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CYBER-FORENSICS

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Lab Record

Questions:

1) What is Hard Disk Forensics?

Hard disk forensics involves the retrieval, examination, and safeguarding of data from storage media for investigative objectives. It ensures the originality of data while identifying concealed, erased, or encrypted files for legal purposes.

2) What is an Image File?

An image file digitally represents visual content, such as pictures or graphics, saved in formats like PNG or JPEG. In forensics, it can also mean a disk image, which is an exact duplicate of a storage device.

3) What is Allocated and Unallocated Space?

Allocated space stores active and accessible data, whereas unallocated space contains unused sections of a drive, often holding fragments of deleted data.

4) What is Disk Cache and Disk Mirroring?

A disk cache temporarily holds frequently used data to boost performance during read/write operations. Disk mirroring creates exact duplicates of data across multiple drives to ensure reliability and protect against data loss.

5) What is a Forensic Image?

A forensic image is an exact sector-by-sector copy of a storage device, including inactive areas and unused space, to ensure no data is altered during the investigation.

6) What is the Hash Value of a Hard Disk?

A hash value is a unique identifier created using hashing algorithms like SHA or MD5, ensuring data authenticity. Even the slightest modification changes the hash.

7) What is Shadow Volume, Shadow Copy, and Swap Disk? Shadow volumes and shadow copies enable snapshots of files or drives for restoration. A swap disk uses disk storage to expand the system's virtual memory.

8) What Tools Can Perform Hard Disk Forensics?

Software like Autopsy, EnCase, Sleuth Kit, and FTK Imager can recover files, create drive images, and analyze digital storage for investigative work.

9) What is Exif Metadata?

Exif metadata, embedded in image files, contains details like camera settings, timestamps, and GPS data, which are valuable in investigations.

10) What are Common Disk Image Formats?

Popular disk image formats include DD (raw data), E01 (EnCase format), and AFF (Advanced Forensic Format), used for forensic purposes.

11) What is Bit-by-Bit Copying?

Bit-by-bit copying duplicates all data on a storage device, including hidden and unused areas, to ensure a complete replica.

12) What is Cloning a Disk?

Disk cloning creates a full replica of a drive, including its partitions and boot information, often for backup or forensic use.

13) What are the Latest Types of Storage Devices?

Recent storage technologies include SSDs for speed, NVMe drives for ultra-fast access, and 3D NAND for increased storage capacity.

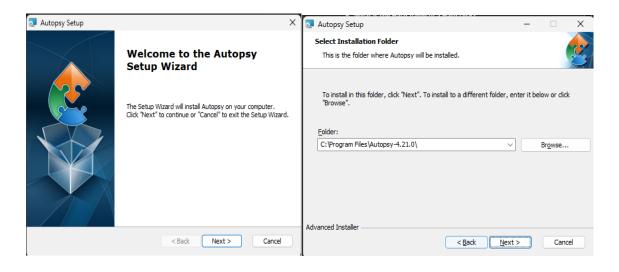
14) What is BitLocker Encryption?

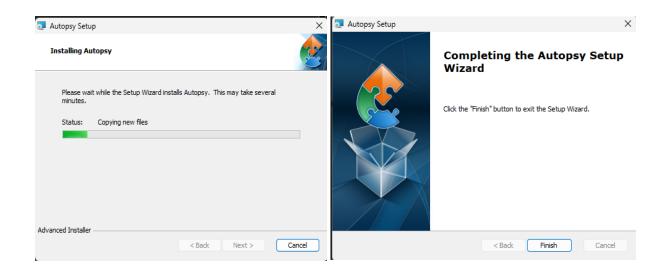
BitLocker is a Windows security feature that encrypts an entire drive, ensuring data remains secure against unauthorized access through advanced encryption methods.

