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TryHackMe Windows Forensics 2 Write-Up

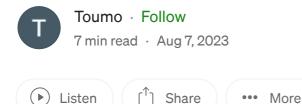




Image from tryhackme.comF

This is the second part of Windows Forensics. The write-up I did for the first part can be found <u>here</u>. I enjoyed the difficulty last time and I hope this time will be the same. Looks like we're not going tob e focused on the registry but also on the file system this time. Let's get started!

Task 2 The FAT file systems

1: How many addressable bits are there in the FAT32 file system?

This can be found in the reading.

Answer: 28 bits

2: What is the maximum file size supported by the FAT32 file system?

This can be found in the reading. Just note that while FAT32 can hold up to 2TB, a single file can only be a maximum of 4GB.

Answer: 4GB

3: Which file system is used by digital cameras and SD cards?

This can be found in the reading.

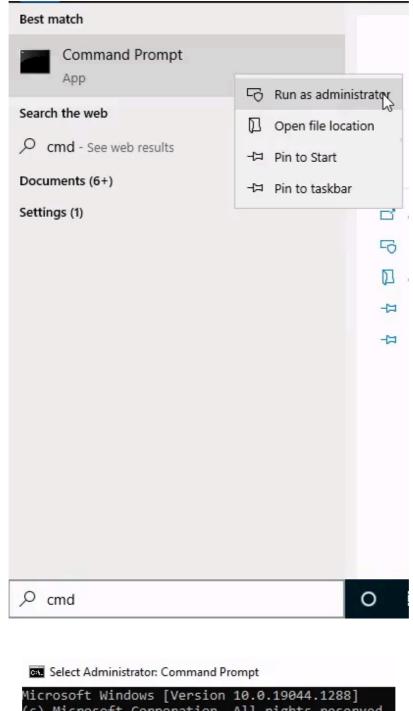
Answer: exFAT

Task 3 The NTFS File System

I will be RDPing into the machine. I wrote a guide here. Please check it out!

1: Parse the \$MFT file placed in C:\users\THM-4n6\Desktop\triage\C\ and analyze it. What is the Size of the file located at .\Windows\Security\logs\SceSetupLog.etl

First, we will open the command prompt and run it as an administrator. Go to the search bar next to the start menu and type in cmd. Right click command prompt and run it as administrator. If you did it correctly, it should show C:\WINDOWS\system32 like below.



```
Select Administrator: Command Prompt

Microsoft Windows [Version 10.0.19044.1288]

(c) Microsoft Corporation. All rights reserved.

C:\WINDOWS\system32>_
```

Let's navigate to where EZtools is at with cd C:\Users\THM-4n6\Desktop\EZtools

```
C:\WINDOWS\system32>cd C:\Users\THM-4n6\Desktop\EZtools
```

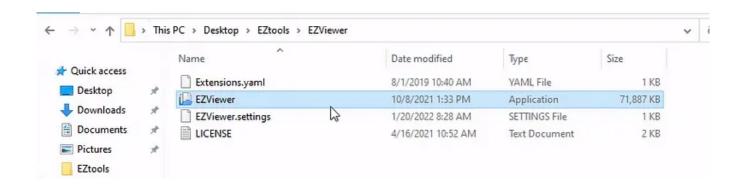
Now we will run the following command to parse the \$MFT file and save it to a new location with MFTECmd.exe -f C:\Users\THM-4n6\Desktop\triage\C\\$MFT -csv C:\Users\THM-4n6\Desktop . I got the command from the reading.

C:\Users\THM-4n6\Desktop\EZtools>MFTECmd.exe -f C:\Users\THM-4n6\Desktop\triage\C\\$MFT --csv C:\Users\THM-4n6\Desktop

It may take a while to process. The new file will appear in the desktop.

