

Conducting Forensic Investigations on System Memory (4e)

Digital Forensics, Investigation, and Response, Fourth Edition - Lab 10

Student:

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Time on Task:

1 hour, 33 minutes

Progress:

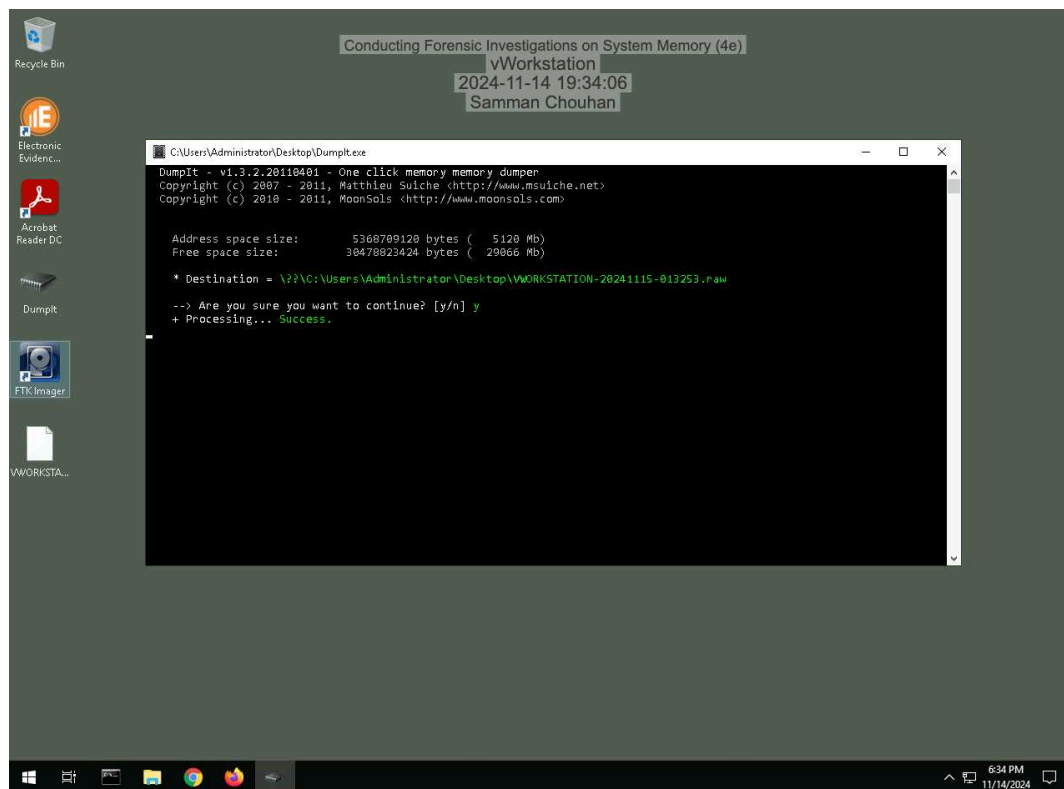
100%

Report Generated: Saturday, November 23, 2024 at 5:08 PM

Section 1: Hands-On Demonstration

Part 1: Capture Memory using DumpIt

3. Make a screen capture showing the **DumpIt success notification**.

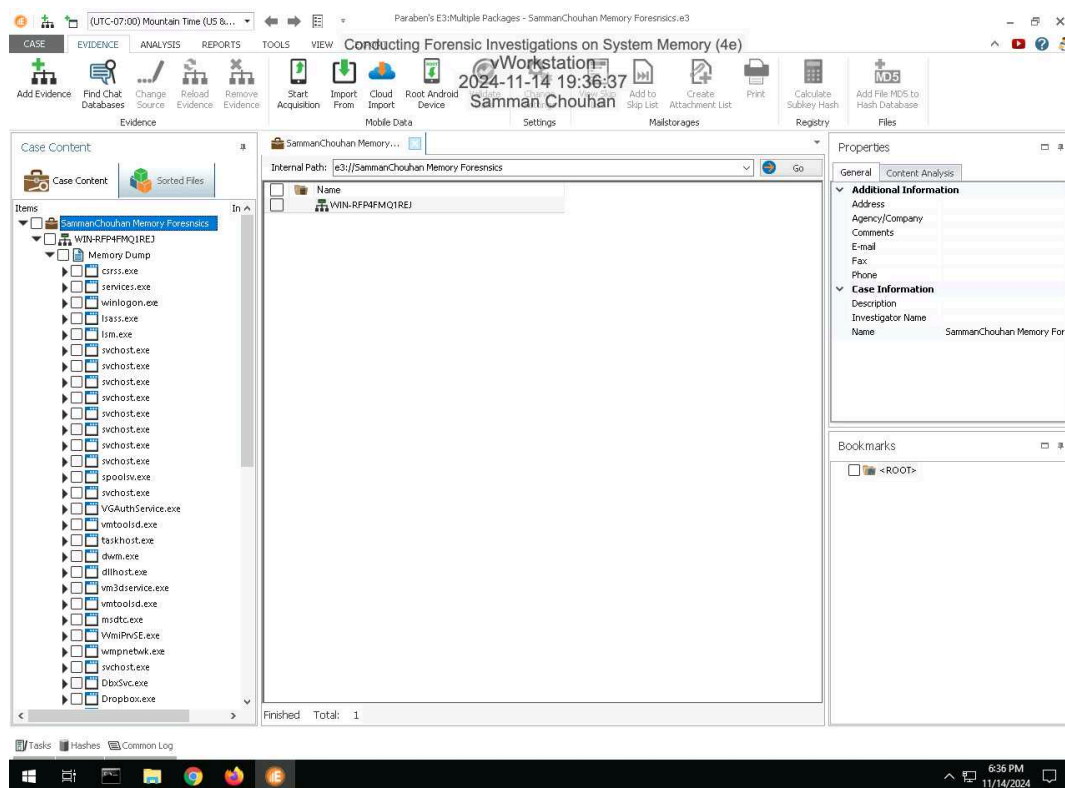


Part 2: Analyze Memory using E3

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8. Make a screen capture showing the list of processes in the memory dump.



10. Record the start times for the oldest process and the newest process.

The First process system was started at 7/12/2021 at 4:24:29 AM , and the last process was started at 7/12/2021 6:42:43AM

15. Document your findings for the conhost.exe process. What is it and what is it used for?

The conhost.exe (Console Windows Host) file is provided by Microsoft. Conhost.exe needs to run for Command Prompt to interface with File Explorer. One of its duties is to provide the ability to drag and drop files/folders directly into Command Prompt. Even third-party programs can use conhost.exe if they need access to the command line.

