Cisco Nexus 1000V Resource Availability Reference, Release 5.x

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This document describes the availability of the system-wide resources and related supported configuration limits on the Cisco Nexus 1000V software.

Contents

This document includes the following sections:

Introduction to Resource Availability

Starting with Release 4.2(1)SV2(1.1), the Cisco Nexus 1000V software is enhanced to track the usage of system-wide resources with respect to the supported configuration limits on Cisco Nexus 1000V. This enhancement to the Cisco NX-OS code base implements a series of show commands that display the current and maximum system limits for the various resources and their current availability.

The format for the command is **show resource-availability [***resource***] [module** *id***]**. The *resource* is an optional argument that could either be a specific resource, for example, **VLAN** or **all**. The **module** is an optional keyword that is followed by a specific module number argument.

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The **show resource-availability** *resource* command displays the availability information on the distributed virtual switch (DVS) and on each module for the specified resource. The **show resource-availability** *resource* **module** *id* command displays the availability information only for the specified module.

The **show resource-availability** command displays the DVS-wide availability information about the key resources such as hosts, port profiles, vEthernet ports, port channels, and VLANs.

The **show resource-availability all** command prints the availability information on the DVS and each module for all the resources. The CLI is implemented as a sequence of **show resource-availability** *resource* commands that are repeated through all the resources.

Note You cannot generate xml output for **show resource-availability all** command.

The **show resource-availability module** *id* command displays the availability of the specified module for all the resources that have a per-module configuration limit. The CLI is implemented as a series of **show resource-availability** *resource* **module** *id* commands.

Table 1 lists the resources and the corresponding aggregate commands.

Table 1 Resources and the Corresponding Aggregate Commands

Resource	show resource-availability	show resource-availability all	show resource-availability module *mod*
Hosts	X	X	
Port profiles	X	X	
vEthernet ports	X	X	X
Port channels	X	X	X
VLANs	X	X	
VXLANs (bridge domains)	X	X	
ACLs		X	X
Ethernet ports		X	X
MAC table entries		X	X
Net Flow		X	X
PVLANs		X	
QoS		X	X
SPAN/ERSPAN		X	
IP IGMP snooping	X	X	

Resource Availability

Table 2 lists the resources and the corresponding aggregate commands.

Table 2 Resource Availability

Resource	Command	Description
Hosts	**show resource-availability hosts**	Displays the maximum number of hosts that can be added to the DVS, the number of hosts that are currently powered up, the number of hosts that are currently absent, and the number of hosts that can be further added to the DVS.
Port profiles	**show resource-availability port-profile**	Displays the number of port profiles and system port profiles that are currently created, and the number of port profiles and system port profiles that are available.
vEthernet ports	**show resource-availability vethports**	Displays the maximum number of vEthernet ports supported per DVS, their current usage, and availability. This command also displays the maximum number of vEthernet ports per module, their current usage, and availability.
Port channels	**show resource-availability port-channel**	Displays the number of port channels that are currently created, and the number of port channels that are available. This command also displays the maximum number of port channels supported per module, their current usage, and the availability for each module.
VLANs	**show resource-availability vlan**	Displays the number of VLANs that are currently created, and the number of VLANs that are available.
VXLANs (bridge domains)	**show resource-availability bridge-domain**	Displays the maximum number of bridge domains per DVS, the number of bridge domains that are currently created, and the number of bridge domains that are available.
ACLs	**show resource-availability acl**	Displays the maximum number of ACLs per DVS, their current usage, and availability. This command also displays the maximum number of ACL instances per DVS, their current usage, and the availability. This command also displays the maximum number of ACL instances per module and the ACL instance usage per module.
Ethernet ports	**show resource-availability ethports**	Displays the maximum number of physical NICs that can be added to a module, their current usage, and availability.

