Using nmap for network discovery

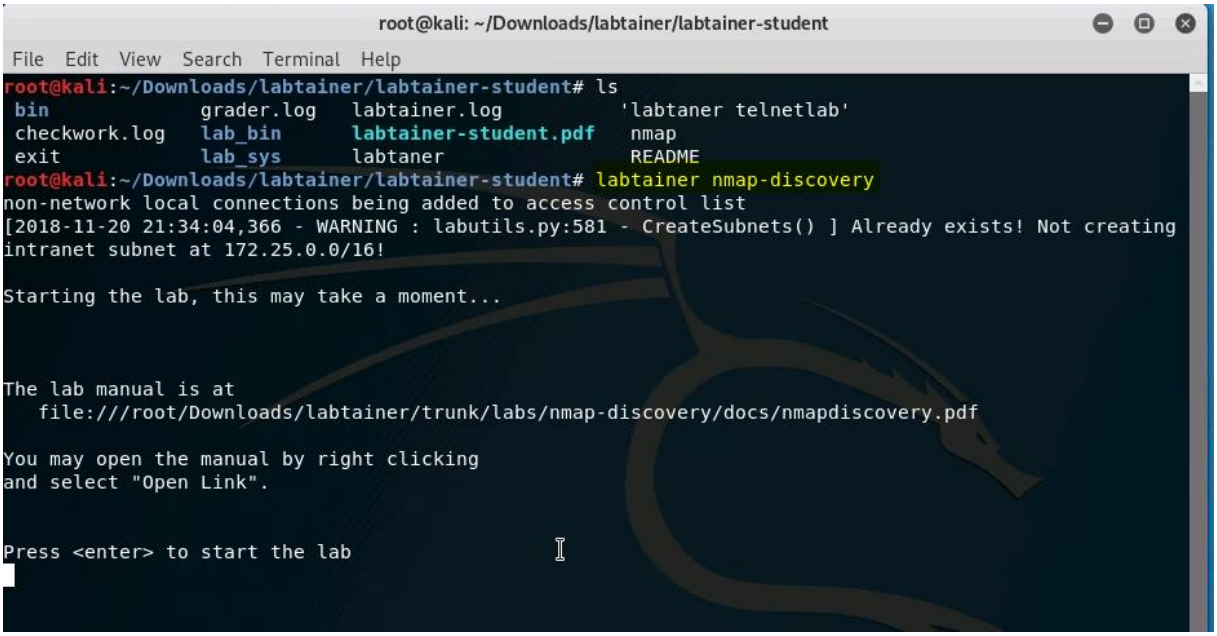
Overview

This Labtainer exercise explores the use of the nmap utility to discover computers and services on networks.

