

Network Synchronization Commands

This chapter describes the Cisco IOS XR Network Synchronization Precision Time Protocol (PTP) commands that are used to distribute precision frequency and time around a network.

For detailed information about PTP concepts, configuration tasks, and examples, see the *Configuring PTP on Cisco IOS XR Software* configuration module in

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announce

To configure PTP profile announcement messages, use the **announce** command in PTP profile configuration or interface PTP configuration mode. To remove setting, use the **no** form of this command.

announce { **frequency** *frequency* | **interval** *interval* | **grant-duration** *duration* | **timeout** *timeout* } **no announce**

Syntax Description

frequency *frequency*	Specifies multiple announce messages per second. 1 One per second frequency. 2 Two per second frequency. 4 Four per second frequency. 8 Eight per second frequency. 16 Sixteen per second frequency. 32 Thirty Two per second frequency. 64 Sixty Four second frequency.
interval *interval*	Specifies the time interval in seconds at which messages are sent.
grant-duration *duration*	Specifies the length of time permission to send unicast messages is granted.
timeout *timeout*	Specifies the number of announce intervals that PTP ports wait in the Listen state before transitioning to the Master state.

Command Default

Defaults: frequency none, grant-duration 600, interval 2, timeout 3. Values are in seconds.

Command Modes

PTP profile configuration

Command History

Release	Modification
Release 7.0.1	This command was introduced on the Cisco NCS 5500 Series Routers.

Usage Guidelines

The **announce** command used configure the global PTP configuration profile which then is associated with many interfaces. Similarly it is used in interface PTP configuration mode to set the announce message settings for a specific interface. Any values set in the interface PTP configuration mode override the settings in the PTP configuration profile associated with the interface.

The **grant-duration** keyword is used for the ITU-T telecommunication Profile.

Example

The following sets the announcement interval to 8 seconds in the PTP configuration profile:

```
Router(config)# ptp
```

```
Router(config-ptp)# profile p1
Router(config-ptp-profile)# announce interval 8
```

clock

To enter Precision Time Protocol (PTP) clock configuration mode and run PTP clock configuration command, use the **clock** command in PTP configuration mode. To remove, use the **no** form of this command.

clock
no clock

Syntax Description

This command has no keywords or arguments.

Command Default

None

Command Modes

Global PTP configuration

Command History

Release	Modification
Release 7.0.1	This command was introduced on the Cisco NCS 5500 Series Routers.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

PTP clock configuration commands can also be run from global PTP configuration mode by preceding the command string with the **ptp clock** keywords. From PTP clock configuration mode, various PTP clock settings can be configured.

Example

The following example shows how to enter PTP clock configuration mode from global configuration mode.

```
Router(config)# ptp
Router(config-ptp)# clock
Router(config-ptp-clock)#
```

clock operation

To configure the type of PTP clock operation, use the **clock operation** command in PTP interface or profile configuration or interface PTP configuration mode. To remove, use the **no** form of this command.

clock operation {**one-step** | **two-step**}
no clock operation

Syntax Description

one-step	Specifies the timestamp for the time synchronization message sent directly within the message itself.
two-step	Specifies the timestamp for the time synchronization message that follows the message.

Command Default

The default is two step.

Command Modes

PTP profile configuration

Interface PTP configuration

Command History

Release	Modification
Release 7.0.1	This command was introduced on the Cisco NCS 5500 Series Routers.

Usage Guidelines

The **clock operation** command is used configure the global PTP configuration profile which then is associated with many interfaces. Similarly it is used in the interface PTP configuration mode to set the clock operation for a specific interface. Any values set in the interface PTP configuration mode override the settings in the PTP configuration profile associated with the interface.

Example

The following example sets PTP clock operation to two-step:

```
Router(config)# ptp
Router(config-ptp)# profile p1
Router(config-ptp-profile)# clock operation two-step
```

clock profile

To configure the ITU-T telecommunication profile and clock type that can be used in all local PTP sessions, use the **clock profile** command in the PTP configuration mode. To remove, use the **no** form of this command.

```
clock profile [g.8265.1 |{master | slave}][g.8275.1 |g.8275.2]{T-BC |
T-GM | T-TSC}
```

Syntax Description

clock-type T-GM | **T-BC** | **T-TSC**	Indicates the clock type for G.8275.1 profile. G.8275.2 profile supports three clock types: • T-GM: Telecommunication Grandmaster • T-BC: Telecommunication Boundary Clock • T-TSC: Telecommunication Time Slave Clock
master	Configure master clock.
slave	Configure telecom slave clock.

Command Default

The default PTP profile defined in the IEEE-1588 standard is used if this configuration is not used.

Command Modes

PTP configuration

Command History

Release	Modification
Release 7.0.1	This command was introduced on the Cisco NCS 5500 Series Routers.

Usage Guidelines

The **clock-type** can be configured only when G.8275.1 is selected as the PTP profile.

Note The **clock-selection telecom-profile** and **clock-advertisement telecom-profile** commands are deprecated from Release 6.1.2Release 6.3.2Release 6.6.25. They are replaced by the **clock profile** command.

Note Configuring the G.8265.1 profile using **clock profile** command is equivalent to using **clock-selection telecom-profile** and **clock-advertisement telecom-profile** commands to configure the G.8265.1 profile in the earlier releases.

Example

The following example shows configuring G.8265.1 profile:

```
Router(config)#ptp
Router(config-ptp)#
clock profile g.8265.1
```

The following example shows configuring G.8275.1 profile with T-BC clock type:

```
Router(config)#ptp
Router(config-ptp)#clock profile g.8275.1 T-BC
```

cos

To specify the Class of Service (CoS) value to use for Precision Time Protocol (PTP) packets sent by the router, use the **cos** command in PTP profile configuration mode or interface PTP configuration mode. To remove, use the **no** form of this command.

cos *number*

no cos

Syntax Description

number	Specifies the Class of Service (CoS) value to use in the Ethernet header when running over IPv4 or Ethernet.

Command Default

The default CoS value is 6.

Command Modes

PTP profile configuration

Interface PTP configuration

Command History

Release	Modification
Release 7.0.1	This command was introduced on the Cisco NCS 5500 Series Routers.

Usage Guidelines

The **cos** command is used configure the global PTP configuration profile which is then associated with many interfaces. Similarly it is used in the interface PTP configuration mode to set the CoS value for a specific interface. Any values set in the interface PTP configuration mode override the settings in the PTP configuration profile associated with the interface.

Example

The following example sets the CoS value to 3 in the PTP configuration profile p1:

```
Router(config)# ptp
Router(config-ptp)# profile p1
Router(config-ptp-profile)# cos 3
```

The following example overrides the CoS value in the profile and sets it to be 2 for the interface:

```
Router(config)# interface TenGigE 0/0/0/10
Router(config-if) ptp
Router(config-if-ptp)# profile p1
Router(config-if-ptp)# cos 2
```

delay-request

To configure settings for the PTP delay request message, use the **delay-request** command in PTP profile configuration or interface PTP configuration mode. To remove, use the **no** form of this command.

delay-request {**frequency** *number* | **interval** *number*}
no delay-request

Syntax Description

frequency	Specifies the delay interval. 1- One per second frequency 2- Two per second frequency 4- Four per second frequency 8- Eight per second frequenc 16- Sixteen per second frequency 32- Thirty Two per second frequency 64- Sixty Four second frequency 128- One Hundred and Twenty Eight second frequency
interval	Specifies the time interval in seconds at which messages are sent. 1- One second interval 2- Two second interval 4- Four second interval 8- Eight second interval 16- Sixteen second interval

Command Default

The default interval is two seconds between messages.

