



## **nV System Command Reference for Cisco ASR 9000 Series Routers**

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## CONTENTS

---

### PREFACE

#### **Preface** v

Changes to This Document v

Communications, Services, and Additional Information v

---

### CHAPTER 1

#### **Satellite nV System Commands** 1

hw-module satellite reload 2

install nv satellite 3

install nv satellite reference 5

minimum preferred links 6

minimum required links 7

nv 8

nv satellite sla processing disable 9

satellite 10

satellite-fabric-link satellite 11

satellite type 12

serial-number 13

show nv satellite protocol control 14

show nv satellite crosslink 17

show nv satellite protocol discovery 18

show nv satellite redundancy 20

show nv satellite status 22

show nv satellite uptime 25

show nv satellite version 26

show nv satellite install 28

show nv satellite install packages 30

clear SyncE esmc statistics 31

telnet satellite 32

upgrade 33

---

**CHAPTER 2****Network Virtualization Edge System Commands 35**

nv edge control serial 36

nv edge interface 37

show nv edge control control-link-protocols 38

show nv edge data forwarding 39



## Preface

From Release 6.1.2 onwards, Cisco introduces support for the 64-bit Linux-based IOS XR operating system. However, support for nV Satellite System on the Cisco IOS XR 64-bit operating system is available only from the Release 6.2.1. Extensive feature parity is maintained between the 32-bit and 64-bit environments. Unless explicitly marked otherwise, the contents of this document are applicable for both environments. For more details on Cisco IOS XR 64 bit, refer to the [Release Notes](#) for Cisco ASR 9000 Series Routers, Release 6.1.2 document.

The Preface contains the following sections:

- [Changes to This Document, on page v](#)
- [Communications, Services, and Additional Information, on page v](#)

## Changes to This Document

This table lists the technical changes made to this document since it was first published.

**Table 1: Changes to this Document**

Date	Change Summary
April 2016	Initial release of the cumulative command reference document that covers all updates from Cisco IOS XR Release 4.3.0 onwards.
November 2016	Republished with documentation updates for Release 6.1.2 features.
September 2017	Republished with documentation updates for Release 6.3.1 features.

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# Satellite nV System Commands

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This module describes the commands used to configure Satellite nV System on Cisco ASR 9000 Series Router.

- [hw-module satellite reload, on page 2](#)
- [install nv satellite, on page 3](#)
- [install nv satellite reference, on page 5](#)
- [minimum preferred links, on page 6](#)
- [minimum required links, on page 7](#)
- [nv, on page 8](#)
- [nv satellite sla processing disable, on page 9](#)
- [satellite, on page 10](#)
- [satellite-fabric-link satellite, on page 11](#)
- [satellite type, on page 12](#)
- [serial-number, on page 13](#)
- [show nv satellite protocol control, on page 14](#)
- [show nv satellite crosslink, on page 17](#)
- [show nv satellite protocol discovery, on page 18](#)
- [show nv satellite redundancy , on page 20](#)
- [show nv satellite status, on page 22](#)
- [show nv satellite uptime, on page 25](#)
- [show nv satellite version , on page 26](#)
- [show nv satellite install, on page 28](#)
- [show nv satellite install packages, on page 30](#)
- [clear SyncE esmc statistics, on page 31](#)
- [telnet satellite, on page 32](#)
- [upgrade , on page 33](#)

# hw-module satellite reload

To reload and perform a soft reset of individual slots of the satellite device, use the **hw-module satellite reload** command in the EXEC mode.

**hw-module satellite** *{satellite idall}***reload**

Syntax Description	
<i>satellite id</i>	Specifies the unique identifier of the satellite device on which reload has to be performed.
<i>all</i>	Performs the reload operation on all the currently active satellites.

**Command Default** No default behavior or values

**Command Modes** EXEC mode

Command History	Release	Modification
	Release 4.2.1	This command was introduced.

**Usage Guidelines** No specific guidelines impact the use of this command.

Task ID	Task ID	Operation
	ethernet-services	read, write

## Example

This example shows a sample output of the **hw-module satellite reload** command:

```
RP/0/RSP0/CPU0:router # hw-module satellite 101 reload
```

```
Reload operation completed successfully.
```

```
RP/0/RSP0/CPU0:May 3 20:26:51.883 : invmgr[254]: %PLATFORM-INV-6-OIROUT : OIR: Node 101 removed
```



# install nv satellite

To download and activate the software image on the satellite, use the **install nv satellite** command in EXEC mode.

```
install nv satellite {satellite idall} {transfer | activate | update {file file name | reference name of reference}}
```

Syntax Description		
<i>satellite id</i>		Specifies the unique identifier of the satellite on which the image must be transferred.
<i>all</i>		Performs the operation on all currently active satellites that are not already at the target version.
<b>transfer</b>		Downloads the image from the host to the satellite device.
<b>activate</b>		Performs the install operation on the satellite.
<b>update</b>		Performs the transfer and activate of SMUs/base package on the satellite in a single operation on the satellite.
<b>file</b>		Performs the update operation on the specified file or list of files
<b>reference</b>		Performs the update operation on the specified reference
<i>file name</i>		Specifies the file or the list of files on which the operation is to be performed.
<i>reference name</i>		Specifies the name of a previously created reference on which the operation is to be performed.

**Command Default** No default behavior or values

**Command Modes** EXEC mode

Command History	Release	Modification
	Release 4.2.1	This command was introduced.
	Release 6.3.1	The <b>update</b> option was introduced in this command.

## Usage Guidelines



**Note** This command only works on satellites that are fully connected and authenticated.



**Note** If the **activate** keyword is run directly, then the software image is transferred to the satellite and also activated.

