COMS W4187 Security Architecture and Engineering

Fall 2008

VMware How To

1 Things you need know before getting started

- Your CS account used on CLIC machines;
- VMware machine assigned to you;
  An email has been sent to you with an assignment that looks like

  `username@hostname.clic.cs.columbia.edu`

  For example, `zhao@lima.clic.cs.columbia.edu` means that user `zhao` is assigned to CLIC machine `lima.clic.cs.columbia.edu`. You can find your VM copy at `/local/vmware/username/Ubuntu.vmx` (replace username with your CS account). Each of you is assigned a different machine in CLIC lab.
- There is a "student" user with login "osw4118" on your VM; `sudo -s` and the same password grants root privileges. Please change your login passwords immediately, if you do not want your homework tampered by others.

2 How to start VMware in CLIC Lab

The easiest way to start VMware is to sit in front of any machine in CLIC lab and work from there directly. Each CLIC machine has a unique name, say `paris.clic.cs.columbia.edu`. It is not necessary to choose the physical machine that has been assigned to you since you can always run SSH through the high-speed network.

Step 1
Log into the CLIC machine with your CS account username and passwd. By now, you should be able to do that through the practice of homework assignment 1.

Step 2
Type `hostname` to check which machine you are sitting at.

```
zhao@amman /home/zhao:  hostname
amman.clic.cs.columbia.edu
```

If it is the same as the machine assigned to you, skip step 3 and go to step 4 directly.

Step 3
Run SSH to log into the CLIC machine assigned to you.
`zhao@amman /home/zhao:  ssh -X zhao@lima.clic.cs.columbia.edu`
Try `ssh -Y zhao@lima.clic.cs.columbia.edu` if **Step 4** or **Step 6** fails .

Step 4
Type `startx` to initialize a session of X window system.
`zhao@lima /home/zhao:  startx`

Step 5
Open a terminal, and type `vmware /local/vmware/username/Ubuntu.vmx`. You'll see the vmware window popped out as in Figure 1.
`zhao@lima /home/zhao:  vmware /local/vmware/zhao/Ubuntu.vmx`

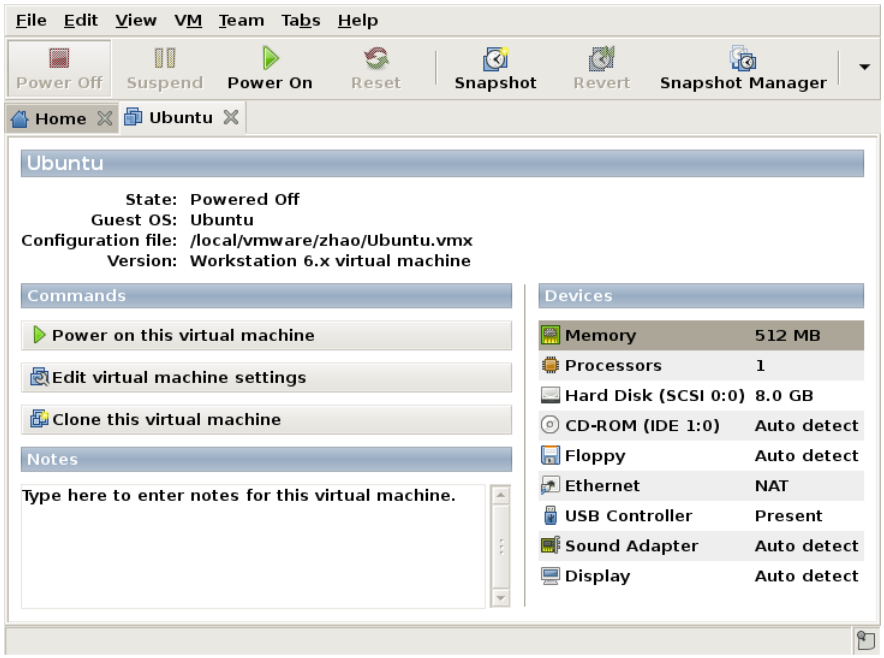

Figure 1: Open vmware window

Step 6
Click the `Power On` button (press `Ctrl + Alt` to release cursor if you want), and let the Ubuntu kernel boot up. The login window is to be displayed as in Figure 2.