Command Modes

PTP configuration mode

Interface PTP configuration

Command History

Release	Modification
Release 7.0.1	This command was introduced on the Cisco NCS 5500 Series Routers.

Usage Guidelines

The **delay-request** command is used configure the global PTP configuration profile which is then associated with many interfaces. Similarly it is used in interface PTP configuration mode to set the delay-request message settings for a specific interface. Any values set in interface PTP configuration mode override the settings in the PTP configuration profile associated with the interface.

Example

The following example sets the delay request interval in the PTP configuration profile to 8 seconds:

```
Router(config)# ptp
Router(config-ptp)# profile p1
Router(config-ptp-profile)# delay-request interval 8
```

delay-response

To configure settings for the PTP delay response message, use the **delay-response** command in PTP profile configuration or interface PTP configuration mode. To remove, use the **no** form of this command.

delay-response {**grant-duration** *duration* | **timeout** *value*}
no delay-response

Syntax Description

grant-duration <60-1000>	Specifies the grant duration. If a port is in the slave state, this is the length of grant-duration is requested. If the port is in master state, this is the maximum grant-duration is allowed in seconds.
timeout<100-100000>	Specifies delay response timeout value. If delay-response messages are not received from a master clock for, the master is no longer qualified for selection. This setting only applies if the clock-selection telecom-profile is specified in milliseconds.

Command Default

Default is grant-duration 600, timeout 5000.

Command Modes

PTP profile configuration

Interface PTP configuration

Command History

Release	Modification
Release 7.0.1	This command was introduced on the Cisco NCS 5500 Series Routers.

Usage Guidelines

The **delay-response** command is used configure the global PTP configuration profile which is then associated with many interfaces. Similarly, it can be used in the interface PTP configuration mode to set the delay response value for a specific interface. Any values set in the interface PTP configuration mode override the settings in the PTP configuration profile associated with the interface.

Example

The following example sets the PTP delay response timeout to 200 milliseconds in the PTP configuration profile:

```
Router(config)# ptp
Router(config-ptp)# profile p1
Router(config-ptp-profile)# delay-response timeout 200
```

The following example overrides the delay response timeout value in the profile and sets it to be 150 milliseconds for the interface:

```
Router(config)# interface TenGigE 0/0/0/10
Router(config-if) ptp
Router(config-if-ptp)# profile p1
```

```
Router(config-if-ptp)# delay-response timeout 150
```

domain

To specify the domain number for the PTP clock, use the **domain** command in PTP clock configuration mode. To remove, use the **no** form of this command.

domain *number*
no domain

Syntax Description

number	Specifies the domain number to use for this clock.

Command Default

Default is 0.

Command Modes

PTP clock configuration

Command History

Release	Modification
Release 7.0.1	This command was introduced on the Cisco NCS 5500 Series Routers.

Usage Guidelines

PTP uses the specified domain number in all its PTP messages and ignores all PTP messages received from a different domain.

Example

The following example sets the domain to 200:

```
Router(config)# ptp
Router(config-ptp)# clock
Router(config-ptp-clock)# domain 200
```

dscp

To set the Differentiated Services Code Point (DSCP) value for use in Precision Time Protocol (PTP) packets sent by the router, use the **dscp** command in PTP profile configuration or interface PTP configuration mode. To remove, use the **no** form of this command.

dscp *number*
no dscp

Syntax Description

number	Specifies the DSCP value to use (0-63).

Command Default

The default DSCP value is 46.

Command Modes

PTP profile configuration

Interface PTP configuration

Command History

Release	Modification
Release 7.0.1	This command was introduced on the Cisco NCS 5500 Series Routers.

Usage Guidelines

The **dscp** command is used configure the global PTP configuration profile which is associated with many interfaces. Similarly, it is used in the interface PTP configuration mode to set the DSCP value for a specific interface. Any values set in the interface PTP configuration mode override the settings in the PTP configuration profile associated with the interface.

Example

The following example sets the DSCP value to 20 for PTP operation:

```
Router(config)# ptp
Router(config-ptp)# profile p1
Router(config-ptp-profile)# dscp 20
```

The following example overrides the DSCP value in the profile and sets it to be 42 for the interface:

```
Router(config)# interface TenGigE 0/0/0/10
Router(config-if) ptp
Router(config-if-ptp)# profile p1
Router(config-if-ptp)# dscp 42
```

identity

To configure the PTP clock identity, use the **identity** command in PTP clock configuration mode. To remove, use the **no** form of this command.

identity {**eui-64** *number* | **mac-address** *address*}
no identity

Syntax Description

eui-64 *number*	Specifies the full EUI-64 number to determine the clock identity.
mac-address *address*	Specifies the router to determine the clock identity. Use one of the following addressing options to identify the router: • Use the router's built-in MAC address as the clock identity. • Enter a MAC address (H.H.H format).

Command Default

The router for the clock identity is derived from the router MAC address.

Command Modes

PTP clock configuration

Command History

Release	Modification
Release 7.0.1	This command was introduced on the Cisco NCS 5500 Series Routers.

Usage Guidelines

You can specify a MAC address or a complete EUI-64 value to derive the clock identity. If you do not use this command, clock identity is derived from the router MAC address.

Example

The following example sets the clock identity to a MAC address A.B.C:

```
Router(config)# ptp
Router(config-ptp)# clock
Router(config-ptp-clock)# identity mac-address A.B.C
```

local-priority

To configure priority for a port in the G.8275.1 profile, use the **local-priority** command in the virtual-port mode of PTP and Interface PTP configuration mode. To remove, use the **no** form of this command.

local-priority {*priority-value*}
no local-priority

Syntax Description

priority-value	Indicates the priority value set for a port in the G.8275.1 profile. This priority value is used in the profile's alternate Best Master Clock Algorithm (BMCA). **Note** Lower number indicates higher priority value.

Command Default

The allowed range for the priority values are 1–255. The default priority value is 128.

Command Modes

PTP configuration

Interface PTP configuration

Command History

Release	Modification
Release 7.0.1	This command was introduced on the Cisco NCS 5500 Series Routers.

Usage Guidelines

The configured local priority value is ignored if the G.8275.1 BMCA is not in use and a warning message is displayed in the **show ptp configuration-errors** command.

Note The per-master priority value that is configured on a master clock overrides the per-port local priority value.

Example

The following example shows configuring priority 1 for a port in the G.8275.1 profile:

```
Router(config)# int TenGigE0/0/0/0
Router(config-if)# ptp
Router(config-if-ptp)# local-priority 1
```

log best-master-clock changes

To enable logging of changes to the best master clock for Precision Time Protocol (PTP), use the **log best-master-clockchanges** command in PTP configuration mode. To remove, use the **no** form of this command.

log best-master-clock changes
no log best-master-clock changes

Command Default

None

Command Modes

PTP configuration

Command History

Release	Modification
Release 7.0.1	This command was introduced on the Cisco NCS 5500 Series Routers.

Usage Guidelines

The **log best-master-clock change** command is configure the global PTP configuration profile which is then associated with many interfaces. Similarly, it is used in the interface PTP configuration mode to set the settings for a specific interface. Any values set in the interface PTP configuration mode override the settings in the PTP configuration profile associated with the interface.

