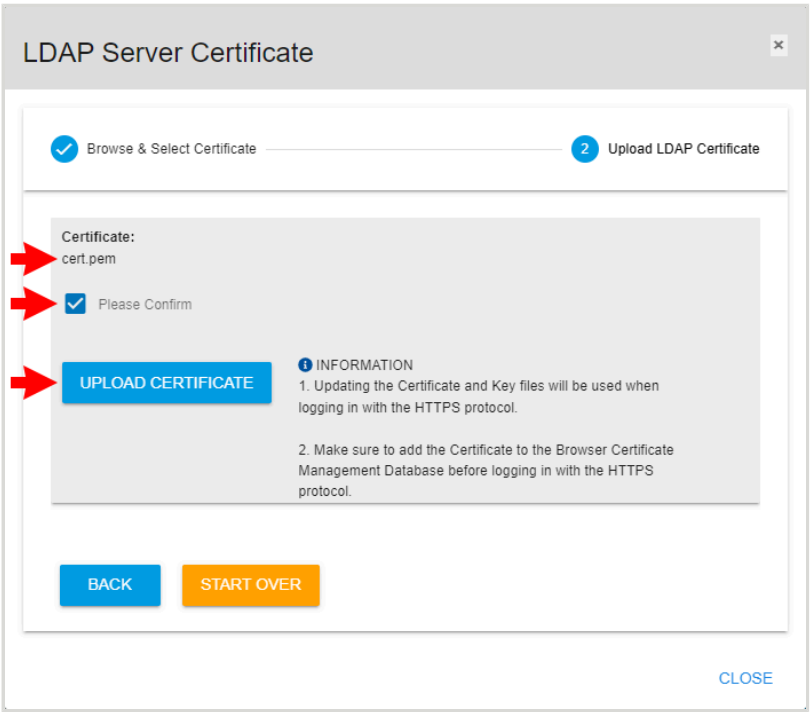
The **LDAP Server Certificate** window will proceed to step 2:

Figure 242: Confirm Certificate



Step 5 : Review the selected certificate file name. If correct, click the **Please Confirm** checkbox and then click the **Upload Certificate** button to upload the certificate.

Figure 243: Confirm Certificate Upload



Result: The Lightweight Directory Access Protocol (LDAP) or Active Directory (AD) certificate has now been uploaded to the enlcosure.

5.3.6 Configuring NTP Settings

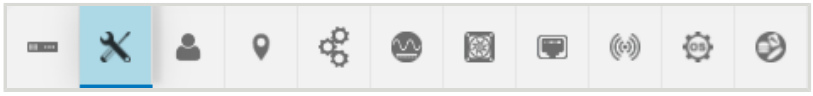
This procedure provides instructions for configuring network time protocol (NTP) settings on an OpenFlex enclosure using the Resource Manager Data Center Edition.

Before you begin:

1. Follow the instructions for Navigating to an Enclosure Dashboard (Data Center Edition) *(page 44)*.

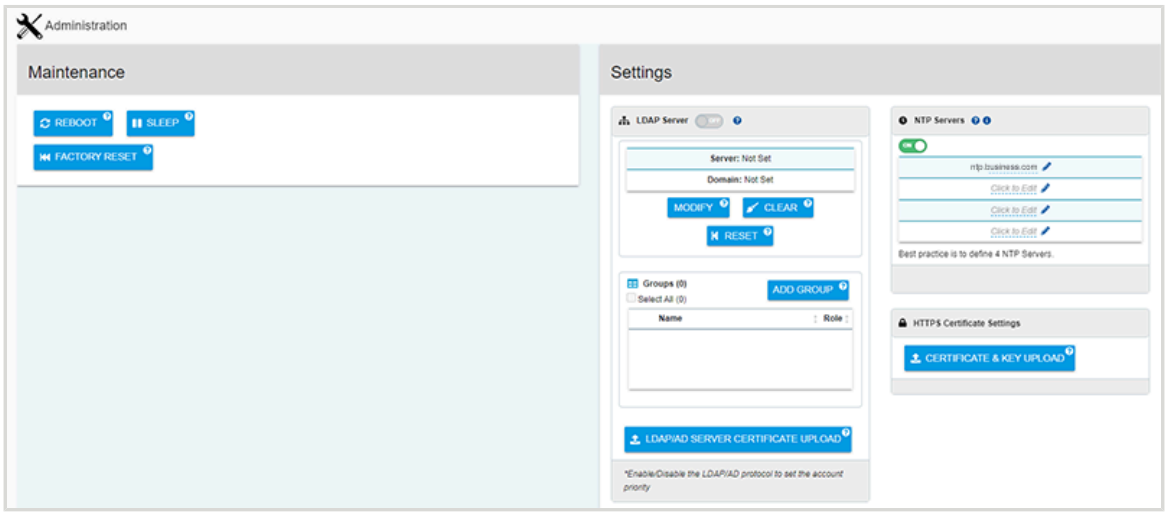
Step 1: From the enclosure dashboard, click the **Administration** tab.

Figure 244: Administration Tab



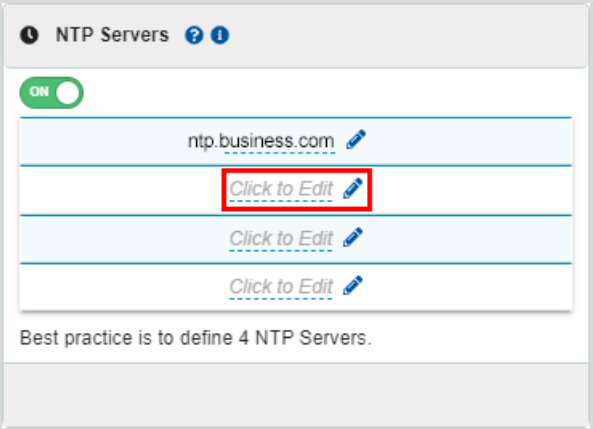
The **Administration** page will appear:

Figure 245: Administration Page



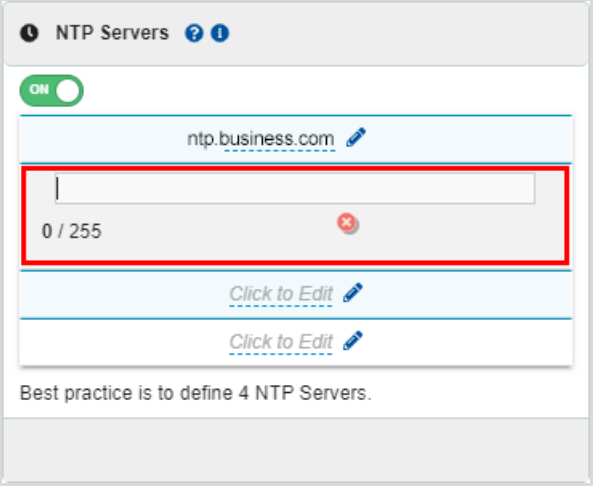
Step 2: In the **Settings** section, under **NTP Servers**, click the **Click to Edit** link or the **edit** icon for one of the available NTP server configurations.

Figure 246: Click to Edit



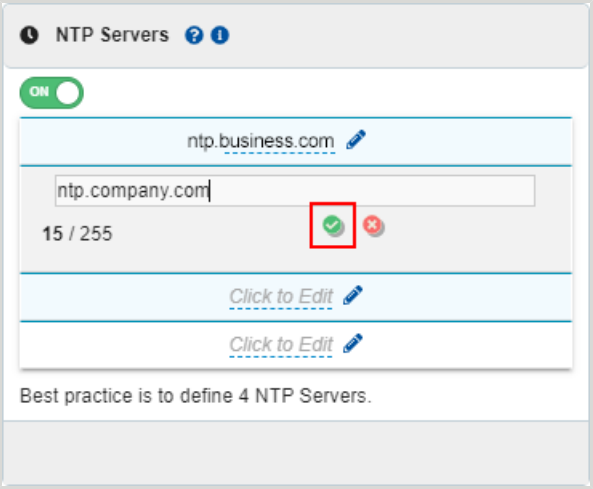
The section expands to provide a text field:

Figure 247: NTP Text Field



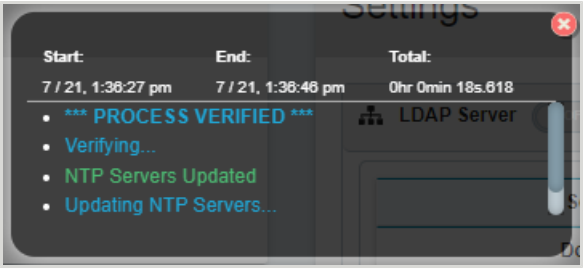
Step 3 : Type the domain name of an NTP server into the text field, and then click the green checkmark.

Figure 248: NTP Domain



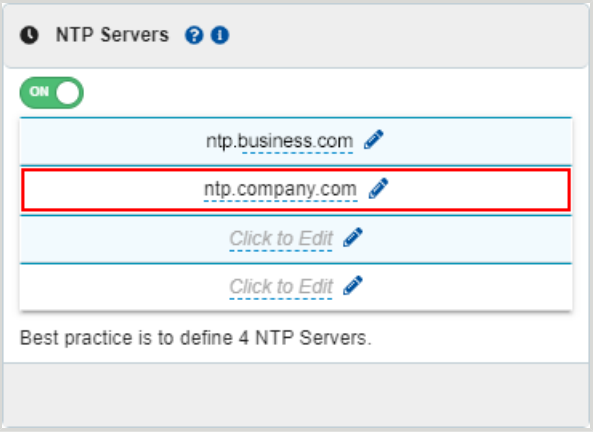
After the NTP server is verified, the enclosure's NTP configuration will be updated:

Figure 249: NTP Domain



Step 4 : Click the red *X* to close the notification, and verify that the NTP server is now listed.

Figure 250: NTP Server Configured



Result: The network time protocol (NTP) settings have now been configured on the enclosure.

5.3.7 Uploading an HTTPS Certificate & Key

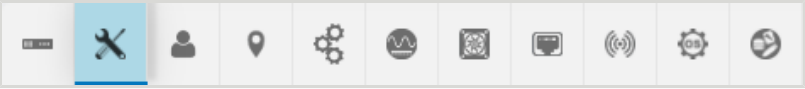
This procedure provides instructions for uploading an SSL/TLS certificate and key pair to an OpenFlex enclosure using the Resource Manager Data Center Edition.

Before you begin:

- Follow the instructions for Navigating to an Enclosure Dashboard (Data Center Edition) *(page 44)*.

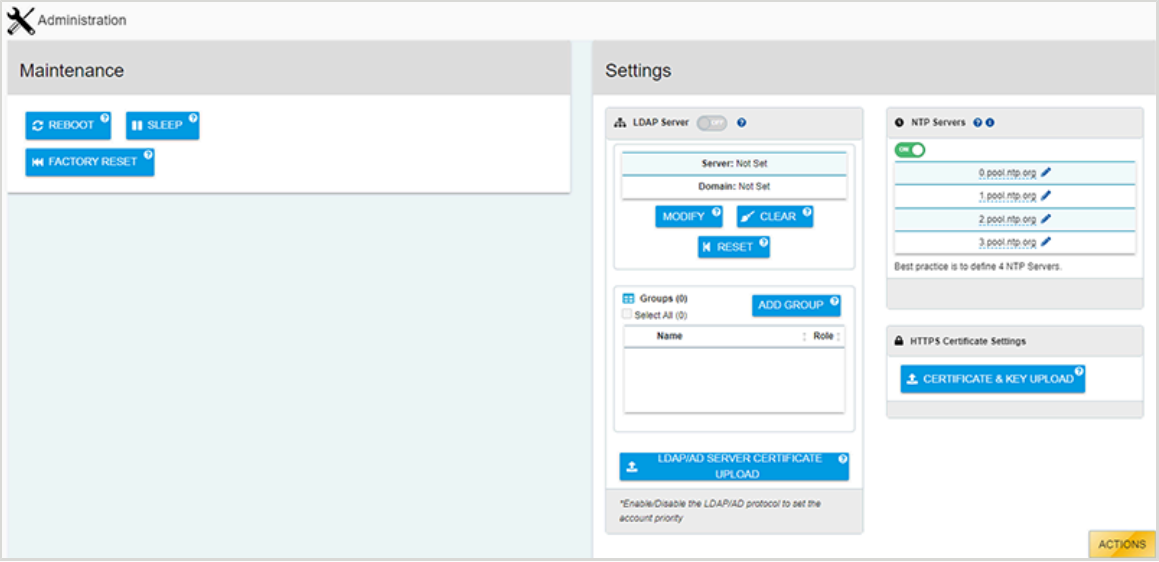
Step 1: From the enclosure dashboard, click the **Administration** tab.

Figure 251: Administration Tab



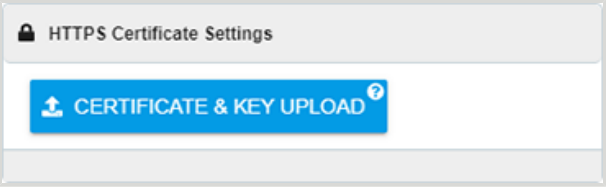
The **Administration** page will appear:

Figure 252: Administration Page



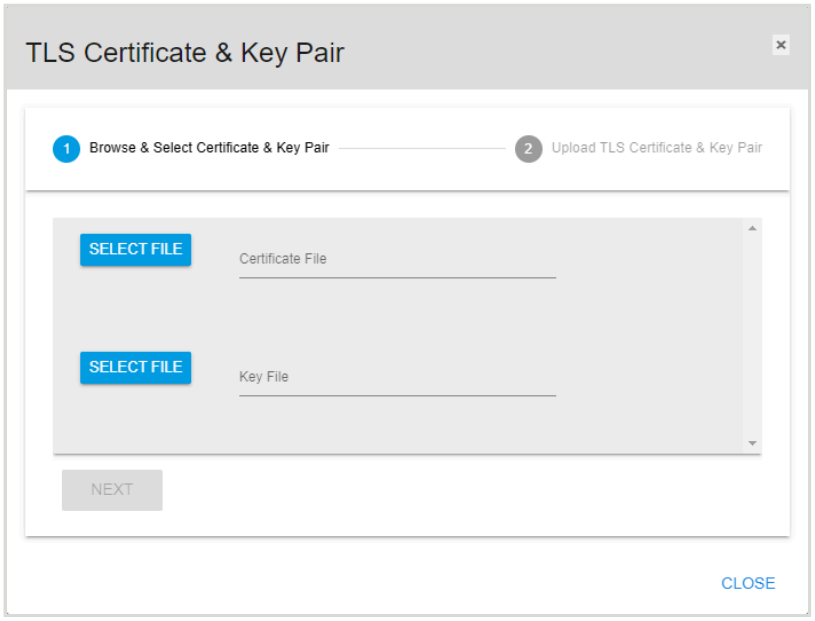
Step 2: In the **HTTPS Certificate Settings** section, click the **Certificate & Key Upload** button.

Figure 253: Certificate & Key Upload Button



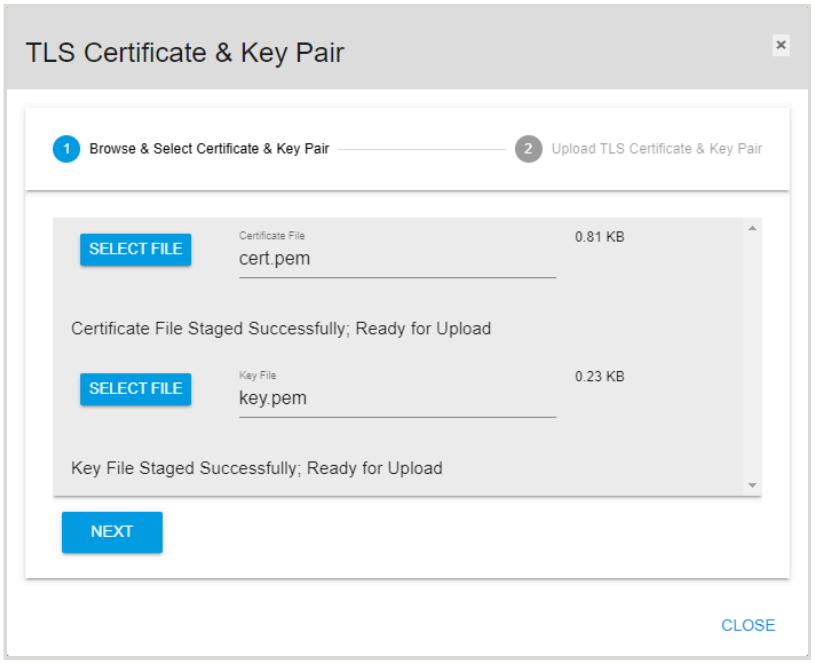
A **TLS Certificate & Key Pair** window will appear, showing step 1 of the upload process:

Figure 254: TLS Certificate & Key Pair Window



Step 3 : Click the **Select File** buttons to browse to the desired certificate and key files on the host system.

Figure 255: Certificate & Key Files Selected

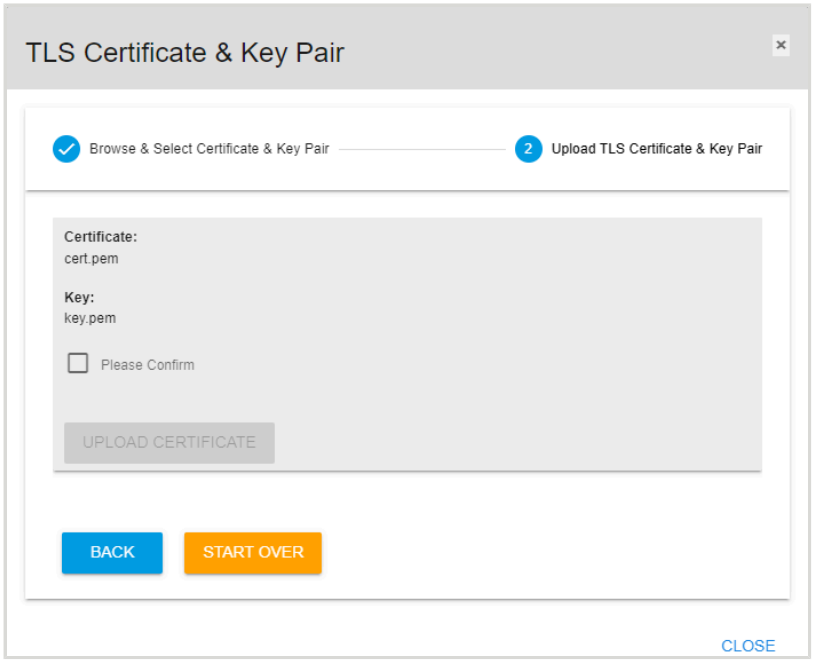


Step 4 : Click the **Next** button.

Figure 256: Next Button

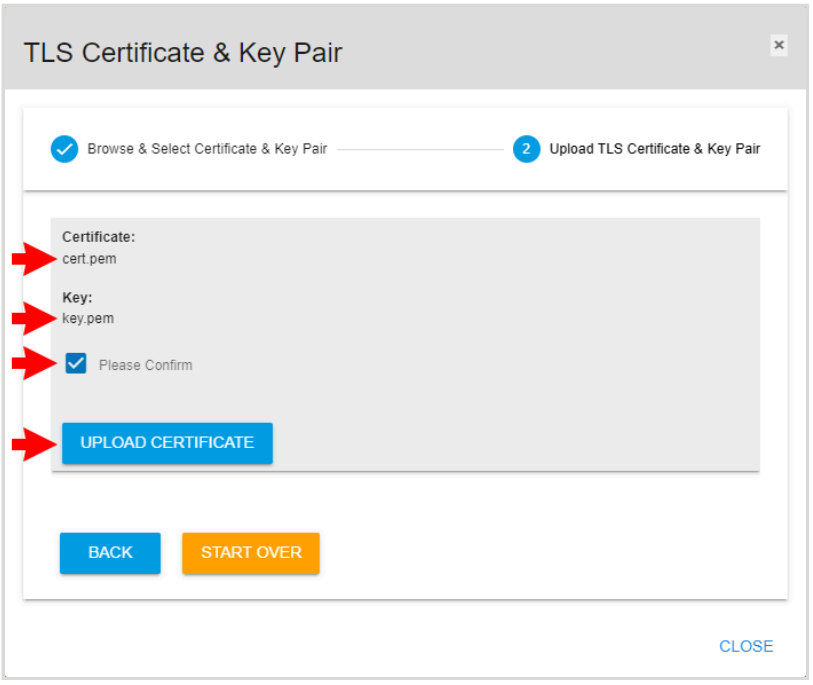
The **TLS Certificate & Key Pair** window will update to show step 2 of the upload process:

Figure 257: Confirm Certificate & Key Files



Step 5 : Review the listed certificate and key files, and click the **Please Confirm** checkbox if the files are correct. Then click the **Upload Certificate** button to upload the pair of files.

Figure 258: Upload Certificate & Key Files



Result: The SSL/TLS certificate and key pair have now been uploaded to the OpenFlex enclosure.

5.4 Accounts

The OpenFlex enclosure's **Accounts** tab provides controls for configuring admin and user account access.

5.4.1 Creating a User Account

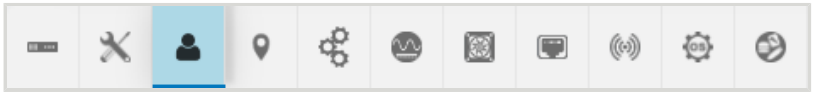
This procedure provides instructions for creating a user account on an OpenFlex enclosure using the Resource Manager Data Center Edition.

Before you begin:

- Follow the instructions for Navigating to an Enclosure Dashboard (Data Center Edition) *(page 44)*.

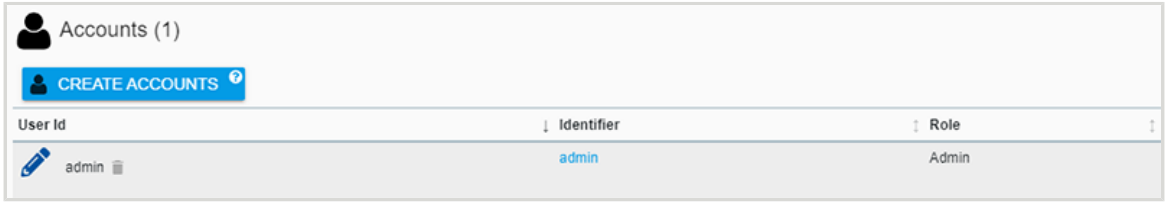
Step 1: From the enclosure dashboard, click the **Accounts** tab.

Figure 259: Accounts Tab



The **Accounts** page will appear:

Figure 260: Accounts Page

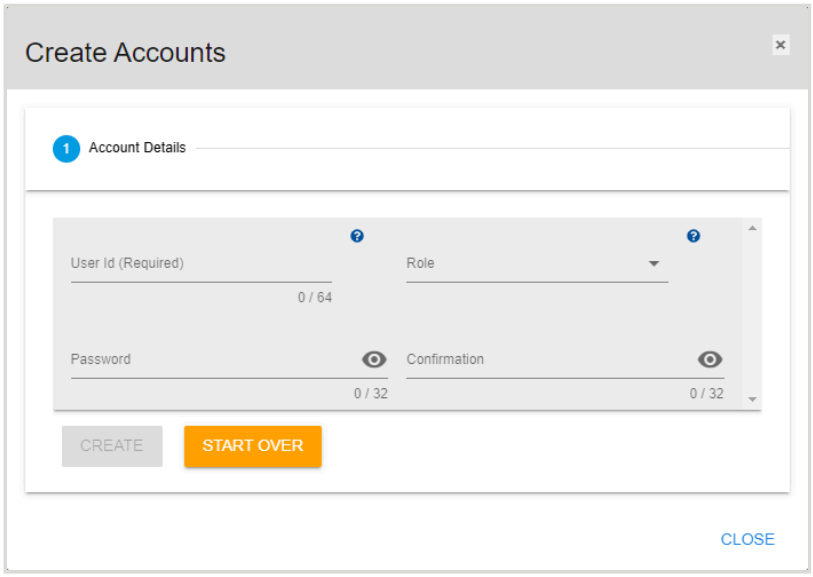


Step 2: Click the **Create Accounts** button.

