Cisco Nexus 3550-T NX-OS Verified Scalability Guide, Release 10.6(2)F

Preface

Audience

This publication is for network administrators who install, configure, and maintain Cisco Nexus switches.

Note The documentation set for this product strives to use bias-free language. For the purposes of this documentation set, bias-free is defined as language that does not imply discrimination based on age, disability, gender, racial identity, ethnic identity, sexual orientation, socioeconomic status, and intersectionality. Exceptions may be present in the documentation due to language that is hardcoded in the user interfaces of the product software, language used based on RFP documentation, or language that is used by a referenced third-party product.

Document Conventions

Command descriptions use the following conventions:

Convention	Description
bold	Bold text indicates the commands and keywords that you enter literally as shown.
Italic	Italic text indicates arguments for which you supply the values.
[x]	Square brackets enclose an optional element (keyword or argument).
[x | y]	Square brackets enclosing keywords or arguments that are separated by a vertical bar indicate an optional choice.
{x | y}	Braces enclosing keywords or arguments that are separated by a vertical bar indicate a required choice.
[x {y | z}]	Nested set of square brackets or braces indicate optional or required choices within optional or required elements. Braces and a vertical bar within square brackets indicate a required choice within an optional element.
`variable`	Indicates a variable for which you supply values, in context where italics cannot be used.

Convention	Description
string	A nonquoted set of characters. Do not use quotation marks around the string or the string includes the quotation marks.

Examples use the following conventions:

Convention	Description
`screen font`	Terminal sessions and information the switch displays are in screen font.
`boldface screen font`	Information that you must enter is in boldface screen font.
italic screen font	Arguments for which you supply values are in italic screen font.
< >	Nonprinting characters, such as passwords, are in angle brackets.
[ ]	Default responses to system prompts are in square brackets.
!, #	An exclamation point (!) or a pound sign (#) at the beginning of a line of code indicates a comment line.

Related Documentation for Cisco Nexus 3550-T Triton Switches

The entire Cisco Nexus 3550-T Triton switch documentation set is available at the following URL:

http://www.cisco.com/en/US/products/ps13386/tsd_products_support_series_home.html

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Introduction

This document describes the Cisco Nexus® configuration limits for Cisco Nexus® 3550-T switches.

The values provided in this guide should not be interpreted as theoretical system limits for Cisco NX-OS 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.

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Verified Scalability Limits - Unidimensional

The tables in this section list the verified scalability limits for the Cisco Nexus® 3550-T switches for Cisco NX-OS Release 10.6(2)F.

These limits are validated with a unidimensional configuration. The values are provided in these tables focus on the scalability of one particular feature at a time.

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

Table 1: Cisco Nexus® 3550-T Precision Time Protocol Verified Scalability Limits (Unidimensional)

Feature	Verified Limits
Maximum ports with PTP	48
Maximum PTP sessions per port	2

Table 2: Cisco Nexus® 3550-T Interfaces Verified Scalability Limits (Unidimensional)

Feature	Verified Limits
DHCP clients per switch [1]	1 DHCP client (on management port only)
Port channel	48 **Note** A maximum of 8 port channels per port group.
SVIs	255 (1 SVI is reserved)

Feature	Verified Limits
Static Network Address Translation (NAT)	1024 rules 6144 hardware entries

[1] DHCP supported only on management port along with POAP.

Table 3: Cisco Nexus® 3550-T Layer 2 Switching Verified Scalability Limits (Unidimensional)

Feature	Verified Limits
MAC addresses	SMAC table: 1480 (per quad)
	DMAC table: 1480 (per quad)
	[2]
MST instances	64
VLANs	255

[2] Layer 2 unidimensional scale only.

Table 4: Cisco Nexus® 3550-T Multicast Routing Verified Scalability Limits (Unidimensional)

Feature	Verified Limits
Outgoing interfaces (OIFs)	40 (SVI + physical layer 3) or 47 (only on Access port or physical layer 3)
IGMP snooping groups	768
	[3]
PIM neighbors	48
Maximum number of Multicast routes	5400

[3] Hardware table is shared with the DMAC table.

