



Cisco Nexus 3400-S NX-OS Verified Scalability Guide, Release 9.3(4)

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Introduction

This document describes the Cisco NX-OS configuration limits for Cisco Nexus 3400-S Series switches.

The values provided in this guide should not be interpreted as theoretical system limits for Cisco Nexus 3400-S 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 - Unidimensional

The tables in this section list the verified scalability limits for the Cisco Nexus 3400-S Series switches for Cisco NX-OS Release 9.3(4).

These limits are validated with a unidimensional configuration. 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 in this guide when you try to achieve maximum scalability with multiple features enabled.



Note If a feature is not supported for a particular platform, the verified limit is not provided.

Table 1: HSRP Verified Scalability Limits (Unidimensional)

Feature	Supported Platform	Verified Limits
Number of groups per interface or I/O module	Nexus 3408-S, 3432D-S switches	Maximum 16 (Because 16 is the unique virtual MAC address limit)

Table 2: Interfaces Verified Scalability Limits (Unidimensional)

Feature	Supported Platform	Verified Limits
DHCP clients per switch	Nexus 3408-S, 3432D-S switches	10 (IPv4) + 10 (IPv6)
IP DHCP relay addresses (helper addresses) per switch	Nexus 3408-S, 3432D-S switches	32 (IPv4) + 32 (IPv6)
MAC address - table system, VLAN limit	Nexus 3408-S, 3432D-S switches	3,967 (the remaining 127 VLANs are reserved)
SVIs	Nexus 3408-S, 3432D-S switches	1,000
vPCs	Nexus 3408-S, 3432D-S switches	80

Table 3: Layer 2 Switching Verified Scalability Limits (Unidimensional)

Feature	Supported Platform	Verified Limits
MAC addresses table	Nexus 3408-S, 3432D-S switches	32,000
MST instances	Nexus 3408-S, 3432D-S switches	64
MST PV count with single instances 0	Nexus 3408-S, 3432D-S switches	190,000
MST virtual ports	Nexus 3408-S, 3432D-S switches	48,000
RPVST virtual ports	Nexus 3408-S, 3432D-S switches	12,000
Members per Port Channel	Nexus 3408-S, 3432D-S switches	32
Max Port Channels	Nexus 3408-S, 3432D-S switches	100
RPVST Spanning Tree	Nexus 3408-S, 3432D-S switches	123
Total number of VLANs × ports with switchport isolated (3967 VLANs x 48 ports)	Nexus 3408-S, 3432D-S switches	190,000
VLANs	Nexus 3408-S, 3432D-S switches	3,967 (the remaining 127 VLANs are reserved)
VLANs in RPVST mode	Nexus 3408-S, 3432D-S switches	123



Note The number of supported VLANs per vPC should be within the MST or RPVST virtual port count specified in this table, depending on the topology.

Table 4: Layer 3 Switching Verified Scalability Limits (Unidimensional)

Feature	Supported Platform	Verified Limits
IPv4 Unicast (hosts) routes	Nexus 3408-S, 3432D-S switches	Profile A: 96,000 Profile D: 48,000 Profile E: 98,304
IPv4 Unicast (prefixes)	Nexus 3408-S, 3432D-S switches	Profile A: 72,000 Profile D: 200,000 Profile E: 147,456
IPv6 Unicast (hosts) routes	Nexus 3408-S, 3432D-S switches	Profile A: 48,000 Profile D: 24,000 Profile E: 48,128

Feature	Supported Platform	Verified Limits
IPv6 Unicast (prefixes <= /64)	Nexus 3408-S, 3432D-S switches	Profile A: 36,000 Profile D: 100,000 Profile E: 73,728
IPv6 Unicast (prefixes /65 to /127)	Nexus 3408-S, 3432D-S switches	Profile A: 128 Profile D: 128 Profile E: 73,728