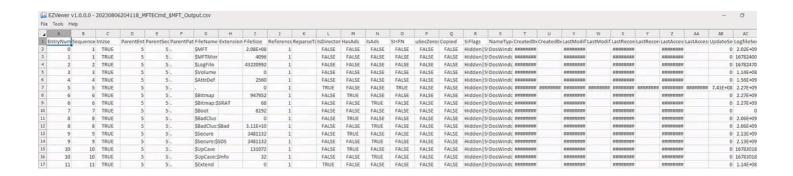


Now lets open EZViewer. It can be found in your Desktop folder -> EZtools -> EZViewer.



Once EZViewer loads, I dragged our output file into EZViewer.

If done correctly, it should load the file and it'll look like an excel spreadsheet.



The next step took me about 10 minutes. I did CTRL+F to help find my results and pasted .\Windows\Security\logs\SceSetupLog.etl but I kept getting no results. I ended up trying out .\Windows\Se to see if this works. I ended up finding what I need!



I extended a few column headers to see what the columns were displaying.

Answer: 49152

2: What is the size of the cluster for the volume from which this triage was taken?

I had to look at the hint for this. Looks like we need to parse the \$BOOT file this time. The command I used is MFTECmd.exe -f C:\Users\THM-4n6\Desktop\triage\C\\$BOOT. Remember that your command prompt has to be in administrator mode, and it has to be in the EZTool folder.

The output should be like this.

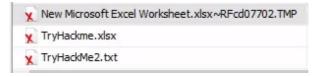
```
Boot file: 'C:\Users\THM-4n6\Desktop\triage\C\$BOOT'
Boot entry point: 0xEB 0x52 0x90
File system signature: NTFS
Bytes per sector: 512
Sectors per cluster: 8
Cluster size: 4,096
Total sectors: 60,668,614
Reserved sectors: 0
$MFT cluster block #: 786,432
$MFTMirr cluster block #: 2
FILE entry size: 1,024
Index entry size: 4,096
Volume serial number raw: 0xBA50A79050A75245
Volume serial number: 45 52 A7 50 90 A7 50 BA
Volume serial number 32-bit: 45 52 A7 50
Volume serial number 32-bit reversed: 50 A7 52 45
Sector signature: 55 AA
```

Answer: 4096

Task 4 Recovering deleted files

1: There is another xlsx file that was deleted. What is the full name of that file?

I followed the instructions per the reading to set up Autopsy. There are a few deleted files I can see. Deleted files has an X mark on their icon. The first one, "New Microsoft Excel Worksheet.xlsx" was part of the Autopsy set up demonstration. The second one is the answer.



Answer: TryHackme.xlsx

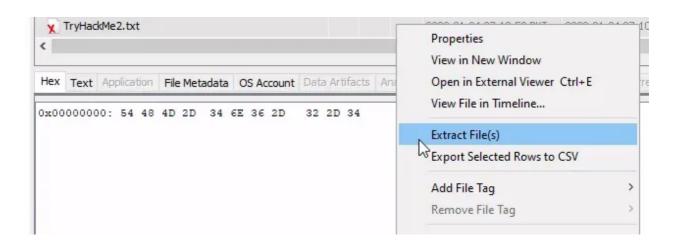
2: What is the name of the TXT file that was deleted from the disk?

From the above screenshot, we can see another deleted file, this time a .txt. This is what we need.

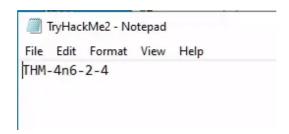
Answer: TryHackMe2.txt

3: Recover the TXT file from Question #2. What was written in this txt file?

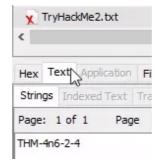
Right click the file and then select Extra File(s). Remember where you saved it!



After that, it's a matter of opening that file to view contents.



Alternatively, you can view text file directly from Autopsy by selecting the Text tab at the bottom.



Answer: THM-4n6-2-4

Task 5 Evidence of Execution

1: How many times was gkape.exe executed?