Example

The following example sets up PTP to log the best master clock changes:

```
Router(config)# ptp
Router(config-ptp)# log best-master-clock changes
```

master

To add a master to the list of acceptable Precision Time Protocol (PTP) masters for an interface or profile, use the **master** command in PTP profile configuration or Interface PTP configuration mode. To remove, use the **no** form of this command.

master { **ethernet** *address* | **ipv4** *address* | **ipv6** *address* | **clock-class** *class* | **delay-symmetry** *number* | **multicast** | **non-negotiated** | **priority** *number* }
no master

Syntax Description

ethernet *address*	Specifies the ethernet address of a master.
ipv4 *address*	Specifies the IPv4 address of a master.
ipv6 *address*	Specifies the IPv6 address of a master.
clock-class *class*	Overrides the clock class received in announce messages from this master.
delay-symmetry *number*	Specifies the expected asymmetry.
multicast	Indicates that the master sends multicast message.
non-negotiated	Specifies non-negotiated unicast message.
priority *number*	Indicates the priority for selecting between multiple masters (lower numbers are higher priority).

Command Default

None

Command Modes

PTP profile configuration

Command History

Release	Modification
Release 7.0.1	This command was introduced on the Cisco NCS 5500 Series Routers.

Usage Guidelines

The address type used to configure the master must match the PTP transport type configured on the interface. If multiple masters are configured, the router attempts to communicate with all configured masters and selects between the available ones based on priority.

Example

s

The following example assigns two masters to the profile and gives higher priority to the master with IPv4 address 10.10.4.5:

```
Router(config)# ptp
Router(config-ptp)# profile p1
Router(config-ptp-profile)# master ipv4 10.10.4.5 priority 1
```

```
Router(config-ptp-profile)# master ipv4 10.10.4.7 priority 2
```

min-clock-class

To configure the minimum clock class accepted from a Precision Time Protocol (PTP) master port, use the **min-clock-class** command in the PTP configuration mode. To remove, use the **no** form of this command.

min-clock-class *class*
no min-clock-class

Syntax Description

class	Indicates that the minimum clock class accepted. The range is 0–255. Foreign clocks with a clock class greater than this value is **not** be considered in the BMCA.

Command Default

Nones

Command Modes

PTP configuration

Command History

Release	Modification
Release 7.0.1	This command was introduced on the Cisco NCS 5500 Series Routers.

Usage Guidelines

The clocks with higher clock-class number than the minimum clock-class number will not be considered for a parent clock. This command is used to override the platform value (if needed).

Note The clock-class values are not numerically ordered (lower value of clock-class has higher importance).

Example

The following example configures the minimum clock class to 7:

```
Router(config)# ptp
Router(config-ptp)# min-clock-class 7
```

multicast

To allow multicast messages to be sent, use the **multicast** command in PTP profile configuration mode or Interface PTP configuration mode. To remove, use the **no** form of this command.

multicast { **disable** | **mixed** | **target-address** { **ethernet** *address* } }
no multicast

Syntax Description

target-address ethernet *forwardable mac-address* | *non-forwardable mac-address*	Indicates the Ethernet multicast group address to send the multicast messages. This command supports either forwarding or nonforwarding Ethernet MAC addresses only. • Forwarding MAC-address: 01-1B-19-00-00-00 • Nonforwarding MAC-address: 01-80-C2-00-00-0E
disable	Disable multicast transport.
mixed	Mixed-mode multicast.

Command Default

By default, multicast messaging is disabled for PTP.

Command Modes

PTP profile configuration

Interface PTP configuration

Command History

Release	Modification
Release 7.0.1	This command was introduced on the Cisco NCS 5500 Series Routers.

Usage Guidelines

When multicast is configured, announce and sync messages are sent as multicast messages. Delay-response messages are sent as unicast messages.

Example

The following example enables PTP multicast messages in the configuration profile:

```
Router(config)# ptp
Router(config-ptp)# profile p1
Router(config-ptp-profile)# multicast
```

The following example enables PTP multicast messages in the configuration profile to be sent to the forwarding mac-address:

```
Router(config)# ptp
Router(config-ptp)# profile p1
Router(config-ptp-profile)# multicast target-address ethernet 01-1B-19-00-00-00
```

The following example overrides the multicast setting in the profile and removes it for the interface:

```
Router(config)# interface TenGigE 0/0/0/10
Router(config-if) ptp
Router(config-if-ptp)# profile p1
Router(config-if-ptp)# no multicast
```

port state

To configure the state for a PTP port, use the **port state** command in the PTP profile configuration mode or the Interface PTP configuration mode. To remove, use the **no** form of this command.

port state [**any** | **master-only** | **slave-only**]
no port state

Syntax Description

any	Configure any port state.
slave-only	Configures the port state to be a slave.
master-only	Configures the port state to be a master. The **master-only** keyword is used for multicast transport mode.

Command Default

Dynamic port state changes are based on the peers with which the port communicates.

Command Modes

PTP profile configuration

Interface PTP configuration

Command History

Release	Modification
Release 7.0.1	This command was introduced on the Cisco NCS 5500 Series Routers.

Usage Guidelines

NA

Example

The following example configures the PTP port state to be slave-only:

```
Router(config)# ptp
Router(config-ptp)# profile p1
Router(config-ptp)# port state slave-only
```

The following example configures the PTP port state to be master-only:

```
Router(config)# ptp
Router(config-ptp)# profile p1
Router(config-ptp)# port state master-only
```

profile (interface)

To assign a Precision Time Protocol (PTP) configuration profile to an interface, use the **profile** command in interface PTP configuration mode. To remove, use the **no** form of this command.

profile *profile-name*
no profile

Syntax Description

Pprofile *profile-name*	Name of profile to associate with the Interface.

Command Default

None

Command Modes

Interface PTP configuration

Command History

Release	Modification
Release 7.0.1	This command was introduced on the Cisco NCS 5500 Series Routers.

Usage Guidelines

A PTP profile is a configuration template that is applied to multiple interfaces. You must define the profile using the **profile** command in PTP configuration mode.

Example

The following example shows how to assign a configuration profile to a specific interface:

```
Router(config)# interface TenGigE 0/0/0/10
Router(config-if)# ptp
Router(config-if-ptp)# profile tp128
```

profile (PTP)

To enter Precision Time Protocol (PTP) profile configuration mode and run PTP profile configuration commands, use the **profile** command in PTP configuration mode or interface PTP configuration mode. To remove, use the **no** form of this command.

profile *name*
no profile

Syntax Description

name	Enters PTP profile configuration mode for the specified profile name.

Command Default

None

Command Modes

PTP configuration

Command History

Release	Modification
Release 7.0.1	This command was introduced on the Cisco NCS 5500 Series Routers.

Usage Guidelines

A Precision Time Protocol (PTP) profile is a configuration template that is applied to multiple interfaces. From PTP profile configuration mode, the following PTP profile configuration commands are available:

```
Router(config-ptp-profile)# ?

  announce         Announce message options
  clock            PTP clock-operation to use
  cos              Specify the COS value to use
  delay-asymmetry  Delay asymmetry to apply to all masters on an interface
  delay-request    Configure the sending of delay-request messages
  delay-response   Delay-Response message options
  dscp             Specify the DSCP value to use
  interop          Interfaces using this profile should interoperate with a peer clock
running a different profile
  ipv4-ttl         Specify the IPv4 TTL value to use
  ipv6-hop-limit   Specify the IPv6 hop limit value to use
  master           Add a master to listen to on interfaces using this profile
  multicast        Allow multicast messages to be sent
  port             PTP port options
  slave            Add a slave to announce to on this interface
  source           PTP source address options
  sync             Sync message options
  transport        PTP transport type to use on this interface
  unicast-grant    Unicast grant options
```

Example

The following example shows how to configure the profile tp128:

```
Router(config)# ptp
Router(config-ptp)# profile tp128
```

```
Router(config-ptp-profile)#
```

monitor-receiver (interface)

To configure monitor-receiver on the the main port through interface ptp, use the **monitor-receiver** command in interface PTP configuration mode.

interface *ptp-interface*
monitor-receiver

Syntax Description

interface *ptp-interface*	Select the interface to be configured.
monitor-receiver	Enables the main port to receive packets.

