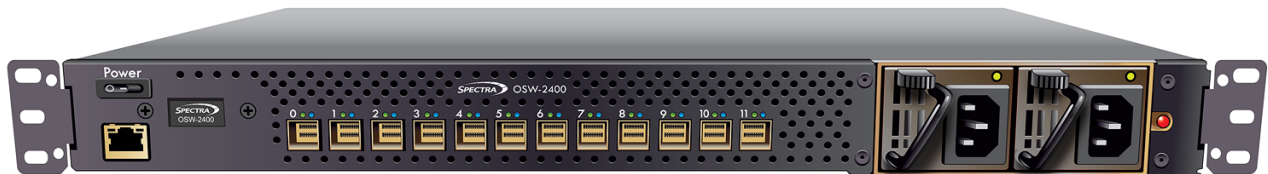




SPECTRA OSW-2400 OPTICAL SAS SWITCH - USER GUIDE



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TABLE OF CONTENTS

Contacting Spectra Logic	5
Chapter 1 - Installing the Spectra OSW-2400 Switch	10
Installation	10
Unpacking the OSW-2400 Switch	10
Identifying OSW-2400 Switch Components	10
Connecting Cables	12
Connecting SAS Devices	12
SAS Connectors and Cabling Requirements	12
Connecting to the OSW-2400 Switch Management Port	13
User Interface Supported Browsers	13
Chapter 2 - Spectra OSW-2400 Switch Overview	14
Spectra OSW-2400 Switch At a Glance	14
OSW-2400 Switch Benefits	14
OSW-2400 Switch Physical Features	15
OSW-2400 Hardware Descriptions	15
Terminology	16
SAS and the OSW-2400 Switch	17
SAS Phys, Ports, and Connectors	17
SAS Connections	18
DataBolt Technology	18
SAS Routing and Zoning	19
Chapter 3 - Using the OSW-2400 Switch	21
Log Into the User Interface	22
Dashboard Overview	23
Configure OSW-2400 Switch Settings	25
Basic Settings and Time Servers	26
Network Settings	27
SSH Access	27
TLS Configuration	28
Syslog Forwarding	28
Kernel Event Capture	29
Log Rotation	29
Configure Users	30
Description of User Types	30

Create a User	30
Change Current User Password	30
Change User Password	32
Change User Group Membership	33
Configure Zoning	34
Create a Zone	34
Edit a Zone	36
Delete a Zone	36
View Topology	38
View Environment	39
Update Environmental Graph Parameters	39
View Messages	40
Update Firmware	41
Log Gather	43
Hardware Reset	44
Chapter 4 - Technical Support	45
Troubleshooting	45
Front Panel Messages	46
Hardware Replacements	47
Access the Technical Support Portal	48
Opening a Support Ticket	50
Search for Help Online	50
Submit an Incident Online	53
Submit an Incident by Phone	55
Regulations	56
Safety/Emissions/Susceptibility Declarations and Notices	56
Specifications	58
OSW-2400 Switch Specifications	58

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CHAPTER 1 - INSTALLING THE SPECTRA OSW-2400 SWITCH

INSTALLATION

This chapter explains how to unpack the Spectra® OSW-2400 switch, connect cables, change the default static IP address, and connect SAS storage devices. This chapter also explains how to interpret the LEDs on the OSW-2400 switch.

Unpacking the OSW-2400 Switch

Place the OSW-2400 switch shipping carton on a grounded surface before opening the carton. Open the shipping carton and carefully unpack its contents. The carton contains the following items:

- One OSW-2400 SAS switch
- Two AC power cord with inline power supply
- One two foot Ethernet cable with RJ45 connectors.

If any item is missing or damaged, contact Spectra Logic Technical Support.

Identifying OSW-2400 Switch Components

The following figure shows the connectors and LEDs on the OSW-2400 switch. Each of the 48 SAS phys has a corresponding fault status LED and an activity LED. The switch also includes a rate LED and activity LED for the Ethernet connector.

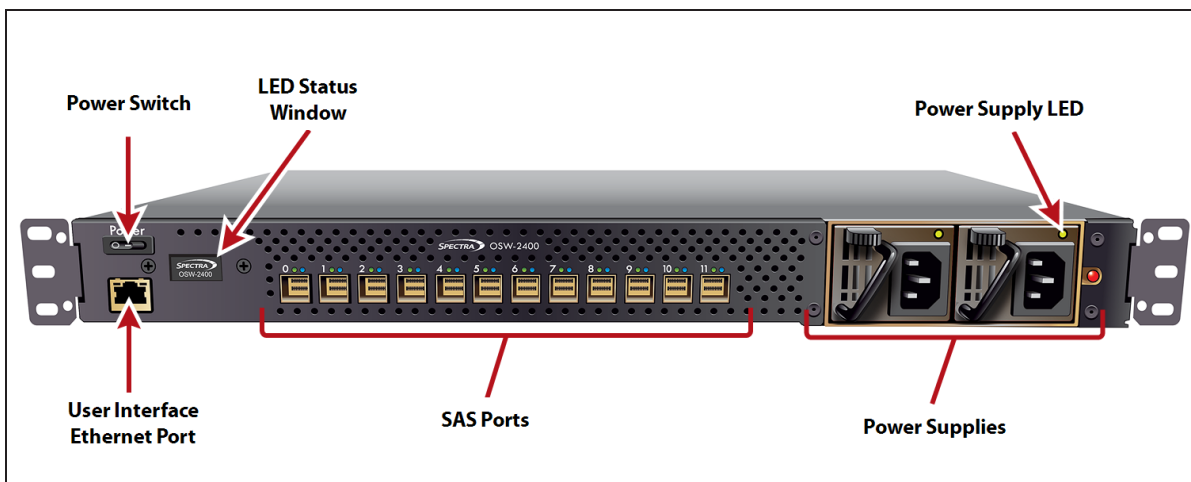


Figure 1 OSW-2400 Switch Components

OSW-2400 Switch Connectors

All 12 connectors on the OSW-2400 switch accept standard passive or active mini-SAS HD cabling.

OSW-2400 Switch LEDs

The following table shows how to interpret the LEDs for the system, the phys, and the Ethernet (RJ-45) port.

LED Name	Color	Meaning
Power Supply	Green	Input power is present and the supply is operational.
	Amber	Input power is present. The supply is either providing standby power output or there is a failure condition.
	Off	No input power.
SAS Port - Left	Green	Link successful. The LED flashes with activity on at least one of the four phys in the port.
	Off	No link established.
SAS Port - Right	Blue	Operational, licensed port.
	Off	Unlicensed port.
Ethernet Port	Green	Link is active. The LED flashes with activity.

CONNECTING CABLES

Connecting SAS Devices

The rules for connecting devices to the 12 SAS connectors on the OSW-2400 switch are as follows:

- Any SAS initiator can be connected to any SAS connector on the OSW-2400 switch.
- Any SAS target can be connected to any SAS connector on the OSW-2400 switch.
- A target can be a Spectra Logic tape drive only.
- Switches can be cascaded by connecting any SAS connector of the downstream switch to any SAS connector on the upstream switch.
- When SAS zoning is used, and multiple OSW-2400 switches are used in the domain, the switches can be cabled directly to one another.
- Two OSW-2400 switches can be connected with more than one cable to increase bandwidth between the OSW-2400 switches.
- All SAS connectors on the switch are Mini SAS HD, wide port-style connectors.
- All connections can be x1, x4 or x8. For any other configuration, contact Spectra Logic Technical Support.
- The maximum connections permitted are as follows:
 - Ten cascaded switches
 - A total of 64 switches in a topology or fabric

SAS Connectors and Cabling Requirements

Use a crossover cable to connect the OSW-2400 switch to a server or to another host device. Use 4x Mini SAS HD connectors (also called SFF-8644 connectors) on both ends of the crossover cable to connect the switch to the device. Any of the connectors can support passive and active cables.

**IMPORTANT**

All cables used with the OSW-2400 switch must comply with the SAS4 standard.

Connecting to the OSW-2400 Switch Management Port

Here is how you connect to the OSW-2400 switch management port:

1. Attach one end of a cable to the 10/100/1000 Ethernet connector (RJ-45 connector) on the connector side of the switch to gain access to the OSW-2400 user interface, which is used to configure and manage the OSW-2400 switch.
 - Use a standard RJ-45 cable to connect to an external Ethernet hub or switch.
 - Use a crossover RJ-45 cable to connect directly to a computer.
2. Plug the other end of the RJ-45 cable into an Ethernet hub, a switch, or a computer. By default, the OSW-2400 switch supports the configuration parameters listed in the following table, which provides a point-to-point (non-network) Ethernet connection between the OSW-2400 switch and the host.

The following table lists the OSW-2400 switch configuration defaults.

Parameter	Default
Name	OSW-2400
POST	Regular
Active Zone Set	None
IP Address Assignment	DHCP
IP Address	DHCP
IP Subnet Mask	DHCP
IP Gateway	DHCP

User Interface Supported Browsers

The OSW-2400 user interface requires one of the following browsers. Other browsers have not been tested and may display elements of the user interface incorrectly.

- Google[®] Chrome[™] browser
- Mozilla[™] Firefox[™] browser

CHAPTER 2 - SPECTRA OSW-2400 SWITCH OVERVIEW

The Spectra OSW-2400 Optical SAS Switch is the industry's first 24G SAS-4 switch utilizing active optical cables that extend connection distances up to 100 meters.

This innovative solution reduces or eliminates the need for Fibre Channel HBAs, switches, and cables while enabling switched topologies within data center environments—all without requiring specialized storage networking skills. The OSW-2400 switch lowers per-port costs when compared to Fibre Channel while maintaining performance, scalability, and security. This allows organizations to streamline tape connectivity, enhance operational flexibility, and minimize infrastructure costs.

This document is the primary reference for the OSW-2400 Serial Attached SCSI (SAS) switch. It describes the features of the switch and explains how to install and physically configure the switch. The document also explains how to use the web-based interface to create storage configurations in the SAS domain. It also includes troubleshooting information.

This document assumes that you are familiar with SAS devices and SAS hardware configuration.

SPECTRA OSW-2400 SWITCH AT A GLANCE

SAS replaces Ultra320 SCSI as the next phase in the evolution of the SCSI standard. The SAS interface addresses enterprise data storage and retrieval requirements with features such as point-to-point topology, 24.0 Gb/s transfer rate, minimum arbitration overhead, native support for both SAS and SATA drives, and smaller cables and connectors.

OSW-2400 Switch Benefits

- **Streamlined Standardization:** Adopt SAS fabrics for simplified, more affordable infrastructure and reduce reliance on costly Fibre Channel HBAs, switches, and cables.
- **No Specialized Skills Needed:** Optical SAS eliminates the need for advanced Fibre Channel expertise, allowing teams to manage storage environments with standard IT knowledge.
- **Flexible Topologies and Distance:** Supports versatile configurations—one-to-many, many-to-one, or many-to-many—while extending data center connectivity for unmatched scalability.
- **Seamless Data Center Growth:** Expand effortlessly with 48 SAS lanes and 100-meter reach, ensuring end-to-end connections for growing and dynamic data center environments.
- **Enhanced Data Performance:** Optimize data transfers using End Device Frame Buffering (EDFB), aggregating bandwidth from diverse drive speeds for smooth, high-performance compatibility across legacy and modern devices.

- **Reliable Operations:** Hot-swappable, dual-redundant power supplies and fans ensure uninterrupted data access and dependable performance for critical applications.
- **Out-of-the-box usability:** Plug and Play Mode offers a seamless setup. Simply power on the OSW-2400 switch, connect your SAS cables, and the switch is operational immediately, eliminating the need for any configuration.
- **Advanced Security Zoning:** Configurable zoning (port-to-port, port-to-lane, lane-to-lane) protects sensitive data with compartmentalized access and ensures compliance with rigorous data protection standards.

OSW-2400 Switch Physical Features

The OSW-2400 switch has the following features:

- A total of 12 connectors that support passive copper and active cables including optical cables
- 40 DataBolt™ (EDFB) end-device phys architecture to achieve bandwidth aggregation
 - FIFO-style operation
 - Support for both SSP and STP with mode selection capability
 - Bypass mode to provide backward compatibility
- Non-blocking feature provides simultaneous access of any port to any port at full port bandwidth
- Connectors support SAS link rates of 24 Gb/s, 12.0 Gb/s, 6.0 Gb/s, or 3.0 Gb/s
- 10/100/1000 Base-T Ethernet for switch management
- Three hot-swappable fans
- Dual hot-swappable power supplies

OSW-2400 Hardware Descriptions

- **Management Module** – A Raspberry Pi 5 Compute Module that runs the OSW-2400 user interface, which allows control and monitoring over all functions of the OSW-2400 switch.
- **SAS Switching Module** – This board performs the SAS3/SAS4 switching. If the management module fails, the switching module continues to route data traffic.
- **Port** – A connector on the front of the switch. Each port has 4 lanes. Ports are licensed in groups of 3. LEDs indicate which ports are enabled. Ports are also referred to as a "phy".
- **OLED Display** – A display screen on the front of the OSW-2400 switch. The screen shows the username and IP address of the OSW-2400 user interface. More functionality is planned for the OLED display in future firmware releases.
- **SAS Connectors** – The OSW-2400 switch has 12 x4 Mini SAS HD connectors, numbered 0 through 11. It supports connection to SAS devices at link rates of 24.0 Gb/s, 12.0 Gb/s, 6.0 Gb/s, and 3.0 Gb/s.

