Backup Lab

We covered a number of items around the topic of backups, and now we're going to explore. Spoiler: there may or may not be traps here (Maybe Admiral** Ackbar was right?), so you have to think around or through those items to win. ☺

High level summary: You'll prep your VM, add 2 hard drives, do some RAID'ing, and then back up & restore files. With all the sessions we have covered thus far, I know you got this!!!

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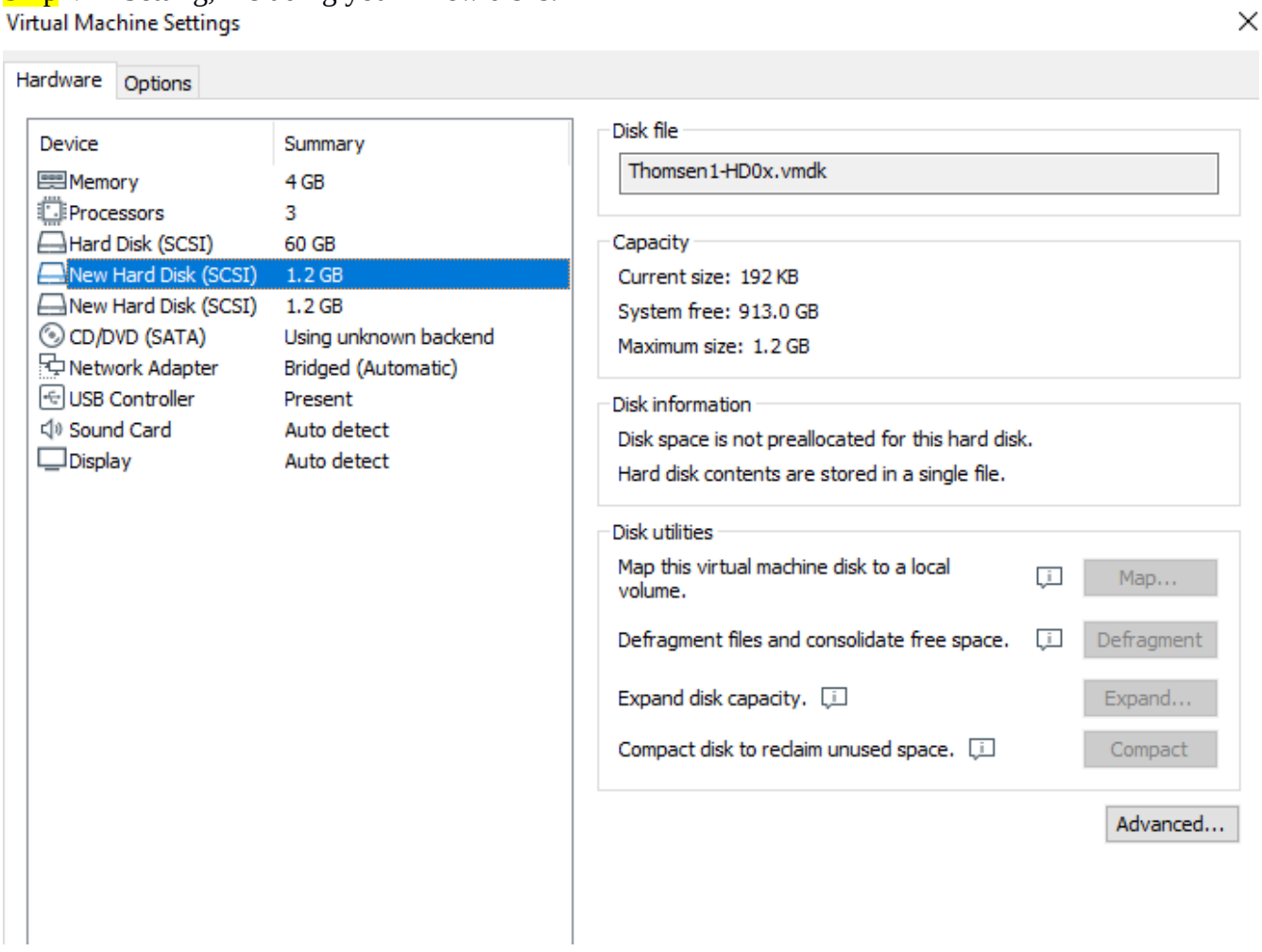
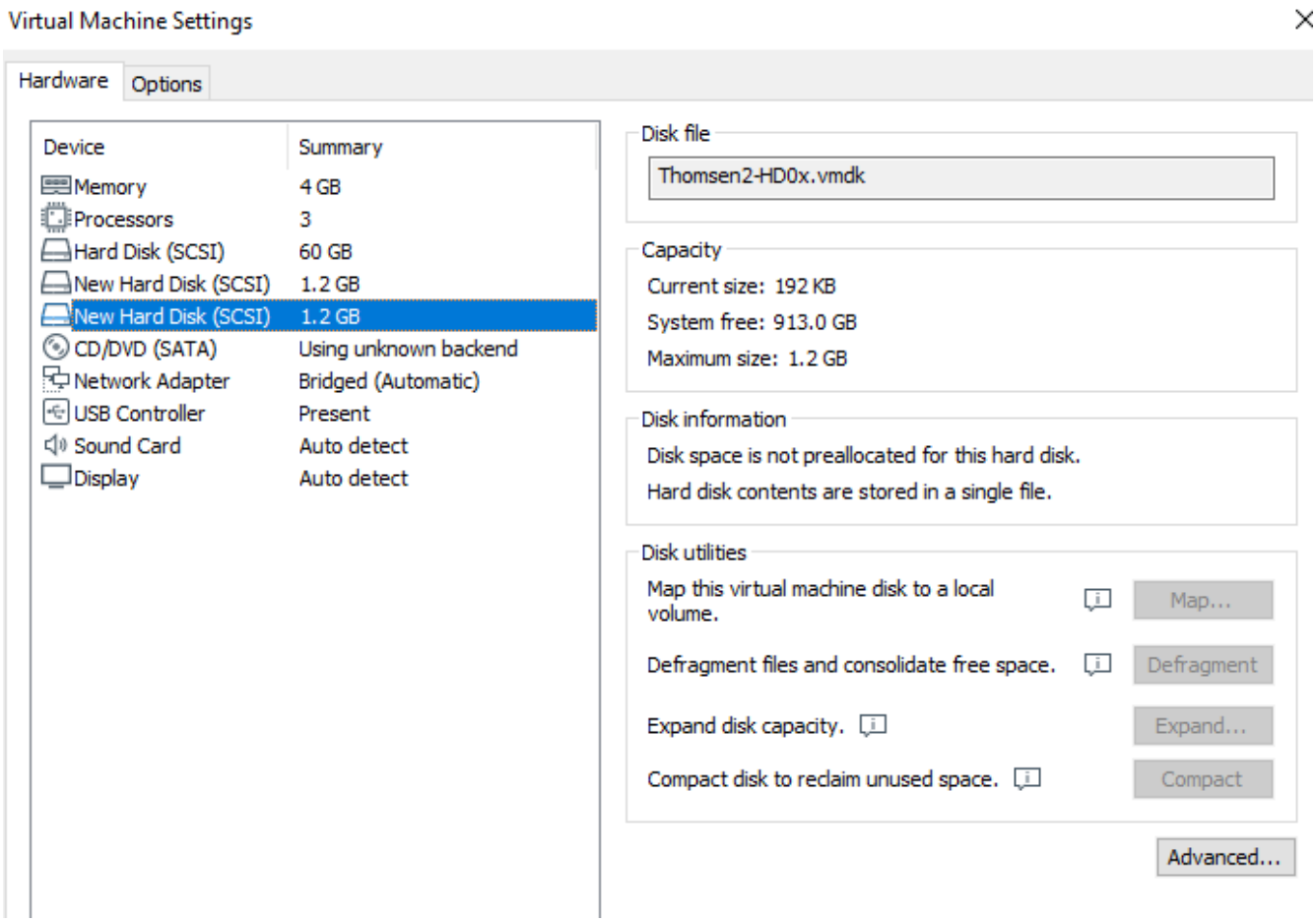