Command Default

No configuration profile is associated with the interface.

Command Modes

Monitor-Receiver Interface PTP configuration

Command History

Release	Modification
Release 25.1.1	This command was introduced. Applicable only to NCS540.

Usage Guidelines

A monitor-receiver can be used only on the main port which deliver packets.

Task ID

Task ID	Operation
ethernet-services	read, write

The following example shows how to enable a monitor-receiver configuration to a specific interface.

```
Router(config)#interface GigabitEthernet0/2/0/6
Router(config-if)#ptp
Router(config-if-ptp)#monitor-receiver
Router(config-if-ptp)#commit
```

monitor-receiver (PTP)

To configure monitor-receiver on the the main port through ptp profile, use the **monitor-receiver** command in PTP profile configuration mode.

profile *name* **monitor-receiver**

Syntax Description

profile*name*	Enters PTP profile configuration mode for the specified profile name.
monitor-receiver	Enables the main port to receive packets.

Command Default

No default behavior or values

Command Modes

PTP configuration

Command History

Release	Modification
Release 25.1.1	This command was introduced. Applicable only to NCS540.

Usage Guidelines

A monitor-receiver can be used only on the main port which deliver packets.

Task ID

Task ID	Operation
ethernet-services	read, write

The following example shows how to enable a monitor-receiver configuration on the main port through PTP profile.

```
Router#config
Router(config)#ptp
Router(config-ptp)#profile demo
Router(config-ptp-profile)#monitor-receiver
Router(config-ptp-profile)#commit
```

monitor-sender (interface)

To configure monitor-sender on the the passive port through interface ptp, use the **monitor-sender** command in interface PTP configuration mode.

interface *ptp-interface*
monitor-sender

Syntax Description

interface *ptp-interface*	Select the interface to be configured.
monitor-sender	Enables the passive port to send packets.

Command Default

No configuration profile is associated with the interface.

Command Modes

Interface PTP configuration

Command History

Release	Modification
Release 25.1.1	This command was introduced. Applicable only to NCS540.

Usage Guidelines

A monitor-receiver can be used only on the main port which deliver packets.

Enable the monitor-sender to configure the main port using the command**monitor-sender**.

Task ID

Task ID	Operation
ethernet-services	read, write

The following example shows how to enable a monitor-sender configuration to a specific interface.

```
Router(config)#interface GigabitEthernet0/2/0/6
Router(config-if)#ptp
Router(config-if-ptp)#monitor-sender
Router(config-if-ptp)#commit
```

monitor-sender (PTP)

To configure monitor-receiver on the the passive port through ptp profile, use the **monitor-sender** command in PTP profile configuration mode.

profile *name* **monitor-sender**

Syntax Description

profile *name*	Enters PTP profile configuration mode for the specified profile name.
monitor-sender	Enables the passive port to send packets.

Command Default

No default behavior or values

Command Modes

PTP configuration

Command History

Release	Modification
Release 25.1.1	This command was introduced. Applicable only to NCS540.

Usage Guidelines

A monitor-sender can be used on the passive port which send packets.

Task ID

Task ID	Operation
ethernet-services	read, write

The following example shows how to enable a monitor-sender configuration on the passive port through PTP profile.

```
Router#config
Router(config)#ptp
Router(config-ptp)#profile demo
Router(config-ptp-profile)#monitor-sender
Router(config-ptp-profile)#commit
```

ptp

To enter Precision Time Protocol (PTP) configuration mode and run PTP configuration commands, use the **ptp** command. Using the command from global configuration mode enter the PTP configuration mode. To remove, use the **no** form of this command.

ptp
no ptp

Syntax Description

This command has no keywords or arguments.

Command Default

None

Command Modes

Global PTP configuration

Interface PTP configuration

Command History

Release	Modification
Release 7.0.1	This command was introduced on the Cisco NCS 5500 Series Routers.

Usage Guidelines

PTP configuration commands are run from global configuration mode by preceding the command string with the **ptp** keyword. From PTP configuration mode, the following PTP configuration commands are available:

```
Router(config-ptp)# ?
   apts                             Enable assisted partial timing support
   clock                            PTP Clock Configuration
   detect-ptsf-unusable             Enable the servo to disqualify a foreign master from
selection if it is found to be PTSF-unusable
   double-failure-clock-class       The clock class to use when both PTP and syncE are lost

  freerun-clock-class              The clock class to use when the PTP servo is freerunning

  frequency                         Precision Time Protocol frequency configuration
  holdover-spec-clock-class         The clock class to use while in holdover-spec
  holdover-spec-duration            Specify duration of holdover-spec
  holdover-spec-traceable-override  Override time-traceability to true while in holdover-spec

  ipv6-verify-checksum              Verify UDP checksum for IPv6 packets
  log                               Precision Time Protocol logging configuration
  min-clock-class                   Clocks with a clock-class higher than minimum clock
class will not be considered for selection as a parent clock.
  network-type                      The type of network
phase-difference-threshold-breach Value at which a bistate alarm is triggered when the phase
 difference for any foreign master is exceeded in nanoseconds
  physical-layer-frequency          Disable PTP as a source for frequency as only physical
 layer frequency sources are used
  profile                           PTP Profile Configuration
  servo-slow-tracking              Restrict the rate, in ns per second, at which the servo
 may track to update the time and attain sync
  startup-clock-class               The clock class to use when PTP starts up
  time-of-day                       Precision Time Protocol time-of-day configuration
  transparent-clock                 Configure transparent clock
  uncalibrated-clock-class          Clock class to be used while acquiring phase-lock to a
 parent clock
  uncalibrated-traceable-override   Override time-traceability to true while acquiring phase
```

```
 lock to a parent clock
  utc-offset                      Configure the UTC offset
  virtual-port                    PTP Virtual Port Configuration
```

Example

The following example shows how to enter the PTP configuration mode from global configuration mode:

```
Router(config)# ptp
Router(config-ptp)#
```

The following example shows how to enter the interface PTP configuration mode:

```
Router(config)# interface TenGigE 0/0/0/10
Router(config-if)# ptp
Router(config-if-ptp)#
```

show ptp advertised-clock

To display properties of the clock that the system advertises over Precision Time Protocol (PTP), use the **show ptp advertised-clock** command in EXEC mode.

show ptp advertised-clock

Command Default

None

Command Modes

EXEC

Command History

Release	Modification
Release 7.0.1	This command was introduced on the Cisco NCS 5500 Series Routers.