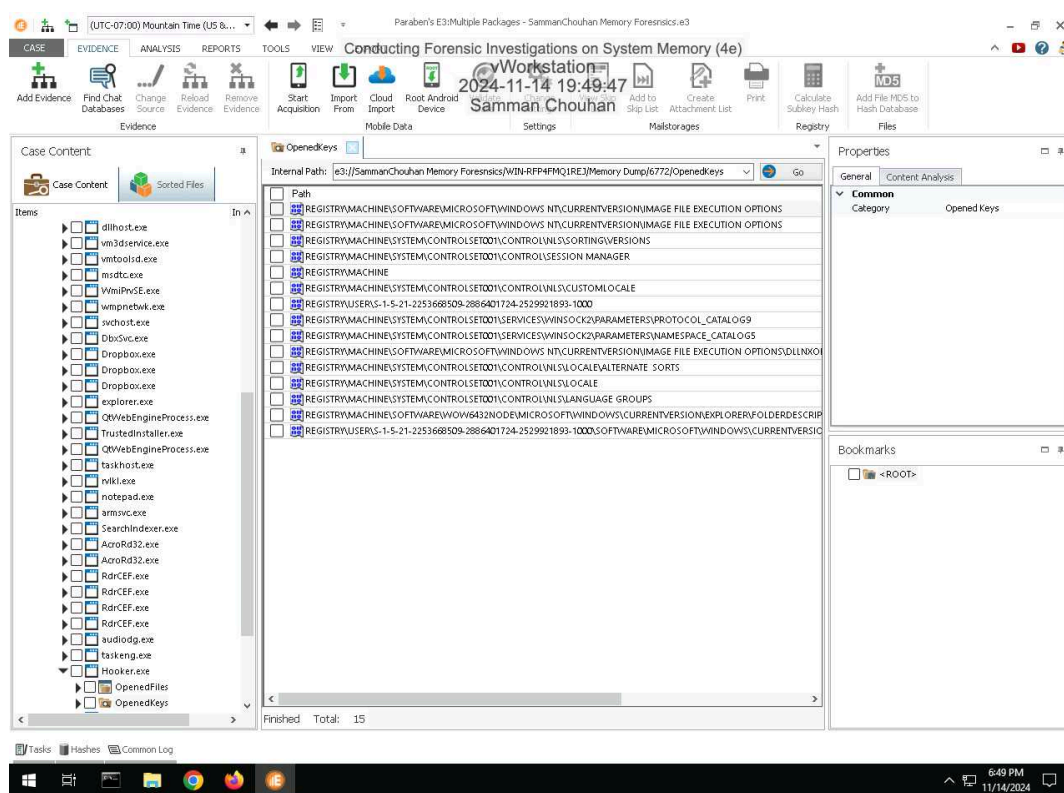
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17. **Document** your findings for the hooker.exe process. What is it and what is it used for?

Hooker is a password and data stealing trojan. Being run it installs itself as KERN32.EXE (name may differ in different versions) into \Windows\System\ directory and modifies RunOnce key in the Registry to be run during next Windows session. When activated next time the trojan renews the RunOnce key, so it becomes active during all Windows sessions.

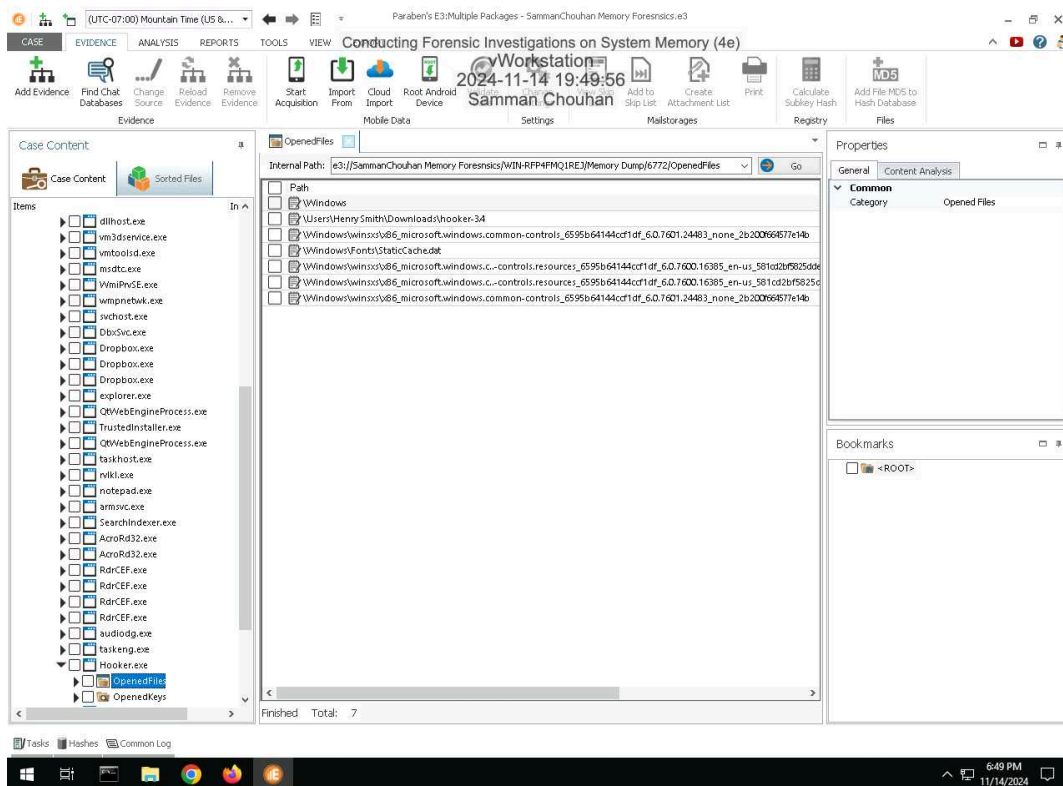
21. **Make a screen capture** showing the registry keys opened by the Hooker.exe process.