Task ID	Task ID	Operation
	ethernet-services	read, write

### Example

This example shows the sample output of the **install nv satellite** commands:

```
RP/0/RSP0/CPU0:router # install nv satellite 100 transfer
```

```
Install operation initiated successfully.
```

```
RP/0/RSP0/CPU0:sat-host#RP/0/RSP0/CPU0:May 3 20:12:46.732 : icpe_gco[1146]:  
%PKT_INFRA-ICPE_GCO-6-TRANSFER_DONE : Image transfer completed on Satellite 100
```

```
RP/0/RSP0/CPU0:router# install nv satellite 100 activate
```

```
Install operation initiated successfully.
```

```
LC/0/2/CPU0:May 3 20:13:50.363 : ifmgr[201]: %PKT_INFRA-LINK-3-UPDOWN : Interface  
GigabitEthernet100/0/0/28, changed state to Down
```

```
RP/0/RSP0/CPU0:May 3 20:13:50.811 : invmgr[254]: %PLATFORM-INV-6-OIROUT : OIR: Node 100  
removed
```

```
RP/0/RSP0/CPU0:router# install nv satellite 100 update file
```

```
disk0:ncs5k-mp1s-2.2.0.0-r631.x86_64.rpm tftp://172.27.18.8/ncs5k-mgb1-2.2.0.0-r631.x86_64.rpm
```

# install nv satellite reference

To create or delete a reference name given to a set of files, use the **install nv satellite reference** command in EXEC mode.

```
install nv satellite reference name of reference {create | delete} {{file file1 file2 ...} | empty}
```

Syntax Description		
<i>name of reference</i>	Specifies the name that can be given to refer to a list of file	
<i>file1 file2 ...</i>	Specifies the list of files for which the reference name is to be created or deleted	
<b>create</b>	Create the reference for the specified list of files	
<b>delete</b>	Deletes a previously created reference	
<b>file</b>	Performs the reference creation or deletion operation on the specified list of files	
<b>empty</b>	Performs the reference creation or deletion of empty references	
Command Default	No default behavior or values	
Command Modes	EXEC mode	
Command History	Release	Modification
	Release 6.3.1	The reference option was introduced
Task ID	Task ID	Operation
	ethernet-services	read, write

## Example

This example shows the sample output of the **install nv satellite reference** commands:

```
RP/0/RSP0/CPU0:router # install nv satellite reference MyRef create file  
tftp://172.27.18.8/ncs5k-mps-2.2.0.0-r631.x86_64.rpm  
tftp://172.27.18.8/ncs5k-mgb1-2.2.0.0-r631.x86_64.rpm  
  
RP/0/RSP0/CPU0:router# install nv satellite reference AnotherRef create empty
```

# minimum preferred links

To configure the minimum number of preferred satellite fabric bundle-ether links in a dual home satellite network topology, use the **minimum preferred links** command in the satellite nV fabric link redundancy configuration mode.

**minimum preferred links** *number*

**Syntax Description** *number* Specifies the number of minimum number of active links to the host. The range is 1 to 64.

**Command Default** If you do not enable this parameter on any host, then it is assumed as 0 by default on that host.

**Command Modes** Satellite Fabric Link Redundancy

Command History	Release	Modification
	Release 5.3.1	This command was introduced.

**Usage Guidelines** In order to configure minimum preferred links, the interface must be a bundle-ether interface. If you do not enable this parameter on any host, then it is assumed as 0 by default on that host. Hence, the decision of failover is judged using that value.



**Note** You can either go to the redundancy mode to configure **minimum preferred links** or you can specify **redundancy** keyword before configuring the minimum preferred links.

Task ID	Task ID	Operation
	ethernet-services	read, write

## Example

This example shows how to execute the **minimum preferred links** command:

```
RP/0/RSP0/CPU0:router # configure
RP/0/RSP0/CPU0:router(config)# interface Bundle-Ether 1
RP/0/RSP0/CPU0:router(config-int)# nV satellite-fabric-link satellite 200
RP/0/RSP0/CPU0:router(config-satellite-fabric-link)# redundancy minimum preferred links 2
```

(OR)

```
RP/0/RSP0/CPU0:router(config-satellite-fabric-link)# redundancy
RP/0/RSP0/CPU0:router(config-nV-red)# minimum preferred links 2
```

# minimum required links

To configure the minimum number of required satellite fabric bundle-ether links in a single host hub and spoke satellite network topology, use the **minimum required links** command in the nV interface satellite-fabric-link configuration mode.

**minimum required links** *number*

<b>Syntax Description</b>	<i>number</i> Specifies the number of minimum number of active links to the host. The range is 1 to 64.
---------------------------	---

<b>Command Default</b>	If you do not enable this parameter on any host, then it is assumed as 0 by default on that host.
------------------------	---

<b>Command Modes</b>	nV Interface Satellite Fabric Link
----------------------	------------------------------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Release 6.3.1	This command was introduced.

<b>Usage Guidelines</b>	In order to configure minimum required links, the interface must be a bundle-ether interface. If you do not enable this parameter on any host, then it is assumed as 0 by default on that host. Hence, the decision of failover is judged using that value.
-------------------------	---

<b>Task ID</b>	<b>Task ID</b>	<b>Operation</b>
	ethernet-services	read, write

## Example

This example shows how to execute the **minimum required links** command:

```
RP/0/RSP0/CPU0:router # configure
RP/0/RSP0/CPU0:router(config)# interface Bundle-Ether 1
RP/0/RSP0/CPU0:router(config-int)# nV satellite-fabric-link satellite 200
RP/0/RSP0/CPU0:router(config-satellite-fabric-link)# minimum required links 2
```

## nv

To enter the satellite network virtualization configuration mode, use the **nv** command in Global Configuration mode.

**nv**

**Syntax Description** This command has no keywords or arguments.

**Command Default** No default behavior or values

**Command Modes** Global Configuration mode

Command History	Release	Modification
	Release 4.2.1	This command was introduced.

**Usage Guidelines** No specific guidelines impact the use of this command.

Task ID	Task ID	Operation
	ethernet-services	read, write

### Example

This example shows how to enter the **nv** configuration mode:

```
RP/0/RSP0/CPU0:router#configure
RP/0/RSP0/CPU0:router(config)#nv
RP/0/RSP0/CPU0:router(config-nv)#
```

## nv satellite sla processing disable

To disable processing of CFM Performance Monitoring (PM) frames on the satellite, use the **nv satellite sla processing disable** command in CFM configuration mode. To re-enable CFM PM frames processing on the satellite, use the no form of the command.

**nv satellite sla processing disable**  
**no nv satellite sla processing disable**

<b>Syntax Description</b>	This command has no keywords or arguments.	
<b>Command Default</b>	By default, the processing of CFM PM frames on the satellite is enabled.	
<b>Command Modes</b>	CFM configuration mode	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Release 5.3.1	This command was introduced.
<b>Usage Guidelines</b>	No specific guidelines impact the use of this command.	
<b>Task ID</b>	<b>Task ID</b>	<b>Operations</b>
	ethernet-services	read, write

### Examples

The following example shows how to enter the CFM configuration mode.

