BitLocker: Encrypt containers instead of entire drives

TrueCrypt had a really nifty feature that allowed the user to encrypt only certain containers instead of entire drives. BitLocker does not. Or does it? In this short tutorial I'm going to show you how to (by using some sneaky and mischievous built-in disk management trickery) "fool" BitLocker into encrypting only what you want and even hide it from prying eyes.

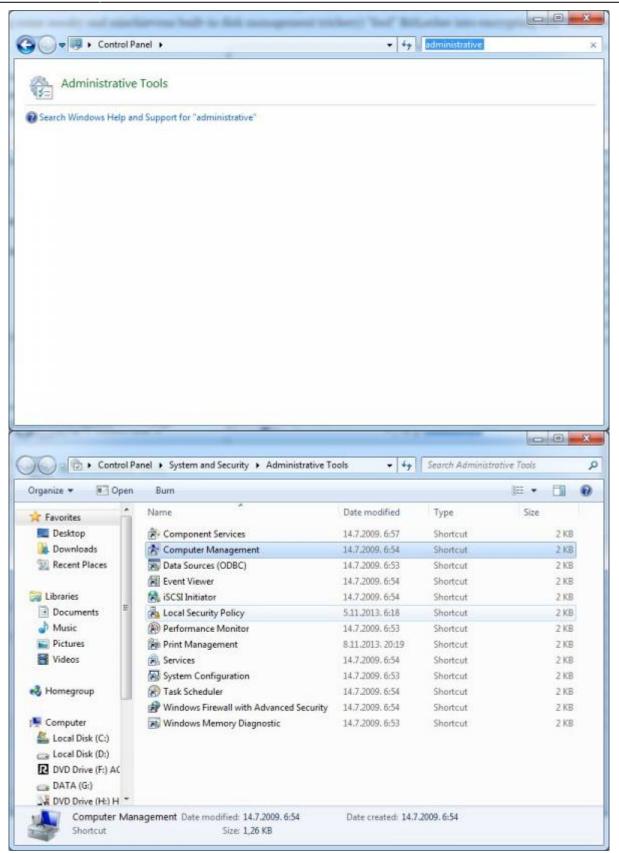
Before we begin do note that you can only pull this off with certain versions of Windows that actually support BitLocker functionality and those are **Windows 7 Ultimate/Windows 8/8.1 Professional and Enterprise**. Now that that's sorted we will also assume that you already have some level of experience with BitLocker (basically that you know how to lock a drive will be sufficient) because we shall be mostly concentrating our efforts on how to create a container that will then be encrypted by BL.

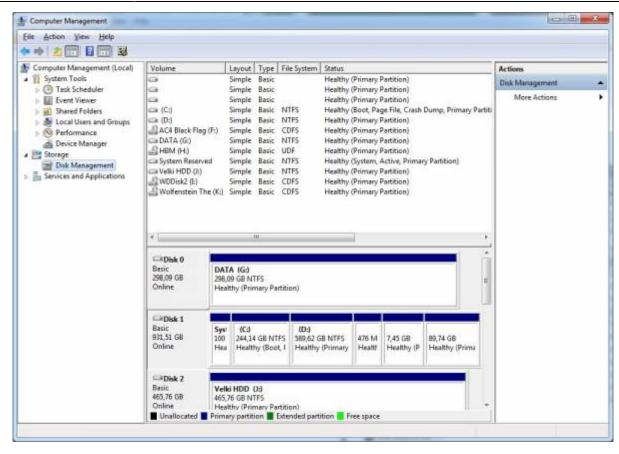
The Question: How to make BitLocker encrypt only what we want and not an entire drive? The Answer: Simple – give it a drive. Just make it virtual. Yes my dears, we can bamboozle BitLocker into thinking it's doing it's job with a VHD, which in turn allows for enough flexibility to only actually ever encrypt that what needs to be encrypted.

Let's start!

Create a VHD

• Go to **Control Panel** → **Administrative Tools** → **Computer Management**. In the Computer Management pane on the left, under the **"Storage"** node select **"Disk Management"**.





• From Disk Management select a drive (I'll select **Disk 2** for this demonstration) by clicking on it. Go to the **"Action"** menu and select **"Create VHD"** from the drop-down menu.