Usage Guidelines

NA

Example

The following shows information about the PTP advertised clock. Output displays the clock identity and the clock properties.

```
Router# show ptp advertised-clock

Sun Feb 11 17:54:34.475 UTC
Clock ID: Local Clock (8a96fffe84e4d8)
Clock properties:
Domain: 0, Priority1: 128, Priority2: 128, Class: 248
Accuracy: 0xfe, Offset scaled log variance: 0xffff
Time Source: Internal
Timescale: PTP
No frequency or time traceability
Current UTC offset: 37 seconds (valid)
```

show ptp foreign-masters

To display the Precision Time Protocol (PTP) foreign master clocks that are available to the router, use the **show ptp foreign-masters** command in EXEC mode.

show ptp foreign-masters [*brief*] {**interface** *name* | **location** *node*}
show ptp foreign-masters best

Syntax Description

brief	Lists all foreign-masters known on the router, ordered by the interface on which they were discovered. If this option is omitted, the output also include detailed clock properties, unicast messages that are granted from the master, length of time the master has been qualified, and information about the clock peer.
name	Displays foreign masters that are discovered by the specified interface. For more information, use the question mark (?) online help function.
node	Displays foreign masters tdiscovered by the specified node
best	Displays the state of the best foreign master found in the network

Command Default

This command has no default values or behavior.

Command Modes

EXEC

Command History

Release	Modification
Release 7.0.1	This command was introduced on the Cisco NCS 5500 Series Routers.

Usage Guidelines

This command displays the state of foreign masters for the PTP processes. It is only relevant when running as a boundary clock; in grandmaster mode, no relevant output gets displayed.

The **show ptp foreign-masters**command with the **best** keyword collects grandmaster information from all RPs and filters out all but the grandmaster on the active timing card. If the active timing card does not support running as slave, no foreign masters are displayed and instead, it is indicated that slaving is not supported (refer examples section).

Example

The following shows output with the brief option:

```
Router# show ptp foreign-masters brief

M=Multicast,Q=Qualified,GM=Grandmaster

Interface         Transport Address                   Priority1 State
Gi0/2/0/0         IPv4      192.168.172.122           13        M,Q
                  IPv4      192.168.172.123           17        M
Gi0/2/0/1         IPv6      fe80::2b0:4aff:fe6b:f4fc  1         Q,GM
```

```
                 IPv6      fe80::2b0:4aff:fe6b:1234  18        Q
Gi0/3/0/0        Ethernet  00b0.4a6b.f4fc
```

The example indicates if the foreign-master is multicast and the clock that is being used as the grandmaster.

Example

The following example shows output for the location 0/2/CPU0, including the brief option:

```
Router# show ptp foreign-masters brief location 0/2/CPU0

M=Multicast,Q=Qualified,GM=Grandmaster

Interface         Transport Address                   Priority1 State
Gi0/2/0/0         IPv4      192.168.172.122           13        M,Q
                  IPv4      192.168.172.123           17        M
Gi0/2/0/1         IPv6      fe80::2b0:4aff:fe6b:f4fc  1         Q,GM
                  IPv6      fe80::2b0:4aff:fe6b:1234  18        Q
```

Example

The following example shows output for the interface GigabitEthernet0/2/0/0, without the brief option:

```
Router# show ptp foreign-masters brief interface GigabitEthernet0/2/0/0

Interface GigabitEthernet0/2/0/3 (PTP port number 27):

    IPv4, Address 172.108.11.25
       Configured priority: None
       Announce granted:   every 2 seconds,   600 seconds
       Sync granted:       16 per-second,     400 seconds
       Delay-Resp granted: 16 per-second,     600 seconds
       Qualified for 6 days, 2 hours, 11 minutes
       Clock ID: ACDE48FFFE234567
       Clock properties:
          Priority1: 1, Priority2: 83, Class: 6, Accuracy: 0x2B
          Offset scaled log variance: 0x27FF, Steps-removed: 5
          Domain: 0, Time Source: GPS, Timescale: PTP
          Frequency-traceable, Time-traceable
          Current UTC offset: 25 seconds
       Parent properties:
          Clock-ID: BADE48FFFE234367
          Port number: 3, Steps Removed: 2

    IPv4, Address 172.108.11.23, Multicast
       Configured priority: 27
       Announce granted: every 2 seconds,   600 seconds
       Qualified for 5 days, 4 hours, 27 minutes
       Clock ID: ACDE48FFFE234567
       Clock properties:
          Priority1: 7, Priority2: 83, Class: 6, Accuracy: 0x2B
          Offset scaled log variance: 0x27FF, Steps-removed: 5
          Domain: 0, Time Source: GPS, Timescale: PTP
```

```
      Frequency-traceable, Time-traceable
      Current UTC offset: 25 seconds
   Parent properties:
      Clock-ID: BADE48FFFE234367
      Port number: 5, Steps Removed: 1

IPv4, Address 172.108.11.18, Multicast
   Configured priority: 11
   Not qualified
```

Example

The following example shows state information for the best foreign master in the network:

```
Router# show ptp foreign-masters best

    Used to set system frequency and time
    IPv4, Address 1.2.3.4
    Received on interface GigabitEthernet0/2/0/3 (port number 0x1007)
    Clock ID: ACDE48FFFE234567
    Best foreign-master for 5 days, 4 hours, 27 minutes
    Advertised for 5 days, 4 hours, 20 minutes
    Clock properties:
       Priority1: 7, Priority2: 83, Class: 6, Accuracy: 0x2B
       Offset scaled log variance: 0x27FF, Steps-removed: 5
       Domain: 0, Time Source: GPS, Timescale: PTP
       Frequency-traceable, Time-traceable
       Current UTC offset: 25 seconds
    Parent properties:
       Clock-ID: BADE48FFFE234367
       Port number: 0x0005
```

This example indicates the display when slaving is not supported on the active timing card:

```
Router # show ptp foreign-masters best
PTP slaving is not supported on the RSP.
```

show ptp interfaces

To display a summary of the Precision Time Protocol (PTP) port state for the specified interface, use the **show ptp interfaces** command in EXEC mode.

show ptp interfaces [**brief**] *interface*
show ptp interfaces summary location *node*

Syntax Description

interface	Specifies the interface. For more information, use the question mark (?) online help function.
brief	Displays a one-line summary of the functional state of the interface (or all interfaces).
location *node*	Displays information for the specified node

Command Default

None

Command Modes

EXEC

Command History

Release	Modification
Release 7.0.1	This command was introduced on the Cisco NCS 5500 Series Routers.

Usage Guidelines

NA

Example

The output displays Local Priority value only if the configured profile is G.8275.1 profile.

The following shows the output for a GigabitEthernet0/2/0/3 interface in master state:

```
Router# show ptp interfaces GigabitEthernet0/2/0/3

      GigabitEthernet0/2/0/3 is in MASTER state
       PTP port number: 1
       IPv4 transport: IPv4 address 1.2.3.4
       Linestate: Up

       Mechanism: Two-step delay-request-response
          Sync rate: every 2 seconds
          Announce rate: every 8 seconds, timeout 5
          Delay-Req rate: every 4 seconds
       CoS: 6, DSCP: 46
       Platform capabilities:
          Supported:     One-step, Ethernet
          Not-Supported: IPv6, Multicast, Slave
          Max-Sync-rate: 4 per second
       Master state only
       23 Unicast peers
```