- **Ethernet Phy** – The external 10/100/1000 Ethernet port provides access to the OSW-2400 user interface, which sets up storage configurations in the SAS domain, monitors the status of the switch, and performs diagnostic functions.
- **Fans** – The OSW-2400 switch enclosure contains three fans. The fan speed is set and can be monitored using the OSW-2400 user interface.
- **Temperature Sensors** – The temperature sensors inputs can be monitored in the OSW-2400 user interface.

Terminology

- **OSW-2400** – Spectra Logic Optical SAS Switch, product name
- **SAS** – Serial Attached SCSI
- **SAS2** – Serial Attached SCSI, Generation-2, 6Gb/s transfer per lane
- **SAS3** – Serial Attached SCSI, Generation-3, 12Gb/s transfer per lane
- **SAS4** – Serial Attached SCSI, Generation-4, 24Gb/s (22.5Gb/s) transfer per lane
- **Switch** – Computer hardware that connects multiple devices within a local area network
- **Port** – Physical external SAS connector (one of 12 on the Switch)
- **Lane** – A single SAS connection. There are four SAS lanes (PHY) per port (48 total)
- **AOC** – Active Optical Cable, up to 100m
- **GUI** – Graphical User Interface, written in HTML5
- **Zoning** – Simple host/device port and lane grouping and isolation.

SAS AND THE OSW-2400 SWITCH

In SAS storage environments, the OSW-2400 switch allows connection of multiple targets and initiators through a switched device for manageable scalability. The OSW-2400 switch allows data centers to benefit from the improved performance, minimum arbitration overhead, simplified cabling, and lower system implementation costs of SAS and SATA.

The OSW-2400 switch uses a Broadcom SASx48 24 Gb/s SAS chip that is compliant with the ANSI Serial Attached SCSI specification and supports SATA as defined in the Serial ATA: High Speed Serialized AT Attachment and the Serial ATA II: Port Selector Specification.

The OSW-2400 switch offers advanced hardware management with an internal power supply module, three enclosure fans, and temperature and power supply voltage sensing and alerts. The switch is housed in a 1U chassis for easy shelf placement in rack-mounted server clusters.

The following figure shows how the OSW-2400 switch centralizes management of all application servers and data storage devices in the SAS domain.

In this simplified representation, the servers at the top of [Chapter 2 on page 14](#) must access data on the storage devices in the lower part of the figure. The OSW-2400 switch manages the SAS configuration, allowing the servers to access all storage devices. Or, if zoning is used, single application servers can access specific storage devices exclusively.

You can connect multiple OSW-2400 switches in various topologies to provide failover support and to increase the number of connected devices in the SAS domain. The upper limit of SAS addresses in an OSW-2400 switch topology is 1800.

SAS Phys, Ports, and Connectors

Phy and ports are a basic concept of SAS. A phy is the basic physical connection point for a SAS device. A phy contains a single transmitter and receiver, which communicate across a SAS link to a single transmitter and receiver in another phy.

Note: All the connectors support active cabling (optical) for cable runs up to 328 feet (100 meters). Passive cables can also be connected to these ports for normal cable runs.

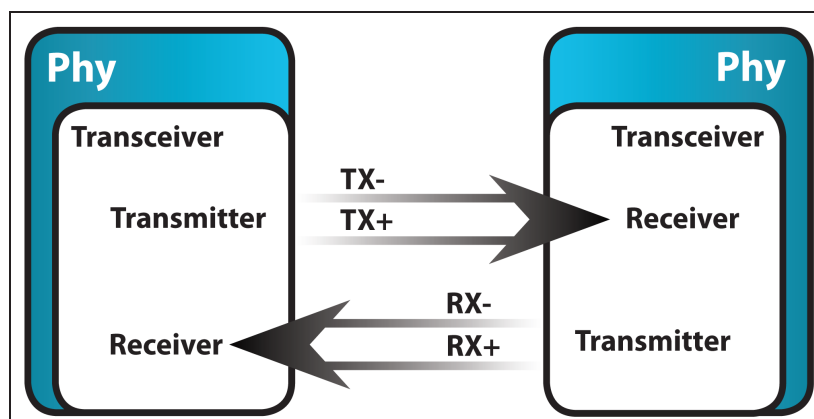


Figure 2 Link between Two Single SAS Phys

Each single-phy link (also called a narrow port) supports a maximum bandwidth of 2400 MB/s (24.0 Gb/s) per direction, with a total bandwidth of 4800 MB/s full duplex in both directions.

A wide SAS port consists of more than one SAS phy. A wide SAS port transmits and receives data using the same SAS address when connected to another SAS wide port.

The OSW-2400 switch has 48 phys, numbered 0 through 47. Each of the 12 SAS connectors on the switch case (numbered 0 through 11) contains four phys, making them wide ports.

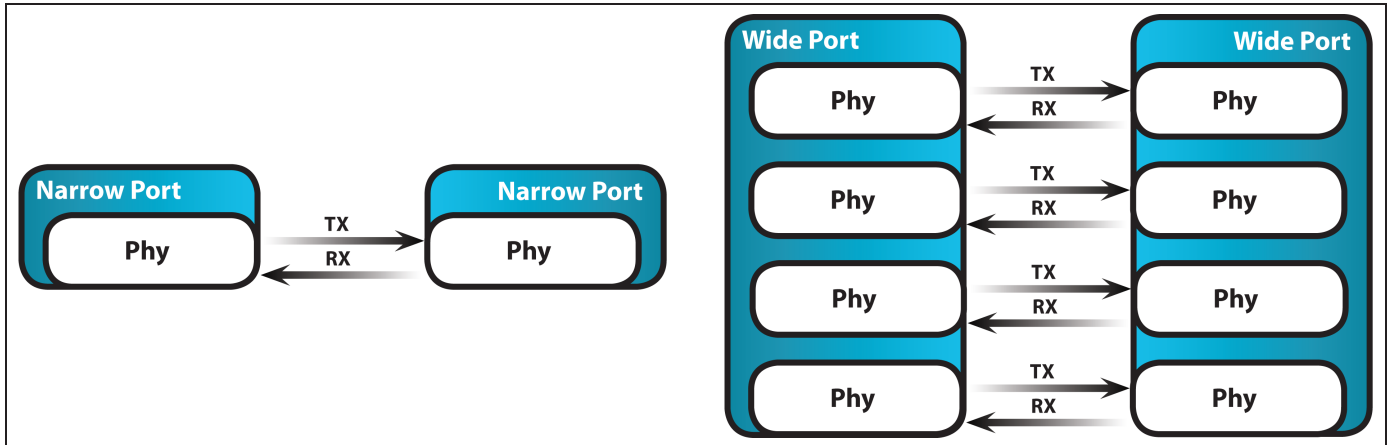


Figure 3 Narrow and Wide SAS Ports

SAS Connections

The OSW-2400 switch centralizes management for all SAS initiators and SAS targets in the SAS domain. The SAS ports on the OSW-2400 switch are, by default, both input ports and output ports. You can attach each port to a SAS host bus adapter or a Spectra Logic tape drive(s). You can use any SAS port on the OSW-2400 switch to cascade to any port on another OSW-2400 switch to increase the size of the storage configuration.

DataBolt Technology

DataBolt technology is a feature used to achieve higher bandwidth even when slower devices are connected. For example, using DataBolt technology, you can achieve 24 Gb/s bandwidth with two 12 Gb/s drives. The SAS Switching Module establishes a true 24 Gb/s link with the initiator and splits the data to two 12 Gb/s. Without DataBolt technology, the speed is 12 Gb/s, or a 24 Gb/s link rate-matched to 12 Gb/s.

SAS Routing and Zoning

SAS is a connection-oriented, point-to-point technology. When a host (initiator) issues a request to read or write data, the OSW-2400 switch automatically determines how to route the connection request from the initiator to the correct data storage device (target). By default, any SAS initiator or target connected to the OSW-2400 switch can access any other connected initiator or target in the SAS domain, without restrictions. However you can segregate the SAS topology to isolate selected hosts from each other or to permit selected hosts to access only selected storage volumes.

Zoning provides several benefits:

- **Security** – Zoning prevents users from accessing information that should not be available to them.
- **Manageability** – Zoning reflects operational categories, such as marketing or engineering. Zoning also can partition hosts that run different operating systems to minimize conflicts.
- **Performance** – Zoning enables faster boot time because the host must discover only the storage within its zone or zones.

SAS Zoning Overview

Initiators and targets only see the portions of the zone to which they are assigned in the zone PHY table. These zoned portions are called zone groups. Zone groups are activated when they belong to a set. When the set is enabled, the zoning is enforced. When the set is disabled, the zoning disappears. More than one zone can exist in a set, and initiators and targets can belong to more than one zone. However, only one set can be active.

Creating SAS Zones

To create SAS zones, start by creating zone groups that include hosts or storage devices that share common access privileges, and zone sets that connect the zone groups together. Use the OSW-2400 user interface to create zones. The OSW-2400 user interface utility includes zoning wizards to create zone groups and zone sets automatically. You also can use the OSW-2400 user interface to create zone groups and zone sets.

The following rules apply to zone groups and zone sets:

- Only phys on the edge of the ZPSDS can be grouped into administrator-defined zone groups. Phys that interconnect zoning expanders are automatically placed into Zone Group 1.
- An administrator defines zone group permissions. This procedure permits end devices attached to, or downstream of, the zoned phy to communicate with one another.

- Zoning limits a host's access to only the targets downstream of zoned phys in which its zone phy is granted zoning access permission. A host can access all logical unit numbers (LUNs) behind the SAS phy, and it does not restrict access to individual storage LUNs.
- You can create up to 248 zone groups within a single zone set.
- SAS phys within a zone group cannot automatically access each other, but you can grant them access privileges.
- You can grant a zone group permission to access multiple zone groups, if required.
- A zone group can be a member of more than one zone set.
- A phy can be a member of only one zone group per zone set.
- A zone set must be active for its definitions to be applied to the SAS domain. Zone sets are activated in the OSW-2400 user interface.
- Only one zone set can be active at one time. When no zone set is active, zoning is disabled and domain access is unrestricted.
- Changes to the active zone set (for example, a change to zone group or zone set membership, or a change to zone group permissions) do not take effect until the next zone set activate command.
- When the SAS topology changes (for example, when you move a host or storage attachment from one switch connection to another) you must manually redefine zone group permissions within the active zone set. Changes to the active zone set do not take effect until the zone set is updated and reactivated.
- Zoning is managed throughout the ZPSDS formed around the OSW-2400 switch, used to manage zoning, and any SAS 2.0, SAS 3.0 or SAS 4.0 zoning expanders that can be linked back to it without crossing a non-zoning expander. When zoning is enabled, zone group and permission data are migrated automatically between the OSW-2400 switches and the SAS 2.0, SAS 3.0, or SAS 4.0 zoning-enabled expanders throughout the ZPSDS. If a storage configuration includes a legacy expander that is not-zoning enabled, that expander and its attached devices inherit the zone group and permissions of the zone phy to which it is connected.
- To create a high-availability (failover) configuration, use one OSW-2400 switch for each data path between the host and the shared storage. SAS allows for only a single path between endpoints.

CHAPTER 3 - USING THE OSW-2400 SWITCH

This chapter explains how to use the OSW-2400 user interface to configure and manage the switch.

Log Into the User Interface	22
Dashboard Overview	23
Configure OSW-2400 Switch Settings	25
Basic Settings and Time Servers	26
Network Settings	27
SSH Access	27
TLS Configuration	28
Syslog Forwarding	28
Kernel Event Capture	29
Log Rotation	29
Configure Users	30
Description of User Types	30
Create a User	30
Change Current User Password	30
Change User Password	32
Change User Group Membership	33
Configure Zoning	34
Create a Zone	34
Edit a Zone	36
Delete a Zone	36
View Topology	38
View Environment	39
Update Environmental Graph Parameters	39
View Messages	40
Update Firmware	41
Log Gather	43
Hardware Reset	44

LOG INTO THE USER INTERFACE

Here is how you log in to the user interface:

1. Using a supported web browser, enter the IP address of the switch management port.

Note: By default, the management port uses DHCP. The IP address of the management port is displayed on the switch front panel.

