### Adding Disk Space to a Virtual Engine

The topic describes how to increase the amount of drive space on a <u>VMware</u> <u>virtual machine</u> or on a <u>Hyper-V virtual machine</u> allocated to the Extreme Management Center 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 Extreme Management Center 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 Extreme Management Center. 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, click **Edit** virtual machine settings.



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



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



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



5. Enter the desired size of the new disk. Select the **Thin Provision** option and click **Next**.

perties	
	Virtual Machine Version: 7
Ze and provisioning policy  Capacity  Disk Size: 50 - G8  Disk Provisioning  Thick Provision Lazy Zeroed  Thick Provision Eager Zeroed  Thick Provision  Location  Store with the virtual machine  Specify a datastore or datastore duster:	Urtual Machine Version: 7
< Back	Next > Cancel
	rod. Ele         ize and provisioning policy         Capacity         Disk Size:       50 - G8 •         Disk Provisioning            Thick Provision Lazy Zeroed            Thick Provision Eager Zeroed            Thin Provision         Location            Store with the virtual machine            Specify a datastore or datastore duster:

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

🕗 NS-U-6.2 - Virtual Machine Prope	rties 🗖 🗖 🕮
Hardware Options Resources	Virtual Machine Version: 7
Add Hardware Advanced Options These advanced options of Device Type Select a Disk Create a Disk Advanced Options Ready to Complete	Note Cite   a not usually need to be changed.   Specify the advanced options for this virtual disk. These options do not normally need to be changed.   Virtual Device Node   SCSI (0: 1)   Mode   Independent   Independent disks are not affected by snapshots.   C Persistent   Changes are immediately and permanently written to the disk.   C Nonpersistent   Changes to this disk are discarded when you power off or revert to the snapshot.
Help	<back next=""> Cancel</back>
Help	OK Cancel

7. Review the summary of selected options and click Finish.

Ø 1	NS-U-6.2 - Virtual Machine Prope	rties	
Hard	dware Options Resources		Virtual Machine Version: 7
			Disk File
	🕜 Add Hardware		<b>EX</b>
	Ready to Complete Review the selected optio	ns and click Finish to add the hardware.	
	Device Type Select a Disk	Options:	
1 <b>1</b>	Create a Disk Advanced Options Ready to Complete	Hardware type: Hard Disk Create disk: New virtual di Disk capacity: 50 GB Disk provisioning: Thin Provision Datastore: datastore1 Virtual Device Node: SCSI (0:1) Disk mode: Persistent	sk
	Нер		< Back Finish Cancel
_	Help		OK Cancel

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

NS-U-6.2 - Virtual Machine Propert	ies	
Hardware Options Resources		Virtual Machine Version: 7
Show All Devices	Add Remove	Disk File
Hardware Memory CPUs Video card VMCI device SCSI controller 0 Hard disk 1 Network adapter 1 (edite Floppy drive 1 New Hard Disk (adding)	Summary 8192 MB 4 Video card Restricted LSI Logic Parallel Virtual Disk VM Network Floppy drive 1 Virtual Disk	Disk Provisioning         Type:       Thin Provision         Provisioned Size:       16 - GB -         Maximum Size (GB):       N/A         Virtual Device Node       Image: Comparison of the comparison
Help		OK Cancel

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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4. Click 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.
★ Hardware         ♥         ▲ Add Hardware         ♥         BIOS         Boot from CD         ■ Memory         & 192 MB         ●         ● Processor         4 Virtual processors         ●	To controller You can add hard drives and CD/DVD drives to your IDE controller. Getect the type of drive you want to attach to the controller and then dick Add.  Hard 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.
	QK <u>C</u> ancel Apply

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

A new hard drive appears in the Hardware left-hand panel within the IDE Controller 0 navigation tree.