Example

The following shows that the GigabitEthernet0/1/0/3 interface is in the uncalibrated state:

```
Router# show ptp interfaces GigabitEthernet0/1/0/3

     GigabitEthernet0/1/0/3 is in UNCALIBRATED state
       PTP port number: 4
       IPv4 transport: IPv4 address 5.4.3.2
       Linestate: Up
       Mechanism: Two-step delay-request-response, Slave-only
          Sync rate: 2 per second
          Announce rate: 2 per second, timeout 4
          Delay-Req interval: 4 per second
       CoS: 5, DSCP: 23
       Platform capabilities:
          Supported:     One-step, Ethernet, Multicast, Slave
          Not-Supported: IPv6
          Max-Sync-rate: 2 per second
       Master table:
       (K = Known, Q = Qualified, GM = Grandmaster)
          IPv4 address 5.4.3.3: priority 5, multicast, K,Q,GM
          IPv4 address 5.4.3.4: priority not set
          MAC-address 12ab.7431.327c: priority 3, K
       Slave state only
```

Example

The following shows output with the **brief** keyword specified:

```
Router# show ptp interfaces brief

 Intf              Port         Port                Line
 Name              Number       State        Transport  State     Mechanism
 ------------------------------------------------------------------------------
 Gi0/2/0/0         1            MASTER       IPv4       Up        2-step DRRM
 Gi0/2/0/1         5            PASSIVE      Ethernet   Up        1-step DRRM
 Gi0/2/0/2         23           MASTER       Ethernet   Up        2-step DRRM
 Gi0/2/0/0         6            INIT         IPv4       Down      2-step DRRM
```

Example

The following shows summary output for the location 0/2/cpu0:

```
Router# show ptp interfaces summary location 0/2/cpu0

     ====================================
     Interface port states
     ====================================
      INIT                   11
      LISTENING              27
      PASSIVE                12
      PRE-MASTER              2
      MASTER                 50
      UNCALIBRATED            0
```

```
SLAVE                    1
FAULTY                   0
---------------------------
Total                  103
```

show ptp local-clock

To display properties of the local Precision Time Protocol (PTP) clock, use the **show ptp local-clock** command in EXEC mode.

show ptp local-clock

Command Default

None

Command Modes

EXEC

Command History

Release	Modification
Release 7.0.1	This command was introduced on the Cisco NCS 5500 Series Routers.

Usage Guidelines

NA

Example

The following shows information about the local PTP clock:

```
Router# show ptp local-clock
Fri Dec 15 17:56:49.344 UTC
Clock ID: 008a96fffe84e4d8
Clock properties:
Domain: 0, Priority1: 128, Priority2: 128, Class: 7
Accuracy: 0xfe, Offset scaled log variance: 0xffff
Time Source: Internal
Timescale: PTP
No frequency or time traceability
Current UTC offset: 37 seconds (valid)
Virtual Port:
Configured: False, Connected: False
Local clock is grandmaster
APTS: Disabled
```

show ptp packet-counters

To display counters for packets that are received and send by Precision Time Protocol (PTP), use the **show ptp packet-counters** command in EXEC mode.

show ptp packet-counters location *node*
show ptp packet-counters *interface* **detail**
show ptp packet-counters *interface* **master** {**ipv4** *ipv4-address* | **ipv6** *ipv4-address* | **ethernet** *ethernet-address*}

Syntax Description

location *node*	Displays information for the specified node
interface	Specifies the interface.
detail	Displays detailed information.
master	Displays information about the PTP master.
ipv4-address	Specifies an IPv4 address.
ipv6-address	Specifies an IPv6 address.
ethernet-address	Specifies an Ethernet address.

Command Default

None

Command Modes

EXEC

Command History

Release	Modification
Release 7.0.1	This command was introduced on the Cisco NCS 5500 Series Routers.

Usage Guidelines

NA

Example

The following displays the packet counters for the GigabitEthernet0/2/0/1 interface:

```
Router# show ptp packet-counters GigabitEthernet0/2/0/1

        Packets                       Sent        Received         Dropped
        ------------------------------------------------------------------
        Announce                         3              83              11
        Sync                             0              32               5
        Follow-Up                        0              31               0
        Delay-Req                       22               0               0
        Delay-Resp                       0              21               7
        Pdelay-Req                       0               7               0
        Pdelay-Resp                      0               0               0
        Pdelay-Resp-Follow-Up            0               0               0
        Signaling                        2               1               0
```

```
    Management                    0             0             0
    Other                         0             3            12
                                -----         -----         -----
    TOTAL                        27           178            35
```

Example

The following displays the packet counters with other details for the GigabitEthernet0/2/0/1 interface:

```
Router# show ptp packet-counters GigabitEthernet0/2/0/1 details

     Packets                     Sent        Received         Dropped
        ------------------------------------------------------------------
        Announce                    3             83              11
        Sync                        0             32               5
        Follow-Up                   0             31               0
        Delay-Req                  22              0               0
        Delay-Resp                  0             21               7
        Pdelay-Req                  0              7               0
        Pdelay-Resp                 0              0               0
        Pdelay-Resp-Follow-Up       0              0               0
        Signaling                   2              1               0
        Management                  0              0               0
        Other                       0              3              12
                                -----          -----          -----
        TOTAL                      27            178              35

    Master IPv4 5.4.3.4:
        Packets                 Sent        Received         Dropped
        ------------------------------------------------------------------
        Announce                    1             40               1
        Sync                        0             23               4
        Follow-Up                   0             14               0
        Delay-Req                  12              0               0
        Delay-Resp                  0             10               7
        Pdelay-Req                  0              7               0
        Pdelay-Resp                 0              0               0
        Pdelay-Resp-Follow-Up       0              0               0
        Signaling                   2              1               0
        Management                  0              0               0
        Other                       0              3              12
                                -----          -----          -----
       TOTAL                       15             98              24

    Master Ethernet 12ab.7431.327c:
        Packets                 Sent        Received         Dropped
        ------------------------------------------------------------------
        Announce                    2             43              10
        Sync                        0              9               1
        Follow-Up                   0             17               0
        Delay-Req                  10              0               0
        Delay-Resp                  0             11               0
        Pdelay-Req                  0              0               0
        Pdelay-Resp                 0              0               0
        Pdelay-Resp-Follow-Up       0              0               0
        Signaling                   0              0               0
        Management                  0              0               0
        Other                       0              0               0
                                -----          -----          -----
        TOTAL                      12             80              11
```

Example

The following displays the packet counters for the master with IPv4 address 5.4.3.4 for the GigabitEthernet0/2/0/1 interface:

```
Router# show ptp packet-counters GigabitEthernet0/2/0/1 master ipv4 5.4.3.4

      Master IPv4 5.4.3.4:
        Packets                      Sent        Received         Dropped
        ------------------------------------------------------------------
        Announce                        1              40               1
        Sync                            0              23               4
        Follow-Up                       0              14               0
        Delay-Req                      12               0               0
        Delay-Resp                      0              10               7
        Pdelay-Req                      0               7               0
        Pdelay-Resp                     0               0               0
        Pdelay-Resp-Follow-Up           0               0               0
        Signaling                       2               1               0
        Management                      0               0               0
        Other                           0               3              12
                                    -----           -----           -----
        TOTAL                          15              98              24
```

Example

The following displays the packet counters for the location 0/2/cpu0 for the GigabitEthernet0/2/0/1 interface:

```
Router# show ptp packet-counters location 0/2/cpu0

     Packets                     Sent        Received         Dropped
        ------------------------------------------------------------------
        Announce                  1735             101              52
        Sync                      3753              32               5
        Follow-Up                 3751              32               7
        Delay-Req                    0            4073             108
        Delay-Resp                4073               0               0
        Pdelay-Req                   0               7               0
        Pdelay-Resp                  0               0               0
        Pdelay-Resp-Follow-Up        0               0               0
        Signaling                   73              18               0
        Management                   0               0               0
        Other                        0               3             218
                                 -----           -----           -----
        TOTAL                    13385            4266             390

        Drop Reason                                    Drop Count
        ---------------------------------------------------------
        Not ready for packets                                289
        Wrong domain number                                   71
        Packet too short                                       1
        Local packet received, same port number                7
        Local packet received, higher port number             11
        Local packet received, lower port number              11
        No timestamp received with packet                      0
        Zero timestamp received with packet                    0
                                                           -----
    TOTAL
```

show ptp unicast-peers

To display information on the peers to which Precision Time Protocol (PTP) is sending unicast messages, use the **show ptp unicast-peers** command in EXEC mode.

show ptp unicast-peers *interface*

Syntax Description

interface	Displays information for the specified interface.

