



# Cisco Nexus 1000V Resource Availability Reference, Release 4.2(1)SV2(2.1)

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This document describes the availability of the system-wide resources with respect to the supported configuration limits on the Cisco Nexus 1000V Release 4.2(1)SV2(2.1) software. The following is the change history for this document.

Part Number	Revision	Date	Description
OL-29179-01	A0	June 21, 2013	Created Cisco Nexus 1000V Resource Availability Document for Release 4.2(1)SV2(2.1).
OL-29179-01	B0	September 13, 2013	Updated the value of Active VLANs and VXLANs across all VEMs in <a href="#">Table 3</a> .

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# Introduction to Resource Availability

Starting with Release 4.2(1)SV2(1.1), the Cisco Nexus 1000V software is enhanced to keep a track of the usage of system-wide resources with respect to the supported configuration limits on Cisco Nexus 1000V. This enhancement to the 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.

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 command **show resource-availability** only displays the DVS-wide availability information about the key resources, for example, 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 iterating 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 information for 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	
ACL		X	X
Ethernet ports		X	X
MAC table entries		X	X
Multicast groups		X	
Netflow		X	X
Port security		X	
PVLANS		X	

**Table 1** Resources and the Corresponding Aggregate Commands (continued)

Resource	show resource-availability	show resource-availability all	show resource-availability module <mod>
QoS		X	X
SPAN/ERSPAN		X	

## Availability of the Resources

Table 2 lists the resources and the corresponding aggregate commands.

**Table 2** Availability of the Resources

Resource	Command	Description
Hosts	<b>show resource-availability hosts</b>	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	<b>show resource-availability port-profile</b>	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	<b>show resource-availability vethports</b>	Displays the maximum number of vEthernet ports supported per DVS, their current usage, and availability.  Displays the maximum number of vEthernet ports per module, their current usage, and availability.
Port-channels	<b>show resource-availability port-channel</b>	Displays the number of port channels that are currently created, and the number of port channels that are available.  Displays the maximum number of port channels supported per module, their current usage, and the availability for each module.
VLANs	<b>show resource-availability vlan</b>	Displays the number of VLANs that are currently created, and the number of VLANs that are available.
VXLANs (Bridge Domains)	<b>show resource-availability bridge-domain</b>	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.

Table 2 Availability of the Resources (continued)

Resource	Command	Description
ACL	<b>show resource-availability acl</b>	Displays the maximum number of ACLs per DVS, their current usage, and the availability.  Displays the maximum number of ACL instances per DVS, their current usage, and the availability.  Displays the maximum number of ACL instances per module and the ACL instance usage per module.
Ethernet ports	<b>show resource-availability ethports</b>	Displays the maximum number of physical NICs that can be added to a module, their current usage, and availability.
MAC table entries	<b>show resource-availability mac-address-table</b>	Displays the maximum number of MAC addresses supported per module, their current usage, and availability.
Netflow	<b>show resource-availability netflow</b>	Displays the maximum number of netflow monitors per DVS, their current usage, and availability.  Displays the maximum number of netflow instances per DVS, their current usage, and availability.  Displays the maximum number of netflow instances per module and the instance usage per module.
Port security	<b>show resource-availability port-security macs</b>	Displays the maximum number of secure MAC addresses that are allowed, their current usage, and availability.
Private VLANs	<b>show resource-availability private-vlan</b>	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.

Table 2 Availability of the Resources (continued)

Resource	Command	Description
QoS	<b>show resource-availability qos-queuing</b>	<p>Displays the maximum number of classmaps per DVS, their current usage, and availability.</p> <p>Displays the maximum number of policy maps per DVS, their current usage, and availability.</p> <p>Displays the maximum number of instances per DVS, their current usage, and availability.</p> <p>Displays the maximum number of instances per module and the instance usage per module.</p>
SPAN/ERSPAN	<b>show resource-availability monitor</b>	<p>Displays the following details:</p> <ul style="list-style-type: none"> <li>• The maximum number of monitor sessions supported on a DVS, current usage, and availability.</li> <li>• The maximum number of source interfaces per monitor session.</li> <li>• The maximum number of source VLANs per monitor session.</li> <li>• The maximum number of destination interfaces per local monitor session.</li> <li>• The maximum number of destination IP addresses per ERSPAN source session.</li> </ul>