Table 2 Resource Availability (continued)

Resource	Command	Description
MAC table entries	**show resource-availability mac-address-table**	Displays the maximum number of MAC addresses supported per module, their current usage, and availability.
Net Flow	**show resource-availability netflow**	Displays the maximum number of Net Flow monitors per DVS, their current usage, and availability. This command also displays the maximum number of netflow instances per DVS, their current usage, and availability. This command also displays the maximum number of netflow instances per module and the instance usage per module.
Private VLANs	**show resource-availability private-vlan**	Displays the number of Private VLANs that are currently created, and the number of Private VLANs that are available. Displays the maximum number of primary VLANs per promiscuous trunk port and the maximum number of Private VLAN associations. This command also displays the maximum number of Private VLANs per DVS.
QoS	**show resource-availability qos-queuing**	Displays the maximum number of classmaps per DVS, their current usage, and availability. This command also displays the maximum number of policy maps per DVS, their current usage, and availability. This command also displays the maximum number of instances per DVS, their current usage, and availability. This command also displays the maximum number of instances per module and the instance usage per module.

Table 2 Resource Availability (continued)

Resource	Command	Description
SPAN/ERSPAN	**show resource-availability monitor**	Displays the maximum number of monitor sessions supported on a DVS, current usage, and availability. This command also displays the maximum number of source interfaces per monitor session. This command also displays the maximum number of source VLANs per monitor session. This command also displays the maximum number of destination interfaces per local monitor session. This command also displays the maximum number of destination IP addresses per Encapsulated Remote Switched Port Analyzer (ERSPAN) source session.
IP IGMP snooping	**show resource-availability ip igmp snooping**	Displays the maximum number of IGMP groups supported. This command also displays the number of IGMP groups in use. This command also displays the number of IGMP groups available.

Show Command Examples

This section lists the aggregate show commands that display the available resources.

```
switch# show resource-availability ?
<CR>
  >                 Redirect it to a file
  >>                Redirect it to a file in append mode
  acl               Show resource information for Acl
  all               Show resource information for all resources
  bridge-domain     Show resource information for bridge-domains
  ethports          Show resource information for ethernet ports
  hosts             Show resource information for hosts
  ip                Show resource information for IP
  mac-address-table Show resource information for mac address table
  module            Show resource information for a specific VEM
  monitor           Show resource information for ethernet span
  netflow           Show resource information for Netflow
  port-channel      Show resource information for port channels
  port-profile      Show resource information for port-profile
  private-vlan      Show resource information for private vlan
  qos-queuing       Show resource information for QoS and Queuing
  vethports         Show resource information for vethernet ports
  vlan              Show resource information for vlan
  |                 Pipe command output to filter
```

This example shows how to display the resource availability for ACL:

```
switch# show resource-availability acl
    Maximum number of access lists per DVS is 128
```

```
    The number of access lists created is 0
    The number of access lists available is 128

    Maximum number of ACL Instances per DVS is 73728
    The number of ACL Instances created is 0
    The number of ACL instances available is 73728

    Maximum number of ACL Instances per module is 6144

    Following table shows the per module instance usage

    ------------------------------------------------------------
    Module  Used  Available
    ------------------------------------------------------------
```

This section lists the aggregate show commands that display the available resources:

```
switch# show resource-availability all ?
<CR>
  >      Redirect it to a file
  >>     Redirect it to a file in append mode
  |      Pipe command output to filter

switch# show resource-availability bridge-domain ?
<CR>
  >      Redirect it to a file
  >>     Redirect it to a file in append mode
  |      Pipe command output to filter
```

This example shows how to display the resource availability for bridge domain:

```
switch# show resource-availability bridge-domain
    Maximum number of bridge-domains per DVS: 6144
    Number of bridge-domains currently created: 0
    Number of bridge-domains available*: 6144

    * available bridge-domains do not account for created VLANs
```

This example shows how to display the resource availability for Ethernet ports:

```
switch# show resource-availability ethports

    Maximum number of Eth ports per module: 32

    ------------------------------------------------------------------------------
    Module  Used  Available
    ------------------------------------------------------------------------------
     3     1         31
     4     1         31
     5     2         30
     6     1         31
```

This example shows how to display the resource availability for hosts:

```
witch# show resource-availability hosts
    Maximum number of hosts that can be added to DVS: 250
    Number of hosts currently powered up: 4
    Number of hosts currently absent: 0
    Number of hosts that can be added further: 246
```

