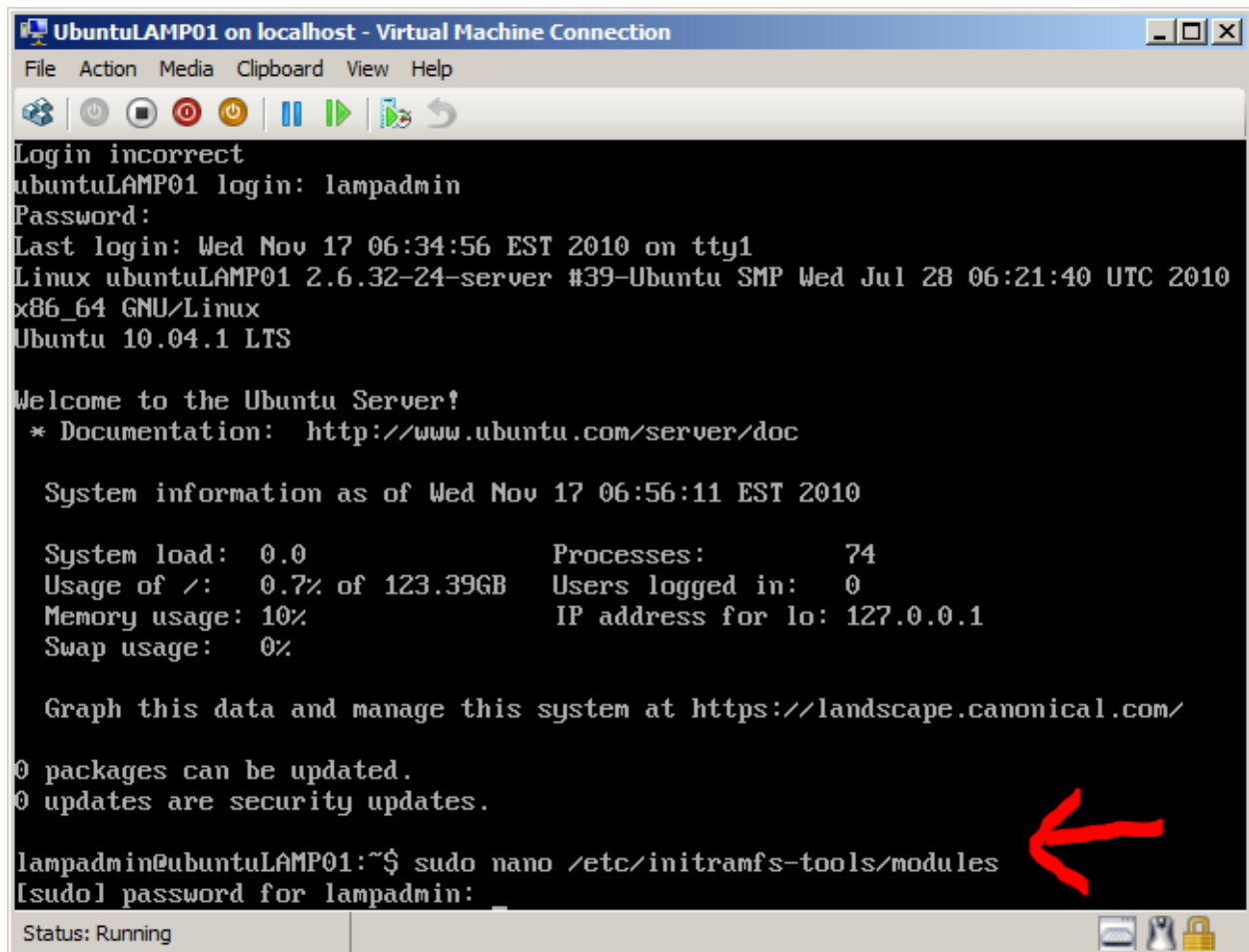


Virtual Ubuntu LAMP Server - Load Hyper-V Modules

To get your Ubuntu 10.04 server to play nicely with Hyper-V you will have to install para-virtualized drivers. Para-virtualized drivers are drivers designed to work with virtual machines and improve performance over the slower emulated device drivers. Microsoft calls these para-virtualized device drivers integration components.