Figure 261: Create Accounts Button

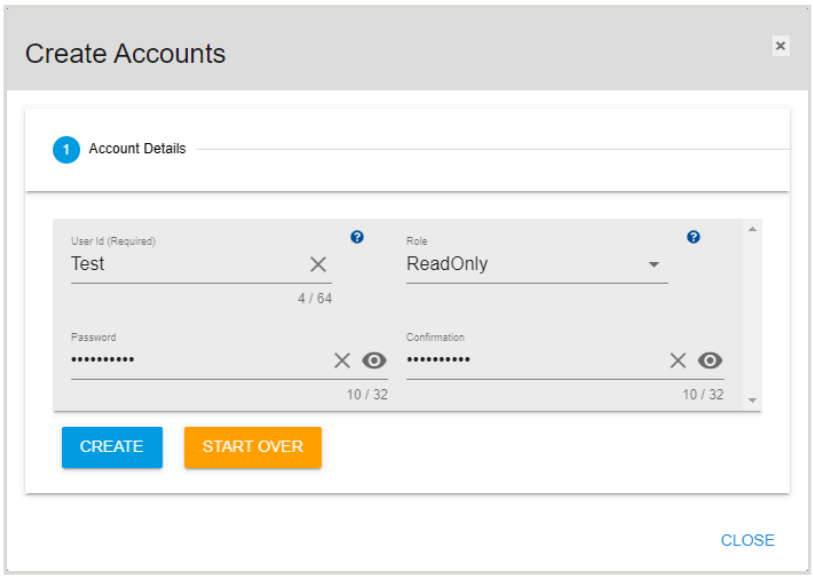
A **Create Accounts** window will appear:

Figure 262: Create Accounts Window



Step 3 : Use the available fields to enter a **User ID**, **Role**, and **Password**. Then click the **Create** button.

Figure 263: Account Details



Step 4 : When the account creation is complete, the **Accounts** page will display the new account.

Figure 264: Updated Accounts Page

Result: The user account has now been created on the OpenFlex enclosure.

5.4.2 Editing a User Account

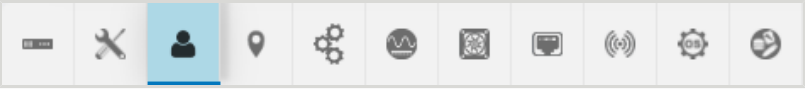
This procedure provides instructions for editing a user account on an OpenFlex enclosure using the Resource Manager Data Center Edition.

Before you begin:

- Follow the instructions for Navigating to an Enclosure Dashboard (Data Center Edition) *(page 44)*.

Step 1: From the enclosure dashboard, click the **Accounts** tab.

Figure 265: Accounts Tab



The **Accounts** page will appear:

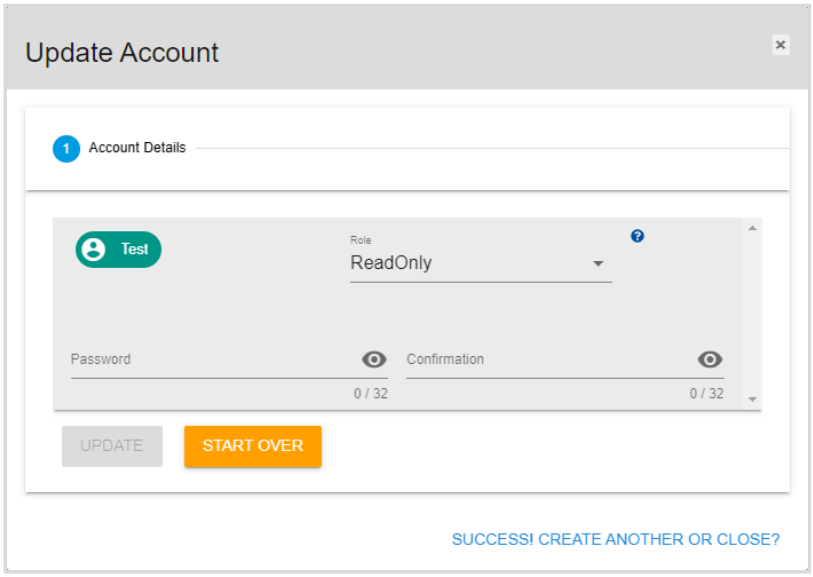
Figure 266: Accounts Page

Step 2: Click the **Edit** icon for the account to be edited.

Figure 267: Edit Icon

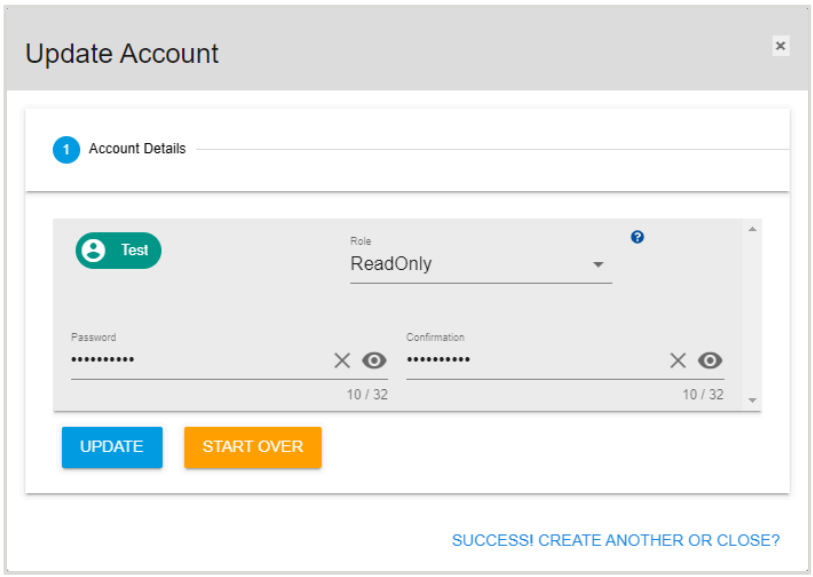
An **Update Account** window will appear:

Figure 268: Update Account Window



Step 3 : Use the available fields to edit the account **Role** or **Password**. Then click the **Update** button.

Figure 269: Update Account Details



Result: The user account has now been edited on the OpenFlex enclosure.

5.4.3 Deleting a User Account

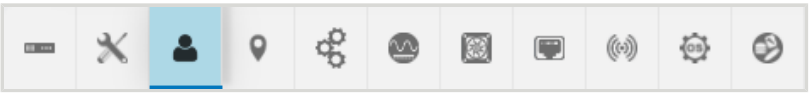
This procedure provides instructions for deleting a user account from an OpenFlex enclosure using the Resource Manager Data Center Edition.

Before you begin:

- Follow the instructions for Navigating to an Enclosure Dashboard (Data Center Edition) *(page 44)*.

Step 1: From the enclosure dashboard, click the **Accounts** tab.

Figure 270: Accounts Tab

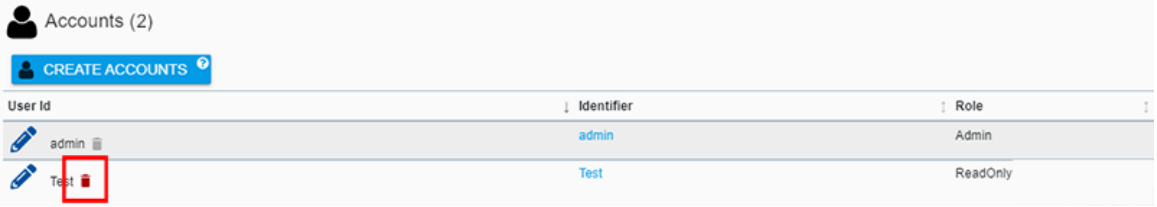


The **Accounts** page will appear:

Figure 271: Accounts Page

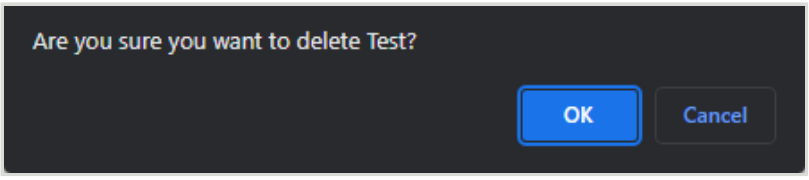
Step 2: Click the **Delete** icon for the account to be deleted.

Figure 272: Delete Icon



The user will be prompted to confirm the account deletion:

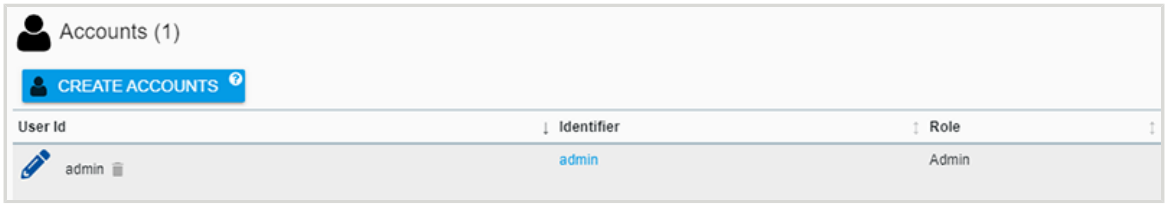
Figure 273: Confirm Account Deletion



Step 3: Click the **OK** button.

After the deletion is processed, the **Accounts** page will display the remaning accounts:

Figure 274: Remaining Accounts



Result: The user account has now been deleted from the OpenFlex enclosure.

5.5 Location

The OpenFlex enclosure's **Location** tab provides controls for configuring the enclosure's physical location attributes.

5.5.1 Setting Location Attributes

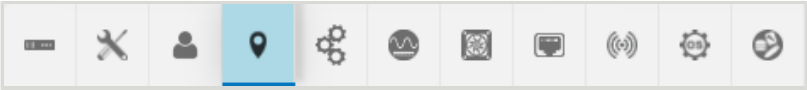
This procedure provides instructions for setting the location attributes of an OpenFlex enclosure using the Resource Manager Data Center Edition.

Before you begin:

- Follow the instructions for Navigating to an Enclosure Dashboard (Data Center Edition) *(page 44)*.

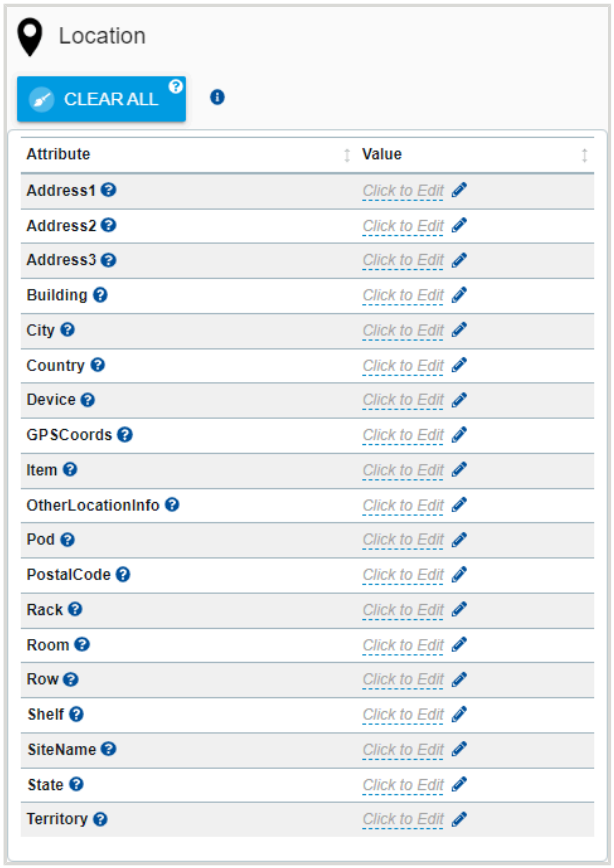
Step 1: From the enclosure dashboard, click the **Location** tab.

Figure 275: Location Tab



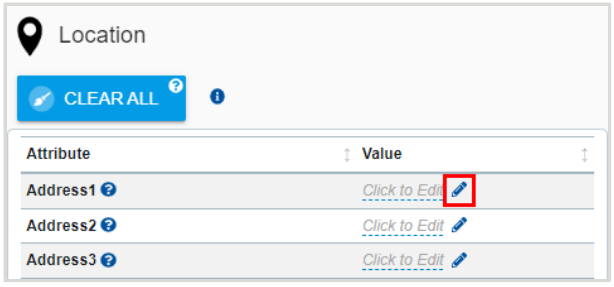
The **Location** page will appear:

Figure 276: Location Page



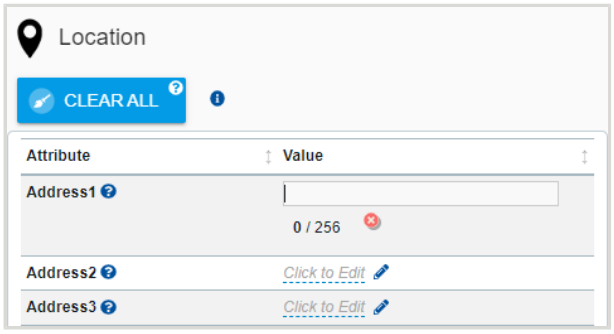
Step 2 : To edit a location attribute, click the attribute's edit icon.

Figure 277: Edit Icon



A text field will be enabled, allowing up to 256 characters for the attribute.

Figure 278: Text Field



Step 3 : Type the appropriate information into the text field and click **Enter**. Repeat as needed to set/modify the remaining attributes.

Result: The location attributes of the OpenFlex enclosure have now been set.

5.6 Controllers

The OpenFlex enclosure's **Controllers** tab provides controls for managing the enclosure's IOMs.

5.6.1 Rebooting IOMs

This procedure provides instructions for rebooting the I/O modules of an OpenFlex enclosure using the Resource Manager Data Center Edition.

Before you begin:

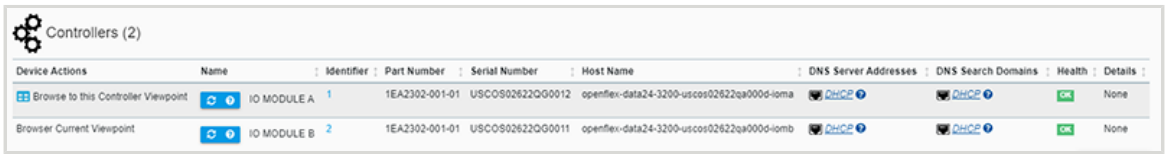
- Follow the instructions for Navigating to an Enclosure Dashboard (Data Center Edition) *(page 44)*.

Step 1: From the enclosure dashboard, click the **Controllers** tab.

Figure 279: Controllers Tab

The **Controllers** page will appear:

Figure 280: Controllers Page



Step 2: Click the **Reboot** button for the desired IOM.

Caution: Clicking the **Reboot** button will reboot the IOM, making it unavailable until the reboot is completed.

Figure 281: Reboot Button

The IOM will be rebooted, and will become available again when the reboot is completed.

Result: The IOM of the OpenFlex enclosure has now been rebooted.

5.7 Power Supplies

The OpenFlex enclosure's **Power Supplies** tab provides information about the enclosure's PSUs.

5.7.1 Checking the Health of PSUs

This procedure provides instructions for checking the health of power supplies for an OpenFlex enclosure using the Resource Manager Data Center Edition.

Before you begin:

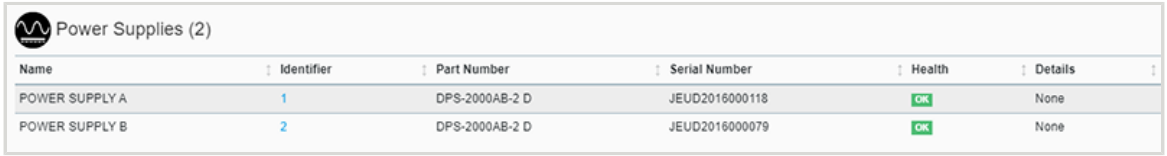
- Follow the instructions for Navigating to an Enclosure Dashboard (Data Center Edition) *(page 44)*.

Step 1: From the enclosure dashboard, click the **Power Supplies** tab.

Figure 282: Power Supplies Tab

The **Power Supplies** page will appear:

Figure 283: Power Supplies Page



Step 2: On the right hand side of the page, check the health indicators to ensure that the PSUs aren't reporting faults.

Figure 284: PSU Health Indicators

Result: The health status the OpenFlex PSUs has now been checked.

5.8 Fans

The OpenFlex enclosure's **Fans** tab provides health status for the enclosure's cooling fans.

5.8.1 Checking the Health of Fans

This procedure provides instructions for checking the health of fans for an OpenFlex enclosure using the Resource Manager Data Center Edition.

Before you begin:

- Follow the instructions for Navigating to an Enclosure Dashboard (Data Center Edition) *(page 44)*.

Step 1: From the enclosure dashboard, click the **Fans** tab.

Figure 285: Fans Tab

The **Fans** page will appear:

Figure 286: Fans Page

Cooling Devices (5)

Name	Identifier	Health	Details
COOLING FRU A	1	OK	None
COOLING FRU B	2	OK	None
COOLING FRU C	3	OK	None
COOLING FRU D	4	OK	None
COOLING FRU E	5	OK	None

Step 2: On the right hand side of the page, check the health indicators to ensure that the fans aren't reporting faults.

Figure 287: Fan Health Indicators

Cooling Devices (5)

Name	Identifier	Health	Details
COOLING FRU A	1	OK	None
COOLING FRU B	2	OK	None
COOLING FRU C	3	OK	None
COOLING FRU D	4	OK	None
COOLING FRU E	5	OK	None

Result: The health status the OpenFlex fans has now been checked.

5.9 Ports

The OpenFlex enclosure's **Ports** tab provides information and controls for managing the enclosure's I/O modules and the adapter cards inside them.

5.9.1 Checking the Status of Ports

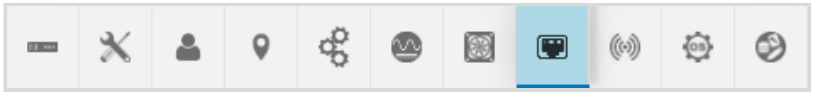
This procedure provides instructions for checking the health, connection status, link status, and link speed of ports on an OpenFlex enclosure using the Resource Manager Data Center Edition.

Before you begin:

- Follow the instructions for Navigating to an Enclosure Dashboard (Data Center Edition) *(page 44)*.

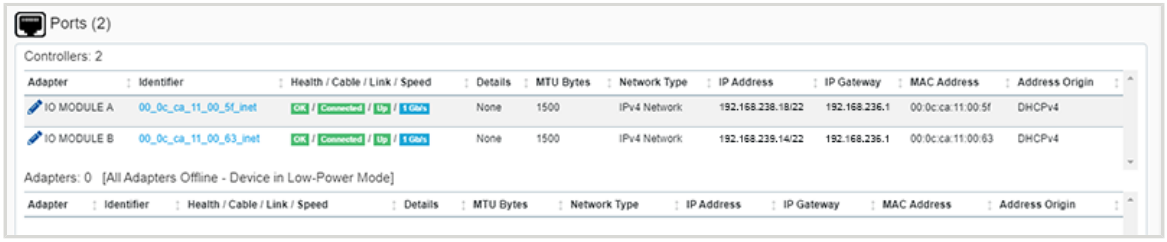
Step 1: From the enclosure dashboard, click the **Ports** tab.

Figure 288: Ports Tab



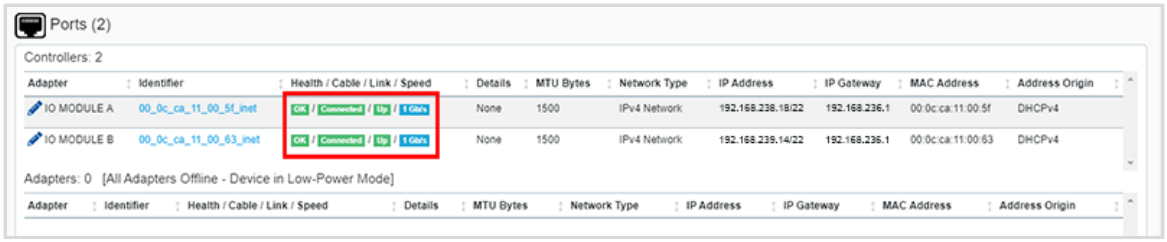
The **Ports** page will appear:

Figure 289: Ports Page



Step 2: The third column provides status indicators for port health, cable connection status, link status, and link speed.

Figure 290: Fan Health Indicators



Result: The status of the OpenFlex ports has now been checked.

5.9.2 Configuring Port Settings

This procedure provides instructions for configuring port settings for an OpenFlex enclosure using the Resource Manager Data Center Edition.

Before you begin:

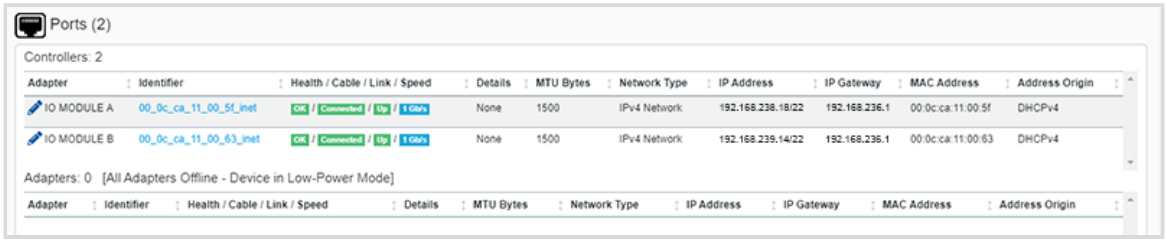
- Follow the instructions for Navigating to an Enclosure Dashboard (Data Center Edition) *(page 44)*.

Step 1: From the enclosure dashboard, click the **Ports** tab.

Figure 291: Ports Tab

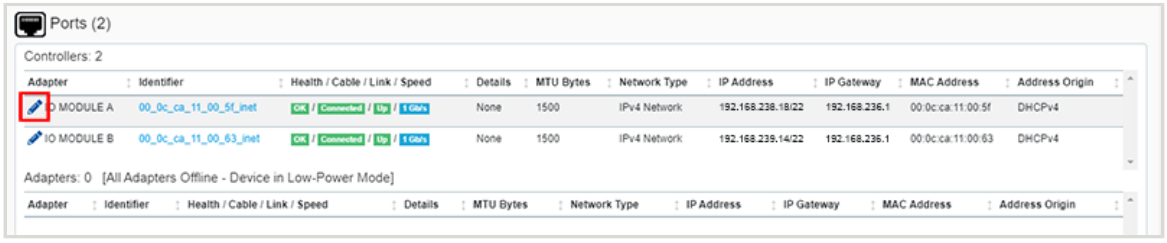
The **Ports** page will appear:

Figure 292: Ports Page



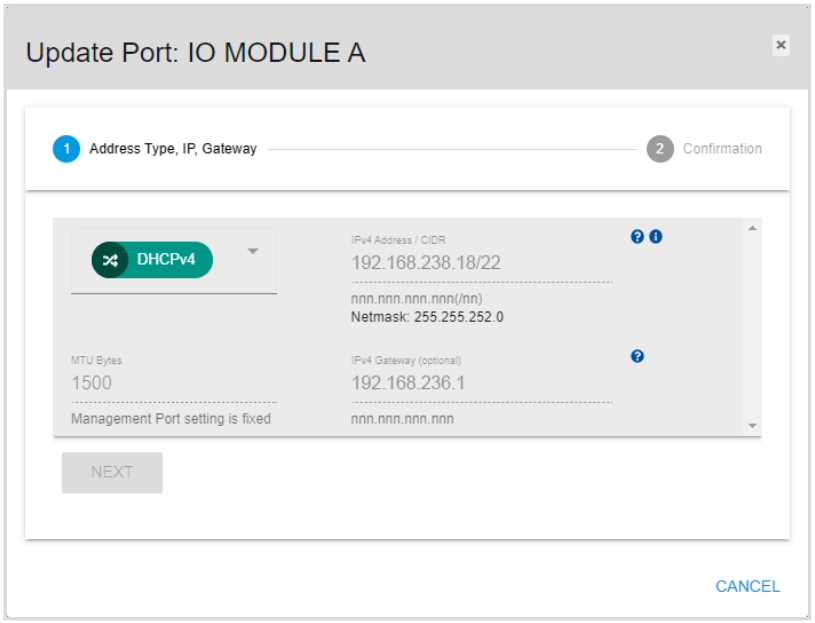
Step 2: On the left hand side, click the **Edit** icon for the IOM port to be configured.

