10 Gigabit Switch All-Optical Port Configuration Solution



Overview

Cisco 10G Routed PON ONT Data SheetThese 10G optical network terminals for fiber-to-the-premises applications can be managed remotely and are interoperable.

Key Takeaways

To configure all-optical ports on a 10GbE switch, use SFP+ transceivers, ensure proper speed settings, and verify port compatibility with adapters if needed. Step 1: Identify the Optical Ports and ModulesMost 10GbE switches have SFP+ ports for optical connections, which support 10 Gigabit Ethernet over fiber. Some switches also include QSFP+ uplink ports for higher-speed connections (25G/40G/100G) that can be converted to SFP+ using a QSFP-to-SFP adapter if you want to run them at 10Gbps.

Check your switch documentation to identify which ports are optical and which transceivers are supported. Step 2: Select Compatible TransceiversUse SFP+ modules for 10GbE optical connections. Ensure the transceiver type matches the fiber type (single-mode or multi-mode) and distance requirements.

Verify that the switch supports the specific SFP+ module; some switches allow SFP modules in SFP+ ports but may limit speed to 1Gbps. Step 3: Install Transceivers and Connect FiberInsert the SFP+ transceiver into the optical port until it clicks. Connect the fiber optic cable to the transceiver, ensuring proper orientation (TX to RX).

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Avoid looking directly into the fiber as it may emit invisible laser radiation. Step 4: Configure Port Speed and GroupsBy default, SFP+ ports operate at 10Gbps. On switches with uplink modules (e.g., Cisco Nexus 9396PX), you may need to configure the speed-group if converting QSFP+ ports to 10Gbps:speed-group 10000 All ports in a speed group must operate at the same speed to avoid errors like "check speed-group config".

To revert to the original speed (e.g., 40Gbps), use:no speed-group 10000 Step 5: Verify ConnectivityUse the switch CLI to check port status:show interface status Ensure the optical link is up and running at 10Gbps. If connecting to a device with a different speed, confirm that both ends are compatible and configured correctly. Step 6: Optimize Network PerformanceConsider enabling jumbo frames (MTU 9000) for high-throughput applications.

Use link aggregation if multiple 10GbE ports are connected to the same device to increase bandwidth and redundancy. Ensure proper cooling and power supply, as 10GbE optical ports can generate heat. By following these steps, you can successfully set up all-optical ports on a 10 Gigabit switch, ensuring high-speed, reliable connectivity for servers, storage, or other network devices.

Article Content

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Passive optical network

Passive optical network A fiber optic cable assembly with SC APC connectors, as commonly used to link optical network terminals to passive optical networks A

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10 Gigabit Ethernet

10 Gigabit Ethernet (10GE, 10GbE, or 10 GigE) is a group of computer networking technologies for transmitting Ethernet frames at a rate of 10 gigabits per second.

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