- Note**
1. Profile-A is the default profile, while Profile-D is LPM heavy profile.
 2. Profile-E is the Layer3-heavy profile which is configured using the **system routing template-l3-heavy** command.
 3. In profile E, the following tables share the same space:
 - Ipv4 host, Ipv4 prefix, Ipv6 prefix (<= /80) – Share the same table
 - Ipv6 host
 - Ipv6 prefix (only /127)
 - Ipv6 prefix (80 < prefix < 127)
 4. In all other profiles, the following tables share the same space:
 - Ipv4 host, Ipv6 host – Share the same table
 - Ipv4 prefix, Ipv6 prefix (<= /64) – Share the same table
 - Ipv6 prefix (64 < prefix <= 127)

Table 5: QoS Verified Scalability Limits (Unidimensional)

Feature	Supported Platform	Verified Limits
Ingress L3 QoS TCAM entries	Nexus 3408-S, 3432D-S switches	256 (320 bit wide)
Ingress L2 QoS TCAM entries	Nexus 3408-S, 3432D-S switches	256 (320 bit wide)

Table 6: Security Verified Scalability Limits (Unidimensional) - For Physical Ports

Feature	Supported Platform	Verified Limits
System ACLs	Nexus 3408-S, 3432D-S switches	256 and 320 bits wide TCAM entries (per IB of the forwarding engine)
DHCP snooping bindings	Nexus 3408-S, 3432D-S switches	2,048 (per IB of the forwarding engine)

Feature	Supported Platform	Verified Limits
IPv4 ingress access control entries (ACEs)	Nexus 3408-S, 3432D-S switches	<ul style="list-style-type: none"> • RACL IPv4: 1024 TCAM entries in internal TCAM (per IB of the forwarding engine) • PACL MAC: 1024 TCAM entries in internal TCAM (per IB of the forwarding engine) • PACL IPv4: 1024 TCAM entries in internal TCAM (per IB of the forwarding engine)
IPv6 ingress access control entries (ACEs)	Nexus 3408-S, 3432D-S switches	<ul style="list-style-type: none"> • PACL IPv6: 512 TCAM entries in internal TCAM (per IB of the forwarding engine) • RACL IPv6: 512 TCAM entries in internal TCAM (per IB of the forwarding engine)
IPv4 ingress TCAM entries	Nexus 3408-S, 3432D-S switches	1024 (per IB of the forwarding engine)
IPv4 egress TCAM entries	Nexus 3408-S, 3432D-S switches	512 (per IB of the forwarding engine)
IPv6 ingress TCAM entries	Nexus 3408-S, 3432D-S switches	512 (per IB of the forwarding engine)
IPv6 egress TCAM entries	Nexus 3408-S, 3432D-S switches	256 (per IB of the forwarding engine)

Table 7: Security Verified Scalability Limits (Unidimensional) - For Logical Ports

Feature	Supported Platform	Verified Limits
System ACLs	Nexus 3408-S, 3432D-S switches	256 and 320 bits wide TCAM entries
DHCP snooping bindings	Nexus 3408-S, 3432D-S switches	2,048
IPv4 ingress access control entries (ACEs)	Nexus 3408-S, 3432D-S switches	<ul style="list-style-type: none"> • RACL IPv4: 1024 TCAM entries in internal TCAM • PACL MAC: 1024 TCAM entries in internal TCAM • PACL IPv4: 1024 TCAM entries in internal TCAM
IPv6 ingress access control entries (ACEs)	Nexus 3408-S, 3432D-S switches	<ul style="list-style-type: none"> • PACL IPv6: 512 TCAM entries in internal TCAM • RACL IPv6: 512 TCAM entries in internal TCAM

Feature	Supported Platform	Verified Limits
IPv4 ingress TCAM entries	Nexus 3408-S, 3432D-S switches	1024
IPv4 egress TCAM entries	Nexus 3408-S, 3432D-S switches	512
IPv6 ingress TCAM entries	Nexus 3408-S, 3432D-S switches	512
IPv6 egress TCAM entries	Nexus 3408-S, 3432D-S switches	256



Note The TCAM entries scalability limits also apply to policy-based TCAM entries (PBACLs).