Figure 293: Edit Port Icon



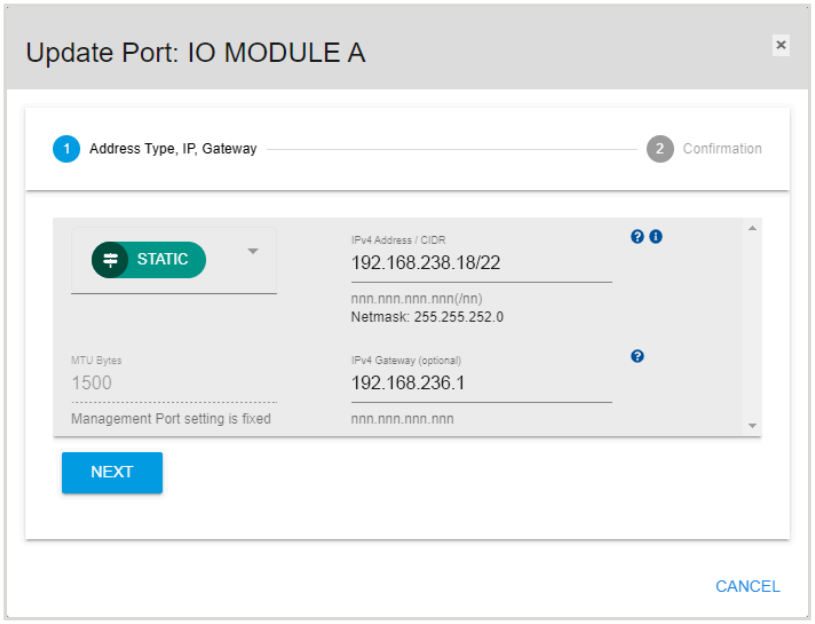
An **Update Port** window will appear:

Figure 294: Update Port Window



Step 3 : To manually configure the IP address, netmask, and gateway, select **Static** from the drop-down list. Or select **DHCP** to have these settings configured automatically.

Figure 295: Static Option



Step 4 : Click the **Next** button.

Figure 296: Next Button

The **Update Port** window proceeds to the confirmation step:

Figure 297: Confirming Port Settings

Step 5 : To complete the changes to the port settings, click the **Please Confirm** checkbox and then click the **Update** button.

Figure 298: Complete Port Setting Changes

Backend services will automatically restart, which may cause a communication interruption.

Result: The port settings have now been configured.

5.10 Sensors

The OpenFlex enclosure's **Sensors** tab provides information about the enclosure's sensors, including current readings, health status, and thresholds.

5.10.1 Checking the Health of Sensors

This procedure provides instructions for checking the health of sensors in an OpenFlex enclosure using the Resource Manager Data Center Edition.

Before you begin:

- Follow the instructions for Navigating to an Enclosure Dashboard (Data Center Edition) *(page 44)*.

Step 1: From the enclosure dashboard, click the **Sensors** tab.

Figure 299: Sensors Tab

The **Sensors** page will appear:

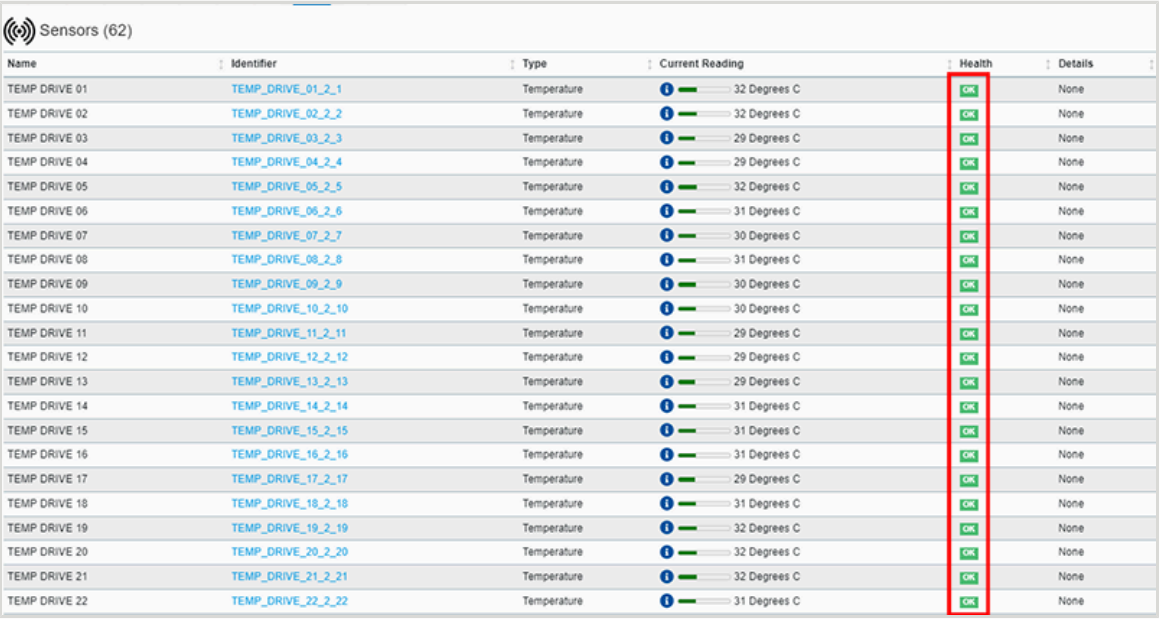
Figure 300: Sensors Page

Sensors (62)

Name	Identifier	Type	Current Reading	Health	Details
TEMP DRIVE 01	TEMP_DRIVE_01_2_1	Temperature	32 Degrees C	OK	None
TEMP DRIVE 02	TEMP_DRIVE_02_2_2	Temperature	32 Degrees C	OK	None
TEMP DRIVE 03	TEMP_DRIVE_03_2_3	Temperature	29 Degrees C	OK	None
TEMP DRIVE 04	TEMP_DRIVE_04_2_4	Temperature	29 Degrees C	OK	None
TEMP DRIVE 05	TEMP_DRIVE_05_2_5	Temperature	32 Degrees C	OK	None
TEMP DRIVE 06	TEMP_DRIVE_06_2_6	Temperature	31 Degrees C	OK	None
TEMP DRIVE 07	TEMP_DRIVE_07_2_7	Temperature	30 Degrees C	OK	None
TEMP DRIVE 08	TEMP_DRIVE_08_2_8	Temperature	31 Degrees C	OK	None
TEMP DRIVE 09	TEMP_DRIVE_09_2_9	Temperature	30 Degrees C	OK	None
TEMP DRIVE 10	TEMP_DRIVE_10_2_10	Temperature	30 Degrees C	OK	None
TEMP DRIVE 11	TEMP_DRIVE_11_2_11	Temperature	29 Degrees C	OK	None
TEMP DRIVE 12	TEMP_DRIVE_12_2_12	Temperature	29 Degrees C	OK	None
TEMP DRIVE 13	TEMP_DRIVE_13_2_13	Temperature	29 Degrees C	OK	None
TEMP DRIVE 14	TEMP_DRIVE_14_2_14	Temperature	31 Degrees C	OK	None
TEMP DRIVE 15	TEMP_DRIVE_15_2_15	Temperature	31 Degrees C	OK	None
TEMP DRIVE 16	TEMP_DRIVE_16_2_16	Temperature	31 Degrees C	OK	None
TEMP DRIVE 17	TEMP_DRIVE_17_2_17	Temperature	29 Degrees C	OK	None
TEMP DRIVE 18	TEMP_DRIVE_18_2_18	Temperature	31 Degrees C	OK	None
TEMP DRIVE 19	TEMP_DRIVE_19_2_19	Temperature	32 Degrees C	OK	None
TEMP DRIVE 20	TEMP_DRIVE_20_2_20	Temperature	32 Degrees C	OK	None
TEMP DRIVE 21	TEMP_DRIVE_21_2_21	Temperature	32 Degrees C	OK	None
TEMP DRIVE 22	TEMP_DRIVE_22_2_22	Temperature	31 Degrees C	OK	None

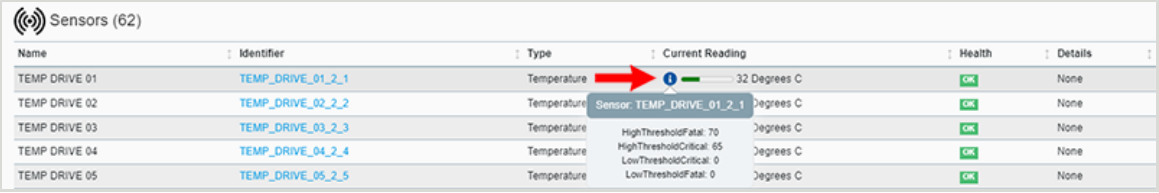
Step 2: On the right hand side, check the health indicators to ensure that the sensors aren't reporting faults.

Figure 301: Sensor Health Indicators



Step 3 : The **Current Reading** column lists the current value detected by each sensor (temperature, voltage, and current). To see the threshold settings for a sensor, hover your cursor over the sensor's **Information** icon.

Figure 302: Sensor Thresholds



Result: The health status of the OpenFlex enclosure's sensors has now been checked.

5.11 Device OS

The OpenFlex enclosure's **Device OS** tab provides information about the currently installed version of enclosure firmware and controls for updating it.

5.11.1 Updating Enclosure Firmware

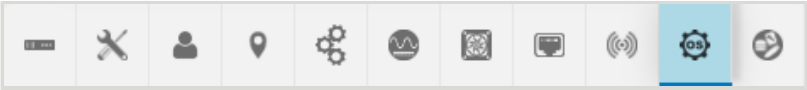
This procedure provides instructions for updating the firmware on an OpenFlex enclosure using the Resource Manager Data Center Edition.

Before you begin:

- Follow the instructions for Navigating to an Enclosure Dashboard (Data Center Edition) *(page 44)*.

Step 1: From the enclosure dashboard, click the **Device OS** tab.

Figure 303: Device OS Tab



The **Device OS** page will appear:

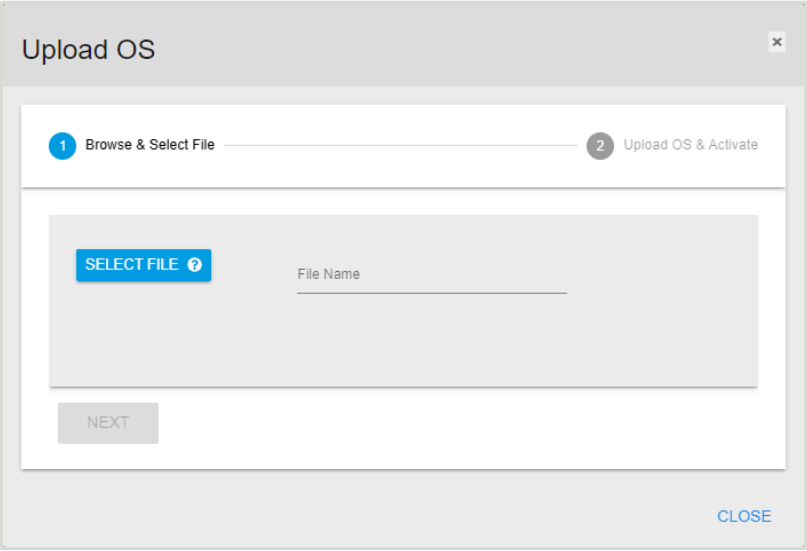
Figure 304: Device OS Page

Step 2: Click the **Update OS** button.

Figure 305: Update OS Button

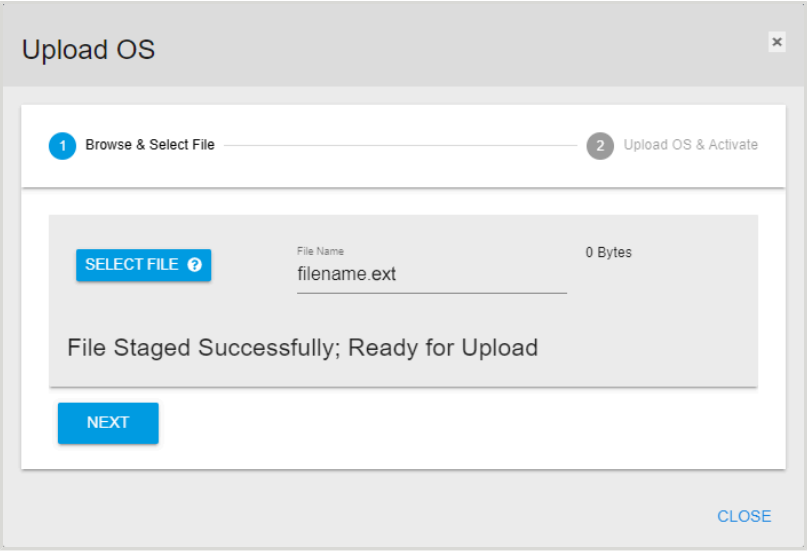
An **Update OS** window will appear:

Figure 306: Update OS Window



Step 3: Click the **Select File** button to browse to the desired firmware file and select it.

Figure 307: Selected FW File

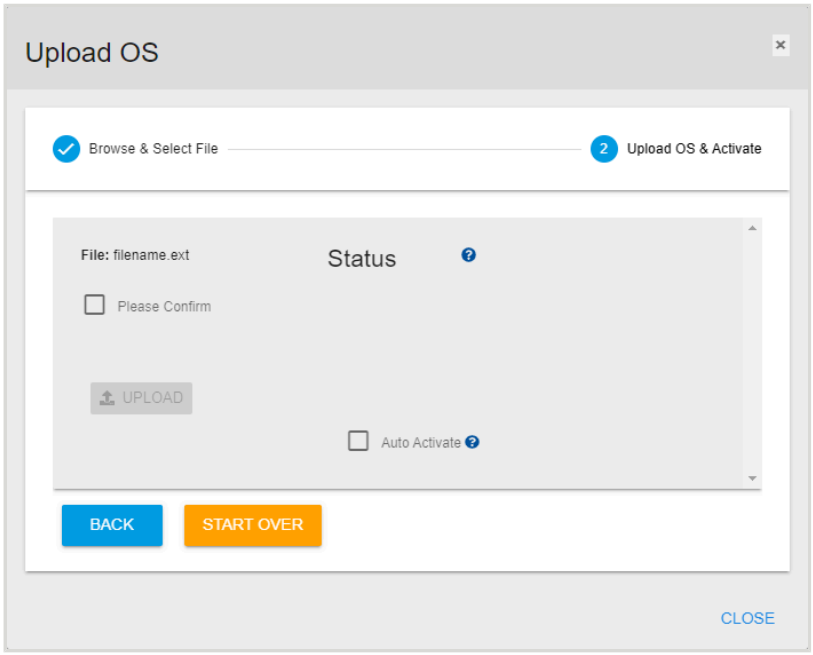


Step 4: Click the **Next** button.

Figure 308: Next Button

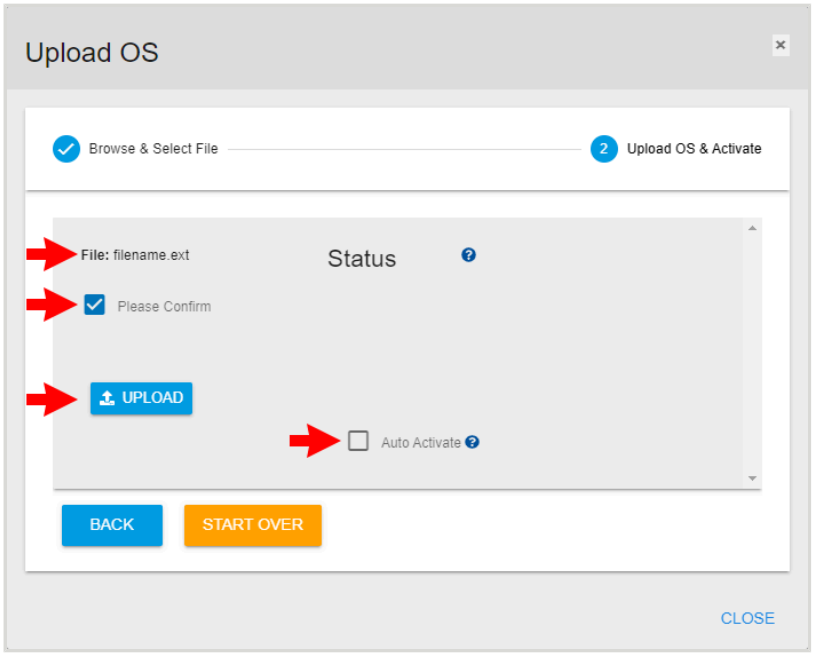
The **Update OS** window will proceed to the confirmation step:

Figure 309: Confirm OS Update



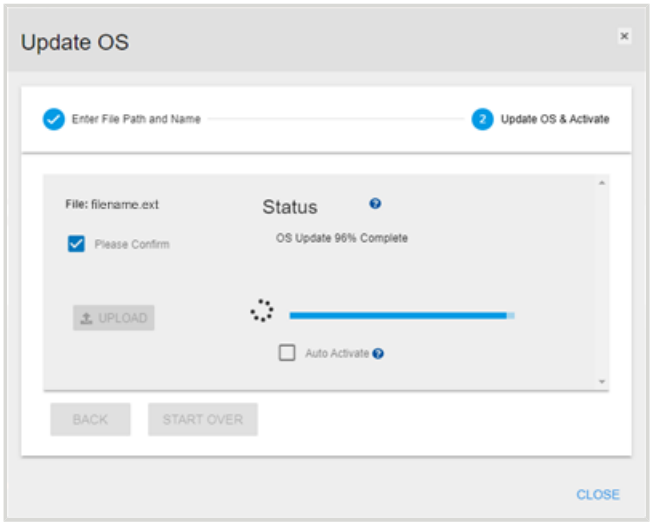
Step 5 : Review the listed filename. If correct, click the **Please Confirm** checkbox to confirm the file. To auto-activate the firmware after uploading, click the **Auto Activate** checkbox. When all selections have been made, click the **Upload** button to upload the firmware to the enclosure.

Figure 310: Confirm OS Update



After the file is uploaded, a window will appear to show the firmware update progress:

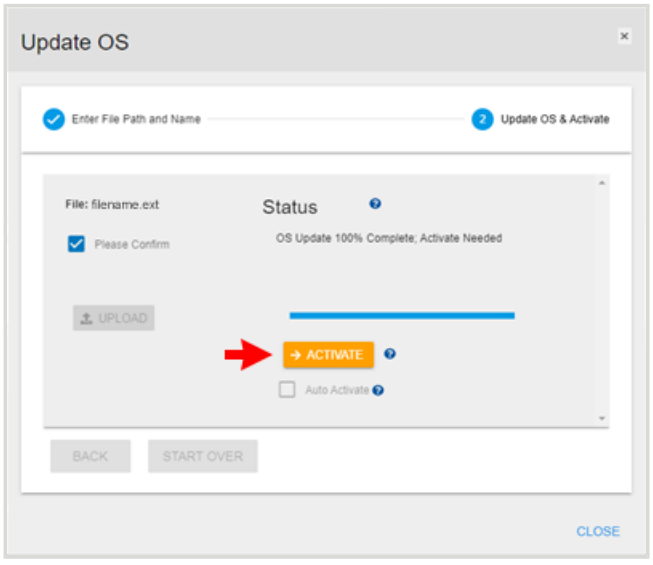
Figure 311: Firmware Update Progress



Step 6 : If you did **not** select the **Auto Activate** checkbox in step 5 *(page 160)*, an **Activate** button will appear after the enclosure firmware has been updated. Click the **Activate** button to activate the firmware.

Caution: Activating the firmware will cause the enclosure to reboot.

Figure 312: Activate Firmware



The enclosure will reboot to activate the firmware:

Figure 313: Activation / Reboot

Result: The OpenFlex enclosure firmware has now been updated.

5.12 Media

The OpenFlex enclosure's **Media** tab provides information about the drives installed in the enclosure and controls for changing their power state.

5.12.1 Checking the Health of Drives

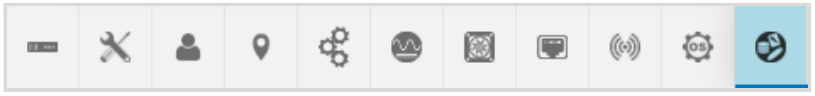
This procedure provides instructions for checking the health status of drives in an OpenFlex enclosure using the Resource Manager Data Center Edition.

Before you begin:

- Follow the instructions for Navigating to an Enclosure Dashboard (Data Center Edition) *(page 44)*.

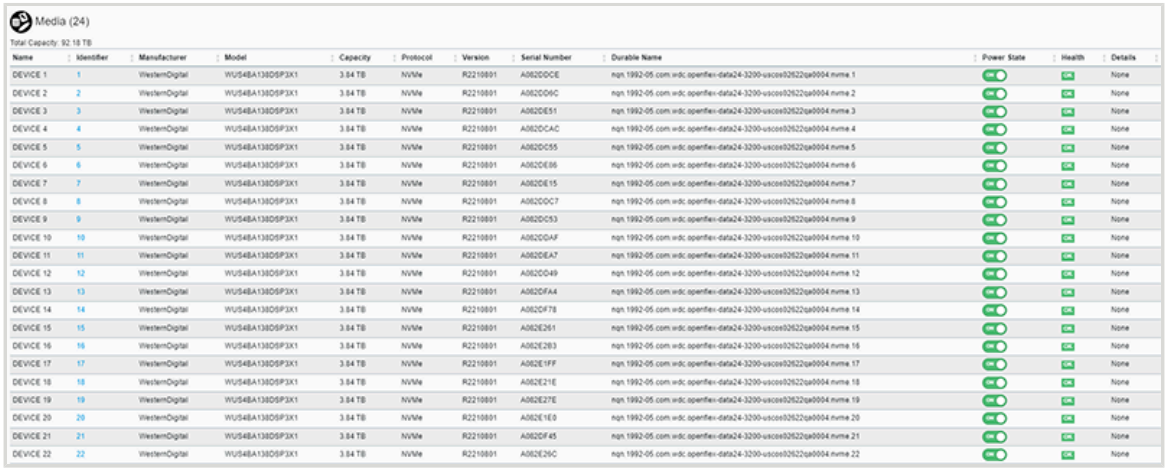
Step 1: From the enclosure dashboard, click the **Media** tab.

Figure 314: Media Tab



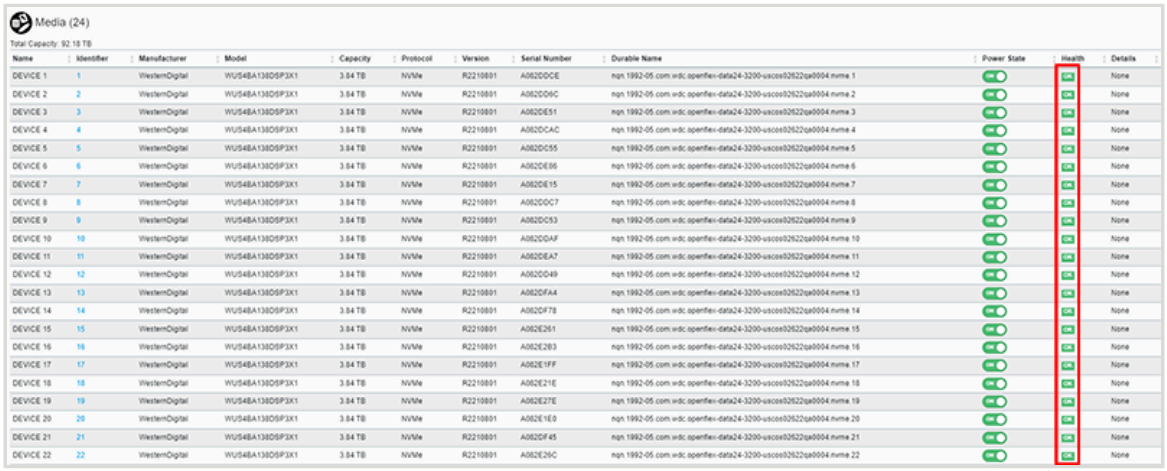
The **Media** page will appear:

Figure 315: Media Page



Step 2: On the right hand side, check the health indicators to ensure that the drives aren't reporting faults.