Looks like we will be parsing files quite a bit in this section. Since we are checking how many times a certain file was executed, we will be using Prefetch Parser. The command is that I used is PECmd.exe -d C:\Users\THM-

4n6\Desktop\triage\C\Windows\prefetch -csv C:\Users\THM-4n6\Desktop . I modified the example command given from the reading. The location of the prefetch directory we need to parse is at C:\Users\THM-4n6\Desktop\triage\C\Windows\prefetch .

C:\Users\THM-4n6\Desktop\EZtools>PECmd.exe -d C:\Users\THM-4n6\Desktop\triage\C\Windows\prefetch --csv C:\Users\THM-4n6\Desktop_

Two output files should appear. I opened the PECmd_Output.csv file (not timeline) with EZViewer. To search for the file, I did CTRL+F and typed in gkape.exe. There may be two results. The first result didn't really give me the path that I needed. The second one sent me to the path I need. I then scrolled up to look at the column headers and saw it was ran twice.



Answer: 2

2: What is the last execution time of gkape.exe

The above screenshot also shows the last time it was executed. Also note that THM wants the answer in a MM/DD/YYYY HH:MM format. I was wondering why 12/1/2012 13:04 didn't work for a bit.

Answer: 12/01/2021 13:04

3: When Notepad.exe was opened on 11/30/2021 at 10:56, how long did it remain in focus?

Since we are going to see how long a certain application has been in focus, we will need to parse using Windows 10 Timeline. I used the following command on the command line. WxTCmd.exe -f C:\Users\THM-4n6\Desktop\triage\C\Users\THM-4n6\ActivitiesCache.db - csv C:\Users\THM-4n6\Desktop .

Two files should be outputted. I opened Activity.csv (not Activity Package ID) with EZViewer. I used CTRL+F again and looked for notepad.exe. There are 4 results. Make sure you check the correct notepad.exe! I definitely didn't make that mistake and entered 0:00:56 twice! Then look at the duration.

4	A	В	С	D	E	F	G	Н	I	j j	K
1 10	ł	ActivityTy	ActivityType	Executable	DisplayTe	Contentin	Payload	Clipboard	StartTime	EndTime	Duration
2 0	ae7f4ee-	11	11	microsoft.default.default			(Binary d	ata)	11/24/2021 18:24		
3 8	1f8bc1f-6	11	11	microsoft.default.default			(Binary d	ata)	11/24/2021 18:24		
4 1	f2a5e34-	11	11	Microsoft.Default.Input			(Binary d	ata)	11/24/2021 18:24		
5 b	f296d1a-	5	ExecuteOpen	Program Files x86\WindowsInstallationAssistant\Windows10L	Windows	10Upgrade	{"display	Text":"Win	11/24/2021 18:24		
6 1	9aec6c5	5	ExecuteOpen	Microsoft.Windows.Explorer	File Explo	rer	{"display	Text":"File	11/24/2021 18:25		
7 6	e39b0d8-	6	InFocus	Microsoft.Windows.Explorer			{"type":"	UserEngage	11/24/2021 18:25	11/24/2021 18:25	0:00:02
8 fe	eb8ebc0-	11	11	microsoft.default.default			(Binary d	ata)	11/24/2021 18:25		
9 5	552c0de-	6	InFocus	Microsoft.Windows.Explorer			{"type":"	UserEngage	11/24/2021 18:25	11/24/2021 18:26	0:00:58
10 e	cd5fba1-	6	InFocus	Microsoft.Windows.Explorer			{"type":"	UserEngage	11/24/2021 18:26	11/24/2021 18:26	0:00:33
11 4	1a50435-	6	InFocus	Microsoft.Windows.Explorer			{"type":"	UserEngage	11/24/2021 18:27	11/24/2021 18:27	0:00:23
12 8	58839c6-	5	ExecuteOpen	windows.immersivecontrolpanel_cw5n1h2txyewy!microsoft.	Settings		{"display	Text":"Sett	11/24/2021 18:34		
13 a	0daa925-	6	InFocus	windows.immersivecontrolpanel_cw5n1h2txyewy!microsoft.	windows.i	mmersive	{"type":"	UserEngage	11/24/2021 18:34	11/24/2021 18:36	0:01:56
14 0	097937d-	6	InFocus	windows.immersivecontrolpanel_cw5n1h2txyewy!microsoft.	windows.i	mmersive	{"type":"	UserEngage	11/24/2021 18:38	11/24/2021 18:39	0:00:46
15 d	2dd43f9-	6	InFocus	windows.immersivecontrolpanel_cw5n1h2txyewy!microsoft.	windows.i	mmersive	{"type":"	UserEngage	11/30/2021 10:50	11/30/2021 10:55	0:04:28
16 2	568eb97-	5	ExecuteOpen	System32\notepad.exe	Notepad		{"display	Text":"Note	11/30/2021 10:55		
17 7	61f13bd-	6	InFocus	System32\notepad.exe			{"type":"	UserEngage	11/30/2021 10:55	11/30/2021 10:56	0:00:56
18 3	1ccc1b2-	5	ExecuteOpen	System32\notepad.exe	Wallpape	C:\Progra	("display	Text":"Wall	11/30/2021 10:56		
19 4	0985ca7-	6	InFocus	System32\notepad.exe			{"type":"	UserEngage	11/30/2021 10:56	11/30/2021 10:57	0:00:41
20 8	f29b4f5-a	6	InFocus	Microsoft.Windows.Explorer			{"type":"	UserEngage	11/30/2021 11:05	11/30/2021 11:08	0:03:40
21 b	e741a90-	6	InFocus	Microsoft.Windows.Explorer			{"type":"	UserEngage	11/30/2021 15:56	11/30/2021 15:58	0:01:18