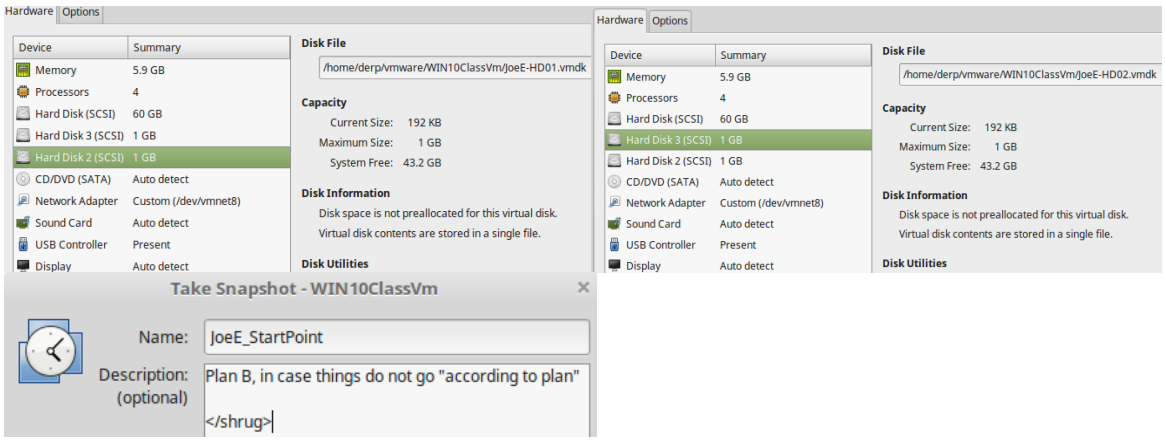
1) First, it would be wise to build your own insurance policy …
   a) Select (not Run!) your Windows 10 VM via VMware.
   b) Then under VM > Snapshot > Take Snapshot > Name it: *snapshot 2*
2) Next, let's add 2 same size drives to your VM (1Gb)
   a) Edit VM settings > Add Hard Disk > SCSI > Create New > 1.18 GB as a Single File > Name the new disk with your Name-HD0x.vmdk > Finish.
   b) Repeat same steps for 2nd disk, renaming the 2nd. vmdk hard drive accordingly.
   c) Snip VM Setting, including your 2 new disks.
   d)



