



Programmability Command Reference for Cisco ASR 9000 Series Routers

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Preface

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Preface

Initial release of the cumulative command reference document that covers all updates from Release 3.9.0 onwards.

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gRPC Commands

This module describes the commands used to use the gRPC Protocol to define network operations with data models.

For detailed information about gRPC concepts, configuration tasks, and examples, see the *Use gRPC Protocol to Define Network Operations with Data Models in the Cisco ASR 9000 Series Router* module in the *Programmability Configuration Guide for Cisco ASR 9000 Series Routers*.

gRPC encodes requests and responses in binary. gRPC is extensible to other content types along with Protobuf. The Protobuf binary data object in gRPC is transported over HTTP/2.

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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	<i>file-path</i> Specifies the path of the policy file.
---------------------------	---

Command Default	Enabled, by default
------------------------	---------------------

Command Modes	Global Configuration 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 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	<i>ssl-profile name</i> Specifies the SSL-profile name for which certz. proto needs to be activated.
---------------------------	--

Command Default	None
------------------------	------

Command Modes	Global Configuration 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 neither 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 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 <i>limit</i>	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
```

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	Global Configuration 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"  
    ]  
  }  
]  
}  
}
```

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:
.
.
.
```