2. Resolve the security certificate warning for the OSW-2400 user interface.

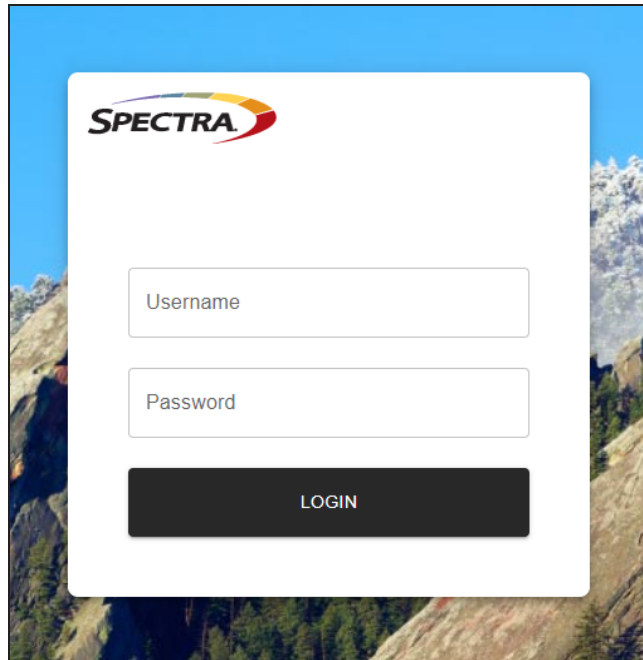


Figure 4 The Log In screen.

3. Enter the **Username** and **Password**.

- The default username is **admin**
- The default password is **admin**

The default user has superuser permissions, which allows access to all screens of the user interface. For information on other permission levels, see [Description of User Types](#) on page 30.

4. Click **Login**.

The Dashboard screen of the user interface displays showing an overview of your OSW-2400 switch.

DASHBOARD OVERVIEW

The Dashboard screen displays an overview of the OSW-2400 environment, including SAS port information, temperature readings of critical components, fan speed and activity, and power supply status. Additionally the Dashboard displays all active zones and information about all connected phys.

From the menu bar, select **Status > Dashboard** to display the dashboard.

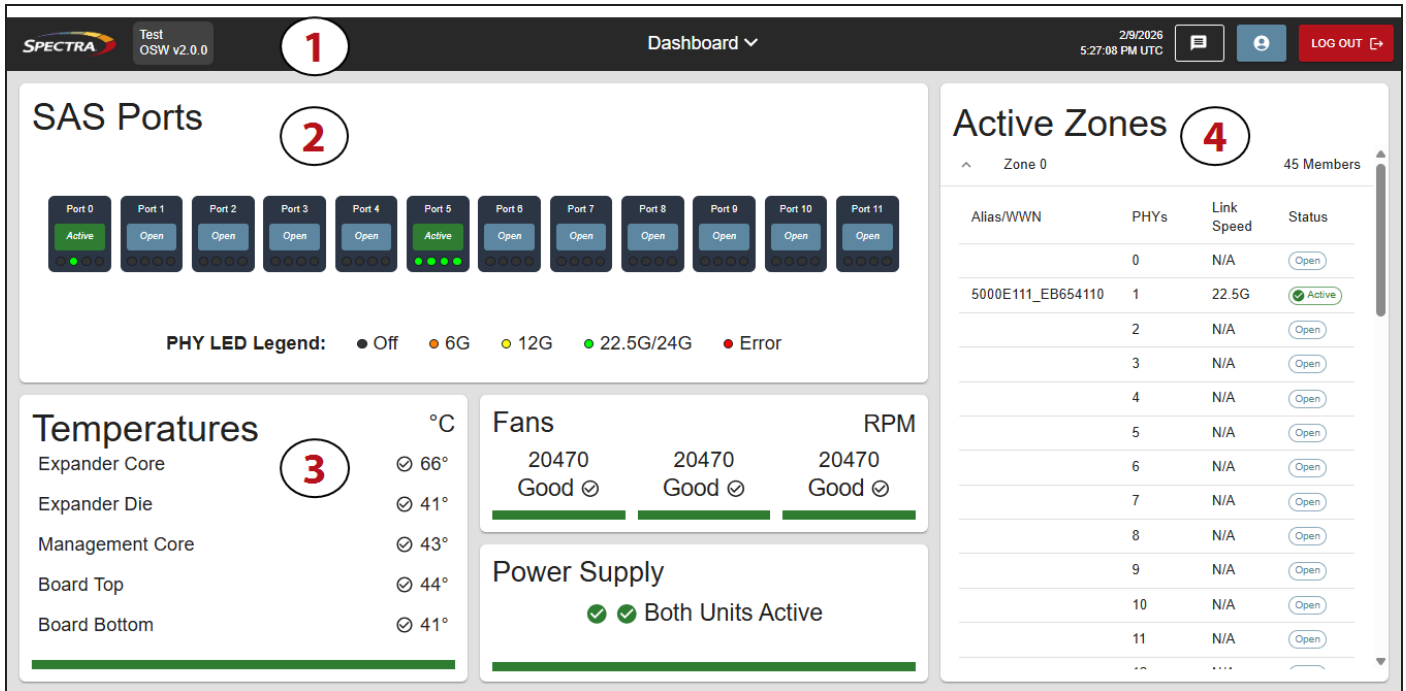


Figure 5 The Dashboard screen.

The Dashboard displays the following information:

Toolbar (1)

The Toolbar displays at the top of all screens of the user interface. The toolbar contains the system menu to navigate the interface, and buttons that take you to the Messages screen, to Edit the current user, and to Logout from the system.

SAS Ports (2)

The SAS Ports pane displays information about the 12 SAS ports used in the switch. The ports are labeled 0 through 11. The port legend graphic changes to display the current state of port licensing, port availability, and port activity. Colored dots indicate the connection speed of each phy of the SAS port.

SAS Port Mouseover

You can mouse each port and phy to display more detailed information.

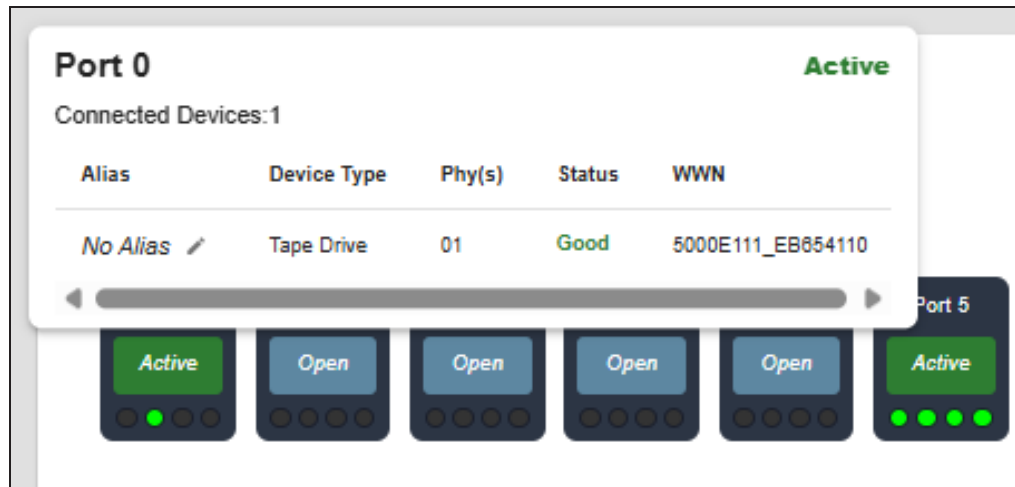


Figure 6 The Dashboard - Port mouseover

- Port information includes the alias, device type, phy(s) used, device status and WWN.
- Phy information includes the connection status, link speed, cable type, and WWN. For tape drives, the physical frame, DBA, and chamber are listed.

Note: Additional detail fields may display depending on the connected device.

Environmental (3)

The Environmental panes display information about the temperature of internal components, fan status and speed, and power supply status.

More detailed environmental information can be displayed by using the toolbar to select **Status > Environment**.

Active Zones & Connections (4)

The Active Zones pane lists information for each zone configured on the OSW-2400 switch and the number of members in each zone. For each connection in a zone, the alias/WWN is listed, along with the phy(s) used, the link speed, and current status.

CONFIGURE OSW-2400 SWITCH SETTINGS

The Settings screen displays information about the OSW-2400 switch at the top of the screen. It displays the configured IPv4 and IPv6 addresses, the OSW-2400 switch hostname, and the current system time.

The Setting screen also allows you to configure aspects of the OSW-2400 switch such as device name, time servers, network settings, SSH access, SSL certificates, syslog server, and diagnostic features.

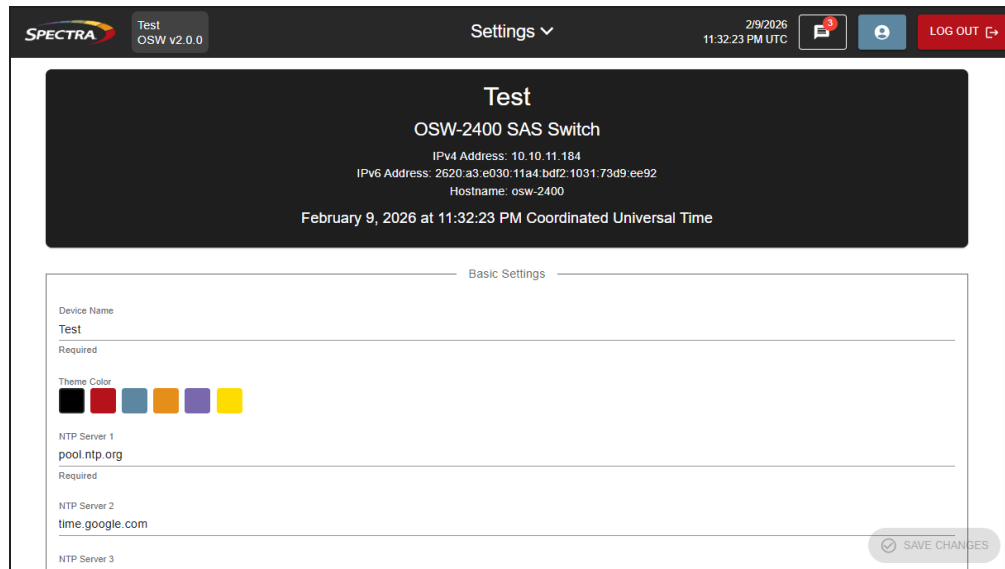


Figure 7 The Settings screen.

The sections below divide the Settings screen into sections for easier use. You do not need to configure each section of settings separately. All settings can be modified independently of each other and saved at the same time.

Basic Settings and Time Servers	26
Network Settings	27
SSH Access	27
TLS Configuration	28
Syslog Forwarding	28
Kernel Event Capture	29
Log Rotation	29

Basic Settings and Time Servers

Here is how you configure the basic settings of the OSW-2400 switch, and configure NTP servers and the system time zone:

1. Use the toolbar to select **Configuration>Settings**.
2. Scroll to the **Basic Settings** pane.



The screenshot shows the 'Basic Settings' configuration pane. It includes the following fields and options:

- Device Name:** A text field containing 'Test'.
- Theme Color:** A row of six color swatches: black, red, blue, orange, purple, and yellow.
- NTP Server 1:** A text field containing 'pool.ntp.org'.
- NTP Server 2:** A text field containing 'time.google.com'.
- NTP Server 3:** A text field containing 'time1.google.com'.
- NTP Server 4:** An empty text field.
- Time Zone:** A drop-down menu.

Figure 8 The Settings screen - Basic Settings pane.

3. If desired, enter a new **Device Name**.
4. If desired, select a new **Theme Color**.
5. Enter the URL of an NTP server in the **NTP Server 1** entry field.
6. If desired, enter additional NTP server(s) in the **NTP Server 2 - 4** entry fields.
7. Use the **Time Zone** drop-down menu to select the local time zone.

Note: If you do not specify a time zone, the user interfaces uses UTC time.

8. Continue with one of the sections below, or click **Save Changes** in the bottom-right corner if you are done.

Network Settings

Here is how you configure the network settings of the OSW-2400 switch:

1. Use the toolbar to select **Configuration>Settings**.
2. Scroll to the **Network Settings** pane.

The screenshot shows the 'Network Settings' configuration pane. It includes the following elements:

- IPv4:** A dropdown menu set to 'DHCP' and a text input field containing '10.10.11.184/16'. Below the field is the label 'Address and subnet mask to bind to'.
- IPv6:** A dropdown menu set to 'DHCP' and a text input field containing '2620:a3:e030:11a4:ddf2:1031:73d9:ee92/64'. Below the field is the label 'Address and subnet mask to bind to'.
- Default gateway:** A text input field containing '10.10.0.1' with the label 'Address of the default gateway' below it.
- Hostname:** A text input field containing 'osw-2400' with the label 'A name for this device on the network' below it.
- DNS Servers:** A section with the text 'Leave empty to use DHCP-assigned DNS servers.' and an 'ADD DNS SERVER' button.
- RESET TO NETWORK DEFAULTS:** A button at the bottom center of the pane.