Command Default

None

Command Modes

EXEC

Command History

Release	Modification
Release 7.0.1	This command was introduced on the Cisco NCS 5500 Series Routers.

Usage Guidelines

NA

Example

The following example shows PTP unicast peer information for the GigabitEthernet0/2/0/1 interface:

```
Router# show ptp unicast-peers GigabitEthernet0/2/0/1

Interface GigabitEthernet0/2/0/1:
    IPv4-address 1.2.3.4
      Announce granted:   every 2 seconds,  600 seconds
      Sync granted:       16 per second,    600 seconds
      Delay-Resp granted: 16 per second,    600 seconds
    IPv4-address 1.2.3.5
      Announce granted:   every 1 second,   400 seconds
    IPv4-address 1.2.3.6
      Delay-Resp granted: 16 per second,    600 seconds
```

Example

The following example shows PTP unicast peer information for all interfaces:

```
Router# show ptp unicast-peers

Interface GigabitEthernet0/2/0/1:
    IPv4-address 1.2.3.4
      Announce granted:   every 2 seconds,  600 seconds
      Sync granted:       16 per second,    600 seconds
      Delay-Resp granted: 16 per second,    600 seconds
    IPv4-address 1.2.3.5
      Announce granted:   every 1 second,   400 seconds
```

```
    IPv4-address 1.2.3.6
      Delay-Resp granted: 16 per second,    600 seconds

Interface GigabitEthernet0/3/0/2:
    Mac-address 00b0.4a6b.f4fc
      Announce granted:   every 2 seconds,  600 seconds
      Sync granted:       16 per second,    600 seconds
      Delay-Resp granted: 16 per second,    600 seconds
    Mac-address 00b0.4a6b.f4fd
      Announce granted:   every 1 second,   400 seconds

Interface GigabitEthernet0/3/0/3:
    No known peers
```

source IPv4 address

To specify the source IPv4 address to use when sending IPv4 packets, use the **source ipv4 address** command in PTP profile configuration or interface PTP configuration mode. To remove, use the **no** form of this command.

source ipv4 address *address*

Syntax Description

address	Specifies an IPv4 address.

Command Default

None

Command Modes

Interface PTP configuration

PTP profile configuration

Command History

Release	Modification
Release 7.0.1	This command was introduced on the Cisco NCS 5500 Series Routers.

Usage Guidelines

The **source ipv4 address** command is used configure the global PTP configuration profile which is then associated with many interfaces. Similarly, it is also used in the interface PTP configuration mode to set the source IPv4 address for a specific interface. Any values set in the interface PTP configuration mode override the settings in the PTP configuration profile associated with the interface.

Example

The following example specifies the source IPv4 address 10.10.10.4 for PTP packets:

```
Router(config)# ptp
Router(config-ptp)# profile p1
Router(config-ptp-profile)# source ipv4 address 10.10.10.4
```

The following example overrides the source IPv4 address in the profile and sets it to be 10.10.10.6 for the interface:

```
Router(config)# interface TenGigE 0/0/0/10
Router(config-if) ptp
Router(config-if-ptp)# profile p1
ROuter(config-if-ptp)# source ipv4 address 10.10.10.6
```

sync

To configure settings for PTP sync messages, use the **sync** command in PTP profile configuration or interface PTP configuration mode. To remove, use the **no** form of this command.

sync { **frequency** *frequency* | **grand-duration** *duration* | **timeout** *timeout* | **interval** *interval* }
no sync

Syntax Description

frequency *frequency*	Specifies multiple sync messages per second (2, 4, 8, 16, 32, 64, or 128). Frequency of 4 means that four messages are sent per second.
interval*interval*	Specifies one or fewer sync messages per second (every 1, 2,4, 8, or 16 seconds). Interval of 2 means that a sync message is sent every two seconds.
grant-duration *duration*	Specifies the announce grant duration (60-1000 seconds). If the port is in the slave state, this is the grant that is requested. If the port is in the master state, this is the maximum grant that is allowed.
timeout *timeout*	Specifies the time after which the sync message times out (100-10000 milliseconds).

Command Default

Defaults: interval 1, timeout 5000

Command Modes

PTP profile configuration

Interface PTP configuration

Command History

Release	Modification
Release 7.0.1	This command was introduced on the Cisco NCS 5500 Series Routers.

Usage Guidelines

The **sync** command is used configure the global PTP configuration profile which is then associated with many interfaces. Similarly, it is used in the interface PTP configuration mode to set the sync value for a specific interface. Any values set in the interface PTP configuration mode override the settings in the PTP configuration profile associated with the interface.

Example

The following example sets the PTP sync timeout to 2000 milliseconds:

```
Router(config)# ptp
Router(config-ptp)# profile p1
Router(config-ptp-profile)# sync timeout 2000
```

The following example overrides the sync frequency value in the profile and sets it to be 32 per second frequency for the interface:

```
Router(config)# interface TenGigE 0/0/0/10
Router(config-if) ptp
Router(config-if-ptp)# profile p1
Router(config-if-ptp)# sync frequency 32
```

synchronous-ethernet prefer-interface ptp-receiver

To configure PTP-receiver interface as the SyncE source among equally qualified sources, use the **synchronous-ethernet prefer-interface ptp-receiver** command in Configuration Mode.

synchronous-ethernet prefer-interface ptp-receiver

Syntax Description

This command has no keywords or arguments.

Command Default

None

Command Modes

Configuration Mode

Command History

Release	Modification
Release 24.4.1	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operations
ethernet-services	execute

Examples

The following sample output is of the **synchronous-ethernet prefer-interface ptp-receiver** command:

```
Router#configure terminal
Router(config)#frequency synchronization
Router(config-freqsync)#synchronous-ethernet prefer-interface ptp-receiver
Router(config-freqsync)#commit
```

time-of-day

To set the priority used by Precision Time Protocol (PTP) when selecting between PTP and other sources for time-of-day on the router (for example GPS), use the **time-of-day** command in PTP configuration mode. To remove, use the **no** form of this command.

time-of-day priority *number*
no time-of-day

Syntax Description

priority	*number*	Specifies the time of day priority to rank a foreign PTP grand master against other time sources, such as GPS (1-254).

Command Default

The default is priority 100.

Command Modes

PTP configuration

Command History

Release	Modification
Release 7.0.1	This command was introduced on the Cisco NCS 5500 Series Routers.

Usage Guidelines

NA

The following example sets the time of day priority to 200:

```
Router(config)# ptp
Router(config-ptp)# time-of-day priority 200
```

timescale

To set the time scale to use when advertising time for Precision Time Protocol (PTP), use the **timescale** command in PTP clock configuration mode. To remove, use the **no** form of this command.

timescale {**ARB** | **PTP**}
no timescale

Syntax Description

ARB	Specifies ARB (arbitrary) time.
PTP	Specifies PTP time.