Experiment – 1 (Analysis of Data source (Local Disk) using Autopsy

Screenshots

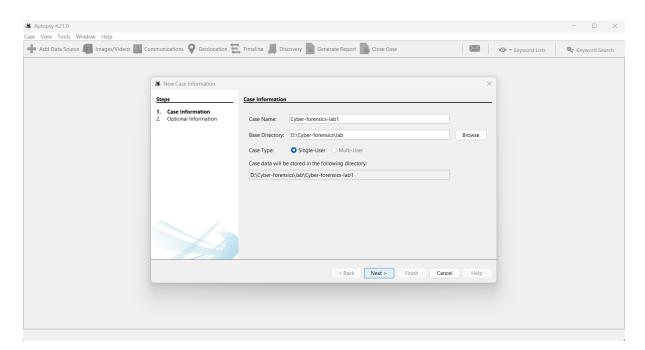
Step 1: Download Autopsy and Start



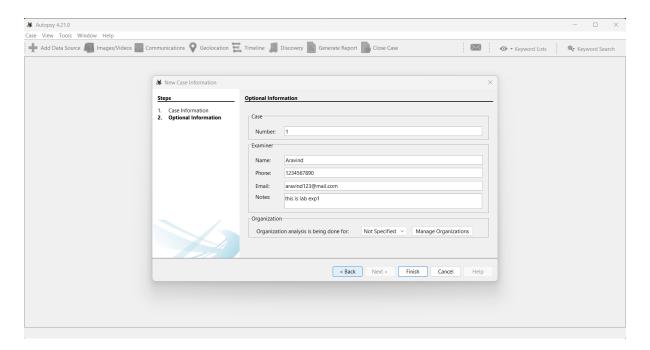


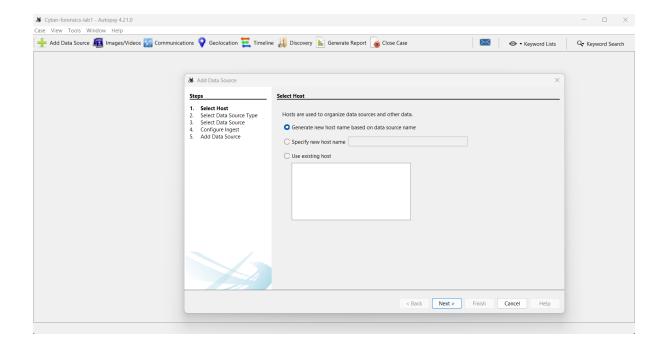


Step 2: Create a new case and add a data source like below

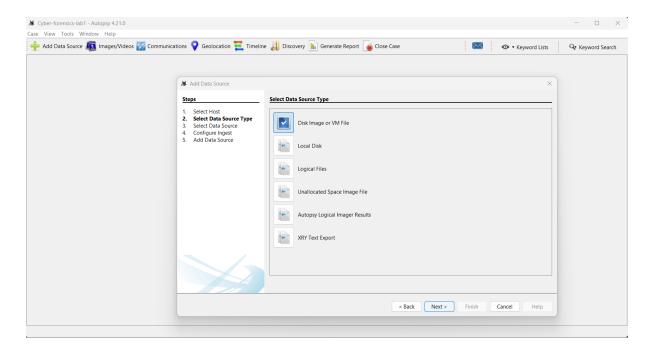


Fill the details and give finish.

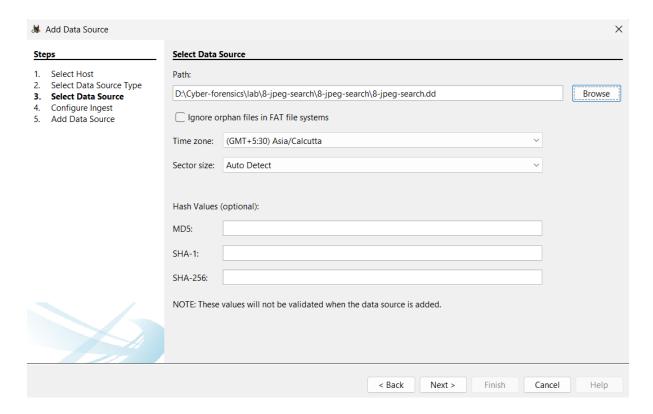




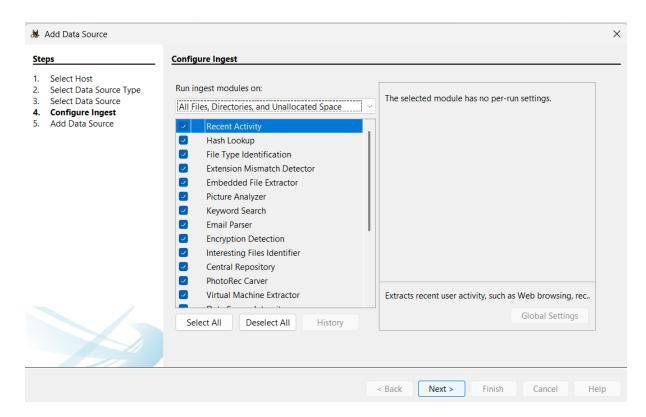
Click disk image or vm file option(coz I have a disk file)



