



## **Network Synchronization Command Reference for Cisco NCS 540 Series and Cisco NCS 560 Series Routers**

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## Preface

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- [Changes to This Document, on page iii](#)
- [Communications, Services, and Additional Information, on page iii](#)

## Preface

This guide consists of information regarding the commands for Precision Time Protocol (PTP) in Cisco IOS XR Software.

The *PTP Command Reference for Cisco NCS 540 Series and Cisco NCS 560 Series Routers* preface contains these sections:

## Changes to This Document

This table lists the technical changes made to this document since it was first printed.

Date	Change Summary
30 July 2021	Initial release of this document.

## Communications, Services, and Additional Information

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# Network Synchronization Commands

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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 *System Management Command Reference for Cisco CRS Routers*

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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

<b>frequency</b> <i>frequency</i>	Specifies multiple announce messages per second (2, 4, 8, 16, 32, 64, or 128). 4 means that four messages are sent per second.
<b>interval</b> <i>interval</i>	Specifies the time interval in seconds at which messages are sent.
<b>grant-duration</b> <i>duration</i>	Specifies the length of time permission to send unicast messages is granted.
<b>timeout</b> <i>timeout</i>	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 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.
Release 6.6.25	This command was introduced on the Cisco NCS 560 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 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.
	Release 6.6.25	This command was introduced on the Cisco NCS 560 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 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.
Release 6.6.25	This command was introduced on the Cisco NCS 560 Series Routers.

## Usage Guidelines

The **clock operation** command is used to 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
clock-type T-GMT-BC | T-TSC
no clock profile
```

<b>Syntax Description</b>	<b>clock-type T-GM   T-BC   T-TSC</b>   Indicates the clock type for G.8275.1 profile. G.8275.1 profile supports three clock types: <ul style="list-style-type: none"> <li>• T-GM: Telecommunication Grandmaster</li> <li>• T-BC: Telecommunication Boundary Clock</li> <li>• T-TSC: Telecommunication Time Slave Clock</li> </ul>
---------------------------	--

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

**Command Modes** PTP configuration

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Release 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.
	Release 6.6.25	This command was introduced on the Cisco NCS 560 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 6.3.2/Release 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 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.
Release 6.6.25	This command was introduced on the Cisco NCS 560 Series Routers.

### Usage Guidelines

The **cos** command is used to 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-asymmetry

To configure options for configuring PTP profile delays, use the **delay-asymmetry** command in PTP profile configuration or interface PTP configuration mode. To remove, use the **no** form of this command.

```
delay-asymmetry { delay-asymmetry frequency }  
no delay-asymmetry
```

---

<b>Syntax Description</b>	<i>frequency</i> Specifies time taken by the master port to delay messages compared to the slave port.
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<b>Command Default</b>	The default is one second.
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<b>Command Modes</b>	PTP profile configuration
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<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Release 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.
	Release 6.6.25	This command was introduced on the Cisco NCS 560 Series Routers.

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<b>Usage Guidelines</b>	The <b>delay-asymmetry</b> command is used to 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-asymmetry 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.
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## Example

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

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

# 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.

*interval* Specifies the time interval in seconds at which messages are sent.

## Command Default

The default interval is two seconds between messages.

## Command Modes

PTP configuration mode

Interface PTP configuration

## Command History

Release	Modification
Release 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.
Release 6.6.25	This command was introduced on the Cisco NCS 560 Series Routers.

## Usage Guidelines

The **delay-request** command is used to 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* 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.

*timeout* 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.

## Command Default

Default is grant-duration 600, timeout 5000.

## Command Modes

PTP profile configuration  
 Interface PTP configuration

## Command History

Release	Modification
Release 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.
Release 6.6.25	This command was introduced on the Cisco NCS 560 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.

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**Command Default**

Default is 0.

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**Command Modes**

PTP clock configuration

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**Command History**

Release	Modification
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Release 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.
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Release 6.6.25	This command was introduced on the Cisco NCS 560 Series Routers.
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**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**

<b>Syntax Description</b>	<i>number</i>	Specifies the DSCP value to use (0-63).
<b>Command Default</b>	The default DSCP value is 46.	
<b>Command Modes</b>	PTP profile configuration Interface PTP configuration	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Release 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.
	Release 6.6.25	This command was introduced on the Cisco NCS 560 Series Routers.
<b>Usage Guidelines</b>	The <b>dscp</b> command is used to 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
```

## egress-conversion

To configure interoperability options for configuring the PTP profile, use the **egress-conversion** command in PTP profile configuration or interface PTP configuration mode. To remove, use the **no** form of this command.

