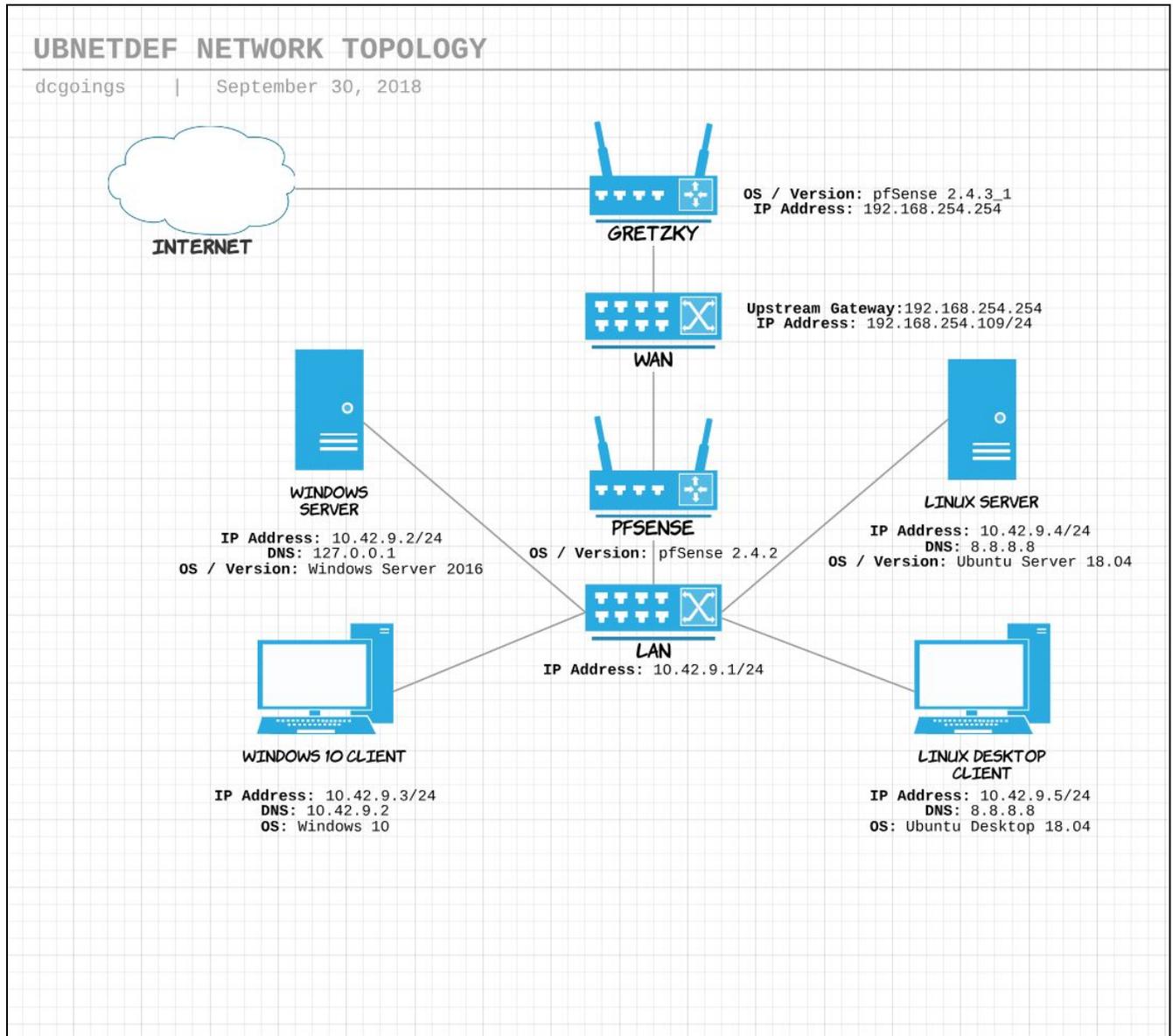


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Sep 30 2018



Introduction

The purpose of this report is to get familiar with Linux distributions in both command line and desktop environments and configure static IP addresses for both. After both clients are set up, we will dig into OverTheWire's Capture the Flag scenario 'Bandit' to get a better understanding of both CTFs and linux command line. Finally, we will have a better understanding of the current network topology, which is reflected on the previous page.

