

Recommended Configuration Maximums

NSX for vSphere 6.4

Update 3

Last Updated February 6, 2018

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Updated Information

This *Recommended Configuration Maximums* document is updated when necessary which is typically with each major or minor release of the product.

This table provides the update history of the *Recommended Configuration Maximums*.

Revision	Description
1. January 15, 2018	Initial release for NSX for vSphere version 6.4.0 and later.
2. January 19, 2018	Updated MAC Identifiers per Overlay Logical Switch.
3. February 6, 2018	Updated BGP Neighbors on Large and Quad-Large Edges. Increased vCenters for Cross-vCenter deployments.

1 Introduction

This document provides the recommended configuration maximums for NSX for vSphere. Please consider the following when you use this document to design, deploy and operate the product.

- When you select and configure your virtual and physical equipment, it is highly recommended you stay at or below the maximums supported by NSX for vSphere as described in this document.
- The limits presented in the following sections represent tested, recommended limits, and are fully supported by VMware.
- The limits presented in the guide are applicable to NSX for vSphere. The limits can be affected by other factors, such as hardware dependencies. For more information about supported hardware, see the appropriate NSX for vSphere installation and administration guide. Consult individual solution limits to ensure that you do not exceed supported configurations for your environment.
- It may not be possible to maximize all configuration settings and expect your desired outcome.
- The recommended configuration maximums do not represent the theoretical possibilities of NSX for vSphere scale.

2 General

Nodes

NSX for vSphere has a number of component nodes required for operation of the product. These include the NSX Manager, NSX Controllers and Hosts that are prepared for NSX. This section captures the configuration maximums for NSX nodes. In addition, NSX supports some vCenter objects that are discovered from vCenter inventory. The configuration maximums for these objects are listed in this section.

Table 2-1. Node Maximums

Item	Recommended Maximum
vCenter systems in single NSX Manager deployments	1
vCenter systems in Cross-vCenter deployments	16
NSX Controllers	3 <i>Only 3 controllers are supported in a production deployment of NSX for vSphere. A single controller may be used in a lab or proof-of-concept deployment but is not supported for production deployments.</i>
vCenter Clusters	64
Hosts per Cluster	64
Hosts per NSX Manager (single vCenter / Transport Zone)	512 <i>For IDFW deployments see the IDFW section of this document.</i>
Hosts in a Cross-vCenter deployment	1,024 <i>For IDFW deployments see the IDFW section of this document.</i>

Edge Service Gateway

A core component of NSX for vSphere is the Edge Service Gateway which delivers routing, load-balancing, VPN and other features. There are several general configuration maximums which are covered in this section. Configuration maximums of services delivered by the Edge are covered subsequent sections.

Table 2-2. General Edge Service Gateway Maximums

Item	Recommended Maximum
Edge Service Gateways per NSX Manager	2,000 <i>The backup Edge in a High-Availability pair of Edges is not included in this maximum.</i>
Interfaces	10 <i>Includes internal, uplink and trunk.</i>
Sub-interfaces per Edge	200

3 Layer 2 Networking

NSX for vSphere offers a layer 2 overlay networking solution as well as layer 2 bridging. The configuration maximums of these layer 2 features are listed in this section.

Table 3-1. Layer 2 Maximums

Item	Recommended Maximum
Logical Switches	10,000 <i>Non-universal logical switches</i>
Logical Switch Ports	20,000
Universal Logical Switches in a Cross-vCenter deployment	8,500 <i>This maximum includes both universal and non-universal logical switches.</i>
MAC Identifiers per Overlay Logical Switch (VNI)	2,048 <i>If this number of MAC entries is exceeded then newer MAC entries will not be added until the older MAC entries expire. This condition can lead to flooding in the logical network.</i>
VXLAN/VLAN Bridging per Distributed Logical Router instance	500

4 Layer 3 Networking

DHCP

NSX for vSphere provides a DHCP server to deliver IP addresses to DHCP clients. This section covers configuration maximums for the DHCP service.