Figure 316: Drive Health Indicators



Result: The health status the OpenFlex enclosure's drives has now been checked.

5.12.2 Powering Off a Drive

This procedure provides instructions for powering off a drive in an OpenFlex enclosure using the Resource Manager Data Center Edition.

Before you begin:

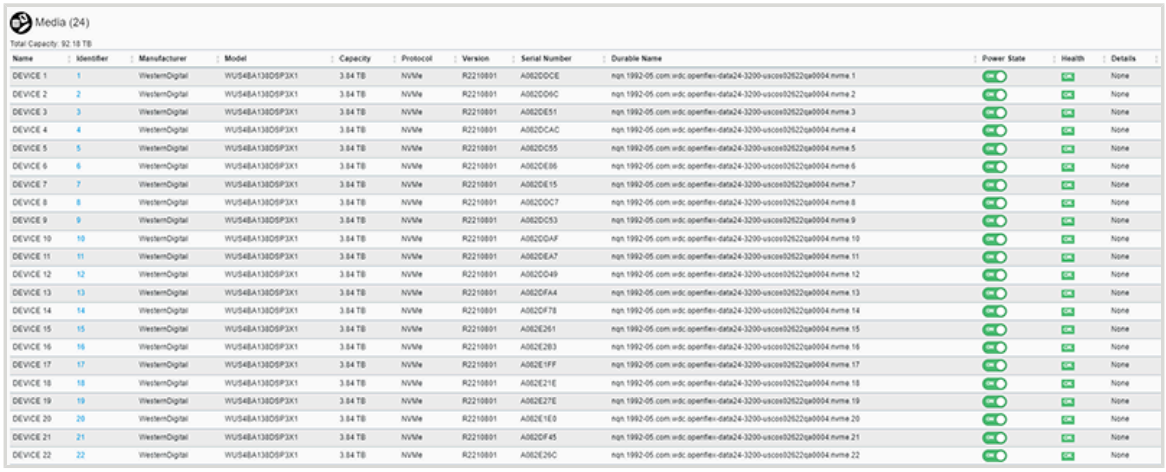
- Follow the instructions for Navigating to an Enclosure Dashboard (Data Center Edition) *(page 44)*.

Step 1: From the enclosure dashboard, click the **Media** tab.

Figure 317: Media Tab

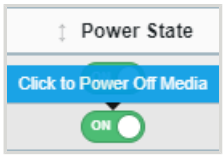
The **Media** page will appear:

Figure 318: Media Page



Step 2: To power off a drive, click its **Power State** toggle switch.

Figure 319: Drive Power State Toggle Switch



Result: The OpenFlex enclosure's drive has now been powered off.

Ultrastar Enclosure Out-of-Band Management

This chapter provides information and instructions for remote, out-of-band management operations that can be performed on an Ultrastar storage enclosure from a server running Resource Manager Data Center Edition.

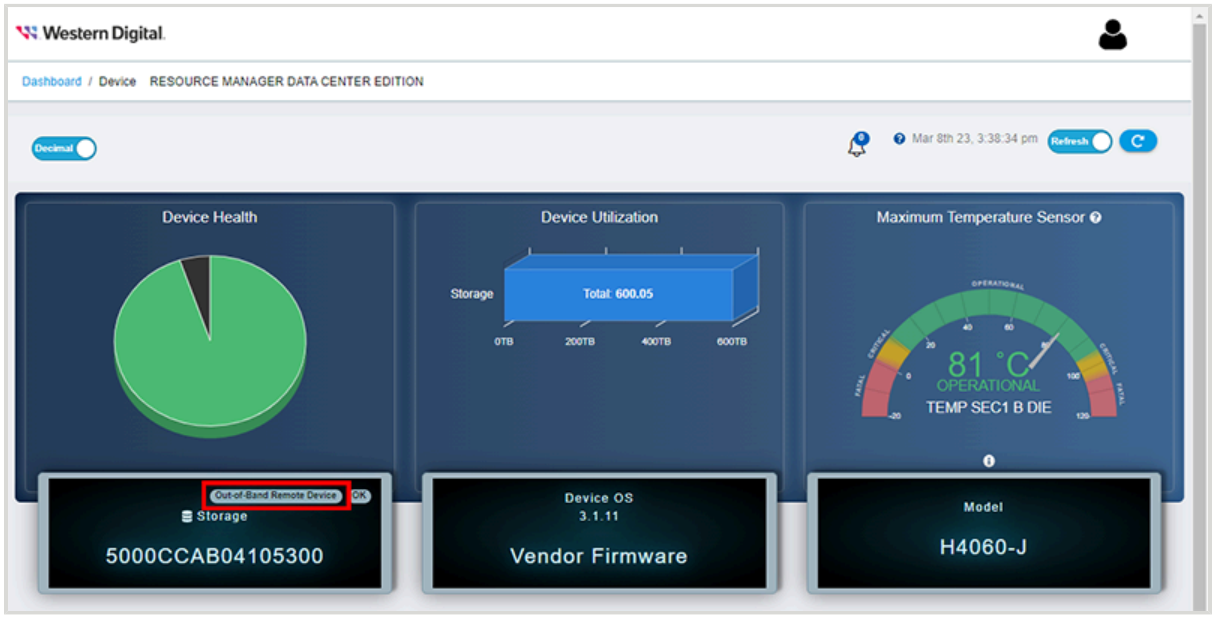
In This Chapter:

6.1 Overview of Ultrastar Out-of-Band Dashboard

Management Connection Method

The topics in this section cover out-of-band management capabilities from a remote server. The out-of-band, remote nature of the connection is indicated by the **Out-of-Band Remote Device** designation that appears on the dashboard:

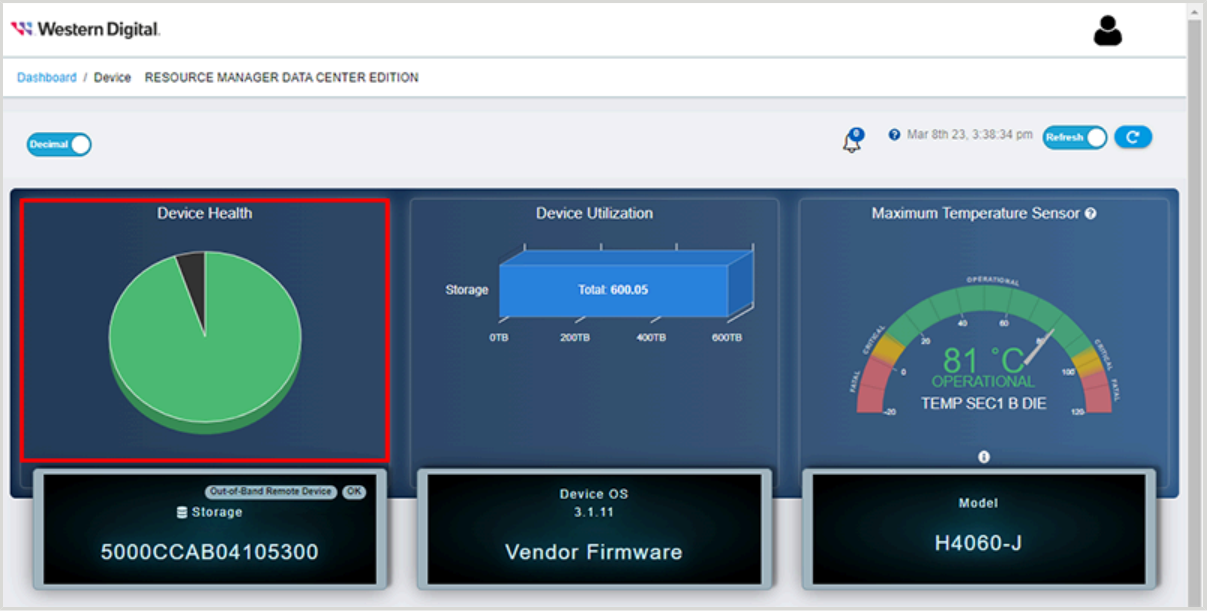
Figure 320: Out-of-Band Remote Device Designation



Device Health

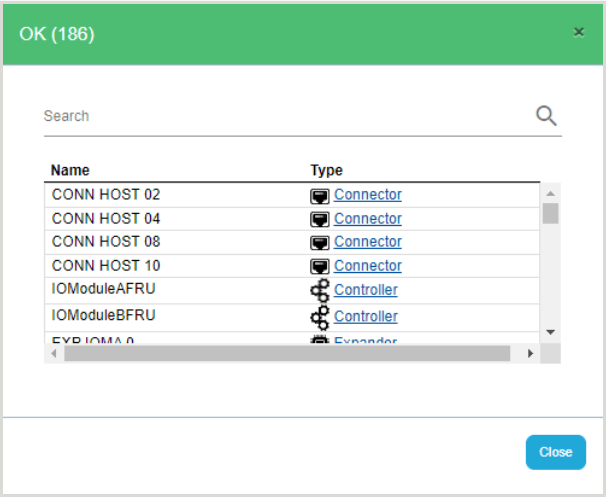
The **Device Health** section displays a pie chart that groups the health states of this enclosure's components and sensors into color-coded segments.

Figure 321: Device Health Pie Chart



For additional details, click one of the segments. This will bring up a window with a detailed listing of the components and sensors in that state:

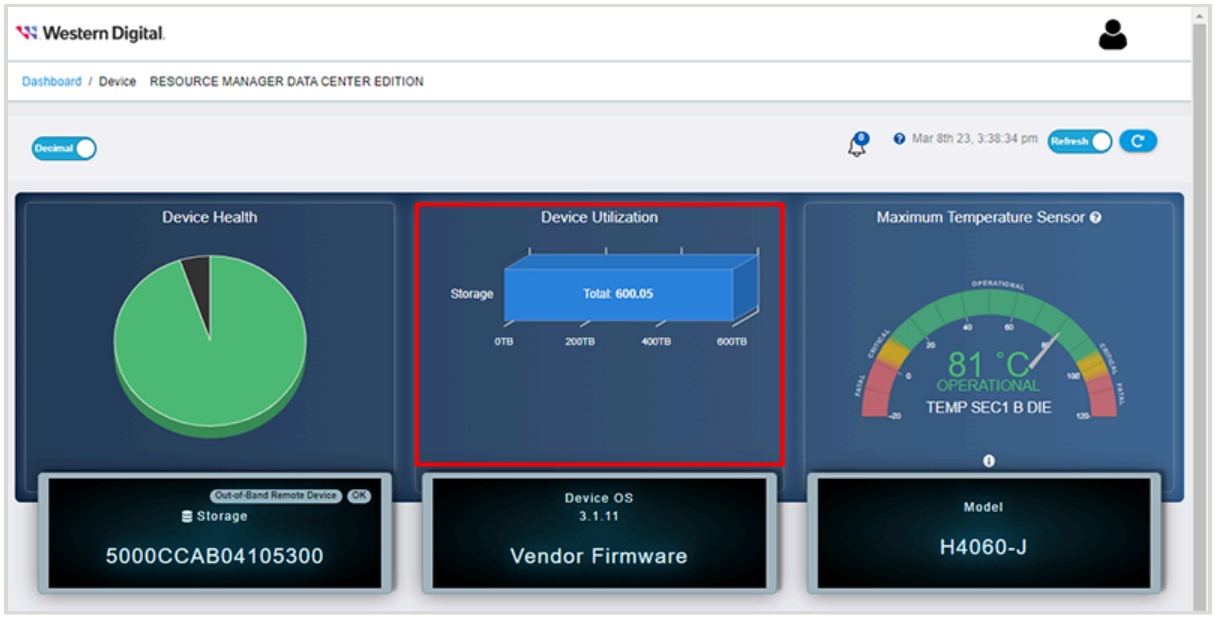
Figure 322: Components & Sensors Health Status



Device Utilization

The **Device Utilization** section displays an aggregate of the total, free, and used storage on this enclosure.

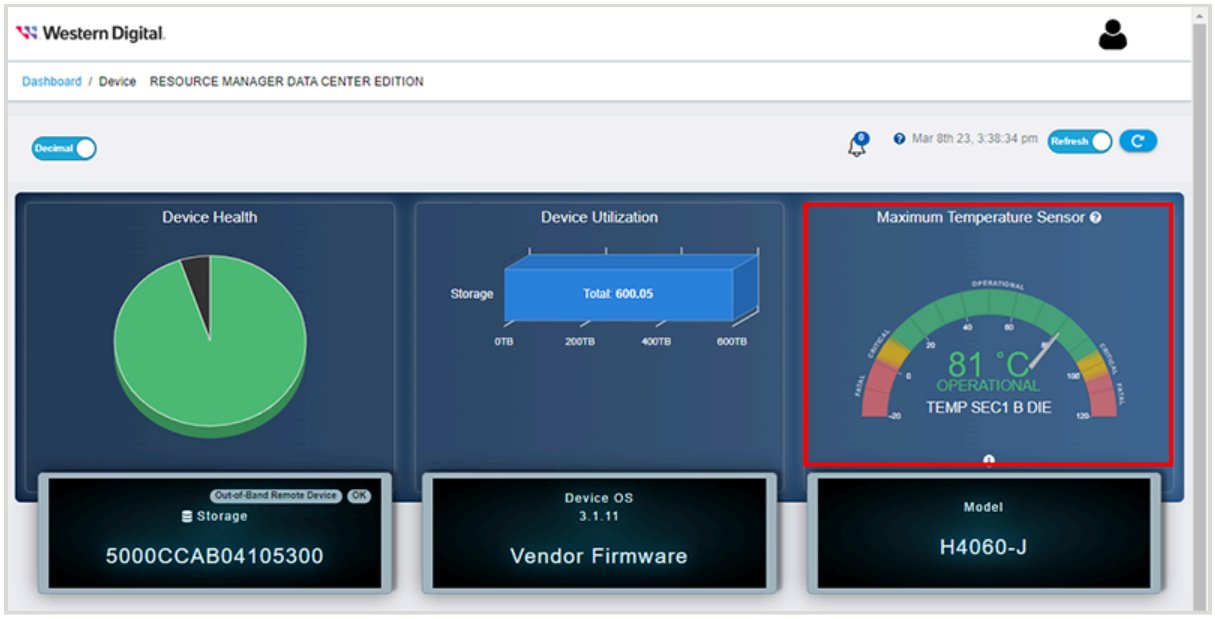
Figure 323: Device Utilization Chart



Maximum Temperature Sensor

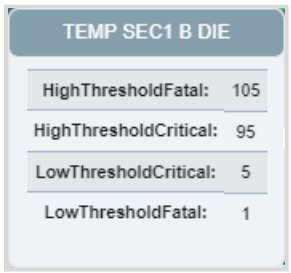
The **Maximum Temperature Sensor** section of the dashboard displays a temperature scale for the sensor with the highest temperature in the enclosure.

Figure 324: Maximum Temperature Scale



For additional details, click the **?** at the bottom of the panel. This will bring up a window showing the thresholds for that sensor:

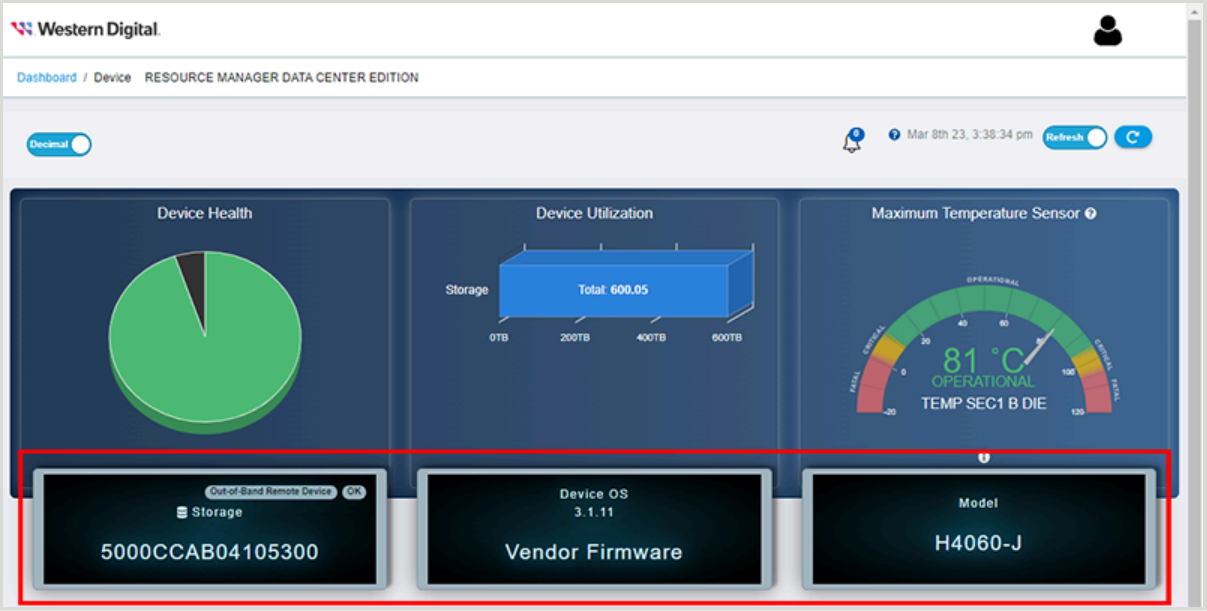
Figure 325: Sensor Temperature Thresholds



Device Information

The panels in the middle section provide information about the enclosure, including the device ID, firmware version, and regulatory model number.

Figure 326: Device Details



Device Management Controls

The bottom portion of the dashboard provides enclosure management information and controls, which are organized into the following tabs:

- **Device Information**
- **Administration**
- **Accounts**
- **Location**
- **Controllers**
- **Power Supplies**
- **Fans**
- **Ports**
- **Expanders**
- **Sensors**
- **Connectors**
- **Device OS**
- **Zone Sets**
- **Media**

The following sections provide procedures for the most common management actions available from these tabs.

6.2 Device Information

The Ultrastar enclosure's **Device Information** tab provides general information about the enclosure and its network role, such as model, serial number, hostname, and IP addresses.

6.2.1 Viewing/Downloading Logs & Messages

This procedure provides instructions for downloading logs and messages from an Ultrastar enclosure using the Resource Manager Data Center Edition.

Before you begin:

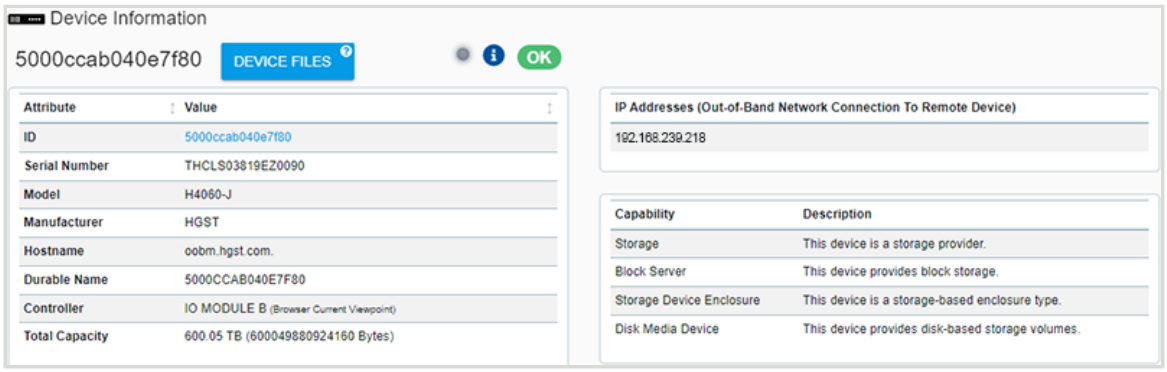
- Follow the instructions for Navigating to an Enclosure Dashboard (Data Center Edition) *(page 44)*.

Step 1: From the enclosure dashboard, click the **Device Information** tab.

Figure 327: Device Information Tab

The **Device Information** page will appear:

Figure 328: Device Information Page

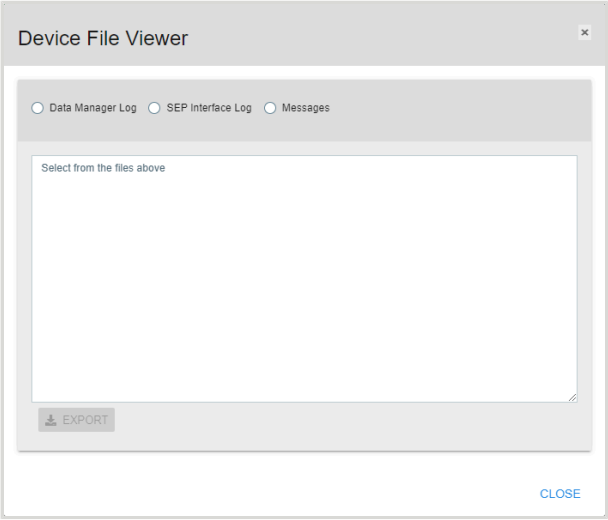


Step 2: Click the **Device Files** button.

Figure 329: Device Files Button

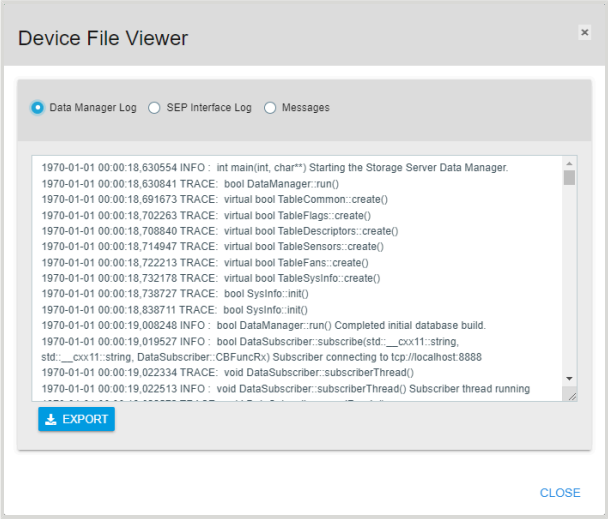
A **Device File Viewer** window will appear:

Figure 330: Device File Viewer



Step 3 : Use the radio buttons at the top to select the logs or messages to be viewed/downloaded. The Resource Manager Data Center Edition will retreive the selected information.

Figure 331: Selecting Files



Step 4 : Click the **Export** button to download the selected files.

Figure 332: Export Button

The appropriate file type will be downloaded to your **Downloads** directory.

Step 5 : Click the **Close** button to close the **Device File Viewer**.

Result: The logs or messages have now been downloaded from the Ultrastar enclosure.

6.2.2 Enabling the Enclosure Ident LED

This procedure provides instructions for enabling the identification LED of an Ultrastar enclosure using the Resource Manager Data Center Edition.

