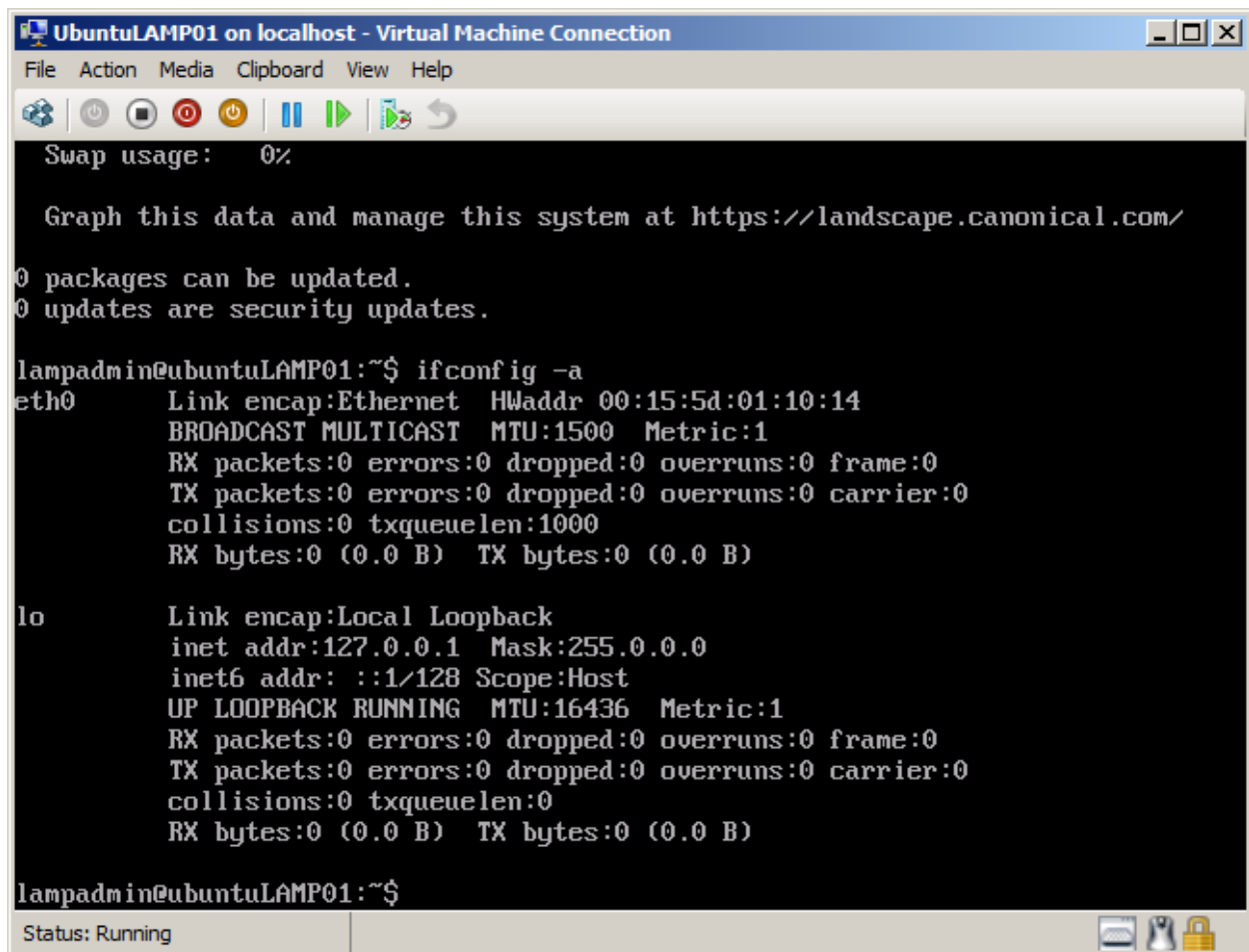


Virtual Ubuntu LAMP Server - Configure Networking

Networking has been problematic with Ubuntu.

Starting with Linux Kernel 2.6.32, Hyper-V drivers are available for the VMBus (Virtual Memory Bus), storage and network components. These should be installed in your Ubuntu server to force Ubuntu and Hyper-V to play nicely with each other

1. First log into you new Ubuntu server using your user name and password. The lets check and see what the network interface is named by using the "ifconfig -a" command. Common variances of the network interface name with Ubuntu server in Hyper-V include eth0, eth1 and seth0. So we need to know what interface name we are starting with.