**egress-conversion** { *clock accuracy* | *clock class* | *offset log scaled variance* | *priority1* | *priority2* }  
**no egress-conversion**

Syntax Description		
<b>clock accuracy</b> <i>clock accuracy</i>		Specifies the clock-accuracy value to use for the peer clock.
<b>clock class</b> <i>clock class</i>		Specifies the clock class mapping for use.
<b>offset log scaled variance</b> <i>offset log scaled variance</i>		Specifies the Offset Scaled Log Variance (OSLV) value to use for the peer clock.
<b>priority 1</b> <i>timeout</i>		Specifies the priority1 value to use for the peer clock.
<b>priority 2</b> <i>timeout</i>		Specifies the priority2 value to use for the peer clock.

**Command Default** None

**Table 1: Default Profile to Other Profiles**

Default Profile	G.8275x	G.8265.1
Priority 1	128	128
Priority 2	—	128
Clock Accuracy	0xFE	0xFE
OSLV	0xFFFF	0xFFFF

**Table 2: G.8265.1 Profile to Other Profiles**

G.8265.1	Default Profile	G.8275.1
Priority 1	—	128
Priority 2	—	128
Clock Accuracy	—	0xFE
OSLV	—	0xFFFF

Table 3: G.8275.x Profile to Other Profiles

G.8275.x	Default Profile	G.825.1
Priority 1	—	128
Priority 2	—	128
Clock Accuracy	—	0xFE
OSLV	—	0xFFFF

---

**Command Modes** PTP profile configuration

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Command History	Release	Modification
	Release 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.
	Release 6.6.25	This command was introduced on the Cisco NCS 560 Series Routers.

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**Usage Guidelines** The **egress-conversion** command is used to 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 egress-conversion 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

```

Router(config)# ptp
Router(config-ptp)#interop
Router(config-ptp)#interop egress-conversion
Router(config-ptp)#clock accuracy
Router(config-ptp)#clock class
Router(config-ptp)#offset log scaled variance
Router(config-ptp)#priority1
Router(config-ptp)#priority2

```

# freerun-clock-class

To configure the clock class to use when advertising a PTP clock, use the **clock-class** command in PTP clock configuration mode. To remove the setting, use the **no** form of this command.

**freerun-clock-class** *class*  
**no freerun-clock-class**

<b>Syntax Description</b>	<i>class</i> Specifies the clock class to use to advertise this clock. Values range 0–255.						
<b>Command Default</b>	The default is that the clock class is derived from platform properties.						
<b>Command Modes</b>	PTP clock configuration						
<b>Command History</b>	<table><thead><tr><th>Release</th><th>Modification</th></tr></thead><tbody><tr><td>Release 6.3.2</td><td>This command was introduced on the Cisco NCS 540 Series Routers.</td></tr><tr><td>Release 6.6.25</td><td>This command was introduced on the Cisco NCS 560 Series Routers.</td></tr></tbody></table>	Release	Modification	Release 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.	Release 6.6.25	This command was introduced on the Cisco NCS 560 Series Routers.
Release	Modification						
Release 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.						
Release 6.6.25	This command was introduced on the Cisco NCS 560 Series Routers.						
<b>Usage Guidelines</b>	Use this command to override the platform value, if needed.						

The following example sets the clock class to 100.

```
Router(config)# ptp
Router(config-ptp)# clock
Router(config-ptp-clock)# freerun-clock-class 100
```

# holdover-spec-clock-class

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

**holdover-spec-clock-class**  
**no holdover-spec-clock-class**

<b>Syntax Description</b>	<i>class</i> Specifies the clock class to use while in holdover-spec. Values can range 0–255.
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<b>Command Default</b>	None
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<b>Command Modes</b>	Global PTP configuration
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<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Release 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.
	Release 6.6.25	This command was introduced on the Cisco NCS 560 Series Routers.

