# Adding Disk Space to a Virtual Engine

The topic describes how to increase the amount of drive space on a <u>VMware virtual machine</u> or on a <u>Hyper-V virtual machine</u> allocated to the ExtremeCloud IQ - Site Engine 64-bit virtual engine without having to interrupt engine service on the network.

The virtual engine contains a preconfigured hard drive where the operating system and engine software is installed. The size of the hard drive takes into account two important factors: that hard drive space is often a premium resource and that insufficient drive space can prevent the software from running correctly.

With proper file management, the preconfigured disk space should be sufficient for most networks. However, in some scenarios, the disk space amount is not sufficient and new disk space needs to be added.

The ExtremeCloud IQ - Site Engine virtual engine is configured to use Logical Volume Management (LVM). This allows multiple drives to be presented to the operating system as a single contiguous drive. It also provides a mechanism for dynamically adding additional volumes to the main volume group.

The process described in this topic includes adding a new virtual hard drive to the virtual engine, and then running commands to include the new drive in the logical volume group and expand the file-system to format the additional disk space.

**NOTES:** Prior to adding a new drive to the virtual engine, it is recommended that you run the following command on the engine command line and make note of the existing drives:

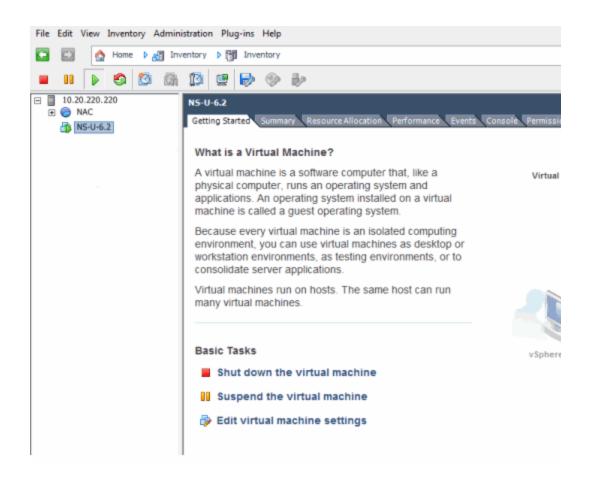
ls -la /dev/sd\* Once the additional drive space is added, re-running this command helps to identify the drive name is added.

It is also recommended that you take a snapshot of the VM before adding a new drive. That way, if anything goes wrong, you can easily revert back to the original VM without needing to reinstall ExtremeCloud IQ - Site Engine. Refer to the vSphere client documentation or Hyper-V documentation for instructions on creating a snapshot.

# Adding a Virtual Drive on a VMware Virtual Machine

The steps to add a virtual drive on a VMware virtual machine are performed in the VMware vSphere client with the target virtual machine (VM) selected. You do not need to shut down the virtual machine or any of its processes to perform the steps.

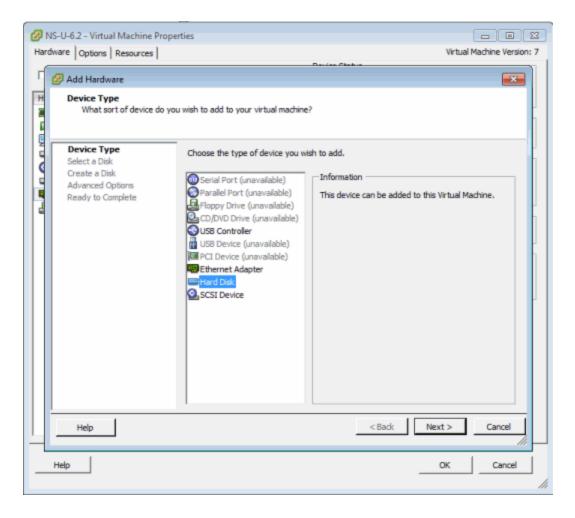
1. In the vSphere client, select the target VM. On the **Getting Started** tab, select **Edit virtual machine settings**.



2. On the **Hardware** tab, verify that there is a single virtual hard disk configured for the VM. Select the **Add** button.

