CTS-120-841-Lab Module 9

1. Save the lab as a PDF, naming it:
    - ***FirstName_Lastname-Module#-Lab.pdf***

The objectives of this lab will be to know where to find the network configuration files, & to get familiar with some of the more common Linux networking utilities

- A few of the files in /etc/sysconfig/network-scripts/
- Ifconfig
- Ping
- Netstat
- ssh
- scp
- sftp
- wget

When I ask for the command please make sure the command is visible on the screen print

1. You need to do some work on the interfaces on your system & need to know their names. What is the command that would list your active network interfaces, and give you their associated IP addresses?

   What is the name of the main interface (not the *virbr* one)?
   Show me a screen print of the command & all the interfaces

ifconfig to view all
ifconfig –a to view active interfaces
main interface is the one handling the MOST data, generally listed first

```
[student@localhost ~]$ ifconfig -a
ens33: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 192.168.74.128  netmask 255.255.255.0  broadcast 192.168.74.255
        inet6 fe80::d1da:bf74:6fd5:f78c  prefixlen 64  scopeid 0x20<link>
        ether 00:0c:29:ed:43:6c  txqueuelen 1000  (Ethernet)
        RX packets 99  bytes 12831 (12.5 KiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 137  bytes 14176 (13.8 KiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING>  mtu 65536
        inet 127.0.0.1  netmask 255.0.0.0
        inet6 ::1  prefixlen 128  scopeid 0x10<host>
        loop  txqueuelen 1000  (Local Loopback)
        RX packets 64  bytes 5568 (5.4 KiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 64  bytes 5568 (5.4 KiB)
```

```
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

virbr0: flags=4099<UP,BROADCAST,MULTICAST>  mtu 1500
        inet 192.168.122.1  netmask 255.255.255.0  broadcast 192.168.122.255
        ether 52:54:00:27:e8:69  txqueuelen 1000  (Ethernet)
        RX packets 0  bytes 0 (0.0 B)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 0  bytes 0 (0.0 B)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

virbr0-nic: flags=4098<BROADCAST,MULTICAST>  mtu 1500
        ether 52:54:00:27:e8:69  txqueuelen 1000  (Ethernet)
        RX packets 0  bytes 0 (0.0 B)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 0  bytes 0 (0.0 B)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

[student@localhost ~]$
```

2. Now that you know the name of the interface, you may need to edit it. For now just tell me (don't edit it) the name, & show me a screen print of the contents of the file that determines what the configuration of that interface will be.

Use old friend "cat" along with path and newly identified interface name (ens33)

```
[student@localhost ~]$ cat /etc/sysconfig/network-scripts/ifcfg-ens33
TYPE=Ethernet
PROXY_METHOD=none
BROWSER_ONLY=no
BOOTPROTO=dhcp
DEFROUTE=yes
IPV4_FAILURE_FATAL=no
IPV6INIT=yes
IPV6_AUTOCONF=yes
IPV6_DEFROUTE=yes
IPV6_FAILURE_FATAL=no
IPV6_ADDR_GEN_MODE=stable-privacy
NAME=ens33
UUID=c4c7efd0-1e4d-4384-b779-6f05704072d6
DEVICE=ens33
ONBOOT=yes
[student@localhost ~]$
```

3. If you had edited the file, you would need to shutdown that interface, & bring it back up again. Let's start by taking the interface down. Show me a screen print of the command & the resulting message.

sudo /etc/sysconfig/network-scripts/ifdown ens33

```
[student@localhost ~]$ sudo /etc/sysconfig/network-scripts/ifdown ens33
[sudo] password for student:
Device 'ens33' successfully disconnected.
[student@localhost ~]$
```

4. Bring that interface back up. Show me a screen print of the command & the resulting message

sudo /etc/sysconfig/network-scripts/ifup ens33

```
[student@localhost ~]$ sudo /etc/sysconfig/network-scripts/ifup ens33
Connection successfully activated (D-Bus active path:
/org/freedesktop/NetworkManager/ActiveConnection/4)
[student@localhost ~]$
```

5. Using ifconfig, just list the interface you have been working with. Show me a screen print of the result

ifconfig ens33

```
[student@localhost ~]$ ifconfig ens33
ens33: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 192.168.74.128  netmask 255.255.255.0  broadcast 192.168.74.255
        inet6 fe80::d1da:bf74:6fd5:f78c  prefixlen 64  scopeid 0x20<link>
        ether 00:0c:29:ed:43:6c  txqueuelen 1000  (Ethernet)
        RX packets 206  bytes 26145 (25.5 KiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 275  bytes 28644 (27.9 KiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

[student@localhost ~]$
```

6. Show me the command to **ping** the site **www.ipchicken.com** 2 times & show me a screen print of the result

ping –c 2 ipchicken.com

```
[student@localhost ~]$ ping -c 2 ipchicken.com
PING ipchicken.com (104.27.113.113) 56(84) bytes of data.
64 bytes from 104.27.113.113 (104.27.113.113): icmp_seq=1 ttl=128 time=5.22 ms
64 bytes from 104.27.113.113 (104.27.113.113): icmp_seq=2 ttl=128 time=4.86 ms

--- ipchicken.com ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1001ms
rtt min/avg/max/mdev = 4.865/5.046/5.227/0.181 ms
[student@localhost ~]$
```

