Manageability Commands

This chapter describes the Cisco IOS XR software commands used to enable the HTTP server, enable router management through Extensible Markup Language (XML) agent services, and support the Common Object Request Broker Architecture (CORBA) infrastructure.

The XML Parser Infrastructure provides parsing and generation of XML documents with Document Object Model (DOM), Simple API for XML (SAX), and Document Type Definition (DTD) validation capabilities:

- DOM allows customers to programmatically create, manipulate, and generate XML documents.

- SAX supports user-defined functions for XML tags.

- DTD allows for validation of defined document types.

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 Global Configuration 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

Global Configuration 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
```

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
```

grpc certificate common-name

To specify a common-name for the certificate generated by the router while using gRPC dial-in, use the **grpc certificate common-name** command in the Global Configuration mode

grpc certificate common-name *WORD*

Syntax Description	*WORD*	Specifies the common name when certificate is generated, default: **ems.cisco.com**.

Command Default   None

Command Modes   Global Configuration 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 specify a common-name:

```
Router(config)#grpc
Router(config-grpc)#certificate common-name cisco.com
Router(config-grpc)#commit
```

ipv4 disable

To disable IPv4 XML transport, use the **ipv4 disable** command in XML agent configuration mode. To enable IPv4 XML transport, use the **no** form of this command.

ipv4 disable
no ipv4 disable

Syntax Description	This command has no keywords or arguments.
Command Default	IPv4 XML transport is enabled by default.
Command Modes	XML agent configuration

Command History

Release	Modification
Release 4.1.0	This command was introduced.

Usage Guidelines

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

Task ID

Task ID	Operation
config-services	read, write

This example illustrates how to disable IPv4 XML transport:

```
RP/0/RSP0/CPU0:router# config
RP/0/RSP0/CPU0:router(config)# xml agent
RP/0/RSP0/CPU0:router(config-xml-agent) ipv4 disable
```

Related Topics

ipv6 enable (XML)

To enable IPv6 XML transport, use the **ipv6 enable** command in XML agent configuration mode. To disable IPv6 XML transport, use the **no** form of this command.

ipv6 enable
no ipv6 enable

Syntax Description	This command has no keywords or arguments.
Command Default	IPv6 XML transport is disabled by default.
Command Modes	XML agent configuration

Command History

Release	Modification
Release 4.1.0	This command was introduced.
Release 5.0.0	This command was introduced.

Usage Guidelines

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

Task ID

Task ID	Operation
config-services	read, write

This example illustrates how to enable IPv6 XML transport:

```
RP/0/RSP0/CPU0:router# config
RP/0/RSP0/CPU0:router(config)# xml agent
RP/0/RSP0/CPU0:router(config-xml-agent) ipv6 enable
```

Related Topics

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 3.9.0	This command was introduced.

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

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/RSP0/CPU0:router(config)# xml agent
RP/0/RSP0/CPU0:router(config-xml)# iteration on size 100
```

The following example shows how to disable iteration:

```
RP/0/RSP0/CPU0:router(config)# xml agent
RP/0/RSP0/CPU0:router(config-xml)# iteration off
```

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

```
RP/0/RSP0/CPU0:router(config)# xml agent
RP/0/RSP0/CPU0:router(config-xml)# no iteration off
```

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

```
RP/0/RSP0/CPU0:router(config)# xml agent
RP/0/RSP0/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/RSP0/CPU0:router(config)# xml agent tty
RP/0/RSP0/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/RSP0/CPU0:router(config)# xml agent ssl
RP/0/RSP0/CPU0:router(config-xml-ssl)# iteration off
```

Related Topics

xml agent, on page 23
xml agent ssl, on page 24
xml agent tty, on page 25

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/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# nvgen default-sanitize strings
RP/0/RSP0/CPU0:router(config)# nvgen default-sanitize usernames
RP/0/RSP0/CPU0:router(config)# nvgen default-sanitize passwords
RP/0/RSP0/CPU0:router(config)# nvgen default-sanitize comments
RP/0/RSP0/CPU0:router(config)# nvgen default-sanitize ipaddrs
RP/0/RSP0/CPU0:router(config)# commit
```

session timeout

To configure an idle timeout for the XML agent, use the **session timeout** command in xml agent configuration mode. To remove the session timeout, use the **no** form of this command.

session timeout *timeout*

Syntax Description	*timeout*	Amount of idle time in minutes that must pass before the XML agent closes the session. Values can range from 1 to 1440.