Step 7
Log in with user `student` and passwd `osw4118`. Type `sudo -s` with the same password to gain privilege access.

Step 8
Type `useradd user1` to add the first user, and use `passwd user1` to setup a password for `user1`. Do it repeatedly for user2 (see Figure 3).

Step 9
Make sure to change `root/student` passwd by typing `passwd root/student` for security.

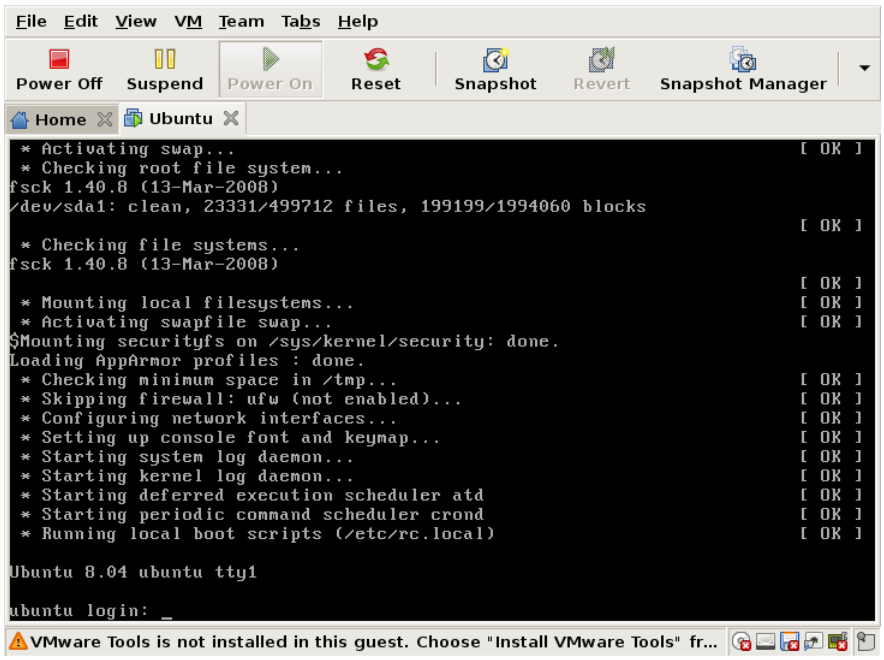

Figure 2: Power on vmware and boot kernel

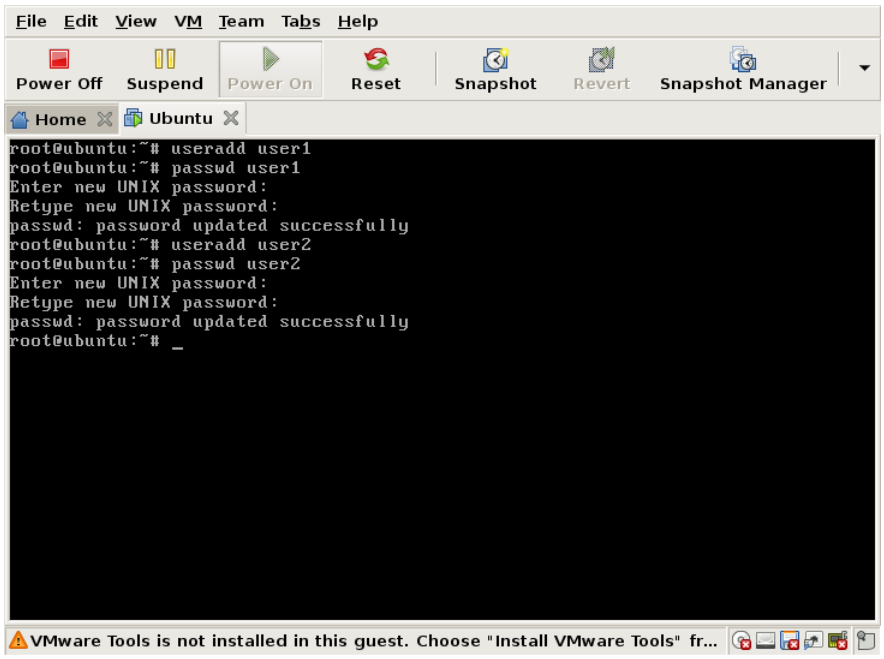

Figure 3: Adding users

3 How to start VMware remotely

As many of you may want to work on your vmware machines remotely, you need to:

1. Start the `vncserver` on your assigned machine;
2. Install and run appropriate `vncclient` on your personal computer.

All the CLIC machines have `vncserver` installed already. You just need to start the server by typing the command `vncserver&` on your assigned machine. You only need to start the server once even you may remote login many times, and keep the display number assigned to you. You will be also asked for a `passwd` by running the `vncserver` for the first time (it can be differerent from your CS account passwd). Both the `display` number and `passwd` are required when you run `vncclient` on your PC.

```
zhao@lima /home/zhao:  vncserver&
...  ...
New 'lima:1 (zhao)' desktop is lima:1
Starting applications specified in /home/zhao/.vnc/xstartup
Log file is /home/zhao/.vnc/lima:1.log
...  ...
```

In case you forget your `display` number, you can always check it by logging into the CLIC machine assigned to you, and type the following command, and `1` is the display number assigned to you by VNC server in this example.

```
zhao@lima /home/zhao:  ps -ef | grep vnc
