

Optimize Internet Small Computer System Interface (iSCSI) Traffic on a Switch

Objective

Small Computer System Interface (SCSI) is a standard for connecting and transferring data between computers and peripheral input/output (I/O) devices, such as storage devices. SCSI is built in a client-server architecture and the communication takes place between an Initiator, which is the SCSI client, and a Target which is the SCSI server or the storage device. The Initiators are devices that request commands to be executed. The Targets are devices that carry out the commands. Typically, a computer is an Initiator and a data storage device is a Target.

The Internet SCSI (iSCSI) allows the SCSI commands to be sent over Local Area Network (LAN), Wide Area Network (WAN), or the Internet. iSCSI enables a disk residing on a remote machine to be seen on a local storage area from the application layer point of view. The iSCSI protocol uses Transmission Control Protocol/Internet Protocol (TCP/IP) for its data transfer, and requires only a simple Ethernet interface.

An iSCSI Initiator requires the following to establish an iSCSI session with an iSCSI Target:

- IP address
- TCP port number
- iSCSI target name information

The iSCSI traffic optimization applies a specific service profile to iSCSI flows received on interfaces of the device. iSCSI flows are identified by the TCP port on which iSCSI Targets listen to requests and optionally also by the iSCSI target IPv4 address. Two IPv4 iSCSI flows with well-known TCP ports 3260 and 860 are defined by default on the device. iSCSI flow optimization is bi-directional, which means that it is applied to streams in both directions: from and to Targets.

This article provides instructions on how to optimize iSCSI traffic on your switch.

Applicable Devices

- Sx350 Series
- SG350X Series
- Sx350XG Series
- Sx550X Series
- SG550XG Series

Software Version

- 2.2.5.68

Optimize iSCSI Traffic on a Switch

iSCSI optimization can be enabled on the device globally. By default, this feature is disabled. You can define up to eight rules for iSCSI flow identification. Rules are based on listening Target TCP port and optionally also IP address.

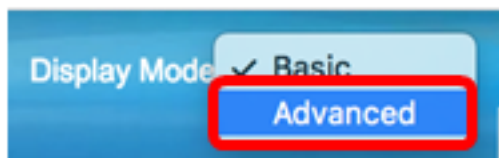
You can globally define the Virtual Local Area Network (VLAN) Priority Tag (VPT), Differentiated Services Code Point (DSCP), and Queue to assign to an iSCSI flow. By default, the VPT and DSCP of a flow is set to **Unchanged** and the flow is assigned to Queue 7.

iSCSI Network Security Notes

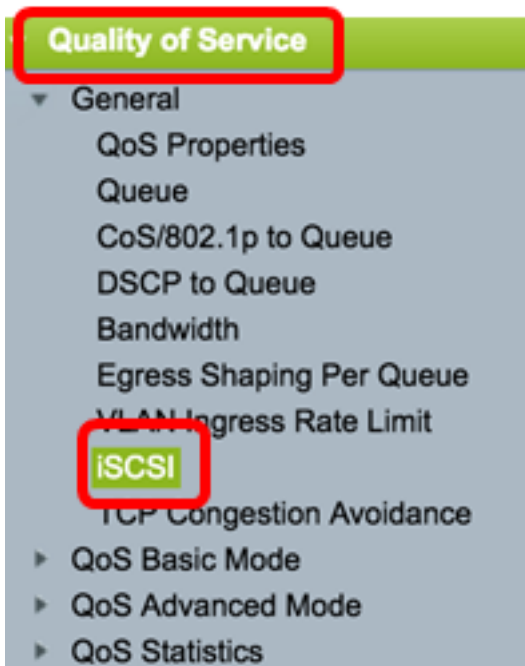
Important: If iSCSI is enabled globally, it affects all interfaces on the device. If an Access Control list (ACL) is bound on an interface and a frame matches both to the iSCSI and the ACL rules, then only the iSCSI rules are applied to this frame. Therefore, before applying the feature, make sure to use other mechanisms to address possible security issues with iSCSI flows.

Configure iSCSI Settings

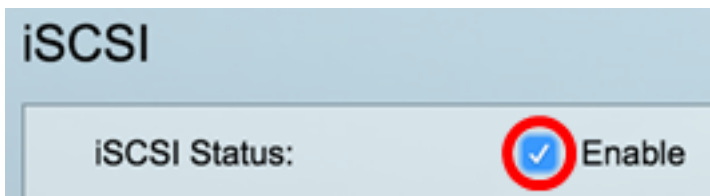
Step 1. Log in to the web-based utility of the switch then choose **Advanced** in the Display Mode.