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 your new Ubuntu server using your user name and password. (Although these pages are arranged in order of installation, the host name, user name and password may change from the last set of screens.) Simply continue using the username and password that you originally set up. Then edit the `/etc/initramfs-tools/modules` file using "sudo nano `/etc/initramfs-tools/modules`" or the text editor of your choice.



```
UbuntuLAMP01 on localhost - Virtual Machine Connection
File Action Media Clipboard View Help
Login incorrect
ubuntuLAMP01 login: lampadmin
Password:
Last login: Wed Nov 17 06:34:56 EST 2010 on tty1
Linux ubuntuLAMP01 2.6.32-24-server #39-Ubuntu SMP Wed Jul 28 06:21:40 UTC 2010
x86_64 GNU/Linux
Ubuntu 10.04.1 LTS

Welcome to the Ubuntu Server!
* Documentation: http://www.ubuntu.com/server/doc

System information as of Wed Nov 17 06:56:11 EST 2010

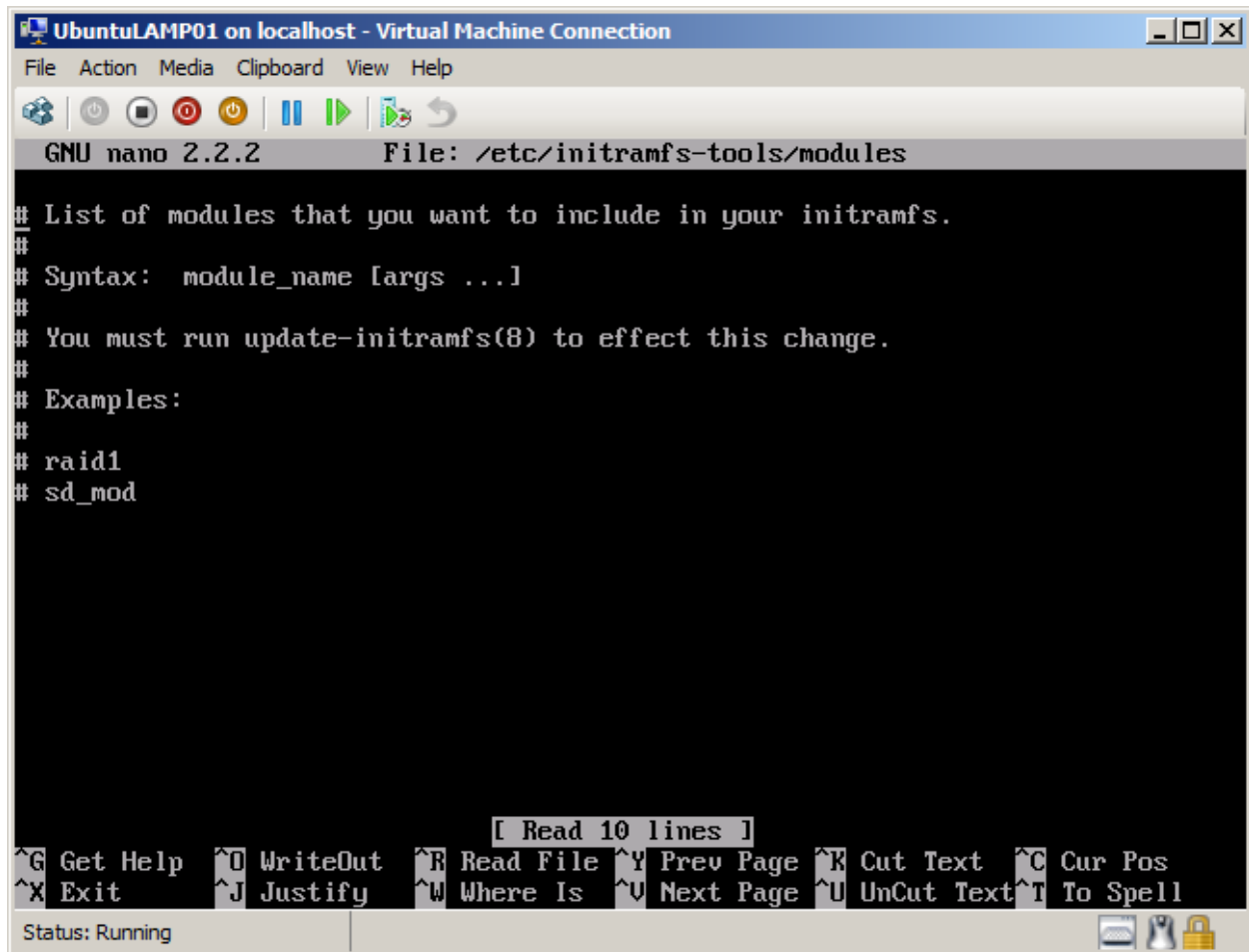
System load: 0.0          Processes:           74
Usage of /:  0.7% of 123.39GB  Users logged in:   0
Memory usage: 10%          IP address for lo: 127.0.0.1
Swap usage:  0%

Graph this data and manage this system at https://landscape.canonical.com/

0 packages can be updated.
0 updates are security updates.

lampadmin@ubuntuLAMP01:~$ sudo nano /etc/initramfs-tools/modules
[sudo] password for lampadmin: 
```