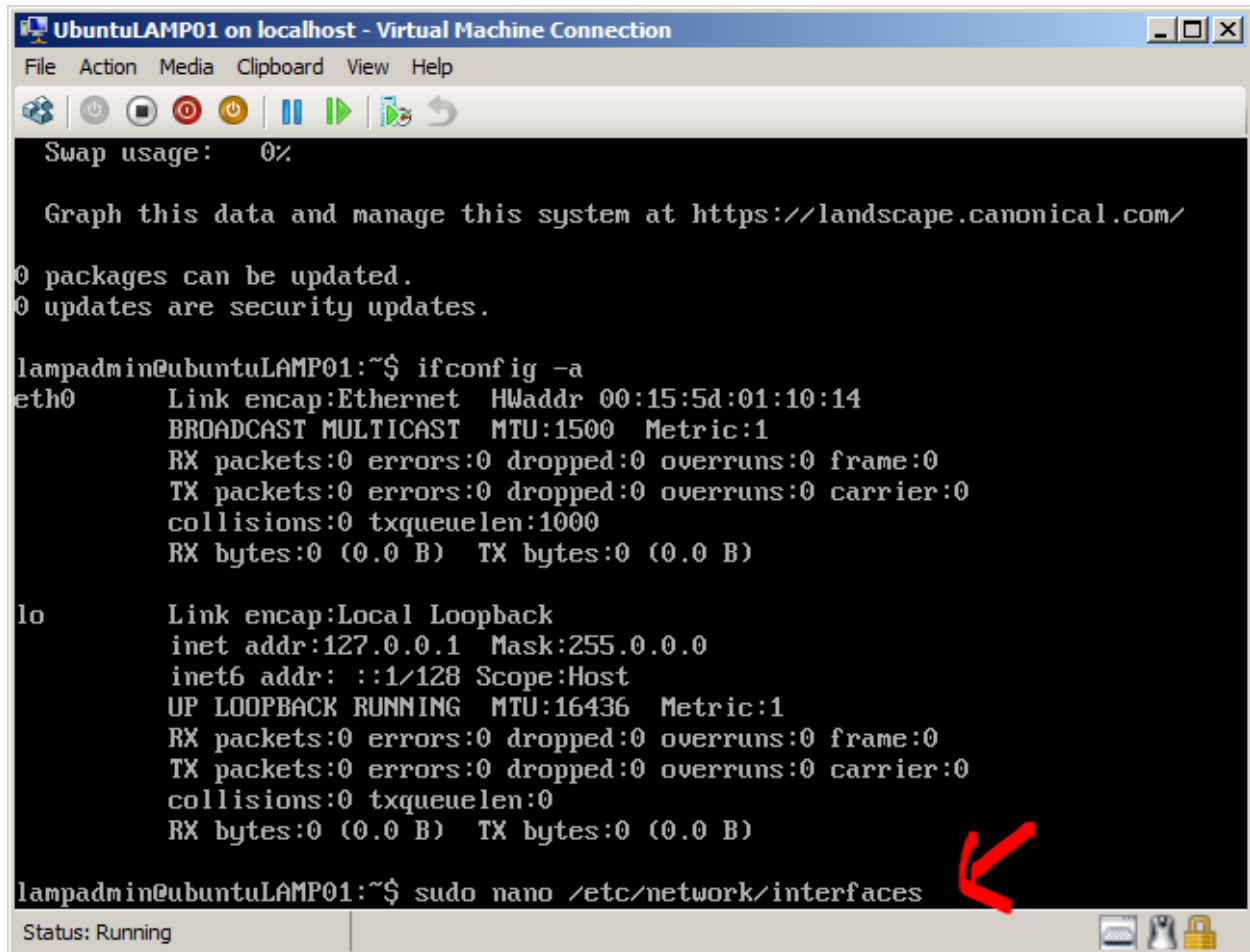


```
UbuntuLAMP01 on localhost - Virtual Machine Connection
File Action Media Clipboard View Help
Swap usage: 0%
Graph this data and manage this system at https://landscape.canonical.com/
0 packages can be updated.
0 updates are security updates.
lampadmin@ubuntuLAMP01:~$ ifconfig -a
eth0      Link encap:Ethernet  HWaddr 00:15:5d:01:10:14
          BROADCAST MULTICAST  MTU:1500  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)

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:16436  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:0
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

lampadmin@ubuntuLAMP01:~$
Status: Running
```

2. Now that we know the name of our interface let's modify the `/etc/network/interfaces` file for either a static IP address or for a dynamic IP address using DHCP. So begin by starting your favorite text editor and giving it the full name of the file.



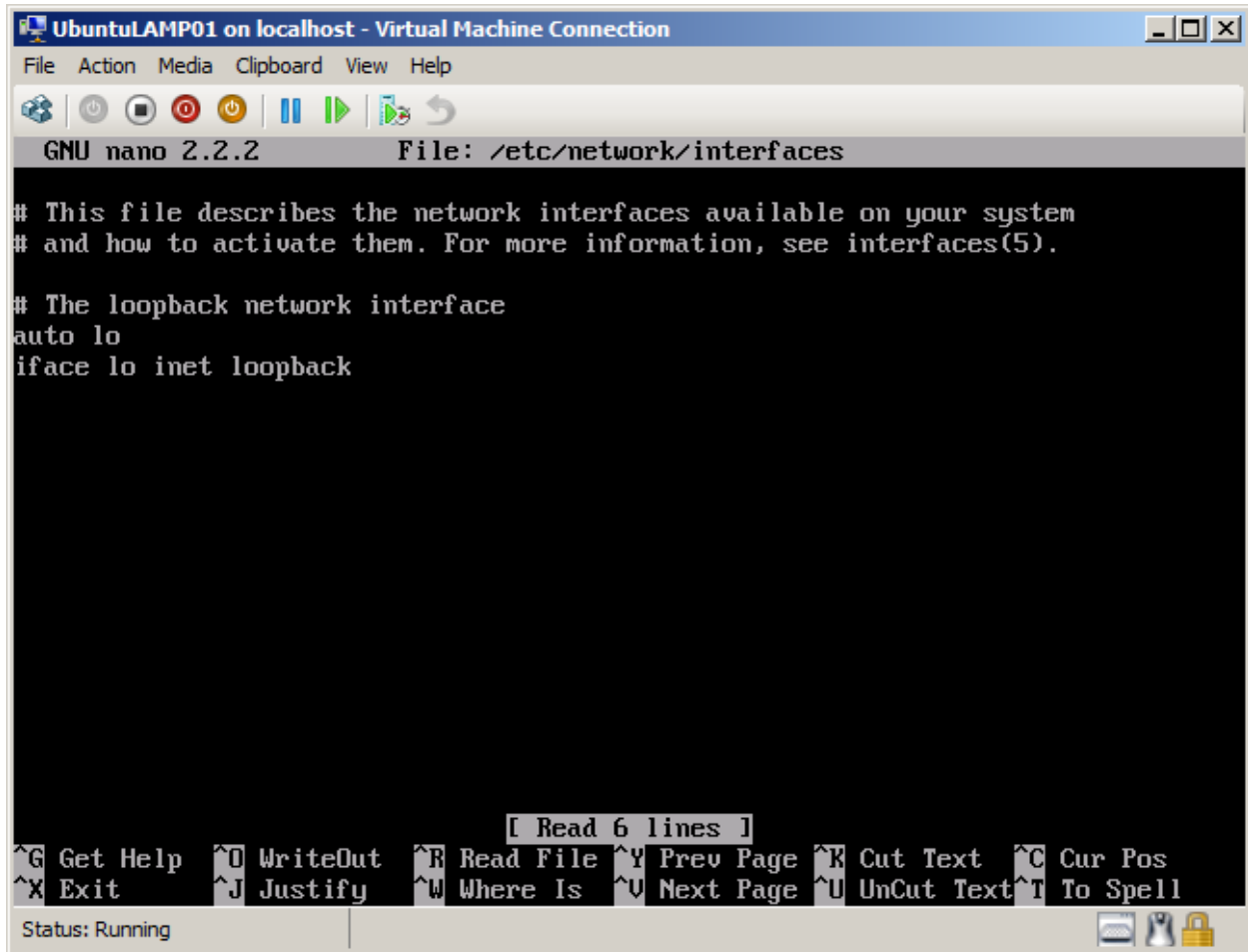
```
UbuntuLAMP01 on localhost - Virtual Machine Connection
File Action Media Clipboard View Help
Swap usage: 0%
Graph this data and manage this system at https://landscape.canonical.com/
0 packages can be updated.
0 updates are security updates.
lampadmin@ubuntuLAMP01:~$ ifconfig -a
eth0      Link encap:Ethernet  HWaddr 00:15:5d:01:10:14
          BROADCAST MULTICAST  MTU:1500  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)

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:16436  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:0
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

lampadmin@ubuntuLAMP01:~$ sudo nano /etc/network/interfaces
```