Step 2. Choose **Quality of Service > General > iSCSI**.

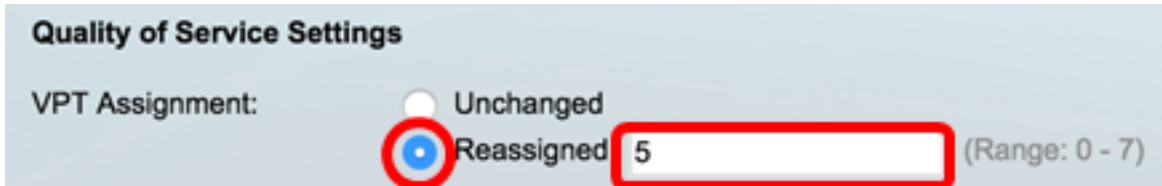


Step 3. Check the **Enable** iSCSI Status check box to enable processing iSCSI traffic on the device.



Step 4. In the VPT Assignment area, choose either **Unchanged** to leave the original VPT value in the packet, or enter a new value in the *Reassigned* field. You can specify a value of the VPT that iSCSI tagged frames are assigned. The range is 0 to 7.

Note: VPT is used to extend the capabilities of priority queueing beyond the server to include Local Area Network (LAN) bridges and switches.



Note: In this example, Reassigned is chosen and the VPT value used is 5.

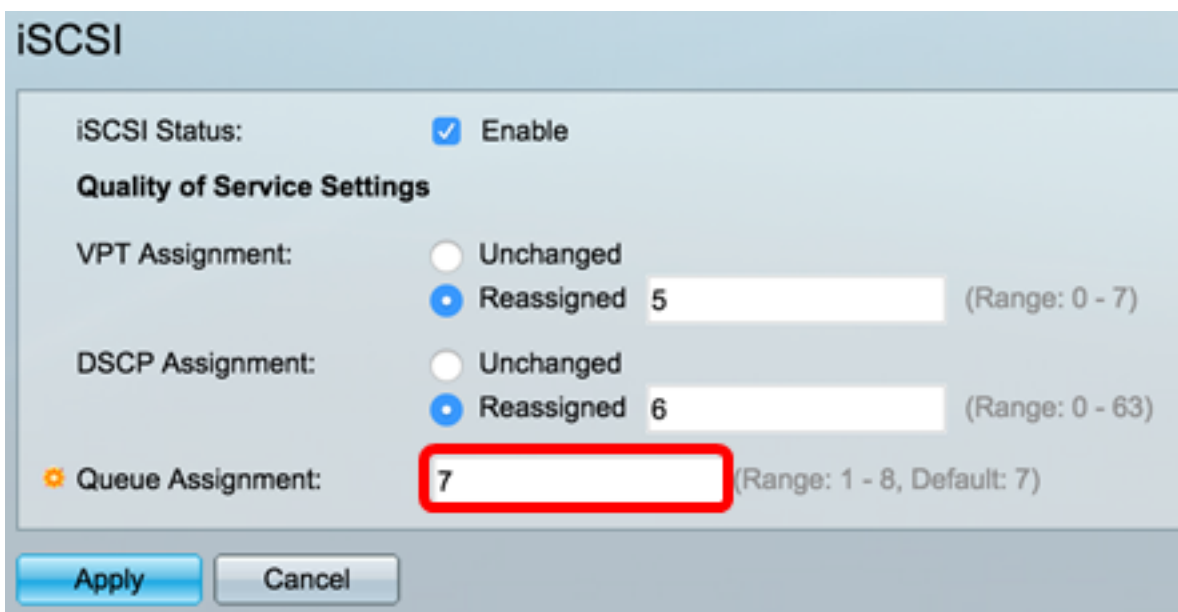
Step 5. In the DSCP Assignment area, choose either **Unchanged** to leave the original DSCP value in the packet, or enter a value in the *Reassigned* field. You can specify the DSCP that iSCSI frames are assigned. The range is 0 to 63.

Note: DSCP can be used to specify the service level requested for traffic, such as best effort delivery or high priority.



Note: In this example, Reassigned is chosen and the DSCP value used is 6.

Step 6. Enter the outgoing queue through which iSCSI frames are sent in the *Queue Assignment* field. By default, it is assigned to Queue 7. The range is 1 to 8.



Step 7. Click **Apply** to save the settings.

Step 8. (Optional) Click **Save** to save the settings in the startup configuration file.