NS-U-6.2 - Virtual Machine Proper	ties	
Hardware Options Resources		Virtual Machine Version: 7
Show All Devices	Add Remove	Disk File [[datastore 1] NS-U-6.2/NS-U-6.2.vmdk
Hardware Memory CPUs Video card VMCI device SCSI controller 0 Hard disk 1 Network adapter 1 (edite Floppy drive 1	Summary 8192 MB 4 Video card Restricted LSI Logic Parallel Virtual Disk VM Network Floppy drive 1	Disk Provisioning         Type:       Thin Provision         Provisioned Size:       100 • G8 •         Maximum Size (GB):       211.89         Virtual Device Node
Help		OK Cancel

3. In the Add Hardware window, select Hard Disk to add a new hard disk, and then select Next.



4. Select the Create a new virtual disk option and select Next.

🕜 NS-U-6.2 - Virtual Machine Pro	perties 🗖 🖬 🖾
Hardware Options Resources	Virtual Machine Version: 7
Add Hardware Select a Disk	A virtual disk is composed of one or more files on the host file system. Together these files appear as a single hard disk to the guest operating system. Select the type of disk to use. Disk C Create a new virtual disk C Use an existing virtual disk Reuse a previously configured virtual disk. C Raw Device Mappings Give your virtual machine direct access to SAN. This option allows you to use existing SAN commands to manage the storage and continue to access it using a datastore.
Help	<back next=""> Cancel</back>
Help	OK

5. Enter the desired size of the new disk. Select the **Thick Provision Lazy Zeroed** option and select **Next**.

🖉 NS-U	J-6.2 - Virtual Machine Prope	rties	- • ×
Hardwar	e Options Resources		Virtual Machine Version: 7
	Coptions   Resources       Add Hardware     Create a Disk     Specify the virtual disk size     Device Type     Select a Disk     Create a Disk     Advanced Options     Ready to Complete	Capacity Disk Size: 50 - GB Disk Provisioning	
Hel	Help	C Specify a datastore or datastore duster:	Browse ext > Cancel OK Cancel

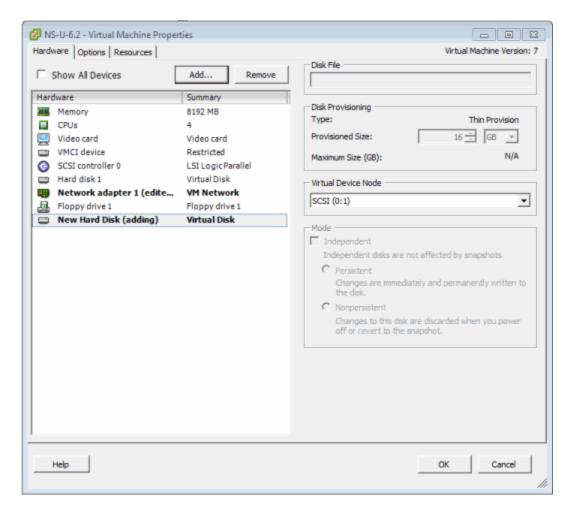
6. Leave the default Virtual Device Node value of SCSI (0:1) and select Next.

🖉 NS-U-6.2 - Virtual Machine Prope	ties 🛛 🔍 🕄
Hardware Options Resources	Virtual Machine Version: 7
Add Hardware Advanced Options These advanced options de Device Type Select a Disk Create a Disk Advanced Options Ready to Complete	Proticity  protuce  protuce protuce  protuce  protuce  protuce  protuce  protuce  protuce protuce  protuce  protuce protuce protuce protuce protuce protuce protuce protuce p
Help	< Back Next > Cancel
Help	OK Cancel