Status: Running

3. After starting your text editor you should get a file that looks similar to the one below.



The screenshot shows a window titled "UbuntuLAMP01 on localhost - Virtual Machine Connection". The window contains a nano 2.2.2 text editor editing the file "/etc/network/interfaces". The editor's status bar at the bottom indicates "Status: Running" and shows various keyboard shortcuts. The file content is as follows:

```
GNU nano 2.2.2 File: /etc/network/interfaces

# This file describes the network interfaces available on your system
# and how to activate them. For more information, see interfaces(5).

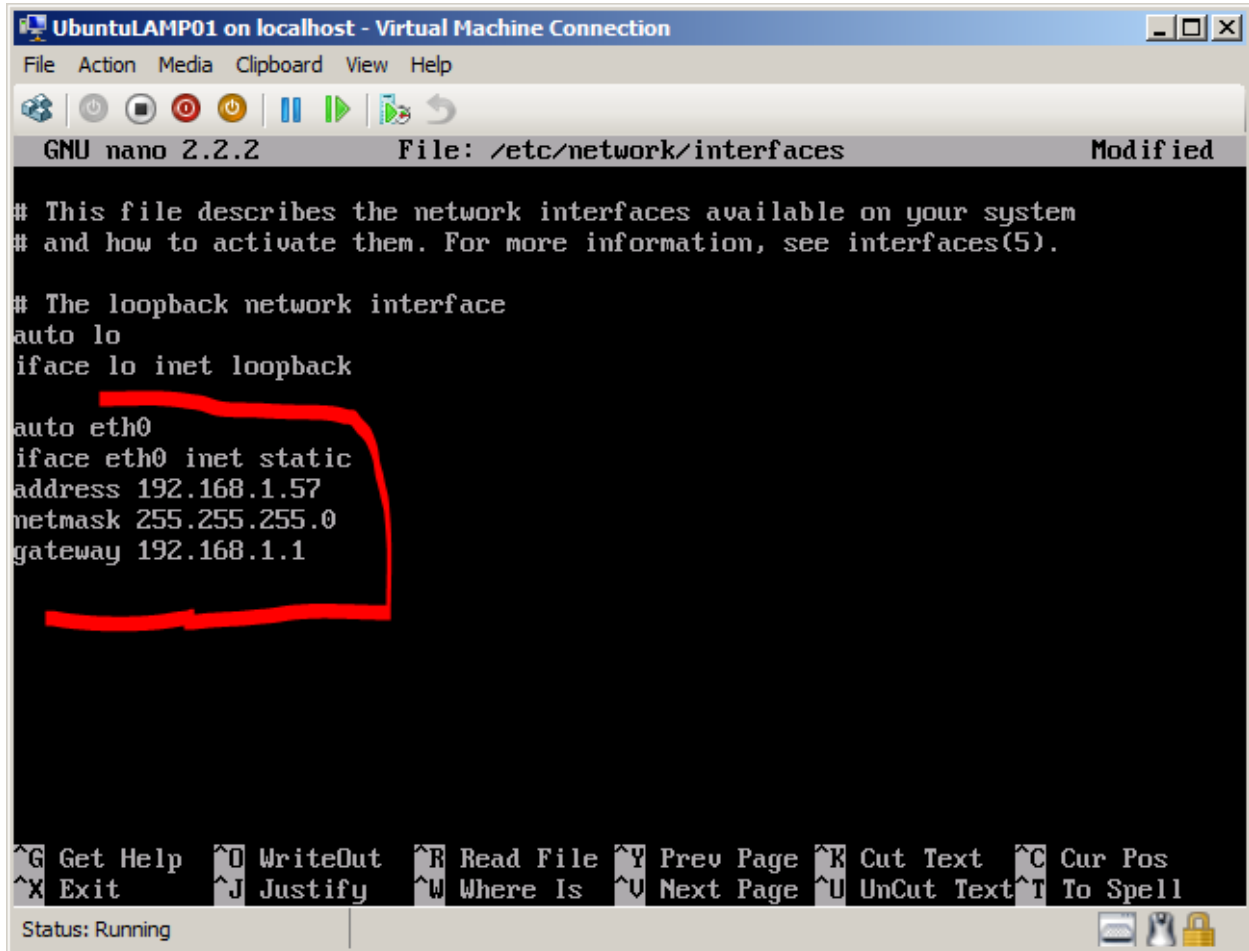
# The loopback network interface
auto lo
iface lo inet loopback
```

At the bottom of the editor, the status bar displays: [Read 6 lines]

^G Get Help	^O WriteOut	^R Read File	^Y Prev Page	^K Cut Text	^C Cur Pos
^X Exit	^J Justify	^W Where Is	^V Next Page	^U UnCut Text	^T To Spell

Additional icons for help, search, and lock are visible in the bottom right corner of the status bar.

4. If you have a static IP address you will need to add something similar to the following lines to your `/etc/network/interfaces` file. You will need to know the IP address assigned to your server and the IP address of your gateway. Please make sure you are using the same network interface name that you had originally.