This example shows how to display the resource availability for IGMP snooping:

```
switch# show resource-availability ip igmp snooping
    Max number of IGMP groups supported: 1000
    Number of IGMP groups in use: 0
```

```
    Number of IGMP groups available: 1000
```

This example shows how to display the resource availability for MAC addresses:

```
switch## show resource-availability mac-address-table

    Maximum MAC Addresses per module: 32000
    ----------------------------------------------------------------------------
    Module  Used  Available
    ----------------------------------------------------------------------------
     3    83      31917
     4    78      31922
     5    97      31903
     6    86      31914
```

This example shows how to display the resource availability for MAC address of one module:

```
switch#k# show resource-availability mac-address-table module 3

    Maximum MAC Addresses per module: 32000
    ----------------------------------------------------------------------------
    Module  Used  Available
    ----------------------------------------------------------------------------
     3    80      31920

switch# show resource-availability module ?
    <3-130>  Enter module number
```

This example shows how to display the resource availability for monitors:

```
switch# show resource-availability monitor
    Maximum number of monitor sessions per DVS: 64
    Number of local SPAN sessions in use: 0
    Number of ERSPAN sessions in use: 0
    Number of monitor sessions available: 64
    Maximum number of source interfaces per session: 128
    Maximum number of source vlans per session: 32
    Maximum number of source Port-profile per session: 16
    Maximum number of destination Port-profile per local monitor session: 8
    Maximum number of destination interfaces per local monitor session: 32
    Maximum number of destination IP addresses per erspan-src session: 1

    Ssn   Type     Used Src  Avl Src   Used Src  Avl Src   Used Dst  Avl Dst
                   Intf      Intf      Vlans     Vlans
    ---  ----------  --------  --------  --------  --------  --------  --------
```

This example shows how to display the resource availability for Net Flow:

```
switch# show resource-availability netflow
    Maximum number of netflow monitors per DVS is 64
    The number of monitors created is 0
    The number of netflow monitors available is 64

    Maximum number of netflow instances per DVS is 12288
    The number of netflow instances created is 0
    The number of netflow instances available is 12288

    Maximum number of netflow instances per module is 1024

    Following table shows the per module instance usage
    ---------------------------------------------------------------
    Module  Used  Available
    ---------------------------------------------------------------
```

This example shows how to display the resource availability for Net Flow of one module:

```
switchk# show resource-availability netflow module 3
    Maximum number of netflow instances per host is 1024
    Instances created is      0
    Instances available is     1024

switch# show resource-availability port-channel ?
  <CR>
  >       Redirect it to a file
  >>      Redirect it to a file in append mode
  module  Show VEM specific information
  |       Pipe command output to filter
```

This example shows how to display the resource availability for port channel:

```
switch# show resource-availability port-channel
    Maximum number of port channels per DVS: 1024
    Number of port channels currently created: 0
    Number of port channels available: 1024

    Maximum number of port channels per module: 8
    --------------------------------------------------------------------------------
    Module  Used  Available
    --------------------------------------------------------------------------------
     3     1          7
     4     1          7
     5     2          6
     6     1          7

    Note: Modules not seen in above table are either not added to DVS or have all 8
    port channels available

switch# show resource-availability port-channel module ?
  <3-66>  Enter module number
```

This example shows how to display the resource availability for port channel of one module:

```
switch# show resource-availability port-channel module 3 ?
    Maximum number of port channels per module: 8
    Number of port channels in module: 1
    Number of port channels available for module: 7
```

This example shows how to display the resource availability for private VLAN:

```
switch# show resource-availability private-vlan

    Maximum number of Private VLANs per DVS: 512
    Number of used Private VLANs: 6
    Number of available Private VLANs : 506
    Maximum number of Primary VLANs per promiscuous trunk port: 64
    Maximum number of Private VLAN associations: 511
```