Before you begin:

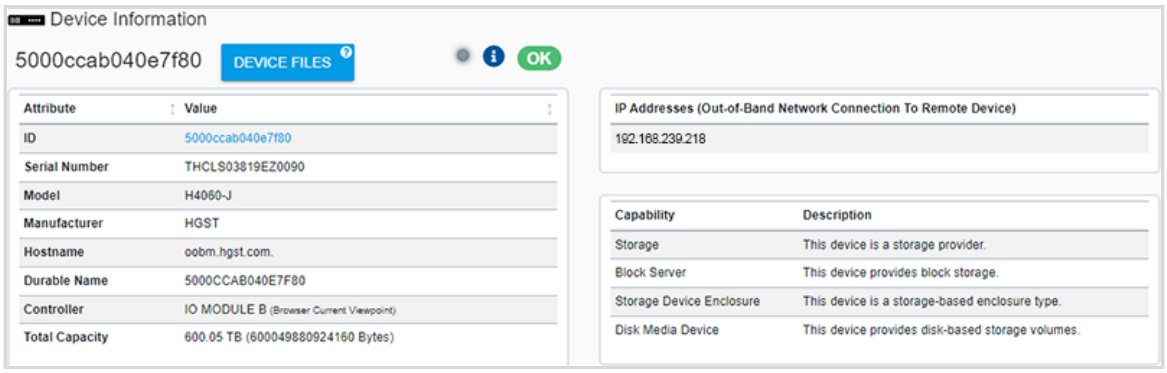
- Follow the instructions for Navigating to an Enclosure Dashboard (Data Center Edition) *(page 44)*.

Step 1: From the enclosure dashboard, click the **Device Information** tab.

Figure 333: Device Information Tab

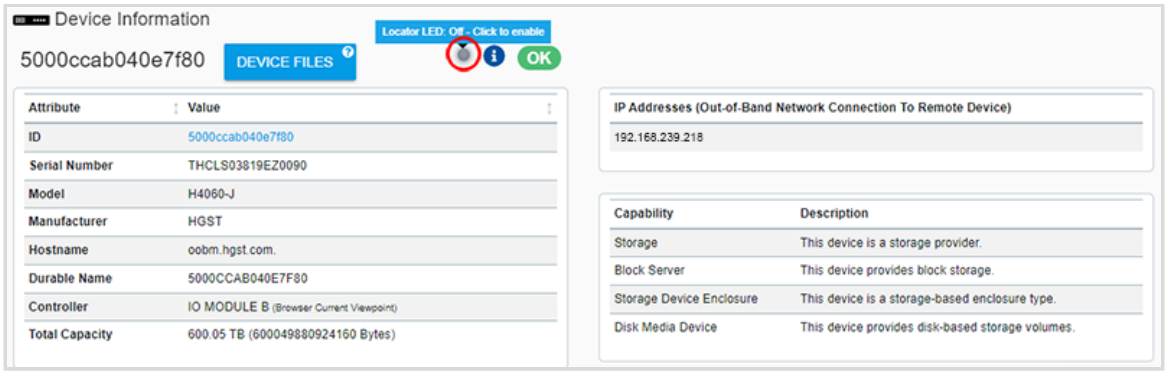
The **Device Information** page will appear:

Figure 334: Device Information Page



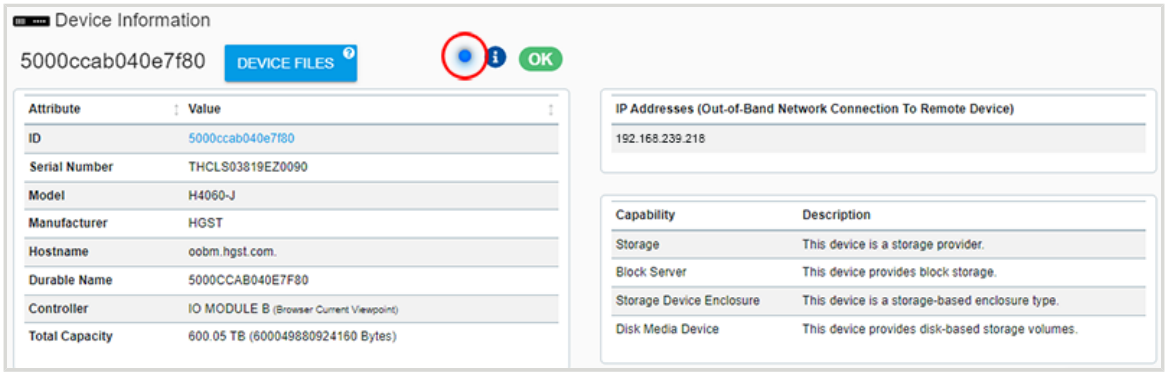
Step 2: Click the **Locator LED** button.

Figure 335: Locator LED Button



The enclosure's identification LED will pulse with a blue color, indicating that it is enabled:

Figure 336: Identification LED Enabled



Step 3 : To disable the LED, click it again.

Result: The identification LED of the Ultrastar enclosure has now been enabled.

6.3 Administration

The Ultrastar enclosure's **Administration** tab provides controls for administrative operations, such as rebooting the enclosure.

6.3.1 Rebooting the Enclosure

This procedure provides instructions for rebooting an Ultrastar enclosure using the Resource Manager Data Center Edition.

Before you begin:

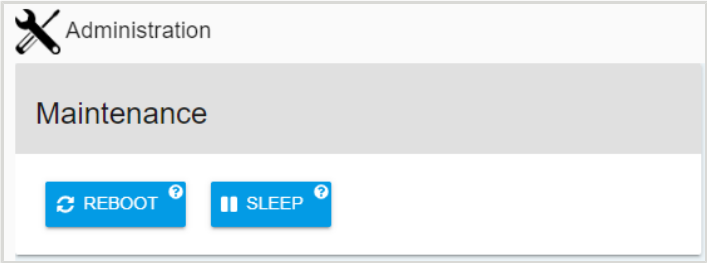
- Follow the instructions for Navigating to an Enclosure Dashboard (Data Center Edition) *(page 44)*.

Step 1: From the enclosure dashboard, click the **Administration** tab.

Figure 337: Administration Tab

The **Administration** page will appear:

Figure 338: Administration Page



Step 2: Click the **Reboot** button.

Caution: Clicking the **Reboot** button will reboot the enclosure, making it unavailable until the reboot is completed.

Figure 339: Reboot Button

The enclosure will be rebooted, and will become available again when the reboot is completed.

Result: The Ultrastar enclosure has now been rebooted.

6.4 Accounts

The Ultrastar enclosure's **Accounts** tab provides controls for configuring admin and user account access.

6.4.1 Creating a User Account

This procedure provides instructions for creating a user account on an Ultrastar enclosure using the Resource Manager Data Center Edition.

Before you begin:

- Follow the instructions for Navigating to an Enclosure Dashboard (Data Center Edition) *(page 44)*.

Step 1: From the enclosure dashboard, click the **Accounts** tab.

Figure 340: Accounts Tab

The **Accounts** page will appear:

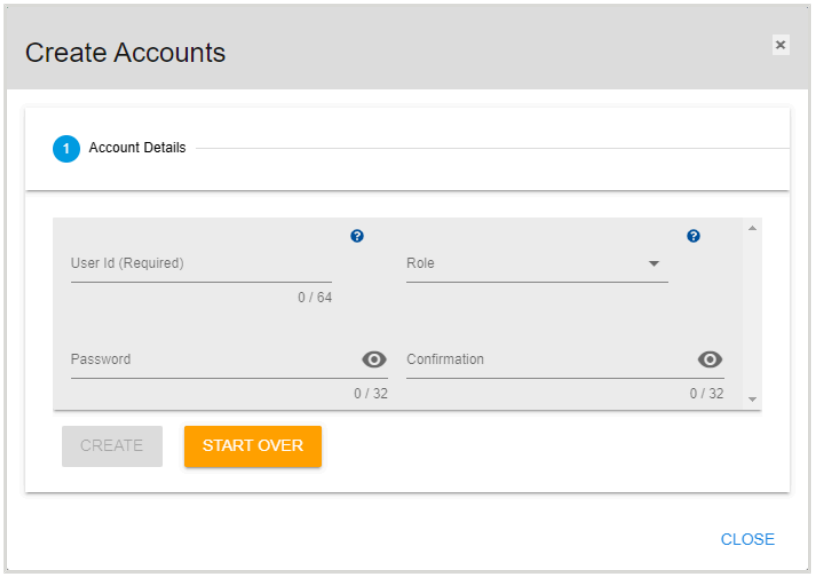
Figure 341: Accounts Page

Step 2: Click the **Create Accounts** button.

Figure 342: Create Accounts Button

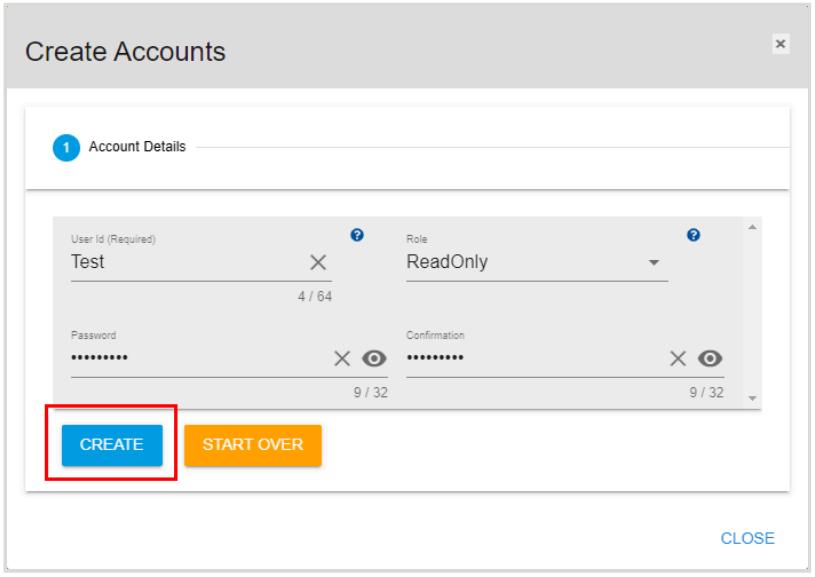
A **Create Accounts** window will appear:

Figure 343: Create Accounts Window



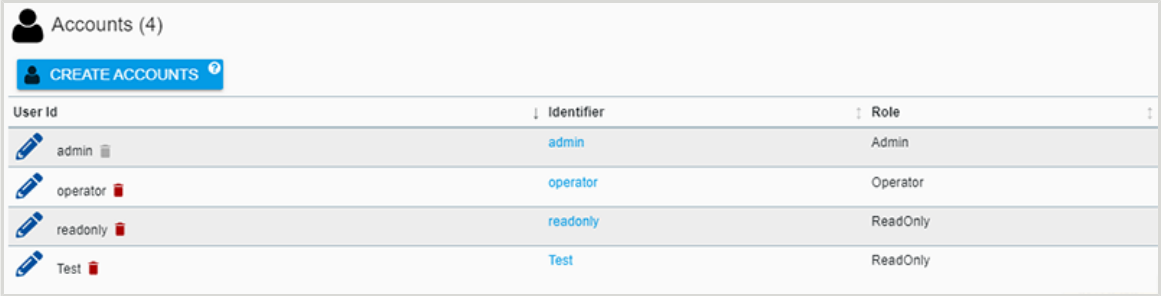
Step 3 : Use the available fields to enter a **User ID**, **Role**, and **Password** for the account. Then click the **Create** button.

Figure 344: Create Accounts Button



After the creation is processed, the **Accounts** page will display the new account.

Figure 345: Updated Accounts Page



Result: A user account has now been created on the Ultrastar enclosure.

6.4.2 Editing a User Account

This procedure provides instructions for editing a user account on an Ultrastar enclosure using the Resource Manager Data Center Edition.

Before you begin:

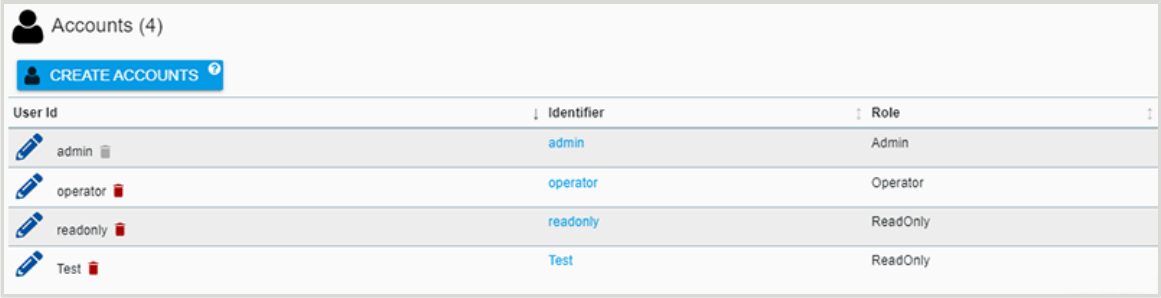
- Follow the instructions for Navigating to an Enclosure Dashboard (Data Center Edition) *(page 44)*.

Step 1: From the enclosure dashboard, click the **Accounts** tab.

Figure 346: Accounts Tab

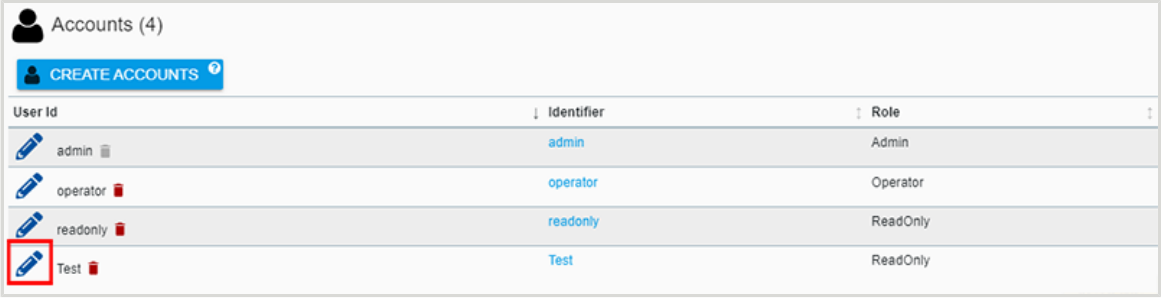
The **Accounts** page will appear:

Figure 347: Accounts Page



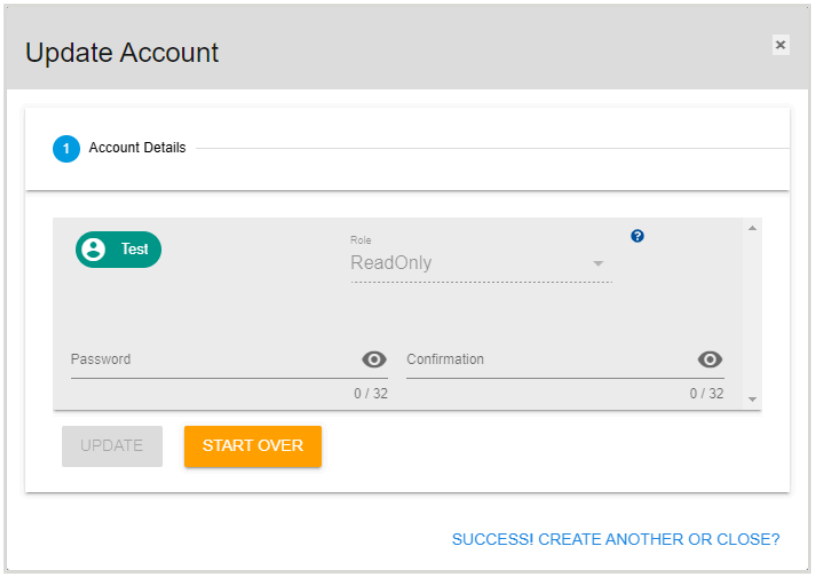
Step 2: Click the **Edit** icon for the account to be edited.

Figure 348: Edit Icon



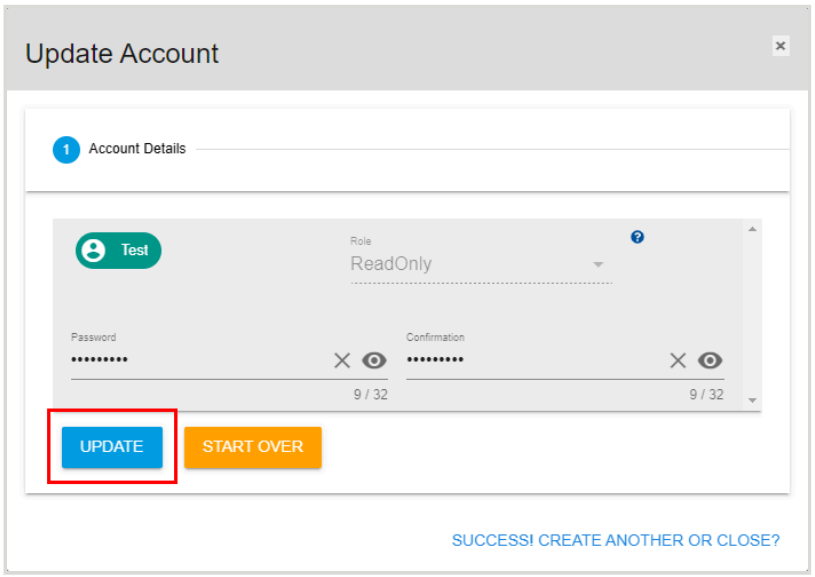
An **Update Account** window will appear:

Figure 349: Update Account Window



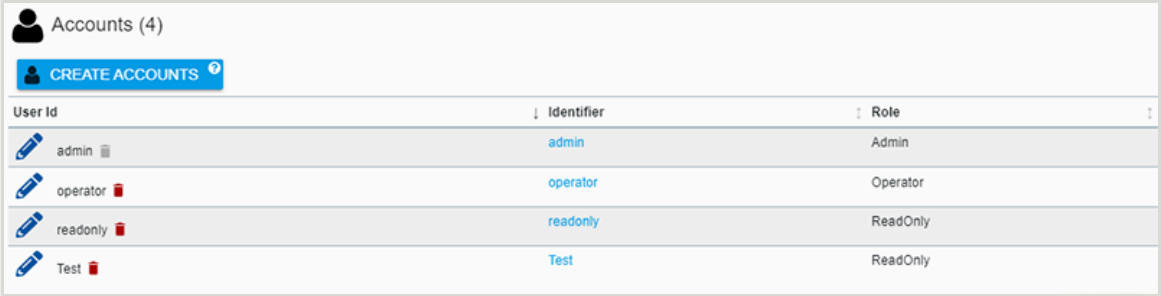
Step 3 : Use the available fields to update the **Password** for the account. Then click the **Update** button.

Figure 350: Update Account Button



After the update is processed, the **Accounts** page is displayed again.

Figure 351: Accounts Page



Result: The user account has now been updated on the Ultrastar enclosure.

6.4.3 Deleting a User Account

This procedure provides instructions for deleting a user account from an Ultrastar enclosure using the Resource Manager Data Center Edition.

Before you begin:

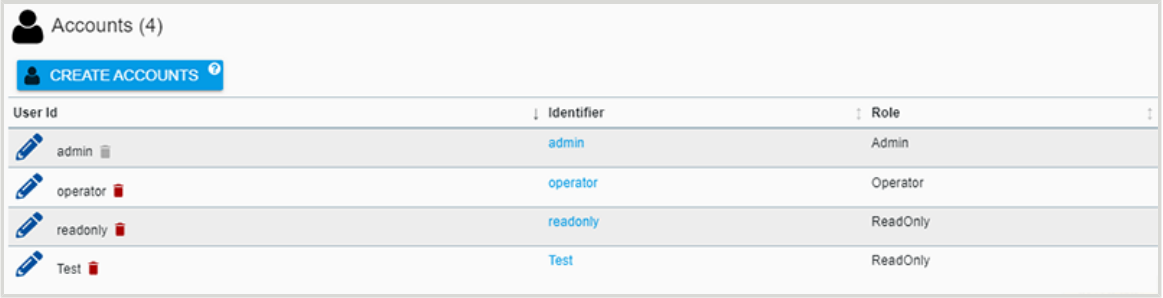
- Follow the instructions for Navigating to an Enclosure Dashboard (Data Center Edition) *(page 44)*.

Step 1: From the enclosure dashboard, click the **Accounts** tab.

Figure 352: Accounts Tab

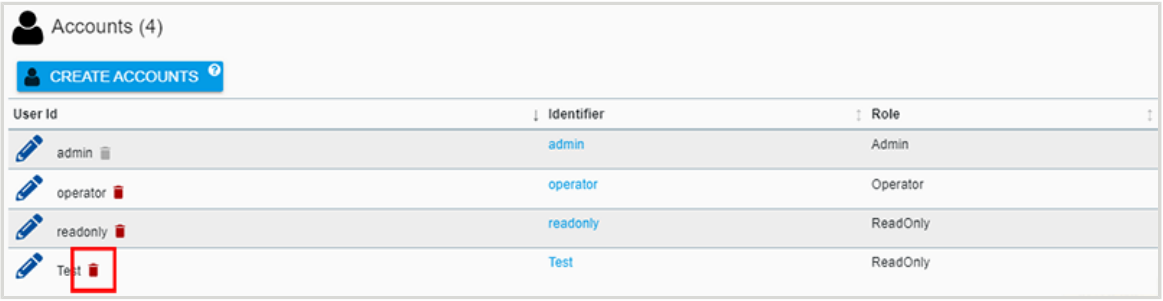
The **Accounts** page will appear:

Figure 353: Accounts Page



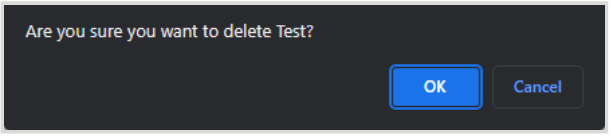
Step 2: Click the **Delete** icon for the account to be deleted.

Figure 354: Delete Icon



The user will be prompted to confirm the account deletion:

Figure 355: Confirm Account Deletion



Step 3 : Click the **OK** button.

After the deletion is processed, the **Accounts** page will update to show the remaining accounts:

Figure 356: Updated Accounts Page

Result: The user account has now been deleted from the Ultrastar enclosure.

6.5 Location

The Ultrastar enclosure's **Location** tab provides controls for configuring the enclosure's physical location attributes.

6.5.1 Setting Location Attributes

This procedure provides instructions for setting the location attributes of an Ultrastar enclosure using the Resource Manager Data Center Edition.

Before you begin:

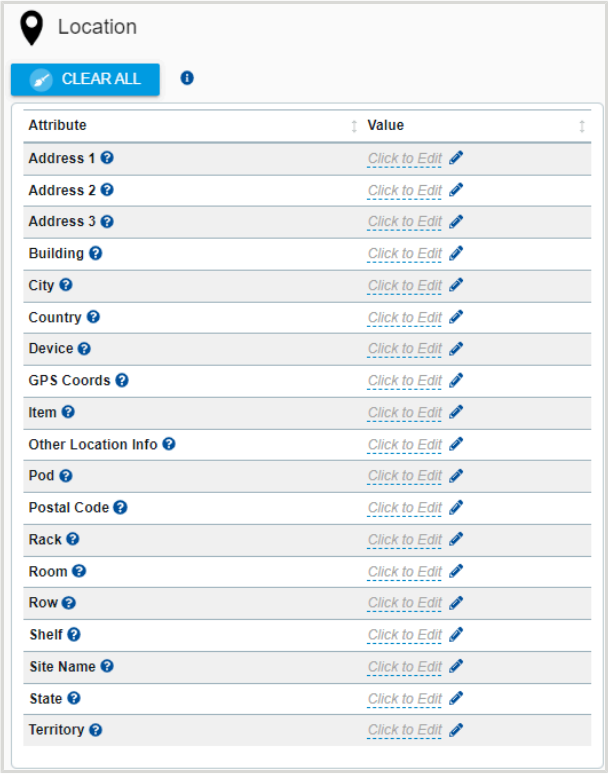
- Follow the instructions for Navigating to an Enclosure Dashboard (Data Center Edition) *(page 44)*.

Step 1: From the enclosure dashboard, click the **Location** tab.