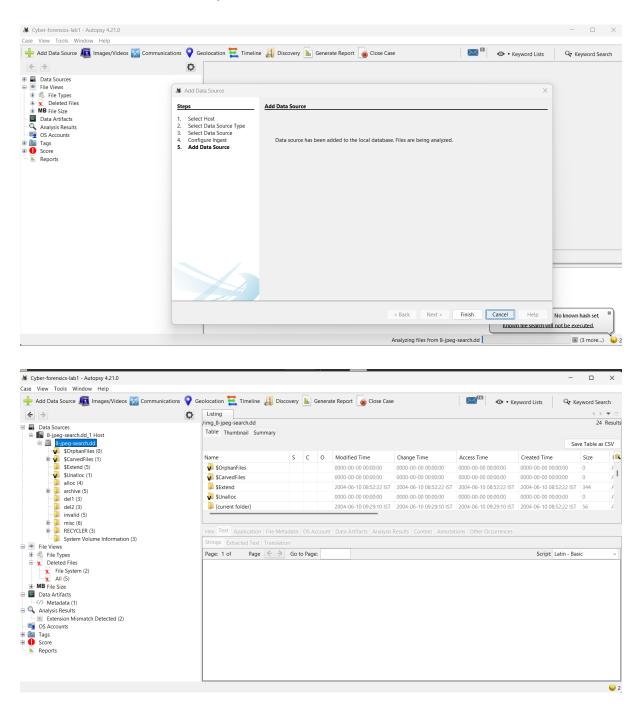
Add the disk file in the path.(like I did)



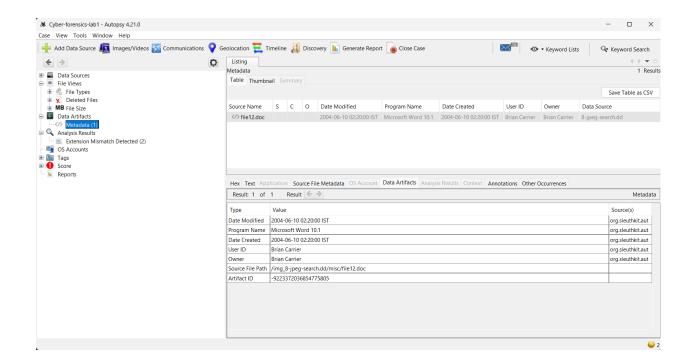
Configure the ingest.



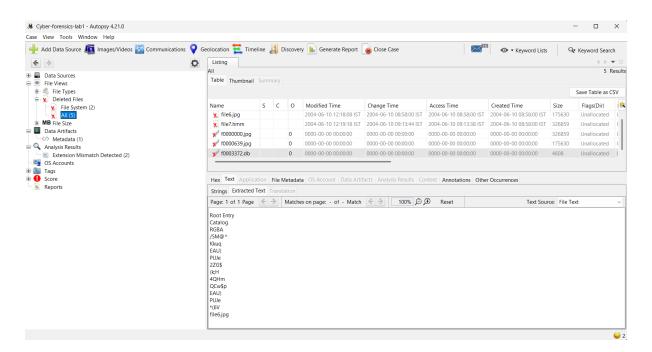
After some time the analysis will be over



We can generate report or view the deleted files etcc suffs.



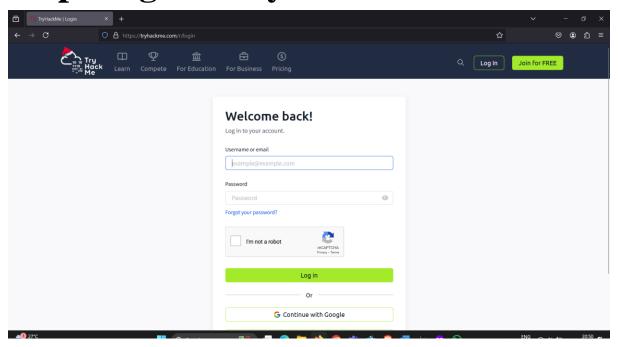
We can see the file file12.doc and its meta data etcc



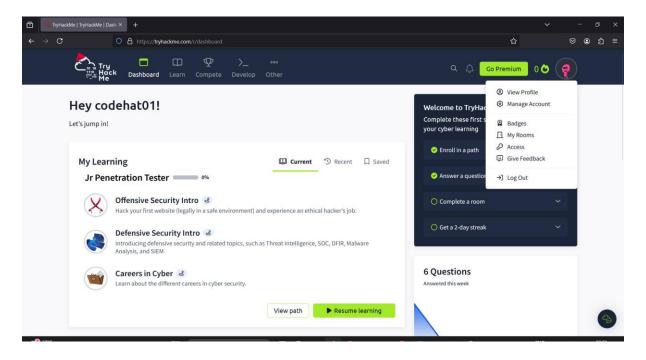
Finally we can see the deleted file and we can retrieve it and save it and if needed we can generate report too by click generate option above.