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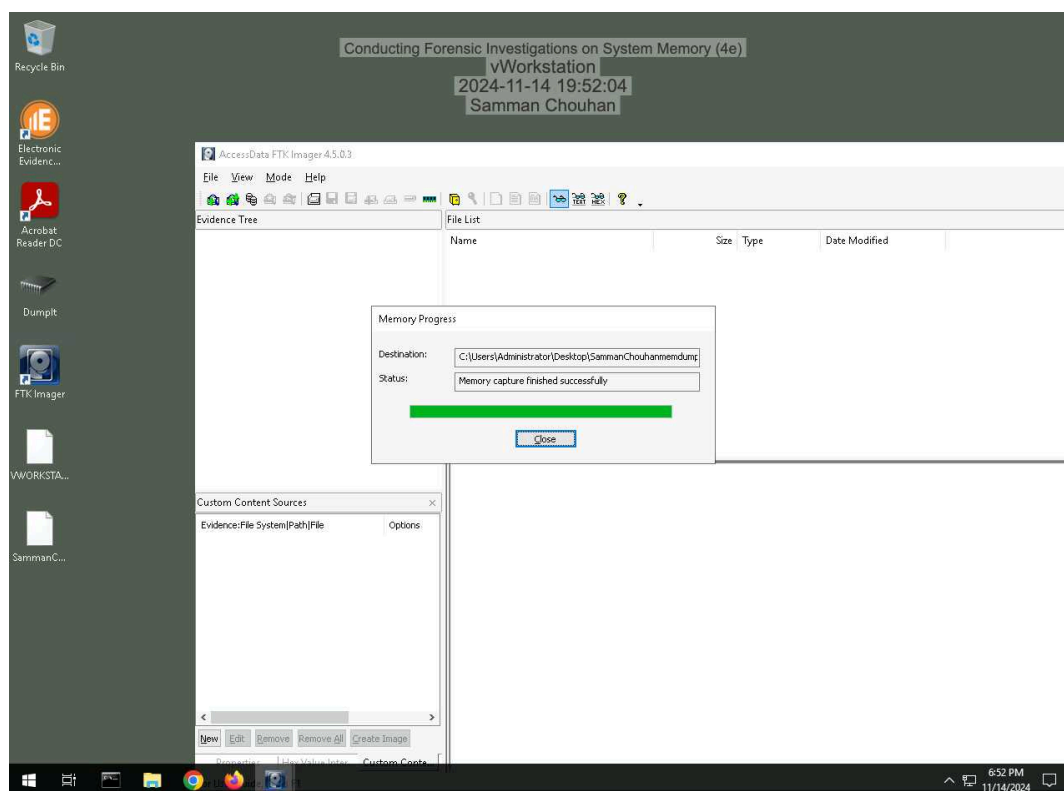
23. Make a screen capture showing the files opened by the hooker.exe process.



Section 2: Applied Learning

Part 1: Capture Memory using FTK Imager

6. Make a screen capture showing the *Memory capture finished successfully* confirmation.



Part 2: Analyze Memory using Volatility

7. **Document** your findings for the rvkl.exe process. What is it and what is it used for?