Figure 357: Location Tab

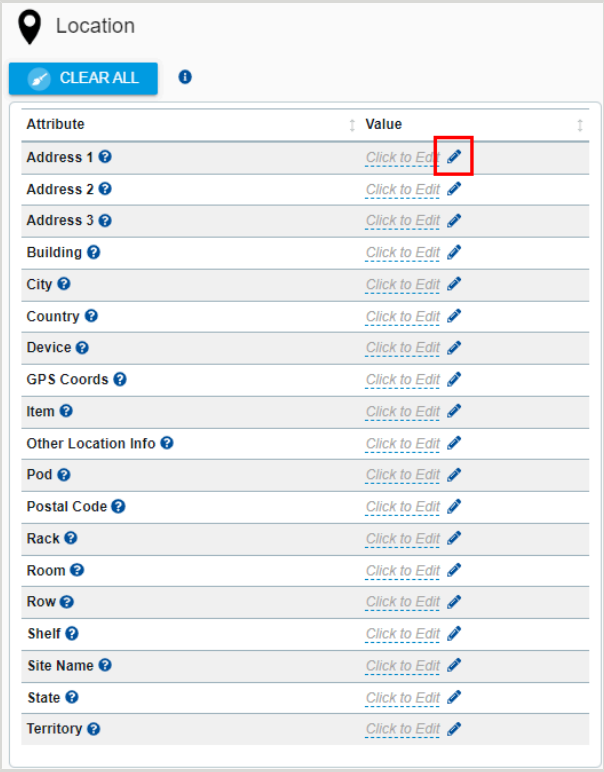
The **Location** page will appear:

Figure 358: Location Page



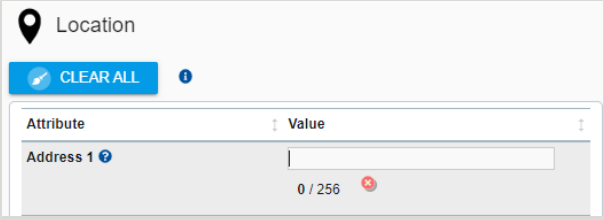
Step 2: To edit a location attribute, click the attribute's edit icon.

Figure 359: Edit Icon



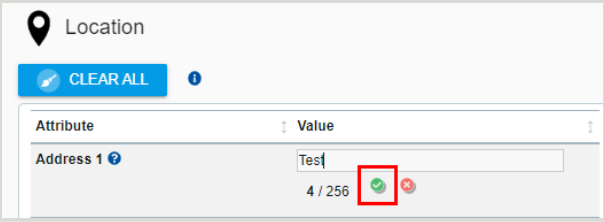
A text field will appear, allowing up to 256 characters.

Figure 360: Attribute Text Field



Step 3 : Enter the desired information, and click the green checkmark to save the attribute information.

Figure 361: Saving Attribute Information



Step 4 : Repeat these steps as needed to set/modify the remaining attributes.

Result: The location attributes of the Ultrastar enclosure have now been set.

6.6 Controllers

The Ultrastar enclosure's **Controllers** tab provides controls for managing the enclosure's IOMs.

6.6.1 Checking the Health of IOMs

This procedure provides instructions for checking the health status of the I/O modules for an Ultrastar enclosure using the Resource Manager Data Center Edition.

Before you begin:

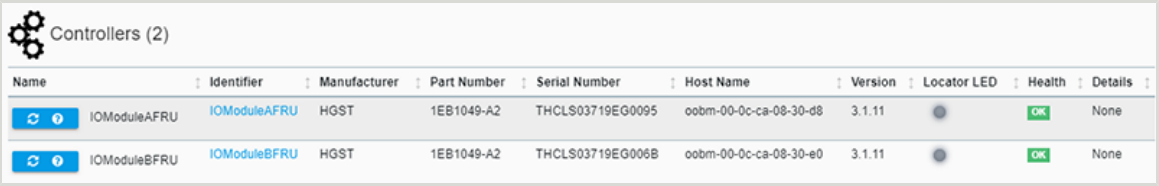
- Follow the instructions for Navigating to an Enclosure Dashboard (Data Center Edition) *(page 44)*.

Step 1: From the enclosure dashboard, click the **Controllers** tab.

Figure 362: Controllers Tab

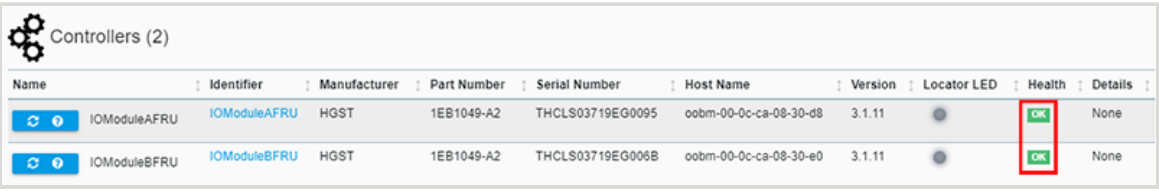
The **Controllers** page will appear:

Figure 363: Controllers Page



Step 2: On the right hand side of the page, check the health indicators to ensure that the IOMs aren't reporting faults.

Figure 364: IOM Health Indicators



Result: The health status the Ultrastar IOMs has now been checked.

6.6.2 Rebooting the IOMs

This procedure provides instructions for rebooting the I/O modules of an Ultrastar enclosure using the Resource Manager Data Center Edition.

Before you begin:

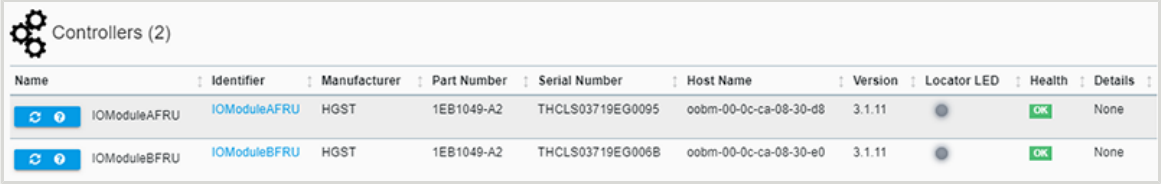
- Follow the instructions for Navigating to an Enclosure Dashboard (Data Center Edition) *(page 44)*.

Step 1: From the enclosure dashboard, click the **Controllers** tab.

Figure 365: Controllers Tab

The **Controllers** page will appear:

Figure 366: Controllers Page



Step 2: Click the **Reboot** button.

Caution: Clicking the **Reboot** button will reboot the IOM, making it unavailable until the reboot is completed.

Figure 367: Reboot Button

The IOM will be rebooted, and will become available again when the reboot is completed.

Result: The IOM of the Ultrastar enclosure has now been rebooted.

6.7 Power Supplies

The Ultrastar enclosure's **Power Supplies** tab provides controls for managing the enclosure's PSUs.

6.7.1 Checking the Health of PSUs

This procedure provides instructions for checking the health of power supplies for an Ultrastar enclosure using the Resource Manager Data Center Edition.

Before you begin:

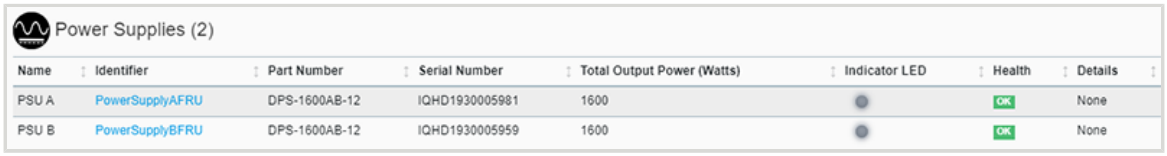
- Follow the instructions for Navigating to an Enclosure Dashboard (Data Center Edition) *(page 44)*.

Step 1: From the enclosure dashboard, click the **Power Supplies** tab.

Figure 368: Power Supplies Tab

The **Power Supplies** page will appear:

Figure 369: Power Supplies Page

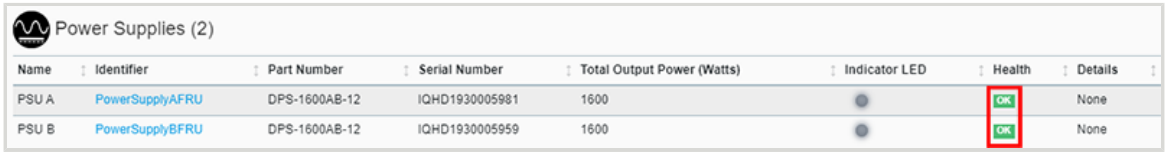


Power Supplies (2)

Name	Identifier	Part Number	Serial Number	Total Output Power (Watts)	Indicator LED	Health	Details
PSU A	PowerSupplyAFRU	DPS-1600AB-12	IQHD1930005981	1600		OK	None
PSU B	PowerSupplyBFRU	DPS-1600AB-12	IQHD1930005959	1600		OK	None

Step 2: On the right hand side of the page, check the health indicators to ensure that the PSUs aren't reporting faults.

Figure 370: PSU Health Indicators



Power Supplies (2)

Name	Identifier	Part Number	Serial Number	Total Output Power (Watts)	Indicator LED	Health	Details
PSU A	PowerSupplyAFRU	DPS-1600AB-12	IQHD1930005981	1600		OK	None
PSU B	PowerSupplyBFRU	DPS-1600AB-12	IQHD1930005959	1600		OK	None

Result: The health status the Ultrastar PSUs has now been checked.

6.8 Fans

The Ultrastar enclosure's **Fans** tab provides health and speed information about the enclosure's cooling fans.

6.8.1 Checking the Health of Fans

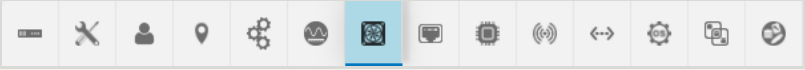
This procedure provides instructions for checking the health of fans for an Ultrastar enclosure using the Resource Manager Data Center Edition.

Before you begin:

- Follow the instructions for Navigating to an Enclosure Dashboard (Data Center Edition) *(page 44)*.

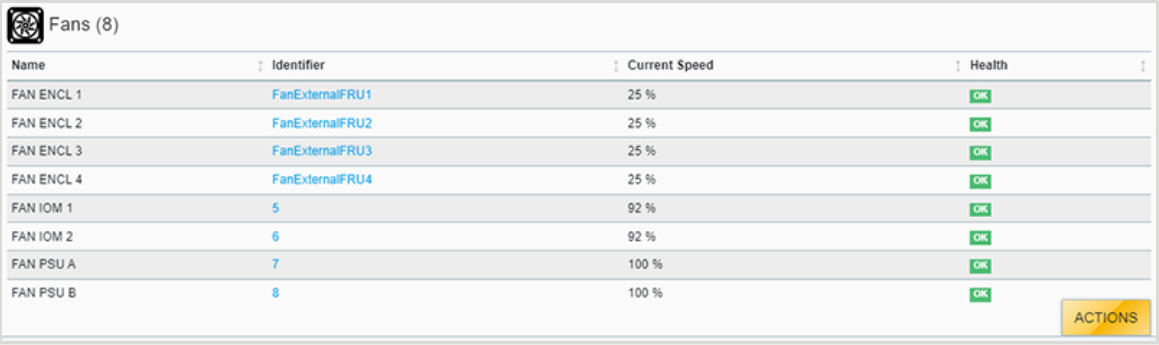
Step 1: From the enclosure dashboard, click the **Fans** tab.

Figure 371: Fans Tab



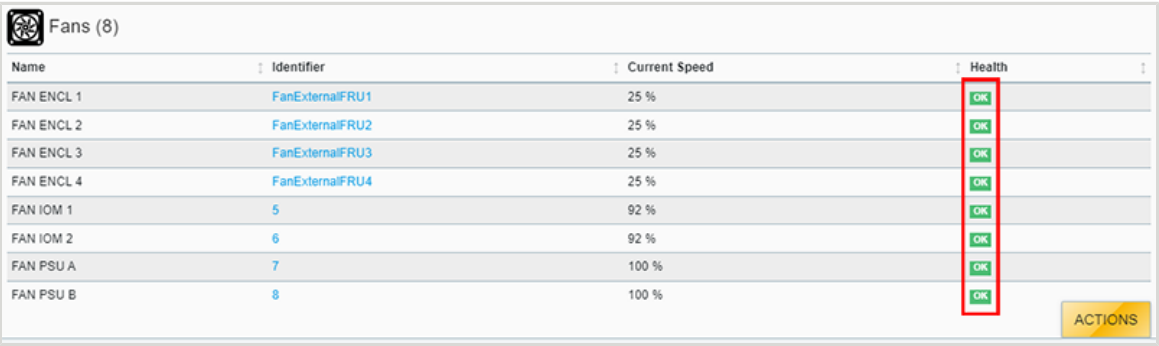
The **Fans** page will appear:

Figure 372: Fans Page



Step 2: On the right hand side of the page, check the health indicators to ensure that the Fans aren't reporting faults.

Figure 373: Fan Health Indicators



Result: The health status the Ultrastar fans has now been checked.

6.9 Ports

The Ultrastar enclosure's **Ports** tab provides information about the enclosure's I/O ports, including connection status, link speed, and IP addresses.

6.9.1 Checking the Status of Ports

This procedure provides instructions for checking the health, connection status, link status, and link speed of ports on an Ultrastar enclosure using the Resource Manager Data Center Edition.

Before you begin:

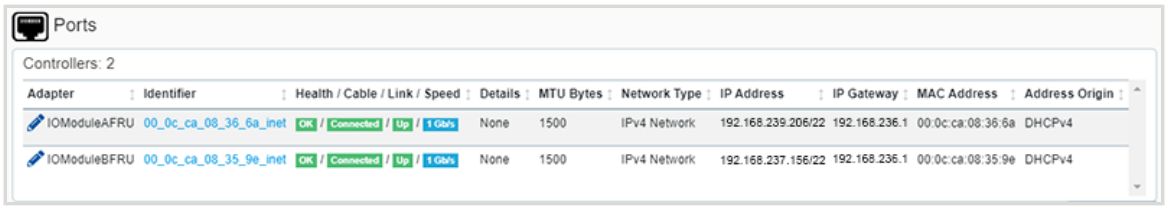
- Follow the instructions for Navigating to an Enclosure Dashboard (Data Center Edition) *(page 44)*.

Step 1: From the enclosure dashboard, click the **Ports** tab.

Figure 374: Ports Tab

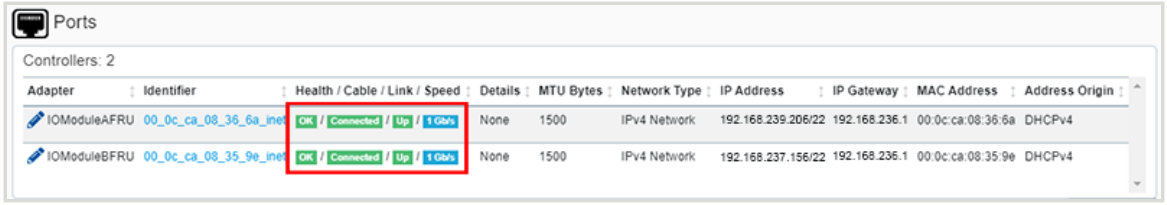
The **Ports** page will appear:

Figure 375: Ports Page



Step 2: The third column provides status indicators for port health, cable connection status, link status, and link speed.

Figure 376: Fan Health Indicators



Result: The status of the Ultrastar ports has now been checked.

6.9.2 Configuring Port Settings

This procedure provides instructions for configuring port settings for an Ultrastar enclosure using the Resource Manager Data Center Edition.

Before you begin:

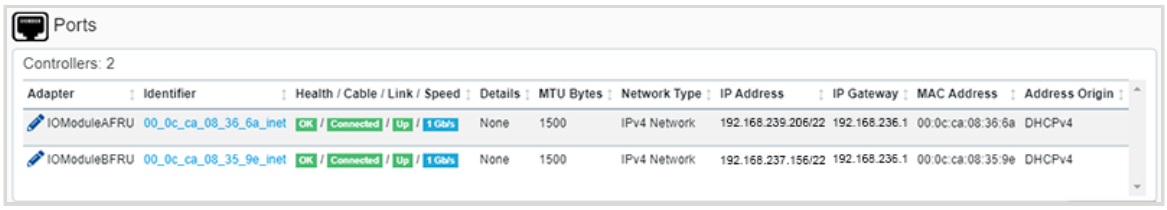
- Follow the instructions for Navigating to an Enclosure Dashboard (Data Center Edition) *(page 44)*.

Step 1: From the enclosure dashboard, click the **Ports** tab.

Figure 377: Ports Tab

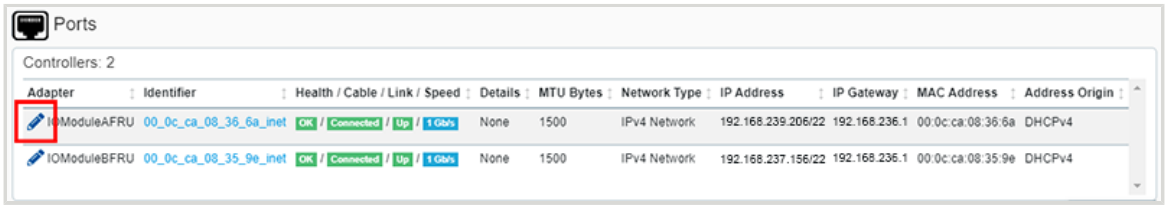
The **Ports** page will appear:

Figure 378: Ports Page



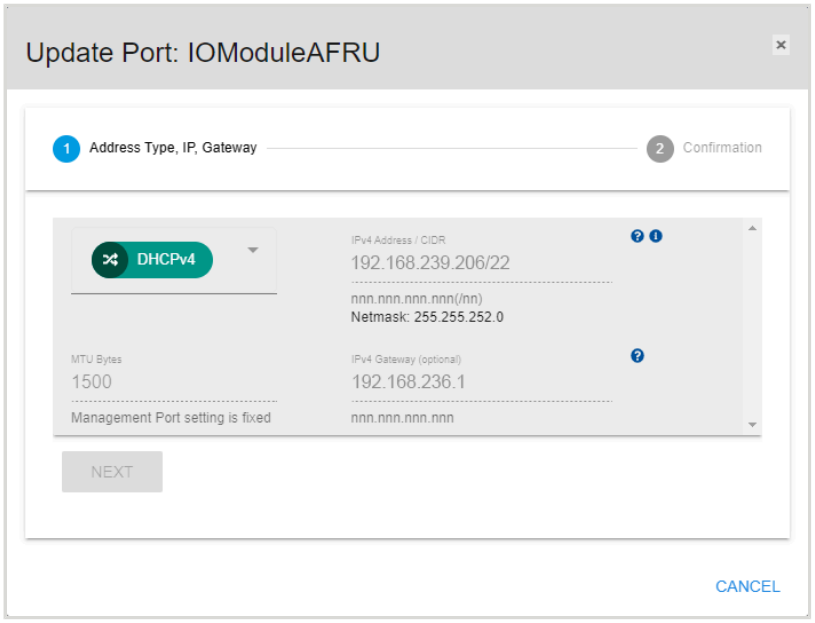
Step 2: On the left hand side, click the **Edit** icon for the IOM ports to be configured.

Figure 379: Edit Port Icon



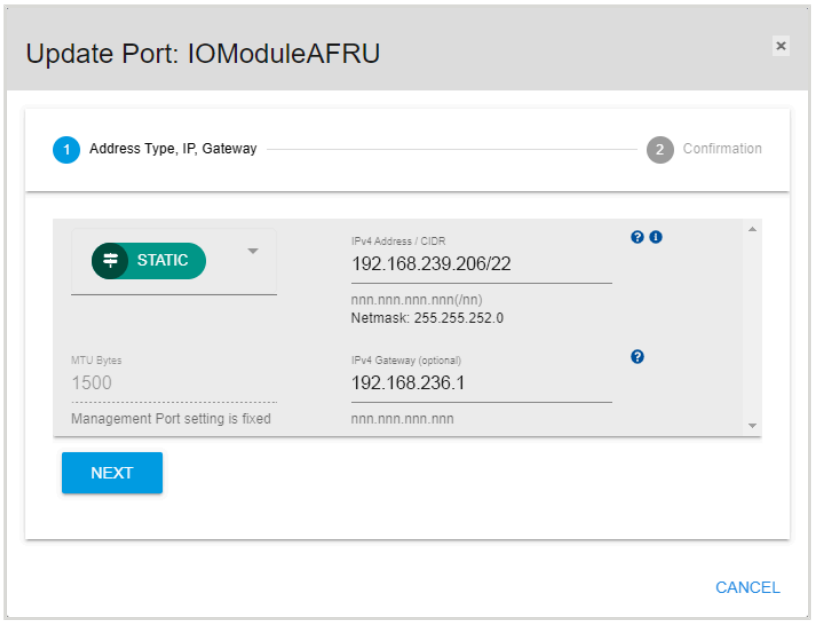
An **Update Port** window will appear:

Figure 380: Update Port Window



Step 3 : To manually configure the IP address, netmask, and gateway, select **Static** from the drop-down list. Or select **DHCP** to have these settings configured automatically.

Figure 381: Static Option

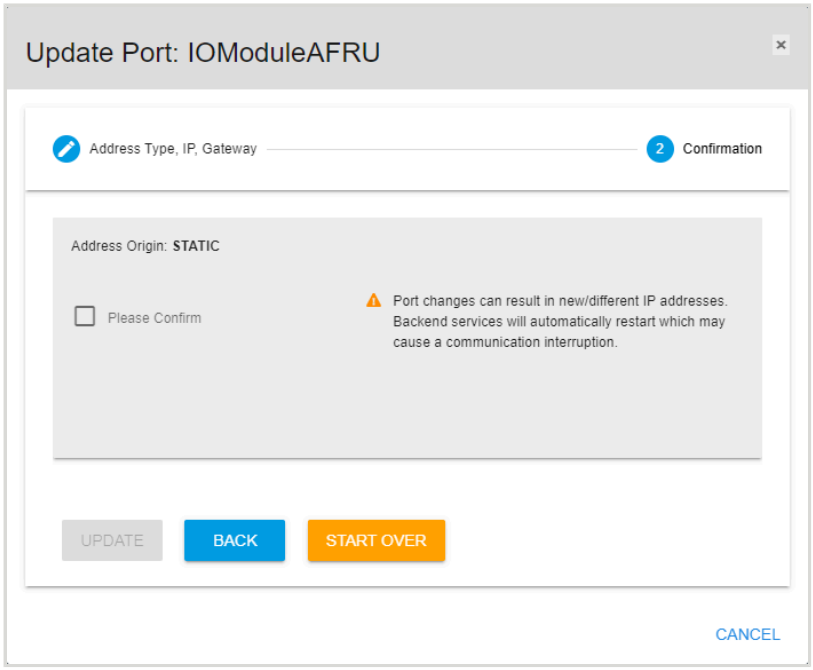


Step 4 : Click the **Next** button.

Figure 382: Next Button

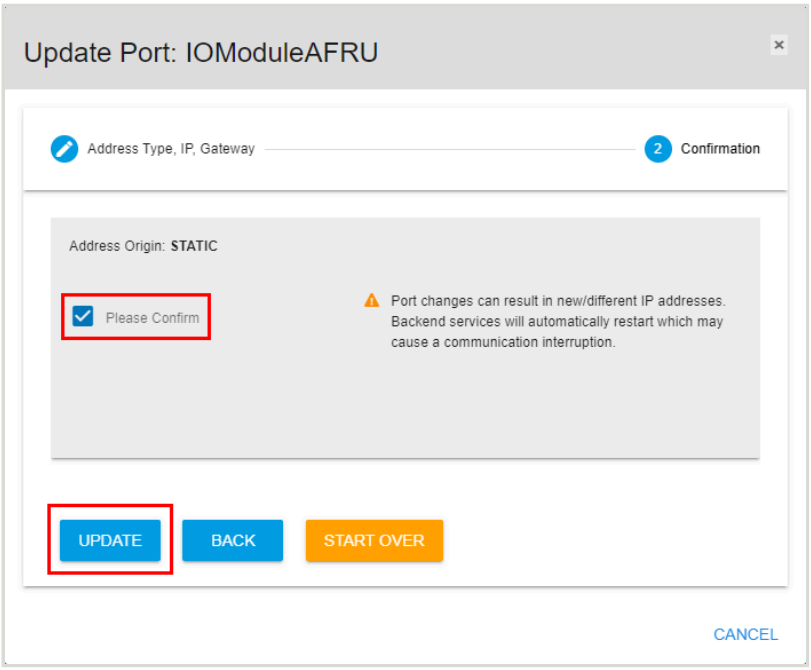
The **Update Port** window proceeds to the confirmation step:

Figure 383: Confirming Port Settings



Step 5 : To complete the changes to the port settings, click the **Please Confirm** checkbox and then click the **Update** button.

