

PTP Commands

- detect-ptsf-unusable, on page 2
- holdover-spec-clock-class , on page 3
- holdover-spec-duration, on page 4
- holdover-spec-frequency-assisted-duration, on page 5
- monitor-receiver (PTP), on page 6
- monitor-sender (PTP), on page 7
- performance-monitoring, on page 8
- phase-difference-threshold-breach , on page 9
- show ptp dataset performance, on page 10
- show ptp foreign-masters, on page 13
- show ptp platform performance-counters, on page 16
- synchronous-ethernet prefer-interface ptp-receiver, on page 18
- uncalibrated-clock-class, on page 19

detect-ptsf-unusable

To enable disqualification when appropriate for an FM from selection in the BMCA and declare it as unusable, use the **detect-ptsf-unusable** command in PTP configuration mode.

detect-ptsf-unusable

Syntax Description

This command has no keywords or arguments.

Command Default

No default behavior or values

Command Modes

PTP configuration

Release	Modification
Release 25.4.1	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID	Operation
ethernet-services	read, write

The example below demonstrates the example for excluding a Foreign Master (FM) from being considered in the Best Master Clock Algorithm (BMCA) and marking it as inoperable. This action is taken if the secondary clocks generate a signal known as Packet Timing Signal Fail (PTSF)-unusable:

```
Router(config)# ptp
Router(config-ptp)# detect-ptsf-unusable
Router(config-ptp-profile)# commit
```

holdover-spec-clock-class

To specify the clock class value that a PTP clock advertises while in holdover mode, use the **holdover-spec-clock-class** command in PTP configuration mode. To remove, use the **no** form of this command.

holdover-spec-clock-class

Table 1: Syntax Description:

class	Specifies the clock class to use while in holdover-spec. Values can range 0–255.

Command Default

None

Command Modes

Global PTP configuration

Table 2: Command History

Release	Modification
Release 25.4.1	This command was introduced.

Usage Guidelines

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

This is an example of specifying the hold-over-spec-class.

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

holdover-spec-duration

To specify holdover-spec-duration , use the **holdover-spec-duration** command in PTP configuration mode. To remove, use the **no** form of this command.

holdover-spec-duration

Table 3: Syntax Description

duration	Specifies the exact duration of holdover-spec, in seconds. Values can range 0–255.

Command Default

None

Command Modes

Global PTP configuration

Table 4: Command History

Release	Modification
Release 25.4.1	This command was introduced.

Usage Guidelines

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

Example

This example shows how to specify holdover-spec-duration.

```
Router(config)#ptp
Router(config-ptp)#clock
Router(config-ptp-clock)#holdover-spec-duration 23
Router(config-ptp-clock)#commit
```

holdover-spec-frequency-assisted-duration

To specify holdover-spec frequency-assisted duration, use the **holdover-spec-frequency-assisted-duration** command in PTP configuration mode. To remove, use the **no** form of this command.

holdover-spec-frequency-assisted-duration *seconds*

Table 5: Syntax Description

duration	Specifies the exact duration of frequency-assisted holdover-spec, in seconds. Values can range 0–4294967295.

Command Default

None

Command Modes

Global PTP configuration

Table 6: Command History

Release	Modification
Release 26.3.1	This command was introduced.

Usage Guidelines

PTP clock configuration commands is run from global configuration mode by preceding the command string with the **ptp holdover-spec-frequency-assisted-duration** keywords. From PTP clock configuration mode, various PTP clock settings can be configured.

Example

This example shows how to specify holdover-spec frequency-assisted duration.

```
Router(config)#ptp
Router(config-ptp)#clock
Router(config-ptp-clock)#holdover-spec-frequency-assisted-duration 14000
Router(config-ptp-clock)#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**

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

Release	Modification
Release 25.4.1	This command was introduced.

Usage Guidelines

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

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 (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**

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

Release	Modification
Release 25.4.1	This command was introduced.

Usage Guidelines

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

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
```

performance-monitoring

To enable the collection of performance-monitoring statistics, use the **performance-monitoring** command in PTP configuration mode.

performance-monitoring

Syntax Description

This command has no keywords or arguments.

Command Default

By default performance-monitoring is not enabled.

Command Modes

Global PTP configuration

Command History

Release	Modification
Release 25.3.1	This command was introduced.

Usage Guidelines

None.