Figure 9 The Settings screen - Network Settings pane.

3. Use the **IPv4** drop-down menu to select either **DHCP** or **Static** addressing.
 - If you select **Static**, enter an **IPv4 Address** and **Default Gateway**.
4. Use the **IPv6** drop-down menu to select either **DHCP** or **Static** addressing.
 - If you select **Static**, enter an **IPv6 Address** and **Default Gateway**.
5. If desired, edit the **Hostname**, which identifies the switch on the Ethernet network.
6. If desired, click **Add DNS Server** and then do one of the following:
 - To use a static DNS server, enter an IP address in the **DNS Server** entry field.
 - To use a DHCP-assigned DNS server, leave the **DNS Server** entry field blank.
7. Add additional DNS servers as needed.
8. Continue with one of the sections below, or click **Save Changes** in the bottom-right corner if you are done.

SSH Access

SSH access is for use by Spectra Logic Technical Support for diagnostic purposes and should only be enabled when directed to do so by Spectra Support.

Spectra Logic Technical Support will provide you with instructions when necessary.

Note: Only a user with Super User access permissions can enable SSH access.

TLS Configuration

If you generate your own SSL certificates, you can upload them to the switch so you do not have to bypass the certificate warning when accessing the user interface.

Here is how you configure TLS with an SSL certificate:

1. Use the toolbar to select **Configuration>Settings**.
2. Scroll to the **TLS Configuration** pane.

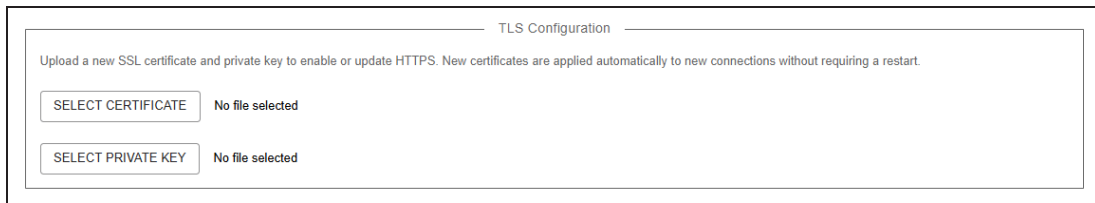


Figure 10 The Settings screen - TLS Configuration pane.

3. Click **Select Certificate** and browse to the location of your SSL certificate.
4. Click **Select Private Key** and browse to the location of your private key.
5. Continue with one of the sections below, or click **Save Changes** in the bottom-right corner if you are done.

Syslog Forwarding

Syslog forwarding is a feature that sends messages generated by the switch to your syslog server.

Here is how you configure a syslog forwarding:

1. Use the toolbar to select **Configuration>Settings**.
2. Scroll to the **Syslog Configuration** pane.

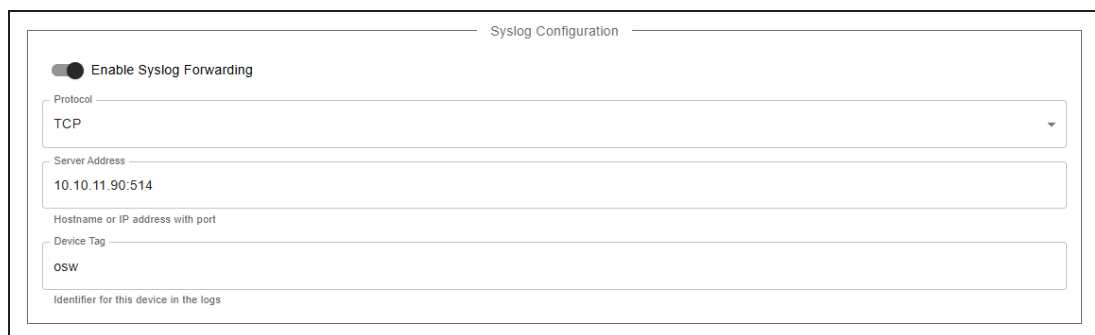


Figure 11 The Settings screen - Syslog Configuration pane.

3. Use the slider to **Enable Syslog Forwarding**.

4. Enter a hostname or IP address with port value in the **Server Address** entry field. Format the IP address and port combination as follows:

ipaddress:port

5. Enter a **Device Tag**, which identifies the switch in the logs.
6. Continue with one of the sections below, or click **Save Changes** in the bottom-right corner if you are done.

Kernel Event Capture

Kernel Event Capture listens for crash and diagnostic data broadcast by other OSW devices on the same network. It is enabled by default to receive peer device crash logs.

To change the setting, Spectra Logic Technical Support will provide you with instructions when necessary.

Log Rotation

Log rotation specifies for how long logs are kept before they are deleted. The value is specified in days.

Here is how you configure log rotation:

1. Use the toolbar to select **Configuration>Settings**.
2. Scroll to the **Log Rotation Settings** pane.

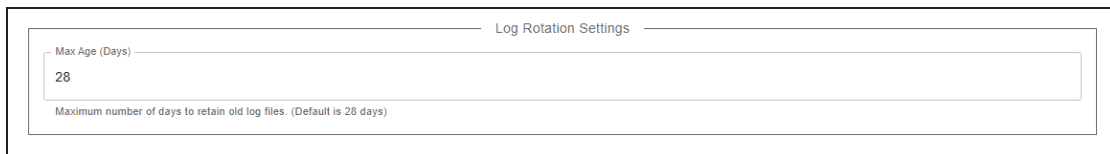


Figure 12 The Settings screen - Log Rotate Settings pane.

3. Enter value in days in the **Max Age (Days)** entry field.
4. Click **Save Changes** in the bottom-right corner if you are done.

CONFIGURE USERS

Users are allowed access to the switch user interface at a specified level of access.

Description of User Types

Use the table below to understand the different levels of user access and permissions.

User Type	Description
Superuser	A Superuser can access and control any function of the user interface.
Administrator	An Administrator cannot manage users, and cannot enable SSH, but can access and control all other functions of the user interface.
Operator	An Operator user can only access status information screens and cannot control any function of the user interface.

Create a User

Here is how you create a user:

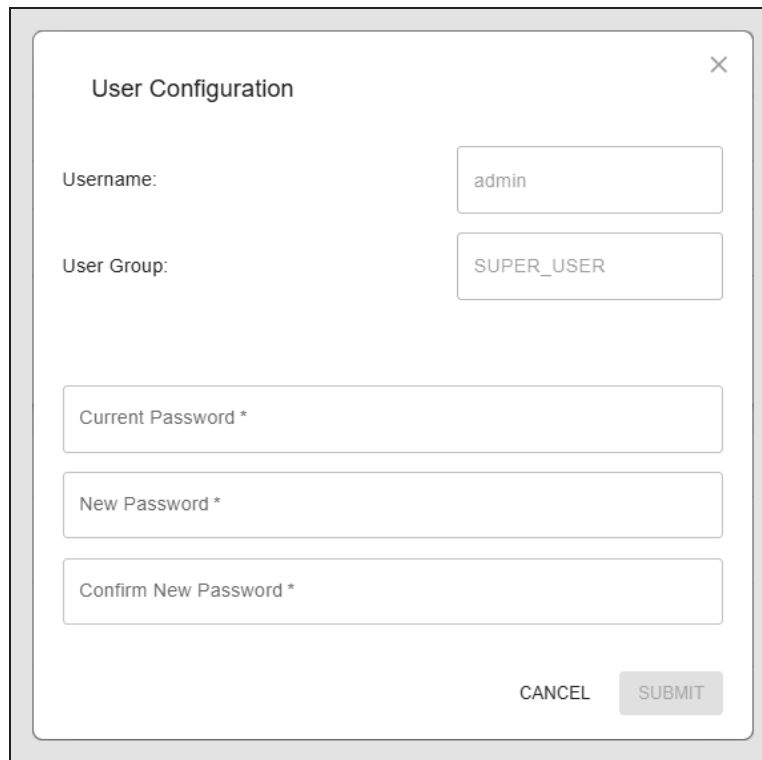
1. Use the toolbar to select **Configuration>Users**.

Figure 13 The Users Screen - Create User pane.

2. Enter a **Username** for the user.
3. Enter and confirm the **Password** for the user.
4. Use the **User Group** drop-down menu to select a permission level for the user.
5. Click **Create User**.

Change Current User Password

1. Use the toolbar to click the **blue button** with head and shoulders icon.
2. In the User Configuration window, click **Change Password**.



The image shows a 'User Configuration' dialog box with a close button (X) in the top right corner. It contains the following fields and buttons:

- Username:** A text input field containing the text 'admin'.
- User Group:** A text input field containing the text 'SUPER_USER'.
- Current Password *:** A text input field.
- New Password *:** A text input field.
- Confirm New Password *:** A text input field.
- CANCEL** and **SUBMIT** buttons located at the bottom right of the dialog.

Figure 14 The User Configuration window for the currently logged in user.

3. Enter the **Current Password**.
4. Enter and confirm the **New Password**.
5. Click **Submit**.

Note: You are not logged out when you change the current user's password. You must enter the new password the next time you log in.

Change User Password

Here is how you change the password of a user:

1. Use the toolbar to select **Configuration>Users**.

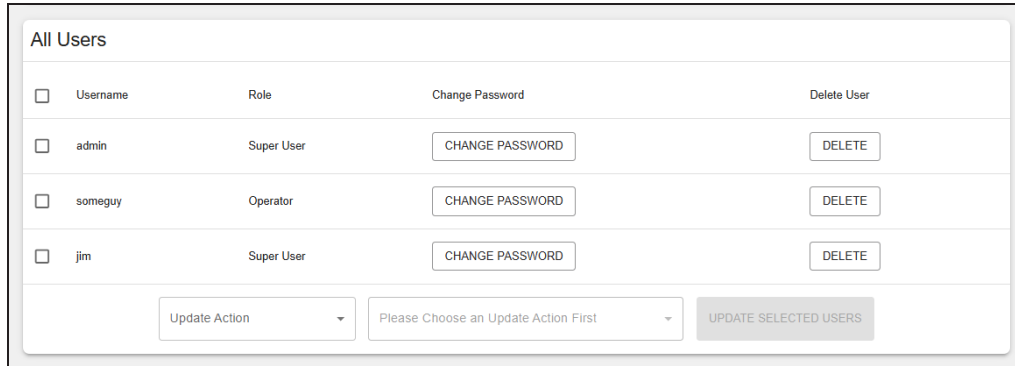


Figure 15 The Users Screen - All Users pane.

2. In the All Users pane, click **Change Password** on the row of the user whose password you want to change.

Change admin's Password

Current Password *

New Password *

Confirm New Password *

CANCEL SUBMIT

Figure 16 The Change *username* Password window.

3. Enter the **Current Password**.
4. Enter and confirm the **New Password**.
5. Click **Submit**.

Change User Group Membership

You can change the group membership of a user to change the level permission they are granted.

Here is how you change the group membership a user:

1. Use the toolbar to select **Configuration>Users**.

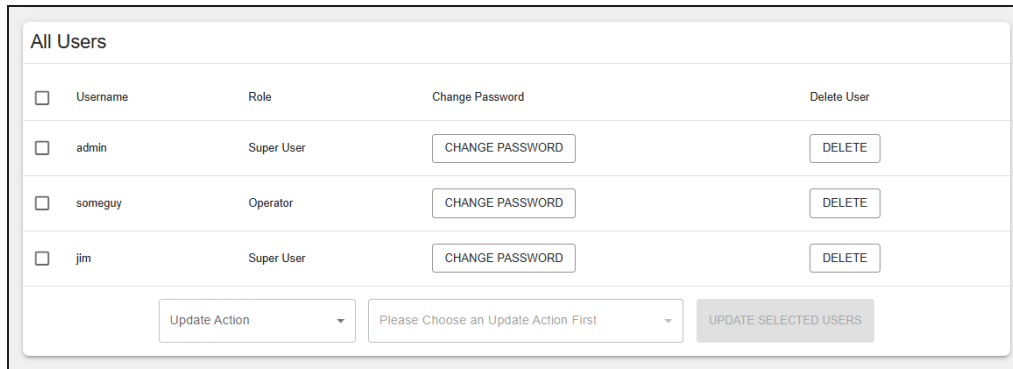


Figure 17 The Users Screen - All Users pane.

