



Configuring Switching Modes

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Information About Switching Modes

The switching mode determines whether the switch begins forwarding the frame as soon as the switch has read the destination details in the packet header or waits until the entire frame has been received and checked for cyclic redundancy check (CRC) errors before forwarding them to the network.

The switching mode is applicable to all packets being switched or routed through the hardware and can be saved persistently through reboots and restarts.

The switch operates in either of the following switching modes:

Cut-Through Switching Mode

Cut-through switching mode is enabled by default. Switches operating in cut-through switching mode start forwarding the frame as soon as the switch has read the destination details in the packet header. A switch in cut-through mode forwards the data before it has completed receiving the entire frame.

The switching speed in cut-through mode is faster than the switching speed in store-and-forward switching mode.

Store-and-Forward Switching Mode

When store-and-forward switching is enabled, the switch checks each frame for cyclic redundancy check (CRC) errors before forwarding them to the network. Each frame is stored until the entire frame has been received and checked.

Because it waits to forward the frame until the entire frame has been received and checked, the switching speed in store-and-forward switching mode is slower than the switching speed in cut-through switching mode.

Guidelines and Limitations for Switching Modes

Consider the following guidelines and limitations for each of the switching modes:

Cut-Through Switching Mode Guidelines and Limitations

- **show** commands with the **internal** keyword are not supported.
- When an Fabric Configuration Server error is discovered, FCS error packets are not immediately dropped. (The packet transmission may have already been in progress.) For this situation, the packet is truncated and marked with error marking in EOF. The packet is then dropped at the next node.
- Packets with FCS errors are not mirrored if SPAN is configured.
- Cut-through switching is supported on Cisco Nexus 9300 Series switches for traffic from 40G ports (ALE ASIC) to 10G ports (NFE ASIC). It is also supported for traffic between 10G ports (NFE ASIC) to 10G ports (NFE ASIC) only when buffer-boot is not enabled. Traffic going from 10G ports (NFE ASIC) to 40G (ALE ASIC) ports will always be store and forward.
- The Cisco Nexus 31128PQ switch operates in over-subscribed mode only and therefore is unable to support cut-through switching mode.

Store-and-Forward Switching Mode Guidelines and Limitations

- **show** commands with the **internal** keyword are not supported.
- Packets with FCS errors are dropped.
- Packets with FCS errors are not mirrored if SPAN is configured.
- The CPU port always operates in store-and-forward mode. Any packets forwarded to the CPU with FCS errors are dropped.
- Store-and-forward mode activates automatically for a port when the switch identifies that the port is oversubscribed and the ingress rate is greater than the switching capacity of the egress port. For example, when the port ingress rate is 10 gigabit and the switching capacity of the egress port is 1 gigabit.



Note The global configuration does not change, even if store-and-forward mode is activated for an oversubscribed port.

Switching mode value added to SNMP MIB

Beginning with Cisco NX-OS Release 10.5(3)F, switching mode is now available with SNMP **CISCO-SYSTEM-EXT-MIB**. You can use the SNMP **get** command to view the switching mode.

In releases before Cisco NX-OS Release 10.5(3)F, the switching mode property in the DME database is set to **Default** when the **no switching-mode store-forward** command is configured on the switch.

Starting with Cisco NX-OS Release 10.5(3)F, the switching mode property in the DME database is set to **Cut-through** when the **no switching-mode store-forward** command is configured on the switch.

Default Settings for Switching Modes

Cut-through switching is enabled by default.

Configuring Switching Modes

Enabling Store-and-Forward Switching



Note Enabling store-and-forward switching mode might impact your port-to-port switching latency.

SUMMARY STEPS

1. switch# **configure terminal**
2. switch(config) # **switching-mode store-forward**
3. (Optional) switch(config)# **copy running-config startup-config**

DETAILED STEPS

Procedure

	Command or Action	Purpose
Step 1	switch# configure terminal	Enters global configuration mode.
Step 2	switch(config) # switching-mode store-forward	Enables store-and-forward switching mode.
Step 3	(Optional) switch(config)# copy running-config startup-config	Saves the change persistently through reboots and restarts by copying the running configuration to the startup configuration.

Example

This example shows how to enable store-and-forward switching:

```
switch# configure terminal
switch(config) # switching-mode store-forward
switch(config) #
```

Reenabling Cut-Through Switching

Cut-through switching is enabled by default. To reenable cut-through switching, use the **no** form of the **switching-mode store-forward** command.

SUMMARY STEPS

1. switch# **configure terminal**
2. switch(config) # **no switching-mode store-forward**
3. (Optional) switch(config)# **copy running-config startup-config**

DETAILED STEPS

Procedure

	Command or Action	Purpose
Step 1	switch# configure terminal	Enters global configuration mode.
Step 2	switch(config) # no switching-mode store-forward	Disables store-and-forward switching mode. Enables cut-through switching mode.
Step 3	(Optional) switch(config)# copy running-config startup-config	Saves the change persistently through reboots and restarts by copying the running configuration to the startup configuration.

Example

This example shows how to reenabling cut-through switching:

```
switch# configure terminal
switch(config) # no switching-mode store-forward
switch(config) #
```



Note The command **no switching-mode store-forward** is not supported on Cisco Nexus 9800 Series switches as Cut-Through mode is not available on this platform.