<b>Usage Guidelines</b>	PTP clock configuration commands is run from global configuration mode by preceding the command string with the <b>ptp holdover-spec-clock-class</b> keywords. From PTP clock configuration mode, various PTP clock settings can be configured.
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## Example

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

```
Router(config)# ptp
Router(config-ptp)# holdover-spec-clock-class 10
```

# holdover-spec-duration

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

**holdover-spec-duration**  
**no holdover-spec-duration**

<b>Syntax Description</b>	<i>duration</i> Specifies the exact duration of holdover-spec, in seconds. Values can range 0–255.
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<b>Command Default</b>	None
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<b>Command Modes</b>	Global PTP configuration
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<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Release 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.
	Release 6.6.25	This command was introduced on the Cisco NCS 560 Series Routers.

<b>Usage Guidelines</b>	PTP clock configuration commands is run from global configuration mode by preceding the command string with the <b>ptp clock</b> keywords. From PTP clock configuration mode, various PTP clock settings can be configured.
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## 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)# holdover-spec-duration 23
```

# 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		
<b>eui-64</b> <i>number</i>	Specifies the full EUI-64 number to determine the clock identity.	
<b>mac-address</b> <i>address</i>	Specifies the router to determine the clock identity. Use one of the following addressing options to identify the router:	<ul style="list-style-type: none"> <li>• Use the router's built-in MAC address as the clock identity.</li> <li>• Enter a MAC address (H.H.H format).</li> </ul>

**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 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.
	Release 6.6.25	This command was introduced on the Cisco NCS 560 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
```



# ingress-conversion

To configure ingress options for configuring the PTP profile, use the **ingress-conversion** command in PTP profile configuration or interface PTP configuration mode. To remove, use the **no** form of this command.

**ingress-conversion** { *clock accuracy* | *clock class* | *offset log scaled variance* | *priority1* | *priority2* }  
**no ingress-conversion**

Syntax Description		
<b>clock accuracy</b> <i>clock accuracy</i>		Specifies the clock-accuracy value to use for the peer clock.
<b>clock class</b> <i>clock class</i>		Specifies the clock class mapping for use.
<b>offset log scaled variance</b> <i>offset log scaled variance</i>		Specifies the Offset Scaled Log Variance (OSLV) value to use for the peer clock.
<b>priority 1</b> <i>timeout</i>		Specifies the priority1 value to use for the peer clock.
<b>priority 2</b>		Specifies the priority2 value to use for the peer clock.

**Command Default** None

**Table 4: Default Profile to Other Profiles**

Default Profile	G.8275x	G.8265.1
Priority 1	128	128
Priority 2	—	128
Clock Accuracy	0xFE	0xFE
OSLV	0xFFFF	0xFFFF

**Table 5: G.8265.1 Profile to Other Profiles**

G.8265.1	Default Profile	G.8275x
Priority 1	—	128
Priority 2	—	128
Clock Accuracy	—	0xFE
OSLV	—	0xFFFF

Table 6: G.8275.x Profile to Other Profiles

G.8275.x	Default Profile	G.8265.1
Priority 1	—	128
Priority 2	—	128
Clock Accuracy	—	0xFE
OSLV	—	0xFFFF

---

**Command Modes** PTP profile configuration

---

Command History	Release	Modification
	Release 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.
	Release 6.6.25	This command was introduced on the Cisco NCS 560 Series Routers.

---



---

**Usage Guidelines** The **ingress-conversion** command is used to 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 ingress-conversion 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 the ingress-conversion with clock accuracy and clock class:

```
Router(config)# ptp
Router(config)# ptp(config)# ptp
Router(config-ptp)#interop
Router(config-ptp)#interop ingress-conversion
Router(config-ptp)#clock accuracy
Router(config-ptp)#clock class
Router(config-ptp)#offset log scaled variance
Router(config-ptp)#priority1
Router(config-ptp)#priority2
```

# interoperability

To configure interoperating interfaces using PTP profile, configure **interop** command in PTP profile configuration or interface PTP configuration mode. To remove, use the **no** form of this command.

```
interop { domain | egress-conversion ingress-conversion | profile | clock accuracy | clock class
| offset log scaled variance | priority1 | priority2}
no interop
```

## Syntax Description

<b>domain</b> <i>domain</i>	Specifies domain of the peer clock.
<b>egress-conversion</b> <i>egress-conversion</i>	Specifies conversion rules to apply on the egress interface.
<b>ingress-conversion</b> <i>duration</i>	Specifies conversion rules to apply on the ingress interface.
<b>profile</b> <i>profile</i>	Specifies the PTP profile to interoperate with.
<b>clock accuracy</b> <i>clock accuracy</i>	Specifies the clock-accuracy value to use for the peer clock.
<b>clock class</b> <i>clock class</i>	Specifies the clock class mapping for use.
<b>offset log scaled variance</b> <i>offset log scaled variance</i>	Specifies the Offset Scaled Log Variance (OSLV) value to use for the peer clock.
<b>priority 1</b> <i>timeout</i>	Specifies the priority1 value to use for the peer clock.
<b>priority 2</b> <i>timeout</i>	Specifies the priority2 value to use for the peer clock.