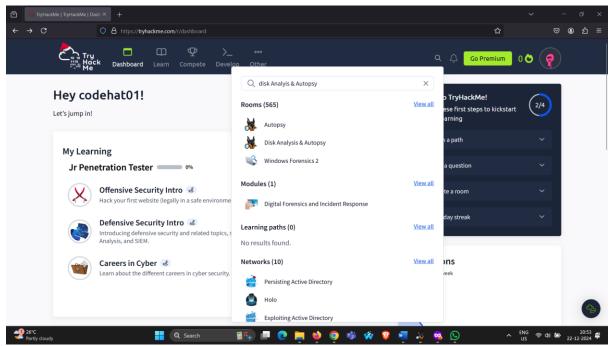
Experiment 2: Disk Analysis and Autopsy using TryHackMe

Step1:login to tryhackme first



After logged in search for the "DISK Analysis & Autospy"

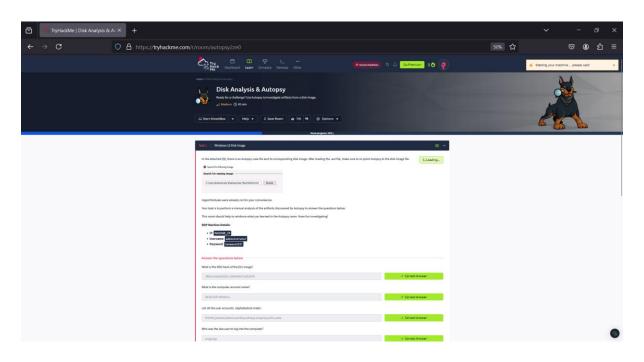


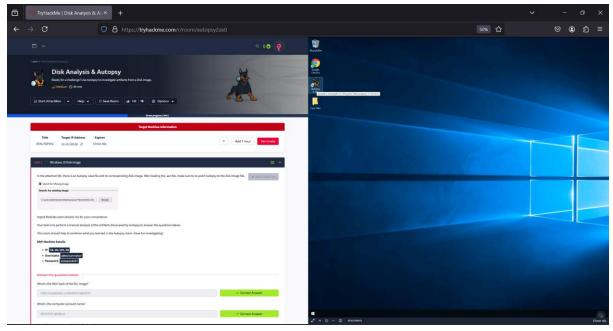


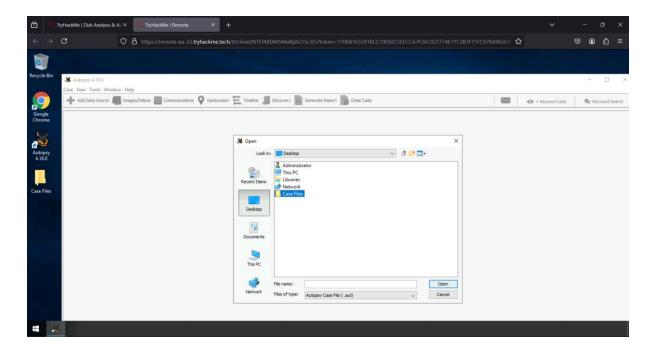
Link to room

Start the machine

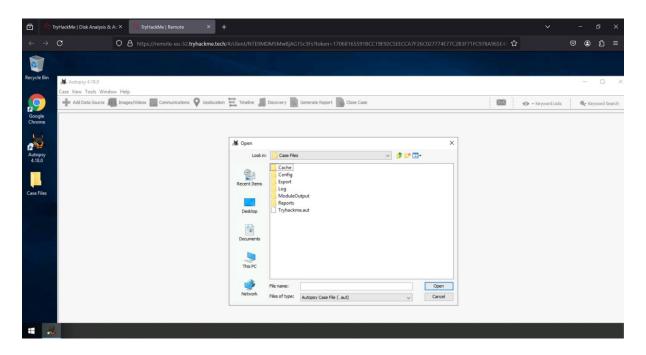
And solve the challenge

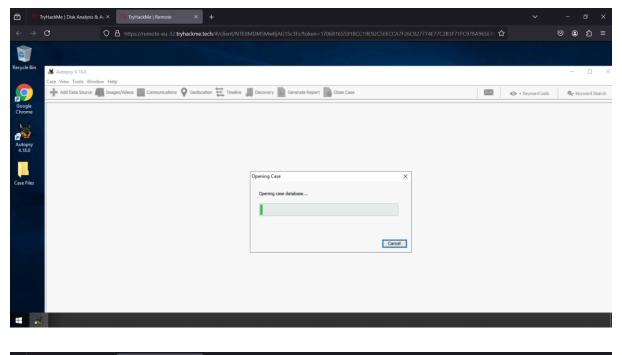


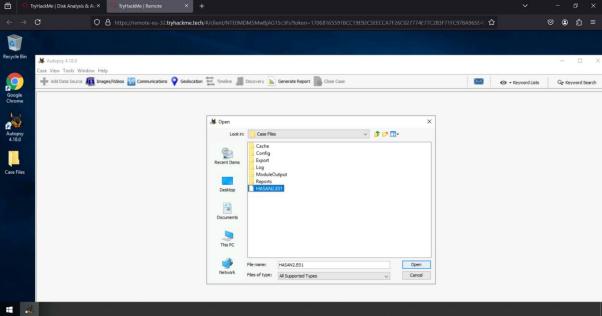




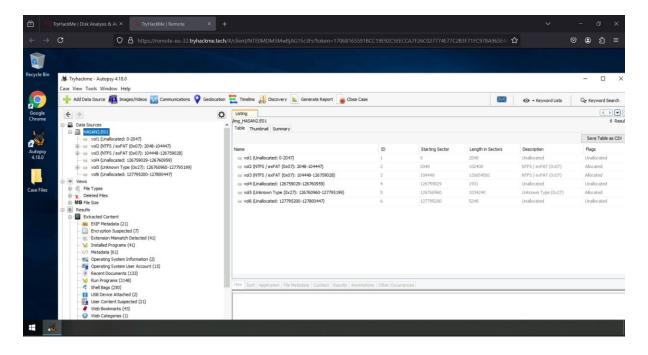