The screenshot shows a terminal window titled "UbuntuLAMP01 on localhost - Virtual Machine Connection". The terminal is running GNU nano 2.2.2 and editing the file `/etc/network/interfaces`. The content of the file is as follows:

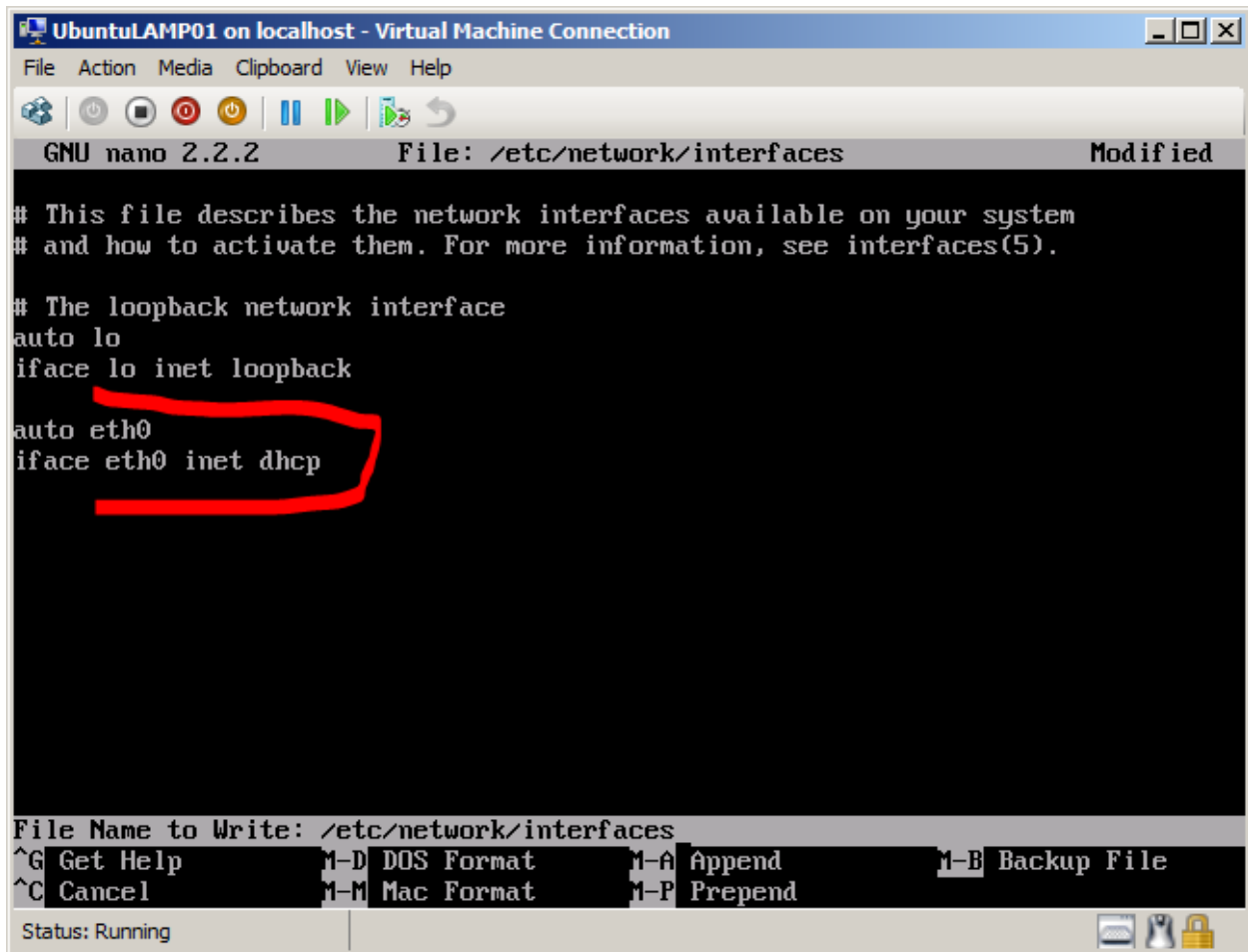
```
# This file describes the network interfaces available on your system
# and how to activate them. For more information, see interfaces(5).

# The loopback network interface
auto lo
iface lo inet loopback

auto eth0
iface eth0 inet static
address 192.168.1.57
netmask 255.255.255.0
gateway 192.168.1.1
```

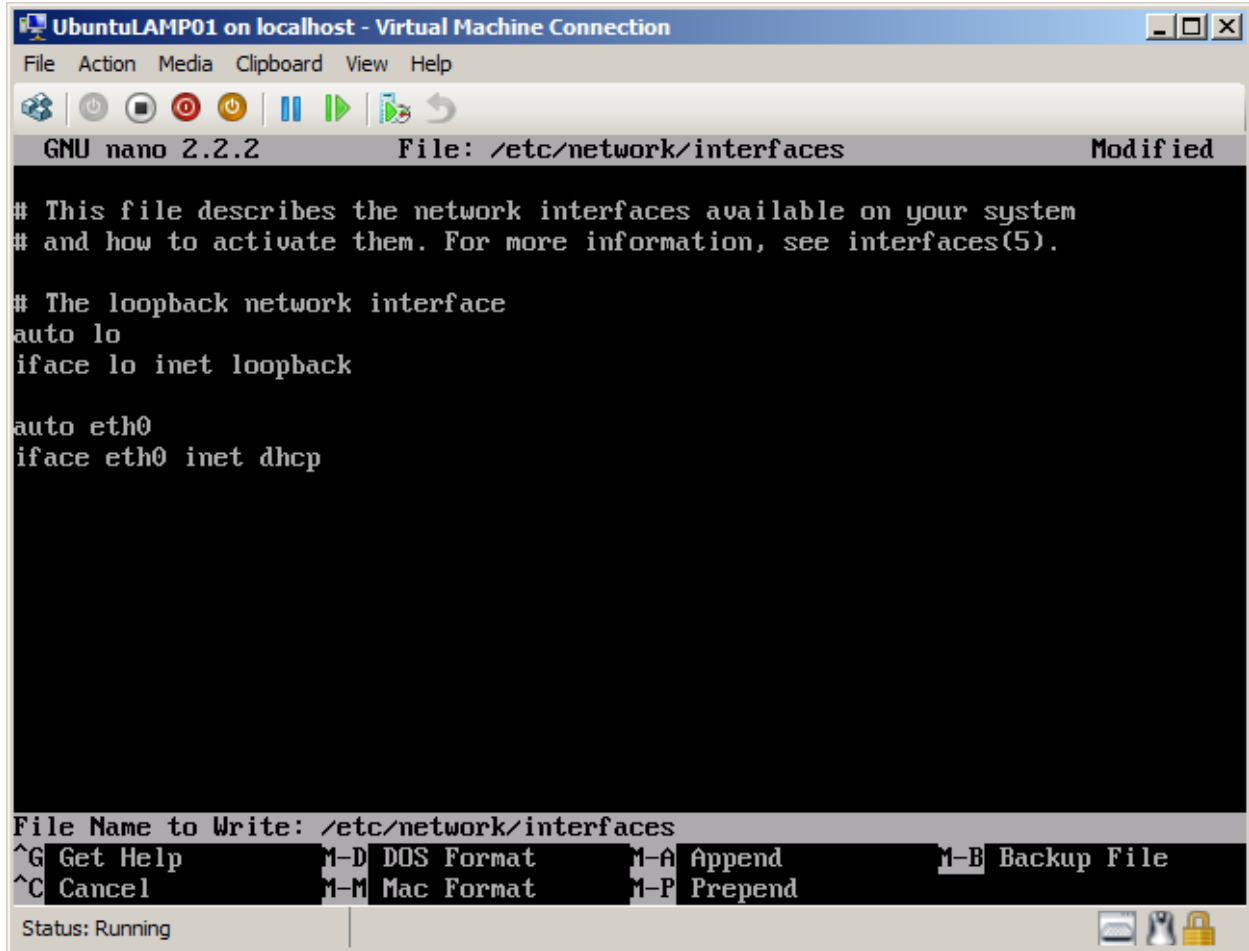
The lines for the `eth0` interface are highlighted with a red box. The terminal also shows a status bar at the bottom with "Status: Running" and various keyboard shortcuts.