The file rvkl.exe is associated with Revealer Keylogger, a software developed by Logixoft designed to monitor and record keystrokes on a computer. This tool is often used for legitimate purposes, such as parental monitoring or employee activity tracking, but it can also be misused for malicious intent, such as unauthorized data collection or spying.

9. **Document** whether any processes are flagged as hidden.

the process hooker.exe seems to be hidden and is found malicious

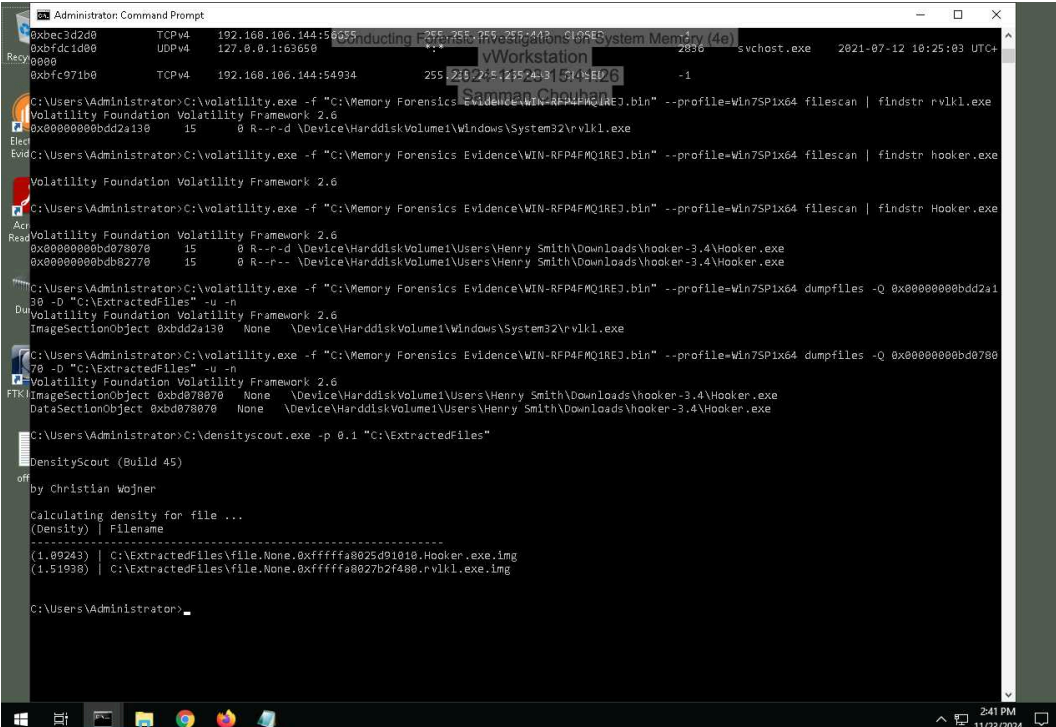
12. **Document** whether the netscan module displays network usage associated with the Hooker.exe or rvkl.exe processes.

no the netscan module doesn't show any direct reference to the hooker.exe or rvkl.exe module, even after searching with the same pid , i do not see anything , although i see -1 as a pid which is usually used for undefined slots ,which i will investigate further

15. **Document** any information you were able to gather about port 56610.

Port 56610 is not assigned a specific purpose or service by the Internet Assigned Numbers Authority (IANA), which maintains a registry of officially recognized ports and their uses. Instead, it is part of the ephemeral port range, which typically spans ports 49152 through 65535. If you notice unusual activity involving port 56610, it could indicate malware, unauthorized access, or misconfigured software. Such ports are dynamically assigned by the operating system and used for private communication between software processes.