zhao 31552 1 0 02:19 ?  00:00:00 Xvnc :1 -desktop lima:1 (zhao)
```

The `vncclient` is platform dependent. We will describe them for Window user, Linux user and MAC user respectively.

3.1 For Linux Users

Remote login from your own Linux machine is quite similar as using any machines in CLIC lab. Make sure you have `SSH` installed for your Linux system. Run `SSH` as specified in **Step 3** Section 2, and the rest just follows.

3.2 For Windows Users

One of the available `vncclient` for Windows users is `VNC Viewer` from `RealVNC`, which can be downloaded here: `http://www.realvnc.com/products/free/4.0/winvncviewer.html`.

Run `VNC Viewer`, enter the `Server` address as `machine_name:display_number`, and then type your `vncserver Password`. Note that both `display_number` and `Password` can be obtained through the first start of `vncserver` on your assignment machine. You do not need to supply a `username` since your identification is bounded with the assigned `display_number` (see Figure 4, 5).

Figure 4: VNC Viewer login

Figure 5: VNC Viewer authentication

Once you are remotely connected to your assigned machine, the rest just follows from **Step 5** in Section 2.

3.3 For MAC Users

One of the available `vncclient` for MAC users is `Chicken VNC`, which can be downloaded here: `http://sourceforge.net/projects/cotvnc/`.

Run `Chicken VNC`, enter correct `Host, Display` and `Password`, then click `Connect` button (see Figure 6). `Host` is the machine assigned to you. `Display` and `Password` can be obtained through the first start of `vncserver` on your assignment machine. Once you are remotely

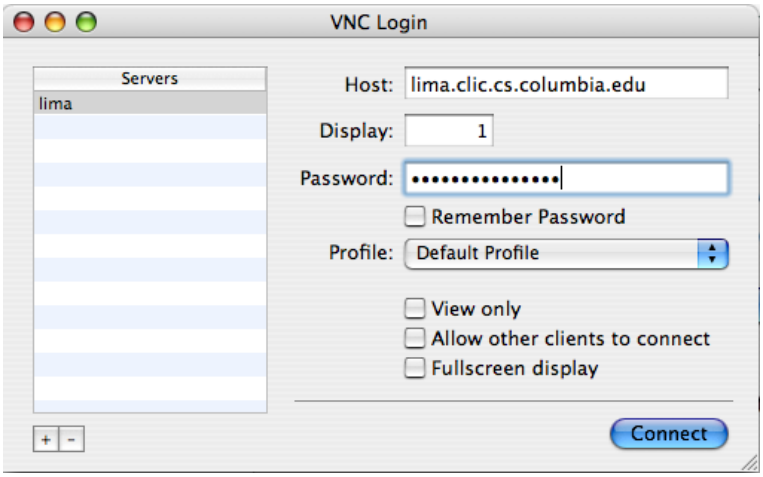

Figure 6: Chicken VNC login

connected to your assigned machine, the rest just follows from **Step 5** in Section 2.