Table 4-1. DHCP Maximums

Item	Recommended Maximum
DHCP Pools per Edge Service Gateway	20,000 <i>Applies to all Edge sizes.</i>

Distributed Logical Router

NSX for vSphere provides an in-kernel distributed logical router. This section covers configuration maximums for the distributed logical router.

Table 4-2. Distributed Logical Router Maximums

Item	Recommended Maximum
Distributed Logical Routers	1,000
Distributed Logical Router Interfaces per Distributed Logical Router	999 <i>Maximum of 8 uplinks.</i>
Distributed Logical Router interfaces per ESXi Host	10,000
ARP entries per Distributed Logical Router	20,000 <i>If this number of ARP entries is exceeded then newer ARP entries in the ARP table will replace older entries.</i>
Routes per Distributed Logical Router	2,000 <i>Includes connected routes. Maximum 750 LSA type-1 prefixes.</i>
OSPF Adjacencies per Distributed Logical Router	10
BGP Neighbors per Distributed Logical Router	10

Edge Service Gateway Layer 3

The NSX for vSphere Edge Service Gateway provides a number of layer 3 networking features such as static and dynamic routing. The configuration maximums for this Edge Service Gateway based routing is listed in this section.

Table 4-3. Edge Service Gateway Layer 3 Maximums

Item	Recommended Maximum
ECMP Paths	8
NAT Rules per Edge Service Gateway - Compact Edge size	2,048 <i>Includes both SNAT and DNAT rules.</i>
NAT Rules per Edge Service Gateway - Large Edge size	4,096 <i>Includes both SNAT and DNAT rules.</i>
NAT Rules per Edge Service Gateway - Quad Large Edge size	4,096 <i>Includes both SNAT and DNAT rules.</i>
NAT Rules per Edge Service Gateway - Extra Large Edge size	8,192 <i>Includes both SNAT and DNAT rules.</i>
Static Routes per Edge Service Gateway	2,048 <i>Applies to all Edge sizes.</i>
BGP Routes per Edge Service Gateway - Compact Edge size	20,000
BGP Routes per Edge Service Gateway - Large Edge size	50,000
BGP Routes per Edge Service Gateway - Quad Large Edge size	250,000
BGP Routes per Edge Service Gateway - Extra Large Edge size	250,000
BGP Neighbors per Edge Service Gateway - Compact Edge size	10
BGP Neighbors per Edge Service Gateway - Large Edge size	20
BGP Neighbors per Edge Service Gateway - Quad Large Edge size	100
BGP Neighbors per Edge Service Gateway - Extra Large Edge size	100
OSPF Routes per Edge Service Gateway - Compact Edge size	20,000
OSPF Routes per Edge Service Gateway - Large Edge size	50,000
OSPF Routes per Edge Service Gateway - Extra Large Edge size	100,000
OSPF Routes per Edge Service Gateway - Quad Large Edge	100,000