## Command Default

Table 7: Default Profile to Other Profiles

Default Profile	G.8275x	G.8265.1
Priority 1	128	128
Priority 2	—	128
Clock Accuracy	0xFE	0xFE
OSLV	0xFFFF	0xFFFF

Table 8: G.8265.1 Profile to Other Profiles

G.8265.1	Default Profile	G.8275x
Priority 1	—	128
Priority 2	—	128
Clock Accuracy	—	0xFE

G.8265.1	Default Profile	G.8275.x
OSLV	—	0xFFFF

Table 9: G.8275.x Profile to Other Profiles

G.8275.x	Default Profile	G.8265.1
Priority 1	—	128
Priority 2	—	128
Clock Accuracy	—	0xFE
OSLV	—	0xFFFF

---

**Command Modes** PTP profile configuration

---

Command History	Release	Modification
	Release 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.
	Release 6.6.25	This command was introduced on the Cisco NCS 560 Series Routers.

---

**Usage Guidelines** The **interop** command is used to configure the global PTP configuration profile which is associated with many interfaces. Similarly, it is used in interface PTP configuration mode to set the interoperability settings for ingress or egress 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 interoperability using profile p1:

```
Router(config)# ptp
Router(config)# ptp(config)# ptp
Router(config-ptp)# profile p1
Router(config-ptp-profile)# interop
Router(config-ptp-profile)# domain
Router(config-ptp-profile)# egress-conversion
Router(config-ptp-profile)# ingress-conversion
Router(config-ptp-profile)# profile
```

# ipv4-ttl

To configure Time to Live (TTL) value using Precision Time Protocol (PTP) profile for IPv4, use the **ipv4-ttl** command in PTP configuration mode or interface PTP configuration mode. To remove, use the **no** form of this command.

**ipv4-ttl** *ipv4-ttl*

**no ipv4-ttl**

---

## Syntax Description

**ipv4-ttl** Specifies the IPv4 Time to Live (TTL) value to use (1-255).

---

## Command Default

The default value is 255 milliseconds.

## Command Modes

PTP configuration

---

## Command History

Release	Modification
Release 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.
Release 6.6.25	This command was introduced on the Cisco NCS 560 Series Routers.

---



---

## Usage Guidelines

The **ipv4-ttl** command is used to 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 **ipv4-ttl** 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 shows how to configure the profile tp128:

```
Router(config)# ptp
Router(config-ptp)# profile p1
Router(config-ptp)# ipv4-ttl 20
```

# ipv6-hop-limit

To configure the IPv6 hop limit using PTP, use the **ipv6-hop-limit** command in PTP configuration mode or interface PTP configuration mode. To remove, use the **no** form of this command.

**ipv6-hop-limit** *ipv6-hop-limit*

**no ipv6-hop-limit**

---

## Syntax Description

**ipv6-hop-limit** Specifies the IPv6 hop time to use (1-255).

---

## Command Default

The default value is 255 milliseconds.

## Command Modes

PTP configuration

---

## Command History

Release	Modification
Release 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.
Release 6.6.25	This command was introduced on the Cisco NCS 560 Series Routers.

---



---

## Usage Guidelines

The **ipv6-hop-limit** command is used to 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 ipv6-hop-limit 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 shows how to configure the IPv6 hop limits:

```
Router(config)# ptp
Router(config-ptp)# profile p1
Router(config-ptp)# ipv6-hop-limit 45
```

# local-priority

To configure priority for a port in the G.8275.1 profile, use the **local-priority** command in the PTP profile configuration mode or the 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 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.
Release 6.6.25	This command was introduced on the Cisco NCS 560 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)# ptp
Router(config-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**

