Cisco Nexus 3000 Series NX-OS Verified Scalability Guide, Release 7.0(3)I7(4)

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Introduction

The values provided in this guide should not be interpreted as theoretical system limits for Cisco Nexus 3000 Series hardware or Cisco NX-OS software. These limits refer to values that have been validated by Cisco. They can increase over time as more testing and validation is done.

Verified Scalability Limits

The tables in this section list the Cisco verified scalability limits for Cisco NX-OS . The values provided in these tables focus on the scalability of one particular feature at a time.

Each number is the absolute maximum currently supported by this Cisco NX-OS release for the corresponding feature. If the hardware is capable of a higher scale, future software releases might increase this verified maximum limit. Results might differ from the values listed here when trying to achieve maximum scalability with multiple features enabled.

Note

- If the verified maximum values are exceeded in an ALPM or a non-ALPM mode, you get a table full syslog even in the hash collision scenario.
- For Verified Maximum, 16 path ECMP is tested with 40K IPv4 and 40K IPv6.
- If your scale requirements exceed either the Verified Topology or the Verified Maximum limit, please contact your Cisco representative. Based on your requirements, it may be possible to validate support for your requirement, as long as the scale capability of the hardware is not exceeded.

Table 1: Unicast Routing Verified Scalability Limits (Unidimensional)

Feature	**3000 Platform Verified Limit**	**3100 Platform Verified Limit (ALPM Mode)**	**3100 Platform Verified Limit (Non-ALPM Mode)**	**3132Q Platform Verified Limit**	**3132Q-V Platform Verified Limit**	**3132Q-X Platform Verified Limit**	**3172PQ Platform Verified Limit**	**31108PC-V Platform Verified Limit**	**31108TC-V Platform Verified Limit**
Active VLANs per switch	4000	Not applicable	Not applicable	507 (RSTP) and 4013 (MSTP)	507 (RSTP) and 4013 (MSTP)	507 (RSTP) and 4013 (MSTP)	507 (RSTP) and 4013 (MSTP)	507 (RSTP) and 4013 (MSTP)	507 (RSTP) and 4013 (MSTP)
BFD neighbors	64	Not applicable	Not applicable	104	104	104	104	104	104
BFDv6 neighbors	64	Not applicable	Not applicable	104	104	104	Not applicable	Not applicable	Not applicable

Feature	3000 Platform Verified Limit	3100 Platform Verified Limit (ALPM Mode)	3100 Platform Verified Limit (Non-ALPM Mode)	3132Q Platform Verified Limit	3132Q-V Platform Verified Limit	3132Q-X Platform Verified Limit	3172PQ Platform Verified Limit	31108PC-V Platform Verified Limit	31108TC-V Platform Verified Limit
BGP neighbors	Not applicable	Not applicable	Not applicable	140	140	140	140	140	140
BGPv4 neighbors (vPC)	141	Not applicable	Not applicable	128	128	128	Not applicable	Not applicable	Not applicable
BGPv4 neighbors (non-vPC)	141	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
BGPv6 (vPC)	128	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
BGPv6 (non-vPC)	128	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
BGP6	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	128	128	128
Configurable QoS groups	8	Not applicable	Not applicable	8	8	8	8	8	8
EtherChannel Members	32	Not applicable	Not applicable	32	32	32	24	24	24
ECMP paths	Not applicable	16	16	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
ECMP	64-way	Not applicable	Not applicable	64-way	64-way	64-way	64-way	64-way	64-way
HSRP	500	Not applicable	Not applicable	500	500	500	500	500	500
HSRPv6	500	Not applicable	Not applicable	500	500	500	Not applicable	Not applicable	Not applicable
IGMP Snooping groups	8K	Not applicable	Not applicable	8000	8000	8000	8000	8000	8000