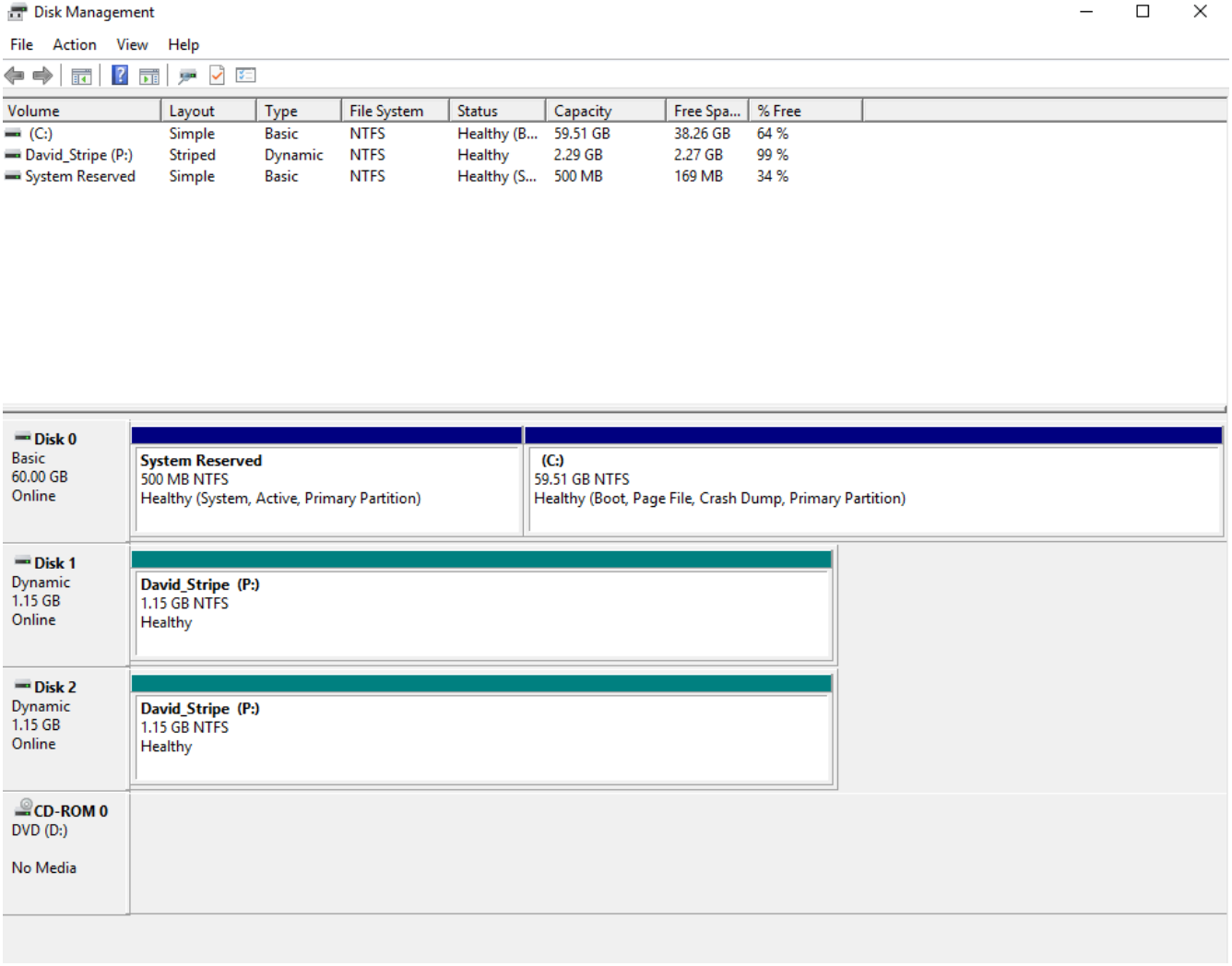




3) Ok, now we're ready to do some cyber cooking … Boot up your Windows 10 VM. Engage!
4) Initialize 2 new disks.
   a) Disk Management > Initialize both new disks w/ GPT.
5) Time for a RAID party!
   a) Disk Management's Lower Pane > Create Striped Volume > Add both disks > Assign drive letter > Label it: *FirstName*_Stripe & Perform Quick format for this volume using NTFS > Next & OK out.