2. The modules file should pop up. If you get a blank file, more than likely you have spelled a directory or file name incorrectly



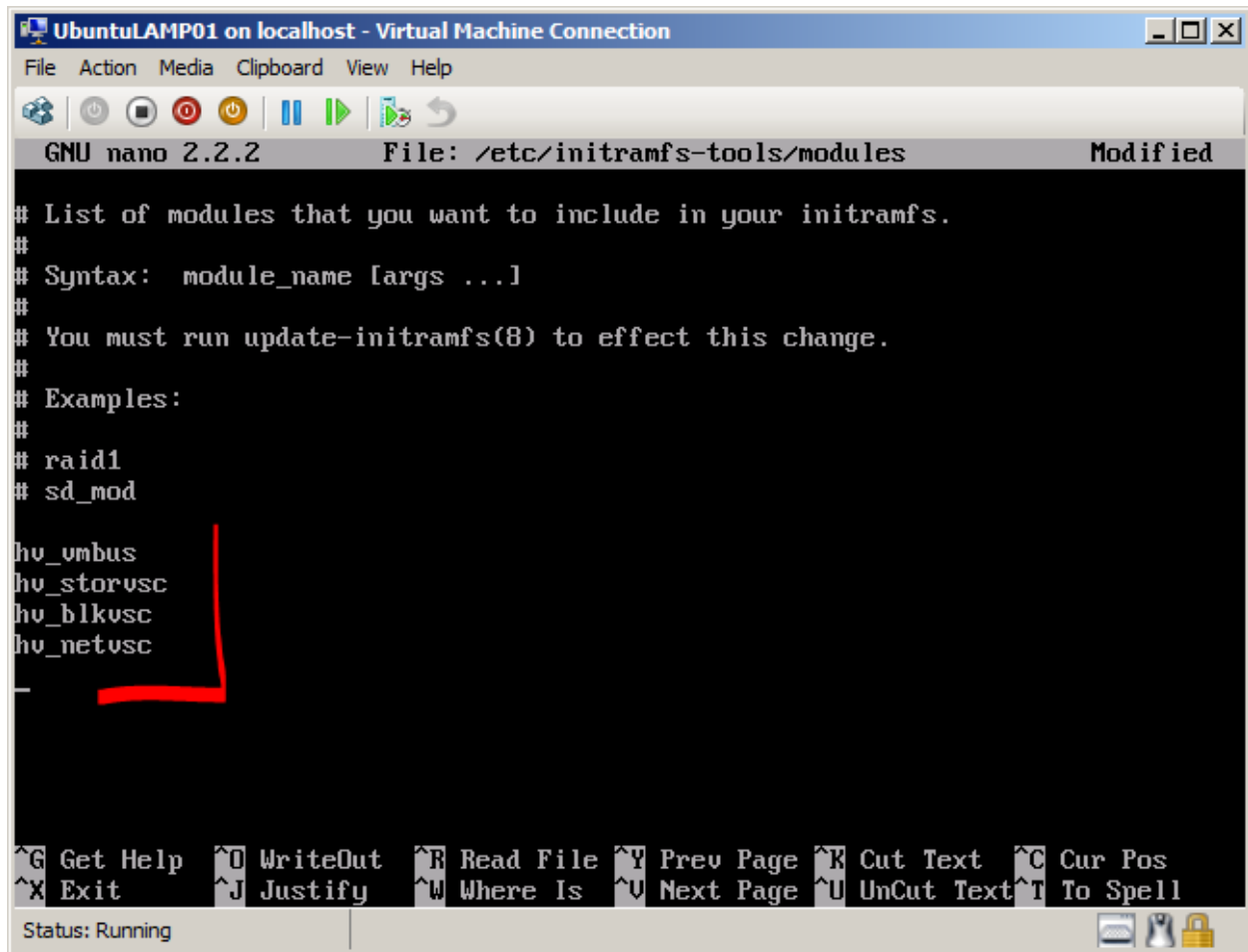
The screenshot shows a virtual machine window titled "UbuntuLAMP01 on localhost - Virtual Machine Connection". The window contains a terminal running the nano text editor. The editor is open to the file "/etc/initramfs-tools/modules". The content of the file is as follows:

```
# List of modules that you want to include in your initramfs.
#
# Syntax: module_name [args ...]
#
# You must run update-initramfs(8) to effect this change.
#
# Examples:
#
# raid1
# sd_mod
```

