

MPLS Performance Measurement Commands

This module describes the commands used to configure and use Multiprotocol Label Switching (MPLS) performance measurement.

For detailed information about MPLS concepts, configuration tasks, and examples, see *MPLS Configuration Guide for Cisco ASR 9000 Series Routers*.

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advertise delay

This command helps you to set delay metric that is advertised for this link. This value will overwrite actually measured delay metric. To do this, use the **advertise-delay** command in the interface submode.

advertise-delay *advertise-value*

Syntax Description

advertise-value	Value of the delay in micro seconds to be advertised. The range is from 0 to 16777215

Command Default

No default behavior or values

Command Modes

interface submode

Command History

Release	Modification
Release 6.5.3	This command was introduced.

Usage Guidelines

Advertise-delay specifies a static value to be advertised to Interior Gateway Protocol (IGP) for the delay metric. The advertisement happens when the configuration has been committed. As long as the configuration stays unchanged, delay-measurement result will not affect the delay metric that has been advertised to IGP.

Task ID

Task ID	Operation
performance-measurement	write

```
Router#configure
Router#(config)#performance-measurement
Router#(config-perf-meas)#interface gigabitEthernet 0/0/0/0
Router#(config-pm-intf)#delay-measurement
Router#(config-pm-intf-dm)#advertise-delay 100
```

advertisement

To enter delay-measurement in advertisement mode, use the **advertisement** command in interface delay profile mode.

This command has no keywords or arguments.

Command Default

No default behavior or values

Command Modes

Interface delay profile mode

Command History

Release	Modification
Release 6.5.1	This command was introduced.

Task ID

Task ID	Operation
performance-measurement	write

```
Router#configure
Router#(config)#performance-measurement
Router#(config-perf-meas)#delay-profile interfaces
Router#(config-pm-dm-intf)#advertisement
```

Related Commands

Command	Description
Performance-measurement delay-profile interfaces probe interval	This command specifies the interval at which probe metrics are computed for advertisement check and telemetry. Interval-value is in seconds and range is from 1 to 3600.
Performance-measurement delay-profile interfaces probe burst	This command enables you to enter burst submode.
Performance-measurement delay-profile interfaces advertisement accelerated	This command is used to configure accelerated advertisement.
Performance-measurement delay-profile interfaces advertisement periodic	This command is used to configure periodic advertisement.
Performance-measurement delay-profile interfaces advertisement periodic disabled	This command is used to disable periodic advertisement.
Performance-measurement delay-profile interfaces advertisement periodic interval	This command is used to configure the interval value for periodic advertisement and aggregation history.

Command	Description
Performance-measurement delay-profile interfaces advertisement periodic mininum-change	This command is used to configure minimum change value periodic advertisement. By default, it is the change in the measured minimum-delay link metric compared to the last advertised minimum-delay link metric i, above the periodic threshold (percentage), and above the minimum-change (value).
Performance-measurement delay-profile interfaces advertisement periodic threshold	This command is used to configure the threshold percentage change for periodic advertisement.
Performance-measurement delay-profile interfaces advertisement accelerated	This command is used to configure accelerated advertisement.
Performance-measurement delay-profile interfaces advertisement accelerated minimum-change	This command is used to configure minimum change value accelerated advertisement.
Performance-measurement delay-profile interfaces advertisement accelerated threshold	This command is used to configure the threshold percentage change for accelerated advertisement. By default, it is the change in the measured minimum-delay link metric compared to the last advertised minimum-delay link metric i, above the periodic threshold (percentage), and above the minimum-change (value).

clear performance-measurement counters

To clear all the performance-measurement querier counters, use the **clear performance-measurement counters** command in the EXEC modeXR EXEC mode.

clear performance-measurement counters [**interfaces** [**type** *interface-path-id*] | **summary** | **batch**]

Syntax Description

interfaces	Clear querier interface counters.
type	(Optional) Interface type. For more information, use the question mark (?) online help function.
interface-path-id	Physical interface or a virtual interface. **Note** Use the show interfaces command to see a list of all possible interfaces currently configured on the router. For more information about the syntax for the router, use the question mark (?) online help function.
batch	Clear querier batch counters.
summary	Clear querier summary counters.
location	(Optional) Specifies a node.
node-id	Node ID. The node-id argument is entered in the rack/slot/module notation.
all	Specifies all locations.

