

How to configure the optical ports of the core switch

Article Overview

To configure optical ports on a core switch, ensure proper transceiver selection, set the correct speed and duplex, enable or disable auto-negotiation as needed, and verify link status and diagnostics.

1. Select Compatible Transceivers

Optical ports require SFP, SFP+, or QSFP transceivers compatible with the switch model. Check the vendor's optics-to-device compatibility matrix to confirm supported transceivers and connector types (e.g., LC for single-mode or multimode fiber) before installation. Using non-certified or third-party SFPs can cause unpredictable behavior or link instability, so always verify compatibility with commands like `show idprom interface` on Cisco switches .

2. Configure Port Speed and Duplex

Set the port speed according to the transceiver and network requirements. For example, a 10G SFP+ module should be configured for 10,000 Mbps. On Cisco IOS, you can verify supported speeds with `show interface capabilities` and configure the speed using CLI commands. On Dell SONiC, the CLI example is:

```
Sonic(config-if-Ethernet68)# speed 10000Sonic(config-if-Ethernet68)# no shutdown
```

Ensure both ends of the link have matching speed and duplex settings to avoid connectivity issues .

3. Enable or Disable Auto-Negotiation

Auto-negotiation allows the switch to automatically configure speed and flow control with the connected device. For fiber links, auto-negotiation may be disabled if fixed speed is required. Both sides must match the auto-negotiation setting for the link to come up .

4. Configure Logical Port Mode

Decide whether the optical port will operate as an access port, trunk port, or routed port:

- o Access port: Connects to a single VLAN for end devices.
- o Trunk port: Carries multiple VLANs using 802.1Q encapsulation.
- o Routed port: Functions as a Layer 3 interface for IP routing .

5. Verify Link Status and Diagnostics

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After configuration, check the link status and optical module parameters:

- o Use show interface to verify operational status.
- o Monitor transmit/receive optical power, temperature, and voltage using DDM/DOM diagnostics.
- o Ensure all parameters are within normal thresholds to prevent link degradation .

6. Best Practices

- o Clean fiber connectors before insertion to avoid signal loss.
 - o Use the correct fiber type (single-mode vs. multimode) for the distance.
 - o Document port assignments and transceiver types for future troubleshooting.
 - o Apply port security and BPDU guard if the optical port connects to downstream switches to prevent loops .
- By following these steps, you can ensure that the optical ports on your core switch are properly configured, stable, and optimized for high-speed network performance.

• Configure VLANs to accommodate services of different departments and configure VLAN interfaces on the core switches to provide

Unlock the full potential of Dell Enterprise SONiC with this in-depth guide to switch port configurations. Learn about

Explore the 24-Port Gigabit Layer 3 Core Fiber Switch, equipped with 4 Ports of 10G SFP for superior networking. Ideal for high

This document describes how to determine why a port or interface experiences problems.

After configuring interface split or merge on an interface, you need to save the configuration and restart the switch to

Cisco switch ports are categorized by their physical hardware interfaces (such as RJ45 copper, fiber-optic SFP

Unlike other lower class switch vendors (which are plug-and-play), the Cisco switch needs some initial basic configuration in order to

By following this step-by-step guide, you'll be able to configure your Cisco switch for fiber optics. It's important to keep

The so-called core switch is for the network architecture. If it is a small local area network with several

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computers, a

Device installation and cable connection: Install the PEN central optical modules on the PEN central switches, and connect the PEN

All-optical Ethernet switches are a type of switch that provides optical uplink and downlink ports, making them an ideal

Here's the Cisco CLI Switch Command cheat sheet you need for configuring and managing Cisco switches
The Cisco

By configuring your Cisco switch, you can effectively manage its functionality, ensuring versatility, power, and optimal performance.

Pretty simple, you just plug the optical transceiver into the switch port for that transceiver type. Of course, this assumes

This quick yet practical demonstration dives into the installation, configuration, and traffic

This installation note provides the installation instructions for the Cisco small form-factor pluggable (SFP) and SFP+

Web: <https://www.millstraining.co.za>