26. **Make a screen capture** showing the DensityScout results.



```
Administrator: Command Prompt
C:\Users\Administrator>netstat -an | findstr 56610
TCPv4 192.168.106.144:56610 255.255.255.255:56610 svchost.exe 2021-07-12 10:25:03 UTC+
UDPv4 127.0.0.1:63650 * * * * *
TCPv4 192.168.106.144:54934 255.255.255.255:54934 -1

C:\Users\Administrator>C:\volatility.exe -f "C:\Memory Forensics Evidence\WIN-RFP4FMQ1REJ.bin" --profile=Win7SP1x64 filescan | findstr rvkl.exe
Volatility Foundation Volatility Framework 2.6
0x00000000bdd2a130 15 0 R--r-d \Device\HarddiskVolume1\Windows\System32\rvkl.exe

C:\Users\Administrator>C:\volatility.exe -f "C:\Memory Forensics Evidence\WIN-RFP4FMQ1REJ.bin" --profile=Win7SP1x64 filescan | findstr hooker.exe
Volatility Foundation Volatility Framework 2.6
0x00000000bd78070 15 0 R--r-d \Device\HarddiskVolume1\Users\Henry Smith\Downloads\hooker-3.4\Hooker.exe
0x00000000bd82770 15 0 R--r-- \Device\HarddiskVolume1\Users\Henry Smith\Downloads\hooker-3.4\Hooker.exe

C:\Users\Administrator>C:\volatility.exe -f "C:\Memory Forensics Evidence\WIN-RFP4FMQ1REJ.bin" --profile=Win7SP1x64 dumpfiles -Q 0x00000000bdd2a130 -D "C:\ExtractedFiles" -u -n
Volatility Foundation Volatility Framework 2.6
ImageSectionObject 0xbdd2a130 None \Device\HarddiskVolume1\Windows\System32\rvkl.exe

C:\Users\Administrator>C:\volatility.exe -f "C:\Memory Forensics Evidence\WIN-RFP4FMQ1REJ.bin" --profile=Win7SP1x64 dumpfiles -Q 0x00000000bd78070 -D "C:\ExtractedFiles" -u -n
Volatility Foundation Volatility Framework 2.6
ImageSectionObject 0xbd78070 None \Device\HarddiskVolume1\Users\Henry Smith\Downloads\hooker-3.4\Hooker.exe
DataSectionObject 0xbd78070 None \Device\HarddiskVolume1\Users\Henry Smith\Downloads\hooker-3.4\Hooker.exe

C:\Users\Administrator>C:\densityscout.exe -p 0.1 "C:\ExtractedFiles"
DensityScout (Build 45)
or
by Christian Wojner

Calculating density for file ...
(Density) | Filename
-----|-----
(1.89243) | C:\ExtractedFiles\file.None.0xfffffa8025d91010.Hooker.exe.img
(1.51938) | C:\ExtractedFiles\file.None.0xfffffa8027b2f400.rvkl.exe.img

C:\Users\Administrator>
```

Section 3: Challenge and Analysis

Part 1: Identify Malicious Connections

Document the three processes that connected to 205.134.253.10:4444.