In that case files the is file named Tryhackme.aut open that file and solve the questions.

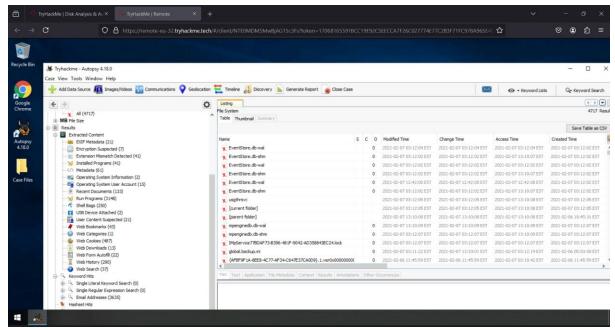






It will ask for a missing file we need to select this HASAN2.E01

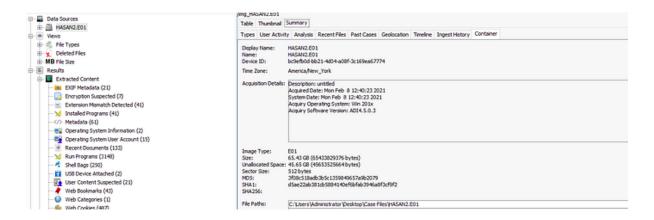




In the left side we can see the extracted content in that we can find more clues to solve this questions start solving

Open the autopsy app in that machine and solve the challenge and answer the questions

Question 1)

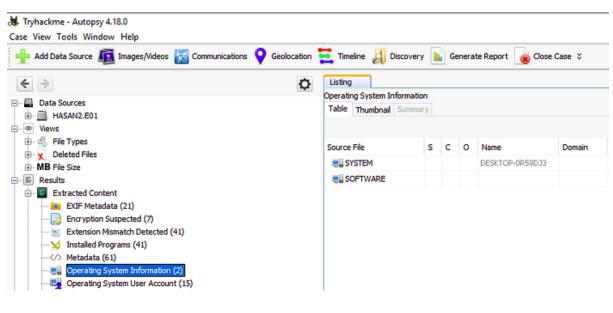


What is the MD5 hash of the E01 image?