5. If you are using DHCP edit your /etc/network/interfaces file as listed below.



```
GNU nano 2.2.2 File: /etc/network/interfaces Modified
# This file describes the network interfaces available on your system
# and how to activate them. For more information, see interfaces(5).
# The loopback network interface
auto lo
iface lo inet loopback
auto eth0
iface eth0 inet dhcp
File Name to Write: /etc/network/interfaces
^G Get Help      M-D DOS Format  M-A Append     M-B Backup File
^C Cancel        M-M Mac Format  M-P Prepend
```

6. Either way write the changes to your /etc/network/interfaces file.



The screenshot shows a terminal window titled "UbuntuLAMP01 on localhost - Virtual Machine Connection". The window contains the nano 2.2.2 text editor editing the file /etc/network/interfaces. The file content is as follows:

```
# This file describes the network interfaces available on your system
# and how to activate them. For more information, see interfaces(5).

# The loopback network interface
auto lo
iface lo inet loopback

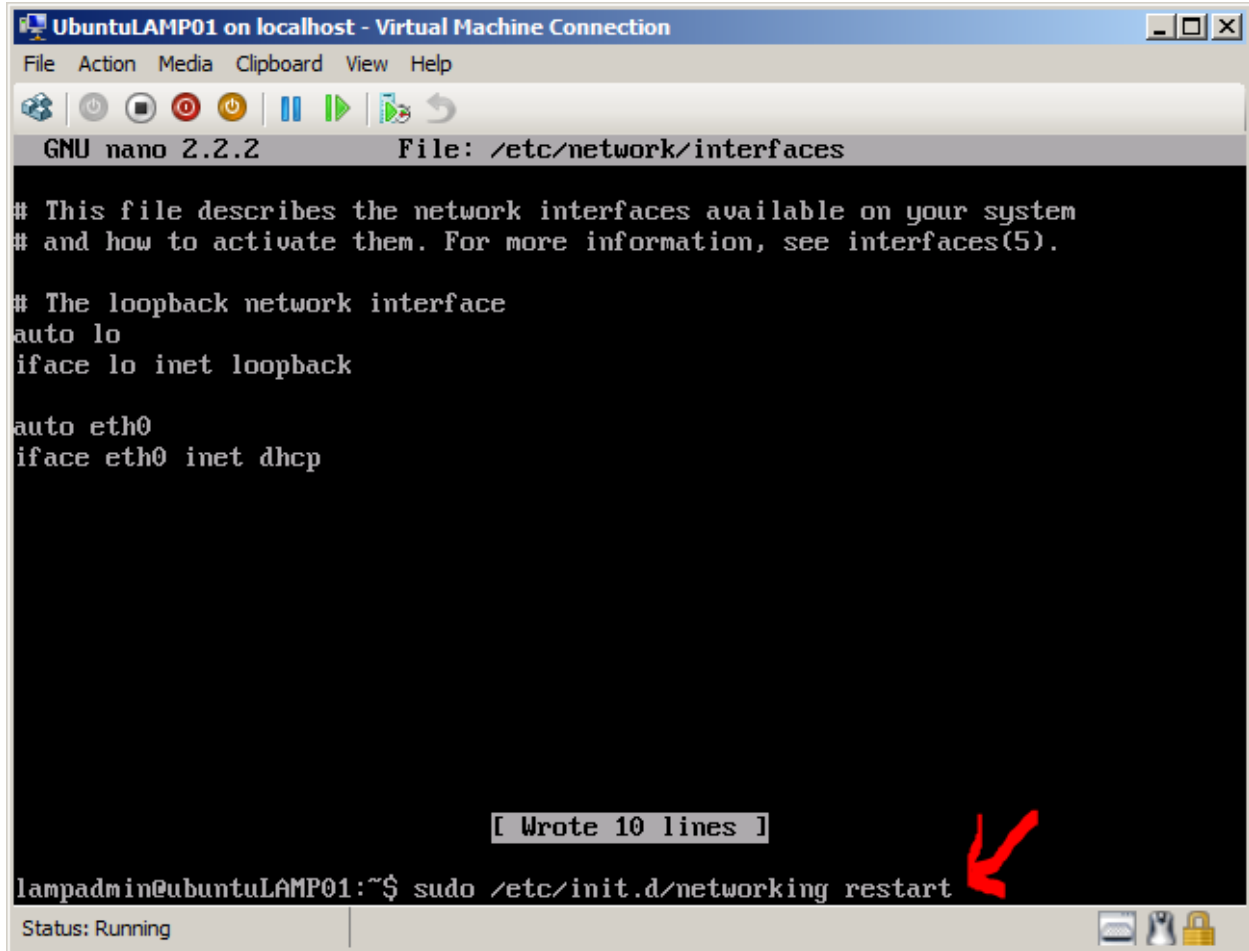
auto eth0
iface eth0 inet dhcp
```

At the bottom of the editor, the "File Name to Write:" field is set to /etc/network/interfaces. A menu bar is visible with the following options:

^G Get Help	M-D DOS Format	M-A Append	M-B Backup File
^C Cancel	M-M Mac Format	M-P Prepend	

The status bar at the bottom left indicates "Status: Running".