<b>Command Default</b>	None						
<b>Command Modes</b>	PTP configuration						
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Release 6.3.2</td> <td>This command was introduced on the Cisco NCS 540 Series Routers.</td> </tr> <tr> <td>Release 6.6.25</td> <td>This command was introduced on the Cisco NCS 560 Series Routers.</td> </tr> </tbody> </table>	Release	Modification	Release 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.	Release 6.6.25	This command was introduced on the Cisco NCS 560 Series Routers.
Release	Modification						
Release 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.						
Release 6.6.25	This command was introduced on the Cisco NCS 560 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 { ipv4 address | ipv6 address | clock-class class | delay-symmetry number | multicast |
non-negotiated | priority number }
no master
```

## Syntax Description

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

## Command Default

None

## Command Modes

PTP profile configuration

## Command History

Release	Modification
Release 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.
Release 6.6.25	This command was introduced on the Cisco NCS 560 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 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.
Release 6.6.25	This command was introduced on the Cisco NCS 560 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** {**target-address ethernet**{*forwardable mac-address* | *non-forwardable mac-address*}}  
**no multicast**

<b>Syntax Description</b>	<p><b>target-address ethernet</b> <i>forwardable mac-address</i>   <i>non-forwardable mac-address</i> Indicates the Ethernet multicast group address to send the multicast messages. This command supports either forwarding or nonforwarding Ethernet MAC addresses only.</p> <ul style="list-style-type: none"> <li>• Forwarding MAC-address: 01-1B-19-00-00-00</li> <li>• Nonforwarding MAC-address: 01-80-C2-00-00-0E</li> </ul>
---------------------------	--

**Command Default** By default, multicast messaging is disabled for PTP.

**Command Modes** PTP profile configuration  
 Interface PTP configuration

Release	Modification
Release 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.
Release 6.6.25	This command was introduced on the Cisco NCS 560 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
```

# frequency-priority1

To specify the priority 1 number to use when advertising a PTP clock, use the **frequency priority1** command in PTP clock configuration mode. To remove, use the **no** form of this command.

**frequency-priority1** *number*  
**no frequency-priority1**

<b>Syntax Description</b>	<i>number</i> Specifies the priority value to rank a foreign PTP GM against other frequency sources (0-255).						
<b>Command Default</b>	Default is 254.						
<b>Command Modes</b>	PTP clock configuration						
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Release 6.3.2</td> <td>This command was introduced on the Cisco NCS 540 Series Routers.</td> </tr> <tr> <td>Release 6.6.25</td> <td>This command was introduced on the Cisco NCS 560 Series Routers.</td> </tr> </tbody> </table>	Release	Modification	Release 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.	Release 6.6.25	This command was introduced on the Cisco NCS 560 Series Routers.
Release	Modification						
Release 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.						
Release 6.6.25	This command was introduced on the Cisco NCS 560 Series Routers.						

**Usage Guidelines** The **frequency-priority1** command is used to 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 frequency-priority1 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 the priority 1 number to 50:

```
Router(config)# ptp
Router(config-ptp)# clock
Router(config-ptp-clock)# frequency-priority1 50
```

# frequency-priority2

To specify the priority 2 number to use when advertising a PTP clock, use the **frequency-priority2** command in PTP clock configuration mode. To remove, use the **no** form of this command.

**frequency-priority2** *number*  
**no frequency-priority2**

## Syntax Description

*number* Specifies the priority 2 number to use for this clock (0-255).

## Command Default

Default is 128.

## Command Modes

PTP clock configuration

## Command History

Release	Modification
Release 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.
Release 6.6.25	This command was introduced on the Cisco NCS 560 Series Routers.

## Usage Guidelines

The **frequency-priority2** command is used to 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 frequency-priority2 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 the priority 2 number to 50:

```
Router(config)# ptp
Router(config-ptp)# clock
Router(config-ptp-clock)# frequency-priority2 50
```

## 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 {slave-only | master-only}
no port state
```

<b>Syntax Description</b>	<b>slave-only</b> Configures the port state to be a slave.						
	<b>master-only</b> Configures the port state to be a master. The <b>master-only</b> keyword is used for multicast transport mode.						
<b>Command Default</b>	Dynamic port state changes are based on the peers with which the port communicates.						
<b>Command Modes</b>	PTP profile configuration Interface PTP configuration						
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Release 6.3.2</td> <td>This command was introduced on the Cisco NCS 540 Series Routers.</td> </tr> <tr> <td>Release 6.6.25</td> <td>This command was introduced on the Cisco NCS 560 Series Routers.</td> </tr> </tbody> </table>	Release	Modification	Release 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.	Release 6.6.25	This command was introduced on the Cisco NCS 560 Series Routers.
Release	Modification						
Release 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.						
Release 6.6.25	This command was introduced on the Cisco NCS 560 Series Routers.						
<b>Usage Guidelines</b>	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
```