   b) QUESTION: What is the Total volume size? 2348 MB
   c) QUESTION: What is the Max available space? 1174 MB

d) QUESTION: Explain why is this the case? Because it writes to both drives so that it only has storage of one drive.

e) Snip Disk Management, including all disks.

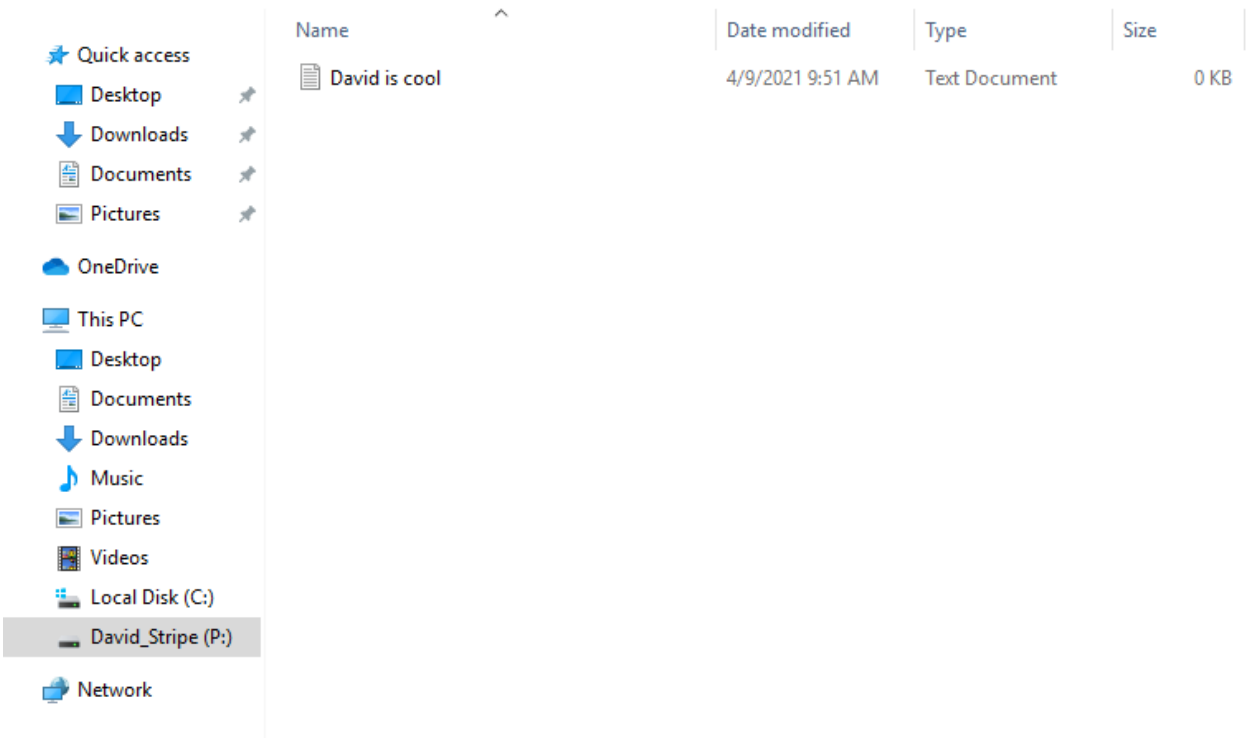


f)