Prerequisites

In order to follow along with this report, it is expected that you already have the a VM Client installed and are logged in. Additionally, you should already have your machines available, one dedicated to a Linux CLI environment and another dedicated to a Linux Desktop environment. For the purposes of this report, we will be using Ubuntu 18.04, both Server and Desktop versions.

Step 1: Assign Static IP for Ubuntu Server 18.04

For Ubuntu Server, we are able to configure the network and set the static IP during installation of the operating system so we will assume you have made it up to this point in the installation.

During the installation, you may be asked if you wish to manually configure your network or see an error that auto-configuration has failed. This is perfectly fine, just click **Continue** followed by **Configure Network Manually**.

```

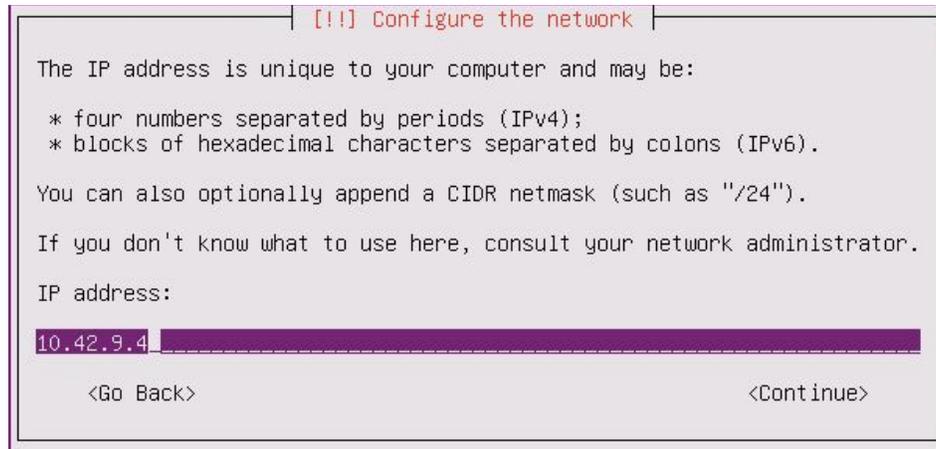
| [!] Configure the network |
From here you can choose to retry DHCP network autoconfiguration (which may succeed if
your DHCP server takes a long time to respond) or to configure the network manually. Some
DHCP servers require a DHCP hostname to be sent by the client, so you can also choose to
retry DHCP network autoconfiguration with a hostname that you provide.

Network configuration method:

    Retry network autoconfiguration
    Retry network autoconfiguration with a DHCP hostname
    Configure network manually
    Do not configure the network at this time

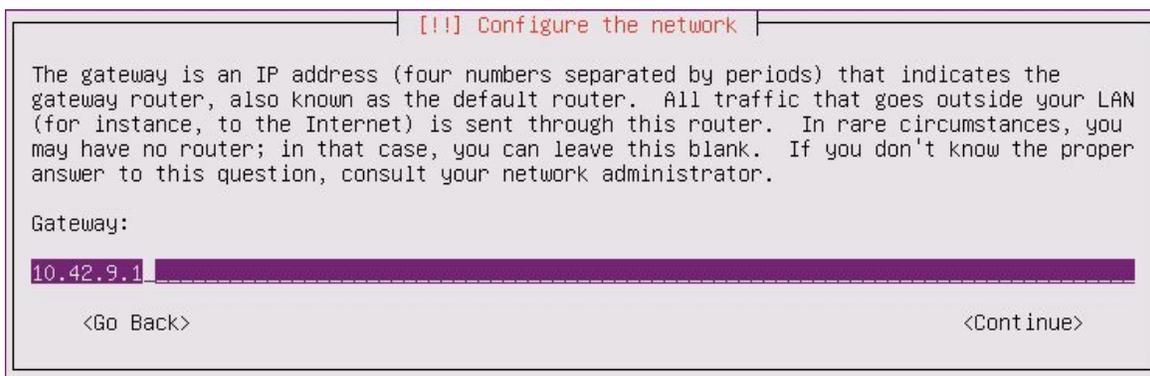
<Go Back>
```

Next screen asks you to set your IP address. Since we already used 10.42.9.2 and 10.42.9.3 for our Windows machines, it's logical for us to use 10.42.9.4 for our Ubuntu Server.