At the bottom of the terminal, there is a status bar with the text "Status: Running" on the left and several icons on the right. A keyboard shortcut menu is also visible, listing various actions like "Get Help", "WriteOut", "Read File", "Prev Page", "Cut Text", "Cur Pos", "Exit", "Justify", "Where Is", "Next Page", "UnCut Text", and "To Spell".

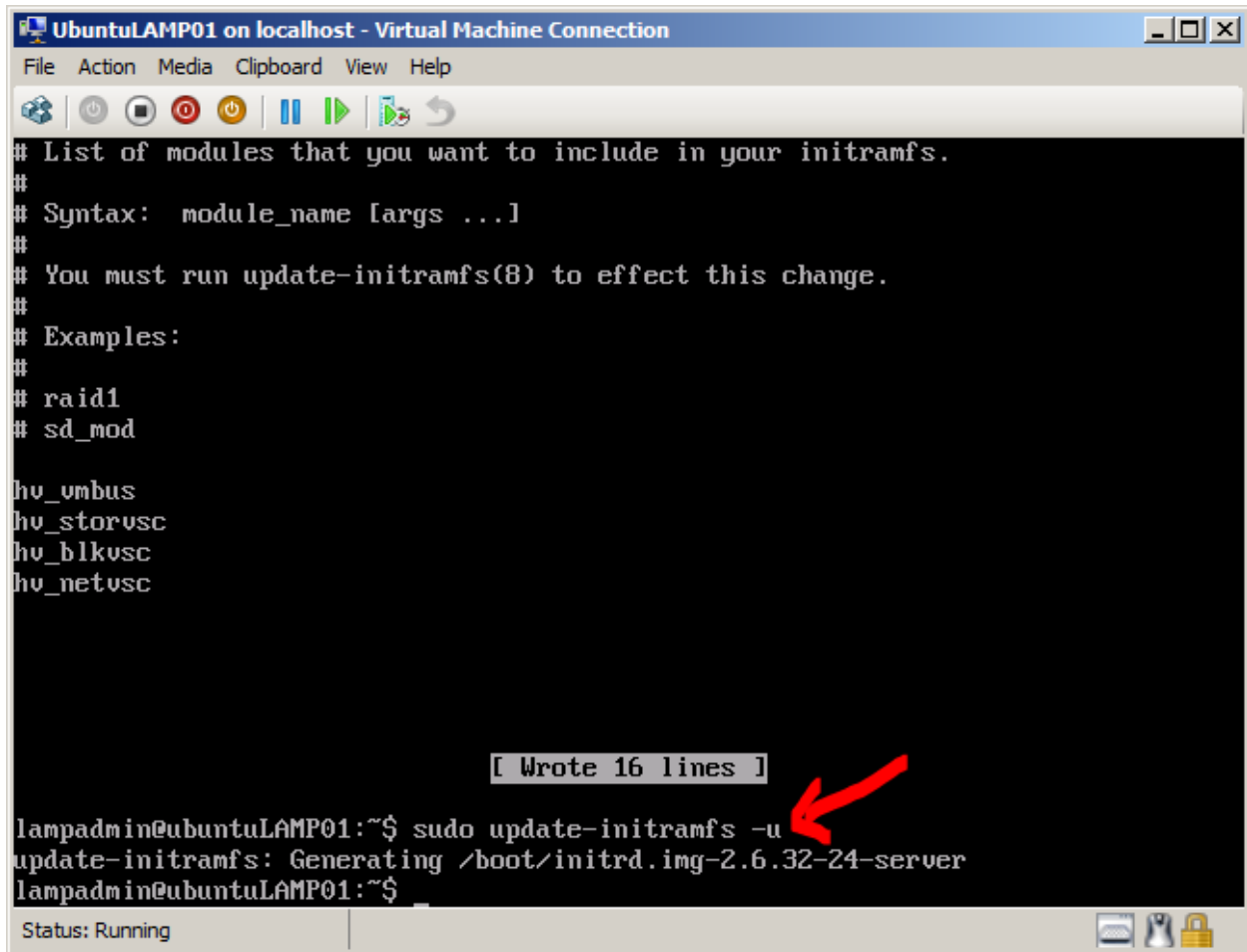
3. Scroll down below "# sd_mod" and enter the following four lines:

```
hv_vmbus
hv_storvsc
hv_blkvsc
hv_netvsc
```



```
GNU nano 2.2.2 File: /etc/initramfs-tools/modules Modified
# List of modules that you want to include in your initramfs.
#
# Syntax: module_name [args ...]
#
# You must run update-initramfs(8) to effect this change.
#
# Examples:
#
# raid1
# sd_mod
#
hv_vmbus
hv_storvsc
hv_blkvsc
hv_netvsc
-
^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
```