Answer: 00:00:41

4: What program was used to open C:\Users\THM-4n6\Desktop\KAPE\KAPE\ChangeLog.txt?

Back to the terminal again! This time we will be parsing the Jump Lists. I typed in JLECmd.exe -d C:\Users\THM-4n6\Desktop\triage\C\Users\THM-4n6\AppData\Roaming\Microsoft\Windows\Recent\AutomaticDestinations - csv C:\Users\THM-4n6\Desktop in the terminal. Again, I modified the example command that was given in the reading.

:\Users\THM-4n6\Desktop\EZtools>JLECmd.exe

I opened the output file, AutomaticDestinations.csv, with EZViewer. I used CTRL+F to find KAPE\KAPE and found few results. I'm not entirely sure but I looked at AppIdDescription and saw notepad, so my guess was the user used notepad.

-d C:\Users\THM-4n6\Desktop\triage\C\Users\THM-4n6\AppData\Roaming\Microsoft\Windows\Recent\AutomaticDestination



Answer: Notepad.exe

Task 6 File/folder knowledge

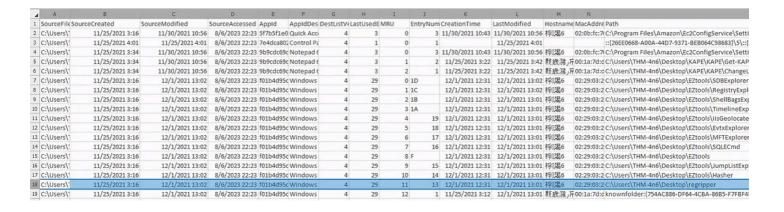
1: When was the folder C:\Users\THM-4n6\Desktop\regripper last opened?

I used the following command LECmd.exe -d C:\Users\THM-

4n6\Desktop\triage\C\Users\THM-4n6\AppData\Roaming\Microsoft\Windows\Recent\ - csv C:\Users\THM-4n6\Desktop . I modified the example given in the reading.

I opened the output, LECmd_Output.csv, with EZViewer. I used CTRL+F and searched

for regripper. I inputted quite a few dates before finding out that LastModified had the right answer.



Answer: 12/1/2021 13:01

2: When was the above-mentioned folder first opened?