6) We need a "volunteer" …

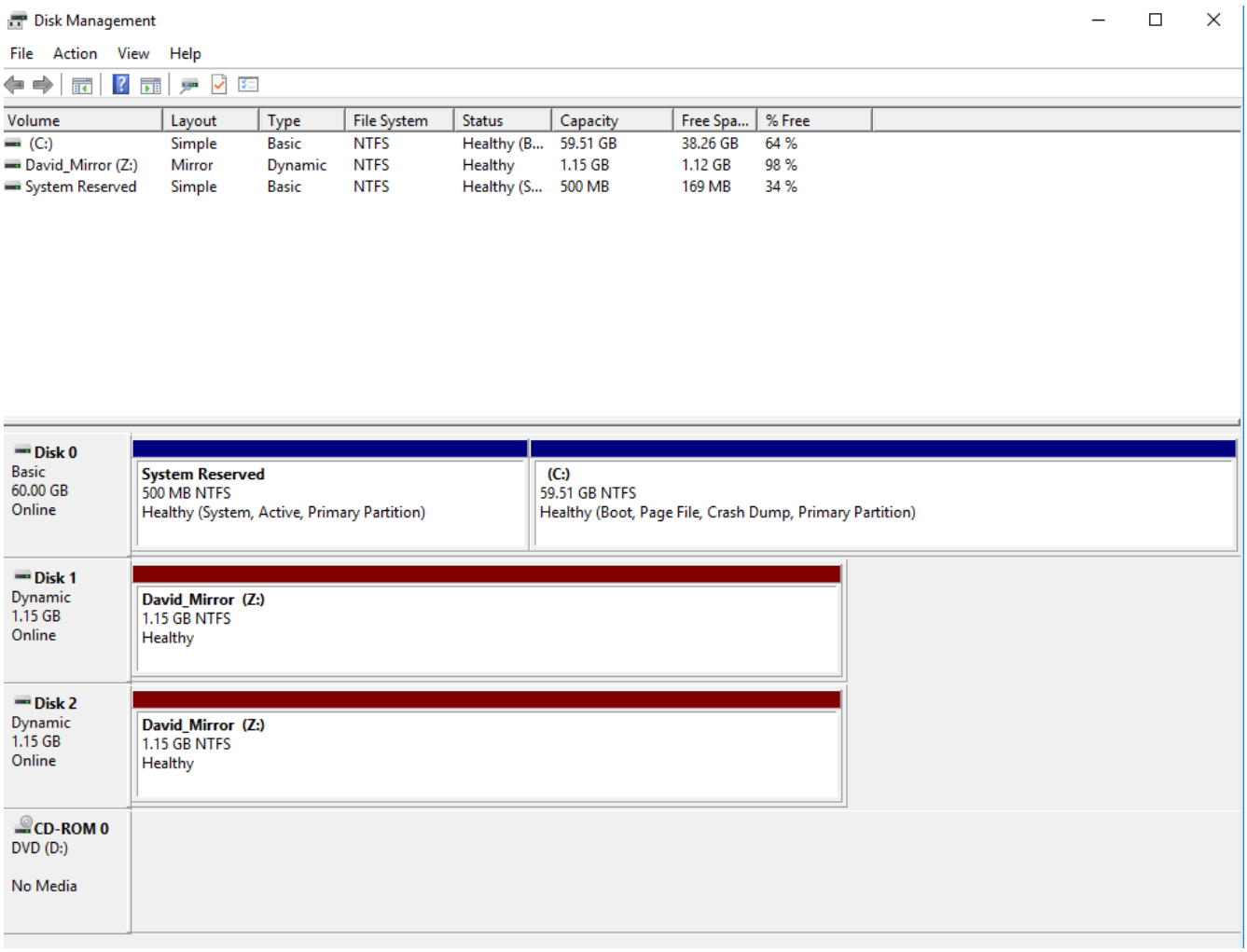
a) In File Explorer, go to your new drive and create a new file called "Striped File".

b) Snip the new file in the new drive.



c)