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)#ethernet cfm
RP/0/RSP0/CPU0:router(config-cfm)#nv satellite sla processing disable
```

# satellite

To declare a new satellite that is to be attached to the host and enter the satellite configuration mode, use the `satellite` command in the Satellite nV configuration mode.

**satellite** *id*

<b>Syntax Description</b>	<i>id</i> The <i>id</i> is a number in the range of 100 to 239.
---------------------------	---

<b>Command Default</b>	No default behavior or values
------------------------	-------------------------------

<b>Command Modes</b>	Satellite Network Virtualization Configuration
----------------------	--

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Release 4.2.1	This command was introduced.

<b>Usage Guidelines</b>	Each satellite must be declared in a separate line with an unique identifier.
-------------------------	---

<b>Task ID</b>	<b>Task ID</b>	<b>Operation</b>
	ethernet-services	read, write

## Example

This example shows how to declare a new satellite device using the `satellite` command:

```
RP/0/RSP0/CPU0:router # configure
RP/0/RSP0/CPU0:router (config) # nv
RP/0/RSP0/CPU0:router (config-nv) # satellite 220
```



# satellite-fabric-link satellite

To specify an interface as a ICPE inter-chassis link, use the **satellite-fabric-link satellite** command in the satellite nV interface configuration mode.

**satellite-fabric-link satellite** *id*{*slotslot* | *portsports* | **network**}

## Syntax Description

<b>satellite id</b>	Specifies the satellite id. It is a number in the range 100-239.
<b>slot slot id</b>	(Optional) Specifies the slot number. The slot ID consists of two slash-separated numbers, representing the slot and sub-slot IDs on the satellite device of the node from which to cross-link ports. This is not supported on single-node satellites.
<b>ports ports</b>	Specifies the port number. The ports are specified as a range, not necessarily consecutive, of port IDs to crosslink to this IC Link. The range consists of one or more comma-separated sub-ranges. Each sub-range can either be a single number, or a hyphen separated consecutive range (where the left number must be smaller than the right number).
<b>network</b>	(Optional) Specifies a network of satellites.

## Command Default

The slot defaults to 0/0. The ports default to all available ports.

## Command Modes

Satellite Network Virtualization Interface Configuration

## Command History

Release	Modification
Release 4.2.1	This command was introduced.

## Usage Guidelines

No specific guidelines impact the use of this command.

## Task ID

Task ID	Operation
ethernet-services	read, write

## Example

This example shows how to execute the **satellite-fabric-link satellite** command:

```
RP/0/RSP0/CPU0:router # configure
RP/0/RSP0/CPU0:router(config)# interface TenGigE0/2/1/0
RP/0/RSP0/CPU0:router(config-int)# ipv4 point-to-point
RP/0/RSP0/CPU0:router(config-int)# interface unnumbered loopback0
RP/0/RSP0/CPU0:router(config-int)# nV
RP/0/RSP0/CPU0:router(config-int-nV)# satellite-fabric-link satellite 200
```

# satellite type

To define the expected type of the attached satellite device, use the **satellite type** command in the satellite nV configuration mode.

**satellite id type** *type name*

<b>Syntax Description</b>	<b>type</b> <i>type name</i> Specifies the type name of the attached satellite. The satellite types are asr9000v, asr9000v2, asr901v, and asr903v.	
<b>Command Default</b>	No default behavior or values	
<b>Command Modes</b>	Satellite Network Virtualization Configuration	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Release 4.2.1	This command was introduced.
	Release 4.3.0	The Cisco ASR901 and ASR903 Series Routers were included as satellites.
	Release 5.2.2	The Cisco ASR9000v-V2 Series Routers were included as satellites.
<b>Usage Guidelines</b>	The type string is used to lookup satellite capabilities, allowing other configuration to be verified accurately. The string is user-visible, and must match the publicly known names of the Satellite devices.	
<b>Task ID</b>	<b>Task ID</b>	<b>Operation</b>
	ethernet-services	read, write

## Example

This example shows a sample output of how to use the **satellite type** command:

```
RP/0/RSP0/CPU0:router # configure
RP/0/RSP0/CPU0:router (config) # nv
RP/0/RSP0/CPU0:router (config-nv) # satellite 200
RP/0/RSP0/CPU0:router (config-nv) # satellite 200 type asr9000v
```

# serial-number

To authenticate the serial number for a defined satellite, use the **serial-number** command in the Satellite nV configuration mode.

**serial-number** *string*

<b>Syntax Description</b>	<i>string</i> Specifies the alphanumeric string that is assigned to a satellite.				
<b>Command Default</b>	No default behavior or values				
<b>Command Modes</b>	Satellite Network Virtualization Configuration				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Release 4.2.1</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Release 4.2.1	This command was introduced.
Release	Modification				
Release 4.2.1	This command was introduced.				
<b>Usage Guidelines</b>	No specific guidelines impact the use of this command.				
<b>Task ID</b>	<table border="1"> <thead> <tr> <th>Task ID</th> <th>Operation</th> </tr> </thead> <tbody> <tr> <td>ethernet-services</td> <td>read, write</td> </tr> </tbody> </table>	Task ID	Operation	ethernet-services	read, write
Task ID	Operation				
ethernet-services	read, write				

## Example

This example shows how to specify the serial number for a satellite:

```
RP/0/RSP0/CPU0:router # configure
RP/0/RSP0/CPU0:router(config)# nv
RP/0/RSP0/CPU0:router(config-nv)# satellite 120
RP/0/RSP0/CPU0:router(config-nv)# serial-number CAT1521B1BB
```

# show nv satellite protocol control

To display the control protocol statistics and details of the SDAC (Satellite Discovery And Control) protocol, use the **show nv satellite protocol control** in the EXEC mode mode.

**show nv satellite protocol control** {**brief** | **satellite**}

Syntax Description	
<b>brief</b>	Displays a brief information of the control protocol statistics.
<b>satellite</b>	Displays the control protocol information based on the specified satellite device.

**Command Default** No default behavior or values.

**Command Modes** EXEC mode

Command History	Release	Modification
	Release 4.2.1	This command was introduced.

**Usage Guidelines** No specific guidelines impact the use of this command.

Task ID	Task ID	Operation
	ethernet-services	read

## Example

This example shows a sample output of the **show nv satellite protocol control** command:

```
RP/0/RSP0/CPU0:router show nv satellite protocol control Satellite 1000
Satellite 1000
-----
Status: Connected since 2016/10/25 15:38:05.097
IP address: 100.1.1.1 (VRF: default)
Channels:
  Control (0)
  -----
    Channel status: Open
    Messages sent: 15014 (15014 control), received: 15008 (15008 control)
    Version: 0

  Interface Extension Layer 1 (1)
  -----
    Channel status: Open
    Messages sent: 23 (12 control), received: 742 (8 control)
    dropped: 15 (0 control)
    Version: 0

  Interface Extension Layer 2 (2)
  -----
    Channel status: Open
    Messages sent: 385 (12 control), received: 14259 (8 control)
    dropped: 1 (0 control)
```