After clicking **Continue**, the next screen asks for your netmask, which is 255.255.255.0 like usual (no screenshot, simple enough). Click **Continue**.

The following screen asks for your gateway. Once again, similar to the Windows machines setup, we want to use the IP address for our pfSense which is set to 10.42.9.1.



Once again, after clicking **Continue**, we will now see a screen for setting up the name servers. Since we are not doing anything special with the server like we did for Windows Server, we can point both Ubuntu Server and Desktop to 8.8.8.8 and 8.8.4.4 for the name servers.

This pretty much concludes the static IP setup for Ubuntu Server. After finishing up on the name server screen, there is a bit more to setup regarding hostname, domain name, etc. which I will cover below in a simple list format.

Host name: ubuntu-cli

Domain name: ubnd.team09.com

Full name of user: dan

Username for account: dan

Choose a password.

Clock configuration.

Partition disks: Guided - use entire disk

Select disk to partition: SCSI3 (0,0,0) (sda) - 17.2 GB VMware Virtual Disk

HTTP proxy information: Leave blank.

Select automatic updates.

Install the GRUB boot loader to the master boot record: Yes

Finish installation.

If everything went according to plan, you should see this screen after successfully booting your Ubuntu Server.

```
Ubuntu 18.04.1 LTS ubuntu-cli tty1
ubuntu-cli login: dan
Password:
Welcome to Ubuntu 18.04.1 LTS (GNU/Linux 4.15.0-29-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

System information as of Sat Sep 29 18:35:38 EDT 2018

System load:  0.38      Processes:            87
Usage of /:   15.4% of 15.68GB  Users logged in:     0
Memory usage: 7%       IP address for ens160: 10.42.9.4
Swap usage:   0%

63 packages can be updated.
37 updates are security updates.

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

dan@ubuntu-cli:~$
```

And finally we can confirm that everything is setup correctly by checking the `/etc/netplan/01-netcfg.yaml` file and ensuring all entries are correct, followed by ping 8.8.8.8 and nslookup google.com