3f08c518adb3b5c1359849657a9b2079

✓ Correct Answer

Question 2)

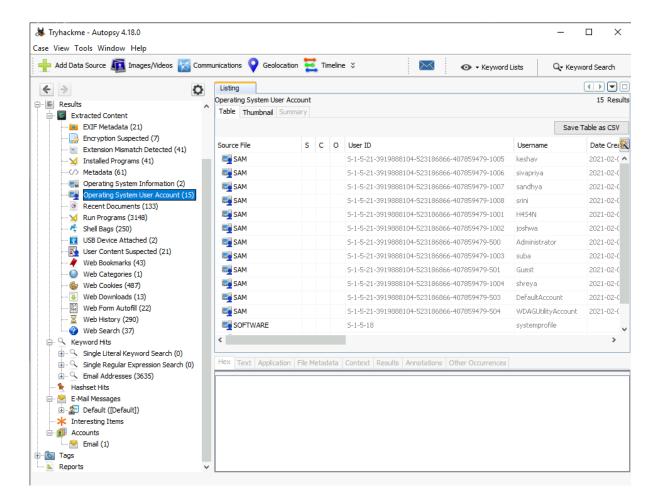


What is the computer account name?

DESKTOP-0R59DJ3

✓ Correct Answer

Question 3)

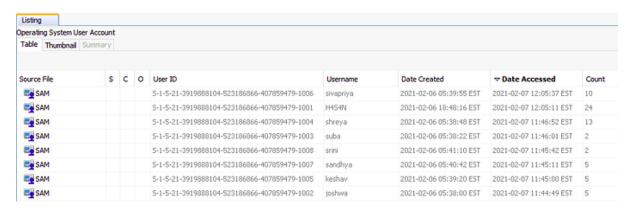


List all the user accounts. (alphabetical order)

H4S4N,joshwa,keshav,sandhya,shreya,sivapriya,srini,suba

✓ Correct Answer

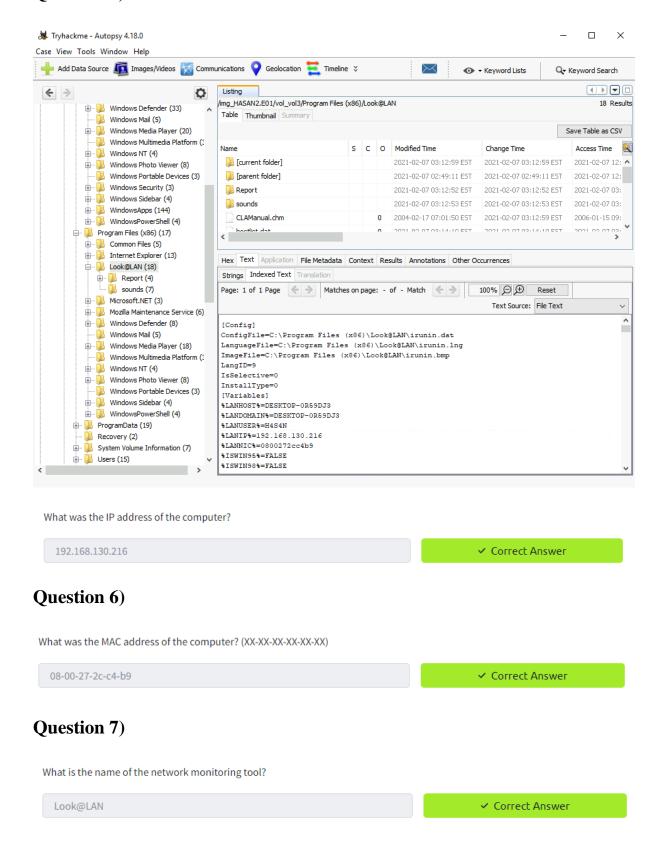
Question 4)



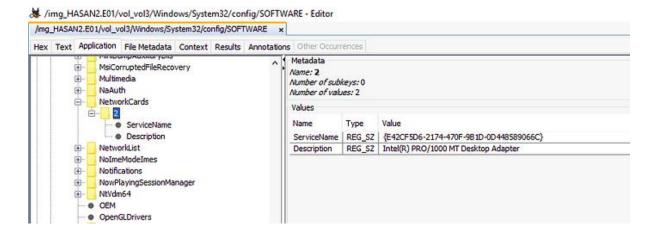
Who was the last user to log into the computer?

sivapriya ✓ Correct Answer

Question 5)



