

Configure switch optical ports with auto-negotiation



Overview

Configuring Switch Port Speed and Duplex Setting Auto-negotiation determines the port speed and duplex setting for each port (except 10 and 40 Gbps ports).

Key Takeaways

Auto-negotiation allows optical switch ports to automatically determine the optimal speed and duplex settings with connected devices. Understanding Auto-Negotiation Auto-negotiation is a protocol defined in IEEE 802.3u that enables two connected devices to exchange information about their capabilities and automatically select the highest compatible speed and duplex mode.

This ensures optimal link performance and reduces duplex mismatches, which can cause packet loss or collisions. Auto-negotiation only works if both ends of the link support it; otherwise, manual configuration of speed and duplex is required.

General Configuration Principles

Enable Auto-

Negotiation: Most modern switches have auto-negotiation enabled by default on optical ports. For example, on Huawei GE optical interfaces, auto-negotiation is enabled by default, but rate auto-negotiation may be disabled. Check Port Capabilities: Some SFP modules, such as 1GbE SFPs, require auto-negotiation to operate correctly, while certain 10G or higher ports may not support auto-negotiation.

Medium Selection: On switches with combination ports (copper/fiber), specify the medium when configuring auto-negotiation to ensure the correct settings are applied. Example Commands by PlatformCisco IOS (Catalyst Switches): `CodeCopyinterface GigabitEthernet1/0/1speed autoduplex auto` This enables auto-negotiation for both speed and duplex on 10/100/1000 Mbps ports. ExtremeXOS: `CodeCopyconfigure ports 1 auto on` For SFPs that support multiple speeds, you can specify the speed along with auto-negotiation: `CodeCopyconfigure ports 1 auto on speed 1000` Huawei Switches: `CodeCopyinterface GigabitEthernet0/0/1undo shutdownnegotiation auto` Use `display interface` to verify the negotiation status.

Juniper Junos: `CodeCopyset interfaces ge-0/0/1 ether-options auto-negotiationcommit` Auto-negotiation is required for Tri-Rate Ethernet copper interfaces at 1 Gbps, while some SFP optical transceivers may not support it.

Verification

After enabling auto-negotiation, verify the link status and negotiated parameters: Cisco: `show interfaces GigabitEthernet1/0/1 status`Huawei: `display interface GigabitEthernet0/0/1` (check the Negotiation field)Juniper: `show interfaces ge-0/0/1 media`Troubleshooting TipsEnsure both ends of the link support auto-negotiation. If one device does not, manually configure speed and duplex on both ends.

For SF

Ps with multiple supported speeds, explicitly configure auto-negotiation with the correct speed to avoid link failures. If the interface shows Up but the remote interface is Down, perform a shutdown and undo shutdown on the remote interface to re-establish the link. By following these steps, optical switch ports can reliably negotiate the optimal speed and duplex settings, ensuring stable and efficient network connectivity.

Article Content

Configuring Switch Port Speed and Duplex Setting

Auto-negotiation determines the port speed and duplex setting for each port (except 10 and 40 Gbps ports). You can manually configure the duplex setting and the speed of 10/100/1000 Mbps ports.

Configuring and Troubleshooting Auto-Negotiation

By default, auto-negotiation is enabled on GE optical interfaces and rate auto-negotiation is disabled. You can run the `speed auto-negotiation` command to enable rate auto-negotiation.

Configuring Auto-Negotiation

This document describes the principles and configurations of interfaces and provides configuration examples.

Optimizing Network Performance: Auto-Negotiation Explained

Learn how auto-negotiation mode works, its differences from fixed speed mode, and step-by-step configuration guidelines.

Solved: AutoNegotiate on 10/100/1000 ports

On 2960, 3560 and 3560V2, the GigE port can be configured both with speed N and speed auto N. However, the first option deactivates the autonegotiation while the second option

Autonegotiation Speed and Duplex

Cisco switches use a default duplex setting of half duplex (HDX) (for 10-Mbps and 100-Mbps interfaces) or full duplex (FDX) (for 1000-Mbps interfaces). To disable auto-negotiation on a

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1GbE SFP optical transceivers do not support auto-negotiation on the following switches. In such cases, we recommend to disable auto-negotiation on the remote end device for successful linkup.

Understanding Switch Port Configurations In Dell Enterprise SONiC

Unlock the full potential of Dell Enterprise SONiC with this in-depth guide to switch port configurations. Learn about port speeds, FEC, auto-negotiation, link training, and copper vs. fiber

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No-auto-negotiation configuration on unsupported ports will be ignored and alerted to the user with a PFE log message. Table 1 shows the behaviour of auto-negotiation in different combinations.

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For QFX5100 switches, autonegotiation is also enabled by default on 10-Gigabit Ethernet interfaces and cannot be disabled. If you configure a 100 Mbps speed on the link partner, you must configure the

Ports blocked when moving LACP connection to new switches

We can't set the ports to auto-negotiate ("01/06/2024 07:35:24.10 The configuration for the LX optic module is not correct - please

CCNA RnS Article #22: Interface Auto-negotiation in Action!

Auto-negotiation in Action Ethernet devices connected to the switch port should use the same speed or duplex configuration otherwise, they cannot perform data transfer correctly.

Configuring Port Speed

A port set in auto-negotiate mode is negotiating full duplex and use of pause frames (802.3X) with the attached switch. The port will come up if there is a mismatch in the negotiated parameters.

Switch Engine Command Reference Guide

Switch Engine™ Command Reference Guide Version 32.3 > Commands > configure ports auto on Published December 2022 Print this pageEmail this pageView PDFPreviousNext

SG :: Ethernet auto-sensing and auto-negotiation

Preface This document addresses, in detail, many current and past issues configuring the speed and duplex of ethernet network devices. Note that the need for hand-configuring switch port

What is Ethernet Auto-Negotiation?

Auto-negotiation is the feature that allows a port on a switch, router, server, or other device to communicate with the device on the other end of the link to determine the optimal duplex mode and

Setting port speed (autonegotiation) | FortiSwitch 7.2.10 | Fortinet ...

Using the GUI: Go to Switch > Port > Physical and select the port. Select Edit. Select Auto-Negotiation or the appropriate port speed. Select Update.

Cisco ACI Auto-Negotiation and Forwarding Error Correction

Auto-Negotiation About Auto-Negotiation Auto-negotiation is an optional function of the IEEE 802.3u Fast Ethernet standard that enables devices to automatically exchange information

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