2. In the All Users pane, select the **checkbox** on the row of the user whose group you want to change.
3. Use the **Update Action** drop-down menu to select **Change User Group**.
4. Use the **Group** drop-down menu to select the desired group.
5. Click **Update Selected Users**.

CONFIGURE ZONING

Once the basic settings of your OSW-2400 switch are configured, you can zone your switch as desired to logically separate connections to tape drives, host computers, or another OSW-2400 switch.

Create a Zone

Here is how you configure zoning:

1. Use the toolbar to select **Configuration>Zoning**.
2. Click the **New Zone** button in the bottom-left corner.

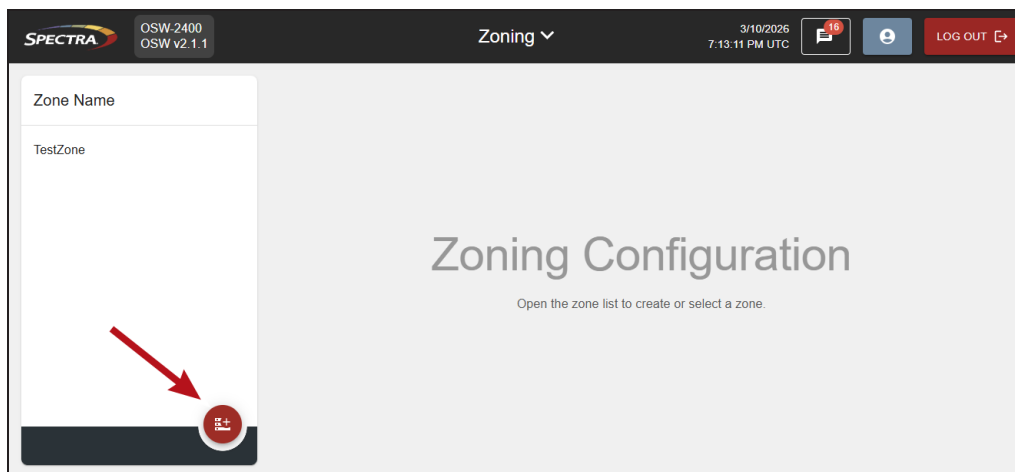


Figure 18 The New Zone button

3. Enter a **Zone Name** in the entry field.

Note: The zone name is restricted to letters, numbers, period (.), the at symbol (@), underscore (_), or the space character ().

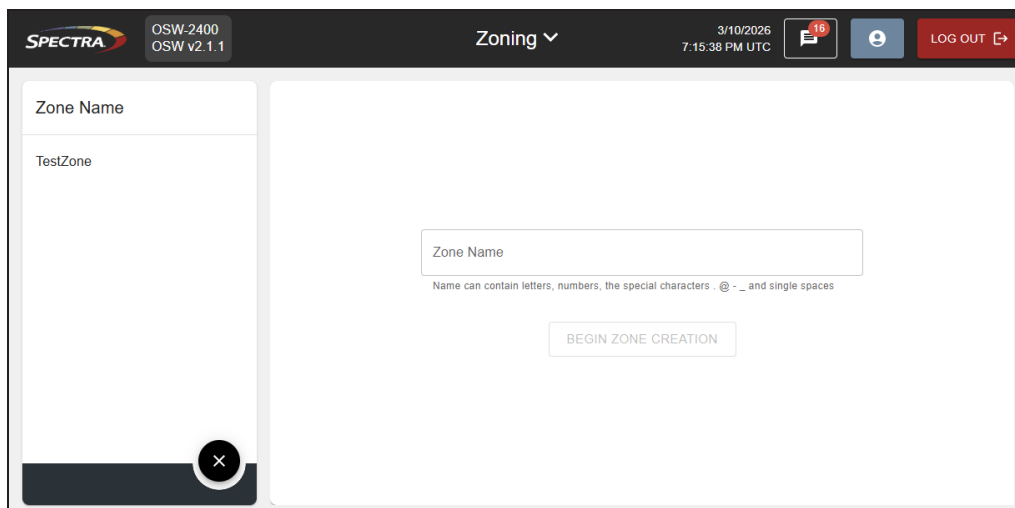


Figure 19 Enter the Zone Name.

4. Click **Begin Zone Creation**.
5. In the **Available Lanes** pane, select lanes you would like to include in the zone.

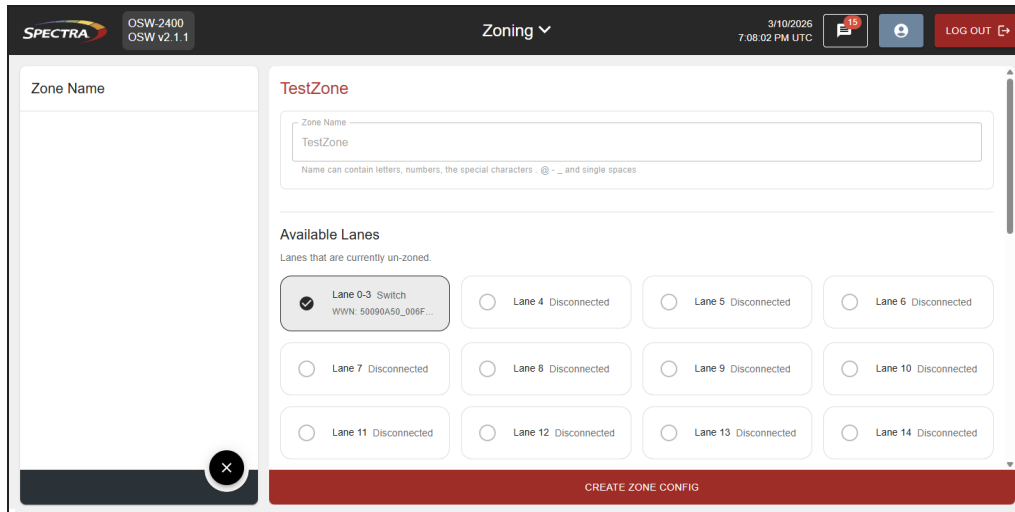


Figure 20 Select lanes to add to the zone.

6. If desired, in the **Other Zone Lanes** pane, select any lanes that are already assigned to a zone.

Note: There is no limit to how many zones a lane may be assigned.

7. Click **Create Zone Config**. A confirmation screen displays. Select one of the following:

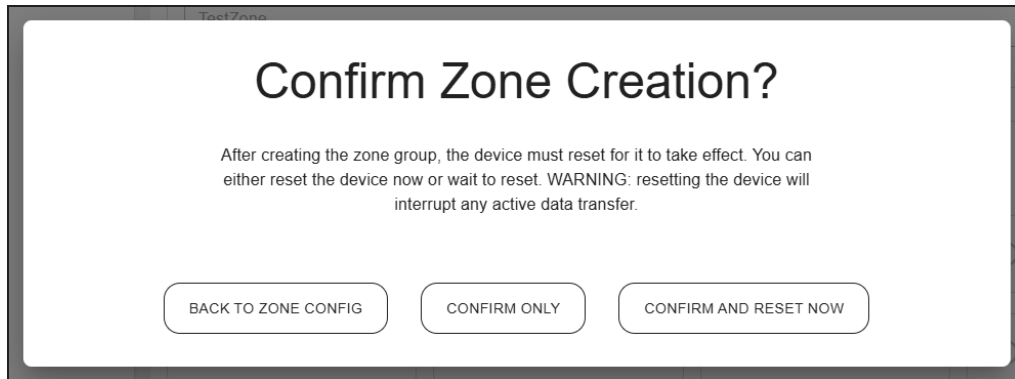


Figure 21 The Confirm Zone Creation confirmation screen.

- **Confirm Only** - Saves the zone configuration. You will need to reboot the switch at a later time for the zone to take effect.
 - **Confirm and Reset** - Save the zone configuration and reboot the switch.
8. If you select **Confirm and Reset**, a confirmation screen displays.

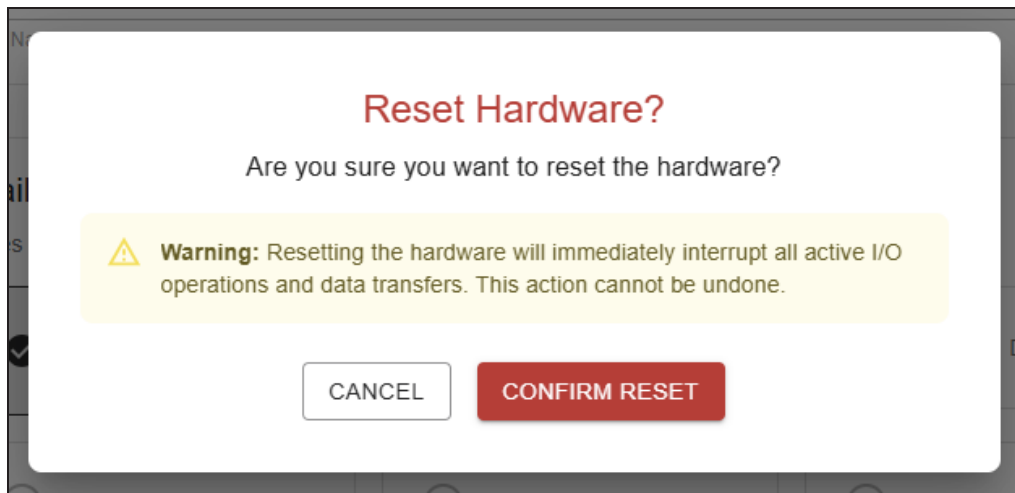


Figure 22 The switch reset confirmation screen.

9. Click **Confirm Reset** to reset the switch. When the switch becomes available, the configured zone will be enabled.

Edit a Zone

1. Use the toolbar to select **Configuration>Zoning**.
2. Select the zone you want to edit in the **Zone Name** pane.

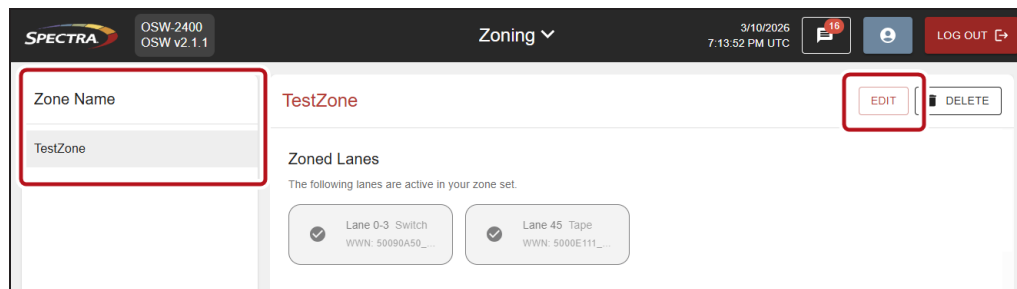


Figure 23 The Zone Name pane and Edit button.

3. Click **Edit** in the upper-right corner.
4. As desired, select or un-select lane(s) for the zone.
5. Click **Save** in the upper-right corner.

Note: The Save button only displays after clicking the Edit button.

6. After editing a zone, you must hardware reset the switch as described in [Hardware Reset](#) on page 44

Delete a Zone

1. Use the toolbar to select **Configuration>Zoning**.
2. Select the zone you want to delete in the **Zone Name** pane.

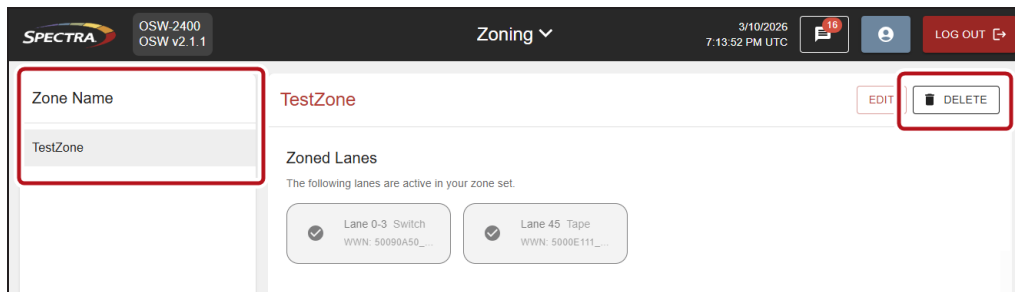


Figure 24 The Zone Name pane and Delete button.

3. Click **Delete** in the upper-right corner. A confirmation screen displays.
4. Click **Delete** on the confirmation screen.
5. After deleting a zone, you must hardware reset the switch as described in [Hardware Reset](#) on page 44

VIEW TOPOLOGY

The topology screen displays all SAS connections to the OSW-2400 switch, as well as detailed status for each connected device.

Here is how you access and use the topology screen:

1. Use the menu bar to select **Status>Topology**.
2. **Mouseover** connected devices to display the details of the connection.