size	
OSPF LSA entries per Edge Service Gateway – Compact Edge size	20,000 <i>Maximum of 750 type-1 LSA entries.</i>
OSPF LSA entries per Edge Service Gateway – Large Edge size	50,000 <i>Maximum of 750 type-1 LSA entries.</i>
OSPF LSA entries per Edge Service Gateway – Quad Large Edge size	100,000 <i>Maximum of 750 type-1 LSA entries.</i>
OSPF LSA entries per Edge Service Gateway – Extra Large Edge size	100,000 <i>Maximum of 750 type-1 LSA entries.</i>
OSPF Adjacencies per Edge Service Gateway – Compact Edge size	10
OSPF Adjacencies per Edge Service Gateway – Large Edge size	20
OSPF Adjacencies per Edge Service Gateway – Quad Large Edge size	40
OSPF Adjacencies per Edge Service Gateway – Extra Large Edge size	40
OSPF Routes Redistributed per Edge Service Gateway – Compact Edge size	2,000
OSPF Routes Redistributed per Edge Service Gateway – Large Edge size	5,000
OSPF Routes Redistributed per Edge Service Gateway – Quad Large Edge size	20,000
OSPF Routes Redistributed per Edge Service Gateway – Extra Large Edge size	20,000
Total Routes per Edge Service Gateway – Compact Edge size	20,000
Total Routes per Edge Service Gateway – Large Edge size	50,000
Total Routes per Edge Service Gateway – Quad Large Edge size	250,000
Total Routes per Edge Service Gateway – Extra Large Edge size	250,000
ARP entries per Edge Service Gateway – Compact Edge size	1,024 <i>If exceeded then newer ARP entries in the ARP table will replace older entries.</i>
ARP entries per Edge Service Gateway – Large Edge size	2,048 <i>If exceeded then newer ARP entries in the ARP table will replace older entries.</i>
ARP entries per Edge Service Gateway – Quad Large Edge size	2,048 <i>If exceeded then newer ARP entries in the ARP table will replace older entries.</i>

ARP entries per Edge Service Gateway – Extra Large Edge size	2,048 <i>If exceeded then newer ARP entries in the ARP table will replace older entries.</i>
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5 Firewall

Grouping Objects

NSX for vSphere leverages a number of objects that allow for grouping to aid in configuration of various components of the product. The configuration maximums of the grouping objects are covered in this section.

Table 5-1. Grouping Object Maximums

Item	Recommended Maximum
IP Sets	10,000
Security Tags	9,000
Virtual Machines per Tag	3,500
Security Groups to which a Virtual Machine can be a Member	5
Security Groups per NSX Manager	10,000
Universal Security Groups	4,000
Universal IP Sets	4,000
Universal IP Sets per Universal Security Group	10
Universal Security Tags	750
Universal Security Tags per Virtual Machine	5

Distributed Firewall

NSX for vSphere provides a distributed, in-kernel Host based firewall to achieve micro-segmentation of workloads at the virtual NIC level. The configuration maximums of the distributed firewall are covered in this section.

Table 5-2. Distributed Firewall Maximums

Item	Recommended Maximum
Rules per NSX Manager	100,000 <i>Can be a mix of local and universal rules.</i>
Rules per Host	10,000
Rules per Virtual NIC	3,500
Distributed Firewall Sections	10,000
Universal Distributed Firewall Rules	24,000
Universal Firewall Sections	500
Audit Log entries	1,000,000
Flow Monitoring Data	2,000,000 <i>Records over 15 days.</i>
Saved Distributed Firewall Rule Configurations	100

Edge Service Gateway Firewall

The NSX for vSphere Edge Service Gateway can function as a firewall in addition to the distributed firewall. This section covers configuration maximums of the Edge Service Gateway firewall.

Table 5-3. Edge Service Gateway Firewall Maximums

Item	Recommended Maximum
Firewall Rules per Edge Service Gateway	2,000 <i>Applies to all Edge sizes</i>

Identity Firewall

NSX for vSphere supports an identity-based firewall in which the firewall rules that protect a given workload can be changed based on the identity of the user whom is using the workload. This section covers the configuration maximums of the identity firewall.

Table 5-4. Identity Firewall Maximums

Item	Recommended Maximum
Active Directory groups	70,000
Users per Active Directory group	250
Users in the Active Directory Domain	100,000
Virtual Machines per NSX Manager	2,500
Groups per individual user	200
Security Groups based on Active Directory	300
Active Directory Groups per Security Group	20
Virtual Machines per Security Group	1,000
Security Policies	300
Hosts	250 <i>For the Identity Firewall Use Case.</i>
Virtual Machines per Host	120 <i>Note maximum VMs per host where both RDSH and VDI are in present is 30.</i>
Virtual Machines per RDSH Host	8 <i>Note maximum VMs per host where both RDSH and VDI are in present is 30.</i>
RDSH Sessions per Host	30
RDSH Sessions per vCenter	1,000

Network Introspection

NSX for vSphere supports the network introspection use case in which traffic can be redirected to a third-party service for introspection of that network traffic. This section covers the configuration maximums when network introspection is enabled.