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 In the "Create and Attach Virtual Hard Disk" dialog box under "Location" select a destination where your VHD will be stored by clicking on the "Browse" button. In the "Virtual hard disk **size"** input field enter a numeric value and from the drop-down menu select the desired units (I'll set mine to 1 GB). Leave your VHD as **"Fixed size"** and confirm all setting by clicking on the **"OK"** button.

	on the machine.	
Location:		
J:\Secret_VHD.vhd		Browse
Virtual hard disk <u>s</u> ize:	1	MB -
Virtual hard disk format		MB GB
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The size of this virtual hard disk e data is saved to it. The disk size when data is deleted.		
<u>Fixed size (Recommended)</u>	I amount of annan man	
Exed size (Recommended) The virtual hard disk uses a fixed amount of the data stored on it. amount of space available on yo	Its default size is the m	aximum

• Now wait for the VHD to be created (note the progress bar to the lower right of the Disk Management console window).

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Computer Management (Local)	Volume	Layou	t Type F	ile System	Status				Actions
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	CD-ROM 0 DVD (E) No Media								

Once the new drive is created it can be seen as a "Disk X" (where X is the drive number under which Windows created the VHD – in my case its "Disk 3") in the Disk Management console window. Now select it by clicking on it and go to Action → All Tasks → Initialize Disk. In the "Initialize Disk" dialog box confirm by clicking on the "OK" button that you indeed wish to initialize the disk.

ile	Action Yiew Help	-							
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rou must initialize a	disk before Logical Disk Manager can access it.
elect disks:	
✓ Disk 3	
lse the following pa	rtition style for the selected disks:
MBR (Master Bo)	ot Record)
◎ <u>G</u> PT (GUID Part	ition Table)
	tion style is not recognized by all previous versions of mended for disks larger than 2TB, or disks used on

 Select the volume frame of the newly initialized disk and go to Action → All Tasks → New Simple Volume.

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	465,76 GB	Velki HDD (J.) 465,76 G8 NTFS Healthy (Primary			
		1023 MB Unallocated			
	DVD (E:)			tion Free space	

• Click the **"Next"** button on the **"New Simple Volume Wizard"** welcome screen and on the second screen of the Wizard specify the size of the volume.

New Simple Volume Wizard	×
	Welcome to the New Simple Volume Wizard
	This wizard helps you create a simple volume on a disk.
	A simple volume can only be on a single disk.
	To continue, click Next.
	< <u>B</u> ack <u>Next</u> > Cancel

Specify Volume Size Choose a volume size that is betwee	en the maximum and minimum sizes.
Maximum disk space in MB: Minimum disk space in MB: Simple volume size in MB:	1021 8 1021
	< <u>B</u> ack <u>N</u> ext > Cancel

• In the following specify the drive letter (I'll use S for 'secret' in this case).

w Simple Volume Wizard Assign Drive Letter or Path For easier access, you can assign a drive l	etter or drive path to your partition.
 Assign the following drive letter: Mount in the following empty NTFS fold Mount in the following empty NTFS fold Mount in the following empty number of the followin	Browse
	< <u>B</u> ack Next > Cancel

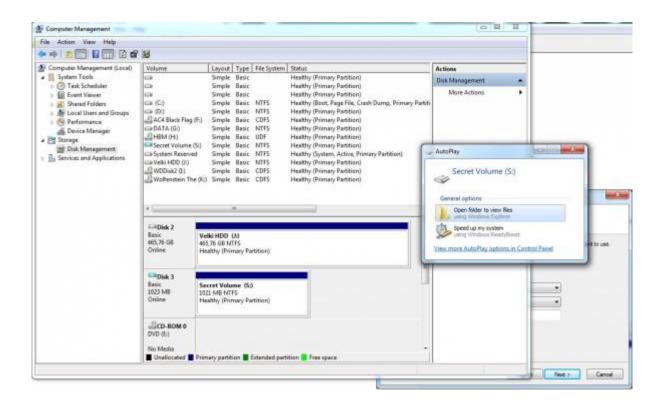
• Set formatting options for the volume and give it a name (let's call it Secret Volume... obviously).

Format Partition To store data on this partition, yo	u must format it first.
Choose whether you want to form	nat this volume, and if so, what settings you want to use.
Do not format this volume	
 Format this volume with the 	e following settings:
<u>F</u> ile system:	NTFS 🔻
Allocation unit size:	Default
<u>V</u> olume label:	Secret Volume
Perform a quick form	at
Enable file and folde	r compression

• Confirm all settings and click on the **"Finish"** button.