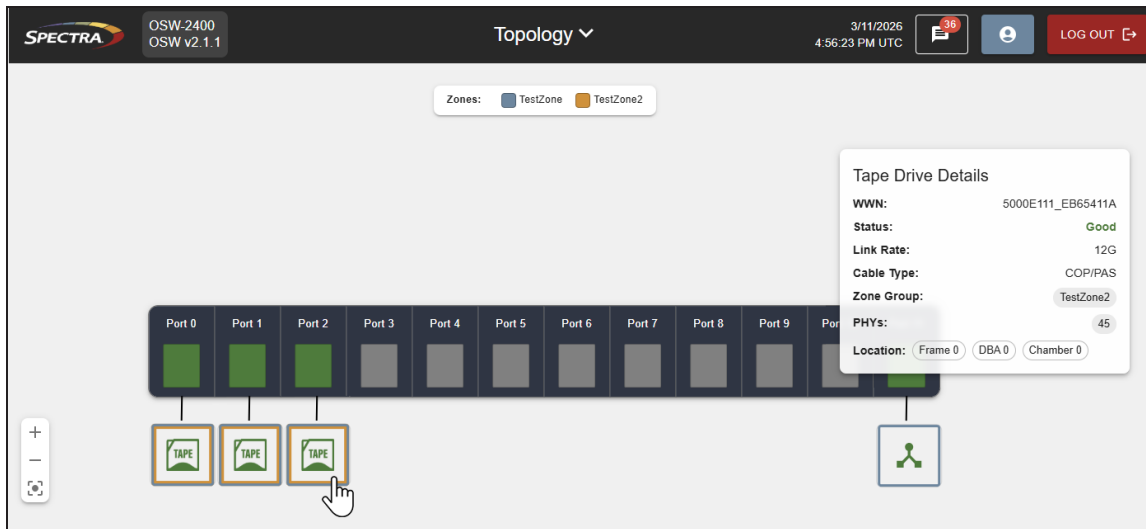


Figure 25 The Topology Screen - Mouseover example.

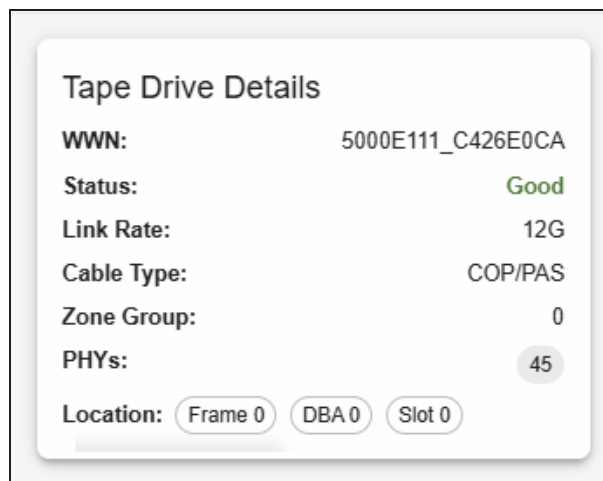


Figure 26 Mouseover detail window

VIEW ENVIRONMENT

The Environment screen allows you to view the temperature of key internal components, and the speed of the installed fans. You can configure the environment screen to display information in interval durations of either 24 or 48 hours. The information displayed can also be restricted to a static time window.

Here is how to access and use the Environment screen:

1. Use the menu bar to select **Status>Environment**.
2. Use the **checkboxes** above each graph to hide or display the indicated component.
3. **Mouseover** the graph to display precise information recorded at the specified interval.

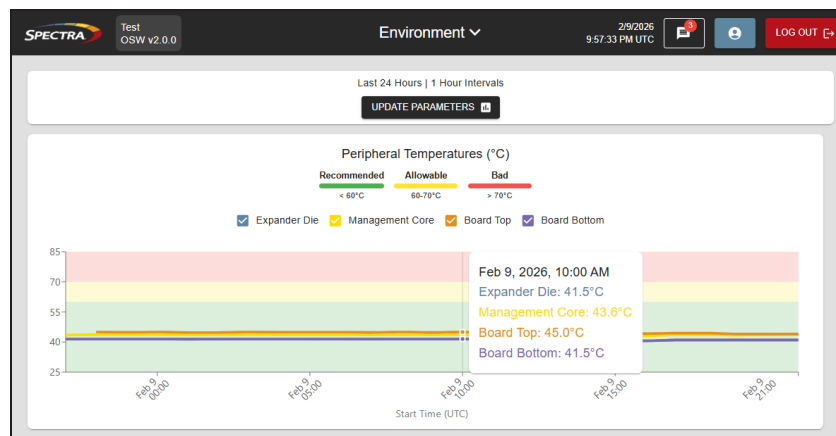


Figure 27 The Environment Screen - Mouseover example.

Update Environmental Graph Parameters

If desired, you can edit the interval used by the graphs, how much data to display, or to restrict the data shown to a static time window.

Here is how you update the graph parameters:

1. Use the menu bar to select **Status>Environment**.
2. Click **Update Parameters**.
3. Use the **Interval** drop-down menu to select the interval used by the graph. Data recorded during each interval is averaged to a single point on the graph.
4. Configure one of the following:
 - Select **Live Data** and use the **Duration** drop-down menu to select the duration of data to display based on the number of hours.
 - Select **Static Time Window** and use the **Start** and **End** calendar selectors to configure the amount of data displayed.
5. Click **Set Parameters**.

VIEW MESSAGES

Messages displayed in the user interface are generated whenever system events occur. Messages have the severity of Informational, Warning, Error, and Critical. Messages are only displayed in the OSW-2400 user interface, but a syslog server can be configured to send messages whenever messages are generated (see [Syslog Forwarding](#) on page 28).

Here is how you access and use the Messages screen.

1. Use the toolbar to select **Status>Messages**.
2. Use the **checkboxes** at the top of the Messages screen to control what types of messages to display.

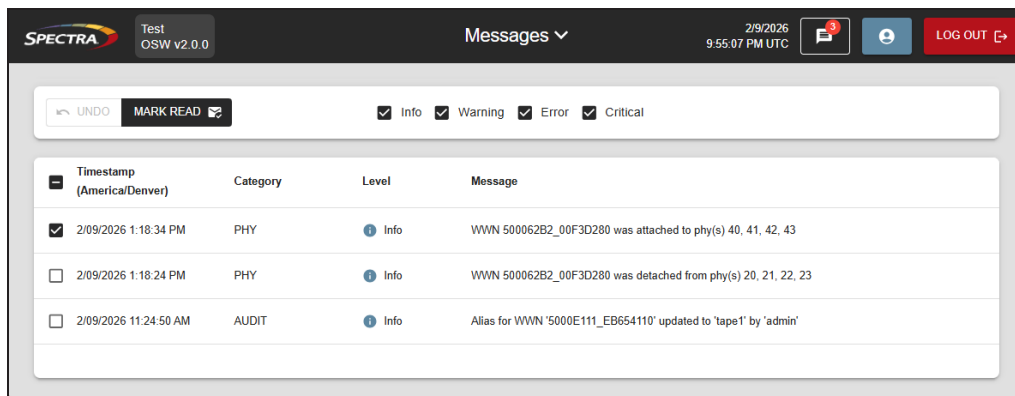


Figure 28 The Messages screen.

3. Select one or more, or all messages, and click **Mark as Read** after you have read the message. All messages you selected disappear from the Messages screen.
4. If necessary, messages can be "unread" by clicking **Undo**.

UPDATE FIRMWARE

Spectra Logic releases new firmware packages to both add or enhance functionality, or to resolve operational issues.



IMPORTANT

If the SAS Switching Module in the OSW-2400 switch requires a reboot to apply new firmware, you are informed of this during the update process and must expressly confirm the update operation. This allows you to stop data storage operations before applying the firmware package.

Here is how you update the OSW-2400 switch firmware:

1. Use the toolbar to select **Configuration>Package Update**.

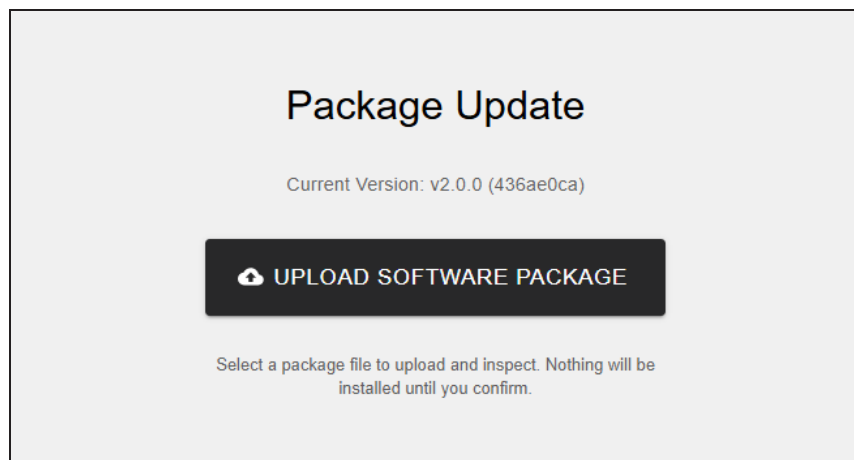


Figure 29 The Package Update screen (condensed).

2. Click **Upload Software Package**.
3. **Browse** to the location of the software package. Once you select the file the upload confirmation screen displays.

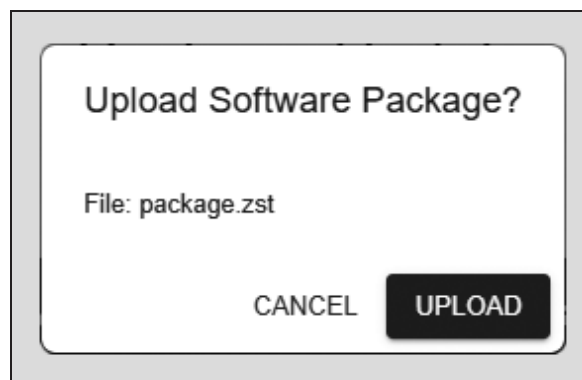


Figure 30 The Upload confirmation screen.

4. Click **Upload**. The package is uploaded and inspected, and the Ready To Install Update confirmation window displays. The confirmation screen displays a warning if the SAS Switching Module needs to be rebooted, which causes a data transfer interruption.

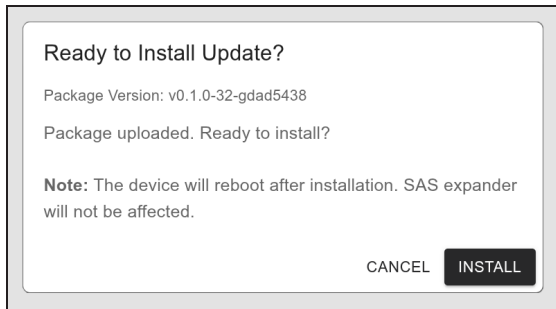


Figure 31 The install confirmation screen.

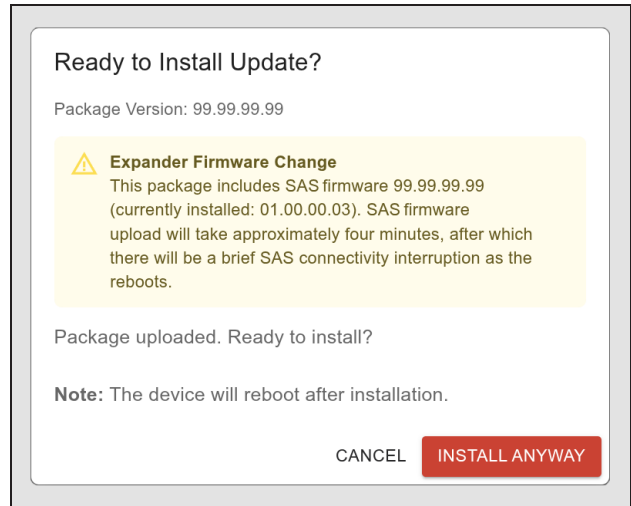


Figure 32 The install confirmation screen indicating a SAS Switching Module reboot.

5. To continue with the update, do one of the following:
 - If the SAS Switching Module does not require a reboot, click **Install**.
 - If the SAS Switching Module does require a reboot, confirm that all data transfer operations are complete or paused, then click **Install Anyway**.

The OSW-2400 user interface displays progress update screens as the update is staged.

6. When staging is complete, click **Reboot Now**.

Additional progress screens display after the switch is rebooted and the firmware update is applied.

When the update is complete, you are directed to the login screen.