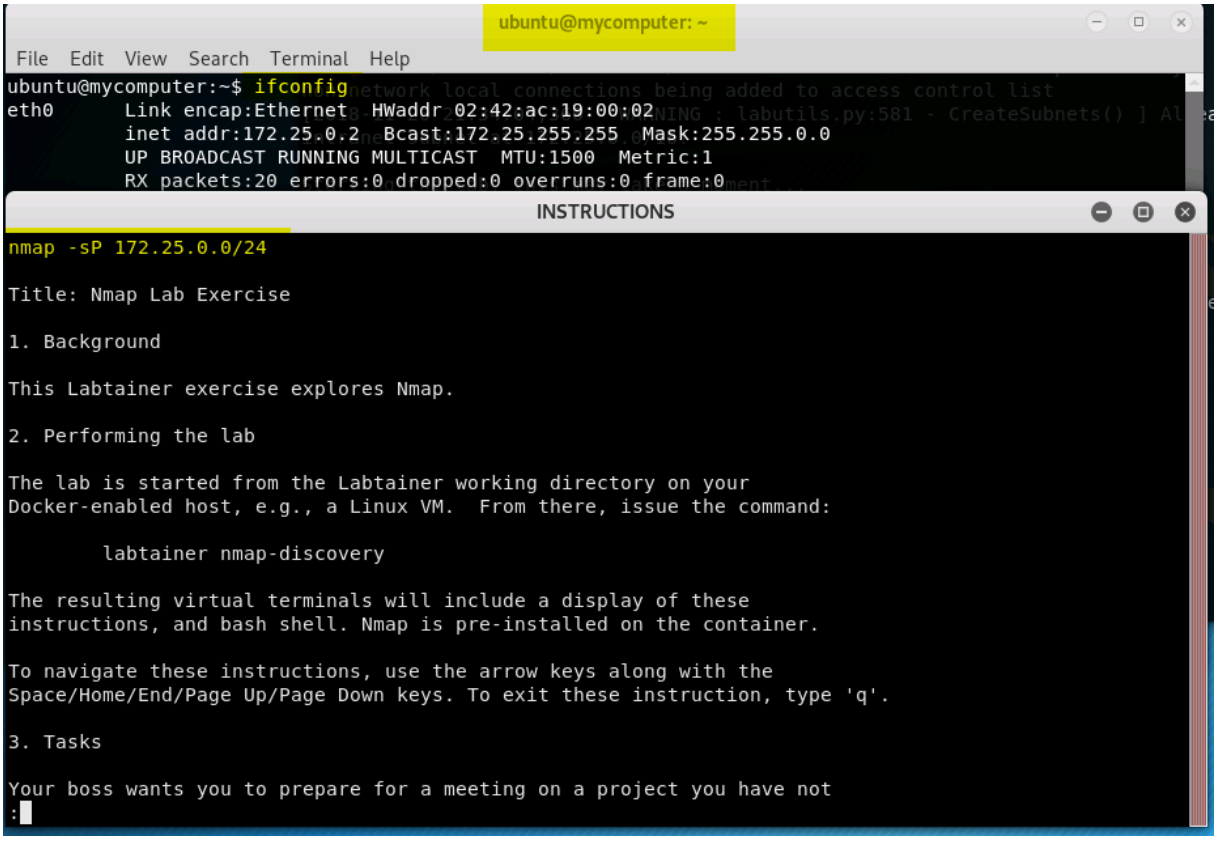
Begining the lab

The lab is started from the labtainer working directory on your Linux host, e.g. , a Linux VM. From there, issue the command:

```
labtainer nmap-discovery
```



The resulting virtual terminal will include a bash shell. The nmap utility is pre-installed on the computer connected to the termial.



Tasks

Your boss Randall wants you to prepare for a meeting on a project you have not worked on in months. You have a summary file on the “friedshrimp” server that you previously accessed via ssh; however, you cannot remember the IP address of “friedshrimp”, and you also forgot which port the pesky IT staff assigned for ssh on that server. You know it’s somewhere in between 2000 and 3000. The one thing you most certainly know is that your password is the usual one used in these labs. You are left with only one option: use the nmap command to find the IP address and and port number used by the ssh service. After finding that information review the contents of the “friedshrimp.txt” file from an ssh session.

