MTU Configuration Guide

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Read Me First

Only supported features are documented. To confirm or clarify all the supported features for a platform, go to Cisco Feature Navigator.

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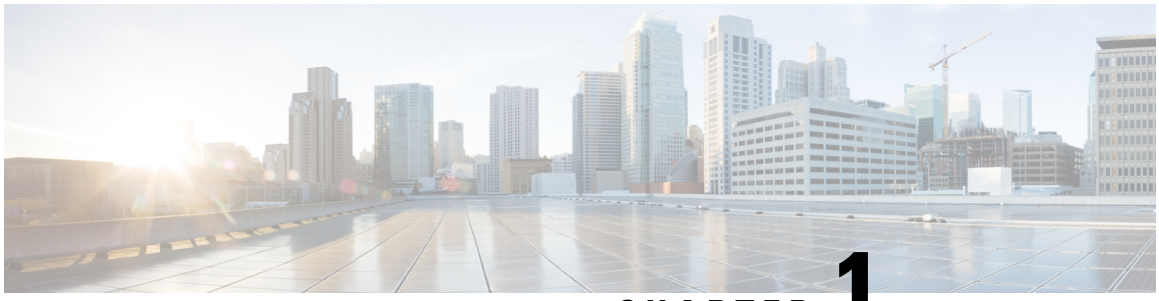
CONTENTS



CHAPTER 1

Configure System MTU

Feature History for MTU

This table provides release and platform support information for the features explained in this module.

These features are available in all the releases subsequent to the one they were introduced in, unless noted otherwise.

Table 1:

Release	Feature Name and Description	Supported Platform
Cisco IOS XE 17.18.1	The Maximum Transmission Unit (MTU) features discusses about two primary types of MTU: **1.** System MTU (Global MTU) **2.** Per-Port MTU (Interface MTU)	Cisco C9350 Series Smart Switches Cisco C9610 Series Smart Switches

Configure System MTU

Follow these steps to change the MTU size for switched packets:

Before you begin

Ensure you have the necessary privileges to access the device in EXEC mode.

Procedure

	Command or Action	Purpose
Step 1	enable **Example:** `Device> enable`	Enables privileged EXEC mode. Enter your password, if prompted.
Step 2	configure terminal **Example:** `Device# configure terminal`	Enters global configuration mode.
Step 3	system mtu bytes **Example:** `Device(config)# system mtu 1900`	Displays MTU byte information
Step 4	end **Example:** `Device(config)# end`	Enters global configuration mode, and returns to privileged EXEC mode.
Step 5	copy running-config startup-config **Example:** `Device# copy running-config startup-config`	Saves your entries in the configuration file.
Step 6	show platform so fed switch active ifm interface_name <interface name> **Example:** `Device# show platform so fed switch active ifm interface_name <interface name>`	Displays the IP/IPv6 MTU.

The MTU size for switched packets is configured successfully, and changes are confirmed to persist upon a system restart.

Configure Protocol-Specific MTU

To override system MTU values on routed interfaces, configure protocol-specific MTU under each routed interface. To change the MTU size for routed ports, perform this procedure

Procedure

	Command or Action	Purpose
Step 1	configure terminal **Example:** `Device# configure terminal`	Enters global configuration mode.

	Command or Action	Purpose
Step 2	interface interface **Example:** `Device(config)# interface gigabitethernet0/0`	Enters interface configuration mode.
Step 3	ip mtu bytes **Example:** `Device(config-if)# ip mtu 68`	Changes the IPv4 MTU size
Step 4	ipv6 mtu bytes **Example:** `Device(config-if)# ipv6 mtu 1280`	(Optional) Changes the IPv6 MTU size.
Step 5	end **Example:** `Device(config-if)# end`	Exits interface configuration mode, and returns to privileged EXEC mode.
Step 6	copy running-config startup-config **Example:** `Device# copy running-config startup-config`	Saves your entries in the configuration file.
Step 7	show system mtu **Example:** `Device# show system mtu`	Verifies your settings.

Configuration Examples for System MTU

Protocol-specific MTU configurations allow network professionals to adjust the maximum transmission unit (MTU) for different protocols to optimize performance and minimize packet fragmentation. This is crucial for efficiently managing network traffic across various interfaces.

This example shows how you can configure protocol-specific MTU:

- Gigabit Ethernet Interface

```
Device# configure terminal
Device(config)# interface gigabitethernet 0/1
Device(config-if)# ip mtu 900
Device(config-if)# ipv6 mtu 1286
Device(config-if)# end
```

- Forty Gigabit Ethernet Interface

```
Device# configure terminal
Device(config)# interface fortygigabitethernet 0/0
Device(config-if)# ip mtu 900
Device(config-if)# ipv6 mtu 1286
Device(config-if)# end
```

Effective MTU configuration reduces the risk of fragmentation and ensures efficient packet transmission across network segments.