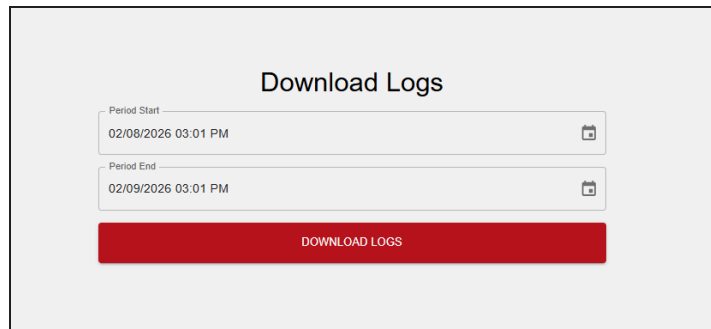
LOG GATHER

The logs generated by the OSW-2400 switch can be helpful in troubleshooting problems with your OSW-2400 switch if they occur. Logs can be saved from a specified date range to your host.

Spectra Logic Technical Support may request you generate logs if Spectra Support cannot access your OSW-2400 switch directly.

Here is how you gather and download logs:

1. Use the toolbar to select **Tools>Log Gather**.



The screenshot shows a web interface titled "Download Logs". It features two input fields for date selection. The first field is labeled "Period Start" and contains the text "02/08/2026 03:01 PM" with a calendar icon to its right. The second field is labeled "Period End" and contains the text "02/09/2026 03:01 PM" with a calendar icon to its right. Below these fields is a prominent red button with the text "DOWNLOAD LOGS" in white capital letters.

Figure 33 The Download Logs screen (condensed).

2. Use the **Period Start** and **Period End** calendar widgets to select the desired start and end dates.
3. Click **Download Logs**.
4. **Email** the logs to Spectra Logic Technical Support if requested.

HARDWARE RESET

If necessary, you can manually initiate hardware reset of the switch.

Here is how you perform a hardware reset:

1. Use the toolbar to select **Tools>Hardware Reset**.

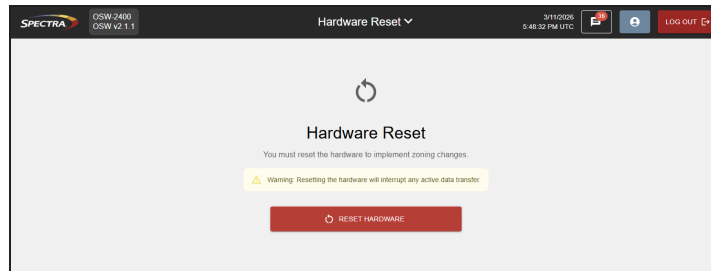


Figure 34 The Hardware Reset screen.

2. Click **Reset Hardware**. A confirmation screen displays.

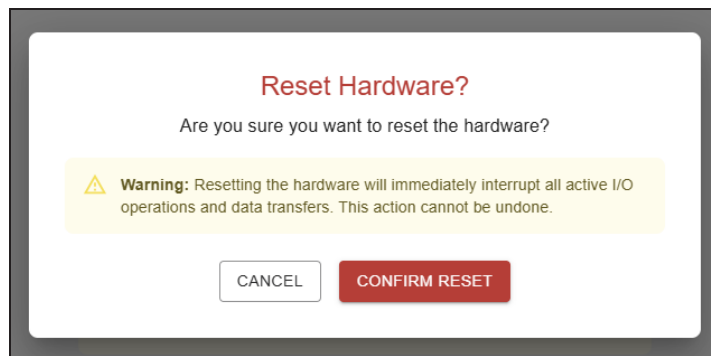


Figure 35 The Hardware Reset confirmation screen.

3. Click **Confirm Reset**. The switch resets internal hardware, but you are not logged out of the user interface.

CHAPTER 4 - TECHNICAL SUPPORT

TROUBLESHOOTING

The following table lists several troubleshooting issues related to the OSW-2400 switch and the resolution for each issue.

Issue	Resolution
You changed the IP address of the OSW-2400 switch, but you forgot the address and you can no longer access the switch through the Ethernet.	Contact Spectra Logic Technical Support.
All ports are showing yellow LEDs, but you still have SAS traffic. The switch functions at half performance.	This problem might be caused by a failure of either the master controllers. Contact Spectra Logic Technical Support.

FRONT PANEL MESSAGES

The below messages display on the OSW-2400 front panel, and are included in system messages.

Message	Cause
Persistently failing to read PHY data. Displayed values may be stale.	Triggered after multiple consecutive polling failures for PHY data.
Persistently failing to read hardware sensor data. Displayed values may be stale.	Triggered after multiple consecutive polling failures for hardware sensors.
Temperature Sensor 1 critical: 85 (threshold 80)	Triggered when a hardware sensor value (like temperature or voltage) exceeds the critical threshold.
System update to version '1.2.3' failed: connection timeout	Triggered when an attempted system firmware update fails.
Failed to write zoning configuration to hardware: I2C bus error	Triggered when the configuration write to the SAS switch hardware fails.
Zoning configuration sync failed. The GUI may be out of sync with the hardware. Please retry expander reset: database lock timeout	Triggered when the database update fails after a successful hardware write.
Device '5000C50012345678' connected to active zone 'Zone A' on PHYs 0,1,2,3. You may need to update your zoning configuration.	Triggered when a device connects to a PHY that is part of an active zone.
Device '5000C50012345678' spans PHYs 0,1,2,3, but only PHYs 0,1 are in active zone 'Zone A'. You must update your zoning configuration immediately to ensure all phys for this device are zoned together.	Triggered when a wide-port device connects to a subset of zoned PHYs.
Hardware zoning mismatch on zone 'Zone A': PHY 0 (device: 5000C50012345678) cannot see all required zone members. The expander may need to be reset.	Triggered when hardware expander state is out of sync with the database.
Kernel event received from peer device 192.168.1.100	Triggered when a kernel event is received from a peer device.

Message	Cause
System recovered from kernel panic (see /var/log/osw/crashes/)	Triggered when the system boots after a kernel panic.

HARDWARE REPLACEMENTS

Replacing a Failed Fan

1. Unscrew the two screws that secure the fan to the chassis.
2. Pull the failed fan out of the chassis.
3. Slide the replacement fan into the chassis.
4. Secure the replacement fan to the chassis using the two screws you removed in Step 1.

Replacing a Failed Power Supply

1. Disconnect the power cable from the failed power supply.
2. Extend the power supply handle.
3. Press in on the lever securing the power supply, and pull the power supply out of the chassis.
4. Slide the replacement power supply into the chassis until the lever latches in place.
5. Reconnect the power cable you removed in Step 1.

ACCESS THE TECHNICAL SUPPORT PORTAL

The Spectra Logic Technical Support portal provides access to the Knowledge Base, the current version of software for the OSW-2400 switch, and additional service and support tools. You can also open or update a support incident and upload log files.

Create an Account

Access to User Guides and compatibility matrices does not require you to create an account. You must create a user account and log in to access Release Notes or repair documents, to download the latest version of OSW-2400 software, or to open a support ticket.

1. Access the Technical Support portal login page at support.spectralogic.com.
2. On the home page, click **create an account**.



Figure 36 The Spectra Logic Technical Support portal home page.

3. Enter your registration information. Your account is automatically associated with the serial numbers of all Spectra Logic products owned by your site.
 - If you have an invitation, follow the link and enter the invitation code.

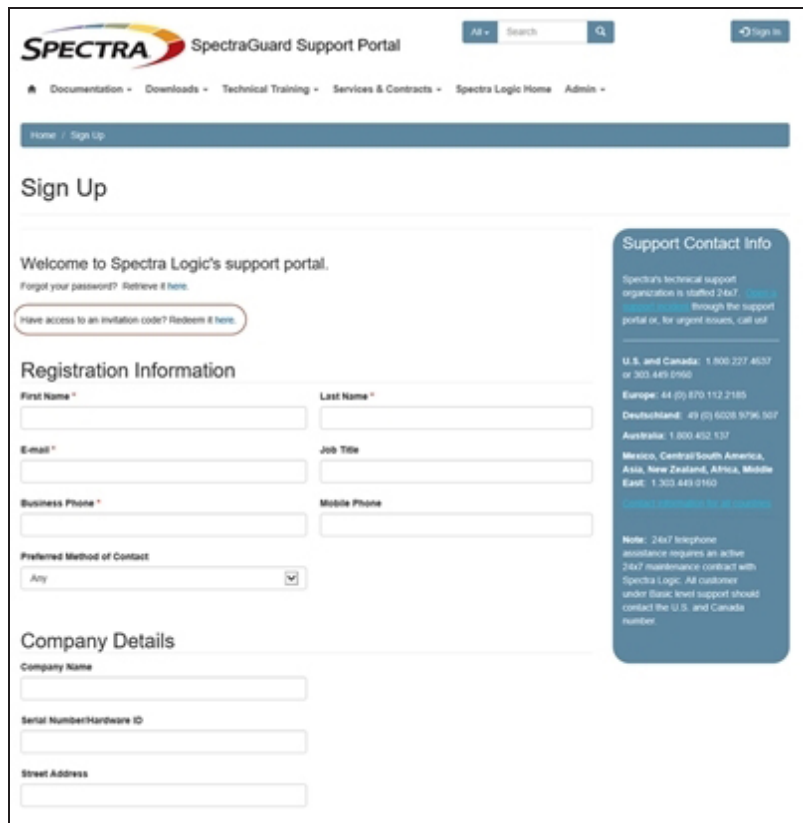


Figure 37 Follow the link to enter your invitation code or enter your registration information.

- If you do not have an invitation, enter the requested information to create your account. When you are finished, click **Sign Up**.

When the account is approved, you receive an email with a link to setup your initial password. Use your email address and the password provided in the email to log in to your account. After you log in, you can change your password if desired.

Log Into the Portal

Access the Technical Support portal login page at support.spectralogic.com. Use your email address and password to log into the Technical Support Portal.

OPENING A SUPPORT TICKET

You can open a support incident using the Spectra Logic Technical Support portal or telephone.

Search for Help Online

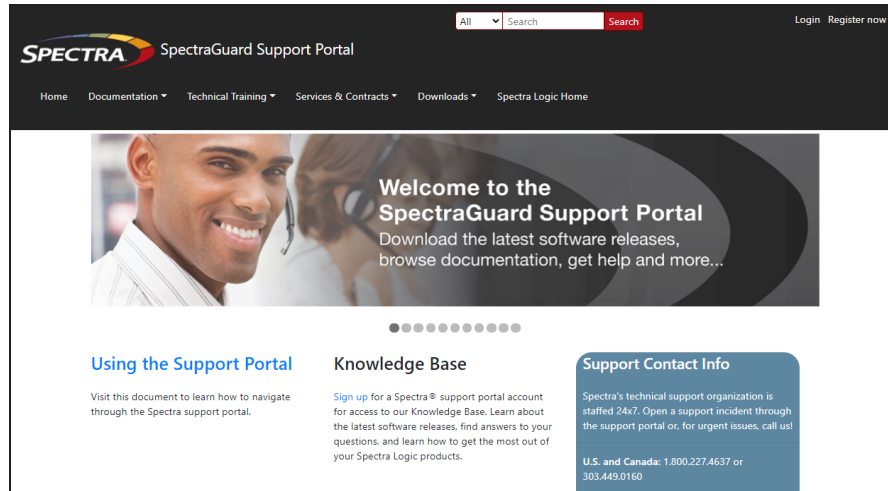


Figure 38 The Spectra Logic Technical Support portal home page.

1. Make notes about the problem, including what happened just before the problem occurred.
2. Gather the following information:
 - Your Spectra Logic customer number
 - Company name, contact name, phone number, and email address
 - The product serial number
 - Type of host system being used
 - Type and version of host operating system being used
 - Type and version of host storage management software being used
3. If necessary, log in to the Support Portal by clicking **Login**, enter your **email address** and **password**, and click **Log in**.

Note: See Access the Technical Support Portal on page 1 if you have not previously created an account on the Technical Support portal.