Table 5: Cisco Nexus® 3550-T Security Verified Scalability Limits (Unidimensional)

Feature	Verified Limits
ACLs	Ingress - 1024 IPv4

Note Only 62 unique ACLs can be configured. Each ACL takes one label. If the same ACL is configured on multiple interfaces, the same label is shared. If each ACL has unique entries, the ACL labels are not shared, and the label limit is 62.

Table 6: Cisco Nexus® 3550-T Unicast Routing Verified Scalability Limits (Unidimensional)

Feature	Verified Limits
Unicast Routing	
BGP neighbors	48 (IPv4)
IPv4 ARP	4950 (2475 per quad; 4950 system scale)
IPv4 host routes [4]	5400
IPv4 VLSM Routes	1350
OSPF areas	5 areas
OSPFv2 neighbors	6
Static routes	512 System scale
VRRP groups per interface or I/O module	(1 VRRP group per interface, 200 VRRP groups systemwide)

[4] Please note that not all route distributions can fit in the Cisco Nexus® 3550-T hardware. The hash table is subject to collisions. Depending on the host route pattern, collisions might occur.

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 scale value may vary when combined with other parameters.
- The graceful restart timeout value can be increased in multidimensional scenarios.

Guidelines and Limitations for IPv4 VLSM Routes

- The VLSM routes may consume more than one entry in the route table depending on the netmask.
- All routes are programmed as exact matches into specific tables sizes as mentioned.
  - **/12**: 512 entries per table, 3 tables available
  - **/19**: 512 entries per table, 3 tables available
  - **/26**: 512 entries per table, 3 tables available
  - **/32**: 2048 entries per table, 3 tables available

  Routes are split into smaller ones if their mask doesn't match the table precisely.

  The default route is installed as one entry.

  Example of Route Splitting

  - **/24 Route**: Programmed as 4 /26 routes
  - **/20 Route**: Uses 64 /26 entries

Theoretically, the maximum number of /26 routes would be 1536 when combining the three available 512-entry tables. However, in practice, route distribution is subject to hash collisions, and the actual capacity will be lower. The same limitation applies to other table sizes.

Verified Scalability Limits - Multidimensional

The tables in this section list the verified scalability limits for the Cisco Nexus® 3550-T switches. These limits are validated with a multidimensional configuration. The values provided in these tables focus on the scalability of all listed features at the same 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 may increase this verified maximum limit. Results may differ from the values that are listed here when trying to achieve maximum scalability with multiple features enabled.

Attention These numbers are not the maximum verified values if each feature is viewed in isolation. For these numbers, see the "Verified Scalability Limits - Unidimensional" section.

Table 7: Cisco Nexus® 3550-T eBGP/OSPF Profile Verified Scalability Limits (Multidimensional)

Feature	Verified Limits
Number of 10G ports	48
BGP neighbors	48
BGP IPv4 /32 unicast routes	1000
BGP IPv4 VLSM unicast routes	500
OSPFv2 neighbors	6
OSPF IPv4 /32 unicast routes	1600
PIM neighbors	48
ACL ACEs	850

Table 8: Cisco Nexus® 3550-T iBGP/OSPF Profile Verified Scalability Limits (Multidimensional)

Feature	Verified Limits
BGP neighbors	48
BGP + OSPF IPv4 unicast routes	1000
OSPFv2 neighbors	6
OSPF IPv4 /32 unicast routes	1600
PIM neighbors	48

Feature	Verified Limits
IPv4 (*,G) multicast routes	6000
ACL ACEs	850 (IPv4)

Table 9: Cisco Nexus® 3550-T Layer 2/Layer 3 Boundary Verified Scalability Limits (Multidimensional)

Feature	Verified Limits
MAC addresses	690
OSPFv2 neighbors	6
OSPF IPv4 /32 unicast routes	1000
VLAN	200
SVI	200
VRRP v4 groups	200 VRRP
PIM neighbors	200
IPv4 (*,G) multicast routes	6000
IGMP snooping database entries	400
vPC port channel	44
VRF	63 (total), details as below: • non-default - 61 • default - 1 • management - 1
SPAN	24
STP Logical Ports (PVRSTP)	1400 (physical ports x VLAN)

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