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

t H	lardware	^	🕞 Hard Drive		
1 8	Add 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.		
	8192 MB		IDE Controller 0 V 1 (in use) V		
	4 Virtual processors		Mada		
8	IDE Controller 0		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.		
	netsight_appliance_64bit.6		<u>V</u> irtual hard disk:		
6	Hard Drive				
8 2	IDE Controller 1 DVD Drive None	=	New Edit Inspect Browse		
0	SCSI Controller				
. Ę	Network Adapter		· · · · ·		
ų	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 physical hard disks.		
η	COM 2 None		To remove the virtual hard disk, dick Remove. This disconnects the disk but does not		
Ŀ	Diskette Drive None		Bemove		
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1	Name patricht appliance 64bit 6.2.0				
1	Integration Services Some services offered				
3	Checkpoint File Location C: \Users\Public\Documents\Hy				
2	Smart Paging File Location C:\Users\Public\Documents\Hy	-			

7. Click 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.

8	New Virtual Hard Disk Wizard	X				
Before You Begin						
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					

8. Click Next.

The Choose Disk Format window opens.

2	New Virtual Hard Disk Wizard
Choose Disk	Format
Before You Begin Choose Disk Format Choose Disk Type Specify Name and Location Configure Disk Summary	<ul> <li>What format do you want to use for the virtual hard disk?</li> <li>\yHD Supports virtual hard disks up to 2,040 GB in size.</li> <li>\yHDX This format supports virtual disks up to 64 TB and is resilient to consistency issues that might occur from power failures. This format is not supported in operating systems earlier than Windows Server 2012.</li> </ul>
	< <u>P</u> revious <u>N</u> ext > Enish Cancel

9. Select VHDX and click Next.

The Choose Disk Type window opens.

2	New Virtual Hard Disk Wizard
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 applications 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. Dynamically 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>
	< Previous Next > Einish Cancel

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

The Specify Name and Location window opens.

2	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\	growse
	< <u>P</u> revious <u>N</u> ext > <u>F</u> inish	Cancel

11. Enter a Name and a Location for the virtual hard disk and click 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 e  Create a new glank virtual hard disk gize: 127 GB (Maximum: 64 TB)  C gopy the contents of the specified physical disk:	existing physical disk.
Summary	Physical Hard Disk \\\PHYSICALDRIVE0  Copy the contents of the specified <u>virtual hard disk Path:</u>	Size 465 GB Bcowse
	< <u>P</u> revious <u>N</u> ext >	Einish Cancel

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

The Completing the New Virtual Hard Disk Wizard window opens.

🎦 New Virtual Hard Disk Wizard		
Completing t	he New Virtual Hard Disk Wizard	
Before You Begin Choose Disk Format Choose Disk Type	You have successfully completed the New Virtual Hard Disk Wizard. You are about to create the following virtual hard disk. Description:	
Specify Name and Location Configure Disk Summary	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 close this wizard, click Finish.	
	< Previous Next > Einish Cancel	

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

The Settings window opens for the VM.

* Hardware	
Add Hardware BIOS Boot from CD Memory S192 MB Processor 4 Virtual processors IDE Controller 0 Hard Drive netsight_appliance_64bit.6 Advanced Features Hard Drive New Virtual Hard Disk.v IDE Controller 1 DVD Drive None SCSI Controller None SCSI Controller None COM 1 None COM 1 None COM 2 None None Management None None Com 2	<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 edting the associated file. Specify the full path to the file.</li> <li>Yor the associated file. Specify the full path to the file.</li> <li>Yor the associated file. Specify the full path to the file.</li> <li>Yor the associated file. Specify the full path to the file.</li> <li>Yor the associated file.</li> <li>Physical hard disk:</li> <li>Eacht applance. 64:bit.6.2.0.74!\/rbusk Hard Disks/Veva Virbusk Hard Disks/Veva</li> <li>Physical hard disk:</li> <li>Yor can compact disk:</li> <li>Yor file 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> </ul> </li> <li>To remove the virbual hard disk, dick Remove. This disconnects the disk but does not delete the associated file.</li> </ul>

14. Click 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**

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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