4. From any page, select **Incident>Incidents & Inventory**.

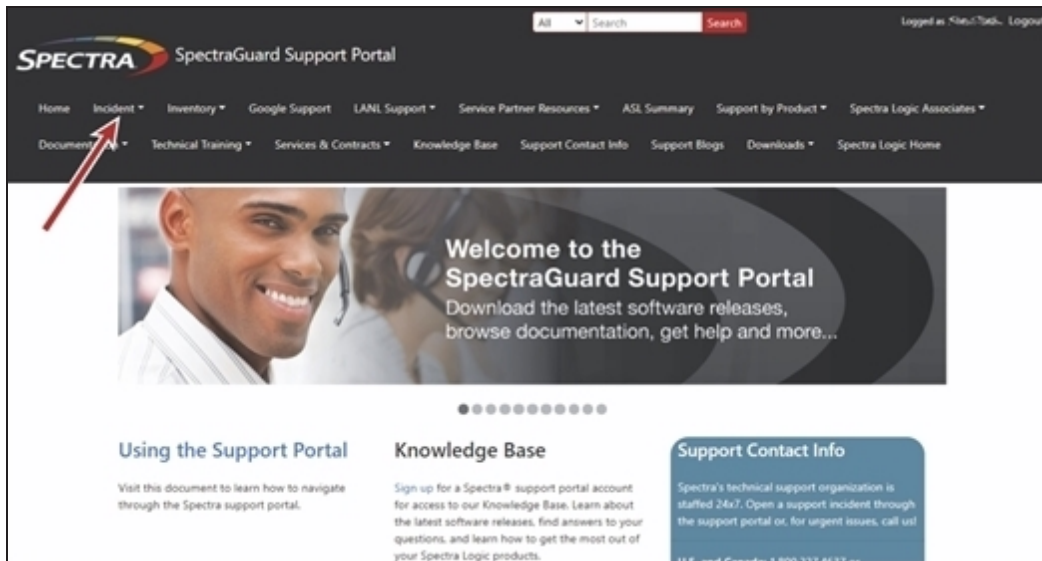


Figure 39 Select **Incidents > Incidents & Inventory**.

5. Select **Open or View Incidents**.

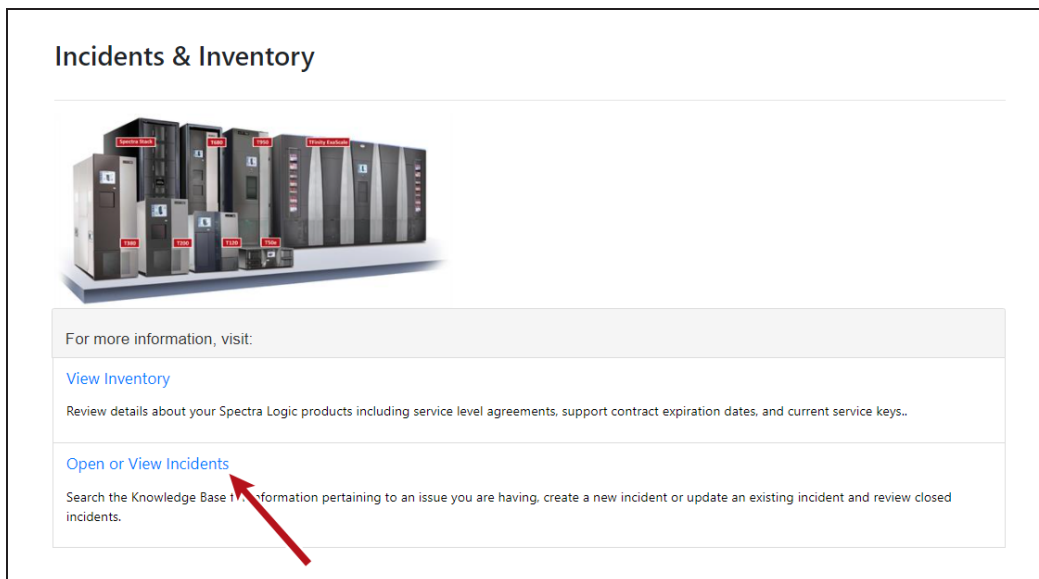


Figure 40 Select **Open or View Incidents**.

- In the Search dialog box, enter a term or phrase about your problem (1) and click **Search** (2).

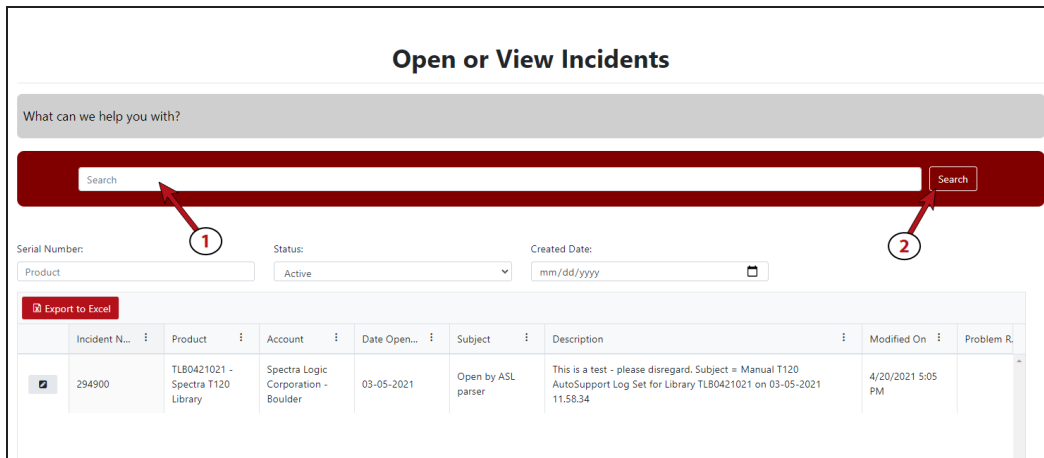


Figure 41 Enter a search phrase and click **Search**.

- If the search does not provide an answer, click **Open a New Incident**.

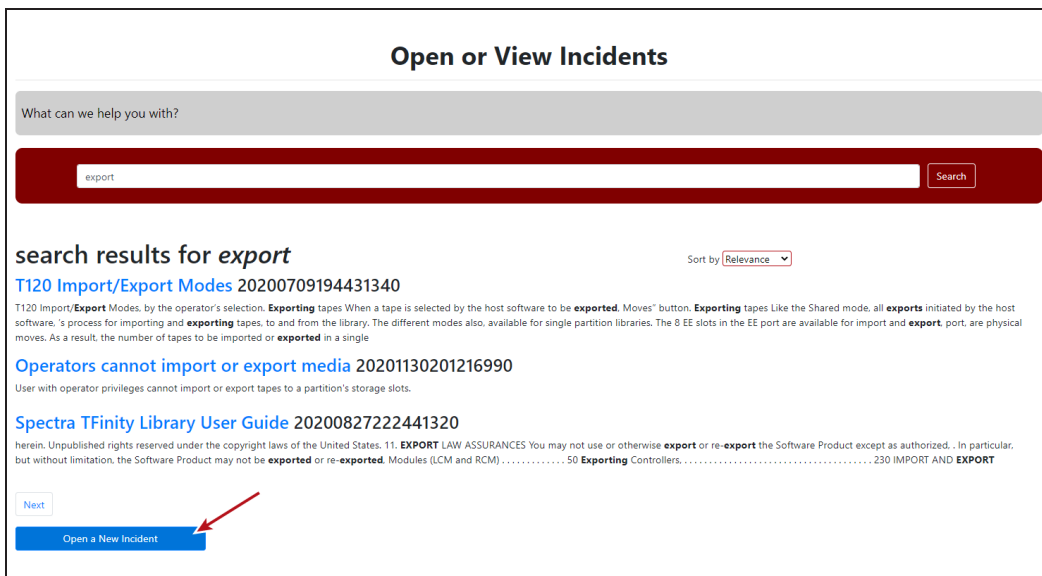


Figure 42 Click **Open a New Incident**.

8. On the Create Incident page, enter the requested information providing as much detail as possible. When you are finished, click **Submit**.

Create Incident

Severity *

Problem Description *

Email addresses to include in correspondence

Customer *

Product *

Select files...

DELIVERY Address For Shipping Parts

Confirm The Ship To Address

Submit

Figure 43 Enter information about your incident and click **Submit**.

Submit an Incident Online

1. Make notes about the problem, including what happened just before the problem occurred.
2. Gather the following information:
 - Your Spectra Logic customer number
 - Company name, contact name, phone number, and email address
 - The product serial number
 - Type of host system being used
 - Type and version of host operating system being used
 - Type and version of host storage management software being used
3. If necessary, log in to the Support Portal by clicking **Login**, enter your **email address** and **password**, and click **Log in**.

Note: See Access the Technical Support Portal on page 1 if you have not previously created an account on the Technical Support portal.

4. From any page, select **Inventory>My Inventory**.

5. Locate the row of the product for which you want to submit an incident and click **Create Incident**.

View Inventory

Click on the view icon for additional inventory details where you can update product nickname, firmware version, operating and software systems.

To edit column filters, click to the right of the column name. If your serial number is not listed below, click [here](#).

Find by Model, Serial # or Account

	Prod...	Product Ni...	Account	SLA	ASM	Supp...	Servi...	Action
<input checked="" type="checkbox"/>	0906802 - Spectra T680 Library	Fishbowl	Spectra Logic Corporation - Boulder	Next Business Day Replacem...	None	31/12/2050	3BB 3HN BB7 DNB 2AZ	<input type="button" value="Renew Contract"/> <input type="button" value="Create Incident"/>
<input checked="" type="checkbox"/>	1724A05 - Spectra TFinity Library	Training Room	Spectra Logic Corporation - Boulder	Next Business Day Replacem...	None	31/12/2050	WXY YCG L4X TT4 HVS	<input type="button" value="Renew Contract"/> <input type="button" value="Create Incident"/>
<input checked="" type="checkbox"/>	1311A06 - Spectra TFinity Library		Spectra Logic Corporation - Boulder	Next Business Day Replacem...	None	31/12/2050	FTJ 4DV ZLC YHB Z6B	<input type="button" value="Renew Contract"/> <input type="button" value="Create Incident"/>

Figure 44 Click **Create Incident**.

6. On the Create Incident page, enter the requested information providing as much detail as possible. When you are finished, click **Submit**.

Create Incident

Severity *

Problem Description *

Email addresses to include in correspondence

Customer *

Product *

Select files...

DELIVERY Address For Shipping Parts

Confirm The Ship To Address

Figure 45 Enter information about your incident and click **Submit**.

Submit an Incident by Phone

Contact Spectra Logic Technical Support by phone using the information below.

Spectra Logic Technical Support	
Technical Support Portal: support.spectralogic.com	
United States and Canada Phone: Toll free US and Canada: 1.800.227.4637 International: 1.303.449.0160	Europe, Middle East, Africa Phone: 44 (0) 870.112.2185 Deutsch Sprechende Kunden Phone: 49 (0) 6028.9796.507
Additional international numbers available at support.spectralogic.com/home If you have a Spectra Logic Portal account, please log in for country-specific numbers at support.spectralogic.com/support-contact-info	

REGULATIONS

Safety/Emissions/Susceptibility Declarations and Notices

CE

This equipment conforms to the requirements of the CE Mark and meets the following requirements:

EN 55032:2015 + A11:2020 – Electromagnetic Compatibility

EN 55035:2017 + A11:2020 – Electromagnetic Compatibility

EN 61000-3-2:2014 - Limitation of Harmonic Currents

EN 61000-3-3:2013 - Limitation of Voltage Fluctuations

IEC 62368-1 Third Edition 2018 – Information Technology Equipment – Safety

North America

FCC – This equipment has been tested to and complies with FCC Part 15B, Class A, Class B Radiated and ICES-003 Issue 5 August 2012: Information Technology Equipment (ITE) – Limits and methods of measurement.

This equipment complies with UL 62638-1:Ed 3 / CSA 62368-1:19: Information Technology Equipment – Safety – Part 1: General Requirements.

FCC 15.19(a) (3) Notification

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

Radiated Emission Notice

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case you must correct the interference at your own expense. Spectra Logic Corporation is not responsible for any radio or television interference caused by unauthorized modification of this equipment or the substitution or attachment of connecting cables and equipment other than those specified by Spectra Logic. It is your responsibility to correct interference caused by such unauthorized modification, substitution, or attachment.

SPECIFICATIONS

This section provides specifications for the OSW-2400 switch.

OSW-2400 Switch Specifications



CAUTION

To prevent the OSW-2400 switch from overheating; do not operate it in an environment that exceeds the maximum recommended ambient temperature of 113 °F (45 °C).

When installing the OSW-2400 switch, consider the following information:

- The acceptable temperature and humidity operating ranges for installation and operation of the OSW-2400 switch are as follows:
 - Temperature range: 59 °F (15 °C) to 113 °F (45 °C) (dry bulb)
 - Relative humidity range: 5 percent to 90 percent non-condensing
 - Maximum dew point temperature: 89 °F (32 °C)
- Install the OSW-2400 switch in a site free from strong electromagnetic field generators (such as motors), vibration, and dust.
- Allow some space for proper ventilation at the front and back of the switch.
- The AC power adapter is rated at 100 V to 240 V, and 50 Hz to 60 Hz.



WARNING

Provide the OSW-2400 switch with an AC-protective earth-ground connection. Never defeat the ground conductor or operate the OSW-2400 switch without a suitably installed ground conductor.

Parameter	Value
Warning Temperature Limit	140° F (60°C)
Critical Temperature Limit	158° F (70°C)
Warning Fan Limit	1,000 rpm
Critical Fan Limit	500 rpm