Convert a virtual hard disk

To convert a virtual hard disk

- 1. Open the Administration Website.
- 2. In the navigation pane, under Virtual Disks, click Inspect.
- 3. Do one of the following, and then click **Inspect**:
 - In **Known virtual hard disks**, select the virtual hard disk to convert.
 - In **Fully qualified path to file**, type the fully qualified path to the virtual hard disk file to convert.
- 4. Under Actions, click Convert virtual hard disk.
- 5. In **Location**, select the folder in which to store the converted virtual hard disk file. If the folder you want does not appear in the list, you must type the fully qualified path to the folder in Step 6.
- 6. In **Converted virtual hard disk name**, after the path to the folder, type the file name (.vhd) of the converted virtual hard disk that you want to create.
- 7. Click **Convert**.

Important

Converting a virtual hard disk can use a large percentage of processor resources. We recommend that you do not perform this operation on a production computer.

Compacting dynamically expanding virtual hard disks

ACaution

Compacting a virtual hard disk can use a large percentage of processor resources. We recommend that you do not perform this operation on a production computer. Compacting a virtual hard disk requires enough space to temporarily store the compacted file and the uncompacted file. This is because Virtual Server compacts a virtual hard disk by creating a new, compacted virtual hard disk and then deleting the original, uncompacted disk. If there is not enough space to complete the process, the problem is recorded in the Virtual Server event log.

Compacting a dynamically expanding virtual hard disk reduces the size of the virtual hard disk (.vhd) file as much as possible. Typically you would compact a virtual hard disk in situations such as the following:

- After you install the guest operating system (which uses many temporary files)
- After you delete large amounts of data
- When you are preparing the virtual hard disk for archiving, for deployment to another computer or CD-ROM, or for distribution

You can compact a dynamically expanding virtual hard disk. You cannot compact any other type of virtual hard disk. However, you can convert a fixed-size virtual hard disk to a dynamically expanding virtual hard disk and then compact the disk. If you want to compact a differencing virtual hard disk or an undo disk, you must merge the changes to the parent disk and then compact the parent disk, if it is a dynamically expanding virtual hard disk. For instructions on converting disks, see <u>Convert a virtual hard disk</u>. For instructions on merging disks, see <u>Merge a virtual hard disk</u>.

To ensure that you get the smallest possible file size when you compact the virtual hard disk, you need to do some file system maintenance before you compact the disk. In the guest operating system of the virtual machine that is using the disk you want to compact, do the following:

- Remove any temporary folders or unwanted folders or files.
- Empty the Recycle Bin.
- Defragment the disk.
- Use a non-Microsoft disk utility program to "zero out" deleted data, which overwrites the data with zeros. When you delete files from a virtual hard disk, the data associated with the files is not actually removed until it is overwritten. Instead, the sector that stored the data is marked as available for use by the operating system. Zeroing out the data overwrites it with zeros, which enables the compact option to make the .vhd file smaller.

When you compact a virtual hard disk, sectors that contain only zeros are removed from the virtual hard disk to reduce the file size.

After you complete the tasks described above, open the Administration Website to compact the virtual hard disk. For instructions, see <u>Compact a dynamically</u> <u>expanding virtual hard disk</u>.

How to Expand?

To expand, Right Click on the Virtual Machine and then click on "Settings". Click on the Virtual Hard Drive you want to extend in the "Settings" page. Note: You cannot extend/compact a Virtual Machine hard drive if a snapshot exists. A warning message will be shown stating that "Edit is not available because checkpoints exist for this Virtual Machine". This is also shown in the red circle of the below screenshot.

Settings for VM1 on WIN-K5OP47VFK93							
VM1 v	4 🕨 🗠						
Hardware Add Hardware Firmware Boot from Hard Drive Memory Firm VP	Hard Drive 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:						
Processor 1 Virtual processor	SCSI Controller						
SCSI Controller Hard Drive VM1_1E4A7209-E843-431F-80 OVD Drive	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. Virtual hard disk:						
Vmguest.iso Vmguest.iso Network Adapter Not connected Management	New Edit Inspect Browse Image: Edit is not available because checkpoints exist for this virtual machine. Image: Edit is not available because checkpoints exist for this virtual machine.						

Next click on "Edit" button to launch the "Edit Virtual Hard Disk" wizard as shown below:

ø	Edit Virtual Hard Disk Wizard
Locate Virtu	al Hard Disk
Before You Begin Locate Disk Choose Action Summary	 Where is the virtual hard disk file located? Location: C:\Users\Public\Documents\Hyper-V\Virtual hard disks\VM1.vhdx Browse Citing the following types of virtual hard disks might result in data loss: Virtual hard disks in a differencing disk chain that have child virtual hard disks associated with them. Virtual hard disks (.avhd/.avhdx) associated with virtual machine checkpoints. Virtual hard disks associated with a virtual machine that has replication enabled and is currently involved in initial replication, resynchronization, test failover, or failover.
	< Previous Next > Finish Cancel

Click "Next" to select "Expand" action as shown below:

🔏 Edit Virtual Hard Disk Wizard 🗙								
Choose Actio	on							
Before You Begin Locate Disk Choose Action Configure Disk Summary	 What do you want to do to the virtual hard disk? Compact This option compacts the file size of a virtual hard disk. The storage capacity of the virtual hard disk remains the same. Expand This option expands the capacity of the virtual hard disk. Shrink This option reduces the storage capacity of the virtual hard disk. 							
	< Previous Next > Finish Cancel							

Specify the size of the virtual hard drive to expand and then click on Finish.