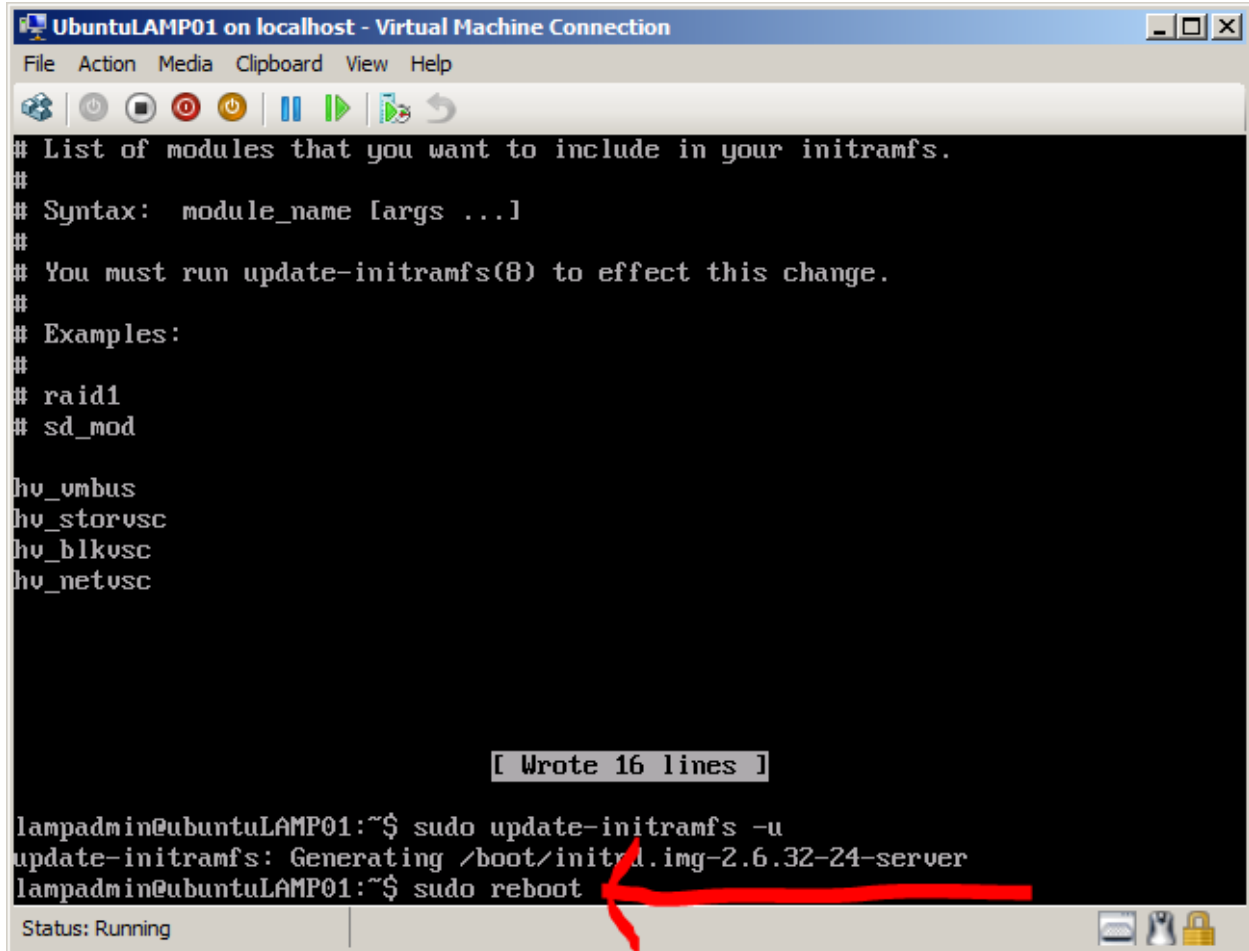
4. Save the file using Ctrl "X". If you did not open the file as "sudo" you will not be able to write out the file. Then update the image using "sudo update-initramfs -u". If you have done everything correctly you will see a screen similar to the one below.



```
UbuntuLAMP01 on localhost - Virtual Machine Connection
File Action Media Clipboard View Help
# List of modules that you want to include in your initramfs.
#
# Syntax: module_name [args ...]
#
# You must run update-initramfs(8) to effect this change.
#
# Examples:
#
# raid1
# sd_mod
#
# hv_umbus
# hv_storvsc
# hv_blkvsc
# hv_netvsc
[ Wrote 16 lines ]
lampadmin@ubuntuLAMP01:~$ sudo update-initramfs -u
update-initramfs: Generating /boot/initrd.img-2.6.32-24-server
lampadmin@ubuntuLAMP01:~$
```