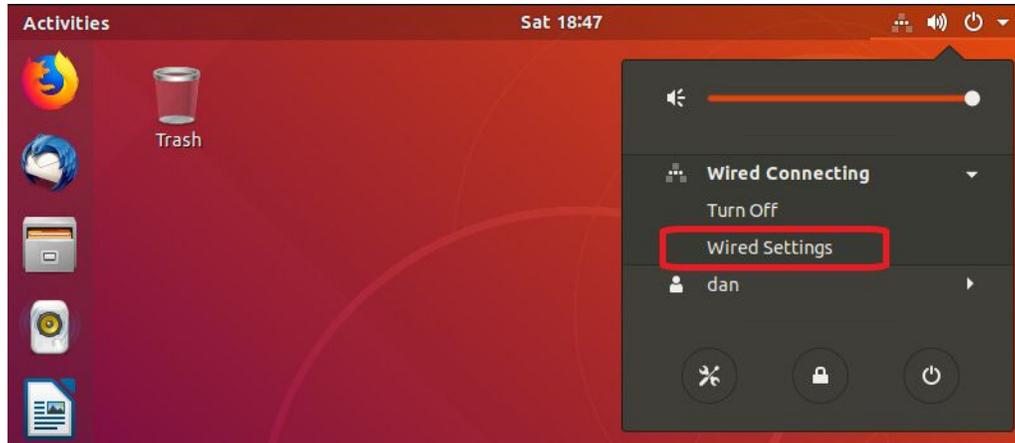
```
dan@ubuntu-cli:~$ cat /etc/netplan/01-netcfg.yaml
# This file describes the network interfaces available on your system
# For more information, see netplan(5).
network:
  version: 2
  renderer: networkd
  ethernets:
    ens160:
      addresses: [ 10.42.9.4/24 ]
      gateway4: 10.42.9.1
      nameservers:
        search: [ ubnd.team09.com ]
        addresses: [ 10.42.9.2, 8.8.8.8, 8.8.4.4 ]
dan@ubuntu-cli:~$
```

```
dan@ubuntu-cli:~$ ping 8.8.8.8
PING 8.8.8.8 (8.8.8.8) 56(84) bytes of data:
64 bytes from 8.8.8.8: icmp_seq=1 ttl=116 time=10.9 ms
64 bytes from 8.8.8.8: icmp_seq=2 ttl=116 time=10.8 ms
64 bytes from 8.8.8.8: icmp_seq=3 ttl=116 time=11.1 ms
64 bytes from 8.8.8.8: icmp_seq=4 ttl=116 time=11.2 ms
64 bytes from 8.8.8.8: icmp_seq=5 ttl=116 time=10.9 ms
^C
--- 8.8.8.8 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4005ms
rtt min/avg/max/mdev = 10.822/11.053/11.260/0.182 ms
dan@ubuntu-cli:~$ nslookup google.com
Server:      127.0.0.53
Address:     127.0.0.53#53

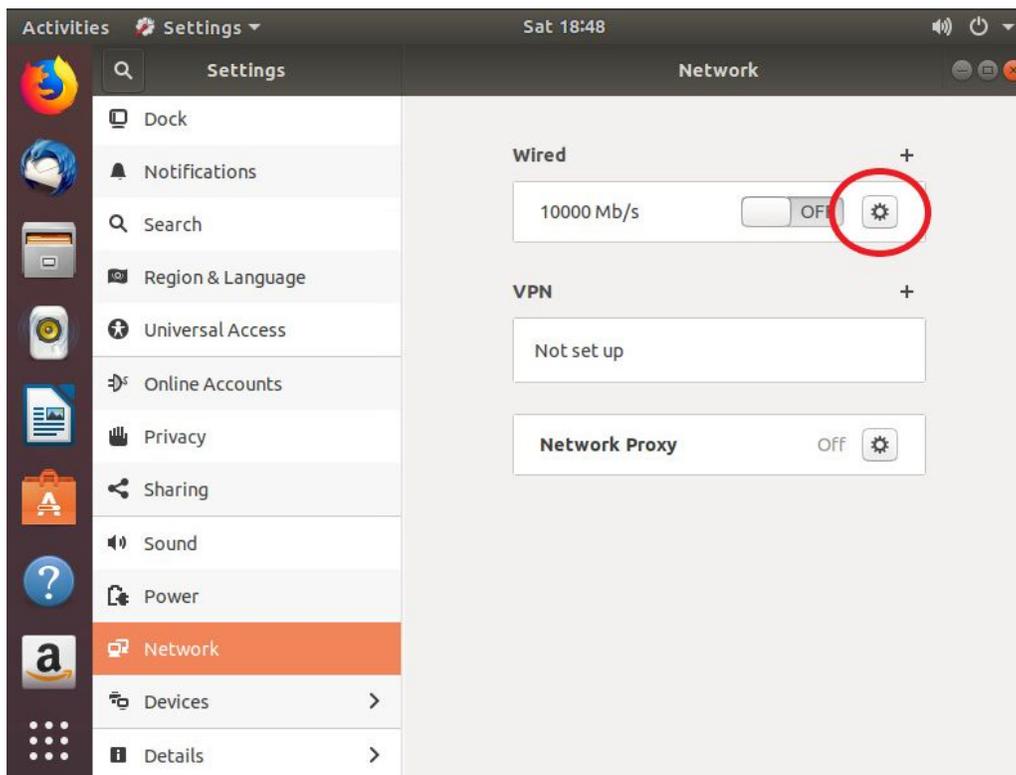
Non-authoritative answer:
Name:   google.com
Address: 172.217.11.46
Name:   google.com
Address: 2607:f8b0:4006:815::200e
dan@ubuntu-cli:~$
```

Step 2: Assign Static IP for Ubuntu Desktop 18.04

Setting up the static IP for desktop is quite simple on desktop. First, we just need to enter our Wired Settings which is found by clicking power options in the top right.

