Manageability Commands

gnmi

To create a gRPC listener with the default or IANA ratified gNMI port of 9339, use the **gnmi** command in Global Configuration Mode.

gnmi port *portnum*

Syntax Description

portnum	Specifies the server listening port for the gRPC service. • gNMI service port: default: 9339, range: 57344-57999

Command Default

None

Command Modes

XR Config mode

Command History

Release	Modification
Release 24.1.1	This command was introduced.

Usage Guidelines

Unconfiguring gNMI will disable requests on port 9339.

The allowed ports within this range are 9339 (IANA ratified port) and 57344-57999 (Linux application port range)

Task ID

Task ID	Operations
config-services	read, write

Examples

The following example shows how to configure gNMI as a submode under gRPC and committing this configuration would create a gRPC listener with the default or IANA ratified gNMI port of 9339.

```
Router(config-grpc)gnmi
Router(config-grpc-gnmi)commit
```

Verify the submode configuration.

```
Router#show running-config grpc
grpc
  gnmi
!
```

The **port** command under gNMI submode allows the port to be modified in the port range or IANA ratified port.

```
Router(config-grpc)#gnmi
Router(config-grpc-gnmi)#port 9339
Router(config-grpc-gnmi)#commit
```

Verify the port number.

```
Router#show running-config grpc
grpc
```

```
  gnmi
    port 9339
!
```

grpc max-concurrent-streams

To specify a limit on the number of concurrent streams per gRPC connection to be applied on the server, use the **grpc max-concurrent-streams** command in the XR Config mode. To restore the default value, use the **no** form of this command.

grpc max-concurrent-streams *limit*

Syntax Description

max-concurrent-streams *limit*	Specifies the limit on the number of concurrent streams per gRPC connection to be applied on the server. The range is from 1 to 128. The command default is 32.

Command Default

By default, the maximum concurrent streams per gRPC connection is 32.

Command Modes

XR Config mode

Command History

Release	Modification
Release 24.1.1	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
config-services	read, write

Examples

The following example shows how to set the limit of the number of concurrent streams per gRPC connection to 40:

```
Router#configure
Router(config)#grpc max-concurrent-streams 40
```

grpc tunnel

To allow the router (tunnel client) to dial out to a collector (tunnel server), use the **grpc tunnel** command in the XR Config mode. To remove the **gRPC tunnel** service, use the **no** form of this command.

grpc tunnel { **destination** *IP-address domain name* | **port** *port-ID* | **address-family** *ipv4 ipv6* | **target** *address* | **source** *ipv4 virtual ipv6 virtual* }

Syntax Description

destination*IP-address*or*domain name*	Specifies the gRPC tunnel destination.
port*port-ID*	Specifies the destination port.
address-family*ipv4*or*ipv6*	Specifies the address-family (AF) for the returned addresses from DNS. Only applicable to domain name.
target*address*	Specifies the target name to register the tunnel service.
source*ipv4 virtual*or*ipv6 virtual*	Specifies the virtual IP address family.

Command Default

None

Command Modes

XR Config mode

Command History

Release	Modification
Release 7.10.1	Keywords **source ipv4 virtual address**, **source ipv6 virtual address**, **address-family ipv4**, and **address-family ipv6** were added to this command.
Release 7.5.1	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
config-services	read, write

Examples

The following example shows how to set up a virtual IPv4 or IPv6 or both as source address:

```
Router(config)#grpc
Router(config-grpc)#tunnel
Router(config-grpc-tunnel)#destination 192.168.0.1 port 59500
Router(config-grpc-tunnel-dest)#target xr
Router(config-grpc-tunnel-dest)#source ipv4 virtual address
Router(config-grpc-tunnel-dest)#source ipv6 virtual address
Router(config-grpc-tunnel-dest)#source-interface MgmtEth 0/RP0/CPU0/0
```

The following example shows how to set up FQDN as gRPC tunnel destination (IPv4):

```
Router#config
Router(config)#grpc
Router(config-grpc)#tunnel
Router(config-grpc-tunnel)#destination test.tunnel.dn port 59500
Router(config-grpc-tunnel-dest)#address-family ipv4
Router(config-grpc-tunnel-dest)#target xr
Router(config-grpc-tunnel-dest)#commit
```

grpc p4rt

To enable programming the data plane elements using Programming Protocol-independent Packet Processors (P4) Runtime API, use the **grpc p4rt** command in the XR Config mode. To remove the P4Runtime API, use the **no** form of this command.

grpc p4rt

Syntax Description

This command has no keywords or arguments.