From the above screenshot, this time we enter the date found in CreationTime.

Answer: 12/1/2021 12:31

Task 7 External Devices/USB device forensics

1: Which artifact will tell us the first and last connection times of a removable drive?

The answer can be found in the reading.

Answer: setupapi.dev.log

Thoughts:

I still enjoyed it as much as the first room. Definitely had a bit of setting up to do. I wished Autopsy was used more but I know there is a dedicated Autopsy room a bit later in this Digital Forensics room. I'm really enjoying, and seeing, the benefits of Eric Zimmerman's tools. It would be cool if there was a cheat sheet here too as there was just too much information to absorb. Can't wait for the Linux room!

Cybersecurity Tryhackme Digital Forensics Dfir Digital Forensic Tools



Written by Toumo

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Responses (1) What are your thoughts?



•••

thanks



Reply

More from Toumo





TryHackMe Redline Write-Up

We just finished the Autopsy room and now we will be learning how to use Redline. I've never used it, nor have I heard of it before, so...

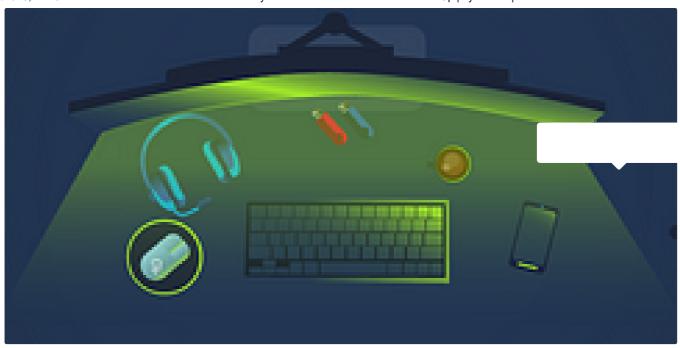
Aug 8, 2023





K

•••

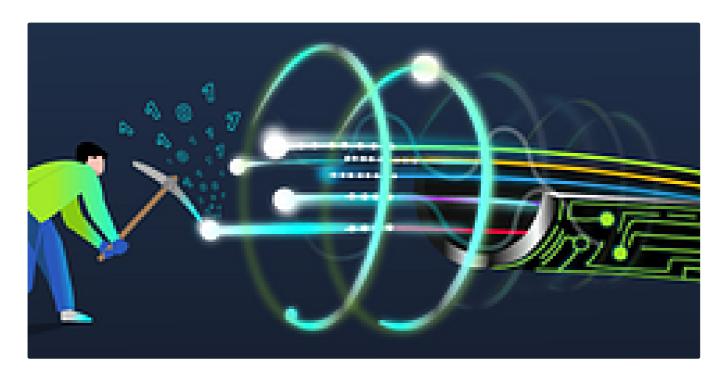




TryHackMe Velociraptor Write-Up

We'll be learning about Velociraptor now. Another tool that I never heard of but I wonder how this will be different compared to the rest...

Aug 9, 2023 № 20 • 1





TryHackMe NetworkMiner Write-Up

This time, we will be using a new tool called NetworkMiner. My assumption is that we're being exposed to many tools as we do not know what...







TryHackMe Sysmon Write-Up

Toumo

Jul 31, 2023 👋 6

We will be doing the Sysmon room this time. I don't know about Sysmon too much except that it's usually running in the background and helps...