Table 5-5. Network Introspection Maximums

Item	Recommended Maximum
Virtual Machines with Network Introspection Enabled	3,500
Virtual Machines per Host with Network Introspection Enabled	125
Network Introspection Rules per NSX Manager	3,500
Security Policies with Network Introspection Redirection Rules per vNIC	25
Virtual Machines per Security Group with Network Introspection Enabled	1,000
Network Introspection Redirection Rules per Security Policy	10
Network Introspection Redirection Rules per Firewall Section	300
Security Groups per Security Policy with Network Introspection Redirection Rules	1,000

6 Load Balancing

The NSX for vSphere Edge Service Gateway provides a load balancing service to distribute load across multiple workloads. This section covers the configuration maximums for the load balancing feature of NSX.

Table 6-1. Load Balancer Maximums

Item	Recommended Maximum
Load Balancer VIPs per Edge Service Gateway - Compact Edge size	64
Load Balancer VIPs per Edge Service Gateway - Large Edge size	64
Load Balancer VIPs per Edge Service Gateway - Quad Large Edge size	64
Load Balancer VIPs per Edge Service Gateway - Extra Large Edge size	1,024
Load Balancer Pools per Edge Service Gateway - Compact Edge size	64
Load Balancer Pools per Edge Service Gateway - Large Edge size	64
Load Balancer Pools per Edge Service Gateway - Quad Large Edge size	64
Load Balancer Pools per Edge Service Gateway - Extra Large Edge size	1,024
Load Balancer Servers per Pool - Compact Edge size	32
Load Balancer Servers per Pool - Large Edge size	32
Load Balancer Servers per Pool - Quad Large Edge size	32
Load Balancer Servers per Pool - Extra Large Edge size	32
Load Balancer Health checks – Compact Edge size	320
Load Balancer Health checks – Large Edge size	320
Load Balancer Health checks – Quad Large Edge size	320
Load Balancer Health checks – Extra Large Edge size	3,072
Load Balancer Application Rule size in Characters	4,096 <i>Applies to all Edge sizes</i>

7 VPN

Layer 2 VPN

The NSX for vSphere Edge Service Gateway provides a layer 2 VPN service. This section covers the configuration maximums for the layer 2 VPN feature of NSX.

Table 7-1. Layer 2 VPN Maximums

Item	Recommended Maximum
L2VPN clients (spoke) handled by a single L2VPN server (hub)	5
Networks per L2VPN client/server pair	200

IPsec VPN

The NSX for vSphere Edge Service Gateway provides a IPsec VPN service. This section covers the configuration maximums for the IPsec VPN feature of NSX.

Table 7-2. IPsec VPN Maximums

Item	Recommended Maximum
IPsec Tunnels per Edge Service Gateway - Compact Edge size	512
IPsec Tunnels per Edge Service Gateway - Large Edge size	1,600
IPsec Tunnels per Edge Service Gateway - Quad Large Edge size	4,096
IPsec Tunnels per Edge Service Gateway - Extra Large Edge size	6,000

SSL VPN

The NSX for vSphere Edge Service Gateway provides a SSL VPN service. This section covers the configuration maximums for the SSL VPN feature of NSX.

Table 7-3. SSL VPN Maximums

Item	Recommended Maximum
Concurrent Sessions - Compact Edge size	50
Concurrent Sessions - Large Edge size	100
Concurrent Sessions - Quad Large Edge size	100
Concurrent Sessions - Extra Large Edge size	1,000
Private Networks	16 <i>Applies to all Edge sizes</i>