Configuration Maximums

VMware Infrastructure 3: Update 2 and later for ESX Server 3.5, ESX Server 3i version 3.5, VirtualCenter 2.5

When you are selecting and configuring your virtual and physical equipment, you must stay at or below the maximums supported by VMware® Infrastructure 3. The limits presented in the following tables represent tested, recommended limits, and they are fully supported by VMware.

The limits presented in this document can be affected by other factors, such as hardware dependencies. For more information about supported hardware, see the appropriate ESX Server Hardware Compatibility Guide.

This document covers ESX Server 3.5 Update 2 and later, as well as ESX Server 3i version 3.5 Update 2. For ease of discussion, this document uses the following product naming conventions:

- For topics specific to ESX Server 3.5, this book uses the term "ESX Server 3."
- For topics specific to ESX Server 3i version 3.5, this book uses the term "ESX Server 3i."
- For topics common to both products, this book uses the term "ESX Server."
- When the identification of a specific release is important to a discussion, this book refers to the product by its full, versioned name.
- When a discussion applies to all versions of ESX Server for VMware Infrastructure 3, this book uses the term "ESX Server 3.x."

Virtual Machine Maximums

Table 1 contains configuration maximums related to virtual machines.

Table 1. Virtual Machine Maximums

Item	Maximum
SCSI controllers per virtual machine	4
Devices per SCSI controller	15
Devices per virtual machine (Windows)	60
Devices per virtual machine (Linux)	60
Size of SCSI disk	2TB
Number of virtual CPUs per virtual machine	4
Size of RAM per virtual machine	65532MB (64GB - 4MB)

Table 1. Virtual Machine Maximums (Continued)

Item	Maximum
Number of NICs per virtual machine	4
Number of IDE devices per virtual machine	4
Number of floppy devices per virtual machine	2
Number of parallel ports per virtual machine	3
Number of serial ports per virtual machine	4
Size of a virtual machine swap file	65532MB
Number of virtual PCI devices: NICs, SCSI controllers, audio devices (VMware Server only), video cards (exactly one is present in every virtual machine), and VMI-ROM.	6
Number of remote consoles to a virtual machine	10

ESX Host Maximums

The following tables contain configuration maximums related to ESX Server hosts.

Storage Maximums

Table 2 contains configuration maximums related to ESX Server host storage.

Maximum volume size depends on the on disk version of the volume, not on the version of the ESX Server. If an ESX 3.5 host accesses a volume that has an on-disk version of 3.21 or lower, then the 3.21 configuration limits apply.

You cannot use files larger than 2TB for virtual disks.

Table 2. Storage Maximums

Item	Maximum
VMFS Block size (MB)	8
Max I/O size (before splits)	32MB
Raw Device Mapping size (TB)	2
Recommended number of hosts that can share a VMFS volume while running virtual machines against that volume.	32
Number of hosts per cluster	32
Number of VMFS volumes configured per server	256
Number of extents per VMFS volume	32
Number of Host Bus Adapters (HBA) of any type	16
Number of targets per HBA (iSCSI HBA)	15 (64)
VMFS-2	
Extent size	2TB[1]
Volume size	64TB
File size (block size=1 MB)	456GB

Table 2. Storage Maximums (Continued)

Item	Maximum
File size (block size=8 MB)	3.5TB
File size (block size=64MB)	28.5TB
File size (block size=256MB)	64TB
Number of files per volume	256 + (64 x number of additional extents)
VMFS-3	
Extent size	2TB
Volume size	64TB (2TB x 32 extents)
Volume size (block size=1MB)	~50TB
Volume size (block size=2MB)	64TB
Volume size (block size=4MB)	64TB
Volume size (block size=8MB)	64TB
File size (block size=1MB)	256GB
File size (block size=2MB)	512GB
File size (block size=4MB)	1TB
File size (block size=8MB)	2TB
Number of files per directory	~30,000[2]
Number of directories per volume	~30,000[2]
Number of files per volume	~30,000[2]
Fibre Channel	
LUNs per server	256
LUN size	2TB
Number of paths to a LUN	32
Number of total paths on a server	1024
LUNs concurrently opened by all virtual machines	256
LUN ID	255
NAS	
Default number of NAS datastores	8
Number of NAS datastores	32 (requires changes to advanced settings)
Hardware and Software iSCSI Initiators	
LUNs per server	256
Hardware iSCSI Initiators per server	2
Targets	64

1. Minimum = 100MB.
2. Sufficient to support the maximum number of virtual machines.

Compute Maximums

Table 3 contains configuration maximums related to ESX Server host compute resources.

Table 3. Compute Maximums

Item	Maximum
Number of virtual CPUs per server	192
Number of virtual machines per server	170
Number of cores per server	32
Number of (hyperthreaded) logical processors per server	32
Number of virtual CPUs per core	8[1] (ESX Server 3.5 Update 2 and earlier). 20 (ESX Server 3.5 Update 3 and later).

1. Servers running VDI workloads only = 11

Memory Maximums

Table 4 contains configuration maximums related to ESX Server host memory.

Table 4. Memory Maximums

Item	Maximum
Size of RAM per server	256GB
RAM allocated to service console	800MB

Networking Maximums

Table 5 contains configuration maximums related to ESX Server host networking.

Table 5. Networking Maximums

Item	Maximum
Physical NICs	
Number of e100 NICs	28
Number of e1000 NICs	32
Number of Broadcom NICs	20
Number of tg3 NICs	32
Number of Neterion NICs	4
Number of Netxen NICs	2
Number of forcedeth NICs	16
Advanced, physical traits	
Number of port groups	512
Number of NICs in a team	32
Number of Ethernet ports	32
Virtual NICs/switches/VLANs	
Number of virtual NICs per virtual switch	1016
Number of virtual switches	127
Number of port groups (VLANs)	4096

Resource Pool Maximums

Table 6 contains configuration maximums related to ESX Server host resource pools.

Table 6. Resource Pool Maximums

Item	Maximum
Number of resource pools per host	512
Number of children per resource pool	256
Tree depth per resource pool	12
Tree depth per resource pool in a DRS cluster	10
Number of resource pools per cluster	128

VirtualCenter Maximums

Table 7 contains configuration maximums related to VirtualCenter.

Table 7. VirtualCenter Maximums

Item	Maximum
Number of virtual machines (for management server scalability)	2000
Number of hosts per DRS cluster	32
Number of hosts per HA cluster	32
Number of hosts per VirtualCenter server	200

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Item: EN-000020-04