Figure 384: Complete Port Setting Changes



Backend services will automatically restart, which may cause a communication interruption.

Result: The port settings have now been configured.

6.10 Expanders

The Ultrastar enclosure's **Expanders** tab provides information about the enclosure's primary and secondary expanders, including version and health status.

6.10.1 Checking the Health of Expanders

This procedure provides instructions for checking the health of the expanders of an Ultrastar enclosure using the Resource Manager Data Center Edition.

Before you begin:

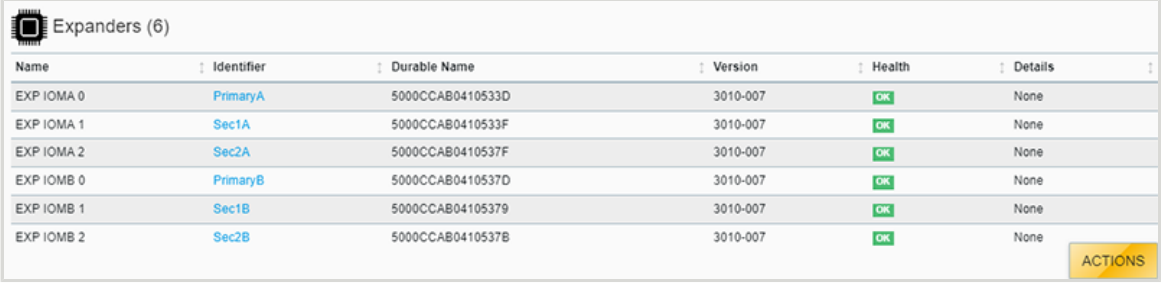
- Follow the instructions for Navigating to an Enclosure Dashboard (Data Center Edition) *(page 44)*.

Step 1: From the enclosure dashboard, click the **Expanders** tab.

Figure 385: Expanders Tab

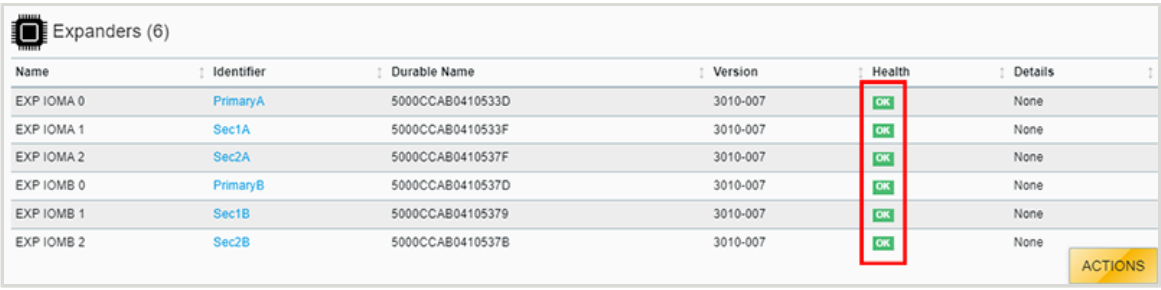
The **Expanders** page will appear:

Figure 386: Expanders Page



Step 2: On the right hand side, check the health indicators to ensure that the expanders aren't reporting faults.

Figure 387: Expander Health Indicators



Result: The health status the Ultrastar expanders has now been checked.

6.11 Sensors

The Ultrastar enclosure's **Sensors** tab provides information about the enclosure's sensors, including current readings, health status, and thresholds.

6.11.1 Checking the Health of Sensors

This procedure provides instructions for checking the health of sensors in an Ultrastar enclosure using the Resource Manager Data Center Edition.

Before you begin:

- Follow the instructions for Navigating to an Enclosure Dashboard (Data Center Edition) *(page 44)*.

Step 1: From the enclosure dashboard, click the **Sensors** tab.

Figure 388: Sensors Tab

The **Sensors** page will appear:

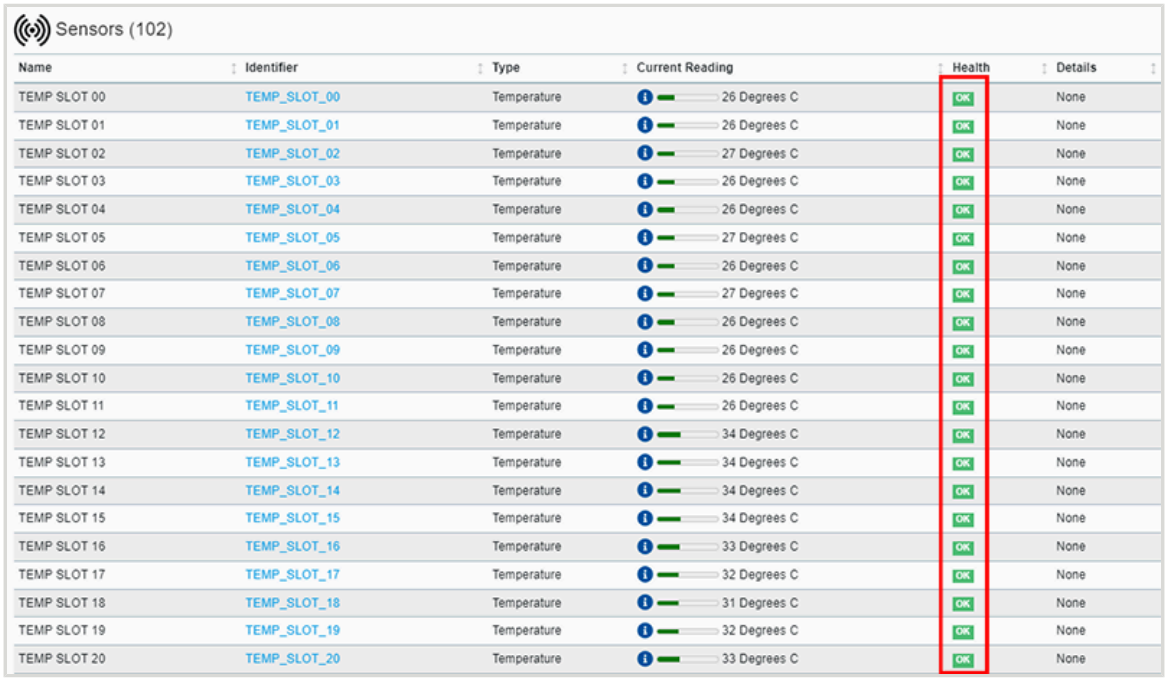
Figure 389: Sensors Page

Sensors (102)

Name	Identifier	Type	Current Reading	Health	Details
TEMP SLOT 00	TEMP_SLOT_00	Temperature	26 Degrees C	OK	None
TEMP SLOT 01	TEMP_SLOT_01	Temperature	26 Degrees C	OK	None
TEMP SLOT 02	TEMP_SLOT_02	Temperature	27 Degrees C	OK	None
TEMP SLOT 03	TEMP_SLOT_03	Temperature	26 Degrees C	OK	None
TEMP SLOT 04	TEMP_SLOT_04	Temperature	26 Degrees C	OK	None
TEMP SLOT 05	TEMP_SLOT_05	Temperature	27 Degrees C	OK	None
TEMP SLOT 06	TEMP_SLOT_06	Temperature	26 Degrees C	OK	None
TEMP SLOT 07	TEMP_SLOT_07	Temperature	27 Degrees C	OK	None
TEMP SLOT 08	TEMP_SLOT_08	Temperature	26 Degrees C	OK	None
TEMP SLOT 09	TEMP_SLOT_09	Temperature	26 Degrees C	OK	None
TEMP SLOT 10	TEMP_SLOT_10	Temperature	26 Degrees C	OK	None
TEMP SLOT 11	TEMP_SLOT_11	Temperature	26 Degrees C	OK	None
TEMP SLOT 12	TEMP_SLOT_12	Temperature	34 Degrees C	OK	None
TEMP SLOT 13	TEMP_SLOT_13	Temperature	34 Degrees C	OK	None
TEMP SLOT 14	TEMP_SLOT_14	Temperature	34 Degrees C	OK	None
TEMP SLOT 15	TEMP_SLOT_15	Temperature	34 Degrees C	OK	None
TEMP SLOT 16	TEMP_SLOT_16	Temperature	33 Degrees C	OK	None
TEMP SLOT 17	TEMP_SLOT_17	Temperature	32 Degrees C	OK	None
TEMP SLOT 18	TEMP_SLOT_18	Temperature	31 Degrees C	OK	None
TEMP SLOT 19	TEMP_SLOT_19	Temperature	32 Degrees C	OK	None
TEMP SLOT 20	TEMP_SLOT_20	Temperature	33 Degrees C	OK	None

Step 2: On the right hand side, check the health indicators to ensure that the sensors aren't reporting faults.

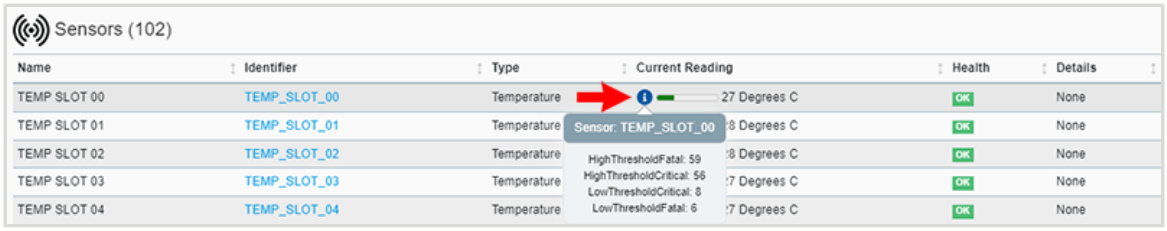
Figure 390: Sensor Health Indicators



Name	Identifier	Type	Current Reading	Health	Details
TEMP SLOT 00	TEMP_SLOT_00	Temperature	26 Degrees C	OK	None
TEMP SLOT 01	TEMP_SLOT_01	Temperature	26 Degrees C	OK	None
TEMP SLOT 02	TEMP_SLOT_02	Temperature	27 Degrees C	OK	None
TEMP SLOT 03	TEMP_SLOT_03	Temperature	26 Degrees C	OK	None
TEMP SLOT 04	TEMP_SLOT_04	Temperature	26 Degrees C	OK	None
TEMP SLOT 05	TEMP_SLOT_05	Temperature	27 Degrees C	OK	None
TEMP SLOT 06	TEMP_SLOT_06	Temperature	26 Degrees C	OK	None
TEMP SLOT 07	TEMP_SLOT_07	Temperature	27 Degrees C	OK	None
TEMP SLOT 08	TEMP_SLOT_08	Temperature	26 Degrees C	OK	None
TEMP SLOT 09	TEMP_SLOT_09	Temperature	26 Degrees C	OK	None
TEMP SLOT 10	TEMP_SLOT_10	Temperature	26 Degrees C	OK	None
TEMP SLOT 11	TEMP_SLOT_11	Temperature	26 Degrees C	OK	None
TEMP SLOT 12	TEMP_SLOT_12	Temperature	34 Degrees C	OK	None
TEMP SLOT 13	TEMP_SLOT_13	Temperature	34 Degrees C	OK	None
TEMP SLOT 14	TEMP_SLOT_14	Temperature	34 Degrees C	OK	None
TEMP SLOT 15	TEMP_SLOT_15	Temperature	34 Degrees C	OK	None
TEMP SLOT 16	TEMP_SLOT_16	Temperature	33 Degrees C	OK	None
TEMP SLOT 17	TEMP_SLOT_17	Temperature	32 Degrees C	OK	None
TEMP SLOT 18	TEMP_SLOT_18	Temperature	31 Degrees C	OK	None
TEMP SLOT 19	TEMP_SLOT_19	Temperature	32 Degrees C	OK	None
TEMP SLOT 20	TEMP_SLOT_20	Temperature	33 Degrees C	OK	None

Step 3 : The **Current Reading** column lists the current value detected by each sensor (temperature, voltage, and current). To see the threshold settings for a sensor, hover your cursor over the sensor's **Information** icon.

Figure 391: Sensor Thresholds



Name	Identifier	Type	Current Reading	Health	Details
TEMP SLOT 00	TEMP_SLOT_00	Temperature	27 Degrees C	OK	None
TEMP SLOT 01	TEMP_SLOT_01	Temperature	8 Degrees C	OK	None
TEMP SLOT 02	TEMP_SLOT_02	Temperature	8 Degrees C	OK	None
TEMP SLOT 03	TEMP_SLOT_03	Temperature	7 Degrees C	OK	None
TEMP SLOT 04	TEMP_SLOT_04	Temperature	7 Degrees C	OK	None

Result: The health status of the Ultrastar enclosure's sensors has now been checked.

6.12 Connectors

The Ultrastar enclosure's **Connectors** tab provides connection status and health information about the enclosure's IOM ports.

6.12.1 Checking the Status of Cables

This procedure provides instructions for checking the health and connection status of data cables on an Ultrastar enclosure using the Resource Manager Data Center Edition.

Before you begin:

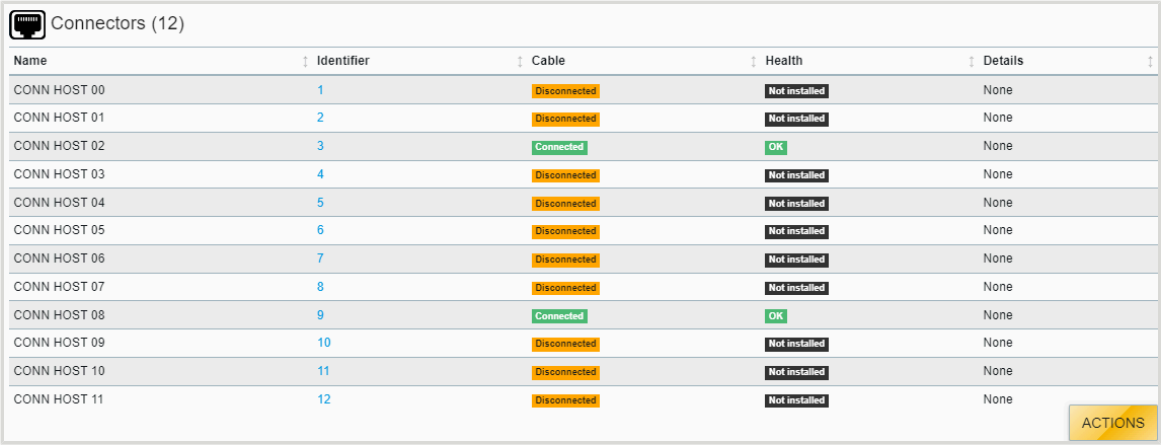
- Follow the instructions for Navigating to an Enclosure Dashboard (Data Center Edition) *(page 44)*.

Step 1: From the enclosure dashboard, click the **Connectors** tab.

Figure 392: Connectors Tab

The **Connectors** page will appear:

Figure 393: Connectors Page



Connectors (12)

Name	Identifier	Cable	Health	Details
CONN HOST 00	1	Disconnected	Not installed	None
CONN HOST 01	2	Disconnected	Not installed	None
CONN HOST 02	3	Connected	OK	None
CONN HOST 03	4	Disconnected	Not installed	None
CONN HOST 04	5	Disconnected	Not installed	None
CONN HOST 05	6	Disconnected	Not installed	None
CONN HOST 06	7	Disconnected	Not installed	None
CONN HOST 07	8	Disconnected	Not installed	None
CONN HOST 08	9	Connected	OK	None
CONN HOST 09	10	Disconnected	Not installed	None
CONN HOST 10	11	Disconnected	Not installed	None
CONN HOST 11	12	Disconnected	Not installed	None

ACTIONS

Step 2: The **Cable** column lists the connection status of each IOM port, and the **Health** column lists the health status of those connections. View both columns to ensure that any connected cables are not reporting faults.

Result: The health and connection status of data cables on the Ultrastar enclosure have now been checked.

6.13 Device OS

The Ultrastar enclosure's **Device OS** tab provides information about the currently installed version of enclosure firmware and controls for updating it.

6.13.1 Updating Enclosure Firmware

This procedure provides instructions for updating the firmware on an Ultrastar enclosure using the Resource Manager Data Center Edition.

Before you begin:

Caution: Updating firmware requires rebooting the Ultrastar enclosure.

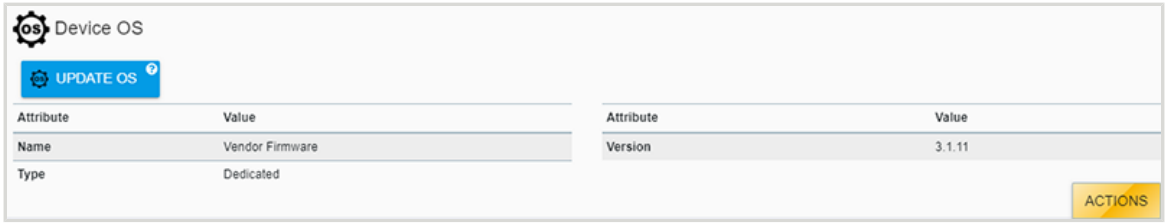
- Follow the instructions for Navigating to an Enclosure Dashboard (Data Center Edition) *(page 44)*.

Step 1: From the enclosure dashboard, click the **Device OS** tab.

Figure 394: Device OS Tab

The **Device OS** page will appear:

Figure 395: Device OS Page



Step 2: In the upper portion of the **Device OS** page, check the center card and note the firmware version currently on the enclosure. This will be used to verify a successful update at the end of this process.

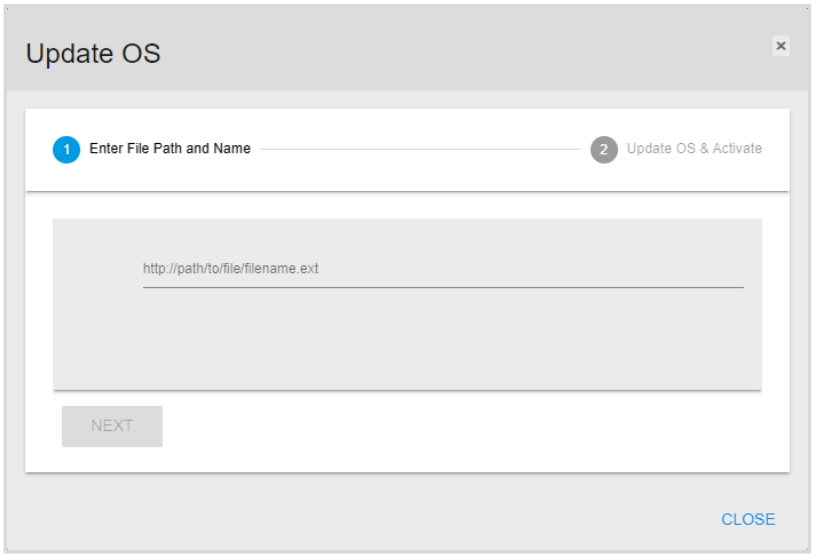
Figure 396: Starting Firmware Version

Step 3: Click the **Update OS** button.

Figure 397: Update OS Button

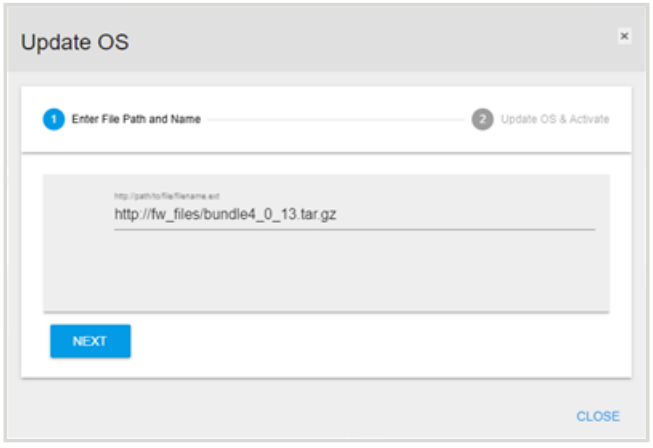
An **Update OS** window will appear:

Figure 398: Update OS Window



Step 4 : In the text field, enter the full path to the firmware file and its filename.

Figure 399: Path to FW File

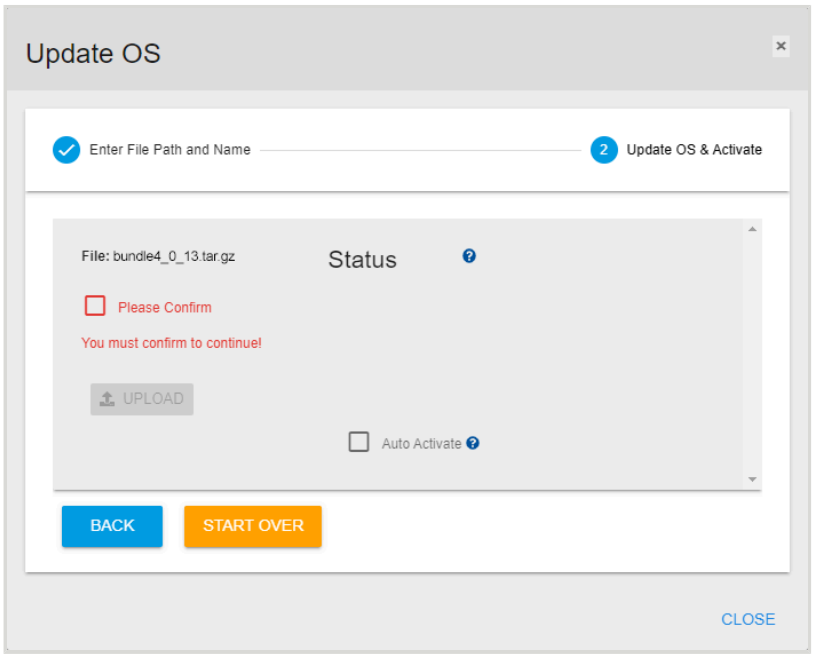


Step 5 : Click the **Next** button.

Figure 400: Next Button

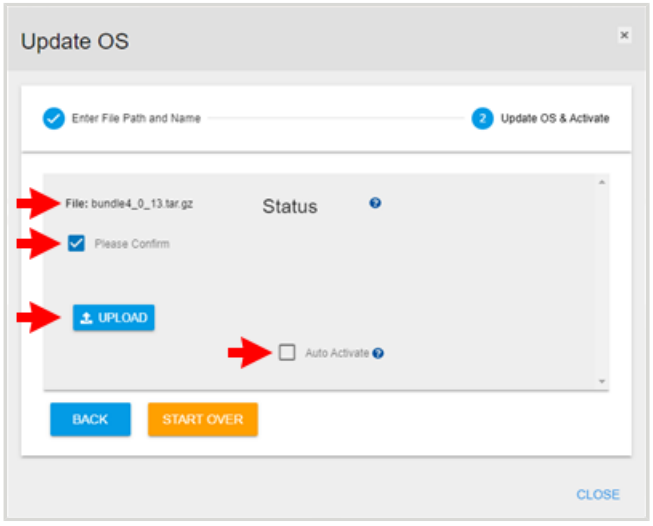
The **Update OS** window will proceed to the confirmation step:

Figure 401: Confirm OS Update



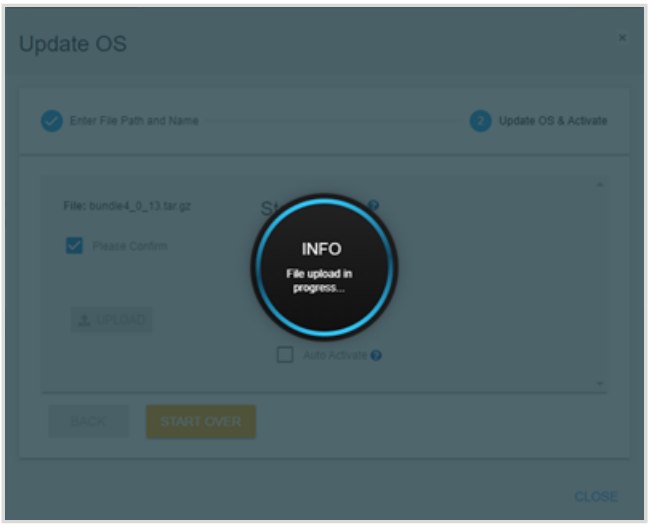
Step 6 : Review the listed filename. If correct, click the **Please Confirm** checkbox to confirm the file. To auto-activate the firmware after uploading, click the **Auto Activate** checkbox. When all selections have been made, click the **Upload** button to upload the firmware to the enclosure.