This example shows how to display the resource availability for QoS queuing:

```
switch#k# show resource-availability qos-queuing
    Maximum number of classmaps per DVS is 1024
    The number of classmaps created is 171
    The number of classmaps available is 853

    Maximum number of policy maps per DVS is 128
    The number of policy maps created is 38
    The number of policy maps available is 90

    Maximum number of instances per DVS is 12288
```

```
    The number of instances created is 3
    The number of instances available is 12285

    Maximum number of instances per module is 512

    Following table shows the per module instance usage
    ------------------------------------------------------------------
    Module  Used  Available
    ------------------------------------------------------------------
     4      3       509
```

This example shows how to display the resource availability for QoS queuing of one module:

```
switch# show resource-availability qos-queuing module 4
    Maximum number of instances per host is 512
    Instances created is      3
    Instances available is 509
```

This example shows how to display the resource availability for vEthernet ports:

```
switch#k# show resource-availability vethports

    Maximum number of Veth ports per DVS: 12288
    Number of Veth ports used: 7
    Number of Veth ports available : 12281
    Number of Veth ports exceeding limit : 0
    Number of Veth ports created: 7
    Maximum number of Veth ports per module: 990
    ------------------------------------------------------------------------------
    Module  Used  Available
    ------------------------------------------------------------------------------
     3      3        987
     5      4        986
```

This example shows how to display the resource availability for vEthernet ports of one module:

```
switch# show resource-availability vethports module 4

    Maximum number of Veth ports per module: 990
    Number of Veth ports in module: 0
    Number of Veth ports available for module: 990
```

This example shows how to display the resource availability for VLAN:

```
switch# show resource-availability vlan

    Maximum number of user VLANs supported: 4093
    Number of user VLANs created          : 2007
    Total number of available user VLANs  : 2086

    Note: Total number of available user VLANs additionally depend on number of
bridge-domains under usage. Please verify the usage of bridge-domains too.
```

Related Documentation

This section lists the documents that are used with the Cisco Nexus 1000V and are available at the following URL:

http://www.cisco.com/en/US/products/ps9902/tsd_products_support_series_home.html

General Information

Cisco Nexus 1000V Documentation Roadmap

Cisco Nexus 1000V Release Notes

Cisco Nexus 1000V Compatibility Information

Install and Upgrade

Cisco Nexus 1000V Installation and Upgrade Guide

Configuration Guides

Cisco Nexus 1000V High Availability and Redundancy Configuration Guide

Cisco Nexus 1000V Interface Configuration Guide

Cisco Nexus 1000V Layer 2 Switching Configuration Guide

Cisco Nexus 1000V License Configuration Guide

Cisco Nexus 1000V Network Segmentation Manager Configuration Guide

Cisco Nexus 1000V Port Profile Configuration Guide

Cisco Nexus 1000V Quality of Service Configuration Guide

Cisco Nexus 1000V REST API Plug-in Configuration Guide

Cisco Nexus 1000V Security Configuration Guide

Cisco Nexus 1000V System Management Configuration Guide

Cisco Nexus 1000V vCenter Plugin Configuration Guide

Cisco Nexus 1000V VXLAN Configuration Guide

Programming Guide

Cisco Nexus 1000V XML API User Guide

Reference Guides

Cisco Nexus 1000V Command Reference

Cisco Nexus 1000V MIB Quick Reference

Cisco Nexus 1000V Resource Availability Reference

Troubleshooting, Password Recovery, System Messages Guides

Cisco Nexus 1000V Troubleshooting Guide

Cisco Nexus 1000V Password Recovery Guide

Cisco NX-OS System Messages Reference

Cisco Virtual Services Appliance Documentation

http://www.cisco.com/en/US/products/ps9902/tsd_products_support_series_home.html

Cisco Virtual Security Gateway Documentation

http://www.cisco.com/en/US/products/ps13095/tsd_products_support_series_home.html

Cisco Virtual Network Management Center

http://www.cisco.com/en/US/products/ps11213/tsd_products_support_series_home.html

Cisco Virtual Wide Area Application Services (vWAAS)

http://www.cisco.com/en/US/products/ps6870/tsd_products_support_series_home.html

Cisco ASA 1000V Cloud Firewall

http://www.cisco.com/en/US/products/ps12233/tsd_products_support_series_home.html

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