7. Review the summary of selected options and select **Finish**.

Ø N	S-U-6.2 - Virtual Machine Prop	perties				
Hard	dware Options Resources				Virtual Machine Version: 7	
			Disk File			1
_	🕗 Add Hardware				<b>X</b>	I
	Ready to Complete Review the selected opti	ions and click Finish to add	the hardware.			
1	Device Type Select a Disk	Options:				
	Create a Disk Advanced Options Ready to Complete	Hardware type: Create disk: Disk capacity: Disk provisioning: Datastore: Virtual Device Node: Disk mode:	Hard Disk New virtual disk S0 GB Thin Provision datastore 1 SCSI (0: 1) Persistent			
	Help			< Back F	inish Cancel	
_	Help			-	OK Cancel	

8. The Hardware tab shows the new hard disk that was added. Select OK to save the change.



Repeating these steps to add additional drives results in different labels for those drives. For example, the label on the first drive you add is /dev/sdb, while the next drive added is labeled /dev/sdc.

In order to make the additional space available to the operating system, follow the instructions in the "<u>Accessing the New Drive</u>" section.

### Adding a Virtual Drive to a Hyper-V Virtual Machine

The steps to add a virtual drive on a Hyper-V virtual machine are performed in the Hyper-V Manager application with the target virtual machine (VM) selected. You need to shut down the virtual machine to perform the steps.

- 1. Open Hyper-V Manager.
- 2. Select the target VM.

3. Shutdown the VM.

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ian Yes Help A T A A								
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N2012-HYPERV	Virtual Machines						WIN2012-H0	VPERV
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4. Select the **Settings...** link in the Actions pane.

The Settings window opens for the VM.

Settings for n	etsight_appliance_64bit.6.2.0.74 on WIN2012-HYPERV
netsight_appliance_64bit.6.2.0.74	✓ 4 ▶ G.
Retry In Copprishes Construction 4   Retry In Copprishes Construction 4   Add Hardware   BIOS   Boot from CD   Memory   B192 MB   Image: Second Stress   Image: Second Str	Tou can add hard drives and CD/DVD drives to your IDE controller. Select the type of drive you want to attach to the controller and then click Add. UDD Drive DVD Drive Add You can configure a hard drive to use a virtual hard disk or a physical hard disk after you attach the drive to the controller.
- reader to previously colling	QK Cancel Apply

5. Select **IDE Controller 0** in the Hardware left-panel, **Hard Drive** in the IDE Controller area, and then select the **Add** button.

A new hard drive appears in the Hardware left-panel within the IDE Controller O navigation tree.

6. Select the new hard drive in the Hardware left-panel, if necessary.

Hardware	^	🕞 Hard Drive
Madd Hardware BIOS Boot from CD Memory		You can change how this virtual hard disk is attached to the virtual machine. If an operating system is installed on this disk, changing the attachment might prevent the virtual machine from starting. Controller: Location:
8192 MB		IDE Controller 0
4 Virtual processors		Media
IDE Controller 0		You can compact, convert, expand, merge, reconnect or shrink a virtual hard disk
🗄 📾 Hard Drive		by editing the associated file. Specify the full path to the file.
netsight_appliance_64bit.6		Virtual hard disk:
Hard Drive <file></file>		
IDE Controller 1		New Edit Inspect Browse
🚱 DVD Drive		
None	=	O Physical hard disk:
SCSI Controller		V
HyperV Nework Switch		If the physical hard disk you want to use is not listed, make sure that the disk is offline. Use Disk Management on the physical computer to manage
		If the physical hard disk you want to use is not listed, make sure that the disk is offline. Use Disk Management on the physical computer to manage physical hard disks.
HyperV Nework Switch		disk is offline. Use Disk Management on the physical computer to manage physical hard disks. To remove the virtual hard disk, click Remove. This disconnects the disk but does not
HyperV Nework Switch COM 1 None COM 2		disk is offline. Use Disk Management on the physical computer to manage physical hard disks. To remove the virtual hard disk, click Remove. This disconnects the disk but does not delete the associated file.
HyperV Nework Switch COM 1 None COM 2 None Diskette Drive None None		disk is offline. Use Disk Management on the physical computer to manage physical hard disks. To remove the virtual hard disk, click Remove. This disconnects the disk but does not
HyperV Nework Switch COM 1 None COM 2 None Diskette Drive None Management		disk is offline. Use Disk Management on the physical computer to manage physical hard disks. To remove the virtual hard disk, click Remove. This disconnects the disk but does not delete the associated file.
HyperV Nework Switch COM 1 None COM 2 None Diskette Drive None None		disk is offline. Use Disk Management on the physical computer to manage physical hard disks. To remove the virtual hard disk, click Remove. This disconnects the disk but does not delete the associated file.
HyperV Nework Switch COM 1 None COM 2 None Diskette Drive None Management Name		disk is offline. Use Disk Management on the physical computer to manage physical hard disks. To remove the virtual hard disk, click Remove. This disconnects the disk but does not delete the associated file.
HyperV Nework Switch COM 1 None COM 2 None Diskette Drive None Management Name netsight_appliance_64bit.6.2.0 Integration Services		disk is offline. Use Disk Management on the physical computer to manage physical hard disks. To remove the virtual hard disk, click Remove. This disconnects the disk but does not delete the associated file.