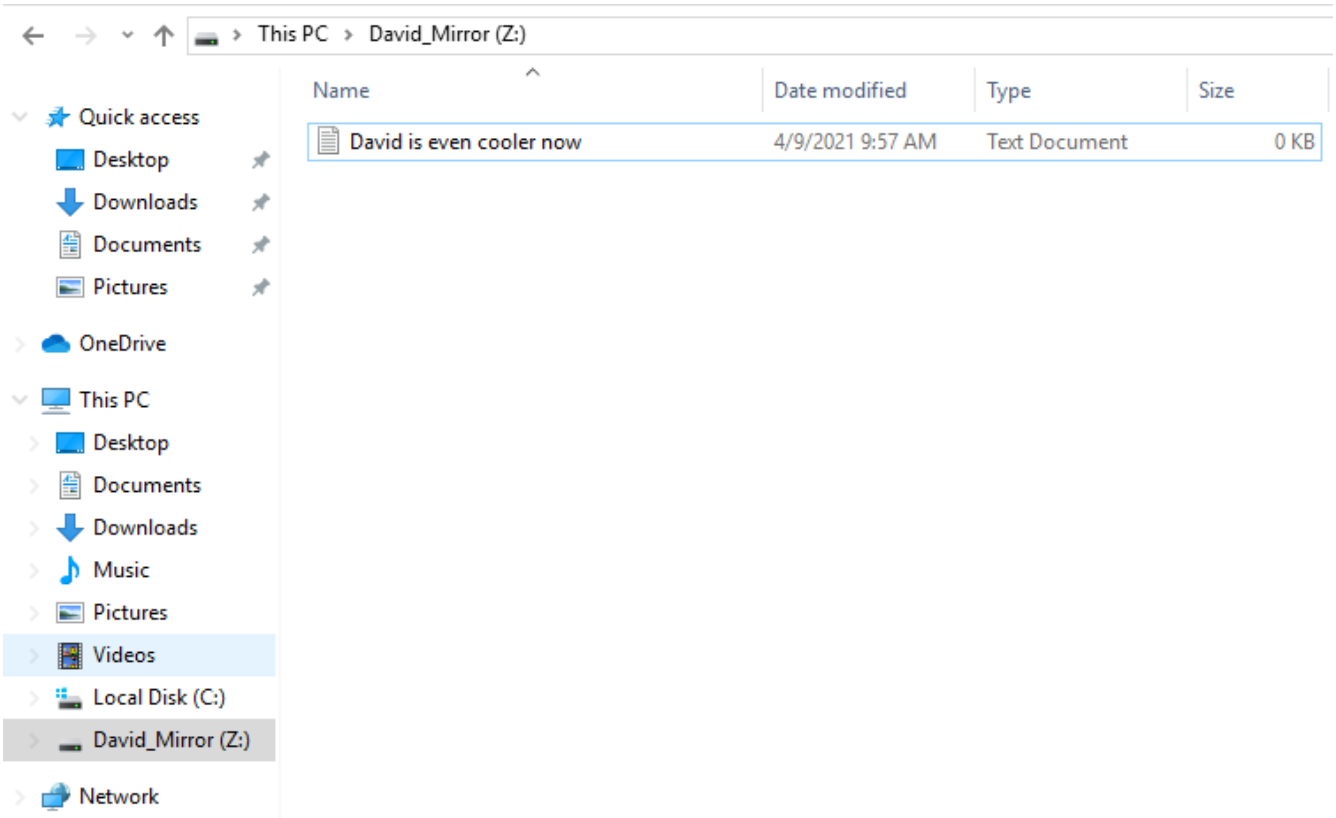
7) Next, we break things!
   a) Disk Management's Lower Pane > Select Disk 2 & make it Offline.
   b) In File Explorer, go to your new drive with your new Stripe File.
   c) QUESTION: What happened to your new file? The Striped disk is no longer visible and the file is unreachable.
   d) Disk Management's Lower Pane > Select Disk 2 & make it Online again.
   e) In File Explorer, go to your new drive with your new Striped File.
   f) QUESTION: What happened to your new folder? Explain why. My file and drive are back. It is back bc with the setup, both drives are reliant on each other
8) Now, we make things go boom!
   a) Disk Management's Lower Pane > Delete Volumes
9) Must build anew.
   a) Disk Management > New Mirrored Volume > Add both disks > Assign different drive letter > Label it: *FirstName*_Mirror & Perform Quick format for this volume using NTFS > Next & OK out.
   b) QUESTION: What is the Total volume size? 1174
   c) QUESTION: What is the Max available space? 1174
   d) QUESTION: Explain why is this the case? This will just mirror what is put on one drive and places it on another one, making it so if one is down it is still accessible.
   e) Snip Disk Management, including all disks



f)

