CIS 191A Final Exam

Fall 2008

CIS 191 Final Exam

The final for CIS 191A is composed several parts:
- A. (10 points) **Questions**
- B. (5 points) **Checklist**
- C. (10 points) **Troubleshooting**
- D. (35 points) **Building a system**
    1) (5 points) Make a VM
    2) (5 points) Run diagnostics on new VM
    3) (10 points) Install Linux
    4) (5 points) Install additional software
    5) (5 points) Do post-installation configuration
    6) (5 points) Install latest kernel
- E. (5 points) **Extra credit**

Each student is expected to work alone and not seek assistance from others during the exam. The exam is open-book and open-notes. To prepare, students should practice the troubleshooting and system building ahead of time and make a detailed check list so they can quickly replicate the work again during the final exam.

When students finish the final exam they will demonstrate their systems to the instructor. They will also turn in the exam paper along with their checklist and leave their PC's running so their work can be graded.

Supplies
- CentOS 5 ISO
- xampp-linux-1.6.8a.tar.gz tarball
- Trouble VM and rescue diskettes
- Diagnostics diskette

Forum

During the week preceding the final, use the forum to discuss and trade ideas on the best ways to perform the tasks outlined below. Don't wait till the last minute. During the actual final exam you will be expected to work alone and not seek or provide assistance to others. The forum is at: http://simms-teach.com/forum/viewforum.php?f=10

A. Questions

Ten written questions will be drawn from the previous quizzes and test.

B. Checklist

Develop and bring to the exam a personal checklist that you will use to complete the troubleshooting and system build portions of the exam. Put your name on your checklist and turn in with the exam.

C. Troubleshooting

One of the trouble problems will be selected for you to solve. The problem could be any of the following:

- Boot problem 2, boot problem 9 or root problem 3.

You must:

1) Document concisely what the root cause of the problem is, and
2) Document concisely how you fixed it, and
3) Show the instructor the congratulations message after performing the repair.

D. Building a system

You will be building the following system. Credit will only be awarded if the specifications are met. The one exception is partition information. Use the information below when specifying the partitions. It is OK if the resulting partitions are slightly larger or smaller than what is specified.

1) Create custom VM

- Guest OS: Linux: Other Linux 2.6.x kernel
- VM Name: Benji
- VM Location: See whiteboard
- Access rights: Not private (uncheck)
- VM Account: User that powers on the VM
- One processor
- 512MB memory
- Bridged networking
- SCSI Adapter: LSI Logic
- 5 GB SCSI drive,
    - do not allocate space now (uncheck)
    - Split disk into 2 GB files (check)
- On the Notes area of the VM, please record your name and the date (see Figure 1 below)

2) Run diagnostics (diskette) on new VM
- Boot your VM using the diagnostics diskette (see figures 2a and 2b below)
- Record the following information:
  - Record **HD-Drive 1 Capacity**
  - Record **Total memory size**

3) Install CentOS 5
- Take all defaults unless specified otherwise
- Custom disk partitions:

Location	Type	Boot Code	Type	Mount	Size
MBR					
/dev/sda1	Primary	GRUB	ext3	/	3000 MB
/dev/sda2	Primary		swap		512 MB
/dev/sda3	Primary		ext3	/var	500 MB
/dev/sda4	Extended				
/dev/sda5	Logical		ext3	/opt	300 MB

- Boot loader: Install GRUB on /dev/sda1 (not MBR)
- Network: DHCP
- Hostname: benji.localdomain
- Time: Pacific Time Zone
- Root password: see whiteboard
- Firewall settings: SSH and WWW (HTTP) are trusted services
- Software: Default (only Desktop - Gnome checked)
- Normal user: cis191 (use same password as root)

Note: After the last reboot, do not install the 200+ updates (this will take a long time)

4) Install additional software
- Remove the web server software (httpd-2.2.3-6.el5.centos.1.rpm)
- Create a depot directory in root's home directory.
- Install XAMPP for Linux in /opt
  - Go to: http://www.apachefriends.org/en/xampp-linux.html
  - Use your depot directory to hold the downloaded tarball
  - Follow the instructions on the web page exactly up to Step 4
  - Browse to http://localhost to test your installation (see figure 3 below)

5) Do post-installation configuration
- Set default runlevel to 3
- Disable the following services to be off at all runlevels after next boot:
  - cups
  - bluetooth
- Disable GRUB's hiddenmenu to make boot options visible
- Increase the GRUB boot menu timeout to 60 seconds
- Edit /etc/rc.local to start up xampp automatically on boot

6) Upgrade kernel
- Install the latest kernel for CentOS 5 side-by-side with the old kernel
- Both boot options should be displayed on GRUB boot screen (see figure 4 below)