4 A Few Hints

1. The VM running on CLIC machine has a host-only connection. So you could program on the host machine and upload files onto your VM using the `scp` command. Before that, you need to figure out the IPs for that host-only connection. Type `dhclient&` with root privilege to make sure DHCP is running on your VM (see Figure 7). Then use `ifconfig` to find the IPs for your VM (in Figure 8, it is 192.168.53.128) and the host machine (likely to be 192.168.53.1). Now you can push files to or pull files from the host machine (see Figure 9).

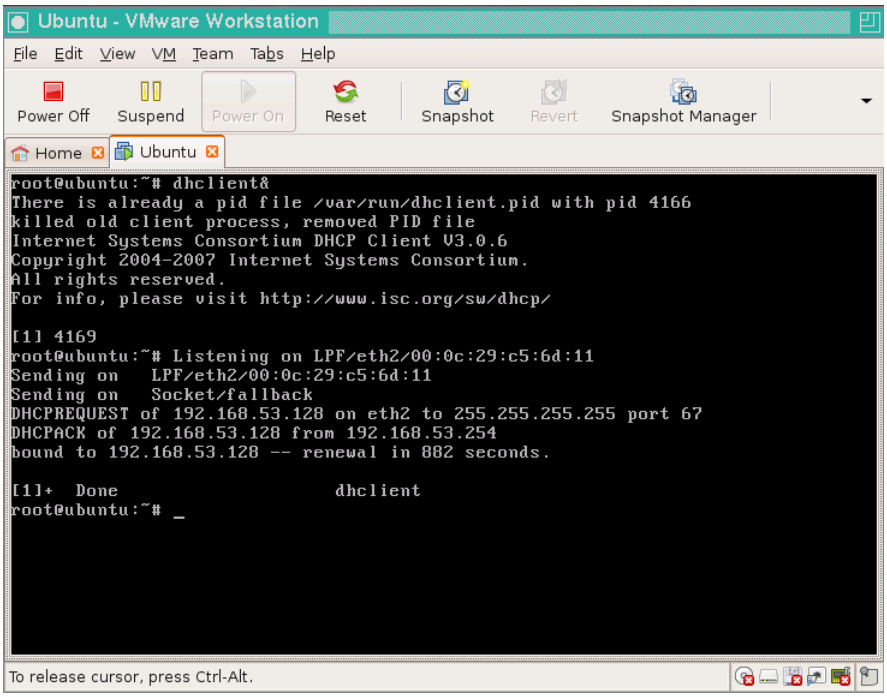

Figure 7: Run `dhclient&`

2. If you are connecting to your host machine remotely through a Unix/Linux platform, you may need to modify the `.vnc/xstartup` file in your home directory. For example, my file should be found at `/home/zhao/.vnc/xstartup`. Make sure that the first two lines are uncommented.

3. Once you are done with your homework, please kill your vncserver process to release the resource. Also power off your VM, so the TAs can login and grade your homework.

4. In your homework submission, you need to include the passwords of your VM user accounts (including root) for the TAs to grade your homework.

5. Test your VM as soon as possible and don't wait until the last minute. Contact CRF by sending a trouble ticket to crf@cs.columbia.edu (Please don't send email to CRF staff directly).