Command Default

EXECXR EXEC

Command History

Release	Modification
Release 6.5.1	This command was introduced.

```
RP/0/0/CPU0:R2# clear performance-measurement counters interfaces

Present Time: Tue Jun 11 15:40:29.462 EDT

RP/0/0/CPU0:R2# show performance-measurement counters interfaces location 0/0/CPU0

Present Time: Tue Jun 11 15:40:38.957 EDT
-----------------------------------------------
0/0/CPU0
-----------------------------------------------
Interface Name: Bundle-Ether2 (ifh: 0xd0)
 Delay-Measurement:
  Packets:
   Total sent              : 0
   Total received          : 0
```

```
  Errors:
   Total sent errors       : 0
   Total received errors   : 0
  Probes:
   Total started           : 0
   Total completed         : 0
   Total incomplete        : 0
   Total advertisements    : 0

Interface Name: Bundle-Ether3 (ifh: 0xf0)
 Delay-Measurement:
  Packets:
   Total sent              : 0
   Total received          : 0
  Errors:
   Total sent errors       : 0
   Total received errors   : 0
  Probes:
   Total started           : 0
   Total completed         : 0
   Total incomplete        : 0
   Total advertisements    : 0
```

clear performance-measurement delay interfaces

To clear all the performance-measurement states and history on querier and restart measurement, use the **clear performance-measurement delay interfaces** command in EXEC modeXR EXEC mode.

clear performance-measurement delay interfaces [**type** *interface-path-id*]

Syntax Description

type	(Optional) Interface type. For more information, use the question mark (?) online help function.
interface-path-id	Physical interface or a virtual interface. **Note** Use the show interfaces command to see a list of all possible interfaces currently configured on the router. For more information about the syntax for the router, use the question mark (?) online help function.
location	(Optional) Specifies a node.
node-id	Node ID. The node-id argument is entered in the rack/slot/module notation.
all	Specifies all locations.