Status: Running

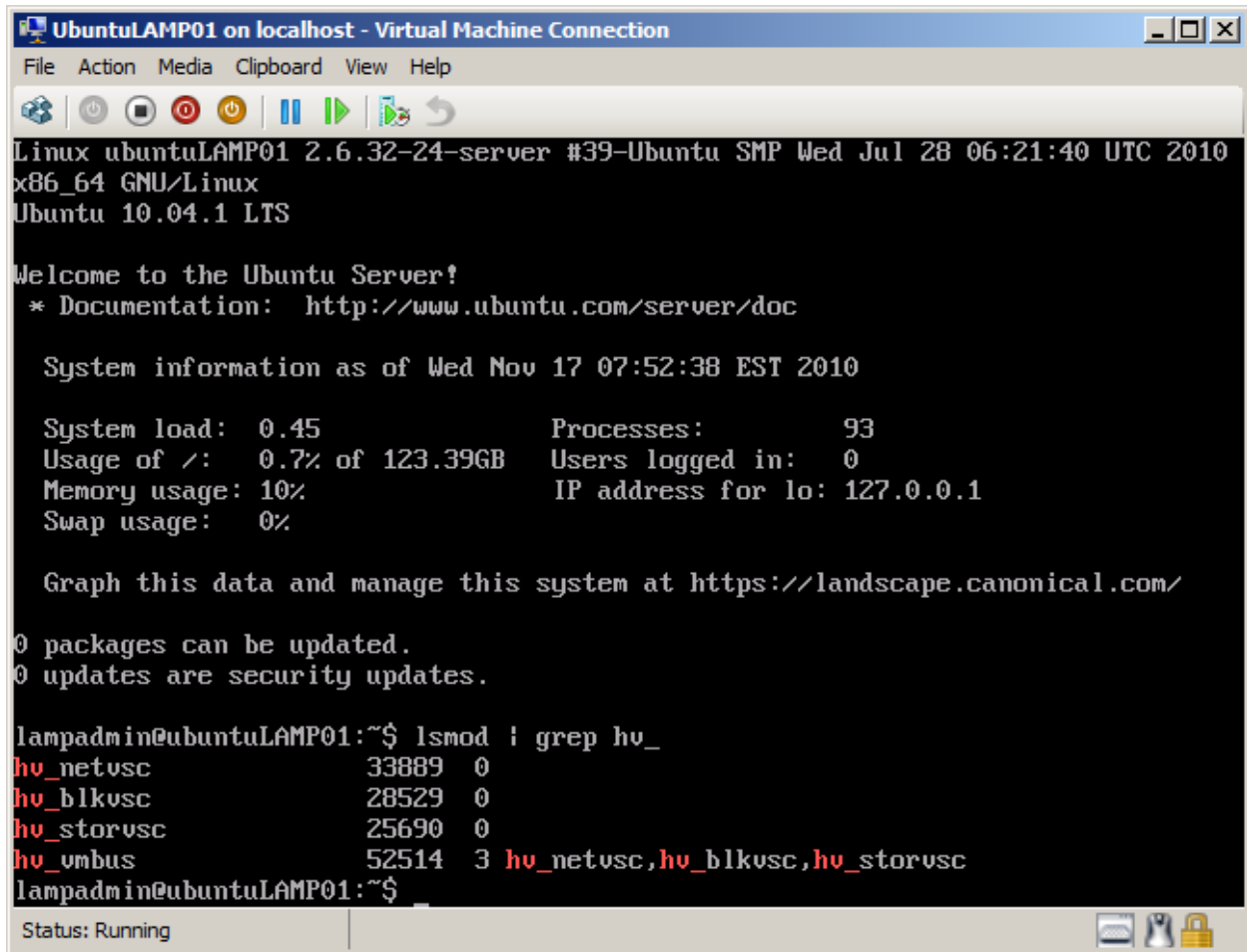
5. reboot your computer using sudo "reboot". Then log back in.



```
UbuntuLAMP01 on localhost - Virtual Machine Connection
File Action Media Clipboard View Help
# List of modules that you want to include in your initramfs.
#
# Syntax: module_name [args ...]
#
# You must run update-initramfs(8) to effect this change.
#
# Examples:
#
# raid1
# sd_mod
#
# hv_umbus
# hv_storvsc
# hv_blkvsc
# hv_netvsc
#
# [ Wrote 16 lines ]
lampadmin@ubuntuLAMP01:~$ sudo update-initramfs -u
update-initramfs: Generating /boot/initrd.img-2.6.32-24-server
lampadmin@ubuntuLAMP01:~$ sudo reboot
```

Status: Running

6. After you have logged back in you can check that the modules have loaded by having all modules listed that start contain hv_. The command to do this is "lsmod | grep hv_" or list modules piped into search for hv_.



```
UbuntuLAMP01 on localhost - Virtual Machine Connection
File Action Media Clipboard View Help
Linux ubuntuLAMP01 2.6.32-24-server #39-Ubuntu SMP Wed Jul 28 06:21:40 UTC 2010
x86_64 GNU/Linux
Ubuntu 10.04.1 LTS

Welcome to the Ubuntu Server!
* Documentation: http://www.ubuntu.com/server/doc

System information as of Wed Nov 17 07:52:38 EST 2010

System load: 0.45          Processes:          93
Usage of /: 0.7% of 123.39GB  Users logged in: 0
Memory usage: 10%          IP address for lo: 127.0.0.1
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:~$ lsmod | grep hv_
hv_netvsc          33889 0
hv_blkvsc          28529 0
hv_storvsc         25690 0
hv_umbus           52514 3 hv_netvsc,hv_blkvsc,hv_storvsc
lampadmin@ubuntuLAMP01:~$
```

7. If all modules have loaded, they will be listed. If a module has not loaded it will not be listed. The next lesson will finalize the Ubuntu 10.04 installation into Hyper-V by setting up networking.

