nV System Command Reference for Cisco CRS Routers

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Preface

The Preface contains the following sections:

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 Rel. 4.3.0 onwards.

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Satellite nV System Commands

This module describes the commands used to configure Satellite nV System on Cisco CRS Router.

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 id*|*all*} **reload**

Syntax Description

satellite id	Specifies the unique identifier of the satellite device on which reload has to be performed.
all	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 4.3.1	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/RP0/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**}

Syntax Description

satellite id	Specifies the unique identifier of the satellite on which the image must be transferred.
all	Performs the operation on all currently active satellites that are not already at the target version.
transfer	Downloads the image from the host to the satellite device.
activate	Performs the install operation on the satellite.

Command Default

No default behavior or values

Command Modes

EXEC mode

Command History

Release	Modification
Release 4.3.1	This command was introduced.

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 transfer** and **install nv satellite activate**commands:

```
RP/0/RP0/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/RP0/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
```

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 4.3.1	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/RP0/CPU0:router#configure
RP/0/RP0/CPU0:router(config)#nv
RP/0/RP0/CPU0:router(config-nV)#
```

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*

Syntax Description

id	The *id* is a number in the range of 100 to 239.

Command Default

No default behavior or values

Command Modes

Satellite Network Virtualization Configuration

Command History

Release	Modification
Release 4.3.1	This command was introduced.

Usage Guidelines

Each satellite must be declared in a separate line with an unique identifier.

Task ID

Task ID	Operation
ethernet-services	read, write

Example

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

```
RP/0/RP0/CPU0:router # configure
RP/0/RP0/CPU0:router(config)# nv
RP/0/RP0/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*{**slot***slot*|**ports***ports*|**network**}

Syntax Description

satellite *id*	Specifies the satellite id. It is a number in the range 100-239.
slot *slot id*	(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.
ports *ports*	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).
network	(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 4.3.1	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/RP0/CPU0:router # configure
RP/0/RP0/CPU0:router(config)# interface TenGigE0/2/1/0
RP/0/RP0/CPU0:router(config-int)# ipv4 point-to-point
RP/0/RP0/CPU0:router(config-int)# interface unnumbered loopback0
RP/0/RP0/CPU0:router(config-int)# nV
RP/0/RP0/CPU0:router(config-int-nV)# satellite-fabric-link satelite 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*

Syntax Description

type *type name*	Specifies the type name of the attached satellite. The satellite type is asr9000v.

Command Default

No default behavior or values

Command Modes

Satellite Network Virtualization Configuration

Command History

Release	Modification
Release 4.3.1	This command was introduced.

Usage Guidelines

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.

Task ID

Task ID	Operation
ethernet-services	read, write

Example

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

```
RP/0/RP0/CPU0:router # configure
RP/0/RP0/CPU0:router(config)# nv
RP/0/RP0/CPU0:router(config-nV)# satellite 200
RP/0/RP0/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*

Syntax Description

string	Specifies the alphanumeric string that is assigned to a satellite.

Command Default

No default behavior or values

Command Modes

Satellite Network Virtualization Configuration

Command History

Release	Modification
Release 4.3.1	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 specify the serial number for a satellite:

```
RP/0/RP0/CPU0:router # configure
RP/0/RP0/CPU0:router(config)# nv
RP/0/RP0/CPU0:router(config-nV)# satellite 120
RP/0/RP0/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

brief	Displays a brief information of the control protocol statistics.
satellite	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 4.3.1	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/RP0/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
```

```
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

Command	Description
show nv satellite protocol discovery, on page 13	Displays the statistics of satellite discovery protocol.

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

interface *interface-name*	Displays the discovery protocol information based on the interface type.
brief*id*	Displays a brief discovery protocol information.

Command Default

No default behavior or values.

Command Modes

EXEC mode

Command History

Release	Modification
Release 4.3.1	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 show how to execute the **show nv satellite protocol discovery** command:

```
RP/0/RP0/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 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*]

Syntax Description

satellite *satellite-id*	(Optional) Displays information about the satellite system specified using *satellite-id*. *satellite-id* is a number in the range of 100 to 239. For Cisco CRS Router, *satellite-id* must not match a fabric chassis value.
brief	(Optional) Displays brief information about all the satellite systems.
brief satellite *satellite-id*	(Optional) Displays brief information about the specified satellite system.

Command Default

No default behavior or values.

Command Modes

EXEC

Command History

Release	Modification
Release 4.3.1	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
ethernet-services	read

Example

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

```
RP/0/RP0/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: CAT1712U0FF
  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
```

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

```
RP/0/RP0/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	Overall status of the satellite. It consists of two parts: • **Connection status** • **Not connected**: The satellite could not be connected to because of insufficient connectivity information (for example, missing IP address). • **Connecting**: The satellite is being connected to but connection has not been fully established. • **Authentication failed**: The satellite was connected to but no session was established because the authentication parameters were incorrect. • **Incorrect serial**: The satellite was connected to but no session was established because the serial numbers did not match. • **Incorrect version**: The satellite was connected to but no session was established because the version was not supported. • **Connected**: The satellite has been successfully connected to and a session has been successfully established. • **Chassis and application status** • **In sync**: The chassis and application configuration specified by the user has been successfully configured on the shelf. • **Out of sync**: The chassis and application configuration specified by the user is being configured on the router, possibly retrying due to earlier failures. • **Invalid**: 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).
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