7. Then restart your networking with the "sudo /etc/init.d/networking restart" command.



The screenshot shows a terminal window titled "UbuntuLAMP01 on localhost - Virtual Machine Connection". The terminal is running GNU nano 2.2.2, editing the file /etc/network/interfaces. The content of the file is as follows:

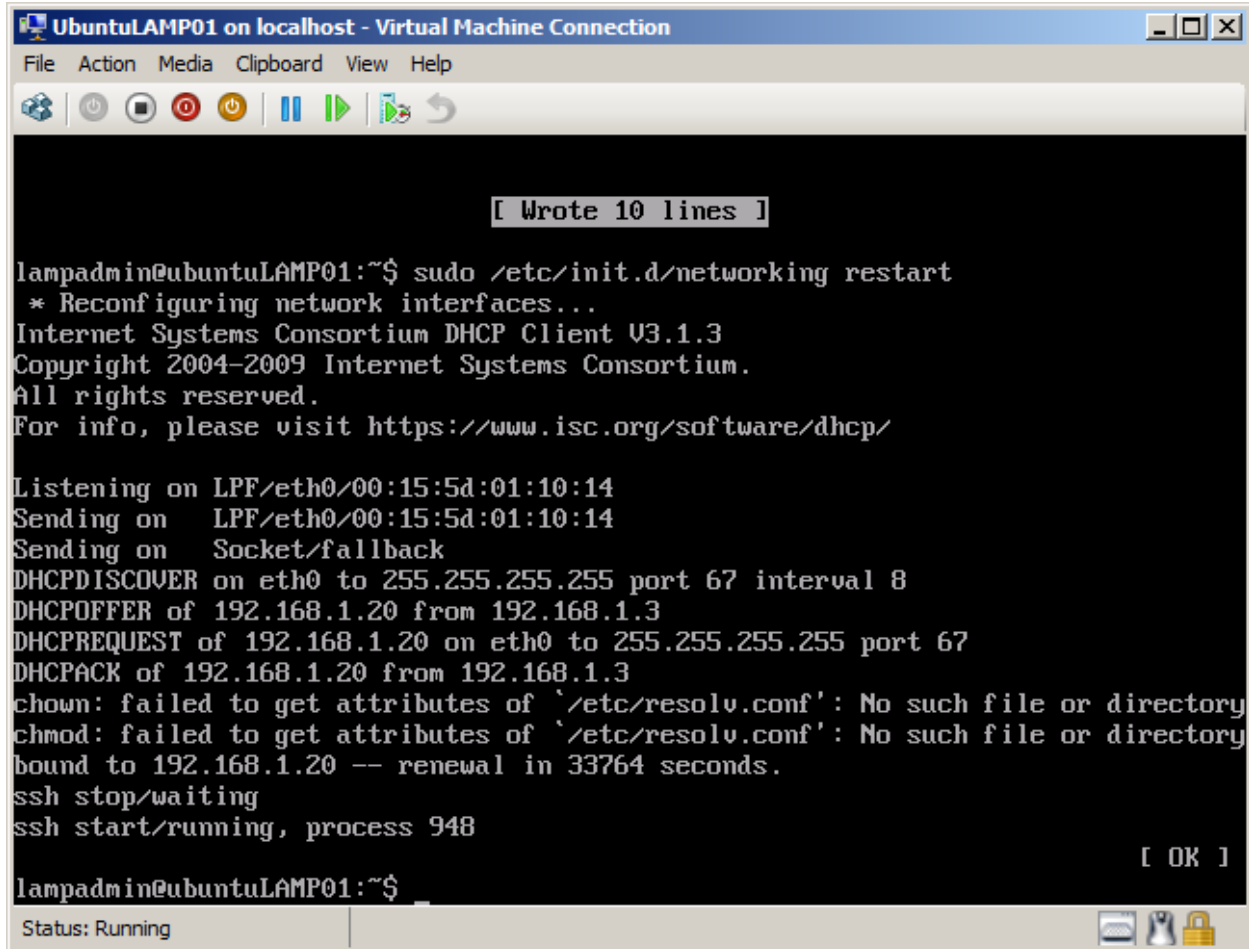
```
# This file describes the network interfaces available on your system
# and how to activate them. For more information, see interfaces(5).

# The loopback network interface
auto lo
iface lo inet loopback

auto eth0
iface eth0 inet dhcp
```

At the bottom of the terminal, a message indicates "[Wrote 10 lines]". Below this, the command `sudo /etc/init.d/networking restart` is entered at the prompt `lampadmin@ubuntuLAMP01:~$`. A red arrow points to the end of this command line. The terminal window also shows a menu bar (File, Action, Media, Clipboard, View, Help) and a status bar at the bottom indicating "Status: Running".