Figure 402: Confirm OS Update



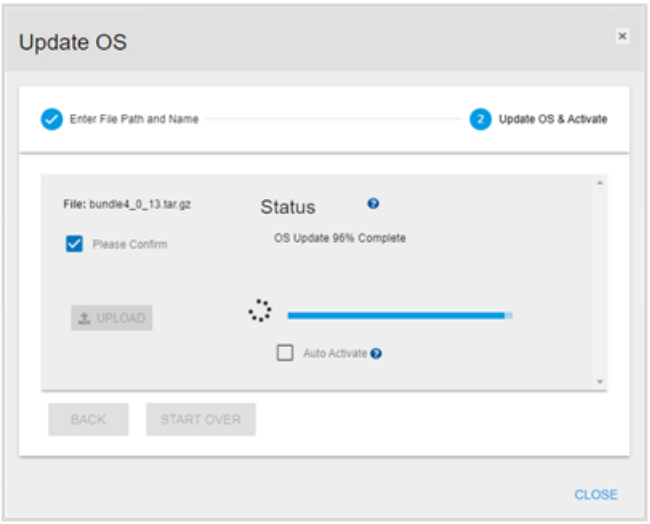
A window will appear to show the file upload progress:

Figure 403: File Upload Progress



When the file is uploaded, another window will appear to show the firmware update progress:

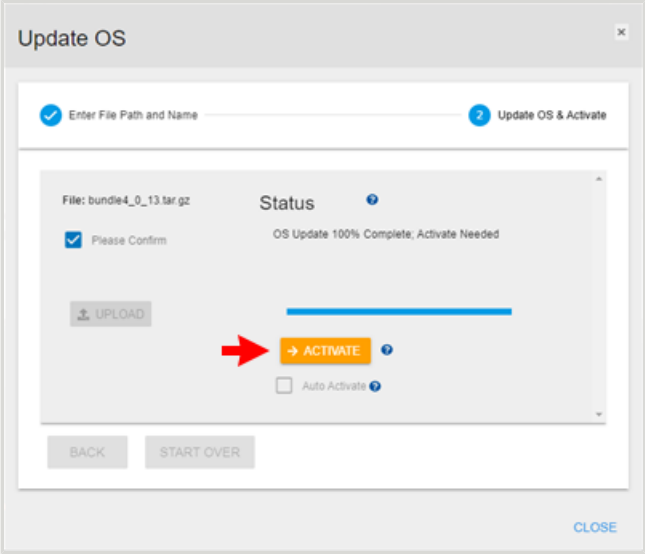
Figure 404: Firmware Update Progress



Step 7 : If you did **not** select the **Auto Activate** checkbox in step 6 *(page 203)*, an **Activate** button will appear after the enclosure firmware has been updated. Click the **Activate** button to activate the firmware.

Caution: Activating the firmware will cause the enclosure to reboot.

Figure 405: Activate Firmware

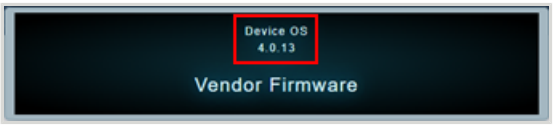


The enclosure will reboot to activate the firmware:

Figure 406: Activation / Reboot

Step 8 : In the upper portion of the **Device OS** page, check the center card and verify that the firmware version has been updated.

Figure 407: Updated Firmware Version



Result: The Ultrastar enclosure firmware has now been updated.

6.14 Zone Sets

The Ultrastar enclosure's **Zone Sets** tab provides information and controls for configuring and activating zoning on the enclosure.

6.14.1 Enabling & Disabling a Zoning Configuration

This procedure provides instructions for enabling/disabling a zoning configuration on an Ultrastar enclosure using the Resource Manager Data Center Edition.

Before you begin:

Caution: Activating a different zoning configuration requires rebooting the Ultrastar enclosure.

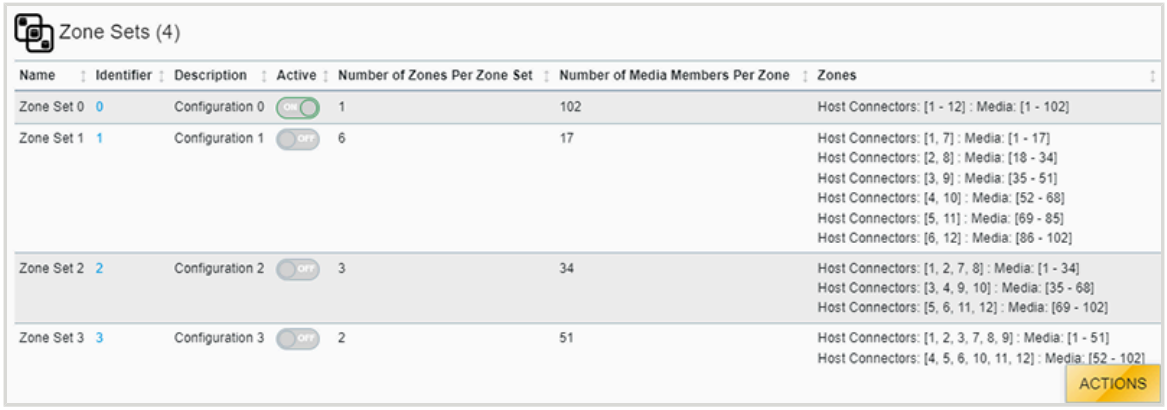
- Follow the instructions for Navigating to an Enclosure Dashboard (Data Center Edition) *(page 44)*.

Step 1: From the enclosure dashboard, click the **Zone Sets** tab.

Figure 408: Zone Sets Tab

The **Zone Sets** page will appear:

Figure 409: Zone Sets Page



Note: In this example, Zone Configuration 0 is enabled.

Step 2: To enable a different zoning configuration, click its **Activate** switch to toggle it to the ON position.

Note: Enabling a new zoning configuration will automatically disable the existing configuration.

Figure 410: Activate Switch - OFF Position

Figure 411: Activate Switch – ON Position

After the configuration change has been processed, the **Administration** tab will be displayed and the **Reboot** dialog modal will be launched.

Step 3 : Confirm the enclosure reboot for the zone change to take effect.

Result: The zoning configuration has now been modified.

6.15 Media

The Ultrastar enclosure's **Media** tab provides information about the drives installed in the enclosure and controls for changing their power state or activating their locator LEDs.

6.15.1 Checking the Health of Drives

This procedure provides instructions for checking the health status of drives in an Ultrastar enclosure using the Resource Manager Data Center Edition.

Before you begin:

- Follow the instructions for Navigating to an Enclosure Dashboard (Data Center Edition) *(page 44)*.

Step 1: From the enclosure dashboard, click the **Media** tab.

Figure 412: Media Tab

The **Media** page will appear:

Figure 413: Media Page

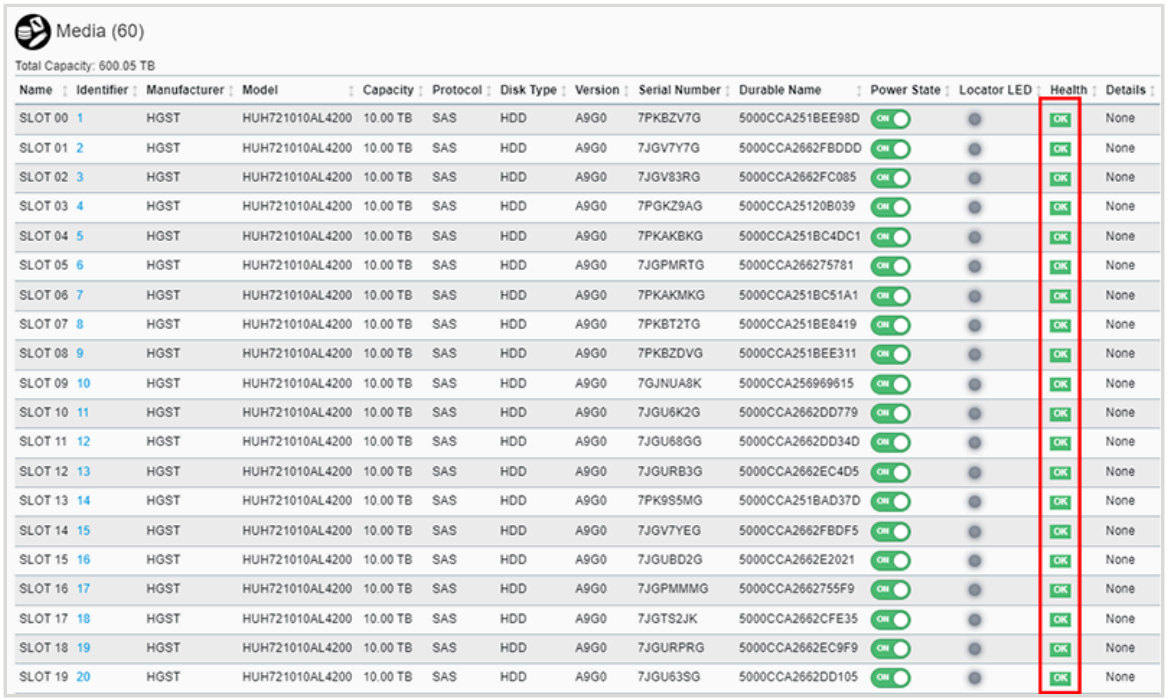
Media (60)

Total Capacity: 600.05 TB

Name	Identifier	Manufacturer	Model	Capacity	Protocol	Disk Type	Version	Serial Number	Durable Name	Power State	Locator LED	Health	Details
SLOT 00	1	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7PKBZV7G	5000CCA251BEE98D	ON		OK	None
SLOT 01	2	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGV7Y7G	5000CCA2662FBDDD	ON		OK	None
SLOT 02	3	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGV83RG	5000CCA2662FC085	ON		OK	None
SLOT 03	4	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7PGKZ9AG	5000CCA25120B039	ON		OK	None
SLOT 04	5	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7PKAKBKG	5000CCA251BC4DC1	ON		OK	None
SLOT 05	6	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGPMRTG	5000CCA266275781	ON		OK	None
SLOT 06	7	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7PKAKMKG	5000CCA251BC51A1	ON		OK	None
SLOT 07	8	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7PKBT2TG	5000CCA251BE8419	ON		OK	None
SLOT 08	9	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7PKBZDVG	5000CCA251BEE311	ON		OK	None
SLOT 09	10	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7GJNUA8K	5000CCA256969615	ON		OK	None
SLOT 10	11	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGU6K2G	5000CCA2662DD779	ON		OK	None
SLOT 11	12	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGU68GG	5000CCA2662DD34D	ON		OK	None
SLOT 12	13	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGURB3G	5000CCA2662EC4D5	ON		OK	None
SLOT 13	14	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7PK9S5MG	5000CCA251BAD37D	ON		OK	None
SLOT 14	15	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGV7YEG	5000CCA2662FBDF5	ON		OK	None
SLOT 15	16	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGUBD2G	5000CCA2662E2021	ON		OK	None
SLOT 16	17	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGPMMMG	5000CCA2662755F9	ON		OK	None
SLOT 17	18	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGTS2JK	5000CCA2662CFE35	ON		OK	None
SLOT 18	19	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGURPRG	5000CCA2662EC9F9	ON		OK	None
SLOT 19	20	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGU63SG	5000CCA2662DD105	ON		OK	None

Step 2: On the right hand side, check the health indicators to ensure that the drives aren't reporting faults.

Figure 414: Drive Health Indicators



Media (60)

Total Capacity: 600.05 TB

Name	Identifier	Manufacturer	Model	Capacity	Protocol	Disk Type	Version	Serial Number	Durable Name	Power State	Locator LED	Health	Details
SLOT 00	1	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7PKBZV7G	5000CCA251BEE98D	ON		OK	None
SLOT 01	2	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGV7Y7G	5000CCA2662FBDDD	ON		OK	None
SLOT 02	3	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGV83RG	5000CCA2662FC085	ON		OK	None
SLOT 03	4	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7PGKZ9AG	5000CCA25120B039	ON		OK	None
SLOT 04	5	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7PKAKBKG	5000CCA251BC4DC1	ON		OK	None
SLOT 05	6	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGPMRTG	5000CCA266275781	ON		OK	None
SLOT 06	7	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7PKAKMKG	5000CCA251BC51A1	ON		OK	None
SLOT 07	8	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7PKBT2TG	5000CCA251BE8419	ON		OK	None
SLOT 08	9	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7PKBZDVG	5000CCA251BEE311	ON		OK	None
SLOT 09	10	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7GJNUA8K	5000CCA256969615	ON		OK	None
SLOT 10	11	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGU6K2G	5000CCA2662DD779	ON		OK	None
SLOT 11	12	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGU68GG	5000CCA2662DD34D	ON		OK	None
SLOT 12	13	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGURB3G	5000CCA2662EC4D5	ON		OK	None
SLOT 13	14	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7PK9S5MG	5000CCA251BAD37D	ON		OK	None
SLOT 14	15	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGV7YEG	5000CCA2662FBDF5	ON		OK	None
SLOT 15	16	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGUBD2G	5000CCA2662E2021	ON		OK	None
SLOT 16	17	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGPMMMG	5000CCA2662755F9	ON		OK	None
SLOT 17	18	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGTS2JK	5000CCA2662CFE35	ON		OK	None
SLOT 18	19	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGURPRG	5000CCA2662EC9F9	ON		OK	None
SLOT 19	20	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGU63SG	5000CCA2662DD105	ON		OK	None

Result: The health status the Ultrastar enclosure's drives has now been checked.

6.15.2 Enabling a Drive Ident LED

This procedure provides instructions for enabling the identification LED of a drive in an Ultrastar enclosure using the Resource Manager Data Center Edition.

Before you begin:

- Follow the instructions for Navigating to an Enclosure Dashboard (Data Center Edition) *(page 44)*.

Step 1: From the enclosure dashboard, click the **Media** tab.

Figure 415: Media Tab

The **Media** page will appear:

Figure 416: Media Page

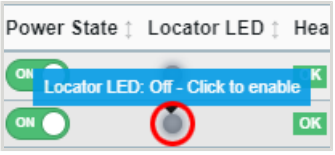
Media (60)

Total Capacity: 600.05 TB

Name	Identifier	Manufacturer	Model	Capacity	Protocol	Disk Type	Version	Serial Number	Durable Name	Power State	Locator LED	Health	Details
SLOT 00	1	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7PKBZV7G	5000CCA251BEE98D	ON		OK	None
SLOT 01	2	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGV7Y7G	5000CCA2662FBDDD	ON		OK	None
SLOT 02	3	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGV83RG	5000CCA2662FC085	ON		OK	None
SLOT 03	4	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7PGKZ9AG	5000CCA25120B039	ON		OK	None
SLOT 04	5	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7PKAKBKG	5000CCA251BC4DC1	ON		OK	None
SLOT 05	6	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGPMRTG	5000CCA266275781	ON		OK	None
SLOT 06	7	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7PKAKMKG	5000CCA251BC51A1	ON		OK	None
SLOT 07	8	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7PKBT2TG	5000CCA251BE8419	ON		OK	None
SLOT 08	9	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7PKBZDVG	5000CCA251BEE311	ON		OK	None
SLOT 09	10	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7GJNUA8K	5000CCA256969615	ON		OK	None
SLOT 10	11	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGU6K2G	5000CCA2662DD779	ON		OK	None
SLOT 11	12	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGU68GG	5000CCA2662DD34D	ON		OK	None
SLOT 12	13	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGURB3G	5000CCA2662EC4D5	ON		OK	None
SLOT 13	14	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7PK9S5MG	5000CCA251BAD37D	ON		OK	None
SLOT 14	15	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGV7YEG	5000CCA2662FBDF5	ON		OK	None
SLOT 15	16	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGUBD2G	5000CCA2662E2021	ON		OK	None
SLOT 16	17	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGPMMMG	5000CCA2662755F9	ON		OK	None
SLOT 17	18	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGTS2JK	5000CCA2662CFE35	ON		OK	None
SLOT 18	19	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGURPRG	5000CCA2662EC9F9	ON		OK	None
SLOT 19	20	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGU63SG	5000CCA2662DD105	ON		OK	None

Step 2: To enable a drive's identification LED, click its icon in the **Locator LED** column.

Figure 417: Drive Locator LED



Result: The Ultrastar enclosure's drive identification LED has now been enabled.

6.15.3 Powering Off a Drive

This procedure provides instructions for powering off a drive in an Ultrastar enclosure using the Resource Manager Data Center Edition.

Before you begin:

- Follow the instructions for Navigating to an Enclosure Dashboard (Data Center Edition) *(page 44)*.

Step 1: From the enclosure dashboard, click the **Media** tab.

Figure 418: Media Tab

The **Media** page will appear:

Figure 419: Media Page

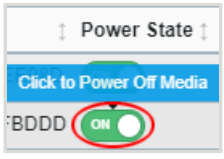
Media (60)

Total Capacity: 600.05 TB

Name	Identifier	Manufacturer	Model	Capacity	Protocol	Disk Type	Version	Serial Number	Durable Name	Power State	Locator LED	Health	Details
SLOT 00	1	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7PKBZV7G	5000CCA251BEE98D	ON		OK	None
SLOT 01	2	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGV7Y7G	5000CCA2662FBDDD	ON		OK	None
SLOT 02	3	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGV83RG	5000CCA2662FC085	ON		OK	None
SLOT 03	4	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7PGKZ9AG	5000CCA25120B039	ON		OK	None
SLOT 04	5	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7PKAKBKG	5000CCA251BC4DC1	ON		OK	None
SLOT 05	6	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGPMRTG	5000CCA266275781	ON		OK	None
SLOT 06	7	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7PKAKMKG	5000CCA251BC51A1	ON		OK	None
SLOT 07	8	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7PKBT2TG	5000CCA251BE8419	ON		OK	None
SLOT 08	9	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7PKBZDVG	5000CCA251BEE311	ON		OK	None
SLOT 09	10	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7GJNUA8K	5000CCA256969615	ON		OK	None
SLOT 10	11	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGU6K2G	5000CCA2662DD779	ON		OK	None
SLOT 11	12	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGU68GG	5000CCA2662DD34D	ON		OK	None
SLOT 12	13	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGURB3G	5000CCA2662EC4D5	ON		OK	None
SLOT 13	14	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7PK9S5MG	5000CCA251BAD37D	ON		OK	None
SLOT 14	15	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGV7YEG	5000CCA2662FBDF5	ON		OK	None
SLOT 15	16	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGUBD2G	5000CCA2662E2021	ON		OK	None
SLOT 16	17	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGPMMMG	5000CCA2662755F9	ON		OK	None
SLOT 17	18	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGTS2JK	5000CCA2662CFE35	ON		OK	None
SLOT 18	19	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGURPRG	5000CCA2662EC9F9	ON		OK	None
SLOT 19	20	HGST	HUH721010AL4200	10.00 TB	SAS	HDD	A9G0	7JGU63SG	5000CCA2662DD105	ON		OK	None

Step 2: To power off a drive, click its **Power State** toggle switch.

Figure 420: Drive Power State Toggle Switch



Result: The Ultrastar enclosure's drive has now been powered off.

Uninstallation

The topics in this section provide instructions for uninstalling the Resource Manager Data Center Edition application.

In This Chapter:

7.1 Linux – Basic & Advanced Uninstall

This procedure provides instructions for uninstalling the basic or advanced installation of Resource Manager Data Center Edition from a host server with a Linux operating system.

Step 1: Open a command line and navigate to the directory where the application files reside.

Step 2: Run the uninstall script.

```
# ./uninstall_rmdc.sh
```

The user will be prompted to confirm the uninstallation.

```
Do you want to uninstall Western Digital Resource Manager Data Center?(y/n)
```

Step 3: Input `y` to continue.

```
y
```

The uninstallation script will uninstall Resource Manager Data Center Edition and return to the command line prompt when finished.

```
...
#
```

Result: The Resource Manager Data Center Edition application is now uninstalled from the Linux OS.

7.2 Linux – Docker Uninstall

This procedure provides instructions for uninstalling the Docker installation of Resource Manager Data Center Edition from a host server with a Linux operating system.

Step 1: Open a command line and navigate to the directory where the application files reside.

Step 2: Run the uninstall script.

```
# ./uninstall_rmdc_containers.sh
```

The user will be prompted to confirm the uninstallation:

```
Do you want to uninstall Resource Manager Data Center and its associated
 containers?(y/n)
```

Step 3: Input `y` to continue.

```
y
```

The user will be notified of the data that will be lost with the uninstallation and will be prompted again to confirm the uninstallation:

```
This will result in losing data related to RMDC configurations, orchestration,
 analytics etc.
Do you want to continue?(y/n)
```

Step 4: Input `y` to continue.

```
y
```

The uninstallation script will uninstall Resource Manager Data Center Edition and return to the command line prompt when finished:

```
Removing RMDC and Elasticsearch containers.
[+] Running 5/5
- Container docker-rmdc-1            Removed
- Container docker-es01-1            Removed
- Volume docker_rmdc-supportfiles    Removed
- Volume docker_esdata01             Removed
- Network docker-default             Removed
#
```

Result: The Resource Manager Data Center Edition application is now uninstalled from the Linux OS.

7.3 Windows – Basic & Advanced Uninstall

This procedure provides instructions for uninstalling the basic or advanced installation of Resource Manager Data Center Edition from a host server with a Windows operating system.

Step 1: Open a command prompt with administrator privileges and navigate to the directory where the application files reside.

Step 2: Run the uninstall script.

```
C:\>uninstall_rmdc.bat
```

The user will be prompted to confirm the uninstallation.

```
Do you want to uninstall Western Digital Resource Manager Data Center(RMDC)
 [Y,N]?
```

Step 3: Input `Y` to continue.

```
Y
```

The uninstallation script will uninstall Resource Manager Data Center Edition, notify the user, and return to the command prompt when finished.

```
...
RMDC uninstalled successfully.
C:\>
```

Result: The Resource Manager Data Center Edition application is now uninstalled from the Windows OS.

7.4 Windows – Docker Uninstall

This procedure provides instructions for uninstalling the Docker installation of Resource Manager Data Center Edition from a host server with a Windows operating system.

Step 1: Open a command prompt with administrator privileges and navigate to the directory where the application files reside.

Step 2: Run the uninstall script.

```
C:\>uninstall_rmdc_containers.bat
```

The user will be prompted to confirm the uninstallation.

```
Do you want to uninstall Resource Manager Data Center(RMDC) [Y,N]?
```

Step 3: Input `Y` to continue.

```
Y
```

The user will be notified of the data that will be lost with the uninstallation and will be prompted again to confirm the uninstallation:

```
This will result in losing data related to RMDC configurations, orchestration,
 analytics etc
Do you want to continue [Y,N]?
```

Step 4: Input `Y` to continue.

```
Y
```

The uninstallation script will uninstall Resource Manager Data Center Edition and notify the user when finished.

```
Removing RMDC and Elasticsearch containers.
[+] Running 5/5
- Container docker_build-rmdc-1            Removed    0.8s
- Container docker_build-es01-1            Removed    2.8s
- Volume docker_build_esdata01             Removed    0.0s
- Volume docker_build_rmdc-supportfiles    Removed    0.0s
- Network docker_build_default             Removed    0.7s
RMDC and Elastic search containers uninstalled.
```

Result: The Resource Manager Data Center Edition application is now uninstalled from the Windows OS.