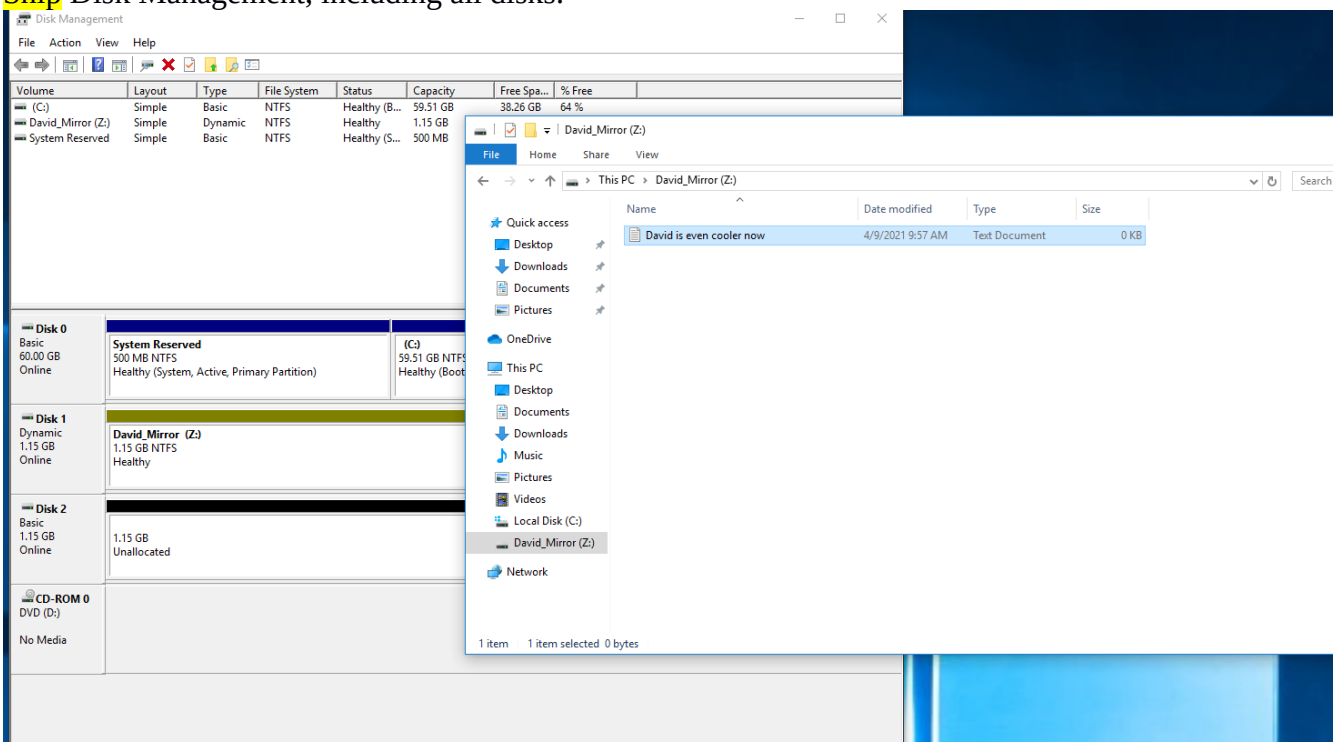
10) Need another "volunteer" red shirt.
    a) In File Explorer, go to your new drive and create a new file called "Mirrored File"
    b) Snip the new file in the new drive.

c)

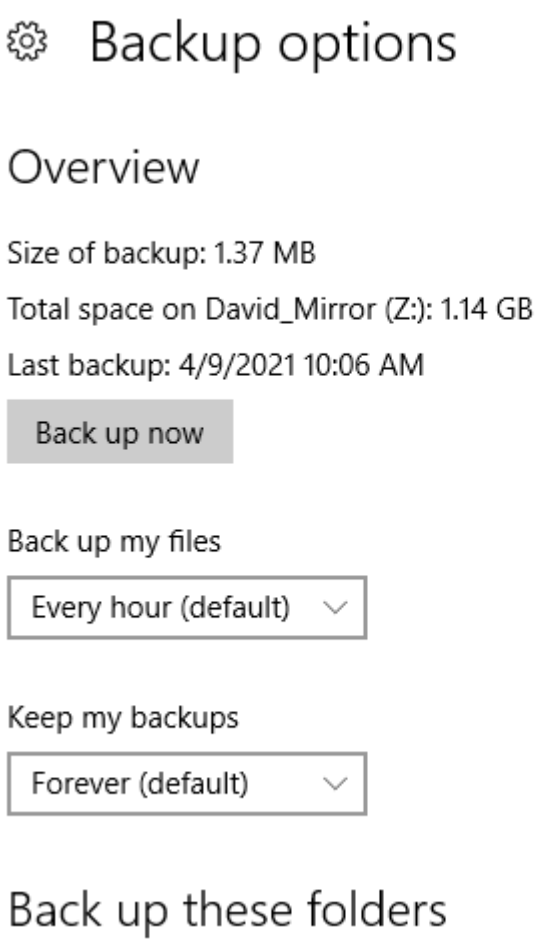


11) Time to break some more stuff!
    a) On Partition 1 or 2, Remove Disk 2 from the Mirror.
    b) Go to your new drive letter with your new Mirrored File.
    c) QUESTION: What happened to your new file? Explain why. Nothing happened because the files were mirrored as a backup incase the other one is deleted or damaged.
    d) Snip Disk Management, including all disks.