8. You should see something like the screen below.



The screenshot shows a window titled "UbuntuLAMP01 on localhost - Virtual Machine Connection". The window has a menu bar with "File", "Action", "Media", "Clipboard", "View", and "Help". Below the menu bar is a toolbar with icons for power, stop, refresh, play, and other controls. The main area is a terminal window with a black background and white text. The terminal shows the following output:

```
[ Wrote 10 lines ]

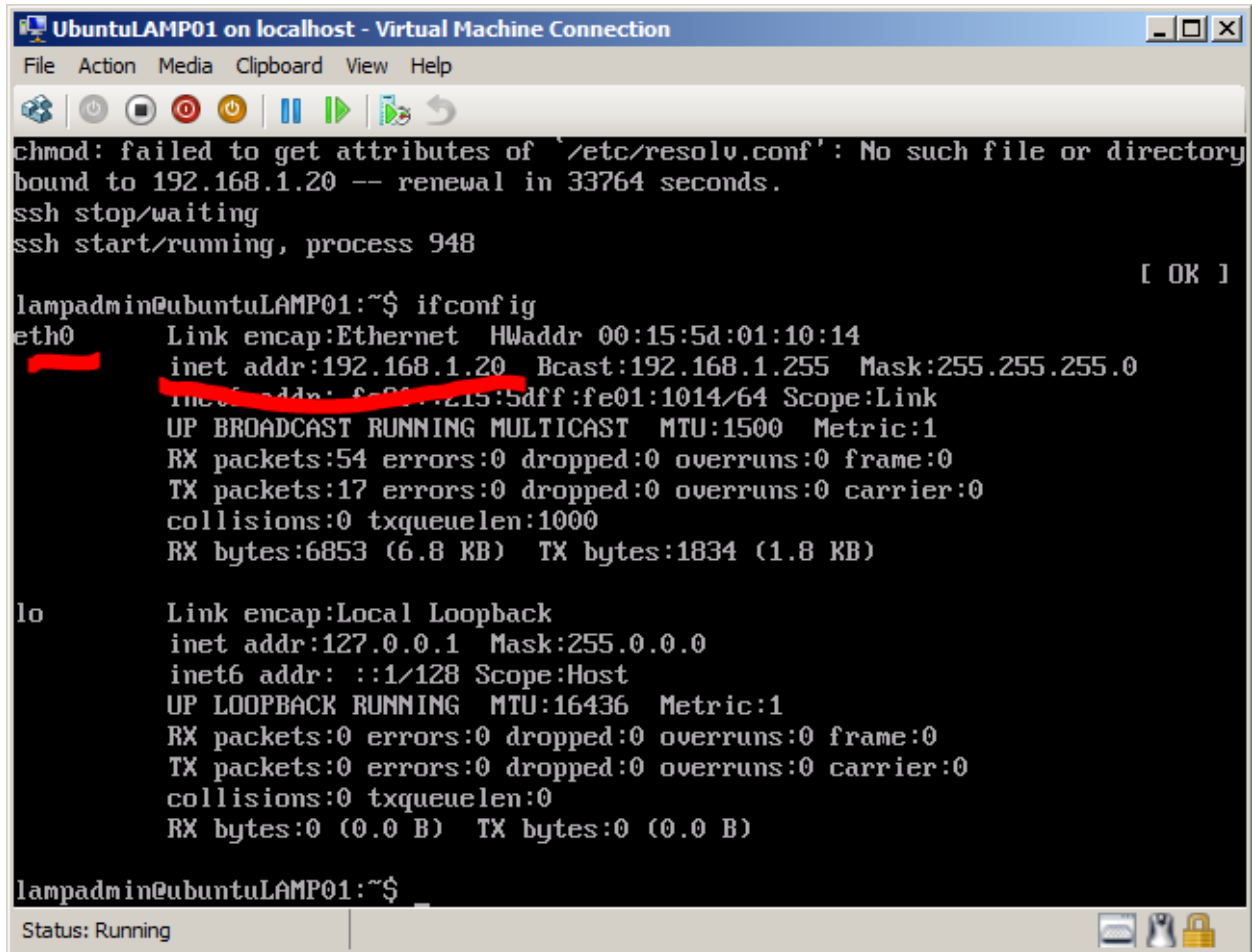
lampadmin@ubuntuLAMP01:~$ sudo /etc/init.d/networking restart
* Reconfiguring network interfaces...
Internet Systems Consortium DHCP Client V3.1.3
Copyright 2004-2009 Internet Systems Consortium.
All rights reserved.
For info, please visit https://www.isc.org/software/dhcp/

Listening on LPF/eth0/00:15:5d:01:10:14
Sending on   LPF/eth0/00:15:5d:01:10:14
Sending on   Socket/fallback
DHCPDISCOVER on eth0 to 255.255.255.255 port 67 interval 8
DHCPOFFER of 192.168.1.20 from 192.168.1.3
DHCPREQUEST of 192.168.1.20 on eth0 to 255.255.255.255 port 67
DHCPACK of 192.168.1.20 from 192.168.1.3
chown: failed to get attributes of '/etc/resolv.conf': No such file or directory
chmod: failed to get attributes of '/etc/resolv.conf': No such file or directory
bound to 192.168.1.20 -- renewal in 33764 seconds.
ssh stop/waiting
ssh start/running, process 948

lampadmin@ubuntuLAMP01:~$
```

At the bottom right of the terminal window, there is a "[OK]" prompt. Below the terminal window, the status bar shows "Status: Running" and some system icons.

9. Go ahead and check if your Ubuntu server now has a valid IP address for the your interface name using the ifconfig command.



```
chmod: failed to get attributes of '/etc/resolv.conf': No such file or directory
bound to 192.168.1.20 -- renewal in 33764 seconds.
ssh stop/waiting
ssh start/running, process 948

[ OK ]

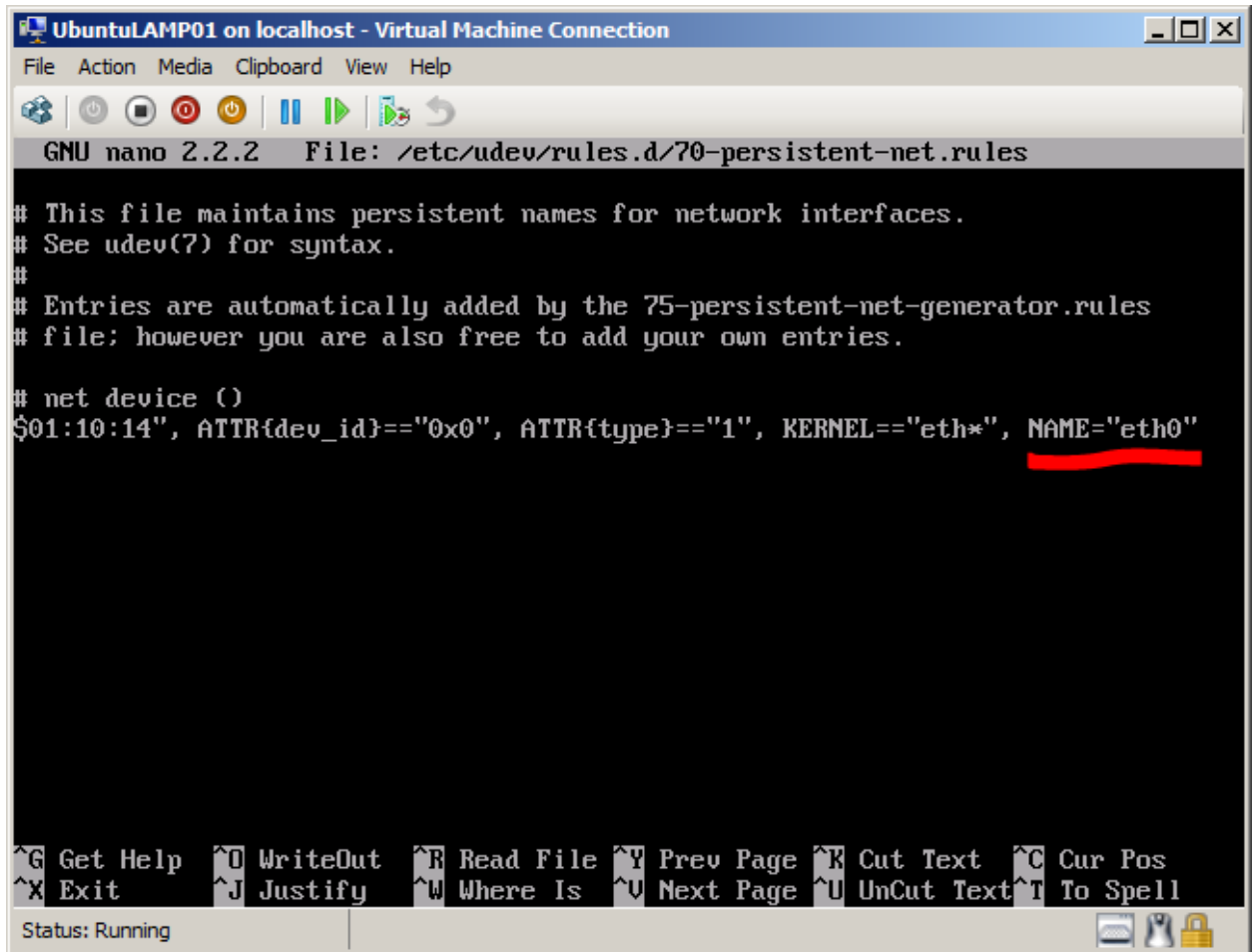
lampadmin@ubuntuLAMP01:~$ ifconfig
eth0      Link encap:Ethernet  HWaddr 00:15:5d:01:10:14
          inet addr:192.168.1.20  Bcast:192.168.1.255  Mask:255.255.255.0
          inet6 addr: fe01:1014:5dff:fe01:1014:5dff:fe01:1014/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:54 errors:0 dropped:0 overruns:0 frame:0
          TX packets:17 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:6853 (6.8 KB)  TX bytes:1834 (1.8 KB)

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:16436  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:0
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

lampadmin@ubuntuLAMP01:~$
```