New Simple Volume Wizard	×
	Completing the New Simple Volume Wizard
	You have successfully completed the New Simple Volume Wizard.
	You selected the following settings:
	Volume type: Simple Volume Disk selected: Disk 3 Volume size: 1021 MB Drive letter or path: S: File system: NTFS Allocation unit size: Default Volume label: Secret Volume Quick format: Yes
	To close this wizard, click Finish.
	< <u>B</u> ack Finish Cancel

 Once done you can observe the newly created Volume in the Disk Management console and you should also get an "AutoPlay" dialog offering to open the volume folder. Go ahead and open it because we ought to copy something on it (for instance something we would like to encrypt).

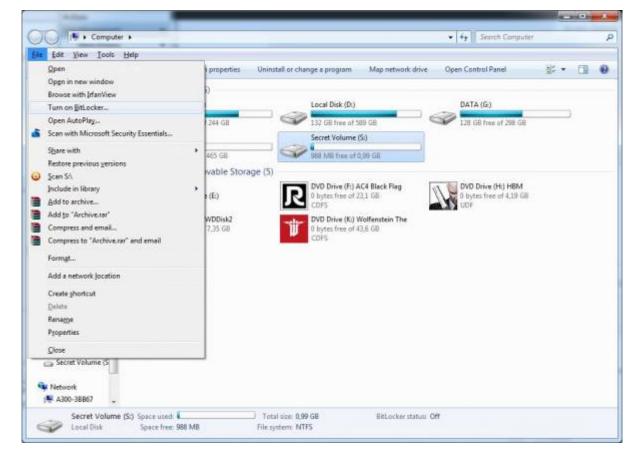


Copy the data and encrypt the VHD

• Once you've opened the new volume in Windows Explorer copy what you'd like to encrypt to it.

Organize = 💮 Open	· Print Burn	New folder					二 •	-
🔆 Favorites	Name	•	Date modified	Туре	Size			
E Desktop	Very Secret File.txt		22.3.2015.17:04	Text Document		0 KB		
Libraries Documents Nusic Pictures Videos								
& Homegroup								
E Computer								
DVD Drive (Fr) AC								
DVD Drive (H) H DVD Drive (E) WC Way Velki HDD (A)								
DVD Drive (K) W								
Network								
MACHINA .								

 Now from Windows Explorer select the drive that you'd like to encrypt and u can run BitLocker by either going to File → Turn on BitLocker or right click on the drive itself and select the same option from the drop-down menu.



"Hide" your newly encrypted data

To secure our valuable data even further we can now "hide" our VHD by taking it offline and detaching it, so go to Disk Management console once more and select the encrypted VHD. Go to Action → All Tasks → Detach VHD or right click on the volume and select the same option from the drop-down menu. Confirm the physical VHD file location by clicking the OK button from the "Detach Virtual Hard Disk" dialog box.

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0	Help	New Striped Volum	5.5	äc	NTFS	Healthy (Primary Partition)	
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		CD-ROM 0					
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• Hey Presto! No more VHD. You can confirm that the drive was successfully detached by examining the drives list in the Disk Management console where now you should be unable to find the detached drive. Now your encrypted VHD is just another file on your computers physical hard drive.

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Computer Management (Local)	Volume Layout Type File System Status							Actions			
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	Basic 465,76 GB Online		DD (J:) 38 NTF5 (Primary Par	tilion)							

• To make the ruse even more convincing (although I'd recommend not making a habit out of this because it can lead to data corruption and other issues when latter reattaching the VHD back where it belongs) you can now rename our Secret_VHD.vhd to - say - Grandma's special cookie recipe.txt. Now do keep in mind that the size of the file itself remains unchanged so come up with a naming convention and a file type extension that make the file size credible. You can also move the encrypted data to a more suitable location. So if you've opted for a file name in the lines of let's say Grimm_S04E02.mp4, you should probably keep it in the same folder where you keep the rest of your Grimm Season 4 episodes (ok, ok - i know you got the picture by now, so sorry if I'm being a bit overzealous).