E. Extra credit

- Add personal distribution boot option
  - o Add /dev/sda6 (50 MB logical partition)
  - o Create the root file tree from Lab 1 on the partition
  - o Add another GRUB boot option that roots the kernel (either one) to your custom root file tree
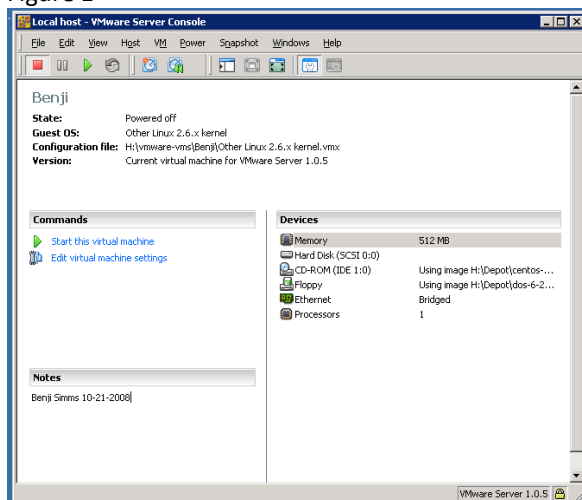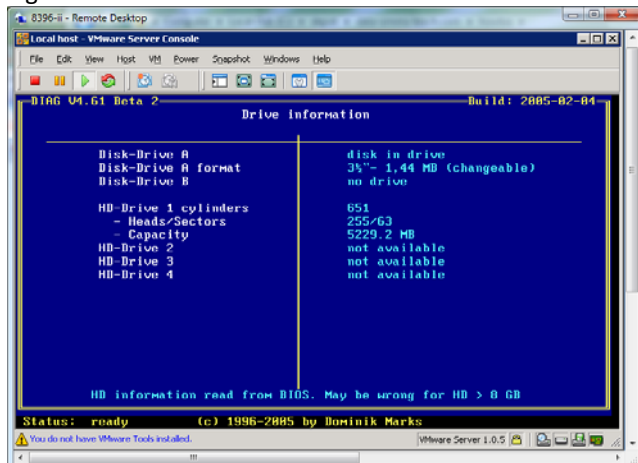 - o Make a personal title for your new boot option
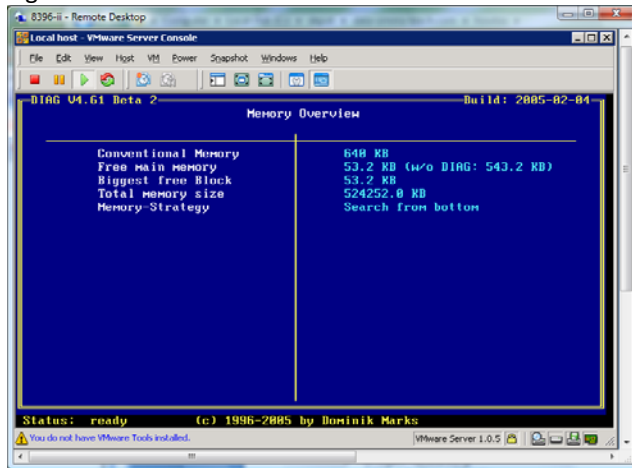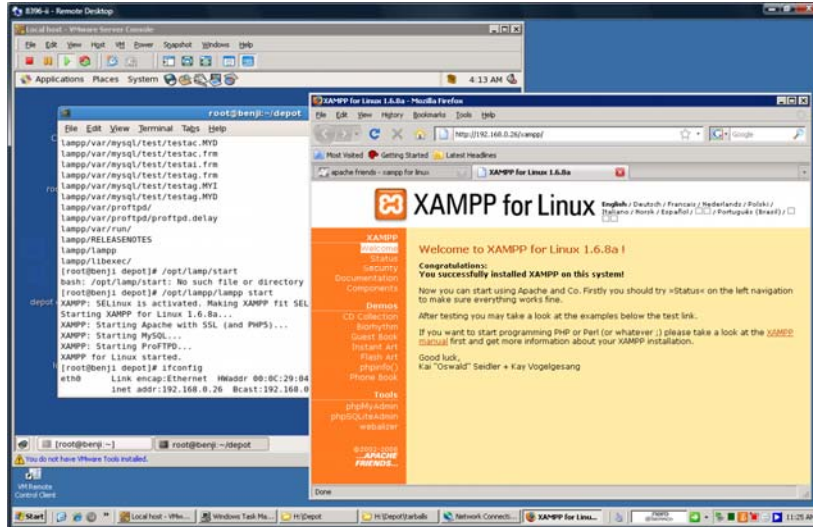
Figure 1

Figure 2a

Figure 2b

Figure 3

Figure 4