Zá Edit Virtual Hard Disk Wizard								
Expand Virtual Hard Disk								
Before You Begin Locate Disk Choose Action Configure Disk Summary	What size do you want to make the virtual hard disk? Current size is 140 GB. New size: 170 GB (Maximum: 64 TB)							
	< Previous Next > Finish Cance							

At this point, Virtual Machine hard disk size has been expanded, now you need to launch "**Disk Manager**" in Virtual Machine and then use the "**Extend the Volume**" wizard to make un-allocated space available to the Virtual Machine. When you open "**Disk Manager**", you will see the expanded size as un-allocated space as shown in the below screenshot of the Virtual Machine:



Right Click on the volume you want to extend and then select "**Extend Volume**" wizard as shown in the below screenshot and then follow the on-screen steps to complete the process.

Disk 0					_
Basic 169.88 GB	300 MB	99 MB	(C:) 126.48 GB NTFS	42 00 GP	. =
Unline	Healthy (Reco	Healthy (E	Healthy (Boot,	Open Explore	
CD-ROM 0 DVD	VMGUEST (D	•)		Mark Partition as Active Change Drive Letter and Paths	~
Unallocated Primary partition Format					\square
				Extend Volume	

How to Shrink?

To shrink the storage capacity, you must first initiate the "shrink" action from within the Operating System of Virtual Machine using "**Disk Manager**". Using the "Disk Manager", Right Click on the volume you want to shrink and then select "**Shrink Volume**" action as shown in the below the screenshot:

Disk 0 Basic			(C:)	×
107.88 GB Online	300 MB Healthy (Recovery Pa	99 MB Healthy (EFI Syst	107.48 GB NTF Healthy (Boot	Open Explore
CD-ROM 0 DVD Unallocated Primary partition				Mark Partition as Active Change Drive Letter and Paths Format
				Extend Volume Shrink Volume

Note: "Extend Volume" action is available only if you have un-allocated space available in the Operating System. Next, specify the amount of space you want to shrink as shown below and then hit "**Shrink**" button:

Shrink C:	x		
Total size before shrink in MB:	110062		
Size of available shrink space in MB:	101262		
Enter the amount of space to shrink in MB:	50000		
Total size after shrink in MB:	60062		
You cannot shrink a volume beyond the point where an See the "defrag" event in the Application log for detaile operation when it has completed.	y unmovable files are located. d information about the		
See "Shrink a basic volume" in Disk Management help	for more information		
	Shrink Cancel		

Once shrunk from within the Operating System of Virtual Machine, initiate the final shrink action using the "**Edit Virtual Machine**" wizard. Click on "**Edit**" button on the Virtual Machine's setting page to specify the new size for the virtual hard disk as shown in the below screenshot. "**Edit Virtual Machine**" wizard will not allow you to specify the new size value lesser than the size being used by the Operating System inside the Virtual Machine. As you can see in the below screenshot, the C: volume is about 58.6 GB in size and "**Edit Virtual Hard Disk**" wizard also specifies the minimum required size which is 60 GB. This is shown in the red circles in the below screenshots:

8		D	isk Managem	ent	bba 🕪	Hardware		
File Action V	iew Help				<i>p</i>			Edit Virtual Hard Disk Wizard
					12			
Volume	Layout	Туре	File System	Status	120	Shrink Virtua	al Hard Disk	C
	Simple	Basic		Healthy (R				
C:)	Simple Simple Simple	Basic Basic Basic	NTFS CDFS	Healthy (E Healthy (B Healthy (P	Before You Locate Disk	Begin	What size of Current size	to you want to make the virtual hard disk? e is 108 GB.
					Configur	e Disk	New size:	GB (Minimum 60 GB)
<			III		Summary			
Disk 0 Basic 107.88 GB Online	300 MB Healthy (Recc	99 MB Healthy (E	(с:) 58.65 GB NTFS Неакту (вооt,	Page File, Cras				

Once you have specified the size to shrink, click "**Finish**" button for **VMWP.exe**to process the change and reduce the size of the VHDX file on the Host storage.

Limitations

- Does not work on virtual hard disks using VHD format.
- The re-sizing feature does not work on Virtual Hard Disks which are attached to IDE Controllers.
- Does not work for Virtual Hard Disks which have snapshots/checkpoints associated.
- Expanding and Shrinking process is not visible to the Virtual Machine Operating System. You must take some extra steps.
- Once the virtual hard disk has been expanded, the extra space is shown as un-allocated in the Disk Manager in the Operating System of the Virtual Machine. You must make the extra space available to Virtual Machine by using the "Extend Volume Wizard" within the Disk Manager of the Virtual Machine.
- Shrinking reduces the storage capacity of the Virtual Hard Disk. If you want to shrink the size, you must use the "Disk Manager" in Operating System of the Virtual Machine. Finally, use the "Edit Virtual Hard Disk" wizard to reduce the size of the virtual hard disk.

Merge a virtual hard disk

To merge a virtual hard disk

- 1. Open the Administration Website.
- 2. In the navigation pane, under Virtual Disks, click Inspect.
- 3. Do one of the following, and then click **Inspect**:
 - In Known virtual hard disks, select the virtual hard disk that contains the changes you want to merge.
 - In **Fully qualified path to file**, type the fully qualified path to the virtual hard disk file that contains the changes you want to merge.
- 4. Under Actions, click Merge virtual hard disk.
- 5. Take one of the following actions:
 - Select Merge With Parent Virtual Hard Disk.
 - Select Merge to New Virtual Hard Disk, and then complete the following steps:

Select a folder in which to store the new virtual hard disk. If the folder is not listed, in Step 2 type the fully qualified path when you name the virtual hard disk.

Type a name for the new virtual hard disk. You do not need to include a file name extension.

In **Merged Virtual Hard Disk Type**, select a type for the new virtual hard disk.

6. Click Merge.