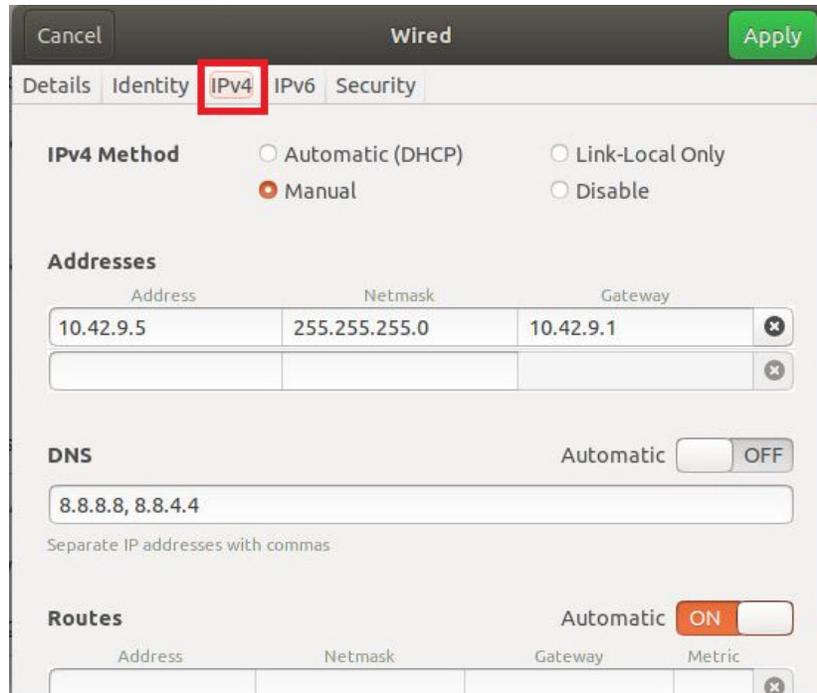


After clicking **Wired Settings**, click the gear icon shown below to enter the advanced network configuration settings.



Similar to the Windows setup, let's click the **IPv4** tab. Now we are able to set out IPv4 method to manual and enter our IP address, subnet mask, gateway, and DNS, all of which should be familiar by now.

Since we went with 10.42.9.4 for our Ubuntu Server, we will use 10.42.9.5 for the desktop client. Netmask is the same as usual (255.255.255.0), as well as the gateway (10.42.9.1) and DNS (8.8.8.8, 8.8.4.4), all configured and shown below.



Upon completion, reset the network (turn off, turn on). To confirm everything is set up correctly, we will run the same commands that we did in Ubuntu Server: ping 8.8.8.8 and nslookup google.com

```
dan@dan-ubuntu-desktop-09: ~  
dan@dan-ubuntu-desktop-09:~$ ping 8.8.8.8  
PING 8.8.8.8 (8.8.8.8) 56(84) bytes of data:  
64 bytes from 8.8.8.8: icmp_seq=1 ttl=116 time=11.3 ms  
64 bytes from 8.8.8.8: icmp_seq=2 ttl=116 time=10.9 ms  
64 bytes from 8.8.8.8: icmp_seq=3 ttl=116 time=11.2 ms  
^C  
--- 8.8.8.8 ping statistics ---  
3 packets transmitted, 3 received, 0% packet loss, time 2003ms  
rtt min/avg/max/mdev = 10.907/11.180/11.399/0.204 ms  
dan@dan-ubuntu-desktop-09:~$ nslookup google.com  
Server: 127.0.0.53  
Address: 127.0.0.53#53  
  
Non-authoritative answer:  
Name: google.com  
Address: 172.217.11.46  
Name: google.com  
Address: 2607:f8b0:4006:815::200e  
  
dan@dan-ubuntu-desktop-09:~$
```

Step 3: OverTheWire's Bandit CTF

level: password

```
bandit0: bandit0
bandit1: boJ9jbbUNNfktd7800psq0ltutMc3MY1
bandit2: CV1DtqXWVFXTvM2F0k09SHz0YwRINYA9
bandit3: UmHadQclWmgdLOKQ3YNgjWxGoRmb5luK
bandit4: pIwrPrtPN36QITSp3EQaw936yaFoFgAB
bandit5: koReB0KuIDDepwhWk7jZC0RTdopnAYKh
bandit6: DXjZPULLxYr17uwoI01bNLQbtFemEgo7
bandit7: HKBPTKQnIay4Fw76bEy8PVxKEDQRKTzs
bandit8: cvX2JJJa4CFALtqS87jk27qwqGhBM9p1V
bandit9: UsvVyFSfZZWbi6wgC7dAFyFuR6jQQUhR
bandit10: truKLdjsbJ5g7yyJ2X2R0o3a5HqJFuLk
bandit11: IFukwKGSFW8MOq3IRFqrxE1hxTNEbUPR
```