Command Default

None

Command Modes

EXECXR EXEC

Command History

Release	Modification
Release 6.5.1	This command was introduced.

```
RP/0/0/CPU0:R2#clear performance-measurement delay interfaces
Mon Jul 29 15:55:19.579 EDT
RP/0/0/CPU0:R2#show performance-measurement history probe interfaces
Mon Jul 29 15:55:20.653 EDT

------------------------------------------------------------------------------
0/0/CPU0
------------------------------------------------------------------------------

Interface Name: Bundle-Ether2 (ifh: 0xd0)
  Delay-Measurement history (uSec):
    No probes have successfully completed

------------------------------------------------------------------------------
0/2/CPU0
------------------------------------------------------------------------------

Interface Name: GigabitEthernet0/2/0/0 (ifh: 0x1000060)
  Delay-Measurement history (uSec):
    No probes have successfully completed
```

```
RP/0/0/CPU0:R2#show performance-measurement interfaces
Mon Jul 29 15:55:26.533 EDT

------------------------------------------------------------------------------
0/0/CPU0
------------------------------------------------------------------------------

Interface Name: Bundle-Ether2 (ifh: 0xd0)
  Delay-Measurement     : Enabled
  Local IPV4 Address    : 2.0.0.2
  Local IPV6 Address    : 2::2
  Local MAC Address     : 0293.c668.bb04
  Primary VLAN Tag      : None
  Secondary VLAN Tag    : None
  State                 : Up

  Delay Measurement session:
    Session ID          : 33554433

    Last advertisement:
      Advertised at: Jul 29 2019 15:55:19.815 (6.956 seconds ago)
      Advertised reason: Cleared through exec command

    Next advertisement:
      Check scheduled in 1 more probe (roughly every 30 seconds)
      No probes completed
------------------------------------------------------------------------------
0/2/CPU0
------------------------------------------------------------------------------

Interface Name: GigabitEthernet0/2/0/0 (ifh: 0x1000060)
  Delay-Measurement     : Enabled
  Local IPV4 Address    : 10.10.10.2
  Local IPV6 Address    : 10:10:10::2
  Local MAC Address     : 023a.6fc9.cd6b
  Primary VLAN Tag      : None
  Secondary VLAN Tag    : None
  State                 : Up

  Delay Measurement session:
    Session ID          : 1

    Last advertisement:
      Advertised at: Jul 29 2019 15:55:02.797 (23.974 seconds ago)
      Advertised reason: Cleared through exec command

    Next advertisement:
      Check scheduled in 1 more probe (roughly every 30 seconds)
      No probes completed
RP/0/0/CPU0:R2# clear performance-measurement delay interfaces

Present Time: Tue Jun 11 15:29:09.052 EDT

RP/0/0/CPU0:R2# show performance-measurement history probe interfaces

Present Time: Tue Jun 11 15:29:13.465 EDT

------------------------------------------------
0/0/CPU0
------------------------------------------------
Interface Name: Bundle-Ether2 (ifh: 0xd0)
Delay-Measurement history (uSec):
```

```
No probes have successfully completed

Interface Name: Bundle-Ether3 (ifh: 0xf0)
Delay-Measurement history (uSec):
No probes have successfully completed

RP/0/0/CPU0:R2# show performance-measurement interfaces

Present Time: Tue Jun 11 15:26:50.767 EDT

------------------------------------------------
0/0/CPU0
------------------------------------------------

Interface Name: Bundle-Ether2 (ifh: 0xd0)
Delay-Measurement  : Enabled
Local IPV4 Address : 2.0.0.2
Local IPV6 Address : 2::2
Local MAC Address  : 0293.c668.bb04
Primary VLAN Tag   : None
Secondary VLAN Tag : None
State : Up

Delay Measurement session:
Session ID : 33554433

Last advertisement:
Advertised at: Jun 11 2019 15:26:45.396 (5.579 seconds ago)
Advertised reason: Cleared through exec command

Next advertisement:
Check scheduled in 1 more probe (roughly every 30 seconds)
No probes completed


Interface Name: Bundle-Ether3 (ifh: 0xf0)
Delay-Measurement  : Enabled
Local IPV4 Address : 3.0.0.2
Local IPV6 Address : 3::2
Local MAC Address  : 0293.c668.bb03
Primary VLAN Tag   : None
Secondary VLAN Tag : None
State : Up

Delay Measurement session:
Session ID : 33554434

Last advertisement:
Advertised at: Jun 11 2019 15:26:45.397 (5.578 seconds ago)
Advertised reason: Cleared through exec command

Next advertisement:
Check scheduled in 1 more probe (roughly every 30 seconds)
No probes completed
```

clear performance-measurement responder

To clear all the performance-measurement states on the responder, use the **clear performance-measurement responder** command in EXEC modeXR EXEC mode.

clear performance-measurement responder counters interfaces [**type** *interface-path-id*]

Syntax Description

counters	Clear all the counters for the responder.
type	(Optional) Interface type. For more information, use the question mark (?) online help function.
interface-path-id	Physical interface or a virtual interface. **Note** Use the show interfaces command to see a list of all possible interfaces currently configured on the router. For more information about the syntax for the router, use the question mark (?) online help function.
summary	Clear responder summary counters.

Command Default

None

Command Modes

EXECXR EXEC

Command History

Release	Modification
Release 6.5.1	This command was introduced.

```
RP/0/0/CPU0:R1# clear performance-measurement responder counters summary

Present Time: Tue Jun 11 15:36:02.981 EDT

RP/0/0/CPU0:R1# show performance-measurement responder summary

Present Time: Tue Jun 11 15:36:04.733 EDT

-----------------------------------------------
0/0/CPU0
-----------------------------------------------
Delay-Measurement:
Total interfaces : 2
Total query packets received : 0
Total reply packets sent : 0
Total reply packets sent errors : 0
Total URO TLV not present errors : 0
Total invalid port number errors : 0
Total no source address errors : 0
Total no retrun path errors : 0
Total unsupported querier control code errors : 0
```

```
Total unsupported timestamp format errors : 0
Total timestamp not available errors : 0
Total unsupported mandatory TLV errors : 0
Total invalid packet errors : 0
Current rate : 0 pkts/sec
Rate high water mark : 2 pkts/sec
```

delay-measurement

To enable delay-measurement for the given interface, and enter delay-measurement mode, use the **delay-measurement** command in interface mode. Delay-measurement is used to measure the amount of link delay in a network. This measure is critical for traffic engineering in service provider networks. To make this measurement, delay-measurement probe packets are sent to next-hops through MPLS multicast MAC address.

This command has no keywords or arguments.

Command Default

By default, delay-measurement is not enabled.

Command Modes

interface mode

Command History

Release	Modification
Release 6.5.1	This command was introduced.

Usage Guidelines

The delay-measurement command enables delay measurement for the given interface. The maximum number of interfaces enabled with delay-measurement should not exceed 1000.

Task ID

Task ID	Operation
performance-measurement	write

```
Router#configure
Router#(config)#performance-measurement
Router#(config-perf-meas)#interface gigabitEthernet 0/0/0/0
Router#(config-pm-intf)#delay-measurement
```

delay-profile interfaces

To enter interface delay profile mode, and specify delay profile for interface delay-measurement, use the **delay-profile** command in performance-measurement mode. For link-delay measurement, delay-profile type interface is used. This command allows probe scheduling and also to configure metric advertisement parameters for delay-measurement.

delay-profile *interfaces*

Command Default

No default behavior or values

Command Modes

performance-measurement mode

Command History

Release	Modification
Release 6.5.1	This command was introduced.

Task ID

Task ID	Operation
performance-measurement	write

```
Router#configure
Router#(config)#performance-measurement
Router#(config-perf-meas)#delay-profile interfaces
```

interface

To enable Multiprotocol Lable Switching- Performance Measurement (MPLS-PM) on an interface and to enter MPLS-PM interface configuration mode, use the **interface** command in performance-measurement mode.

interface *type interface-path-id*

Syntax Description

type	Gives the interface type. For more information, use the question mark (?) online help function.
interface-path-id	Physical interface or virtual interface. **Note** Show interfaces command gives a list of all possible interfaces currently configured on the router. For more information about the syntax for the router, use the question mark (?) online help function.

Command Default

No default behavior or values

Command Modes

Performance-measurement mode

Command History

Release	Modification
Release 6.5.1	This command was introduced.

Task ID

Task ID	Operation
performance-measurement	write

```
Router#configure
Router#(config)#performance-measurement
Router#(config-perf-meas)#interface gigabitEthernet 0/0/0/0
```

probe

To configure probe properities, use the **probe** command in probe mode. Probe packets can be scheduled and used to measure delay-measurement metrics.

probe {**interval** *interval-value* | **one-way** | **burst** }

Syntax Description

interval *interval-value*	This specifies the interval at which probe metrics are computed for advertisement check and telemetry. Interval-value is in seconds, ranging from 1 to 3600
one-way	Enables the one-way measurement collection, only timestamp 1 and 2. Precision time protocol (PTP) clock synchronization is mandatory in this mode.
burst	This is used to enter burst submode.

Command Default

Default probe interval is 30 seconds. When one-way is not enabled, timestamp t1, t2, t3, and t4 will be collected. This way PTP clock sync is not required.

Command Modes

probe mode

Command History

Release	Modification
Release 6.5.1	This command was introduced.

Usage Guidelines

Interval-value specifies how often PM calculates the delay metric and checks accelerated advertisement threshold if enabled. It should be greater or equal to the multiple of burst-count and burst-interval. When periodic-interval is not an exact multiple of the probe interval, it will be rounded up to the next closest multiple. Therefore, changing this value may result in the change of the effective periodic interval.

The maximum packet per second for all the interface delay-measurement sessions combined should not exeeced 1000.

One-way requires PTP clock sync on the querier and responder node. If not enabled, probe packet will collect t1 t2 t3 and t4 from querier and responder. PTP clock sync is not required in this mode.

Task ID

Task ID	Operation
performance-measurement	write

```
Router#configure
Router#(config)#performance-measurement
Router#(config-perf-meas)#delay-profile interfaces
Router#(config-pm-dm-intf)#probe
Router#(config-pm-dm-intf-probe)#interval 15
Router#(config-pm-dm-intf-probe)#one-way
```

Table 1: Related Commands

Command	Description
Performance-measurement delay-profile interfaces probe burst	This command enables you to enter burst submode.
Performance-measurement delay-profile interfaces probe burst interval *interval-value*	This command enables you to set the interval value of each probe interval. The interval-value can range from 1 to 3600.
Performance-measurement delay-profile interfaces probe burst count	This command enables you to set the number of bursts sent within each probe interval. The count-value can range from 1 to 30.
Performance-measurement delay-profile interfaces advertisement periodic	This command is used to configure periodic advertisement.
Performance-measurement delay-profile interfaces advertisement periodic disabled	This command is used to disable periodic advertisement.
Performance-measurement delay-profile interfaces advertisement periodic interval	This command is used to configure the interval value at which probe metrics are computed for advertisement check and telemetry.
Performance-measurement delay-profile interfaces advertisement periodic mininum-change	This command is used to configure minimum change value periodic advertisement.
Performance-measurement delay-profile interfaces advertisement periodic threshold	This command is used to configure the threshold percentage change for periodic advertisement.
Performance-measurement delay-profile interfaces advertisement accelerated	This command is used to configure accelerated advertisement.
Performance-measurement delay-profile interfaces advertisement accelerated minimum-change	This command is used to configure minimum change value accelerated advertisement.
Performance-measurement delay-profile interfaces advertisement accelerated threshold	This command is used to configure the threshold percentage change for accelerated advertisement. By default, it is the change in the measured minimum-delay link metric compared to the last advertised minimum-delay link metric is, above the periodic threshold (percentage) and above the minimum-change (value).

show performance-measurement counters

To display counters for delay-measurement, use the **performance-measurement counters** show command in EXEC modeXR EXEC mode.

show performance-measurement counters {**batch** | **interfaces** [**type** *interface-path-id*] [**detail**] } [**location** {*node-id* | *all*}]

Syntax Description

type	(Optional) Interface type. For more information, use the question mark (?) online help function.
interface-path-id	Physical interface or a virtual interface. **Note** Use the show interfaces command to see a list of all possible interfaces currently configured on the router. For more information about the syntax for the router, use the question mark (?) online help function.
batch	Display counters for batch.

Command Default

No default

Command Modes

EXECXR EXEC

Command History

Release	Modification
Release 6.5.1	This command was introduced.

Task ID

Task ID	Operation
performance-measurement	write/read

```
RP/0/0/CPU0:ios# show performance-measurement counters batch

Present Time: Wed May 22 16:03:31.300 EDT
-----------------------------------------------
0/0/CPU0
-----------------------------------------------
Messages   Batches    Min    Max     Avg     MaxLat     AvgLat   SError   OError  Description
-------------------------------------------------------------------------------------------------
2              1       2      2       2        0          0        0        0     IM CAPS
ADD
0              0       0      0       0        0          0        0        0     IM CAPS
DELETE
2              2       1      1       1        0          0        0        0     IM ATTR
REG
0              0       0      0       0        0          0        0        0     IM ATTR
UNREG
```

```
1              1       1       1       1        0          0        0        0     IM
DELAY/LOSS ATTR
```

show performance-measurement history

To display the history for delay-measurement, use the **performance-measurement history** show command in EXEC modeXR EXEC mode.

show performance-measurement history { **probe** | **aggregated** } **interfaces** [**type** *interface-path-id*]] [**location** { *node-id* | *all* }]

Syntax Description

probe	Displays information for the delay metric computation result within each probe interval.
aggregated	Displays information for the delay metric computation result within each advertisement periodic interval.
interface	(Optional) Displays information on the specified interface.
type	(Optional) Interface type. For more information, use the question mark (?) online help function.
interface-path-id	Physical interface or a virtual interface. **Note** Use the show interfaces command to see a list of all possible interfaces currently configured on the router. For more information about the syntax for the router, use the question mark (?) online help function.
location	(Optional) Specifies a node.
node-id	The node-id argument is entered in the rack/slot/module notation.
all	Specifies all locations.

Command Default

No default

Command Modes

EXECXR EXEC

Command History

Release	Modification
Release 6.5.1	This command was introduced.

Task ID

Task ID	Operation
performance-measurement	write/read

```
RP/0/0/CPU0:R2# show performance-measurement history probe interfaces gigabitEthernet 0/2/0/0

Present Time: Thu May 23 17:28:23.834 EDT
```

```
-----------------------------------------------
0/2/CPU0
-----------------------------------------------
Interface Name: GigabitEthernet0/2/0/0 (ifh: 0x1000060)
Delay-Measurement history (uSec):
Probe Start Timestamp       Pkt(TX/RX)    Average    Min    Max
May 23 2019 17:27:55.812        5/5         96       76     114
May 23 2019 17:27:25.812        5/5         75       59      93
May 23 2019 17:26:55.812        5/5         70       62      76
May 23 2019 17:26:25.812        5/5         84       68     102
May 23 2019 17:25:55.811        5/5         96       90     105
```

Table 2: This table gives show performance-measurement history description

Field	Description
TX	Number of packets sent.
RX	Number of packets received.
Average	Average delay of all the delay measures within one probe.
Max	Maximum delay of all the delay measures within one probe.
Min	Minimum delay of all the delay measures within one probe.

show performance-measurement interfaces

To display interface delay-measurement information for metric result and metric advertisement, use the **performance-measurement interfaces** show command in EXEC modeXR EXEC mode.

show performance-measurement interfaces [**type** *interface-path-id*] [**detail**] [**private**] [**location** {*node-id* | *all*}]

Syntax Description

type	(Optional) Interface type. For more information, use the question mark (?) online help function.
interface-path-id	Physical interface or a virtual interface. **Note** Use the show interfaces command to see a list of all possible interfaces currently configured on the router. For more information about the syntax for the router, use the question mark (?) online help function.
location	(Optional) Specifies a node.
detail	(Optional) Displays detailed information regarding the current probe period
private	(Optional) Displays private information regarding the interface attributes.

Command Default

No default

Command Modes

EXECXR EXEC

Command History

Release	Modification
Release 6.5.1	This command was introduced.

Task ID

Task ID	Operation
performance-measurement	write/read

```
RP/0/0/CPU0:R2# show performance-measurement interfaces gigabitEthernet 0/2/0/0 detail
private

Present Time: Tue Jun 11 14:45:53.048 EDT
------------------------------------------------
0/2/CPU0
------------------------------------------------
Interface Name: GigabitEthernet0/2/0/0 (ifh: 0x1000060)
Delay-Measurement     : Enabled
Local IPV4 Address    : 10.10.10.2
Local IPV6 Address    : 10:10:10::2
Local MAC Address     : 023a.6fc9.cd6b
```

```
Primary VLAN Tag      : None
Secondary VLAN Tag    : None
State                 : Up
PM Caps               : Created
IM Attributes         : Registered
MPLS Caps             : Created
IM Attributes         : Registered
Stale                 : False

Delay Measurement session:
    Session ID      : 1

    Last advertisement:
        Advertised at : Jun 11 2019 14:38:49.258 (424.2 seconds ago)
   Advertised reason: Periodic timer, min delay threshold crossed
        Advertised delays (uSec): avg: 75, min: 58, max: 101, variance: 17
        Msg in flight: False

    Next advertisement:
         Check scheduled in 1 more probe (roughly every 30 seconds)
         Aggregated delays (uSec): avg: 71, min: 61, max: 84, variance: 10
         Rolling average (uSec): 71

    Current Probe:
        Started at Jun 11 2019 14:45:48.459 (4.801 seconds ago)
        Packets Sent: 5, received: 5
```

Table 3: This table gives show performance-measurement interface description

Field	Description
Current probe	Information for the current probe period.
Next advertisement	Aggregated delays will be checked against the periodic advertisement configuration (threshold, minimum-change) with a certain number of probe results.
Last advertisement	The record of the last advertisement, including the timestamp, reason of advertise, metric value and status of the message (if it is in flight).

show performance-measurement proc-fsm

To display information about the connection between performance-measurement process and its collaborators, use the **performance-measurement proc-fsm** show command in EXEC modeXR EXEC mode.

show performance-measurement proc-fsm [**location** { *node-id* | *all* }]

Syntax Description

location	(Optional) Specifies a node.
node-id	Node ID. The node-id argument is entered in the rack/slot/module notation.
all	Specifies all locations.

Command Default

No default

Command Modes

EXECXR EXEC

Command History

Release	Modification
Release 6.5.1	This command was introduced.

Task ID

Task ID	Operation
performance-measurement	write/read

```
RP/0/0/CPU0:R2# show performance-measurement proc-fsm location 0/0/CPU0

Present Time: Tue Jun 11 15:03:32.251 EDT
------------------------------------------------------------------------------
0/0/CPU0
------------------------------------------------------------------------------
Perf-Meas Process FSM
  Current process role  : Primary Active (Master)
  Current process state: Run

  Process Role Change Status    :
    Role Change Triggered       : No Role Change
    Role Change Start              : No
    Role Change End                : No

  Process State Transition Time:
    Process-Start                  : Mon Jul 29 12:21:57 EDT 2019 (00:34:39 ago)
    Process-Init                   : Mon Jul 29 12:21:57 EDT 2019 (00:34:39 ago)
    Role-based Init             : Mon Jul 29 12:21:58 EDT 2019 (00:34:38 ago)
    Wait-Collab-Conn            : Mon Jul 29 12:21:58 EDT 2019 (00:34:38 ago)
    Run                                : Mon Jul 29 12:21:58 EDT 2019 (00:34:38 ago)

  Process Collaborator Report Card:
    Collaborator               Connection Status (Since)                          IDT
 Done (At)

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

```
    IM                          Up   (Mon Jul 29 12:21:58 EDT 2019 (00:34:38 ago))      N/A

    UDP V4 SOCKET           Up   (Mon Jul 29 12:21:57 EDT 2019 (00:34:39 ago))      N/A
    UDP V6 SOCKET       Up   (Mon Jul 29 12:21:57 EDT 2019 (00:34:39 ago))      N/A
    SYSDB                       Up   (Mon Jul 29 12:21:58 EDT 2019 (00:34:38 ago))      N/A

    NETIO                       Up   (Mon Jul 29 12:21:57 EDT 2019 (00:34:39 ago))      N/A


  Process Event History:
    State transition                                    Event
Collaborator                Time
    From                        To

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

    Process-Start           Process-Init                Collab Conn UP            UDP V6
SOCKET       Mon Jul 29 12:21:57 EDT 2019 (00:34:39 ago)
    Process-Init            Process-Init                Collab Conn UP            NETIO
                      Mon Jul 29 12:21:57 EDT 2019 (00:34:39 ago)
    Process-Init            Process-Init                Collab Conn UP            UDP V4
SOCKET       Mon Jul 29 12:21:57 EDT 2019 (00:34:39 ago)
    Process-Start           Process-Init                Process Init                  N/A
                              Mon Jul 29 12:21:58 EDT 2019 (00:34:38 ago)
```

show performance-measurement responder

To display information about performance-measurement responder, use the **performance-measurement responder** show command in EXEC modeXR EXEC mode.

show performance-measurement responder { **counters** | **interfaces** [**type** *interface-path-id*] | **summary** } [**detail**] [**location** { *node-id* | *all* }]

Syntax Description

counters	Counters for a single interface on the performance-measurement responder.
type	(Optional) Interface type. For more information, use the question mark (?) online help function.
interface-path-id	Physical interface or a virtual interface. **Note** Use the show interfaces command to see a list of all possible interfaces currently configured on the router. For more information about the syntax for the router, use the question mark (?) online help function.
summary	Summary information for the responder.

Command Default

No default

Command Modes

EXECXR EXEC

Command History

Release	Modification
Release 6.5.1	This command was introduced.

Usage Guidelines

This command is useful on the nodes that receive performance-measurement probe packet as responder.

Task ID

Task ID	Operation
performance-measurement	write/read

```
RP/0/0/CPU0:R1# show performance-measurement responder counters location 0/0/CPU$

Present Time: Tue Jun 11 15:09:53.439 EDT
-----------------------------------------------
0/0/CPU0
-----------------------------------------------
Interface Name: Bundle-Ether2
 Delay-Measurement:
  Total query packets received                   : 315
  Total reply packets sent                       : 315
  Total reply packets sent errors                : 0
  Total URO TLV not present errors               : 0
```

```
  Total invalid port number errors                : 0
  Total no source address errors                  : 0
  Total no retrun path errors                     : 0
  Total unsupported querier control code errors   : 0
  Total unsupported timestamp format errors       : 0
  Total timestamp not available errors            : 0
  Total unsupported mandatory TLV errors          : 0
  Total invalid packet errors                     : 0

Interface Name: Bundle-Ether3
 Delay-Measurement:
  Total query packets received                    : 315
  Total reply packets sent                        : 315
  Total reply packets sent errors                 : 0
  Total URO TLV not present errors                : 0
  Total invalid port number errors                : 0
  Total no source address errors                  : 0
  Total no retrun path errors                     : 0
  Total unsupported querier control code errors   : 0
  Total unsupported timestamp format errors       : 0
  Total timestamp not available errors            : 0
  Total unsupported mandatory TLV errors          : 0
  Total invalid packet errors                     : 0
```

show performance-measurement summary

To display summary information for querier, use the **performance-measurement summary** show command in EXEC modeXR EXEC mode.

show performance-measurement summary [**detail**] [**private**] [**location** {*node-id* | *all*}]

Syntax Description

counters	Counters for a single interface on the performance-measurement responder.
summary	Summary information for the responder.
detail	Detail information for the error counters.
private	Information for the checkpoint OP queue and UDP ports.

Command Default

No default

Command Modes

EXECXR EXEC

Command History

Release	Modification
Release 6.5.1	This command was introduced.

Usage Guidelines

This command should be used on the querier of the performance-measurement session.

Task ID

Task ID	Operation
performance-measurement	write/read

```
RP/0/0/CPU0:R2# show performance-measurement summary

Present Time: Tue Jun 11 14:41:37.689 EDT
-----------------------------------------------
0/0/CPU0
-----------------------------------------------
Total interfaces : 2
Delay-Measurement:
Interface Delay-Measurement:
 Profile configuration:
  Measurement Type               : Two-Way
  Probe interval                 : 30 seconds
  Burst interval                 : 200 mSec
  Burst count                    : 5 packets
  Periodic advertisement         : Enabled
  Interval                       : 30 (effective: 30) sec
  Threshold                      : 10%
  Minimum-Change                 : 500 uSec
  Advertisement accelerated      : Disabled
  Total sessions                 : 2
  Packets:
   Total sent                    : 60
```

```
  Total received               : 60
 Errors:
  Total sent errors            : 0
  Total received errors        : 0
Probes:
  Total started                : 12
  Total completed              : 12
  Total incomplete             : 0
  Total advertisements         : 2
Global Delay Counters:
 Total packets sent            : 60
 Total query packets received  : 60
 Total invalid session id      : 0
 Total no session              : 0
```