Feature	3000 Platform Verified Limit	3100 Platform Verified Limit (ALPM Mode)	3100 Platform Verified Limit (Non-ALPM Mode)	3132Q Platform Verified Limit	3132Q-V Platform Verified Limit	3132Q-X Platform Verified Limit	3172PQ Platform Verified Limit	31108PC-V Platform Verified Limit	31108TC-V Platform Verified Limit
IPv4 hosts	8,000 (Nexus 3064PQ) 16,000 (All other Nexus 3000 Series platforms)	Not applicable	Not applicable	4096 (Multicast is 0.)	4096 (Multicast is 0.)	4096 (Multicast is 0.)	16384 (Multicast is 0.)	16384 (Multicast is 0.)	16384 (Multicast is 0.)
IPv6 host routes	Not applicable	Not applicable		4096 (4096 is reserved for multicast.)	4096 (4096 is reserved for multicast.)	4096 (4096 is reserved for multicast.)	4096 (4096 is reserved for multicast.)	4096 (4096 is reserved for multicast.)	4096 (4096 is reserved for multicast.)
IPv4 LPM routes (No IPv6 carving)	16K (with system urpf disabled) and 8192 (with system urpf enabled)	128K (with system urpf disabled) 64K (with system urpf enabled)	16K (with system urpf disabled) and 8K (with system urpf enabled)	15360 (with system urpf disabled) and 7680 (with system urpf enabled)	15360 (with system urpf disabled) and 7680 (with system urpf enabled)	15360 (with system urpf disabled) and 7680 (with system urpf enabled)	15360 (with system urpf disabled)	15360 (with system urpf disabled)	4000 (with system urpf disabled)
IPv6 LPM routes (No IPv6 carving)	Not applicable	80K (with system urpf disabled) 20K (with system urpf enabled)	0 (with both, system urpf disabled and enabled)	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	4000 (with system urpf disabled)
IPv6 LPM <=64 (no IPv6 carving)	8K (with system urpf disabled) and 4K (with system urpf enabled)	Not applicable	8K (with system urpf disabled) and 4K (with system urpf enabled)	6144 (with system urpf disabled) and 2048 (with system urpf enabled)	6144(with system urpf disabled) and 2048 (with system urpf enabled)	6144 (with system urpf disabled) and 2048 (with system urpf enabled)	6144 (with system urpf disabled)	6144 (with system urpf disabled)	Not applicable

Feature	3000 Platform Verified Limit	3100 Platform Verified Limit (ALPM Mode)	3100 Platform Verified Limit (Non-ALPM Mode)	3132Q Platform Verified Limit	3132Q-V Platform Verified Limit	3132Q-X Platform Verified Limit	3172PQ Platform Verified Limit	31108PC-V Platform Verified Limit	31108TC-V Platform Verified Limit
IPv6 LPM >64 and <=127	8K (with system urpf disabled) and 4K (with system urpf enabled)	Not applicable	Not applicable	256 (with system urpf disabled) and 128(with system urpf enabled)	256 (with system urpf disabled) and 128(with system urpf enabled)	256 (with system urpf disabled) and 128(with system urpf enabled)	Not applicable	Not applicable	Not applicable
IPv4 LPM routes (IPv6 carve value 1024)	Not applicable	96K (with system urpf disabled)	12K (with system urpf disabled) and 6K (with system urpf enabled)	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
IPv6 LPM routes (IPv6 carve value 1024)	Not applicable	5K (with system urpf disabled)	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
IPv6 LPM <=64 (IPv6 carve value 1024)	Not applicable	Not applicable	6K (with system urpf disabled) and 2K (with system urpf enabled)	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
IPv6 LPM >64 (IPv6 carve value 1024)	Not applicable	Not applicable	1024 (with system urpf disabled) and 512 (with system urpf enabled)	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

Feature	3000 Platform Verified Limit	3100 Platform Verified Limit (ALPM Mode)	3100 Platform Verified Limit (Non-ALPM Mode)	3132Q Platform Verified Limit	3132Q-V Platform Verified Limit	3132Q-X Platform Verified Limit	3172PQ Platform Verified Limit	31108PC-V Platform Verified Limit	31108TC-V Platform Verified Limit
IPv4 LPM routes (IPv6 carve value 2048)	Not applicable	64K (with system urpf disabled) 32K (with system urpf enabled)	8K (with system urpf disabled) and 4K (with system urpf enabled)	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
IPv6 LPM routes (IPv6 carve value 2048)	Not applicable	5K (with system urpf disabled) 2K (with system urpf enabled)	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
IPv6 LPM <=64 (IPv6 carve value 2048	Not applicable	Not applicable	4K (with system urpf disabled) and 2K (with system urpf enabled)	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
IPv6 LPM >64 (IPv6 carve value 2048)	Not applicable	Not applicable	2K (with system urpf disabled) and 1K (with system urpf enabled)	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

