

Huawei Switch Fiber Port Layer 2 and Layer 3

Article Overview

Huawei switch fiber ports can operate in either Layer 2 mode for VLAN-based switching or Layer 3 mode for routing, with mode switching supported on specific high-end models.

Layer 2 Mode

In Layer 2 mode, a Huawei fiber port functions as a standard Ethernet interface that forwards frames based on MAC addresses. By default, all Ethernet interfaces belong to VLAN 1 and can be assigned to other VLANs for traffic segmentation. Layer 2 ports are ideal for connecting endpoints like PCs, servers, or access points within the same VLAN. Key points include:

- o VLAN membership controls broadcast domains and isolates traffic between VLANs.
- o Layer 2 ports can be configured as access ports (single VLAN) or trunk ports (multiple VLANs) for inter-switch connections.
- o Commands to configure Layer 2 mode typically include entering the interface view and setting the port link type to access or trunk ().

Layer 3 Mode

In Layer 3 mode, the fiber port acts as a routable interface, capable of forwarding packets based on IP addresses. This mode is used for inter-VLAN routing or connecting different network segments. Key aspects include:

- o Assign an IP address to the interface to serve as a gateway for connected devices.
- o The interface is removed from VLAN 1 only after Layer 3 protocols are active.
- o Layer 3 mode is supported on specific Huawei switch models such as S5731-H, S5732-H, S6735-S, S6720-EI, and S6730-H ().
- o Commands include `undo portswitch` to enable Layer 3 mode, followed by `ip address` to assign the interface IP ().

Switching Between Layer 2 and Layer 3

Huawei switches allow certain interfaces to switch between Layer 2 and Layer 3 modes:

- o Enter system view: `system-view`
- o Select the interface: `interface gigabitethernet 0/0/20`
- o Switch to Layer 3: `undo portswitch` (for supported interfaces)
- o Switch back to Layer 2: `portswitch` or `configure as access/trunk`

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- o Clear any service configurations (like trunk settings) before switching modes to avoid conflicts ().

Inter-VLAN Routing

For Layer 3 switches, VLANIF interfaces are created to enable routing between VLANs:

- o Each VLAN requires a VLANIF interface with an assigned IP address.
- o Devices in different VLANs use the VLANIF IP as their default gateway.
- o This allows Layer 3 switches to perform inter-VLAN routing without relying on external routers ().

Summary

- o Layer 2 ports: MAC-based switching, VLAN segmentation, access/trunk configuration.
- o Layer 3 ports: IP-based routing, gateway assignment, inter-VLAN communication.
- o Mode switching: Supported on high-end Huawei switches; requires clearing service configurations and using system/interface commands.
- o Use case: Layer 2 for local LAN traffic, Layer 3 for routing between VLANs or network segments. By understanding these modes and commands, network engineers can configure Huawei fiber ports to optimize both switching efficiency and routing capabilities in enterprise networks.

Huawei Technical Support

To objectively evaluate the capabilities of Huawei Layer 2 and Layer 3 switches, we must analyze specific hardware metrics. The

Layer 3 switches divide a Layer 2 network into multiple VLANs. They implement Layer 2 switching within the VLANs and Layer 3 IP

Layer 2 switches operate at the data link layer, forwarding data based on MAC addresses, while layer 3 switches route

An Ethernet interface works as a Layer 2 interface in Layer 2 mode and a Layer 3 interface in Layer 3 mode. To switch between

Example for Switching an Interface to Layer 3 Mode Networking Requirements In Figure 2-12, PC1, PC2, and PC3 are

Because Huawei switch ports work in Layer 2 mode by default, when we need to use Layer 3 functions, we

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need to switch the

Layer 3 Switch Layer 3 switches provide the routing function, which indicates a network-layer function in the OSI

The mode switching function takes effect when the interface only has attribute configurations, such as shutdown and description

Layer 2 Switching A Layer 2 device works at the second layer of the OSI model and forwards data packets based on media access

This deep technical review dissects the internal ASIC forwarding logic, packet processing pipelines, and specific performance metrics

To enable SwitchA and SwitchB to communicate with each other and provide high link bandwidth, Layer 3 Eth-Trunk

Switching an Ethernet Interface to Layer 3 Mode Context Due to hardware restrictions of interface cards, some Ethernet interfaces

Determine whether to switch the working mode of an interface between Layer 2 and Layer 3 based on the interface type. Eth-Trunk

If service configurations (such as the port link-type trunk configuration) exist on an interface, clear all service configurations before

Today, Linknewnet engineers teach you 2 ways. If the switch under the router is a Layer 2 device, there are two ways

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