



## Configure System MTU

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## 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.

| Release               | Feature name and description                                                                                                                                    | Supported platform                                                     |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|
| Cisco IOS XE 26.2.1ea | Maximum Transmission Unit: The MTU feature support has been introduced.                                                                                         | Cisco C9550 Series Smart Switches                                      |
| Cisco IOS XE 17.18.1  | The Maximum Transmission Unit (MTU) features discusses about two primary types of MTU:<br><br>1. System MTU (Global MTU)<br><br>2. Per-Port MTU (Interface MTU) | Cisco C9350 Series Smart Switches<br>Cisco C9610 Series Smart Switches |

## Maximum Transmission Unit

The Maximum Transmission Unit (MTU) in network switching refers to the largest size of a packet or frame, measured in bytes, that a network interface can send or receive. If a packet exceeds the MTU of an interface, the system must either fragment the packet into smaller pieces before transmission or drop the packet.

In Cisco switching, you typically configure two primary types of MTU:

1. System MTU (Global MTU)
2. Port MTU (Interface MTU)

## System MTU

The System MTU is a global setting that defines the default MTU size for all interfaces on a Cisco switch. It serves as a baseline or the maximum allowable MTU for the entire device.

This setting applies globally to the entire switch. When you configure the System MTU, the system applies this value to all relevant interfaces, such as Ethernet ports and Virtual Local Area Network (VLAN) interfaces, that support it.

The default system MTU is 1500 bytes for all switch models.

For IP MTU, use the **ip mtu bytes** command.

For IPv6 MTU, use the **ipv6 mtu bytes** command.



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**Note** The MTU value is the applied value, not the configured value.

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### MTU specifications for Cisco Smart Switches

The table lists the range of system MTU values, in bytes, supported across Cisco Smart Switches.

| Device                      | System MTU range | IP MTU range                      | IPv6 MTU range                     |
|-----------------------------|------------------|-----------------------------------|------------------------------------|
| C9350 Series Smart Switches | 1500 - 9198      | 832 - configured system MTU value | 1280 - configured system MTU value |
| C9610 Series Smart Switches | 1500 - 9216      | 840 - configured system MTU value | 1280 - configured system MTU value |
| C9550 Series Smart Switches | 1500 - 9216      | 840 - configured system MTU value | 1280 - configured system MTU value |

## Configure System MTU

Modify the Maximum Transmission Unit (MTU) settings for optimized network performance. MTU defines the largest size of packets that can be transmitted over the network without fragmentation. Configuring an appropriate MTU size can improve transmission efficiency and reduce latency.

### Before you begin

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

**Procedure**

|               | <b>Command or Action</b>                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>Purpose</b>                                                         |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|
| <b>Step 1</b> | <b>enable</b><br><b>Example:</b><br>Device> enable                                                                                                                                                                                                                                                                                                                                                                                            | Enables privileged EXEC mode. Enter your password, if prompted.        |
| <b>Step 2</b> | <b>configure terminal</b><br><b>Example:</b><br>Device# configure terminal                                                                                                                                                                                                                                                                                                                                                                    | Enters global configuration mode.                                      |
| <b>Step 3</b> | <b>system mtu bytes</b><br><b>Example:</b><br>Device(config)# system mtu 1900                                                                                                                                                                                                                                                                                                                                                                 | Displays MTU byte information                                          |
| <b>Step 4</b> | <b>end</b><br><b>Example:</b><br>Device(config)# end                                                                                                                                                                                                                                                                                                                                                                                          | Enters global configuration mode, and returns to privileged EXEC mode. |
| <b>Step 5</b> | <b>copy running-config startup-config</b><br><b>Example:</b><br>Device# copy running-config startup-config                                                                                                                                                                                                                                                                                                                                    | Saves your entries in the configuration file.                          |
| <b>Step 6</b> | <b>show platform so fed switch active ifm interface_name interface name</b><br><b>Example:</b><br>Device# show platform software fed switch active ifm interface_name<br>GigabitEthernet2/0/1<br>Interface Name: GigabitEthernet2/0/1<br>if_id: 0x123<br>admin_state: up<br>oper_state: up<br>l2_mtu: 9198<br>ip_mtu: 1500<br>encap: ethernet<br>vlan_mode: access<br>access_vlan: 10<br>l2_fwd: enabled<br>l3_fwd: disabled<br>asic_port: 25 | 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                                                                  |
|---------------|------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| <b>Step 1</b> | <b>configure terminal</b><br><b>Example:</b><br>Device# configure terminal                                 | Enters global configuration mode.                                        |
| <b>Step 2</b> | <b>interface interface</b><br><b>Example:</b><br>Device(config)# interface gigabitethernet0/0              | Enters interface configuration mode.                                     |
| <b>Step 3</b> | <b>ip mtu bytes</b><br><b>Example:</b><br>Device(config-if)# ip mtu 832                                    | Changes the IPv4 MTU size                                                |
| <b>Step 4</b> | <b>ipv6 mtu bytes</b><br><b>Example:</b><br>Device(config-if)# ipv6 mtu 1280                               | (Optional) Changes the IPv6 MTU size.                                    |
| <b>Step 5</b> | <b>end</b><br><b>Example:</b><br>Device(config-if)# end                                                    | Exits interface configuration mode, and returns to privileged EXEC mode. |
| <b>Step 6</b> | <b>copy running-config startup-config</b><br><b>Example:</b><br>Device# copy running-config startup-config | Saves your entries in the configuration file.                            |
| <b>Step 7</b> | <b>show system mtu</b><br><b>Example:</b><br>Device# show system mtu<br>System MTU size is 9198 bytes      | Verifies your settings.                                                  |

# Configuration examples for System MTU

## Protocol-specific MTU configuration example

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.

## System MTU configuration example

Change the maximum transmission unit (MTU) size for a Cisco network device. Context: This task is useful for adjusting the packet size to accommodate specific network performance requirements. This example shows how you can configure the system MTU:

```
Device# configure terminal
Device(config)# system mtu 1600
Device(config)# exit
```

# 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 <i>Interface and Hardware Commands</i> section in the <i>Command Reference (Cisco 9350 Series Smart Switches)</i> |

## Related Documents

| Related Topic                                                                    | Document Title                                                                                                            |
|----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| For complete syntax and usage information for the commands used in this chapter. | See the <i>Interface and Hardware Commands</i> section in the <i>Command Reference (Cisco 9610 Series Smart Switches)</i> |

**Standards and RFCs**

| Standard/RFC             | Title                                                    |
|--------------------------|----------------------------------------------------------|
| <a href="#">RFC 8200</a> | <i>Internet Protocol, Version 6 (IPv6) Specification</i> |