<b>Syntax Description</b>	<b>Profile</b> <i>profile-name</i> Name of profile to associate with the Interface.						
<b>Command Default</b>	None						
<b>Command Modes</b>	Interface PTP configuration						
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Release 6.3.2</td> <td>This command was introduced on the Cisco NCS 540 Series Routers.</td> </tr> <tr> <td>Release 6.6.25</td> <td>This command was introduced on the Cisco NCS 560 Series Routers.</td> </tr> </tbody> </table>	Release	Modification	Release 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.	Release 6.6.25	This command was introduced on the Cisco NCS 560 Series Routers.
Release	Modification						
Release 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.						
Release 6.6.25	This command was introduced on the Cisco NCS 560 Series Routers.						
<b>Usage Guidelines</b>	A PTP profile is a configuration template that is applied to multiple interfaces. You must define the profile using the <b>profile</b> 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**

<b>Syntax Description</b>	<i>name</i> Enters PTP profile configuration mode for the specified profile name.						
<b>Command Default</b>	None						
<b>Command Modes</b>	PTP configuration						
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Release 6.3.2</td> <td>This command was introduced on the Cisco NCS 540 Series Routers.</td> </tr> <tr> <td>Release 6.6.25</td> <td>This command was introduced on the Cisco NCS 560 Series Routers.</td> </tr> </tbody> </table>	Release	Modification	Release 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.	Release 6.6.25	This command was introduced on the Cisco NCS 560 Series Routers.
Release	Modification						
Release 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.						
Release 6.6.25	This command was introduced on the Cisco NCS 560 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)#
```

# 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 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.
	Release 6.6.25	This command was introduced on the Cisco NCS 560 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)# ?
  clock                               PTP Clock Configuration
  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.
  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
```

PTP commands can either run on Gigabit Ethernet interfaces or Bundle Ethernet interfaces.

### 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**

<b>Command Default</b>	None
------------------------	------

<b>Command Modes</b>	EXEC
----------------------	------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Release 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.
	Release 6.6.25	This command was introduced on the Cisco NCS 560 Series Routers.

<b>Usage Guidelines</b>	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

Fri Jan  9 04:54:33.345 PST
Clock ID: Local Clock (2651fffec41c26)
Clock properties:
  Priority1: 128, Priority2: 128, Class: 6, Accuracy: 0xfe
  Offset scaled log variance: 0xffff
  Domain: 0, Time Source: GPS, Timescale: PTP
  Frequency-traceable, Time-traceable
  Current UTC offset: 34 seconds
```

# 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

<i>brief</i>	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.
<i>name</i>	Displays foreign masters that are discovered by the specified interface. For more information, use the question mark (?) online help function.
<i>node</i>	Displays foreign masters discovered by the specified node
<b>best</b>	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 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.
Release 6.6.25	This command was introduced on the Cisco NCS 560 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
```

## show ptp foreign-masters

```

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* | **all**}  
**show ptp interfaces summary location** *node*

<b>Syntax Description</b>	<i>interface</i>	Specifies the interface. For more information, use the question mark (?) online help function.
	<b>all</b>	Displays information for all interfaces.
	<b>brief</b>	Displays a one-line summary of the functional state of the interface (or all interfaces).
	<b>location</b> <i>node</i>	Displays information for the specified node
<b>Command Default</b>	None	
<b>Command Modes</b>	EXEC	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Release 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.
	Release 6.6.25	This command was introduced on the Cisco NCS 560 Series Routers.
<b>Usage Guidelines</b>	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
Local Priority: 128
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 Name	Port Number	Port State	Line 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
```

```
show ptp interfaces
```

```
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

<b>Command Default</b>	None
------------------------	------

<b>Command Modes</b>	EXEC
----------------------	------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Release 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.
Release 6.6.25	This command was introduced on the Cisco NCS 560 Series Routers.	

<b>Usage Guidelines</b>	NA
-------------------------	----

## Example

The following shows information about the local PTP clock:

```
Router# show ptp local-clock

Sat Jul 28 14:15:54.357 UTC
Clock ID: 2651ffffec4496e
Clock properties:
  Priority1: 128, Priority2: 128, Class: 248, Accuracy: 0xfe
  Offset scaled log variance: 0xffff
  Domain: 0, Time Source: Internal, Timescale: ARB
  No frequency or time traceability
  Current UTC offset: 34 seconds
```

# show ptp packet-counters

To display counters for packets that are received and sent 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 | 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.
	ethernet-address	Specifies an Ethernet address.

**Command Default** None

**Command Modes** EXEC

Command History	Release	Modification
	Release 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.
	Release 6.6.25	This command was introduced on the Cisco NCS 560 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*

<b>Syntax Description</b>	<i>interface</i> Displays information for the specified interface.						
<b>Command Default</b>	None						
<b>Command Modes</b>	EXEC						
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Release 6.3.2</td> <td>This command was introduced on the Cisco NCS 540 Series Routers.</td> </tr> <tr> <td>Release 6.6.25</td> <td>This command was introduced on the Cisco NCS 560 Series Routers.</td> </tr> </tbody> </table>	Release	Modification	Release 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.	Release 6.6.25	This command was introduced on the Cisco NCS 560 Series Routers.
Release	Modification						
Release 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.						
Release 6.6.25	This command was introduced on the Cisco NCS 560 Series Routers.						
<b>Usage Guidelines</b>	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
```

## show ptp unicast-peers

```
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

### Command History

Release	Modification
Release 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.
Release 6.6.25	This command was introduced on the Cisco NCS 560 Series Routers.

### Usage Guidelines

The **source ipv4 address** command is used to 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
```

## source ipv6 address

To specify the source IPv6 address used to send IPv6 packets, use the **source ipv6 address** command in PTP profile configuration or interface PTP configuration mode. To remove, use the **no** form of this command.

**source ipv6 address** *address*

<b>Syntax Description</b>	<i>address</i> Specifies an IPv6 address.						
<b>Command Default</b>	None						
<b>Command Modes</b>	PTP profile configuration Interface PTP configuration						
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Release 6.3.2</td> <td>This command was introduced on the Cisco NCS 540 Series Routers.</td> </tr> <tr> <td>Release 6.6.25</td> <td>This command was introduced on the Cisco NCS 560 Series Routers.</td> </tr> </tbody> </table>	Release	Modification	Release 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.	Release 6.6.25	This command was introduced on the Cisco NCS 560 Series Routers.
Release	Modification						
Release 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.						
Release 6.6.25	This command was introduced on the Cisco NCS 560 Series Routers.						
<b>Usage Guidelines</b>	The <b>source ipv4 address</b> 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 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 IPv6 address 10.10.10.6 for PTP packets:

```
Router(config)# ptp
Router(config-ptp)# profile p1
Router(config-ptp-profile)# source ipv6 address 10.10.10.6
```

The following example overrides the source IPv4 address in the profile and sets it to be 10.10.10.8 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 ipv6 address 10.10.10.8
```

# 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* | *duration* | *interval* | *timeout* }  
**no sync**

Syntax Description	Parameter	Description
	<b>frequency</b> <i>frequency</i>	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.
	<b>grant-duration</b> <i>duration</i>	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.
	<b>interval</b> <i>interval</i>	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.
	<b>timeout</b> <i>timeout</i>	Specifies the time after which the sync message times out (100-10000 milliseconds).

**Command Default** Defaults: grant-duration 600, interval 1, timeout 5000

**Command Modes** PTP profile configuration  
 Interface PTP configuration

Command History	Release	Modification
	Release 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.
	Release 6.6.25	This command was introduced on the Cisco NCS 560 Series Routers.

**Usage Guidelines** The **sync** command is used to 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.

The **grant-duration** and **timeout** keywords are used for the ITU-T Telecom Profile. A frequency value of 128 messages per second is valid for the ITU-T telecommunication Profile only.

## 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 frequency 2000
```