See all from Toumo	

Recommended from Medium

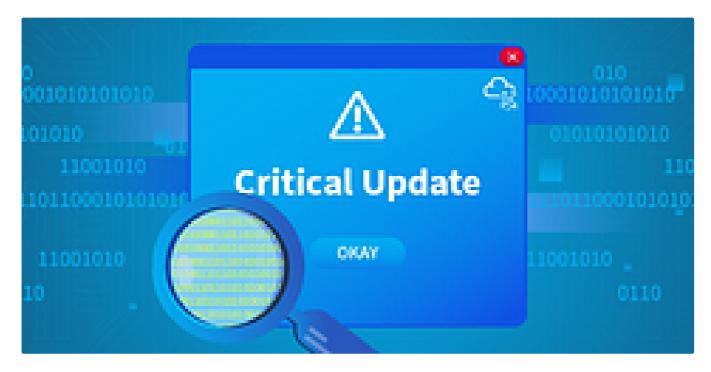
```
vmlinuz.old
rd.img.old
                lib64
                                media
                                         opt
                                                          sbin
                                                                        tmp
                                                                               var
                                                  root
                lost+found
                                mnt
                                                                               vmlinuz
                                         proc
                                                  run
                                                          snap
                                                                  SYS
                                                                        usr
 var/log
log# ls
 cloud-init-output.log
                                dpkg.log
                                                      kern.log
                                                                     lxd
                                                                                  unattended-upgrades
 cloud-init.log
                                                                     syslog
                                fontconfig.log
                                                      landscape
                                                                                  wtmp
                                journal
                                                      lastlog
 dist-upgrade
                                                                     tallylog
 .og# cat auth.log | grep install
                                             PWD=/home/cybert ; USER=root ; COMMAND=/usr/bin/
                 cybert : TTY=pts/θ ;
8-55 sudo: cybert: TTY=pts/0 ; PWD=/home/cybert; USER=root; COMMAND=/usr/bin/
8-55 sudo: cybert: TTY=pts/0 ; PWD=/home/cybert; USER=root; COMMAND=/bin/chow
hare/dokuwiki/bin /usr/share/dokuwiki/doku.php /usr/share/dokuwiki/feed.php /usr/s
hare/dokuwiki/install.php /usr/share/dokuwiki/lib /usr/share/dokuwiki/vendor -R
log#
```

Dan Molina

Disgruntled CTF Walkthrough

This is a great CTF on TryHackMe that can be accessed through this link here: https://tryhackme.com/room/disgruntled

Oct 22, 2024 ...



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TryHackMe | Training Impact on Teams | WriteUp

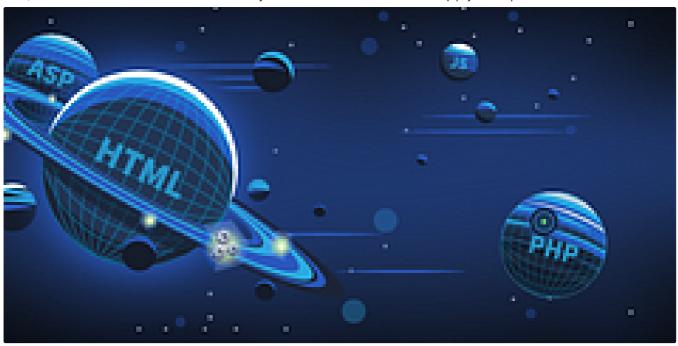
Discover the impact of training on teams and organisations



Nov 5, 2024 **3** 60







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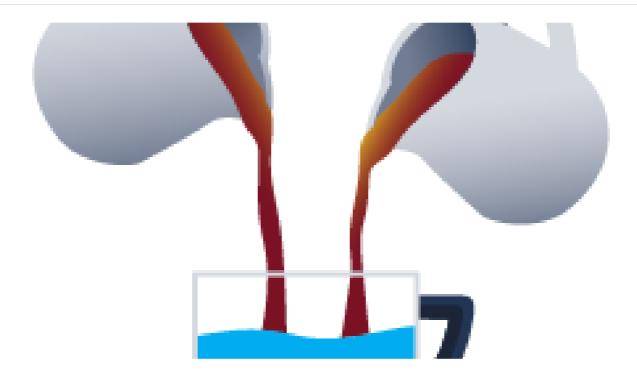


Fritzadriano

Retracted — TryHackMe WriteUp

Investigate the case of the missing ransomware. After learning about Wazuh previously, today's task is a bit different.

Sep 4, 2024 *** 50





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Aug 21, 2024 💜 2 ...

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