Status: Running

10. One other area of concern may be the `/etc/udev/rules.d/70-persistent-net.rules` file. Open this file using your text editor and verify that the network interface name matches the network interface name that you have edited.



```
GNU nano 2.2.2 File: /etc/udev/rules.d/70-persistent-net.rules

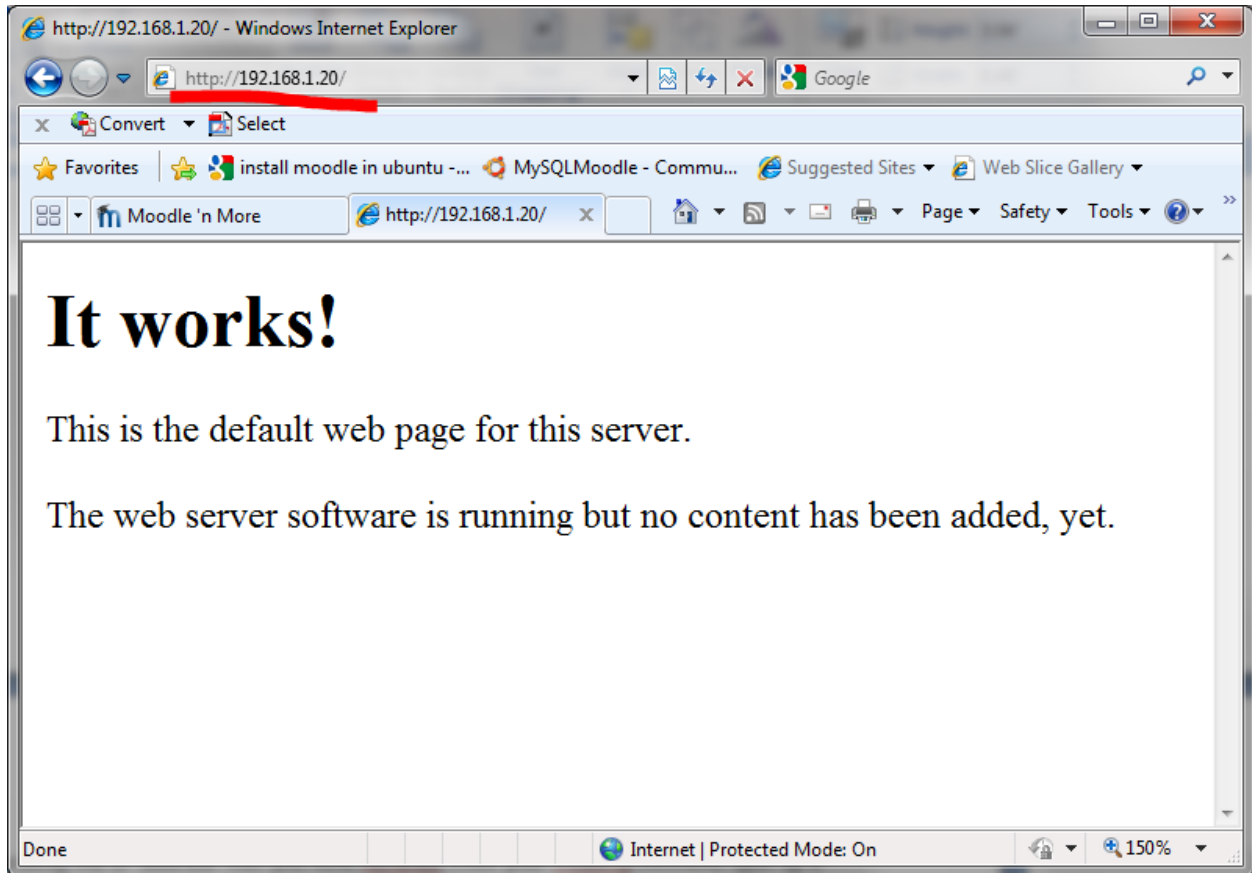
# This file maintains persistent names for network interfaces.
# See udev(7) for syntax.
#
# Entries are automatically added by the 75-persistent-net-generator.rules
# file; however you are also free to add your own entries.

# net device ()
$01:10:14", ATTR{dev_id}=="0x0", ATTR{type}=="1", KERNEL=="eth*", NAME="eth0"
```

^G Get Help ^O WriteOut ^R Read File ^Y Prev Page ^K Cut Text ^C Cur Pos
^X Exit ^J Justify ^W Where Is ^V Next Page ^U UnCut Text ^T To Spell

Status: Running

11. Finally using the IP address that you have received from your ifconfig command open up a web browser, enter the IP address in the address line and verify that your web server is working.



12. Hopefully your Ubuntu 10.04 server in Hyper-V is running well. Of course neither Ubuntu or Microsoft offers support for this configuration but maybe you might want to go on to the next challenge of installing a Moodle server into Ubuntu 10.04.