Additional References for System MTU

Related Documents

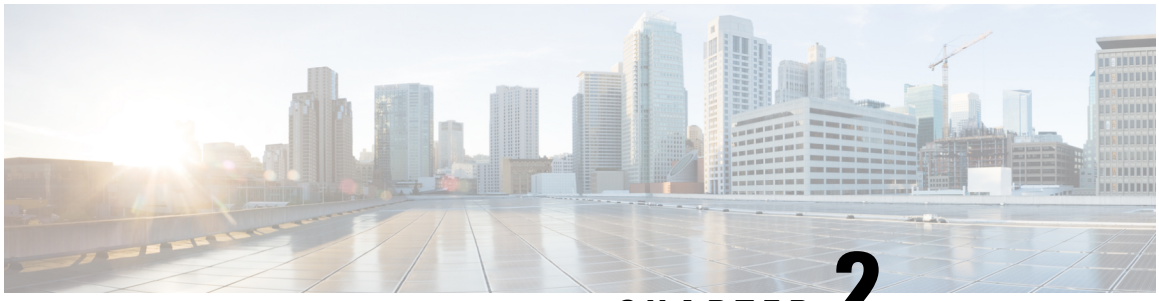
Related Topic	Document Title
For complete syntax and usage information for the commands used in this chapter.	See the *Interface and Hardware Commands* section in the *Command Reference (Catalyst 9350 Series Switches)*

Related Documents

Related Topic	Document Title
For complete syntax and usage information for the commands used in this chapter.	See the *Interface and Hardware Commands* section in the *Command Reference (Catalyst 9610 Series Switches)*

Standards and RFCs

Standard/RFC	Title
RFC 8200	*Internet Protocol, Version 6 (IPv6) Specification*



CHAPTER 2

Configure Per-Port MTU

Restrictions for configuring per-port MTU

Several restrictions apply to configuring per-port MTU on Cisco Catalyst switches. These restrictions vary depending on the platform, interface type, and other configuration conditions.

General restrictions:

- Per-port MTU cannot be configured on the management port.
- Do not configure the per-port MTU value while traffic is flowing (e.g., during active data transmission).

Port-channel restrictions:

- Members of a port channel cannot be configured with a per-port MTU value; they derive their MTU from the port-channel MTU configuration.
- Per-port MTU can be configured on port-channel interfaces but not on the port-channel members.

Subinterface restrictions:

- Per-port MTU is not supported on subinterfaces or port-channel subinterfaces.

Layer 2 MTU restrictions:

- Ingress and egress Layer 2 MTU is derived from per-port MTU. If per-port MTU is not configured, the System MTU is used.
- On ingress ports configured with Layer 2 MTU, packets that exceed the configured MTU size are dropped.

Platform-specific restrictions:

- On Cisco Catalyst 9610 Series Supervisor 2 Module, the following restrictions are applicable:
  - If no protocol-specific MTU configuration is present, per-port MTU is used as protocol-specific MTU.

- If per-port MTU is not configured, System MTU is used as protocol-specific MTU.

Port MTU specifications for Cisco Catalyst switches

You can configure the MTU size for all interfaces on a device at the same time using the **system mtu** command. The default maximum transmission unit (MTU) size for frames received and transmitted on all interfaces is 1500 bytes. The **system mtu** command is a global command and does not allow MTU to be configured at a port level. Starting with Cisco IOS XE 17.1.1, you can configure Per-Port MTU. Per-Port MTU will support port level and port channel level MTU configuration. With Per-Port MTU you can set different MTU values for different interfaces as well as different port channel interfaces.

Per-port MTU can be configured in the range of 1500-9198 bytes.

Per-port MTU can be configured in the range of 1500-9216 bytes.

Once the Per-Port MTU value has been configured on a port, the protocol-specific MTU for that port is also changed to the Per-Port MTU value. When Per-Port MTU is configured on a port, you can still configure protocol-specific MTU on the interface in the range from 256 to Per-Port MTU value.

If the Per-Port MTU is disabled, the MTU for the port will revert to the system MTU value.

You can view the Per-Port MTU configurations on an interface using the **show interface mtu** command.

The following are expected behaviour if the Per-Port MTU configuration is changed on any interface:

- The interface flaps if the port-channel is in PAgP or LACP mode.
- The interface does not flap if the port channel is in the **on** mode.
- The interface does not flap if the interface is not a port channel.

You can disable Per-Port MTU by using the **no** form of the **mtu** *bytes* command in the interface configuration mode.

NOTE:

To form routing protocol adjacency, ensure port MTUs match between devices. Configure matching IP MTU or IPv6 MTU values on the interfaces of both devices.

Configure per-port MTU

Follow these steps to configure per-port MTU on an interface:

Procedure

	Command or Action	Purpose

Step 1	mtu port
	Example:
	`Device# configure terminal`
	`Device(config)# interface FortyGigabitEthernet2/5/0/20`	

	Command or Action	Purpose
	Device(config-if)# mtu 6666 Device(config-if)# end	

Configuration Examples for Per-Port MTU

The following displays an example for Per-Port MTU configuration on an interface:

```
Device# configure terminal
Device(config)# interface FortyGigabitEthernet2/5/0/20
Device(config-if)# mtu 6666
Device(config-if)# end
```

Verify per-port MTU

The following example illustrates how to verify the per-port MTU configuration on an interface using the **show interface mtu** command.

Procedure

	Command or Action	Purpose
Step 1	show interface mtu **Example:** Device# show interface mtu Port Name MTU Fo2/5/0/19 1500 Fo2/5/0/20 6666 Fo2/5/0/21 ixia_7_21 1500	

Disable per-port MTU

This example shows how to disable Per-Port MTU on an interface:

Before you begin

- Ensure you have administrative access to the device.
- Confirm the interface ID where you want to disable the per-port MTU.

Procedure

	Command or Action	Purpose
Step 1	no mtu	

	Command or Action	Purpose

	Example:
	`Device# configure terminal`
	`Device(config)# interface FortyGigabitEthernet2/5/0/20`
	`Device(config-if)# no mtu`
	`Device(config-if)# end`	