Feature	3000 Platform Verified Limit	3100 Platform Verified Limit (ALPM Mode)	3100 Platform Verified Limit (Non-ALPM Mode)	3132Q Platform Verified Limit	3132Q-V Platform Verified Limit	3132Q-X Platform Verified Limit	3172PQ Platform Verified Limit	31108PC-V Platform Verified Limit	31108TC-V Platform Verified Limit
IPv4 LPM routes (IPv6 carve value 3072)	Not applicable	32K (with system urpf disabled)	4K(with system urpf disabled) and 2K(with system urpf enabled)	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
IPv6 LPM routes (IPv6 carve value 3072)	Not applicable	15K (with system urpf disabled)		Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
IPv6 LPM <=64 (IPv6 carve value 3072)	Not applicable	Not applicable	2K (with system urpf disabled) and 0 (with system urpf enabled)	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
IPv6 LPM >64 (IPv6 carve value 3072)	Not applicable	Not applicable	3072(with system urpf disabled) and 0 (with system urpf enabled)	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
IPv4 LPM Routes(IPv6 carve value 4096)	Not applicable	Not applicable	0 (with both, system urpf disabled and enabled)	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

Feature	3000 Platform Verified Limit	3100 Platform Verified Limit (ALPM Mode)	3100 Platform Verified Limit (Non-ALPM Mode)	3132Q Platform Verified Limit	3132Q-V Platform Verified Limit	3132Q-X Platform Verified Limit	3172PQ Platform Verified Limit	31108PC-V Platform Verified Limit	31108TC-V Platform Verified Limit
IPv6 LPM <=64 (IPv6 carve value 4096)	Not applicable	Not applicable	0 (with both, system urpf disabled and enabled)	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
IPv6 LPM >64 (IPv6 carve value 4096)	Not applicable	Not applicable	4096 (with system urpf disabled) and 2048 (with system urpf enabled)	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Layer 3 physical interfaces	Not applicable	Not applicable	Not applicable	64	64	64	24	24	24
Layer 3 SVI, subinterfaces EtherChannels	1024	Not applicable	Not applicable	1024	1024	1024	1024	1024	1024
MAC address table	Not applicable	32K	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
MAC table size (non-vPC)	128,000	Not applicable	Not applicable	131,072	131,072	131,072	98000	98000	Not applicable
MAC table size (vPC)	40K	Not applicable	Not applicable	131,072	131,072	131,072	98000	98000	98000
MST instances	65	Not applicable	Not applicable	65	65	65	65	65	65
MTU	Not applicable	Not applicable	Not applicable	9216	9216	9216	9216	9216	9216

Feature	3000 Platform Verified Limit	3100 Platform Verified Limit (ALPM Mode)	3100 Platform Verified Limit (Non-ALPM Mode)	3132Q Platform Verified Limit	3132Q-V Platform Verified Limit	3132Q-X Platform Verified Limit	3172PQ Platform Verified Limit	31108PC-V Platform Verified Limit	31108TC-V Platform Verified Limit
Multicast routes	4,000 (Nexus 3064PQ) 8,000 (All other Nexus 3000 Series platforms)	Not applicable	Not applicable	8000 routes	8000 routes	8000 routes	8000 routes	8000 routes	8000
Number of switch port EtherChannels	64	Not applicable	Not applicable	32	32	32	10	10	10
Number of system logging destination ports	8	Not applicable	Not applicable	8	8	8	8	8	8
OSPF neighbors	Not applicable	Not applicable	Not applicable	128	128	128	128	128	128
OSPFv3	Not applicable	Not applicable	Not applicable	128	128	128	Not applicable	Not applicable	128
sFlow	64	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
SNMP Servers	Not applicable	Not applicable	Not applicable	8	8	8	8	8	8
SPAN sessions	2 active sessions	Not applicable	Not applicable	2 active sessions	2 active sessions	2 active sessions	2 active sessions	2 active sessions	2 active sessions
SSH	Not applicable	Not applicable	Not applicable	32	32	32	32	32	32
STP logical interfaces	9000	Not applicable	Not applicable	9000	9000	9000	9000	9000	9000
TCAM entries for ACL	1664 ingress and 1024 egress	Not applicable	Not applicable	2048 ingress and 512 egress	2048 ingress and 512 egress	2048 ingress and 512 egress	2048 ingress and 512 egress	2048 ingress and 512 egress	2048 ingress and 512 egress

Feature	3000 Platform Verified Limit	3100 Platform Verified Limit (ALPM Mode)	3100 Platform Verified Limit (Non-ALPM Mode)	3132Q Platform Verified Limit	3132Q-V Platform Verified Limit	3132Q-X Platform Verified Limit	3172PQ Platform Verified Limit	31108PC-V Platform Verified Limit	31108TC-V Platform Verified Limit
Telnet session	Not applicable	Not applicable	Not applicable	64	64	64	64	64	64
VRF	1000	Not applicable	Not applicable	1000	1000	1000	1000	1000	1000
VRRP	255	Not applicable	Not applicable				Not applicable	Not applicable	Not applicable