7. Select the **New** button under the Virtual hard disk field to add a new virtual hard disk.

The New Virtual Hard Disk Wizard opens to the Before you Begin window.

5	New Virtual Hard Disk Wizard	x
Before You B	legin	
Before You Begin Choose Disk Format Choose Disk Type Specify Name and Location Configure Disk Summary	This wizard helps you create a new virtual hard disk. Virtual hard disks provide storage for virtual machines and are stored on physical media as .vhd or .vhdx files.	
	< Previous Next > Einish Cance	4

#### 8. Select Next.

The Choose Disk Format window opens.

8	New Virtual Hard Disk Wizard
Choose Disk	Format
Before You Begin Choose Disk Format Choose Disk Type Specify Name and Location Configure Disk Summary	What format do you want to use for the virtual hard disk?
	< Previous Next > Einish Cancel

9. Select VHDX and select Next.

The Choose Disk Type window opens.

8	New Virtual Hard Disk Wizard	x
Choose Disk	Туре	
Before You Begin Choose Disk Format Choose Disk Type Specify Name and Location Configure Disk Summary	<ul> <li>What type of virtual hard disk do you want to create?</li> <li>Figed size This type of disk provides better performance and is recommended for servers running application with high levels of disk activity. The virtual hard disk file that is created initially uses the size of the virtual hard disk and does not change when data is deleted or added. Qynamically expanding This type of disk provides better use of physical storage space and is recommended for servers running applications that are not disk intensive. The virtual hard disk file that is created is small initially and changes as data is added. Differencing This type of disk is associated in a parent-child relationship with another disk that you want to leave intact. You can make changes to the data or operating system without affecting the parent disk, so that you can revert the changes easily. All children must have the same virtual hard disk format as the parent (VHD or VHDX).</li></ul>	te
	< Brevious Next > Einish Cancel	

10. Select the appropriate disk type depending on your configuration and select **Next**.

The Specify Name and Location window opens.

8	New Virtual Hard Disk Wizard	×
Specify Name	e and Location	
Before You Begin Choose Disk Format Choose Disk Type Specify Name and Location Configure Disk Summary	Specify the name and location of the virtual hard disk file.         Name:       New Virtual Hard Disk.vhdx         Location:       C:\Users\Public\Documents\Hyper-V\Virtual Hard Disks\	Browse
	< Previous Next > Einish	Cancel

11. Enter a Name and a Location for the virtual hard disk and select Next.

The Configure Disk window opens.

2	New Virtual Hard Disk Wizard	×
Configure Die	sk	
Before You Begin Choose Disk Format Choose Disk Type Specify Name and Location Configure Disk	You can create a blank virtual hard disk or copy the contents of an existing physical disk. Create a new blank virtual hard disk Size: 127 GB (Maximum: 64 TB) Copy the contents of the specified physical disk:	isting physical disk.
Summary	Physical Hard Disk         \\.\PHYSICALDRIVE0         O       Copy the contents of the specified virtual hard disk         Path:	Size 465 GB B <u>c</u> owse
	< Previous Next >	Einish Cancel

12. Select Create a new blank virtual hard disk, enter the Size of the new virtual hard disk in gigabytes, and select Next.