e)

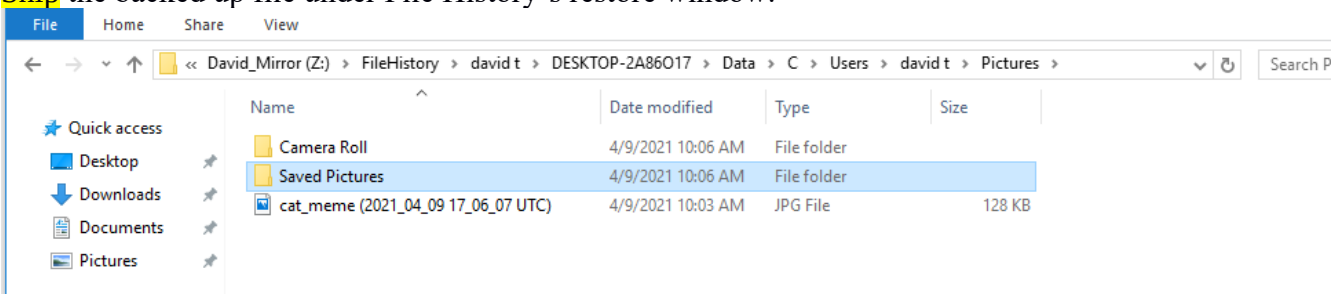


12) Backing up is so much fun
    a) Ok, so now we're going to do a quick backup & restore. Additionally, we're going to change up the process a bit … to make it more of a "go find & win" challenge.
    b) First, let's make a second VM snapshot, called "*your_name's* mid save point".
    c) Notice on the bottom status bar of VMware, there's a "Saving State" with a progress bar.
        i) Snip the "Saving State" with a progress bar.
        ii) 
        iii) QUESTION: What does this really mean? Why should you truly wait until it is complete? It is backing up all of the files so incase something happens you can just reload the VM from where you saved it.
    d) Next, after your VM state is fully saved, download a fun cat meme picture, name it "Cat_meme", & save it under your Pictures directory. Also, pretty sure cat memes rule the Internet, though just a hunch.
    e) Find the default Windows 10 tool under Settings for backing up file history.
    f) Add your remaining new Disk 1's volume drive, and make sure to automatically back up your files.
    g) For more options, run backup up now.
    h) Snip the overview data after your back up is complete.



    i)
    j) Now delete your picture.
    k) You guessed it … Under the same backup tool, restore the file from the current backup.

l) Snip the backed up file under File History's restore window.

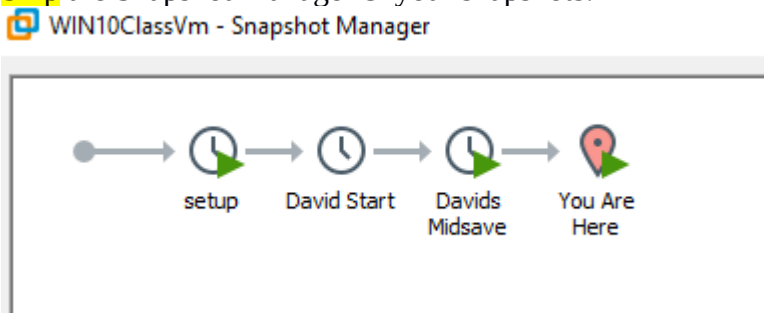


m) Validate the backed up file actually was restored. Yeah, cat memes!

13) Now, from the beginning …

a) Let's explore Snapshot Manager in Vmware.

b) Snip the Snapshot Manager & your snapshots.



c)

d) Select your mid save point snapshot, and then Go To and Restore it.

e) Double-check your cat meme picture.

f) QUESTION: Was your file there? Explain why, or why not. No because this file was downloaded after the snapshot was taken.

g) Now let's select your StartPoint Snapshot, and restore it.

h) QUESTION: What just happened? Are your new hard drives you created there? Explain why, or why not. No theyre not there because this snapshot was saved before I had made those.