48-Port Gigabit PoE Stackable Managed Switch

iSCSI

✓ Success. To permanently save the configuration, go to the [File Operations](#) page

iSCSI Status: Enable

Quality of Service Settings

VPT Assignment: Unchanged
 Reassigned 5 (Range: 0 - 7)

DSCP Assignment: Unchanged
 Reassigned 6 (Range: 0 - 63)

Queue Assignment: 7 (Range: 1 - 8, Default: 7)

Apply Cancel

You should now have configured the iSCSI settings on your switch.

Add iSCSI Flow

The iSCSI Flow Table displays the various iSCSI flows that have been defined. Two iSCSI flows with well-known TCP ports 3260 and 860 are displayed.

To add a new flow, follow these steps:

Step 1. Under the iSCSI Flow Table, click **Add**.

iSCSI Flow Table			
<input type="checkbox"/>	TCP Port	Target IP Address	Flow Type
<input type="checkbox"/>	860	Any	Default
<input type="checkbox"/>	3260	Any	Default

Add... Delete Restore Default Flows

Step 2. Enter the TCP port in the *TCP Port* field. This is the TCP port number on which the iSCSI Target listens to requests. You can configure up to eight Target TCP ports on the switch.

☛ TCP Port: (Range: 1 - 65535)

Note: In this example, 64535 is used.

Step 3. In the Target IP Address area, choose either **Any** to define a flow according to the TCP port parameter, or enter an IP address in *User Defined* field to define a specific target address. This specifies the IP address of the iSCSI Target and also the source of the iSCSI traffic.



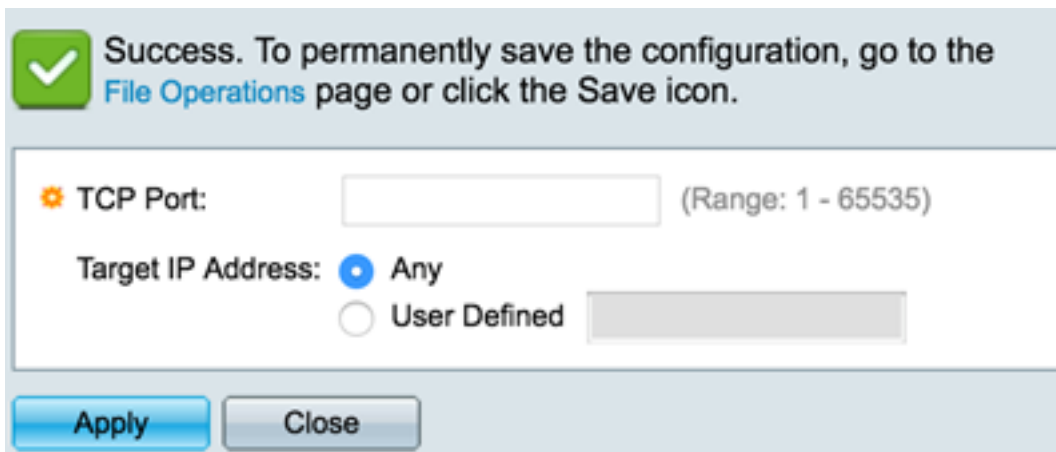
TCP Port: 64535 (Range: 1 - 65535)

Target IP Address: Any User Defined 192.168.1.128

Apply Close

Note: In this example, User Defined is chosen and the IP address used is 192.168.1.128.

Step 4. Click **Apply** to save the settings, then click **Close**.



Success. To permanently save the configuration, go to the [File Operations](#) page or click the Save icon.

TCP Port: (Range: 1 - 65535)

Target IP Address: Any User Defined

Apply Close

Step 5. (Optional) Click **Restore Default Flows** to restore the default flows.

iSCSI Flow Table			
<input type="checkbox"/>	TCP Port	Target IP Address	Flow Type
<input type="checkbox"/>	860	Any	Default
<input type="checkbox"/>	3260	Any	Default
<input type="checkbox"/>	64535	192.168.1.128	Static
Add... Delete Restore Default Flows			

Step 6. (Optional) Click **Save** to save the settings in the startup configuration file.

48-Port Gigabit PoE Stackable Managed Switch

iSCSI

iSCSI Status: Enable

Quality of Service Settings

VPT Assignment: Unchanged
 Reassigned (Range: 0 - 7)

DSCP Assignment: Unchanged
 Reassigned (Range: 0 - 63)

Queue Assignment: (Range: 1 - 8, Default: 7)

iSCSI Flow Table

<input type="checkbox"/>	TCP Port	Target IP Address	Flow Type
<input type="checkbox"/>	860	Any	Default
<input type="checkbox"/>	3260	Any	Default
<input type="checkbox"/>	64535	192.168.1.128	Static

You should now have added a new flow in the iSCSI Flow Table.