Command Default

None

Command Modes

XR Config mode

Command History

Release	Modification
Release 7.10.1	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
config-services	read, write

Examples

The following example shows how to enable P4Runtime service:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# grpc p4rt
RP/0/RP0/CPU0:router(config-grpc-p4rt)# commit
```

grpc gnsi service certz ssl-profile-id

To instruct the router to load the certz.proto, use the **grpc gnsi service certz ssl-profile-id** command in Global Configuration Mode. To disable the SSL profiles configured with certz.proto, use the no form of the command.

grpc gnsi service certz ssl-profile-id *ssl-profile name*

Syntax Description

ssl-profile name	Specifies the SSL-profile name for which certz. proto needs to be activated.

Command Default

None

Command Modes

XR Config mode

Command History

Release	Modification
Release 24.1.1	This command was introduced.

Usage Guidelines

If Certz. proto is not active, then gNOI cert.proto is taken into consideration. If niether certz.proto nor cert.proto is active, then TLS trustpoint's data is considered.

Task ID

Task ID	Operation
config-services	read, write

This example shows how to activate the certz.proto in the router.

```
Router(config)#grpc gnsi service certz ssl-profile-id gNxI
Router(config)#commit
```

grpc p4rt interface

To assign unique port identifiers to configure P4Runtime programming on the router, use the **grpc p4rt interface** command in the XR Config mode. To remove the P4Runtime port identifier configuration for the interfaces, use the **no** form of this command.

grpc p4rt interface *type location* **port-id** *port-identifier*

Syntax Description

type	Specifies the interface type. For more information, use the question mark (**?**) online help function.
location	Specifies the physical or virtual interface in *rack/slot/instance/port/breakout* or *rack/slot/interface/port* format.
port-id *port-identifier*	Assigns a unique numeric identifier to each physical port on the router. The port ID is a unique 32-bit identifier. The range is 1 to 4294967039.

Command Default

None

Command Modes

XR Config mode

Command History

Release	Modification
Release 7.10.1	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
config-services	read, write

Examples

The following example shows how to configure the interfaces HundredGigE0/0/0/24, HundredGigE0/0/0/25 and HundredGigE0/0/0/26 with port IDs 3, 6 and 7 respectively for P4Runtime:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# grpc p4rt
RP/0/RP0/CPU0:router(config-grpc-p4rt)# interface HundredGigE0/0/0/24 port-id 3
RP/0/RP0/CPU0:router(config-grpc-p4rt)# interface HundredGigE0/0/0/25 port-id 6
RP/0/RP0/CPU0:router(config-grpc-p4rt)# interface HundredGigE0/0/0/26 port-id 7
```

grpc p4rt location

To assign unique identifiers for each Network Processing Unit (NPU) in the system to configure P4Runtime programming on the router, use the **grpc p4rt location** command in the XR Config mode. To remove the P4Runtime device identifier configuration for the NPUs, use the **no** form of this command.

grpc p4rt location *node-id* **npu-id** *npu-identifier* **device-id** *device-identifier*

Syntax Description

node-id	Specifies the card location on the specified node in *rack/slot/module* notation.
npu-id *npu-identifier*	Specifies the NPU identifier on the card. The `npu-id` is a unique value in the range of 0 to 7.
device-id *device-identifier*	Assigns a unique device identifier to each device in the system. The `device-id` is a unique 64-bit identifier. The range is 1 to 18446744073709551615.

Command Default

None

Command Modes

XR Config mode

Command History

Release	Modification
Release 7.10.1	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
config-services	read, write

Examples

The following example shows how to configure the NPU ID and device ID for nodes 0/0/CPU0 and 0/1/CPU0:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# grpc p4rt
RP/0/RP0/CPU0:router(config-grpc-p4rt)# location 0/0/CPU0 npu-id 0 device-id 1000000
RP/0/RP0/CPU0:router(config-grpc-p4rt)# location 0/0/CPU0 npu-id 1 device-id 1000001
RP/0/RP0/CPU0:router(config-grpc-p4rt)# location 0/1/CPU0 npu-id 2 device-id 1000002
RP/0/RP0/CPU0:router(config-grpc-p4rt)# location 0/1/CPU0 npu-id 3 device-id 1000011
```

gnsi load service authorization policy

To instruct the router to load the service authorization policy file into its memory and update the policy, use the **gnsi load service authorization policy** command in Global Configuration Mode.

gnsi load service authorization policy *file_path*

Syntax Description

file-path	Specifies the path of the policy file.

Command Default

Enabled, by default

Command Modes

XR Config mode

Command History

Release	Modification
Release 7.11.1	This command was introduced.

Usage Guidelines

A policy file which has no specified or the policy is invalid, the default behavior will transition to the zero-policy behavior. Zero-policy allows all gRPC services to all the users if their profiles are configured.

Task ID

Task ID	Operation
config-services	read, write

This example shows how to activate the authorization policy test.json in the router.