Question 8)

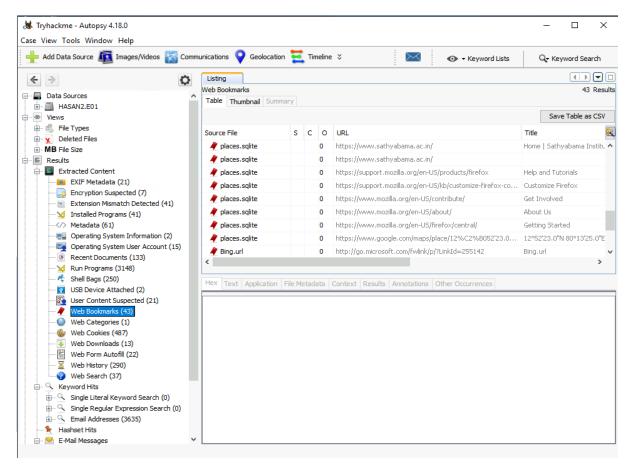


What is the name of the network card on this computer?

Intel(R) PRO/1000 MT Desktop Adapter

✓ Correct Answer

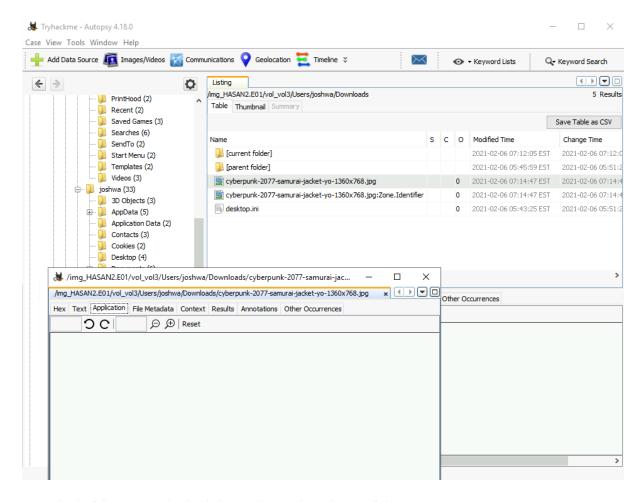
Question 9)



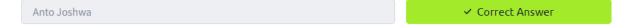
A user bookmarked a Google Maps location. What are the coordinates of the location?

12°52'23.0"N 80°13'25.0"E ✓ Correct Answer

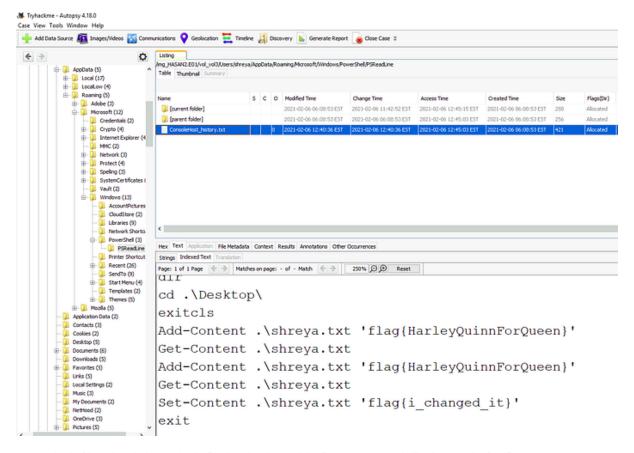
Question 10)



A user has his full name printed on his desktop wallpaper. What is the user's full name?



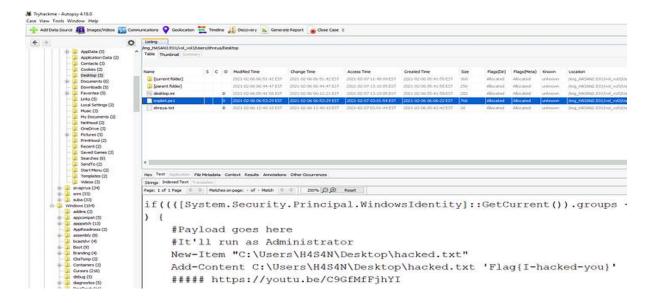
Question 11)



A user had a file on her desktop. It had a flag but she changed the flag using PowerShell. What was the first flag?

```
flag{HarleyQuinnForQueen}
```