Command Default

The default value is derived from platform default PTP properties.

Command Modes

PTP clock configuration

Command History

Release	Modification
Release 7.0.1	This command was introduced on the Cisco NCS 5500 Series Routers.

Usage Guidelines

Use this command to override the platform value, if needed.

Example

The following example sets the time scale to ARB:

```
Router(config)# ptp
Router(config-ptp)# clock
Router(config-ptp-clock)# timescale ARB
```

time-source

To set the time source advertised in announcement messages by the local clock for Precision Time Protocol (PTP), use the **time-source** command in PTP clock configuration mode. To remove, use the **no** form of this command.

time-source *source*
no time-source

Syntax Description

source	Specifies the type of time source to advertise for the internal clock: GPS, NTP, PTP, atomic-clock, handset, internal oscillator, other, or terrestrial radio.

Command Default

The default is the value that is specified by the platform internal oscillator.

Command Modes

PTP clock configuration

Command History

Release	Modification
Release 7.0.1	This command was introduced on the Cisco NCS 5500 Series Routers.

Usage Guidelines

Use this command to override the platform value, if needed, using any of the time-source values specified in the IEEE 1588-2008 standard.

Example

The following example sets the time source to PTP:

```
Router(config)# ptp
Router(config-ptp)# clock
Router(config-ptp-clock)# time-source ptp
```

transport

To specify the PTP transport type, use the **transport** command in PTP profile configuration or interface PTP configuration mode. To remove, use the **no** form of this command.

transport {**ethernet** | **ipv4** | **ipv6** }
no transport

Syntax Description

ethernet	Specifies that Ethernet is used as the transport type on the interface.
ipv4	Specifies IPv4 is used as the transport type on the interface
ipv6	Specifies IPv6 is used as the transport type on the interface

Command Default

None

Command Modes

PTP profile configuration

Interface PTP configuration

Command History

Release	Modification
Release 7.0.1	This command was introduced on the Cisco NCS 5500 Series Routers.

Usage Guidelines

The **transport** command is used configure the global PTP configuration profile which is then associated with many interfaces. Similarly, it is used in the interface PTP configuration mode to set the transport type for a specific interface. Any values set in the interface PTP configuration mode override the settings in the PTP configuration profile associated with the interface.

Example

The following example sets the transport type to be Ethernet:s

```
Router(config)# ptp
Router(config-ptp)# profile p1
Router(config-ptp-profile)# transport ethernet
```

The following example overrides the transport type in the profile and sets it to be IPv4 for the interface:

```
Router(config)# interface TenGigE 0/0/0/10
Router(config-if) ptp
Router(config-if-ptp)# profile p1
Router(config-if-ptp)# transport ipv4
```

uncalibrated-clock-class

To configure the clock-class that is advertised when PTP is in ACQUIRING state and the interface is connected to the Best Master is in Uncalibrated state, use the **uncalibrated-clock-class** command in the PTP configuration mode. To remove, use the **no** form of this command.

uncalibrated-clock-class *class*

Syntax Description

class	Indicates the advertised clock-class when PTP is in ACQUIRING state. The range is 0–255.

Command Default

The default clock class can be obtained from the platform properties.

Command Modes

PTP configuration

Command History

Release	Modification
Release 7.0.1	This command was introduced on the Cisco NCS 5500 Series Routers.

Usage Guidelines

This command is used to override the platform value, if needed.

Example

The following example configures the clock class to 255:

```
Router(config)# ptp
Router(config-ptp)# uncalibrated-clock-class 255
```

unicast-grant invalid-request

To specify whether unicast grant requests with unacceptable parameters are denied or granted with reduced parameters, use the **unicast-grant invalid-request** command in PTP profile configuration or interface PTP configuration mode. To remove, use the **no** form of this command.

unicast-grant invalid-request { **deny** | **reduce** }
no unicast-grant invalid-request

Syntax Description

deny	Indicates that unicast grant requests with unacceptable parameters are denied. For example, assume that a request for a grant is received with a packet interval of 1 per second and duration of 600 seconds, and that the maximum packet interval is 2 per second and duration is 500 seconds. If **deny** is configured, the grant will be denied.
reduce	Indicates that unicast grant requests with unacceptable parameters are granted with reduced parameters. For example, assume that a request for a grant is received with a packet interval of 1 per second and duration of 600 seconds. The maximum packet interval is 2 per second and duration is 500 seconds. If **reduce** is configured, a grant with packet interval of 2-per-second and duration of 500 seconds will be granted.

Command Default

The default is **reduce**.

Command Modes

PTP profile configuration

Interface PTP configuration

Command History

Release	Modification
Release 7.0.1	This command was introduced on the Cisco NCS 5500 Series Routers.

Usage Guidelines

The **unicast-grant invalid-request** command is used configure the global PTP configuration profile which is then associated with many interfaces. Similarly, it is used in the interface PTP configuration mode to set the unicast-grant invalid-request value for a specific interface. Any values set in the interface PTP configuration mode override the settings in the PTP configuration profile associated with the interface.

The following example determines that unicast grant requests with unacceptable parameters are granted with reduced parameters:

```
Router(config)# ptp
Router(config-ptp)# profile p1
Router(config-ptp-profile)# unicast-grant invalid-request reduce
```

The following example overrides the unicast grant value in the profile and sets it to be deny for the interface:

```
Router(config)# interface TenGigE 0/0/0/10
Router(config-if) ptp
```

```
Router(config-if-ptp)# profile p1
Router(config-if-ptp)# unicast-grant invalid-request deny
```

virtual-port

To configure a virtual port using Precision Time Protocol (PTP), use the **virtual-port** command in PTP configuration mode or interface PTP configuration mode. To remove, use the **no** form of this command.

virtual-port { *clock accuracy* | *clock class* | *offset log scaled variance* | *priority1* | *priority2* | *gm-threshold-breach* }
no virtual-port

Syntax Description

clock accuracy *clock accuracy*	Specifies the clock-accuracy value to use for the peer clock.
clock class *clock class*	Specifies the clock class mapping for use.
offset log scaled variance*offset log scaled variance*	Specifies the Offset Scaled Log Variance (OSLV) value to use for the peer clock.
priority 1 *timeout*	Specifies the priority1 value to use for the peer clock.
priority 2	Specifies the priority2 value to use for the peer clock.
gm-threshold-breach	Specifies the threshold value for the Time of Day (ToD) offset between the virtual port and best PTP timeTransmitter. If the offset passes the threshold, the router provides a notification in the form of a syslog message.

Command Default

None

Command Modes

PTP configuration

Command History

Release	Modification
Release 6.1.2	This command was introduced on the Cisco NCS 5500 Series Routers.

Command History

Release	Modification
Release 24.4.1	The **gm-threshold-breach** keyword was introduced in the PTP virtual port command.
Release 6.6.25	This command was introduced on the Cisco NCS 560 Series Routers.
Release 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.

Usage Guidelines

Precision Time Protocol (PTP) profile is a configuration template that is applied to multiple interfaces. From PTP profile configuration mode, the following PTP profile configuration commands are available:

Example

The following example shows how to configure the profile tp128:

```
Router(config)# ptp
Router(config-ptp)# virtual-port
Router(config-ptp-vp)#clock accuracy
Router(config-ptp-vp)#clock class
Router(config-ptp-vp)#offset log scaled variance
Router(config-ptp-vp)#priority1
Router(config-ptp-vp)#priority2
```