```
Router(config)#gnsi load service authorization policy /disk0:/test.json
Successfully loaded policy
```

iteration

To configure the iteration size for large XML agent responses, use the iteration command in xml agent configuration mode. To revert to the default iteration settings, use the **no** form of this command.

iteration {**off** | **on** **size** *iteration-size*}
no iteration

Syntax Description

off	Disables iteration, meaning that the entire XML response is returned, regardless of its size. Use of this option is not recommended.
on	Enables iteration, meaning that large XML responses are broken into chunks according to the iteration chunk size.
size *iteration-size*	Specifies the size of the iteration chunk, in Kbytes. Values can range from 1 to 100,000.

Command Default

Iteration is enabled; the *iteration-size* is 48.

Command Modes

XML agent

TTY XML agent

SSL XML agent

Command History

Release	Modification
Release 7.0.12	This command was introduced.

Usage Guidelines

When the XML agent returns a large response, it splits the response into chunks and returns one chunk at a time. External clients then need to send a GetNext request to obtain the next chunk. Use the **iteration** command to control the size of iteration chunks. A larger chunk value allows larger chunks to be received in a shorter period of time, possibly making the router system busier. A smaller chunk value allows smaller chunks to be received over a longer period of time, but does not make the router busy You can also specify to disable iteration completely using the **iteration off** command.

Note It is not recommended to disable iteration, since this could result in large transient memory usage.

To specify the TTY or SSL iteration size specifically, use the **iteration** command from the appropriate command mode.

Task ID

Task ID	Operations
config-services	read, write

Example

The following example shows how to configure the iteration chunk size to 100 Kbytes.

```
RP/0/RP0/CPU0:router(config)# xml agent
RP/0/RP0/CPU0:router(config-xml)# iteration on size 100
```

The following example shows how to disable iteration:

```
RP/0/RP0/CPU0:router(config)# xml agent
RP/0/RP0/CPU0:router(config-xml)# iteration off
```

The following example shows how to turn on iteration with the default iteration size:

```
RP/0/RP0/CPU0:router(config)# xml agent
RP/0/RP0/CPU0:router(config-xml)# no iteration off
```

The following example shows how to change the iteration size to the default iteration size.

```
RP/0/RP0/CPU0:router(config)# xml agent
RP/0/RP0/CPU0:router(config-xml)# no iteration on size 100
```

The following example shows how to change the iteration size of the TTY agent to 3 Kbytes:

```
RP/0/RP0/CPU0:router(config)# xml agent tty
RP/0/RP0/CPU0:router(config-xml-tty)# iteration on size 3
```

The following example shows how to turn off the iteration of the SSL agent:

```
RP/0/RP0/CPU0:router(config)# xml agent ssl
RP/0/RP0/CPU0:router(config-xml-ssl)# iteration off
```

nvgen default-sanitize

To enable sanitizing Strings, Usernames, Passwords, Comments, or IP Addresses in the output for **show running configurations** command, use the **nvgen default-sanitize** command.

nvgen default-sanitize { **strings** | **usernames** | **passwords** | **comments** | **ipaddrs** }

Syntax Description

strings	Removes the description strings in the running configuration and replaces it with **<removed>** phrase.
usernames	Removes the usernames in the running configuration and replaces it with **<removed>** phrase.
password	Removes the passwords in the running configuration and replaces it with **<removed>** phrase.
comments	Removes the comments in the running configuration and replaces it with **<comments removed>** phrase.
ipaddrs	Removes the IP addresses in the running configuration and replaces it with **<removed>** phrase.

Command Default

The output for **show running configurations** command includes sensitive information such as Strings, Usernames, Passwords, Comments, or IP Addresses.

Command Modes

Configuration mode

Command History

Release	Modification
Release 7.5.4	This command was introduced.

Usage Guidelines

None

Examples

The following example shows how to sanitize show running configurations:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# nvgen default-sanitize strings
RP/0/RP0/CPU0:router(config)# nvgen default-sanitize usernames
RP/0/RP0/CPU0:router(config)# nvgen default-sanitize passwords
RP/0/RP0/CPU0:router(config)# nvgen default-sanitize comments
RP/0/RP0/CPU0:router(config)# nvgen default-sanitize ipaddrs
RP/0/RP0/CPU0:router(config)# commit
```

port (gRPC)

To set custom ports for gNMI, gRIBI, and P4RT services within the defined range, including default IANA ports like 9339, 9340, and 9559 (respectively), use the **port** command under the service submode.

port *portnum*

Syntax Description

portnum	Specifies the server listening port for the gRPC service. • gNMI service port: default: 9339, range: 57344-57999 • gRIBI service port: default: 9340, range: 57344-57999 • p4RT service port: default: 9559, range: 57344-57999

Command Default

None

Command History

Release	Modification
Release 24.1.1	This command was introduced.