The Completing the New Virtual Hard Disk Wizard window opens.

24	New Virtual Hard Disk Wizard
Completing	the New Virtual Hard Disk Wizard
Before You Begin Choose Disk Format Choose Disk Type Specify Name and Location Configure Disk Summary	You have successfully completed the New Virtual Hard Disk Wizard. You are about to create the following virtual hard disk. Description: Format: VHDX Type: fixed size Name: New Virtual Hard Disk.vhdx Location: C:\Users\Public\Documents\Hyper-V\Virtual Hard Disks Size: 20 G8 To create the virtual hard disk and dose this wizard, click Finish.
	< <u>P</u> revious <u>E</u> inish Cancel

13. Verify the information in the Description field is accurate and select **Finish** to create the new virtual hard disk.

The Settings window opens for the VM.

* Hardware       Image: Control of Co	netsight_appliance_64bit.6.2.0.74	~	4 🕨 😡
	<ul> <li>Add Hardware</li> <li>Add Hardware</li> <li>BIOS Boot from CD</li> <li>Memory 8192 MB</li> <li>Processor 4 Virtual processors</li> <li>IDE Controller 0</li> <li>Hard Drive netsight_appliance_64bit.6 Advanced Features</li> <li>Hard Drive New Virtual Hard Disk.v</li> <li>IDE Controller 1</li> <li>DVD Drive None</li> <li>SCSI Controller</li> <li>Network Adapter HyperV Nework Switch</li> <li>COM 1 None</li> <li>COM 2 None</li> <li>Diskette Drive None</li> <li>Mame netsight_appliance_64bit.6.2.0</li> <li>Integration Services Some services offered</li> </ul>	П	<ul> <li>Hard Drive</li> <li>You can change how this virtual hard disk is attached to the virtual machine. If an operating system is installed on this disk, changing the attachment might prevent the virtual machine from starting.</li> <li>Controller:         <ul> <li>Location:</li> <li>IDE Controller 0</li> <li>I (in use)</li> </ul> </li> <li>Media         <ul> <li>You can compact, convert, expand, merge, reconnect or shrink a virtual hard disk by editing the associated file. Specify the full path to the file.</li> <li>Yirtual hard disk:                 <ul> <li>Vertual hard disk:</li> <li>Yirtual hard disk:</li> <li>Yirtual hard disk:</li> <li>Vertual hard disk:</li> <li>Yirtual hard disk:</li> <li>If the physical hard disk you want to use is not listed, make sure that the disk is offline. Use Disk Management on the physical computer to manage physical hard disks.</li> <li>To remove the virtual hard disk, click Remove. This disconnects the disk but does not delete the associated file.</li></ul></li></ul></li></ul>

14. Select **OK** to save the changes to the virtual machine.

### **Accessing the New Drive**

After you add the new hard drive, you must run the following script in order to allow the engine to access the additional space. The script must be run by the root user.

- 1. Enter the following in the engine command line prompt:
  - a. Type cd ~root/scripts and press **Enter** to open the scripts directory.
  - b. Type ./expandLVM.sh and press Enter to run the script.
- 2. Type **y** and press **Enter** when the following confirmation message is displayed:

WARNING:

This script attempts to locate a new virtual drive and add it to the current LVM configuration. This script formats the new drive; use only in accordance with official instructions to increase the size of the hard drive.

Would you like to proceed? [n]:

The script runs, allowing the engine to access the new drive.

# **Reinstalling the Engine Software from an ISO image**

If it becomes necessary to reinstall engine software onto the virtual engine, all hard disks except the first hard disk must be removed from the VM before the VM is booted from the new image. Failure to do this may cause the install to fail.

Following the reinstall, take a new snapshot of the VM after it is reconfigured with the appropriate disk space. If you revert to a snapshot prior to the reinstall, the VM hard drive returns to its original preconfigured size. Refer to the vSphere client documentation or Hyper-V documentation for instructions on creating a snapshot.

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