The following example overrides the sync frequency value in the profile and sets it to be 1500 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)# sync frequency 1500
```

# 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**

<b>Syntax Description</b>	<b>priority</b> <i>number</i> Specifies the time of day priority to rank a foreign PTP grand master against other time sources, such as GPS (1-255).						
<b>Command Default</b>	The default is priority 100.						
<b>Command Modes</b>	PTP configuration						
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Release 6.3.2</td> <td>This command was introduced on the Cisco NCS 540 Series Routers.</td> </tr> <tr> <td>Release 6.6.25</td> <td>This command was introduced on the Cisco NCS 560 Series Routers.</td> </tr> </tbody> </table>	Release	Modification	Release 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.	Release 6.6.25	This command was introduced on the Cisco NCS 560 Series Routers.
Release	Modification						
Release 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.						
Release 6.6.25	This command was introduced on the Cisco NCS 560 Series Routers.						
<b>Usage Guidelines</b>	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**

<b>Syntax Description</b>	<b>ARB</b>	Specifies ARB (arbitrary) time.
	<b>PTP</b>	Specifies PTP time.
<b>Command Default</b>	The default value is derived from platform default PTP properties.	
<b>Command Modes</b>	PTP clock configuration	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Release 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.
	Release 6.6.25	This command was introduced on the Cisco NCS 560 Series Routers.
<b>Usage Guidelines</b>	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**

<b>Syntax Description</b>	<i>source</i> Specifies the type of time source to advertise for the internal clock: GPS, NTP, PTP, atomic-clock, handset, internal oscillator, other, or terrestrial radio.						
<b>Command Default</b>	The default is the value that is specified by the platform internal oscillator.						
<b>Command Modes</b>	PTP clock configuration						
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Release 6.3.2</td> <td>This command was introduced on the Cisco NCS 540 Series Routers.</td> </tr> <tr> <td>Release 6.6.25</td> <td>This command was introduced on the Cisco NCS 560 Series Routers.</td> </tr> </tbody> </table>	Release	Modification	Release 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.	Release 6.6.25	This command was introduced on the Cisco NCS 560 Series Routers.
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Release 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.						
Release 6.6.25	This command was introduced on the Cisco NCS 560 Series Routers.						
<b>Usage Guidelines</b>	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}
no transport
```

<b>Syntax Description</b>	<b>ethernet</b> Specifies that Ethernet is used as the transport type on the interface.
	<b>ipv4</b> Specifies IPv4 is used as the transport type on the interface
<b>Command Default</b>	None
<b>Command Modes</b>	PTP profile configuration Interface PTP configuration
<b>Command History</b>	<b>Release</b> <b>Modification</b>
	Release 6.3.2 This command was introduced on the Cisco NCS 540 Series Routers.
	Release 6.6.25 This command was introduced on the Cisco NCS 560 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:

```
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 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.
Release 6.6.25	This command was introduced on the Cisco NCS 560 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 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.
Release 6.6.25	This command was introduced on the Cisco NCS 560 Series Routers.

### Usage Guidelines

The **unicast-grant invalid-request** command is used to 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.

v

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
```

# utc-offset

To configure UTC offset information, use the **utc-offset** command in PTP configuration mode. To remove, use the **no** form of this command.

**utc-offset** *number*  
**no utc-offset**

<b>Syntax Description</b>	<b>utc-offset</b> <i>number</i> Specifies the date to apply the UTC offset, in ISO 8601 format (YYYY-MM-DD) format.
	<b>baseline</b> Specifies the configuration of baseline UTC offset.
	<b>leap-second-file</b> Specifies the configuration of a file containing leap-second information to poll.

**Command Default** The default is priority 100.

**Command Modes** PTP configuration

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Release 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.
	Release 6.6.25	This command was introduced on the Cisco NCS 560 Series Routers.

**Usage Guidelines** NA

## Example

The following example sets UTC offset information:

```
Router(config)# ptp
Router(config-ptp)# utc-offset
Router(config-ptp)#baseline
Router(config-ptp)#leap-second-file
```

# 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* }  
**no virtual-port**

Syntax Description	Command	Description
	<b>clock accuracy</b> <i>clock accuracy</i>	Specifies the clock-accuracy value to use for the peer clock.
	<b>clock class</b> <i>clock class</i>	Specifies the clock class mapping for use.
	<b>offset log scaled variance</b> <i>offset log scaled variance</i>	Specifies the Offset Scaled Log Variance (OSLV) value to use for the peer clock.
	<b>priority 1</b> <i>timeout</i>	Specifies the priority1 value to use for the peer clock.
	<b>priority 2</b>	Specifies the priority2 value to use for the peer clock.

**Command Default** None

**Command Modes** PTP configuration

Command History	Release	Modification
	Release 6.3.2	This command was introduced on the Cisco NCS 540 Series Routers.
	Release 6.6.25	This command was introduced on the Cisco NCS 560 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)#clock accuracy
Router(config-ptp)#clock class
Router(config-ptp)#offset log scaled variance
Router(config-ptp)#priority1
Router(config-ptp)#priority2
```

virtual-port