Command Default   There is no session timeout.

Command Modes   xml agent

xml agent ssl

xml agent tty

Command History

Release	Modification
Release 4.0.0	This command was introduced.

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

Task ID

Task ID	Operation
config-services	read, write

The following example illustrates how to configure the dedicated agent to close the session after 5 minutes of idle time:

```
RP/0/RSP0/CPU0:router(config)# xml agent
RP/0/RSP0/CPU0:router(config-xml-agent)# session timeout 5
```

The following example illustrates how to configure the XML TTY agent to close the session after 60 minutes of idle time:

```
RP/0/RSP0/CPU0:router(config)# xml agent tty
RP/0/RSP0/CPU0:router(config-xml-agent-tty)# session timeout 60
```

The following example illustrates how to configure the XML TTY agent to have no timeout (the default):

```
RP/0/RSP0/CPU0:router(config)# xml agent tty
```

```
RP/0/RSP0/CPU0:router(config-xml-agent)# no session timeout
```

Related Topics

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 3.7.2	This command was introduced.

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

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/RSP0/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]:>
```

Related Topics
>   copy

show xml sessions

To display the status of an Extensible Markup Language (XML) session, use the **show xml sessions** command in

EXEC

mode.

show xml sessions [{**default** | **ssl** | **tty**}] [**detail**]

Syntax Description		
	default	Displays the status of the default XML agent.
	ssl	Displays the status of the XML agents over secure socket layer (SSL).
	tty	Displays the status of XML agents over telnet.
	detail	Displays details regarding the XML sessions.

Command Default   None

Command Modes   EXEC

Command History

Release	Modification
Release 4.0.0	This command was introduced.

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

Task ID

Task ID	Operation
config-services	read

Example

This example illustrates sample output of the **show xml sessions** command with no optional keywords specified:

```
RP/0/RSP0/CPU0:router# show xml sessions

Session  Client                 Agent    User Date                     State
00000001 192.168.10.85 (default) tty     cisco Fri Jun 19 22:42:29 2009 idle
10000001 10.12.24.15 (VRF1)      default  lab  Fri Jun 19 22:32:12 2009 busy
```

This example illustrates sample output of the **show xml sessions** command with the **tty** keyword:

```
RP/0/RSP0/CPU0:router# show xml sessions tty
```

```
Session  Client                 Agent User  Date                     State
00000001 192.168.10.85 (default) tty   cisco Fri Jun 19 22:42:29 2009 idle
00000002 10.12.24.15 (VRF1)      tty   lab   Fri Jun 19 22:32:12 2009 busy
```

This example illustrates sample output of the **show xml sessions** command with the **detail** keyword:

```
RP/0/RSP0/CPU0:router#
show xml sessions detail


Session: 00000001
  Client:              192.168.10.85 (default)
  Agent type:          tty
  User:                cisco
  State:               idle
  Config session:      -
  Alarm notification:  Registered
  Start Date:          Tue Aug 24 18:21:29 2010
  Elapsed Time:        00:00:27
  Last State Changed:  00:00:27
Session: 10000001
  Client:              10.12.24.15 (VRF1)
  Agent type:          default
  User:                lab
  State:               busy
  Config session:      00000010-0005b105-00000000
  Alarm notification:  Not registered
  Start date:          Tue Aug 24 18:21:29 2010
  Elapsed Time:        00:01:10
  Last State Changed:  00:01:10
```

Related Topics

xml agent, on page 23

shutdown (VRF)

To configure the dedicated XML agent to not receive or send messages via the default VRF, use the **shutdown** command in xml agent vrf configuration mode. To enable the dedicated XML agent to receive or send messages via the default VRF, use the **no** form of this command.

shutdown
no shutdown

This command has no keywords or arguments.

Command Default The default VRF instance is enabled by default.

Command Modes xml agent vrf configuration

xml agent ssl vrf configuration

Command History

Release	Modification
Release 4.0.0	This command was introduced.

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

Task ID

Task ID	Operation
config-services	read, write

Example

The following example illustrates how to configure the XML dedicated agent to send and receive messages via VRF1 only:

```
RP/0/RSP0/CPU0:router(config)# xml agent
RP/0/RSP0/CPU0:router(config-xml-agent)# vrf VRF1
RP/0/RSP0/CPU0:router(config-xml-agent)# vrf default
RP/0/RSP0/CPU0:router(config-xml-agent-vrf)# shutdown
```

The following example illustrates how to configure the XML SSL agent to send and receive messages via VRF1 only:

```
RP/0/RSP0/CPU0:router(config)# xml agent ssl
RP/0/RSP0/CPU0:router(config-xml-agent-ssl)# vrf VRF1
RP/0/RSP0/CPU0:router(config-xml-agent-ssl)# vrf default
RP/0/RSP0/CPU0:router(config-xml-agent-ssl-vrf)# shutdown
```

The following example illustrates how to enable the default VRF after it has been disabled:

```
RP/0/RSP0/CPU0:router(config)# xml agent
RP/0/RSP0/CPU0:router(config-xml-agent)# vrf default
RP/0/RSP0/CPU0:router(config-xml-agent-vrf)# no shutdown
```

Related Topics

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 4.1.0	This command was introduced.

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

Task ID

Task ID	Operation
config-services	read, write

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

```
RP/0/RSP0/CPU0:router# config
RP/0/RSP0/CPU0:router(config)# xml agent
RP/0/RSP0/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. 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 3.8.2	This command was introduced.

Usage Guidelines

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

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/RSP0/CPU0:router(config)# xml agent
RP/0/RSP0/CPU0:router(config-xml-agent)# throttle process-rate 1000
```

vrf (XML)

To configure a dedicated agent to receive and send messages via the specified VPN routing and forwarding (VRF) instance, use the vrf command in one of the xml agent configuration mode. To disable the receiving and sending of messages via a specific VRF instance, use the **no** form of this command.

vrf {**default***vrf-name*}

Syntax Description	**default**	Configures the default VRF instance.
	vrf-name	Configures the specified VRF instance.

Command Default The default VRF is enabled by default.

Command Modes XML agent configuration

XML agent SSL configuration

Command History	**Release**	**Modification**
	Release 4.0.0	This command was introduced.

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

The default VRF is enabled by default. To disable the default VRF, use the **shutdown** command.

Task ID	**Task ID**	**Operation**
	config-services	read, write

Example

This example shows how to configure the dedicated XML agent to receive and send messages via VRF1, VRF2 and the default VRF:

```
RP/0/RSP0/CPU0:router(config)# xml agent
RP/0/RSP0/CPU0:router(config-xml-agent)# vrf VRF1
RP/0/RSP0/CPU0:router(config-xml-agent)# vrf VRF2
```

This example shows how to remove access to VRF2 from the dedicated agent:

```
RP/0/RSP0/CPU0:router(config)# xml agent
RP/0/RSP0/CPU0:router(config-xml-agent)# no vrf VRF2
```

Related Topics

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 3.8.0	This command was introduced.

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

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/RSP0/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 3.9.0	This command was introduced.

Usage Guidelines

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

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/RSP0/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 3.7.2	This command was introduced.

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

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/RSP0/CPU0:router(config)# xml agent tty
```

xml agent tty