Computer	 Velki HDD (h) 			• +9 Sea	ah Velki HDD	1941	
Organize 🔹 💮 Open	Print Burn New folder					道·	-
Favorites	Name	Date modified	Туре	Size			
E Desktop	Ubuntu	19.3.2015.18:11	File folder				
Downloads	eula.1028.txt	7.11.2007.8:00	Text Document	18 KB			
🧱 Recent Places	eula.1031.bt	7.11.2007.8:00	Text Document	18 KB			
	eula.1033.txt	711,2007.8:00	Text Document	10 KB			
J Libraries	eula.1036.bt	7.11.2007-8:00	Text Document	18 KB			
Documents	eula 1040.txt	7.11.2007,8:00	Text Document	3.8 KB			
Music	eula,1041.bt	7.11.2007.8:00	Test Document	1 KB			
Pictures	eula.1042.txt	7.11.2007.8:00	Test Document	1B KB			
😸 Videos	eula.2052.bt	711.2007.8:00	Text Document	18 KB			
	eula.3082.txt	7.11.2007.8:00	Text Document	38 KB			
Homegroup	globdata.ini	7.11.2007.8:00	Configuration sett	2 KB			
	# instalLeve	7.11.2007.8:03	Application	550 KB			
Computer	a installini	7.11.2007.8:00	Configuration sett	1 KB			
Local Disk (C:)	🗟 install.res.1028.dll	7.11.2007.8:03	Application extens	75 KB			
📖 Local Disk (D:)	🗟 install.res.1031.dll	7.11.2007.8:03	Application extens	95 KB			
DVD Drive (Fi) AC4 E	🚳 install.res.1033.dll	7.11.2007.8:03	Application extens	90 KB			
Carta (G:)	🗟 install.res.1036.dll	7.11.2007.8-03	Application extens	96 KB			
DVD Drive (Ht) HBM	🗟 install.res.1040.dll	7.11.2007.8:03	Application extent	94 KB			
🕒 DVD Drive (E) WDDie	🗟 install.res.1041.dll	7.11.2007.8:03	Application extens	80 KB			
(Har Velki HDD (Jt)	🗟 install.res.1042.dll	7.11.2007.8:03	Application extens	79 KB			
DVD Drive (K:) Wolfe	🗟 install.res.2052.dll	7.11.2007.8:03	Application extens	75 KB			
	install.res.3082.dll	7.11.2007.8:03	Application extens	95 KB			
Vetwork Network	Grandmas's special cookie recipe.tst	22.3.2015 17:20	Text Document	1.048.577 KB			
1 A300-38867	VC_RED.cab	7.11.2007.8:09	WinRAR archive	1.409 KB			
MACHINA	19 VC_RED.MSI	7.11.2007.8.12	Windows Installer	228 KB			
	🍁 vcredist.bmp	7.11.2007.8:00	InfaniView BMP File	ti KB			

 To restore your data you should reattach the VHD back but remember to first rename it back to what it was originally called (in our case Secret_VHD.vhd). When you've renamed the file (no need to return it in the same exact location on the physical disk where it was originally created) go to the Disk Management Console and then select Action → Attach VHD.

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Create VHD	0	Simple		Healthy (Primary Partition)		Disk Management
Attach VHD	9	Simple		Healthy (Primary Partition)		More Actions
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d Device Manager	DATA (G)		Basic NTFS	Healthy (Primary Partition)		
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	Basic	Sys: (C:)	(D:)	CALLER CALLS	DANJARS -	
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		Lowerly 74.00	nasy Paranany			
		-				
	CD-ROM 0					
	DVD (E:)					
	No Media				*	

• Browse for the VHD file and confirm with "OK" once You've found and selected it.

Location:		
G:\Restore Hidden Encrypted Drive	es Folder\Secret_VHD	Browse
Read-only.		
	ок	Cancel

- When the VHD is attached the BitLocker unlock window automatically pops up. From here you can choose to do one of the following:
 - $\circ\,$ Unlock the drive upon attaching it by inputting the drive unlock password and confirming with "OK" or;
 - Keep the drive attached and visible (though not readable) but locked by simply clicking on the "Cancel" button in the BitLocker dialog window.

This drive is prot	ected by BitLocker Drive	Encryption
Type your password to u	nlock this drive	
•••••		
Show password char	acters as I type them	
<u>Automatically unlock</u> forgot my password	on this computer from now on	
Why do I have to unlock	the drive?	

And we're done. I know it looks like allot if you've never done this kinda thing before but believe me – it's quick and easy once you get the hang of it, and what's more important: it'll keep your data safe in a more flexible and reliable way then thus far.