## Examples of the Show Commands

Refer to this section for the examples of the show commands to display the availability of the resources.

```
n1000v# 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-profiles
port-security Show resource information for port security
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

n1000v# show resource-availability acl
Maximum number of access lists per DVS is 128
The number of access lists created is 1
The number of access lists available is 127

Maximum number of ACL Instances per DVS is 4096
The number of ACL Instances created is 0
The number of ACL instances available is 4096

Maximum number of ACL Instances per module is 300

Following table shows the per module instance usage

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

n1000v# show resource-availability all ?
<CR>
> Redirect it to a file
>> Redirect it to a file in append mode
| Pipe command output to filter

n1000v# show resource-availability bridge-domain ?
<CR>
> Redirect it to a file
>> Redirect it to a file in append mode
| Pipe command output to filter

n1000v# show resource-availability bridge-domain
Maximum number of bridge-domains per DVS: 2048
Number of bridge-domains currently created: 2
Number of bridge-domains available*: 2046

* available bridge-domains do not account for created VLANs

n1000v# 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

n1000v# show resource-availability hosts
Maximum number of hosts that can be added to DVS: 128
Number of hosts currently powered up: 4
Number of hosts currently absent: 0
Number of hosts that can be added further: 124

n1000v# show resource-availability ip igmp snooping
Max number of IGMP groups supported: 512
Number of IGMP groups in use: 0
Number of IGMP groups available: 512

n1000v## 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
-----

n1000v#k# show resource-availability mac-address-table module 3

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

n1000v# show resource-availability module ?
<3-130> Enter module number

n1000v# show resource-availability monitor
Maximum number of monitor sessions per DVS: 64
Number of monitor 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 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
-----

n1000v# show resource-availability netflow
Maximum number of netflow monitors per DVS is 32
The number of monitors created is 0
The number of netflow monitors available is 32

Maximum number of netflow instances per DVS is 256
The number of netflow instances created is 0
The number of netflow instances available is 256

Maximum number of netflow instances per module is 32

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

n1000vk# show resource-availability netflow module 3
Maximum number of netflow instances per host is 32
Instances created is      0
Instances available is    32

n1000v# 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
n1000v# show resource-availability port-channel

Maximum number of port channels per DVS: 512
Number of port channels currently created: 0
Number of port channels available: 512

```

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

```
n1000v# show resource-availability port-channel module ?
<3-66> Enter module number
```

```
n1000v# 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
```

```
n1000v# show resource-availability port-security macs
```

```
-----
Allowed Used  Avail
-----
8192    0      8192
-----
```

```
n1000v# 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
```

```
n1000v#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 4096
The number of instances created is 3
The number of instances available is 4093
```

```
Maximum number of instances per module is 300
```

```
Following table shows the per module instance usage
```

```
-----
Module  Used  Available
-----
4       3      297
-----
```

```
n1000v# show resource-availability qos-queuing module 3
```

```
Maximum number of instances per host is 300
Instances created is 3
Instances available is 297
```

```
n1000v#k# show resource-availability vethports
```



```

Maximum number of Veth ports per DVS: 4096
Number of Veth ports used: 7
Number of Veth ports available : 4089
Maximum number of Veth ports per module: 300
-----

```

```

Module  Used  Available
-----
3       3       297
5       4       296
-----

```

```
n1000v# show resource-availability vethports module 4
```

```

Maximum number of Veth ports per module: 300
Number of Veth ports in module: 0
Number of Veth ports available for module: 300

```

```
n1000v# show resource-availability vlan
```

```

Maximum number of user VLANs supported: 2048
Number of user VLANs created           : 1035
Total number of available user VLANs   : 1013

```

Note: Total number of available user VLANs do not account for created bridge-domains.