Table 8: System Management Verified Scalability Limits (Unidimensional)

Feature	Supported Platform	Verified Limits
sFlow		
sFlow ports	Nexus 3408-S, 3432D-S switches	64
SPAN and ERSPAN		
Configurable SPAN or ERSPAN sessions	Nexus 3408-S, 3432D-S switches	32
Active SPAN or ERSPAN sessions	Nexus 3408-S, 3432D-S switches	4
Active localized SPAN or ERSPAN session (Rx and Tx, Rx, or Tx)	Nexus 3408-S, 3432D-S switches	4
Source interfaces per SPAN or ERSPAN session (Rx and Tx, Rx, or Tx)	Nexus 3408-S, 3432D-S switches	32 (tentatively)
Destination interfaces per SPAN session	Nexus 3408-S, 3432D-S switches	1 (physical)
Source VLANs per SPAN or ERSPAN session	Nexus 3408-S, 3432D-S switches	32

Table 9: Unicast Routing Verified Scalability Limits (Unidimensional)

Feature	Supported Platform	Verified Limits
Unicast Routing		
BFD sessions (echo mode)	Nexus 3408-S, 3432D-S switches	256
BGP neighbors	Nexus 3408-S, 3432D-S switches	512 (IPv4), 512 (IPv6), or 256 (IPv4 + IPv6)
EIGRP routes	Nexus 3408-S, 3432D-S switches	20, 000
EIGRP neighbors	Nexus 3408-S, 3432D-S switches	256

Feature	Supported Platform	Verified Limits
HSRP groups	Nexus 3408-S, 3432D-S switches	1000
IPv4 ARP	Nexus 3408-S, 3432D-S switches	Profile A: 32,000 Profile D: 12,000 Profile E: 4,000
IPv6 ND	Nexus 3408-S, 3432D-S switches	Profile A: 32,000 Profile D: 12,000 Profile E: 4,000
IS-ISv4 adjacencies (either L1, L2, or sum of L1 and L2 with default timers)	Nexus 3408-S, 3432D-S switches	255
IS-ISv4 BFD sessions (with default timers)	Nexus 3408-S, 3432D-S switches	255
IS-ISv4 routes	Nexus 3408-S, 3432D-S switches	10,000
IS-ISv4 network type	Nexus 3408-S, 3432D-S switches	Point to point, broadcast
OSPF/OSPFv3 LSA/LSDB size	Nexus 3408-S, 3432D-S switches	250, 000
OSPF/OSPFv3 areas	Nexus 3408-S, 3432D-S switches	15
OSPFv2 neighbors	Nexus 3408-S, 3432D-S switches	1,000
OSPFv3 neighbors	Nexus 3408-S, 3432D-S switches	1000
OSPF/OSPFv3 LSA/LSDB size	Nexus 3408-S, 3432D-S switches	100,000
OSPF/OSPFv3 areas	Nexus 3408-S, 3432D-S switches	100
VRFs	Nexus 3408-S, 3432D-S switches	256
VRRP groups per interface or I/O module	Nexus 3408-S, 3432D-S switches	250
VRRPv3		
VRRPv3 groups per interface	Nexus 3408-S, 3432D-S switches	255
VRRPv3 groups with default timers (1 s)	Nexus 3408-S, 3432D-S switches	490
VRRPv3 groups with relaxed timers (3 s)	Nexus 3408-S, 3432D-S switches	490
Pathways with one VRRPv3 group with default timer (1 s)	Nexus 3408-S, 3432D-S switches	489
VRRPv3 groups and pathways combined	Nexus 3408-S, 3432D-S switches	490

Guidelines and Limitations for OSPF Verified Scalability Limits

- To achieve the highest scale, we recommend that you use a single OSPF instance instead of multiple instances.

- Each OSPFv2 and OSPFv3 scale value might vary when combined with other parameters.
- The graceful restart timeout value might need to be increased in multi-dimensional scenarios.

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