Task ID

Task ID	Operation
performance-monitoring	read, write

The following example shows how to enable the collection of performance-monitoring statistics.

```
Router(config)# ptp
Router(config-ptp)# performance-monitoring
Router(config-ptp)# commit
```

phase-difference-threshold-breach

To sets the threshold in nanoseconds that triggers a bistate alarm when the phase difference for any foreign master is exceeded, use the **phase-difference-threshold-breach** command in the PTP configuration mode. To remove, use the **no** form of this command.

phase-difference-threshold-breach *value-in-nanoseconds*

Table 7: Syntax Description

value-in-nanoseconds	Indicates value at which a bistate alarm is triggered when the phase difference for any foreign master is exceeded in nanoseconds.The range is <0-4294967295>5.

Command Default

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

Command Modes

PTP configuration

Table 8: Command History

Release	Modification
Release 25.4.1	This command was introduced.

Usage Guidelines

None

Example

The following example configures phase difference threshold value to 300 nanoseconds:

```
Router#configure terminal
Router(config)#ptp
Router(config-ptp)#phase-difference-threshold-breach 300
Router(config-ptp)#commit
```

show ptp dataset performance

To display the performance monitoring dataset for the local clock and any PTP port for the current 15-minute window, use the **show ptp dataset performance** { **clock** | **port** { **all** | **interface***name* } } command in EXEC mode.

show ptp dataset performance { **clock** | **port** { **all** | **interface** *name* } } }

Syntax Description

clock	Displays the performance monitoring dataset of the local clock for the current 15-minute window.
port	Displays the performance monitoring dataset of the port for the current 15-minute window for *all* or specified **interface***name*.

Syntax Description This command has no keywords or arguments.

Command Default None

Command Modes EXEC

Command History

Release	Modification
Release 25.3.1	This command was introduced.

Usage Guidelines None.

Task ID

Task ID	Operation
performance	read

Example

The following show command displays the performance monitoring dataset of the local clock for the current 15-minute window.

```
Router#show ptp dataset performance clock

performanceMonitoringDS for the current 15-minute window:
Clock ID ccccfffecccc00, steps removed 1, receiving port 2:
    Start of time window: Thursday, 14:18:59
    Measurement is valid
    Period is complete
    Measurement has been taken with reference to system clock
    Master slave delay:
        Average: 50ns
        Min: 50ns
        Max: 70ns
        Std: 1ns
    Slave master delay:
        Average: 51ns
        Min: 51ns
        Max: 71ns
```

```
        Std: 2ns
    Mean path delay:
        Average: 52ns
        Min: 52ns
        Max: 72ns
        Std: 3ns
    Offset from master:
        Average: 53ns
        Min: 53ns
        Max: 73ns
        Std: 4ns

Clock ID aaaabbbecccc00, steps removed 1, receiving port 2:
    Start of time window: Thursday, 14:18:59
    Measurement is not valid
    Period is not complete
    Measurement has been taken with reference to system clock
    Master slave delay:
        Average: 50ns
        Min: 50ns
        Max: 70ns
        Std: 1ns
    Slave master delay:
        Average: 51ns
        Min: 51ns
        Max: 71ns
        Std: 2ns
    Mean path delay:
        Average: 52ns
        Min: 52ns
        Max: 72ns
        Std: 3ns
    Offset from master:
        Average: 53ns
        Min: 53ns
        Max: 73ns
        Std: 4ns
```

Example

The following show command displays the performance monitoring dataset of the port for the current 15-minute window.

```
Router#show ptp dataset performance port GigabitEthernet 0/0/0/1
performanceMonitoringPortDS for the current 15-minute window:
Interface GigabitEthernet 0/0/0/1
    Start of time window: Thursday, 14:18:59
    Measurement is valid
    Period is not complete
    Measurement has been taken with reference to system clock
    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
```

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

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

Release	Modification
Release 25.4.1	This command was introduced.

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 platform performance-counters

To display counters details for platform performance sent by Precision Time Protocol (PTP), use the **show ptp platform performance-counters** in command in EXEC mode.

show ptp platform performance-counters { **detail** | **brief** }

Syntax Description

detail	Displays all 123 counter record details for platform performance sent by PTP.
brief	Displays only the current counter record in 15 minutes, 24 hours, 3minutes, and 1hour windows.

Command Default

None

Command Modes

EXEC

Command History

Release	Modification
Release 25.3.1	This command was introduced.

Usage Guidelines

None.

Task ID

Task ID	Operation
platform performance-counters	read

Example

In this example, the **detail** mode of the command displays all 123 records.

```
Router#sh ptp platform performance-counters detail

PTP Current record index 15 min: 96
PTP Current record index 3 min: 119

PTP performance monitoring statistics:
================================================================================================================
15 min stats
[0]     07:08:59 UTC 15 min statistics
----------------------------------------------------------------------------------------------------------------

                Stat    Min(sec.nsec)        Max(sec.nsec)       Mean(sec.nsec)     Std
deviation           Samples
----------------------------------------------------------------------------------------------------------------

  Master-slave-delay -000000000.15937      000000000.333       -000000000.1780
000000000.71191      154
  Slave-master-delay  000000000.319        000000000.16593      000000000.2437
000000000.74103      154
     mean-path-delay  000000000.322        000000000.334        000000000.327
000000000.4057       154
  offset-from-master -000000000.16263      000000000.6         -000000000.2108
```

```
000000000.72546      154

-------------------------------------------------------------------------------------------------------------------

            Complete      Valid      PmRef      ServoAtStart     ServoAtEnd
LastServoFlapTime
-------------------------------------------------------------------------------------------------------------------

               FALSE      FALSE       TRUE        PHASE_LOCKED   HOLDOVER
07:09:09 UTC

==============

….
```

Example

In this example, the **brief** mode displays only the current counter record in 15 minutes, 24 hours, 3minutes, and 1hour windows.

```
Router#sh ptp platform performance-counters brief

==============
PTP Current record index 15 min: 96
PTP Current record index 3 min: 116

PTP performance monitoring statistics:
===================================================================================================================
15 min stats
[0]     11:46:07 UTC 15 min statistics
-------------------------------------------------------------------------------------------------------------------

                Stat    Min(sec.nsec)        Max(sec.nsec)       Mean(sec.nsec)     Std
deviation           Samples
-------------------------------------------------------------------------------------------------------------------

  Master-slave-delay  000000000.271        000000000.336        000000000.325
000000000.38386      13922
  Slave-master-delay  000000000.314        000000000.377        000000000.326
000000000.38526      13922
     mean-path-delay  000000000.318        000000000.334        000000000.325
000000000.38425      13922
  offset-from-master -000000000.53         000000000.9         -000000000.0
000000000.369        13922

-------------------------------------------------------------------------------------------------------------------

            Complete      Valid      PmRef      ServoAtStart     ServoAtEnd
LastServoFlapTime
-------------------------------------------------------------------------------------------------------------------

               FALSE      FALSE       TRUE         FREQ_LOCKED   HOLDOVER
12:00:33 UTC

==============
```

synchronous-ethernet prefer-interface ptp-receiver

To prefer selection of the SyncE source on the same interface where the PTP receiver is selected by the router, use the **synchronous-ethernet prefer-interface ptp-receiver** command in the global frequency synchronization mode.

The desired SyncE source on PTP receiver interface gets selected if it has the highest or equal QL and user configured priority among the other available SyncE sources.

If the selected PTP source goes down or if the PTP source's quality degrades, the system may switch to another PTP source. In such case, use this command so that the SyncE source selection would also switch to the new PTP receiver interface. Here, the preferred switching of SyncE source to the new PTP receiver interface shall happen only if the new interface uses the same SyncE QL and the user configured priority as the previously selected interface.

synchronous-ethernet prefer-interface ptp-receiver

Syntax Description

prefer-interface	Selects the frequency source among equal sources.
ptp-receiver	Selects the PTP receiver interface.

Command Default

None

Command Modes

EXEC

Command History

Release	Modification
Release 24.4.1	This command was introduced.

Usage Guidelines

Task ID

Task ID	Operation
ethernet-services	read, write

Example

This example shows how to configure the **synchronous-ethernet prefer-interface ptp-receiver** command.

```
RP/0/RP0/CPU0:router(config)# frequency synchronization synchronous-ethernet prefer-interface
 ptp-receiver
RP/0/RP0/CPU0:router(config)# commit
```

This example verifies the **synchronous-ethernet prefer-interface ptp-receiver** configuration.

```
RP/0/RP0/CPU0:router(config)# show running-config frequency synchronization
Thu Aug 8 04:50:13.638 UTC
frequency-synchronization
 synchronous-ethernet prefer-interface ptp-receiver
!
```

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*

Table 9: 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

Table 10: Command History

Release	Modification
Release 25.4.1	This command was introduced.

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
```