## Limitations and Restrictions

The Cisco Nexus 1000V has the following limitations and restrictions:

- [Configuration Limits, page 9](#)

## Configuration Limits

[Table 3](#) shows the Cisco Nexus 1000V configuration limits:

**Table 3** Configuration Limits for Cisco Nexus 1000V

Component	Supported Limits for a Single Cisco Nexus 1000V Deployment Spanning up to 2 Physical Data Centers
Maximum Modules	130
Virtual Ethernet Module (VEM)	128
Virtual Supervisor Module (VSM)	The VSMs can be placed in different physical data centers. Note that the previous restrictions requiring the active-standby VSMs in a single physical data center do not apply anymore.
Hosts	128
Active VLANs and VXLANs across all VEMs	2048 VLANs and 2048 VXLANs (with a combined maximum of 4096)
MACs per VEM	32000
MACs per VLAN per VEM	4096
vEthernet interfaces per port profile	1024 (without <b>static auto expand</b> port binding) Same as DVS maximum (with <b>static auto expand</b> port binding)

**Table 3**      **Configuration Limits for Cisco Nexus 1000V (continued)**

<b>Component</b>	<b>Supported Limits for a Single Cisco Nexus 1000V Deployment Spanning up to 2 Physical Data Centers (continued)</b>
PVLAN	512
Distributed Virtual Switches (DVS) per vCenter with VMware vCloud Director (vCD)	32
Distributed Virtual Switches (DVS) per vCenter without VMware vCloud Director (vCD)	32
vCenter Server connections	1 per VSM HA Pair <sup>1</sup>
Maximum latency between VSMs and VEMs	100ms

**Table 3** Configuration Limits for Cisco Nexus 1000V (continued)

Component	Supported Limits for a Single Cisco Nexus 1000V Deployment Spanning up to 2 Physical Data Centers (continued)	
	Per DVS	Per Host
vEthernet interfaces	4096	300 <sup>2</sup>
Port profiles	2048	—
System port profiles	32	32
Port channel	512	8
Physical trunks	512	—
Physical NICs	—	32
vEthernet trunks	256	8
ACL	128	16 <sup>3</sup>
ACEs per ACL	128	128
ACL instances	4096	300
NetFlow policies	32	8
NetFlow instances	256	32
SPAN/ERSPAN sessions	64	64
QoS policy map	128	16
QoS class map	1024	128
QoS instances	4096	300
Port security	2048	216
MultiCast groups	512	512

1. Only one connection to vCenter server is permitted at a time.
2. Upgrade from an earlier version of Cisco Nexus 1000V software to the current version of Cisco Nexus 1000V software displays the maximum vEth ports as 216. To get the current supported vEth limit, remove the host from DVS and add the host again.
3. This number can be exceeded if VEM has available memory.

## Related Documentation

This section lists the documents used with the Cisco Nexus 1000V and available on [Cisco.com](http://www.cisco.com) at the following URL:

[http://www.cisco.com/en/US/products/ps9902/tsd\\_products\\_support\\_series\\_home.html](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*  
*Cisco Nexus 1000V vCenter Plugin 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*

## Virtual Services Appliance Documentation

The Cisco Nexus Virtual Services Appliance (VSA) documentation is available at  
[http://www.cisco.com/en/US/products/ps9902/tsd\\_products\\_support\\_series\\_home.html](http://www.cisco.com/en/US/products/ps9902/tsd_products_support_series_home.html)

## Virtual Security Gateway Documentation

The Cisco Virtual Security Gateway documentation is available at  
[http://www.cisco.com/en/US/products/ps13095/tsd\\_products\\_support\\_series\\_home.html](http://www.cisco.com/en/US/products/ps13095/tsd_products_support_series_home.html)

## Virtual Network Management Center

The Cisco Virtual Network Management Center documentation is available at

[http://www.cisco.com/en/US/products/ps11213/tsd\\_products\\_support\\_series\\_home.html](http://www.cisco.com/en/US/products/ps11213/tsd_products_support_series_home.html)

### Virtual Wide Area Application Services (vWAAS)

The Virtual Wide Area Application Services documentation is available at

[http://www.cisco.com/en/US/products/ps6870/tsd\\_products\\_support\\_series\\_home.html](http://www.cisco.com/en/US/products/ps6870/tsd_products_support_series_home.html)

### ASA 1000V Cloud Firewall

The ASA 1000V Cloud Firewall documentation is available at

[http://www.cisco.com/en/US/products/ps12233/tsd\\_products\\_support\\_series\\_home.html](http://www.cisco.com/en/US/products/ps12233/tsd_products_support_series_home.html)

## Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see *What's New in Cisco Product Documentation* at:

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