7. Show me the command that will show **all** the **tcp** connections that are listening on the server, but **does not resolve the names;** just show me lines with **port 22.** Show me a screen print of the result

netstat –ant |grep port 22 (ant where a=all, n=numeric, t=tcp) (most commonly used cmd)
also works with just grep 22 (omitting the word port)

```
[student@localhost ~]$ netstat -ant \grep port22
Active Internet connections (servers and established)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
tcp        0      0 0.0.0.0:111             0.0.0.0:*               LISTEN
tcp        0      0 192.168.122.1:53        0.0.0.0:*               LISTEN
tcp        0      0 0.0.0.0:22              0.0.0.0:*               LISTEN
tcp        0      0 127.0.0.1:631           0.0.0.0:*               LISTEN
tcp        0      0 127.0.0.1:25            0.0.0.0:*               LISTEN
tcp6       0      0 :::111                  :::*                    LISTEN
tcp6       0      0 :::22                   :::*                    LISTEN
```

```
tcp6       0      0 ::1:631                 :::*                    LISTEN
tcp6       0      0 ::1:25                  :::*                    LISTEN
[student@localhost ~]$ netstat -ant \grep 22
Active Internet connections (servers and established)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
tcp        0      0 0.0.0.0:111             0.0.0.0:*               LISTEN
tcp        0      0 192.168.122.1:53        0.0.0.0:*               LISTEN
tcp        0      0 0.0.0.0:22              0.0.0.0:*               LISTEN
tcp        0      0 127.0.0.1:631           0.0.0.0:*               LISTEN
tcp        0      0 127.0.0.1:25            0.0.0.0:*               LISTEN
tcp6       0      0 :::111                  :::*                    LISTEN
tcp6       0      0 :::22                   :::*                    LISTEN
tcp6       0      0 ::1:631                 :::*                    LISTEN
tcp6       0      0 ::1:25                  :::*                    LISTEN
[student@localhost ~]$
```

8. Normally you would have some remote system that you would need to connect to, but we don't have that luxury. Connect to your own system using ssh & show me the screen print of the connection

First check answer from #1 to get own IP address (192.168.74.128) then use this address with ssh to establish the remote connection

```
[student@localhost ~]$ ssh 192.168.74.128
The authenticity of host '192.168.74.128 (192.168.74.128)' can't be established.
ECDSA key fingerprint is SHA256:ylEqydPeZHPLAN+v3yKstoydvTcOxCyVH9tU8FkSPg4.
ECDSA key fingerprint is MD5:3d:e1:dd:74:ad:41:55:85:c9:a7:4e:61:42:3c:40:42.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '192.168.74.128' (ECDSA) to the list of known hosts.
student@192.168.74.128's password:
Last login: Tue Apr  9 19:47:21 2019
[student@localhost ~]$
```

9. We want to get the newest version of Libreoffice & we know that the correct file is at this link: https://ftp.osuosl.org/pub/tdf/libreoffice/stable/6.2.2/rpm/x86_64/LibreOffice_6.2.2_Linux_x86-64_rpm.tar.gz
   Show me the command that you would use to download the file to your VM, and show me the download statistics.

wget https://ftp.osuosl.org/pub/tdf/libreoffice/stable/6.2.2/rpm/x86_64/LibreOffice_6.2.2_Linux_x86-64_rpm.tar.gz

```
[student@localhost ~]$ wget
https://ftp.osuosl.org/pub/tdf/libreoffice/stable/6.2.2/rpm/x86_64/LibreOffice_6.2.2_Linux_x86-
64_rpm.tar.gz
--2019-04-09 20:29:11--
https://ftp.osuosl.org/pub/tdf/libreoffice/stable/6.2.2/rpm/x86_64/LibreOffice_6.2.2_Linux_x86-
64_rpm.tar.gz
Resolving ftp.osuosl.org (ftp.osuosl.org)... 140.211.166.134, 64.50.236.52, 64.50.233.100, ...
Connecting to ftp.osuosl.org (ftp.osuosl.org)|140.211.166.134|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 245105060 (234M) [application/x-gzip]
Saving to: 'LibreOffice_6.2.2_Linux_x86-64_rpm.tar.gz'

 1% [                                 ] 4,546,560   1.02MB/s  eta 4m 6s  ^ 2% [>
] 5,988,352   1.19MB/s  eta 3m 38s ^ 2% [>                                 ] 6,610,944   1.23MB/s  eta 3m
```

38s ^100%[==>] 245,105,060 1.63MB/s in 2m 54s

2019-04-09 20:32:06 (1.34 MB/s) - ‘LibreOffice_6.2.2_Linux_x86-64_rpm.tar.gz’ saved [245105060/245105060]

[student@localhost ~]$

10. We know the name of the website **www.teambecker.com**, but we need to know the IP address. Show me the command that we would use & the result
(Hint: there are actually 2 of the commands that we used today that would do this, just show me one)

nslookup. **teambecker.com** **(don’t need the www)**

[student@localhost ~]$ nslookup. www.teambecker.com
bash: nslookup.: command not found...
Similar command is: 'nslookup'
[student@localhost ~]$ nslookup teambecker.com
Server: 192.168.74.2
Address: 192.168.74.2#53

Non-authoritative answer:
Name: teambecker.com
Address: 69.195.98.197

[student@localhost ~]$