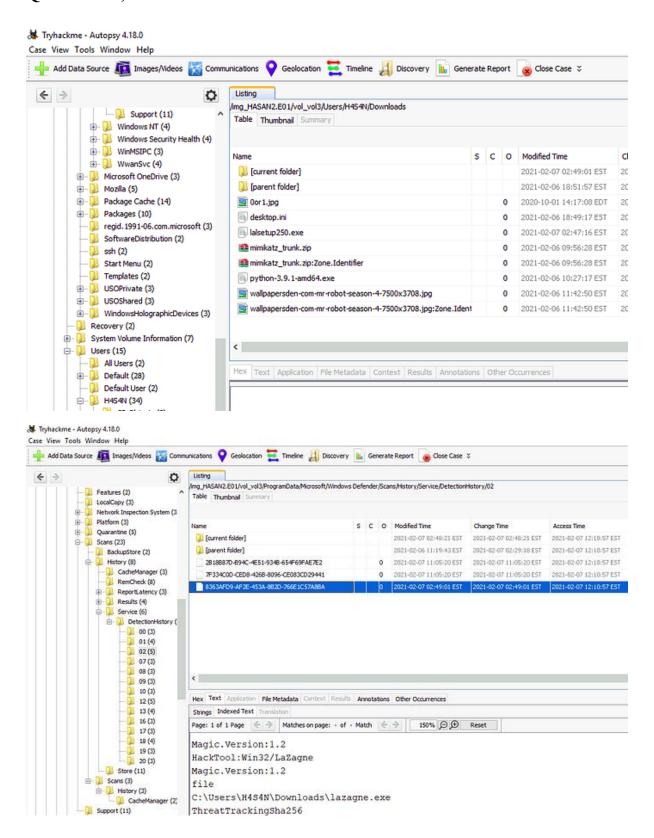
Question 12)



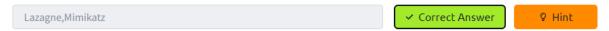
The same user found an exploit to escalate privileges on the computer. What was the message to the device owner?

flag{I-hacked-you}

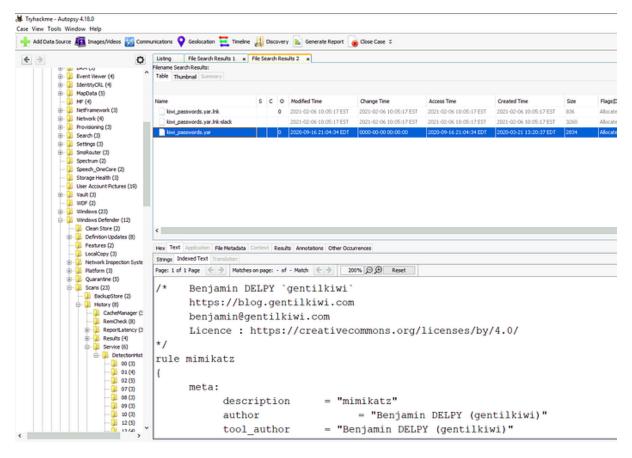
Question 13)



2 hack tools focused on passwords were found in the system. What are the names of these tools? (alphabetical order)



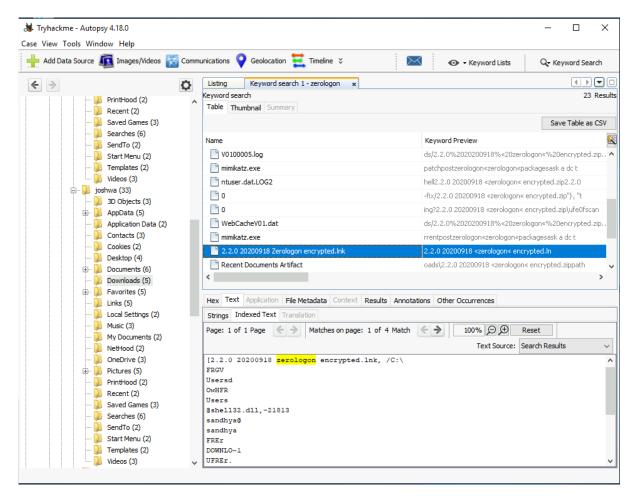
Question 14)



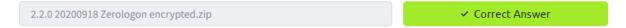
There is a YARA file on the computer. Inspect the file. What is the name of the author?

Benjamin DELPY (gentilkiwi) ✓ Correct Answer

Question 15)



One of the users wanted to exploit a domain controller with an MS-NRPC based exploit. What is the filename of the archive that you found? (include the spaces in your answer)



After submission:

