

COMP2310

Assignment - 1



APRIL 19, 2021 SUJITH BELLAM 45664455

Abstract

This report contains a forensic analysis of the DD images generated from the suspect's seized laptop. ASIO is the organisation that is responsible for the security of the country and its citizens from espionage, sabotage, terrorism, attacks on defense systems, etc. [1]. ASIO provided DD images and EnCase images, both of these images have the same MD5 hash suggesting that the images are the exact copies of the suspect's hard disk. This report only shows the usage of the DD images, but the results are as exact and accurate as of the EnCase images. This report contains the forensic analysis of the OS, registered user, installed applications, email applications, email addresses, and external drives.

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Acquisition

The Australian Security Intelligence Organisation (ASIO) caught a suspect in January 2016. The suspect was tracked down by the cell phone triangulation technology, CCTV footage, and other bills that lead up to Macquarie Shopping Centre. ASIO seized the suspect's laptop and created a DD Image in eight parts, notes, and an EnCase Image in 2 parts. The MD5 hash for both the DD images (suspect 1) and Encase Images (1) is aee4fcd9301c03b3b054623ca261959a tells that both the images are the same. I used Autopsy 4.18.0 to conduct the forensic analysis with Windows 10 Pro operating system. I am using lightshot software to capture snapshots and Microsoft Word to generate this report.

Q2. What operating system is installed? What is the installation date of the operating system and who is the registered owner?

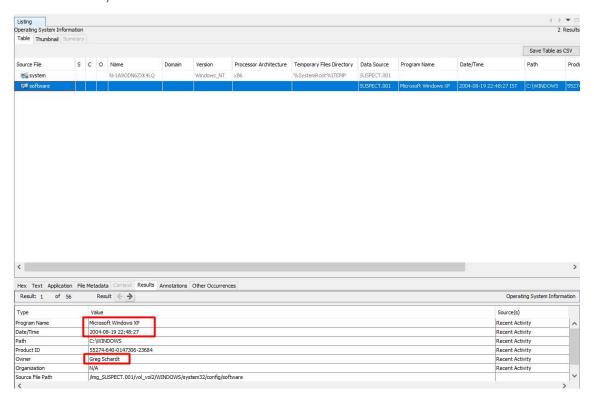
Answer:

The installed OS is Microsoft Windows XP. The installation date of the OS is 19th August 2004 at 22:48:27 IST. The registered owner of the OS is Greg Schardt.

Analysis:

Checking details of Operating System Information and results of the software component contains the answers. The results tab of the software file from the Operating Information Systems contains the information on the OS.

Evidence Analysed:



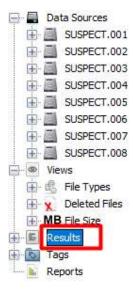
Snapshot 1 - Windows Version Details

Snapshot 1 shows the information that the installed OS is Microsoft Windows XP along with some OS information, including the Date/Time of creation and the name of the owner of the system.

Steps Taken:

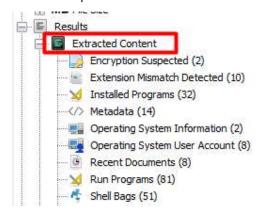
- 1. Open Autopsy
- 2. Load the Data Sources from SUSPECT.001 to SUSPECT.008, as Disk Image or VM File

3. Click on the plus button beside Results



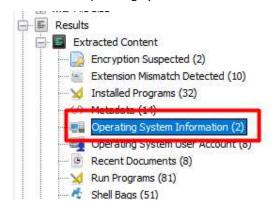
Snapshot 2- Path to OS Information - 1

4. Click on the plus button beside the Extracted Content



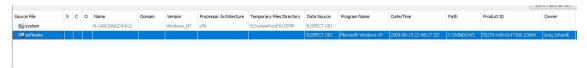
Snapshot 3 - Path to OS Information - 2

5. Click on the Operating System Information



Snapshot 4 - Path to OS Information - 3

6. Finally, Click on Software



Snapshot 5 - Path to OS Information – 4

7. Answers to the question can be found in the result tab of the software file.



Snapshot 6 - OS Information

Q6. What applications were installed by the suspect after installing the operating system?

Answer:

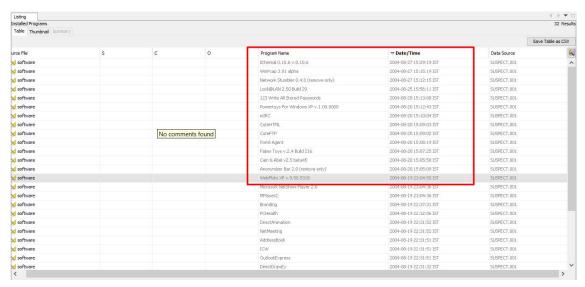
The suspect installed fourteen applications after installing the OS, and they are:

- 1. Ethereal 0.10.6 v.0.10.6
- 2. WinPcap 3.01 alpha
- 3. Network Stumbler 0.4.0 (remove only)
- 4. Look@LAN 2.50 Build 29
- 5. 123 Write All Stored Passwords
- 6. Powertoys For Windows XP v.1.00.0000
- 7. mIRC
- 8. CuteHTML
- 9. CuteFTP
- 10. Forté Agent
- 11. Faber Toys v.2.4 Build 216
- 12. Cain & Abel v2.5 beta45
- 13. Anonymizer Bar 2.0 (remove only)
- 14. WebFldrs XP v.9.50.5318

Analysis:

Checking the Installed Programs under the Extracted Content will give the answer to this question. Installed Programs shows that there are a total of 32 programs installed on the system. But there are only 14 programs that the suspect installed after installing the OS. The programs, Microsoft NetShow Player 2.0 and MPlayer2, were installed approximately 15 minutes after installing the OS, but both these programs were installed at the same time; this suggests that these two programs were installed by the windows OS after its installation.

Evidence Analysed:



Snapshot 7 - Installed Software

Snapshot 7 shows the installed applications from the notebook.

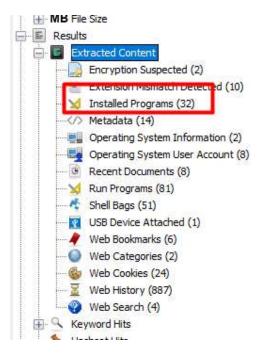
Steps Taken:

1. Click on the plus button beside Results



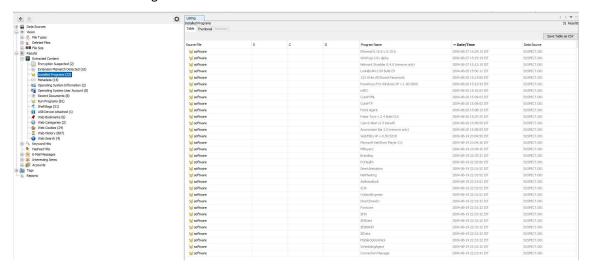
Snapshot 8 - Path to Installed Programs - 1

2. Click on the plus button beside the Extracted Content



Snapshot 9 - Path to Installed Programs - 2

3. Click on the Installed Programs



Snapshot 10 - Installed Programs

4. Click on the Date/Time field to sort them in descending order

→ Date/Time	Data So
2004-08-27 15:29:19 IST	SUSPEC*
2004-08-27 15:15:19 IST	SUSPECT
2004-08-27 15:12:15 IST	SUSPEC*
2004-08-25 15:56:11 IST	SUSPEC
2004-08-20 15:13:08 IST	SUSPECT
2004-08-20 15:12:43 IST	SUSPECT
2004-08-20 15:10:04 IST	SUSPEC*
2004-08-20 15:09:03 IST	SUSPECT
2004-08-20 15:09:02 IST	SUSPEC*
2004-08-20 15:08:19 IST	SUSPEC*
2004-08-20 15:07:25 IST	SUSPEC*
2004-08-20 15:05:58 IST	SUSPEC*
2004-08-20 15:05:09 IST	SUSPECT

Snapshot 11 - Sorting the Date for Installed Programs

Only the installed programs with the date and time after 2004-08-19 22:48:27 IST are the programs installed by the suspect.

Q10. What application was used for e-mail communication?

Answer:

There are five applications used for email communication by the suspect, and they are:

- 1. Forte Agent (Application)
- 2. Hotmail (Application)
- 3. MSN Explorer (Application)
- 4. Outlook Express (Application)
- 5. Yahoo Mail from Web Browser

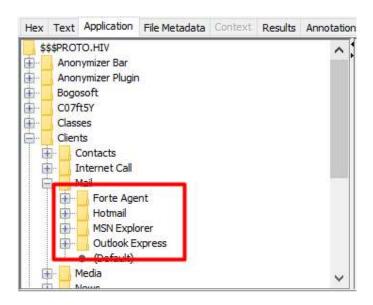
However, only Forte Agent and Yahoo Mail have evidence suggesting that they were used.

Analysis:

I used Autopsy and Excel to find out all the mail applications that were installed or used by the suspect. We choose SUSPECT.001 because it is the DD image containing the OS and its files. The Mail folder under the software registry file had the data relating to the Email applications in the OS. Web History option under Results has the web history of the suspect. The web history gave information of

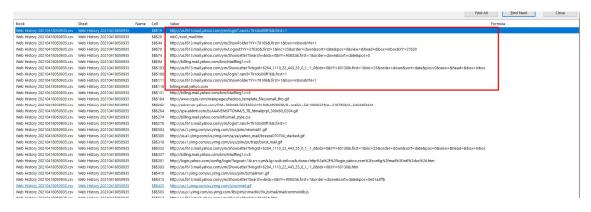
the suspect visiting Yahoo Mail. Only Forte Agent application had data under /Program Files/Agent/, suggesting that Forte Agent was the only installed Email application used.

Evidence Analysed:



Snapshot 12 - Installed Email Applications

Snapshot 12 shows the mail applications installed by the suspect.

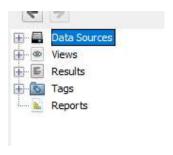


Snapshot 13 - Used Yahoo Mail from Web Browser

Snapshot 13 shows that the suspect used Yahoo Mail from the web browser.

Steps Taken:

1. Click on the plus button beside the Data Sources



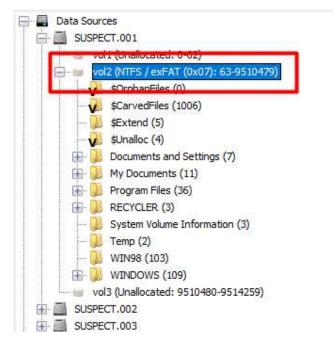
Snapshot 14 - Getting information on applications used for Email Communications – 1

2. Click on the plus button beside SUSPECT.001 data source



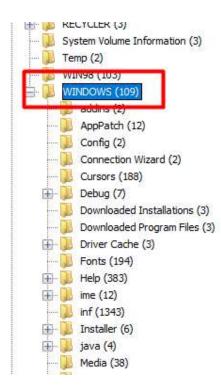
Snapshot 15 - Getting information on applications used for Email Communications – 2

3. Click on the plus button beside vol2 (NTFS / exFAT (0x07): 63-9510479) disk



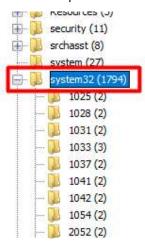
Snapshot 16 - Getting information on applications used for Email Communications -3

4. Click on the plus button beside the WINDOWS folder



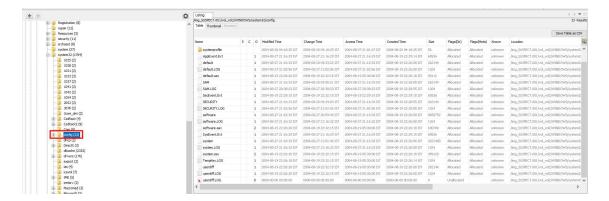
Snapshot 17- Getting information on applications used for Email Communications -4

5. Click on the plus button beside the system32 folder



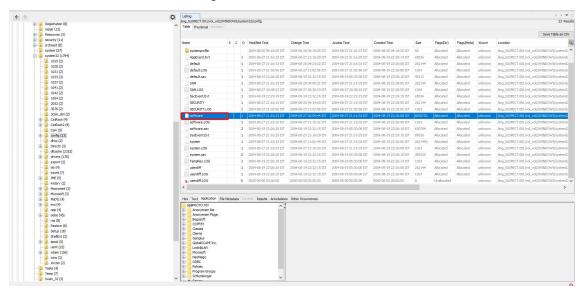
Snapshot 18- Getting information on applications used for Email Communications $-\,5\,$

6. Click on the config folder



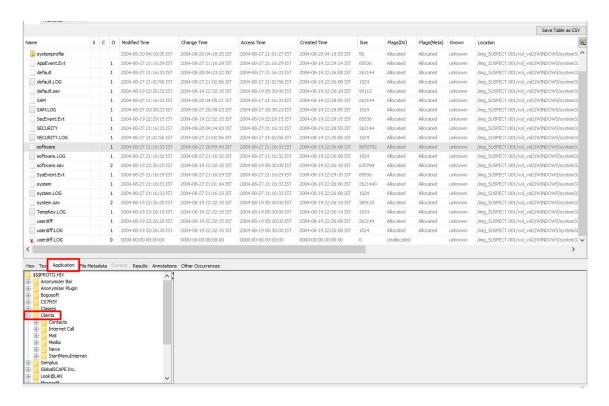
Snapshot 19- Getting information on applications used for Email Communications $-\,6\,$

7. Click on the software file from the right tab



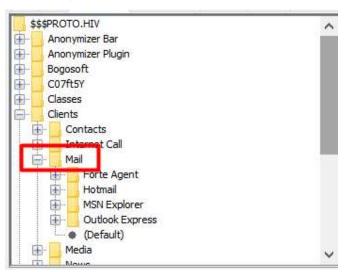
Snapshot 20- Getting information on applications used for Email Communications – 7

8. From the Application tab on the bottom, click on the plus button beside



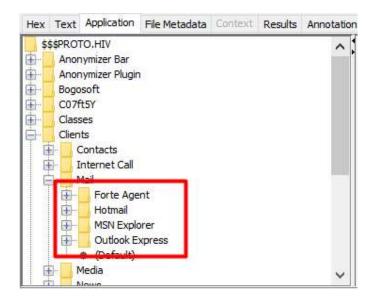
Snapshot 21- Getting information on applications used for Email Communications – 8

9. Click in the plus button beside the Mail folder



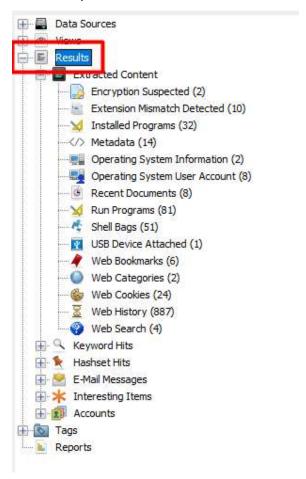
Snapshot 22- Getting information on applications used for Email Communications – 9

10. The subfolders in the Mail folder contain the Email applications installed by the suspect



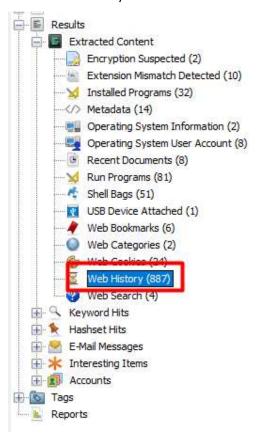
Snapshot 23- Getting information on applications used for Email Communications – 10

11. Click on the plus button beside Results



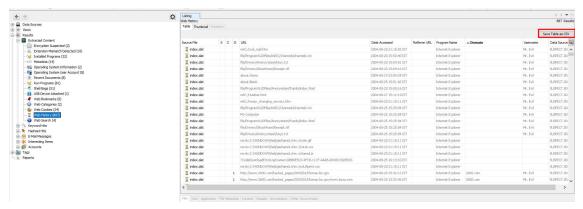
Snapshot 24 - Finding the email website accessed with a web browser - 1

12. Click on Web History



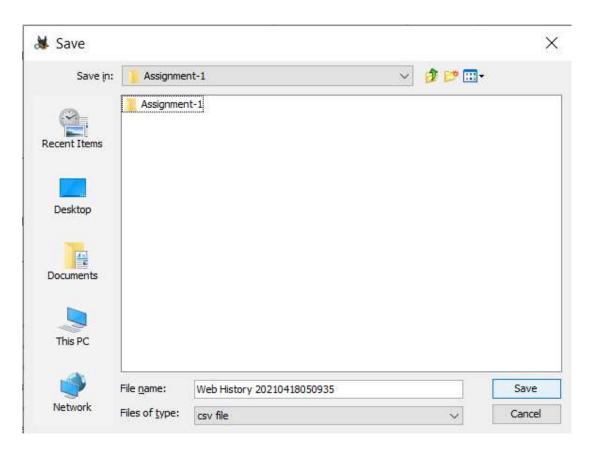
Snapshot 25 - Finding the email website accessed with a web browser - 2

13. The tab on the right side will show all the web history for the suspect's web browser. Click on Save Table as CSV to export the web results.



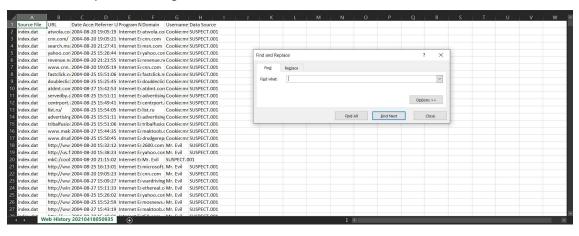
Snapshot 26 - Finding the email website accessed with a web browser - 3

14. Save the Excel file and open it.



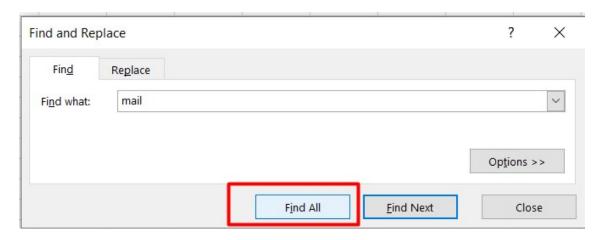
Snapshot 27 - Finding the email website accessed with a web browser - 4

15. Press ctrl+f to open find dialog box on the excel sheet



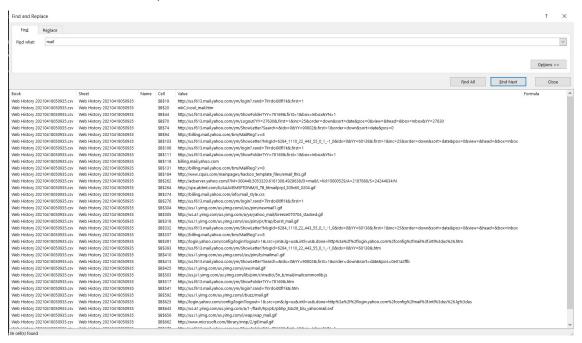
Snapshot 28 - Finding the email website accessed with a web browser - 5

16. Type mail in the box and click on Find All button



Snapshot 29 - Finding the email website accessed with a web browser - 7

17. Now we can see the history that contains the word mail



Snapshot 30 - Finding the email website accessed with a web browser - 8

The suspect accessed only Yahoo Mail.

Q14. What was the e-mail account used by the suspect?

Answer:

The suspect used two Email addresses, they are:

- 1. whoknowsme@sbcglobal.net (Forte Agent)
- 2. mrevilrulez@yahoo.com (Yahoo Mail)

Analysis:

Going through the web history gave the email address used by the suspect. The web history with the domain yahoo and the URL containing the keyword login is the best place to look for the email address. As Forte Agent is an application installed on the system, going through the Program Files in SUSPECT.001 can give data and files related to Forte Agent. Agent folder from Program Files contains the data of the Forte Agent application. The Data folder from the Agent folder has the file AEGNT.ini which has the email address used by the suspect in the Forte Agent application.

Evidence Analysed:



Snapshot 31- Yahoo Mail Email Address

From snapshot 31, we can find the email address used by the suspect to log in to the yahoo mail.

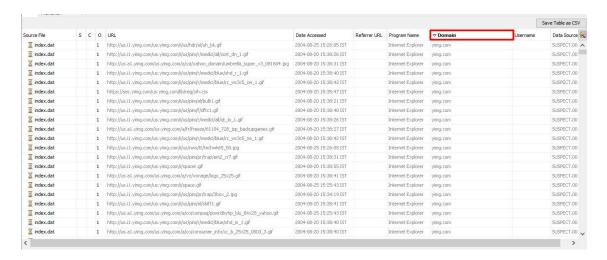


Snapshot 32 - Forte Agent Email Address

From snapshot 32, we can find the email address used by the suspect to log in and use Forte Agent.

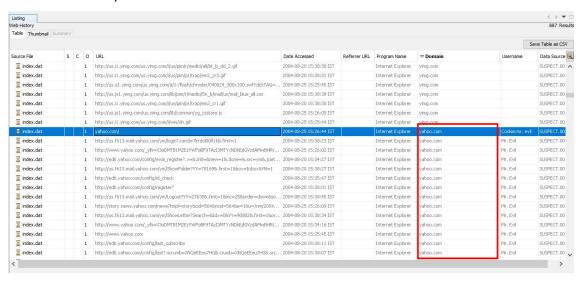
Steps Taken:

- 1. Do steps 11 and 12 from Q6.
- 2. Click on Domain to view the URL in Descending order (easier to find yahoo domain)



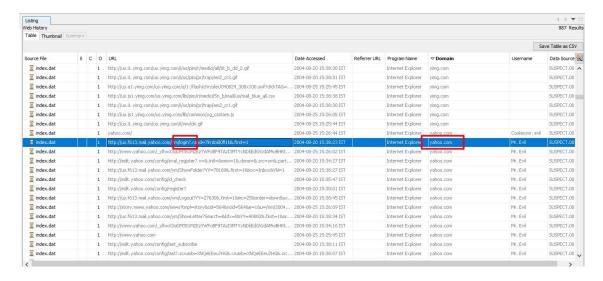
Snapshot 33 - Finding suspects Yahoo Mail email address - 1

3. Scroll down to the yahoo domain



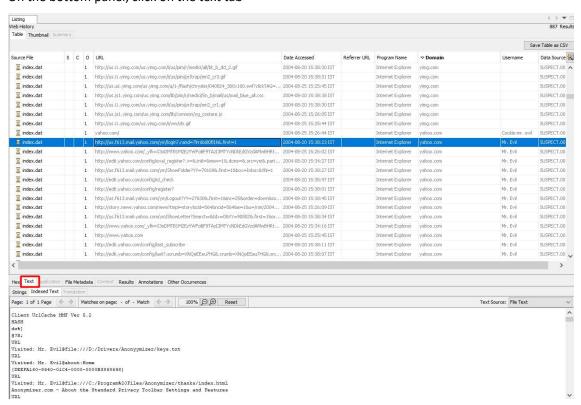
Snapshot 34 - Finding suspects Yahoo Mail email address - 2

4. Select the web history that contains login as the keyword



Snapshot 35 - Finding suspects Yahoo Mail email address - 3

5. On the bottom panel, click on the text tab



Snapshot 36 - Finding suspects Yahoo Mail email address - 4

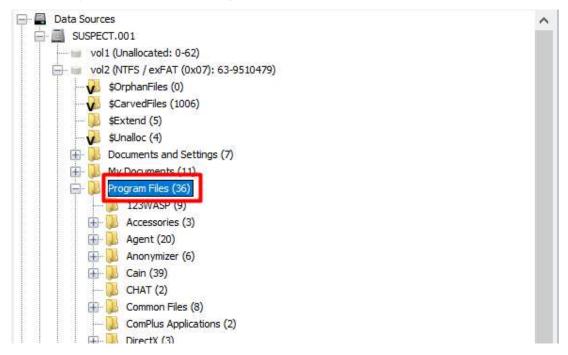
6. Scroll down a bit in the text tab



Snapshot 37 - Finding suspects Yahoo Mail email address - 5

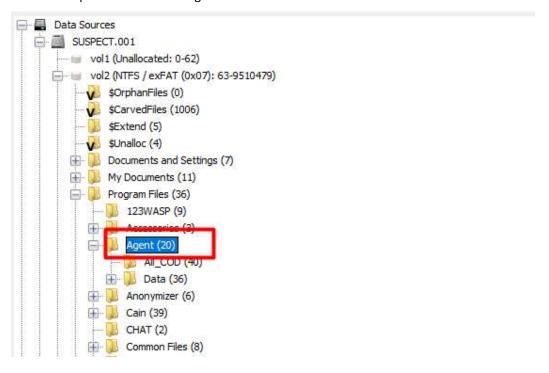
We can find the eMail Id that is used for logging in.

- 7. Follow steps 1 to 3 from Q10
- 8. Click on the plus button beside the Program Files folder



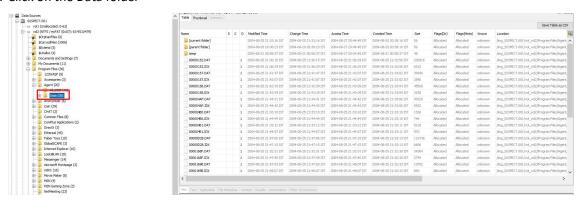
Snapshot 38 - Finding suspects Forte Agent email address - 1

9. Click on the plus button beside Agent Folder



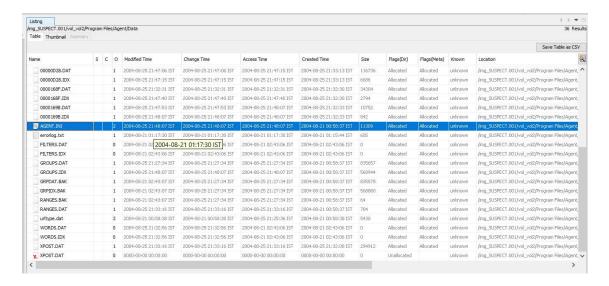
Snapshot 39 - Finding suspects Forte Agent email address - 2

10. Click on the Data folder



Snapshot 40 - Finding suspects Forte Agent email address - 3

11. In the right tab, locate the file AGENT.ini and click on the AGENT.ini file



Snapshot 41 - Finding suspects Forte Agent email address - 4

12. On the bottom panel, click on the text tab



Snapshot 42 - Finding suspects Forte Agent email address - 5

13. In the text tab, we can find the email address used for the Forte Agent Email application



Snapshot 43 - Finding suspects Forte Agent email address - 6

Q18. List external storage devices attached to the notebook. What files were copied from notebook to USB drive?

Answer:

There is one external storage device attached to the notebook, and it is:

TOSHIBA CD-ROM XM-1902B

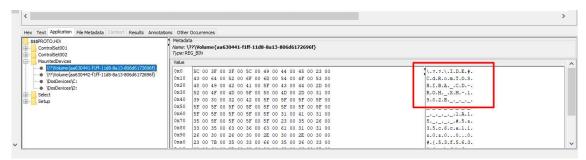
The files that were copied from notebook to USB drive are:

NOT FOUND

Analysis:

From the system registry file, we can find the mounted device folder that contains the details about the external devices attached. By inspecting the HEX value, I found out the name of the external storage. However, I could not find the files that were copied onto the external storage.

Evidence Analysed:

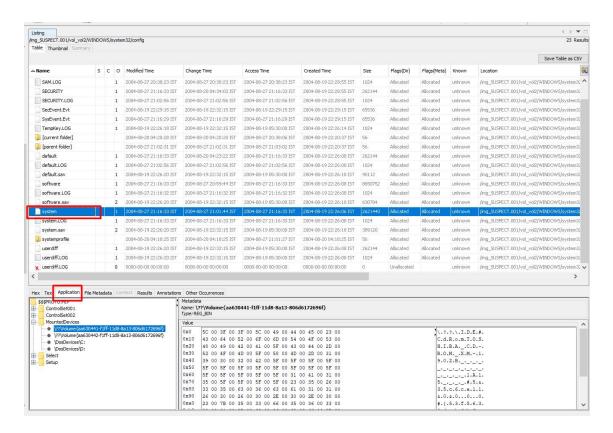


Snapshot 44 - External Storage

Snapshot 44 contains the name of the external storage device that was connected to the suspect's notebook.

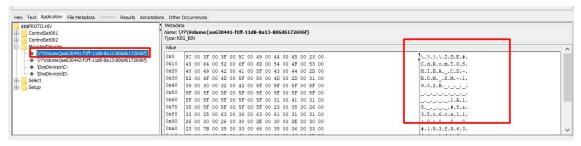
Steps Taken:

- 1. Follow steps 1 to 6 from Q10.
- 2. Click in the system file on the right tab and click on the Application tab on the bottom panel



Snapshot 45 - Finding External Storage - 1

3. Click on the plus button beside the Mounted Devices folder and click on the files.



Snapshot 46 - Finding External Storage - 2

Conclusion

The suspect's laptop runs on Microsoft Windows XP. The suspect's laptop's registered owner is Greg Schardt. The OS appears to be installed on 19th August 2004. After the installation of the OS, the suspect installed 14 programs on the OS, and they are:

- 1. Ethereal 0.10.6 v.0.10.6
- 2. WinPcap 3.01 alpha

- 3. Network Stumbler 0.4.0 (remove only)
- 4. Look@LAN 2.50 Build 29
- 5. 123 Write All Stored Passwords
- 6. Powertoys For Windows XP v.1.00.0000
- 7. mIRC
- 8. CuteHTML
- 9. CuteFTP
- 10. Forté Agent
- 11. Faber Toys v.2.4 Build 216
- 12. Cain & Abel v2.5 beta45
- 13. Anonymizer Bar 2.0 (remove only)
- 14. WebFldrs XP v.9.50.5318

There are also 18 other programs installed on the system by the OS during its installation. The programs the suspect installed can be used for hacking. For example, Ethereal 0.10.6 v.0.10.6

is used for sniffing packets on the network, and Anonymizer is used to hide internet activity, etc. The suspect created a user Mr.Evil after the installation of the OS. Four applications were present on the system that is used for Email communication. There is evidence that the suspect also used a web browser to access Yahoo Mail. The suspect used two emails, and they are:

- 1. whoknowsme@sbcglobal.net (Forte Agent)
- 2. mrevilrulez@yahoo.com (Yahoo Mail)

Evidence suggests that an external device TOSHIBA CD-ROM XM-1902B was connected to the suspect notebook. The data of the external storage devices are generally stored under /\$\$\$PROTO.HIV/ControlSet00x/Enum/USBSTOR, but there is no USBSTOR folder in the registry. The suspect might have deleted the registry file. I could not find any files that were copied from the suspect's notebook to the external storage.

References

[1]"Australian Security Intelligence Organisation |", Asio.gov.au, 2021. [Online]. Available: http://www.asio.gov.au/. [Accessed: 14- Apr- 2021].

Glossary

Autopsy Version 4.18.0 - Autopsy

Appendixes

- OS Operating System
- ASIO Australian Security Intelligence Organisation