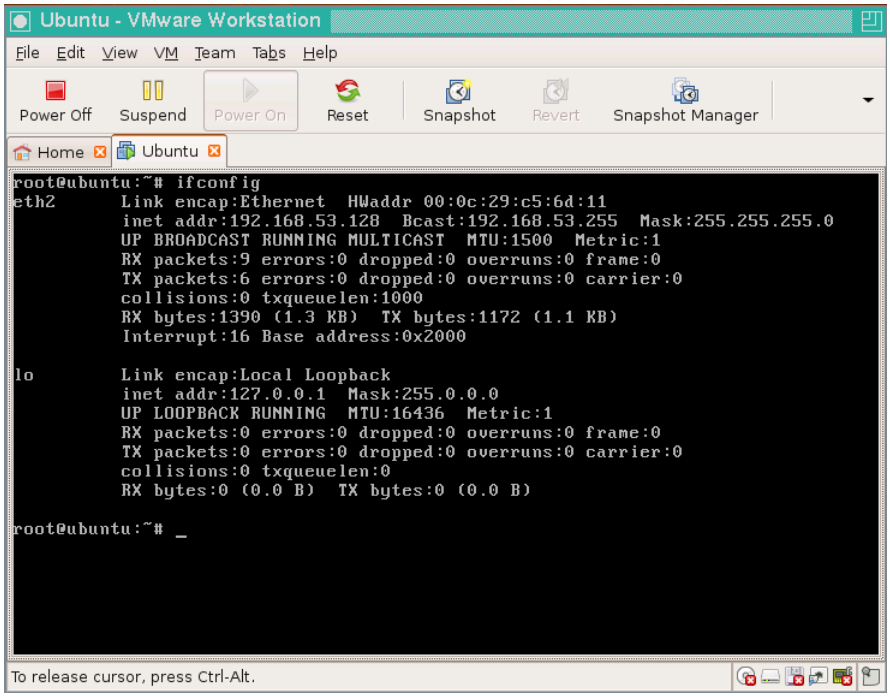

Figure 8: Find out IP for your VM

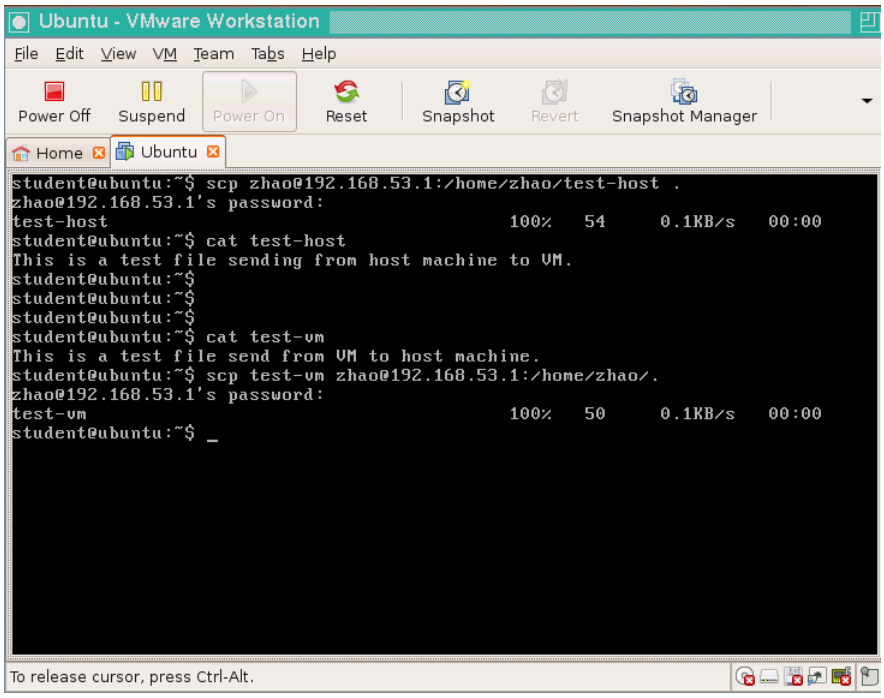

Figure 9: Two examples of scp command: (1)pull the file `test-host` from host machine to your VM; (2)push the file `test-vm` from your VM to host machine