Note Starting with Release 7.0(3)I5(1), you can configure upto 2034 Layer 2 VNIs with 32 static ingress replication peers on the following Cisco Nexus 3000 Series platforms:

- C3132Q-V
- C31108TC-V
- C31108PC-V

Table 2: VXLAN Verified Scalability Limits

Feature	3132Q Platform Verified Limit	3132Q-V Platform Verified Limit	3172Q Platform Verified Limit	31108PC-V Platform Verified Limit	31108TC-V Platform Verified Limit
VXLAN Flood and Learn					
Layer 2 VNI	640	640	640	640	640
Underlay multicast groups	500	200	500	200	200
Overlay MAC addresses	64,000		64,000		
VTEPS	640	640	640	640	640
Ingress replication peers	640		640		
Ingress replication Layer 2 VNIs	640		640		
MAC addresses for ingress replication	64,000	64,000	64,000	64,000	64,000

Feature	3132Q Platform Verified Limit	3132Q-V Platform Verified Limit	3172Q Platform Verified Limit	31108PC-V Platform Verified Limit	31108TC-V Platform Verified Limit
Local MAC (MAC on vpc leg)	64,000		64,000		
VXLAN BGP eVPN					
Layer 2VNI	Not applicable	640	Not applicable	640	640
Layer 3 VNI/VRFs	Not applicable	320	Not applicable	320	320
Underlay multicast groups	Not applicable	200	Not applicable	200	200
VTEPs	Not applicable	32	Not applicable	32	32
MAC addresses	Not applicable		Not applicable		
IPv4 host routes	Not applicable	8000	Not applicable	8000	8000
IPv6 host routes	Not applicable	4000	Not applicable	4000	4000
Overlay IPv4 LPM routes	Not applicable	8000	Not applicable	8000	8000
Overlay IPv6 LPM routes	Not applicable	4000	Not applicable	4000	4000
VXLAN BGP eVPN Ingress Replication					
Layer 2 VNI	Not applicable	640	Not applicable	640	640
Underlay multicast groups	Not applicable	320	Not applicable	320	320
VTEPs	Not applicable	32	Not applicable	32	32
MAC addresses	Not applicable	64,000	Not applicable	64,000	64,000
IPv4 host routes	Not applicable	8000	Not applicable	8000	8000
IPv6 host routes	Not applicable	4000	Not applicable	4000	4000
Overlay IPv4 LPM routes	Not applicable	8000	Not applicable	8000	8000
Overlay IPv6 LPM routes	Not applicable	4000	Not applicable	4000	4000

Verified Topology Limits

The tables in this section list the verified scaling capabilities with all listed features enabled at the same time. The scale numbers listed here exceed those used by most customers in their topologies. These numbers are not the maximum verified values if each feature is viewed in isolation.

Note

- The scale numbers in the Verified Topology Limits tables are for the Non-ALPM mode and the default IPv6 LPM carve value is 256 for all the platforms.
- For the verified topology scale numbers for 3132Q platform, refer to the scale numbers for 3132Q-X platform since they are identical for both these platforms.
- All the scale numbers are with Unicast RPF disabled.

Table 3: Verified Topology Limits

Feature	3064 Platform Verified Limit	3132Q-V Platform Verified Limit	3132Q-X Platform Verified Limit	3172PQ Platform Verified Limit	31108PC-V Platform Verified Limit	31108TC-V Platform Verified Limit
VXLAN Flood and Learn						
Overlay MAC addresses	Not applicable	Not applicable	2000	Not applicable	Not applicable	Not applicable
Layer 2 VNI	Not applicable	Not applicable	200	Not applicable	Not applicable	Not applicable
Underlay multicast groups	Not applicable	Not applicable	100	Not applicable	Not applicable	Not applicable
Ingress replication peers	Not applicable	Not applicable	100	Not applicable	Not applicable	Not applicable
Ingress replication Layer 2 VNIs	Not applicable	Not applicable	100	Not applicable	Not applicable	Not applicable

Americas Headquarters
Cisco Systems, Inc.
San Jose, CA 95134-1706
USA

Asia Pacific Headquarters
CiscoSystems(USA)Pte.Ltd.
Singapore

Europe Headquarters
CiscoSystemsInternationalBV
Amsterdam,TheNetherlands

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