```
Version: 0

Interface Extension Cross-link (3)
-----
Channel status: Open
Messages sent: 16 (12 control), received: 15 (8 control)
      dropped: 3 (0 control)
Version: 0

Virtual Satellite Fabric Links (4)
-----
Channel status: Open
Messages sent: 45 (23 control), received: 35 (13 control)
      dropped: 10 (0 control)
Version: 0
Capabilities Present:
  1      : Min-links Offload: Supported

Device Management (5)
-----
Channel status: Open
Messages sent: 23 (23 control), received: 13 (13 control)
Version: 0
Capabilities Present:
  1      : Uptime Command: Supported

Inventory (6)
-----
Channel status: Open
Messages sent: 44 (20 control), received: 197 (13 control)
Version: 0

Environment monitoring (7)
-----
Channel status: Open
Messages sent: 858 (20 control), received: 24910 (13 control)
Version: 0

Alarm (8)
-----
Channel status: Open
Messages sent: 28 (20 control), received: 397 (13 control)
Version: 0

Password (10)
-----
Channel status: Open
Messages sent: 30 (23 control), received: 20 (13 control)
      dropped: 6 (0 control)
Version: 0

Topology (14)
-----
Channel status: Open
Messages sent: 94 (25 control), received: 97 (14 control)
      dropped: 193 (0 control)
Version: 0

SyncE Interface (16)
-----
Channel status: Open
Messages sent: 20 (20 control), received: 13 (13 control)
Version: 0
```

## show nv satellite protocol control

```

Multicast Offload (17)
-----
Channel status: Open
Messages sent: 451 (32 control), received: 19 (19 control)
      dropped: 2 (0 control)
Version: 0

Multicast Offload Statistics (18)
-----
Channel status: Open
Messages sent: 3738 (20 control), received: 6745 (13 control)
      dropped: 5 (0 control)
Version: 0

Fabric Layer 1 (19)
-----
Channel status: Open
Messages sent: 31 (12 control), received: 42 (8 control)
Version: 0

Fabric Layer 2 (20)
-----
Channel status: Open
Messages sent: 385 (12 control), received: 760 (8 control)
Version: 0

Configurable Fabric Ports (23)
-----
Channel status: Open
Messages sent: 21 (15 control), received: 14 (9 control)
      dropped: 3 (0 control)
Version: 0

Notification (24)
-----
Channel status: Open
Messages sent: 23 (23 control), received: 34 (13 control)
Version: 0

```

**Related Commands**

<b>Command</b>	<b>Description</b>
<a href="#">show nv satellite protocol discovery, on page 18</a>	Displays the statistics of satellite discovery protocol.

# show nv satellite crosslink

To display a summary view of which access ports on the satellite are crosslinked to which satellite fabric link, use the **show nv satellite crosslink** command in the EXEC mode.

**show nv satellite crosslink** [**brief**] [**satellite** *Satellite ID*] [**interface** *Interface\_Name*]

<b>Syntax Description</b>	<b>brief</b>	(Optional) Displays brief information about all the satellite systems.
	<b>satellite</b> <i>Satellite ID</i>	(Optional) Displays the crosslink information based on the specified satellite device. The valid ID range is between 100-60000.
	<b>interface</b> <i>Interface_Name</i>	(Optional) Displays the crosslink information based on the specified interface.
<b>Command Default</b>	No default behavior or values.	
<b>Command Modes</b>	EXEC mode	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Release 6.0.2	This command was introduced.
<b>Usage Guidelines</b>	No specific guidelines impact the use of this command.	
<b>Task ID</b>	<b>Task ID</b>	<b>Operation</b>
	<b>ethernet-services</b>	read

## Example

The examples below show the sample outputs of the **show nv satellite crosslink** command:

```
RP/0/RSP0/CPU0:router# show nv satellite crosslink
Access Port      SFL Name          Port Validity
-----
Te100/0/0/11    Te0/0/1/1         Accepted
Gi100/0/0/5     Te0/0/1/2         Invalid
Te100/0/0/12    Te0/0/1/2         Accepted
Te100/0/0/13    Te0/0/1/2         Accepted

RP/0/RSP0/CPU0:router# show nv satellite crosslink brief
SFL Name | # Sats | Accept | Reject | Invalid | Total
-----|-----|-----|-----|-----|-----
Te0/0/1/1 | 1 | 2 | 0 | 0 | 2
Te0/0/1/2 | 1 | 2 | 0 | 1 | 3
```

# show nv satellite protocol discovery

To display the current FSM states and discovery protocol statistics such as packets, messages, and bytes from the SDAC (Satellite Discovery And Control) protocol, use the **show nv satellite protocol discovery** in the EXEC mode.

**show nv satellite protocol discovery** {*interface**interface-name* | **brief**}

Syntax Description	
<b>interface</b> <i>interface-name</i>	Displays the discovery protocol information based on the interface type.
<b>brief</b> <i>id</i>	Displays a brief discovery protocol information.

**Command Default** No default behavior or values.

**Command Modes** EXEC mode

Command History	Release	Modification
	Release 4.2.1	This command was introduced.

**Usage Guidelines** No specific guidelines impact the use of this command.

Task ID	Task ID	Operation
	<b>ethernet-services</b>	read

## Example

This example show how to execute the **show nv satellite protocol discovery** command:

```
RP/0/RSP0/CPU0:router show nv satellite protocol discovery interface Bundle-Ether901
-----
Interface TenGigE0/0/1/0: Probing for satellites
Interface TenGigE0/1/0/4/1: Probing for satellites

Satellite ID: 1000
Status: Satellite ready
Host IPv4 Address: 100.1.1.2
Satellite IPv4 Address: 100.1.1.1
Discovered links:

  TenGigE0/0/1/0
  -----
    Status: Satellite ready
    Vendor: CISCO SYSTEMS, INC,
    Serial Id: FOC1930R2AL
    Remote ID: 33554472
    Remote MAC address: c472.95a6.beed
    Chassis MAC address: c472.95a6.bec5

  TenGigE0/1/0/4/1
  -----
    Status: Satellite ready
```



```
Vendor: CISCO SYSTEMS, INC,  
Serial Id: FOC1930R2AL  
Remote ID: 33554471  
Remote MAC address: c472.95a6.beec  
Chassis MAC address: c472.95a6.bec5
```

# show nv satellite redundancy

To display if a host is active or standby, providing priorities for both the local and partner device, and, where required, describing the different sections of the priority, use the **show nv satellite redundancy** command in the EXEC mode.

**show nv satellite redundancy** [**brief**] [**satellite** *Satellite ID*]

<b>Syntax Description</b>	<b>brief</b>	Displays redundancy information in brief.
	<b>satellite</b> <i>Satellite ID</i>	Displays the redundancy information based on the specified satellite device. The valid ID range is between 100-60000.
<b>Command Default</b>	No default behavior or values.	
<b>Command Modes</b>	EXEC mode	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Release 6.0.2	This command was introduced.
<b>Usage Guidelines</b>	No specific guidelines impact the use of this command.	
<b>Task ID</b>	<b>Task ID</b>	<b>Operation</b>
	<b>ethernet-services</b>	read

## Example

This example shows a sample output of the **show nv satellite redundancy** command:

```
RP/0/RSP0/CPU0:router show nv satellite redundancy
Satellite 210:
  Local Priority: 0x0008000000010011
  Configured priority: 0
  Number of hops: 1
  Remote Priority: 0x00088000000e0000
  Number of hops: 14

Satellite 211:
  Local Priority: 0x0008000000020010
  Configured priority: 0
  Number of hops: 2
  Remote Priority: 0x00088000000d0001
  Number of hops: 13

Satellite 212:
  Local Priority: 0x0008000000030011
  Configured priority: 0
```

```

Number of hops: 3
Remote Priority: 0x00088000000c0000
Number of hops: 12

Satellite 213:
Local Priority: 0x000800000040010
Configured priority: 0
Number of hops: 4
Remote Priority: 0x00088000000b0001
Number of hops: 11

Satellite 214:
Local Priority: 0x000800000050011
Configured priority: 0
Number of hops: 5
Remote Priority: 0x00088000000a0000
Number of hops: 10

Satellite 215:
Local Priority: 0x000800000060010
Configured priority: 0
Number of hops: 6
Remote Priority: 0x0008800000090001
Number of hops: 9

```

This example shows a sample output of the **show nv satellite redundancy** command when the **brief** keyword is used:

```

RP/0/RSP0/CPU0:router show nv satellite redundancy brief
Satellite:          | Local Priority:      | Remote Priority:
-----|-----|-----
210                | 0x000800000010011 | 0x00088000000e0000
211                | 0x000800000020010 | 0x00088000000d0001
212                | 0x000800000030011 | 0x00088000000c0000
213                | 0x000800000040010 | 0x00088000000b0001
214                | 0x000800000050011 | 0x00088000000a0000
215                | 0x000800000060010 | 0x0008800000090001
216                | 0x000800000070011 | 0x0008800000080000
299                | 0x000800000080010 | 0x0008800000070001
300                | 0x000800000090011 | 0x0008800000060000
301                |                   | No remote host connected
360                | 0x0008000000e0011 | 0x0008800000010000
700                | 0x000800000010001 | 0x0008800000010000
702                | 0x000800000010001 | 0x0008800000010000
703                | 0x000800000010000 | 0x0008800000010001
704                | 0x000800000010001 | 0x0008800000010000
705                | 0x000800000010000 | 0x0008800000010001
706                | 0x000800000010001 | 0x0008800000010000
800                | 0x0008000000a0011 | 0x0008800000050000
801                | 0x0008000000b0010 | 0x0008800000040001
802                | 0x0008000000c0011 | 0x0008800000030000
803                | 0x0008000000d0010 | 0x0008800000020001
1000               | 0x000800000010001 | 0x0008800000010000

```

This example shows a sample output of the **show nv satellite redundancy** command when the **satellite** keyword is used:

```

RP/0/RSP0/CPU0:router show nv satellite redundancy satellite 702
Satellite 702:
Local Priority: 0x000800000010001
Configured priority: 0
Number of hops: 1
Remote Priority: 0x0008800000010000
Number of hops: 1

```

## show nv satellite status

To display the status of a Satellite Network Virtualization (Satellite nV) system, use the **show nv satellite status** command in the EXEC mode. The command displays information such as the overall status of the satellite, its connections, and a brief summary of the status of the satellite.

**show nv satellite status** [ **brief** [ **satellite** *satellite-id* ] | **satellite** *satellite-id* ]

<b>Syntax Description</b>	<b>satellite</b> <i>satellite-id</i>	(Optional) Displays information about the satellite system specified using <i>satellite-id</i> .  <i>satellite-id</i> is a number in the range of 100 to 239.
	<b>brief</b>	(Optional) Displays brief information about all the satellite systems.
	<b>brief satellite</b> <i>satellite-id</i>	(Optional) Displays brief information about the specified satellite system.
<b>Command Default</b>	No default behavior or values.	
<b>Command Modes</b>	EXEC mode	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Release 4.2.1	This command was introduced.
<b>Usage Guidelines</b>	No specific guidelines impact the use of this command.	
<b>Task ID</b>	<b>Task ID</b>	<b>Operation</b>
	ethernet-services	read

### Example

These examples show how to display information about the satellites using the **show nv satellite status** command:

```
RP/0/RSP0/CPU0:router# show nv satellite status
Satellite 100
-----
  Status: Connected
  Type: asr9000v
  Description: SAT-100
  Displayed device name: Sat100
  MAC address: 8478.ac02.2994
  IPv4 address: 10.0.133.1 (auto, VRF: **nVSatellite)
  Serial Number: CAT1712UOFF
  Remote version: Compatible (older version)
    ROMMON: 128.0 (Latest)
    FPGA: 1.13 (Latest)
    IOS: 614.102 (Available: 621.4)
  Received candidate fabric ports:
    nVFabric-GigE0/0/42-43 (permanent)
    nVFabric-TenGigE0/0/44-47 (permanent)
```

```

Configured satellite fabric links:
Bundle-Ether13301
-----
Status: Satellite Ready
Remote ports: GigabitEthernet0/0/3,14,35,43
Discovered satellite fabric links:
  TenGigE1/7/0/11: Satellite Ready; No conflict
  TenGigE1/7/0/12: Satellite Ready; No conflict

RP/0/RSP0/CPU0:router# show nv satellite status
Satellite 1000
-----
Status: Connected (Stable)
Type: ncs5001
Description: sat1000
Displayed device name: Sat1000
MAC address: c472.95a6.bec5
IPv4 address: 100.1.1.1 (VRF: default)
Serial Number: FOC1930R2AL
Remote version: Compatible (latest version)
  IOFPGA: 0.17
  MB_MIFPGA: 0.17
  BIOS: 1.09
  XR: 6.2.1.16I (Latest)
Received candidate fabric ports:
  nVFabric-TenGigE0/0/38-39 (permanent)
  nVFabric-HundredGigE0/1/0-3 (permanent)
Configured satellite fabric links:
Bundle-Ether901
-----
Status: Satellite Ready
Remote ports: TenGigE0/0/0-37
Discovered satellite fabric links:
  TenGigE0/0/1/0: Satellite Ready; No conflict
  TenGigE0/1/0/4/1: Satellite Ready; No conflict

```

This example shows how to display brief information about the satellites using the **show nv satellite status brief** command:

```

RP/0/RSP0/CPU0:router# show nv satellite status brief
Sat-ID  Type          IP Address      MAC address      Status
-----  -
100     asr9000v        10.0.133.1     8478.ac02.2994  Connected (In sync)

```

The table below describes significant fields in the **show nv satellite status** display.

**Table 2: show nv satellite status Field Descriptions**

Field	Description
-------	-------------

State	<p>Overall status of the satellite. It consists of two parts:</p> <ul style="list-style-type: none"> <li>• <b>Connection status</b> <ul style="list-style-type: none"> <li>• <b>Not connected:</b> The satellite could not be connected to because of insufficient connectivity information (for example, missing IP address).</li> <li>• <b>Connecting:</b> The satellite is being connected to but connection has not been fully established.</li> <li>• <b>Authentication failed:</b> The satellite was connected to but no session was established because the authentication parameters were incorrect.</li> <li>• <b>Incorrect serial:</b> The satellite was connected to but no session was established because the serial numbers did not match.</li> <li>• <b>Incorrect version:</b> The satellite was connected to but no session was established because the version was not supported.</li> <li>• <b>Connected:</b> The satellite has been successfully connected to and a session has been successfully established.</li> </ul> </li> <li>• <b>Chassis and application status</b> <ul style="list-style-type: none"> <li>• <b>In sync:</b> The chassis and application configuration specified by the user has been successfully configured on the shelf.</li> <li>• <b>Out of sync:</b> The chassis and application configuration specified by the user is being configured on the router, possibly retrying due to earlier failures.</li> <li>• <b>Invalid:</b> The chassis and application configuration specified by the user cannot be configured on the shelf (for example, due to invalid configuration for the specified shelf).</li> </ul> </li> </ul>
Type	Type of the satellite.
Description	Description of the satellite
IPv4 address	IPv4 address used to connect to the satellite
Received Serial Number	Serial number of the satellite
Configured Serial Number	Serial number configured by the user
Remote version	Version of the software on the satellite
Chassis Status	Summary of chassis level configuration status
Configured applications	Summary of each application configured on the satellite

# show nv satellite uptime

To display how long the satellite has been booted, and the reasons of the reloads, use the **show nv satellite uptime** command in the EXEC mode.

**show nv satellite uptime** [**satellite** *Satellite\_ID*]

<b>Syntax Description</b>	<b>satellite</b> <i>Satellite ID</i>	Displays the uptime information based on the specified satellite device. The valid ID range is between 100-60000.
<b>Command Default</b>	No default behavior or values.	
<b>Command Modes</b>	EXEC mode	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Release 6.0.2	This command was introduced.
<b>Usage Guidelines</b>	No specific guidelines impact the use of this command.	
<b>Task ID</b>	<b>Task ID</b>	<b>Operation</b>
	<b>ethernet-services</b>	read

## Example

This example shows a sample output of the **show nv satellite uptime** command:

```
RP/0/RSP0/CPU0:router show nv satellite uptime
x0Sun May 14 16:39:44.245 UTC
Sat-ID      | Last Started      | Reload Information
-----|-----|-----
100         | 17:08:08 27 Apr 17 | Initial boot
           S/W      | 17:08:08 27 Apr 17 | Switch to satellite mode.
```

This example shows a sample output of the **show nv satellite redundancy** command when the **satellite** keyword is used:

```
RP/0/RSP0/CPU0:router show nv satellite uptime satellite 100
Sun May 14 16:39:48.738 UTC
Satellite 100:
  System: Last reloaded at 17:08:08 27 Apr 17
           Initial boot
           S/W: Last reloaded at 17:08:08 27 Apr 17
           Switch to satellite mode.
```

# show nv satellite version

To display information about the satellite software version, use the **show nv satellite version** command in the EXEC mode.

**show nv satellite version** [**satellite** *Satellite\_ID*] [**summary**]

<b>Syntax Description</b>	<b>satellite</b> <i>Satellite_ID</i>	(Optional) Displays the version information of the specified satellite.
	<b>summary</b>	(Optional) Displays an overview of the state of multiple satellites.
<b>Command Default</b>	No default behavior or values.	
<b>Command Modes</b>	EXEC mode	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Release 6.0.2	This command was introduced.
<b>Usage Guidelines</b>	No specific guidelines impact the use of this command.	
<b>Task ID</b>	<b>Task ID</b>	<b>Operation</b>
	ethernet-services	read

## Example

This example shows a sample output of the **show nv satellite version** command:

```
RP/0/RSP0/CPU0:router show nv satellite version
Sun May 14 17:13:36.718 UTC
Satellite 100
-----
Remote versions:
  Active: Compatible (latest)
  IOFPGA: 0.17
  MB_MIFPGA: 0.16
  DB_MIFPGA: 0.16
  BIOS: 1.11
  XR: 6.3.1.12I (Recommended: 6.3.1.20I)
```

This example shows a sample output of the **show nv satellite redundancy** command when the **summary** keyword is used:

```
RP/0/RSP0/CPU0:router show nv satellite version summary
Mon May 15 08:17:52.904 PDT
Compatibility      |         Number of Satellites
                   | Active | Transferred | Committed
-----|-----|-----|-----
```



```
Compatible (latest)      5          0          0
Unknown                  0          1          1
-----|-----|-----|-----
```

# show nv satellite install

To display the status of the install operations on a Satellite Network Virtualization (Satellite nV) system, use the **show nv satellite install** command in the EXEC mode. The command displays information such as the overall installation status of the satellite, packages, references, etc.

**show nv satellite install** {**brief** | **packages** | **references** | **verbose** | **in-progress**}

Syntax Description	<b>brief</b> (Optional) Displays brief information about all the satellite systems.								
	<b>packages</b> (Optional) Displays information about the packages on the satellite system.								
	<b>references</b> (Optional) Displays information about the references on the satellite system.								
	<b>verbose</b> (Optional) Displays long information about the install operation								
	<b>in-progress</b> (Optional) Displays the install operations that are in progress								
Command Default	No default behavior or values.								
Command Modes	EXEC mode								
Command History	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Release 5.3.2</td> <td>This command was introduced.</td> </tr> <tr> <td>Release 6.1.2</td> <td>The <b>packages</b> option was introduced in this command.</td> </tr> <tr> <td>Release 6.3.1</td> <td>The <b>references</b> option was introduced in this command.</td> </tr> </tbody> </table>	Release	Modification	Release 5.3.2	This command was introduced.	Release 6.1.2	The <b>packages</b> option was introduced in this command.	Release 6.3.1	The <b>references</b> option was introduced in this command.
Release	Modification								
Release 5.3.2	This command was introduced.								
Release 6.1.2	The <b>packages</b> option was introduced in this command.								
Release 6.3.1	The <b>references</b> option was introduced in this command.								
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	<table border="1"> <thead> <tr> <th>Task ID</th> <th>Operation</th> </tr> </thead> <tbody> <tr> <td><b>ethernet-services</b></td> <td>read</td> </tr> </tbody> </table>	Task ID	Operation	<b>ethernet-services</b>	read				
Task ID	Operation								
<b>ethernet-services</b>	read								

## Example

These examples show how to display information about the satellites using the **show nv satellite install** command:

```
RP/0/RSP0/CPU0:router# show nv satellite install references
Reference: MyRef, file count: 2
  ncs5k-iosxr-fwding-4.0.0.1-r631.CSCvc49848.x86_64.rpm
  ncs5k-iosxr-fwding-4.0.0.1-r631.CSCvc49321.x86_64.rpm
Reference: AnotherRef, file count: 0
Empty
```

```
RP/0/RSP0/CPU0:routershow nv satellite install packages
Active Packages: 2
    ncs5k-xr-6.2.1.22I version=6.2.1.22I [Boot image]
    ncs5k-sysadmin-6.2.1.22I version=6.2.1.22I [Boot image]
Inactive Packages: 1
    ncs5k-sysadmin-6.2.1.22I.CSCuv34432.rpm
Committed Packages: 2
    ncs5k-xr-6.2.1.22I version=6.2.1.22I [Boot image]
    ncs5k-sysadmin-6.2.1.22I version=6.2.1.22I [Boot image]
```

## show nv satellite install packages

To display the status of the install packages operations on a Satellite Network Virtualization (Satellite nV) system, the version information about each package, and an indication of whether each is a base image or not, use the **show nv satellite install packages** command in the EXEC mode.

**show nv satellite install packages** {**active** | **inactive** | **committed**} [**satellite** *Satellite\_ID*]

### Syntax Description

**active|satellite|committed**

- **active**—the set of packages currently active on the satellites
- **inactive**—the set of packages present but not running on the satellite
- **committed**—the set of packages that would run on next reboot of the satellite

**satellite** *Satellite\_ID* (Optional) Displays the install packages information on the specified satellite.

### Command Default

No default behavior or values.

### Command Modes

EXEC mode

### Command History

#### Release

Release 6.0.2

#### Modification

This command was introduced.

### Usage Guidelines

To display the package information, the satellite have to be able to send the information. So the Control session must have come up before using the **show nv satellite install packages** command.

### Task ID

Task ID	Operation
ethernet-services	read

# clear SyncE esmc statistics

To clear the Ethernet Synchronization Messaging Channel (ESMC) statistics, use the **clear SyncE esmc statistics** command in EXEC mode.

```
clear SyncE esmc statistics interface { interface | all | summary } location { node-id | all }
```

## Syntax Description

*interface* The command can be restricted to clear the ESMC statistics for a particular interface by specifying the interface.

*node-id* The output can be restricted to clear the ESMC statistics for a particular node by specifying the location. The *node-id* argument is entered in the *rack/slot/module* notation.

## Command Default

No default behavior or values

## Command Modes

EXEC

## Command History

Release	Modification
Release 6.1.2	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.

## Task ID

Task ID	Operations
ethernet-services	execute

## Examples

The following example shows how to clear the ESMC statistics:

```
RP/0/0RP0/CPU0:router:hostname# clear SyncE esmc statistics interface gigabitethernet 0/1/0/1
```

# telnet satellite

To telnet to a satellite using the satellite ID (if the satellite is connected) or the VRF and the IP address of the satellite (if the satellite is not connected), use the **telnet satellite** command in EXEC mode.

**telnet satellite** {*satellite-id* | **vrf** *vrf ip-address*}

<b>Syntax Description</b>	<i>satellite-id</i>	Specifies the satellite ID. Satellite ID is a number in the range of 100 to 60000.
	<b>vrf</b> <i>vrf</i>	Specifies the configured VRF name of the satellite.
	<b>Note</b>	The VRF must always be specified by the user. If the user has configured any IP address configuration, then the VRF is either <i>default</i> or the configured VRF name. Else, the VRF is the hidden satellite VRF name (**nVSatellite).
	<i>ip-address</i>	Specifies the IP-address of the satellite in the format: a.b.c.d
<b>Command Default</b>	None	
<b>Command Modes</b>	EXEC mode	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	Release 5.3.2	This command was introduced.
<b>Usage Guidelines</b>	No specific guidelines impact the use of this command.	
<b>Task ID</b>	<b>Task ID</b>	<b>Operation</b>
	ethernet-services	read, write

## Example

This example shows how to telnet to a satellite using the satellite ID:

```
RP/0/RSP0/CPU0:router # telnet satellite 100
```

This example shows how to telnet to a satellite using the VRF and IP-address of the satellite:

```
RP/0/RSP0/CPU0:router # telnet satellite vrf default 10.51.76.163
```

# upgrade

To configure automated upgrade of the satellite image, use the **upgrade** command in nV Satellite configuration mode.

**upgrade** {**on-connect** | **on-first-connect**} <**reference** *ref\_name*>

## Syntax Description

**on-connect** Automatic upgrade takes place when the satellite connects.

**on-first-connect** Automatic upgrade takes place only the first-time satellite connects.

## Command Default

Auto upgrade is disabled by default.

## Command Modes

Satellite Network Virtualization Configuration

## Command History

Release	Modification
Release 5.3.2	This command was introduced.
Release 6.3.1	The option <b>on-first-connect</b> was introduced.
Release 6.6.1	The option < <b>reference</b> <i>ref_name</i> > was introduced.

## Usage Guidelines

For dual-head satellite systems, the auto upgrade configuration must only be applied on one host, that is, the host that the satellite will install from. There is currently no checking for this, and if the user applies the configuration on both hosts and the hosts have different satellite versions installed, then the satellite may go into a loop of installing, until either:

- the configuration is removed from one host OR
- the satellite version activated on both hosts is the same



**Note** Starting with Cisco IOS XR Software Release 6.6.1, for the Cisco NCS 5000 Series Satellite, auto upgrade to a reference list of software packages is possible with an optional reference keyword and reference name along with `upgrade [on-connect | on-first-connect]` configuration. On Cisco ASR 9000 Series Router host running IOS XR 64 Bit operating system, auto upgrade for the Cisco NCS 5000 Series satellite is only possible with the reference list due to restrictions in supporting the satellite nV pie.

## Task ID

Task ID	Operation
ethernet-services	read, write

### Example

This example shows how to configure nV satellite auto image upgrade on a satellite:

```
RP/0/RSP0/CPU0:router # configure  
RP/0/RSP0/CPU0:router(config)# nv  
RP/0/RSP0/CPU0:router(config-nv)# satellite 200 upgrade on-connect
```

```
RP/0/RSP0/CPU0:router # configure  
RP/0/RSP0/CPU0:router(config)# nv  
RP/0/RSP0/CPU0:router(config-nv)# satellite 200 upgrade on-first-connect
```





# Network Virtualization Edge System Commands

---

This module describes the commands used to configure the nV Edge system on the Cisco ASR 9000 Series Router.

This feature is not supported on Cisco ASR 9000 Series Router from Release 6.0.1 onwards.

- [nv edge control serial, on page 36](#)
- [nv edge interface, on page 37](#)
- [show nv edge control control-link-protocols, on page 38](#)
- [show nv edge data forwarding, on page 39](#)

# nv edge control serial

To enable nV Edge system on the router, use the **nv edge control serial** command in Admin Configuration mode.

**nv edge control serial** *serial-number rack-number*

## Syntax Description

*serial-number* The serial numbers of the devices in the nV Edge system.

*rack-number* Rack number. The chassis that you enter this command becomes Rack 0 and the other chassis in the nV Edge system becomes Rack 1.

## Command Default

No default behavior or values

## Command Modes

Admin Configuration mode

## Command History

Release	Modification
Release 4.2.1	This command was introduced.
Release 6.0.1	nV Edge System is no longer supported on ASR 9000 Series Routers.

## Usage Guidelines

Choose any one of the chassis as Rack 0 and enter the **nv edge control serial** *serial-number rack-number* command in admin configuration mode. The other chassis becomes Rack 1.

## Task ID

Task ID	Operation
ethernet-services	read, write

## Example

This example shows how to enter admin configuration mode and enable nV Edge system on the router using the **nv edge control serial** *serial-number rack-number* command:

```
RP/0/RSP0/CPU0:router # admin
RP/0/RSP0/CPU0:router(admin)# configure
RP/0/RSP0/CPU0:router(admin-config)#nv edge control serial 123456ABCDE rack 0
RP/0/RSP0/CPU0:router(admin-config)#nv edge control serial 789012ABCDE rack 1
RP/0/RSP0/CPU0:router(admin-config)#commit
```

# nv edge interface

To enable interchassis data link, use the **nv edge interface** command in interface configuration mode.

## nv edge interface

**Syntax Description** This command has no keywords or arguments.

**Command Default** No default behavior or values

**Command Modes** Interface Configuration

Command History	Release	Modification
	Release 4.2.1	This command was introduced.
	Release 6.0.1	nV Edge System is no longer supported on ASR 9000 Series Routers.

**Usage Guidelines** Connect the Interchassis Data links to the 10 Gigabit Ethernet ports before issuing the **nv edge interface** command. You can only use 10 Gigabit Ethernet interfaces for interchassis data links. Use this command on both sides of the interchassis data link.

Task ID	Task ID	Operation
	ethernet-services	read, write

## Example

This example shows how to enter interface configuration mode and enable Interchassis Data links using the **nv edge interface** command:

```
RP/0/RSP0/CPU0:router # configure
RP/0/RSP0/CPU0:router(config)#interface TenGigE 0/0/0/0
RP/0/RSP0/CPU0:router(config-if)#nv edge interface
RP/0/RSP0/CPU0:router(config-if)#commit
```

# show nv edge control control-link-protocols

To display the status of interchassis control links, use the **show nv edge control control-link-protocols** command in Admin EXEC mode.

**show nv edge control control-link-protocols location** *node-id*

## Syntax Description

**location** (Optional) Specifies the location of the interface.

*node-id* (Optional) Node-id entered in the *rack/slot/module* notation.

## Command Default

No default behavior or values

## Command Modes

Admin EXEC mode

## Command History

Release	Modification
Release 4.2.1	This command was introduced.
Release 6.0.1	nV Edge System is no longer supported on ASR 9000 Series Routers.

## Usage Guidelines

Connect the Interchassis Data links to the 10 Gigabit Ethernet ports before issuing the **nv edge interface** command. You can only use 10 Gigabit Ethernet interfaces for interchassis data links. Use this command on both sides of the interchassis data link.

After connecting the inter chassis control links, you need not configure them as it is on by default. Use the **show nv edge control control-link-protocols location** *node-id* command in EXEC mode to display the status of the interchassis control links.

## Task ID

Task ID	Operation
ethernet-services	read, write

## Example

This example shows how to view the status of the interchassis control links using the **show nv edge control control-link-protocols location** *node-id* command:

```
RP/0/RSP0/CPU0:router#show nv edge control control-link-protocols location 0/RSP0/CPU0
```

```
Priority lPort Remote_lPort UDLD STP
=====
0 0/RSP0/CPU0/12 1/RSP0/CPU0/12 UP Forwarding
1 0/RSP0/CPU0/13 1/RSP1/CPU0/13 UP Blocking
2 0/RSP1/CPU0/12 1/RSP1/CPU0/12 UP On Partner RSP
3 0/RSP1/CPU0/13 1/RSP0/CPU0/13 UP On Partner RSP
```

# show nv edge data forwarding

To display the status of interchassis data links, use the **show nv edge data forwarding** command in Admin EXEC mode.

**show nv edge data forwarding**

**Syntax Description** This command has no keywords or arguments.

**Command Default** No default behavior or values

**Command Modes** Admin EXEC mode

Command History	Release	Modification
	Release 4.2.1	This command was introduced.
	Release 6.0.1	nV Edge System is no longer supported on ASR 9000 Series Routers.

**Usage Guidelines** No specific guidelines impact the use of this command.

Task ID	Task ID	Operation
	ethernet-services	read, write

## Example

This example shows how to view the status of the interchassis control links using the **show nv edge control control-link-protocols location *node-id*** command:

```
RP/0/RSP0/CPU0:router#show nv edge control control-link-protocols location 0/RSP0/CPU0

Priority lPort Remote_lPort UDLD STP
=====
0 0/RSP0/CPU0/12 1/RSP0/CPU0/12 UP Forwarding
1 0/RSP0/CPU0/13 1/RSP1/CPU0/13 UP Blocking
2 0/RSP1/CPU0/12 1/RSP1/CPU0/12 UP On Partner RSP
3 0/RSP1/CPU0/13 1/RSP0/CPU0/13 UP On Partner RSP
```

■ show nv edge data forwarding