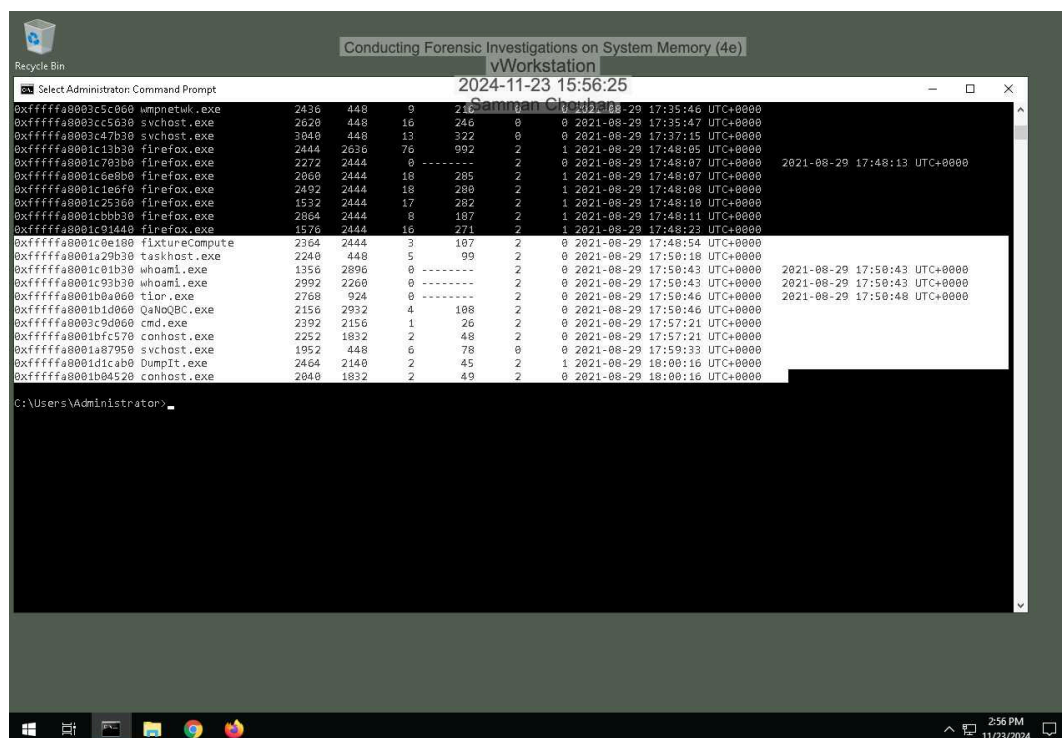
The three process that were found to be connected on 205.134.253.10:4444 , were dllhost.exe ,QaNoQBC.exe and fixturecompute

Document the name and purpose of the software you discovered.

dllhost.exe is a legitimate Windows process, known as the COM Surrogate, that handles COM objects to ensure system stability, like generating thumbnails in Explorer. QaNoQBC.exe is not a recognized system file and likely indicates a custom application or potential malware requiring investigation. Similarly, fixturecompute appears to be an uncommon term or file, possibly related to computational or testing tasks, though it might also signify malicious activity.

Part 2: Identify Malicious Processes

Make a screen capture showing the **fixtureComputer.exe** process, and all those below it, in the **pslist** output.



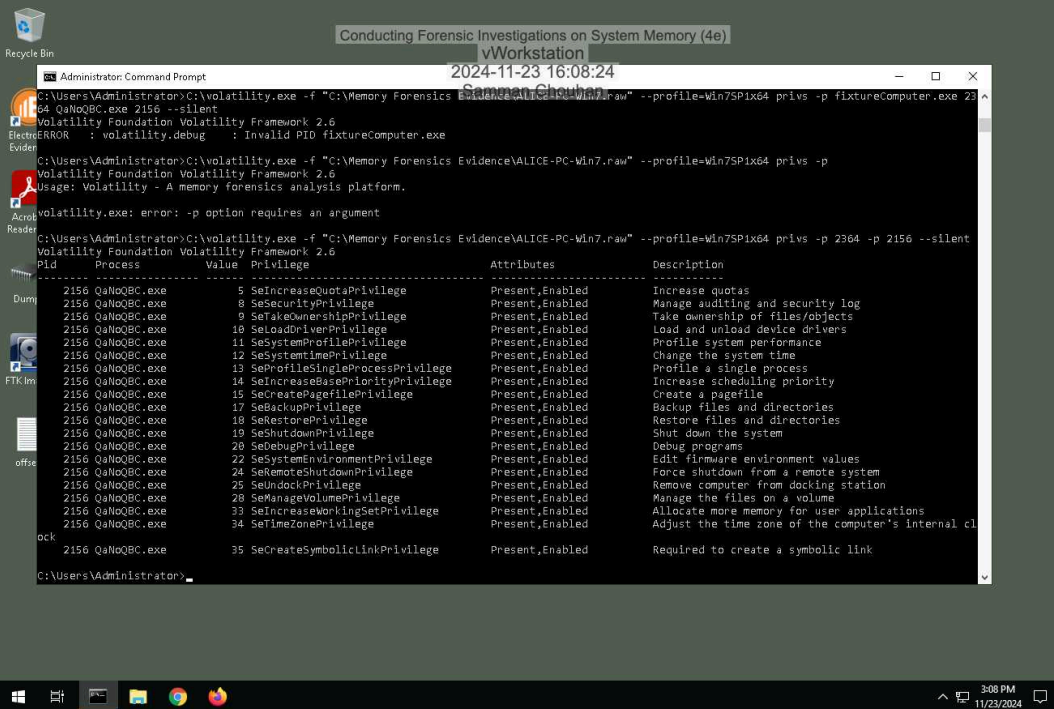
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Make a screen capture showing the output of your privilege comparison.