If you need any help with the nmap commands, you can use “man nmap” to view the manual. Note that in order to ssh to a host via a port other than the default one, use “ssh -p <port> <host>”. Stop the labtainer.

```
ubuntu@mycomputer: ~
File  Edit  View  Search  Terminal  Help
ubuntu@mycomputer:~$ nmap 172.25.0.0/24

Starting Nmap 7.01 ( https://nmap.org ) at 2018-11-20 21:38 UTC
Nmap scan report for mycomputer (172.25.0.2)
Host is up (0.00022s latency).
All 1000 scanned ports on mycomputer (172.25.0.2) are closed

Nmap scan report for nmap-discovery.friedshrimp.student.intranet (172.25.0.5)
Host is up (0.00024s latency).
All 1000 scanned ports on nmap-discovery.friedshrimp.student.intranet (172.25.0.5) are closed

Nmap done: 256 IP addresses (2 hosts up) scanned in 2.80 seconds
ubuntu@mycomputer:~$
```

```
ubuntu@mycomputer: ~
File  Edit  View  Search  Terminal  Help
ubuntu@mycomputer:~$ nmap -p 2000-3000 172.25.0.5

Starting Nmap 7.01 ( https://nmap.org ) at 2018-11-20 21:58 UTC
Nmap scan report for nmap-discovery.friedshrimp.student.intranet (172.25.0.5)
Host is up (0.00019s latency).
Not shown: 1000 closed ports
PORT     STATE SERVICE
2795/tcp open  unknown

Nmap done: 1 IP address (1 host up) scanned in 0.06 seconds
ubuntu@mycomputer:~$
```

```
File  Edit  View  Search  Terminal  Help
ubuntu@mycomputer:~$ ifconfig
eth0      Link encap:Ethernet  HWaddr 02:42:ac:19:00:02
          inet addr:172.25.0.2  Bcast:172.25.255.255  Mask:255.255.0.0
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:3207 errors:0 dropped:0 overruns:0 frame:0
          TX packets:4757 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:191235 (191.2 KB)  TX bytes:313743 (313.7 KB)

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          UP LOOPBACK RUNNING  MTU:65536  Metric:1
          RX packets:5362 errors:0 dropped:0 overruns:0 frame:0
          TX packets:5362 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:319830 (319.8 KB)  TX bytes:319830 (319.8 KB)

ubuntu@mycomputer:~$ ssh -p 2795 172.25.0.5
ubuntu@172.25.0.5's password:
Welcome to Ubuntu 16.04.4 LTS (GNU/Linux 4.15.0-kali2-amd64 x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage
Last login: Tue Nov 20 21:52:27 2018 from 172.25.0.2
ubuntu@friedshrimp:~$ ifconfig
eth0      Link encap:Ethernet  HWaddr 02:42:ac:19:00:05
          inet addr:172.25.0.5  Bcast:172.25.255.255  Mask:255.255.0.0
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:4819 errors:0 dropped:0 overruns:0 frame:0
          TX packets:3207 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:320588 (320.5 KB)  TX bytes:194304 (194.3 KB)

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          UP LOOPBACK RUNNING  MTU:65536  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

ubuntu@friedshrimp:~$
```

ubuntu

```
ubuntu@friedshrimp:~$ cat friedshrimp.txt
My summary notes from the fried shrimp project:

Fried Shrimp Project: We concluded it is better to
buy than to build.

==================================================

Congratulations! You managed to find the summary file
for "fired shrimp"and impress Randall.
ubuntu@friedshrimp:~$
```

When the lab is completed, or you'd like to stop working for a while, run:

```
stoplab
```

```
student@ubuntu:~/labtainer/labtainer-student$ stoplab
Results stored in directory: /home/student/labtainer_xfer/nmap-discovery
Results stored in directory: /home/student/labtainer_xfer/wireshark-intro
student@ubuntu:~/labtainer/labtainer-student$
```

```
root@kali: ~/Downloads/labtainer/labtainer-student
File  Edit  View  Search  Terminal  Help
root@kali:~/Downloads/labtainer/labtainer-student# checkwork nmap-discovery
nmap-discovery lab is not running, looking for previous results...
Labname nmap-discovery

Student              |      nmap_count |         did_ssh |
==================== | =============== | =============== |
yilmazkarakul_at_gma |              32 |                 |
What is automatically assessed for this lab:
        did_ssh: SSH'd to the proper port and viewed the target file
        nmap_count: count of use of nmap
root@kali:~/Downloads/labtainer/labtainer-student#
```

This lab was developed for the Labtainer framework by the Naval Postgraduate School, Center for Cybersecurity and Cyber Operations under National Science Foundation Award No. 1438893. This work is in the public domain, and cannot be copyrighted.

Labtainers

from the host Labtainer working directory (VM). You can always restart the Labtainer and continue your work. When the Labtainer is stopped, a zip file is created and copied to a location displayed by the "stoplab" command. When the lab is completed, send that zip file to the instructor.