Usage Guidelines

Disabling the **port** command will cause the service to use the default or IANA port.

Task ID

Task ID	Operations
config-services	read, write

Examples

The following example shows how to configure a port for any available gRPC service (gNMI, P4RT, gRIBI) :

For P4RT service:

```
Router(config-grpc)#p4rt
Router(config-grpc-p4rt)#port 9559
Router(config-grpc-p4rt)#commit
```

Verify the port number.

```
Router#show running-config grpc
grpc
  p4rt
    port 9559
!
```

show p4rt devices

To view the status of P4Runtime devices, use the **show p4rt devices** command in XR EXEC mode.

show p4rt devices *device-id* **location** *npu-location* **npu-id** *npu-id*

Syntax Description

device-id	Specifies the 64-bit device identifier as a decimal value in the range of 1 to 18446744073709551615.
location *npu-location*	Specifies the location of the Network Processing Unit (NPU) device.
npu-id *npu-id*	Specifies the unique NPU identifier in the range of 0 to 7.

Command Default

None

Command Modes

EXEC

Command History

Release	Modification
Release 7.10.1	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
config-services	read

This example shows how to view the status of devices configured for P4Runtime:

```
RP/0/RP0/CPU0:router# show p4rt devices
Wed May 17 17:11:43.670 UTC
----------------P4RT Devices--------------
Device Id                                : 1000000
    Node Id                              : 0/0/CPU0 (0x0)
    NPU Id                               : 0x0
    Internal Tx State                    : 1
    Max Election Id                      : 0,0
    Shutdown Requested                   : no
    Sessions count                       : 0
    P4Info Hash Value                    : 0x0
    P4Info Ref Count                     : 0
    Protocol Stats:
        New Primary Count                : 0
        Last Session Id                  : 0
        Successfull FwdConfig            : 0
        Unsuccessfull FwdConfig          : 0
        Not Primary FwdConfig            : 0
    Write Stats:
        Successfull Write                : 0
        Unsuccessfull Write              : 0
        Not Primary Write                : 0
        Failed Precondition Write        : 0
```

```
        Successfull Write Entries         : 0
        Unsuccessfull Write Entries       : 0
    Read Stats:
        Successfull Read                  : 0
        Unsuccessfull Read                : 0
        Failed Precondition Read          : 0
        Successfull Read Entries          : 0
    Inject Stats:
        Primary Packets                   : 0
        Primary Drops                     : 0
        Failed Precondition               : 0
        Non Primary Drops                 : 0
        Bad Packet Length                 : 0
        Bad Packet Metadata               : 0
    Punt Queue Stats:
        Size                              : 0
        Inserted                          : 0
        Removed                           : 0
        Full Drops                        : 0
        Drained Drops                     : 0
    Punt Stats:
        Total Primary Packets             : 0
        Primary Packet Errors             : 0

  Table Entries                           : 0

  Sessions:
      None found


Device Id                                 : 1000001
    Node Id                               : 0/1/CPU0 (0x100)
    NPU Id                                : 0x3
    Internal Tx State                     : 1
    Max Election Id                       : 0,0
    Shutdown Requested                    : no
------------------ Truncated for brevity --------------------
```

show p4rt interfaces

To view the status of P4Runtime interfaces, use the **show p4rt interfaces** command in XR EXEC mode.

show p4rt interfaces *type location*

Syntax Description

type	Specifies the interface type. For more information, use the question mark (**?**) online help function.
location	Specifies the physical or virtual interface in *rack/slot/instance/port/breakout* or *rack/slot/interface/port* format.

Command Default

None

Command Modes

EXEC

Command History

Release	Modification
Release 7.10.1	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
config-services	read

This example shows how to view the status of interfaces configured for P4Runtime:

```
RP/0/RP0/CPU0:router# show p4rt interfaces
Wed May 17 16:53:01.459 UTC
---------------P4RT Interface-------------
Interface Name     : HundredGigE0/0/0/24
    Handle         : 0x250
    P4RT Port-id   : 3
    Node-id        : 0/0/CPU0 (0x0)
    NPU-id         : 0x0
    FSM State      : SPIO_ATTACHED
    RefCnt         : 3
    Flags          : 0xd

Interface Name     : HundredGigE0/0/0/25
    Handle         : 0x258
    P4RT Port-id   : 6
    Node-id        : 0/0/CPU0 (0x0)
    NPU-id         : 0x1
    FSM State      : SPIO_ATTACHED
    RefCnt         : 3
    Flags          : 0xd

Interface Name     : HundredGigE0/0/0/26
    Handle         : 0x260
    P4RT Port-id   : 7
    Node-id        : 0/0/CPU0 (0x0)
    NPU-id         : 0x1
```

```
FSM State       : SPIO_ATTACHED
RefCnt          : 3
Flags           : 0xd
```

show p4rt state

To view the global state of P4Runtime gRPC service configured on the router, use the **show p4rt state** command in XR EXEC mode.

show p4rt state

Syntax Description

This command has no keywords or arguments.

Command Default

None

Command Modes

EXEC

Command History

Release	Modification
Release 7.10.1	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
config-services	read

This example shows how to view the global state of P4Runtime service configured on the router:

```
RP/0/RP0/CPU0:router# show p4rt state
Wed May 17 17:24:56.802 UTC
----------------P4RT state--------------
Global:
    Thread cerrno              : Success
    State                      : CONFIGURED
    Configured                 : Yes

Interface Manager:
    Connected                  : Yes

SPIO:
    Initialized                : Yes
    Thread cerrno              : Success
    Thread running             : Yes
    Thread asked to stop       : No
    Resync in Progress         : No

NETIO:
    Connected                  : Yes

LPTS:
    Client cerrno              : Success
```

show p4rt stats

To view the P4Runtime statistics, use the **show p4rt stats** command in XR EXEC mode.

show p4rt stats

Syntax Description

This command has no keywords or arguments.

Command Default

None

Command Modes

EXEC

Command History

Release	Modification
Release 7.10.1	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
config-services	read

This example shows how to view the global state of P4Runtime services configured on the router:

```
RP/0/RP0/CPU0:router# show p4rt stats
Wed May 17 17:34:14.611 UTC
----------------P4RT stats--------------
Global:
    Ifname Objects               : 3
    ID Objects                   : 3
    IfHandle Objects             : 3
    Stale Interface Objects      : 0
  Inject Stats:
    Added to Internal Queue      : 0
    Internal Queue Full Drops    : 0

SPIO:
    Interface Attach OK          : 3
    Interface Attach Error       : 0
    Interface Resync OK          : 0
    Interface Resync Error       : 0
  Punt Stats:
    Packets                      : 0
    Added to Device Queue        : 0
    Ifhandle Errors              : 0
    Egress Ifhandle Lookup Errors: 0
    Egress Ifhandle Errors       : 0
    Packet Len Errors            : 0
    Bad Punt Reason Errors       : 0
    Packet Buf Errors            : 0
    Bad Device Errors            : 0
    Device Queue Full Drops      : 0
  Inject Stats:
    SPIO Errors                  : 0
```

```
    SPIO Delivered               : 0

NETIO:
  Inject Stats:
    Bad Packet Len Errors        : 0
    Packet Buffer Memory Error   : 0
    Bad IP Packet Error          : 0
    Pak API Error                : 0
    Netio Send Error             : 0
    Netio Down Error             : 0
    Netio Delivered              : 0

LPTS:
  Write:
    Attempts                     : 0
    Errors                       : 0
    Entries:
        Attempts                 : 0
        Errors                   : 0
        Skipped (gRPC Parse)     : 0
        Opcode Errors            : 0
        Punt type Errors         : 0
        Not Suppported Punt type : 0
        LPTS Client Errors       : 0
        LPTS Client Success      : 0
  Read:
    Attempts                     : 0
    Errors                       : 0
    Entries:
        Destination Errors       : 0
        Node_id Errors           : 0
        Npu_id Errors            : 0
        Attribute Errors         : 0
        Read                     : 0
```

show p4rt trace

To view the trace information of P4Runtime configuration, use the **show p4rt trace** command in XR EXEC mode.

show p4rt trace { **all** | **lib** }

Syntax Description

all	Displays trace data for all P4Runtime library.
lib	Displays trace data for general P4Runtime library.

Command Default

None

Command Modes

EXEC

Command History

Release	Modification
Release 7.10.1	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
config-services	read

This example shows how to view the trace information for P4Runtime configuration:

```
RP/0/RP0/CPU0:router# show p4rt trace all
Wed May 17 17:40:28.774 UTC
111 wrapping entries (6528 possible, 896 allocated, 0 filtered, 111 total)
May 17 15:08:47.499 p4rt/lib_slow 0/RP0/CPU0 t18073 Code(224) Thread Init: 'Slow Trace
Started'
May 17 15:08:47.499 p4rt/lib_slow 0/RP0/CPU0 t18073 Code(249) Thread Init: Parent 'thread
Barrier WAITING'
May 17 15:08:47.502 p4rt/lib_slow 0/RP0/CPU0 t18092 Code(218) Thread Init: 'p4rt thread
EVMGR ok'
May 17 15:08:47.502 p4rt/lib_slow 0/RP0/CPU0 t18092 Code(219) Thread Init: 'Role pulse
handler attached'
May 17 15:08:47.502 p4rt/lib_slow 0/RP0/CPU0 t18092 Code(256) Role changed to: 'ACTIVE'
May 17 15:08:47.502 p4rt/lib_slow 0/RP0/CPU0 t18092 Code(226) Thread Init: 'p4rt thread
debug ok'
May 17 15:08:47.502 p4rt/lib_slow 0/RP0/CPU0 t18092 Code(240) DB: 'DB Initialized ok'
May 17 15:08:47.512 p4rt/lib_slow 0/RP0/CPU0 t18092 Code(232) EDM Init: 'EDM sysdb reg ok'
May 17 15:08:47.512 p4rt/lib_slow 0/RP0/CPU0 t18092 Code(233) EDM Init: 'EDM conn id ok'
May 17 15:08:47.512 p4rt/lib_slow 0/RP0/CPU0 t18092 Code(356) OC EDM: OC EDM connect
May 17 15:08:47.522 p4rt/lib_slow 0/RP0/CPU0 t18092 Code(359) OC EDM: Interface EDM
registration successful
May 17 15:08:47.522 p4rt/lib_slow 0/RP0/CPU0 t18092 Code(360) OC EDM: Platform EDM register
May 17 15:08:47.529 p4rt/lib_slow 0/RP0/CPU0 t18092 Code(361) OC EDM: Platform EDM
registration successful
May 17 15:08:47.529 p4rt/lib_slow 0/RP0/CPU0 t18092 Code(238) OC EDM: Conn Success
May 17 15:08:47.532 p4rt/lib_slow 0/RP0/CPU0 t18092 Code(269) LPTS: 'LPTS client init OK'
May 17 15:08:47.532 p4rt/lib_slow 0/RP0/CPU0 t18092 Code(257) Event: 'Client Connections
```

```
Init'
May 17 15:08:47.535 p4rt/lib_slow 0/RP0/CPU0 t18092 Code(236) IfMgr: 'IM callback registered'
May 17 15:08:47.535 p4rt/lib_event 0/RP0/CPU0 t18092 IfMgr: Code(4) - 'Connection UP'
May 17 15:08:47.535 p4rt/lib_slow 0/RP0/CPU0 t18092 Code(238) IfMgr: 'Conn Success'
May 17 15:08:47.535 p4rt/lib_slow 0/RP0/CPU0 t18092 Code(243) SPIO: 'spio Mutex ok'
May 17 15:08:47.535 p4rt/lib_slow 0/RP0/CPU0 t18092 Code(244) SPIO: 'spio thread EVMGR ok'
May 17 15:08:47.535 p4rt/lib_slow 0/RP0/CPU0 t18092 Code(227) Thread Init: 'Stop pulse
handler attached'
---------------------- Truncated for brevity -----------------------
```

show xml schema

To browse the XML schema and data, use the **show xml schema** command in

EXEC

mode.

show xml schema

Syntax Description

This command has no keywords or arguments.

Command Default

None

Command Modes

EXEC

Command History

Release	Modification
Release 7.0.12	This command was introduced.

Usage Guidelines

The **show xml schema** command runs the XML schema browser so that you can browse the XML schema and data.

Task ID

Task ID	Operations
config-services	read

This example shows how to enter the XML schema browser and the available commands:

```
RP/0/RP0/CPU0:router# show xml schema

Username: xxxx
Password:
Enter 'help' or '?' for help
xml-schema[config]:> ?

config            oper              action
adminoper         adminaction       cd
pwd               classinfo         list
ls                datalist          walk
walkdata          get               hierarchy
quit              exit              help
xml-schema[config]:>
```

streaming

To configure XML response streaming, use the **streaming** command in one of the XML agent configuration modes. To disable XML response streaming, use the **no** form of this command.

streaming on size *size*

Syntax Description

on	Turns on XML streaming.
size *size*	Specifies the size of the stream in Kbytes.

Command Default

XML streaming is disabled.

Command Modes

XML agent

XML agent ssl

XML agent tty

Command History

Release	Modification
Release 7.0.12	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
config-services	read, write

This example illustrates how to set the XML response streaming size to 5000 Kbytes.

```
RP/0/RP0/CPU0:router# config
RP/0/RP0/CPU0:router(config)# xml agent
RP/0/RP0/CPU0:router(config-xml-agent)# streaming on size 5000
```

show gnsi service authorization policy

To display the active gRPC service authorization policies on the router, use the **show gnsi service authorization policy** command in Global Configuration mode .

show gnsi service authorization policy

Syntax Description

This command has no keywords or arguments.

Command Default

Enabled, by default

Command Modes

XR Config mode

Command History

Release	Modification
Release 7.11.1	The command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
config-services	read

This example displays the policy which is active on the router:

```
Router#show gnsi service authorization policy
Wed Jul 19 10:56:14.509 UTC{
    "version": "1.0",
    "created_on": 1700816204,
    "policy": {
        "name": "authz",
        "allow_rules": [
            {
                "name": "allow all gNMI for all users",
                "request": {
                    "paths": [
                        "*"
                    ]
                },
                "source": {
                    "principals": [
                        "*"
                    ]
                }
            }
        ],
        "deny_rules": [
            {
                "name": "deny gNMI set for oper users",
                "request": {
                    "paths": [
                        "/gnmi.gNMI/*"
```

```
                        ]
                    },
                    "source": {
                        "principals": [
                            "User1"
                        ]
                    }
                }
            ]
        }
    }
```

throttle

To configure the XML agent processing capabilities, use the **throttle** command in XML agent configuration mode.

throttle {**memory** *size* | **process-rate** *tags*}

Syntax Description

memory	Specifies the XML agent memory size.
size	Maximum memory usage of XML agent per session in MB. Values can range from 100 to 600. In IOS XR 64 bit, the values range from 100 to 1024. The default is 300.
process-rate	Specifies the XML agent processing rate.
tags	Number of tags that the XML agent can process per second. Values can range from 1000 to 30000.

Command Default

The process rate is not throttled; memory size is 300 MB.

Command Modes

XML agent configuration

Command History

Release	Modification
Release 7.0.12	This command was introduced.

Usage Guidelines

Use the **throttle** command to control CPU time used by the XML agent when it handles large data.

Task ID

Task ID	Operation
config-services	read, write

Example

This example illustrates how to configure the number of tags that the XML agent can process to 1000:

```
RP/0/RP0/CPU0:router(config)# xml agent
RP/0/RP0/CPU0:router(config-xml-agent)# throttle process-rate 1000
```

show grpc certificate

To display the active gRPC certificate management policies on the router, use the **show grpc certificate** command in EXEC mode.

show grpc certificate

Syntax Description

This command has no keywords or arguments.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
Release 24.1.1	The command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
config-services	read

This example displays the active gRPC certificate management policies on the router. The below-mentioned command output is truncated version.

```
Router#show grpc certificate
Certificate:
    Data:
        Version: 3 (0x2)
        Serial Number: 32 (0x20)
        Signature Algorithm: sha256WithRSAEncryption
        Issuer: CN=localhost,O=OpenConfig,C=US
        Validity
            Not Before: Nov  8 08:49:38 2023 GMT
            Not After : Mar 22 08:49:38 2025 GMT
        Subject: CN=ems,O=OpenConfig,C=US
        Subject Public Key Info:
            Public Key Algorithm: rsaEncryption
                RSA Public-Key: (4096 bit)
                Modulus:
                    00:ea:6a:6c:25:be:9f:15:71:ce:74:89:03:ec:ef:
                    0b:3b:de:58:a8:7e:28:b8:cf:b3:82:91:b4:5c:42:
                    e7:d8:28:98:35:bd:35:60:a7:4e:f8:77:02:46:5f:
                    27:a4:16:cf:3c:e3:24:28:69:9c:22:1e:e3:52:96:
                    71:87:7c:40:0c:1f:dd:30:ea:dc:40:ca:93:00:54:
                    5e:de:20:54:5b:f4:2f:9f:19:6f:71:61:28:69:3d:
                    97:26:ab:e1:5f:53:3c:f1:a2:c3:14:f4:01:90:1a:
                    .
                    .
                    .
```

```
            Exponent: 65537 (0x10001)
        X509v3 extensions:
            X509v3 Key Usage: critical
                Digital Signature
            X509v3 Extended Key Usage:
                TLS Web Client Authentication, TLS Web Server Authentication
            X509v3 Authority Key Identifier:
                keyid:0A:A8:9A:6A:23:34:AE:CA:96:00:2C:F3:04:38:14:E3:D4:8D:77:BD

            X509v3 Subject Alternative Name:
                DNS, IP Address:64.103.223.56
    Signature Algorithm: sha256WithRSAEncryption
         b9:89:ec:60:3d:8d:7d:9c:dc:08:56:89:99:44:92:98:45:b6:
         97:ba:e3:e5:f2:48:b2:44:8d:db:23:bb:a1:c0:62:79:78:18:
         d7:55:f6:4a:67:5b:75:e0:c0:0b:52:51:07:36:d5:6c:c7:67:
         48:86:8d:dd:70:1c:9f:7c:a1:7b:aa:a5:4e:e1:ad:cf:4c:e5:
         81:db:92:cf:88:70:5a:1c:8d:de:0d:e8:b3:05:de:b9:04:4d:
         23:e1:de:66:e5:08:bd:2e:31:0a:07:a6:c0:00:3a:38:2f:00:
         .
         .
         .
```

xml agent

To enable Extensible Markup Language (XML) requests over a dedicated TCP connection and enter XML agent configuration mode, use the **xml agent** command in

global configuration

mode. To disable XML requests over the dedicated TCP connection, use the **no** form of this command.

Note This command enables a new, enhanced-performance XML agent. The **xml agent tty** command enables the legacy XML agent and is supported for backward compatibility.

xml agent
no xml agent

Command Default

XML requests are disabled.

Command Modes

Global configuration

Command History

Release	Modification
Release 7.0.12	This command was introduced.

Usage Guidelines

There are two XML agents: a legacy XML agent and an enhanced-performance XML agent. We recommend that you use the enhanced-performance agent. The legacy agent is supported for backward compatibility. Use the **xml agent** command to enable the enhanced-performance XML agent. Use the **xml agent tty** command to enable the legacy XML agent.

Use the **no** form of the **xml agent** command to disable the enhanced-performance XML agent.

Task ID

Task ID	Operations
config-services	read, write

This example shows how to enable XML requests over a dedicated TCP connection:

```
RP/0/RP0/CPU0:router(config)# xml agent
```

xml agent ssl

To enable Extensible Markup Language (XML) requests over Secure Socket Layer (SSL) and enter SSL XML agent configuration mode, use the **xml agent ssl** command in

global configuration

mode. To disable XML requests over SSL, use the **no** form of this command.

xml agent ssl
no xml agent ssl

Command Default

SSL agent is disabled by default.

Command Modes

Global configuration

Command History

Release	Modification
Release 7.0.12	This command was introduced.

Usage Guidelines

The k9sec package is required to use the SSL agent. The configuration is rejected during commit when the security software package is not active on the system. When the security software package is deactivated after configuring SSL agent, the following syslog message is displayed to report that the SSL agent is no longer available.

```
xml_dedicated_ssl_agent[420]:
%MGBL-XML_TTY-7-SSLINIT : K9sec pie is not active, XML service over
SSL is not available.
```

Task ID

Task ID	Operations
config-services	read, write

This example shows how to enable XML requests over SSL:

```
RP/0/RP0/CPU0:router(config)# xml agent ssl
```

xml agent tty

To enable Extensible Markup Language (XML) requests over Secure Shell (SSH) and Telnet and enter TTY XML agent configuration mode, use the **xml agent tty** command in

global configuration

mode. To disable XML requests over SSH and Telnet, use the **no** form of this command.

Note This command enables a legacy XML agent that has been superceded by an enhanced performance XML agent and is supported only for backward compatibility. To enable the enhanced-performance XML agent, use the **xml agent** command.

xml agent tty
no xml agent tty

Command Default

XML requests over SSH and Telnet are disabled.

Command Modes

Global configuration

Command History

Release	Modification
Release 7.0.12	This command was introduced.

Usage Guidelines

There are two XML agents: a legacy XML agent and an enhanced-performance XML agent. We recommend that you use the enhanced-performance agent. The legacy agent is supported for backward compatibility. The **xml agent tty** command enables the legacy XML agent. Use the **xml agent** command to enable the enhanced-performance XML agent.

Use the **no** form of the **xml agent tty** command to disable the legacy XML agent.

Task ID

Task ID	Operations
config-services	read, write

This example shows how to enable XML requests over Secure Shell (SSH) and Telnet:

```
RP/0/RP0/CPU0:router(config)# xml agent tty
```