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vWorkstation

2024-11-23 16:08:24

Samman Chaudhary

```
C:\Users\Administrator>C:\volatility.exe -f "C:\Memory Forensics Evidence\ALICE-PC-Win7.raw" --profile-Win7SP1x64 privs -p fixturecomputer.exe 2364
QaNoQBC.exe 2156 --silent
Volatility Foundation Volatility Framework 2.6
ERROR : volatility.debug : Invalid PID fixturecomputer.exe

C:\Users\Administrator>C:\volatility.exe -f "C:\Memory Forensics Evidence\ALICE-PC-Win7.raw" --profile-Win7SP1x64 privs -p
Volatility Foundation Volatility Framework 2.6
Usage: Volatility - A memory forensics analysis platform.

C:\Users\Administrator>C:\volatility.exe -f "C:\Memory Forensics Evidence\ALICE-PC-Win7.raw" --profile-Win7SP1x64 privs -p 2364 -p 2156 --silent
Volatility Foundation Volatility Framework 2.6
```

PID	Process	Value	Privilege	Attributes	Description
2156	QaNoQBC.exe	5	SeIncreaseQuotaPrivilege	Present,Enabled	Increase quotas
2156	QaNoQBC.exe	8	SeSecurityPrivilege	Present,Enabled	Manage auditing and security log
2156	QaNoQBC.exe	9	SeTakeOwnershipPrivilege	Present,Enabled	Take ownership of files/objects
2156	QaNoQBC.exe	10	SeLoadDriverPrivilege	Present,Enabled	Load and unload device drivers
2156	QaNoQBC.exe	11	SeSystemProfilePrivilege	Present,Enabled	Profile system performance
2156	QaNoQBC.exe	12	SeSystemTimePrivilege	Present,Enabled	Change the system time
2156	QaNoQBC.exe	13	SeProfileSingleProcessPrivilege	Present,Enabled	Profile a single process
2156	QaNoQBC.exe	14	SeIncreaseBasePriorityPrivilege	Present,Enabled	Increase scheduling priority
2156	QaNoQBC.exe	15	SeCreatePagefilePrivilege	Present,Enabled	Create a pagefile
2156	QaNoQBC.exe	17	SeBackupPrivilege	Present,Enabled	Backup files and directories
2156	QaNoQBC.exe	18	SeRestorePrivilege	Present,Enabled	Restore files and directories
2156	QaNoQBC.exe	19	SeShutdownPrivilege	Present,Enabled	Shut down the system
2156	QaNoQBC.exe	20	SeDebugPrivilege	Present,Enabled	Debug programs
2156	QaNoQBC.exe	22	SeSystemEnvironmentPrivilege	Present,Enabled	Edit firmware environment values
2156	QaNoQBC.exe	24	SeRemoteShutdownPrivilege	Present,Enabled	Force shutdown from a remote system
2156	QaNoQBC.exe	25	SeUndockPrivilege	Present,Enabled	Remove computer from docking station
2156	QaNoQBC.exe	26	SeManageVolumePrivilege	Present,Enabled	Manage the files on a volume
2156	QaNoQBC.exe	33	SeIncreaseWorkingSetPrivilege	Present,Enabled	Allocate more memory for user applications
2156	QaNoQBC.exe	34	SeTimeZonePrivilege	Present,Enabled	Adjust the time zone of the computer's internal clock
2156	QaNoQBC.exe	35	SeCreateSymbolicLinkPrivilege	Present,Enabled	Required to create a symbolic link

C:\Users\Administrator>