Setting up a VM

CS453: Operating systems

Overview

For this small homework we are going to be installing a CentOS 7 Linux Virtual Machine (VM) for use in this class so you can safely experiment with the Operating System without fear of damaging your main Linux install.

Virtual Machine Software

First, you will need to install Virtual Machine Software on your *host system* (aka the operating system currently installed on your laptop). There are several options available depending on the operating system of your host.

Windows

You can install either VMware Workstation or VirtualBox. We use VMWare Player extensively in the department and recommend it for students. It is available for free for Windows and Linux.

Mac OS X

VMWare Player isn't available for Mac OS X, but you can get VMware Fusion for free using your Microsoft Imagine account information. Sign in with your Microsoft Imagine account information here: http://e5.onthehub.com/d.ashx?s=kw3jtuc8h6

If you don't remember your login information, try searching your email inbox for "An account has been created for you" or "Boise State University - ITS, College of Engineering". The account information is automatically emailed to you by the end of the first week.

Download OS Image

Now that you have your VM software installed and ready to go, you will want to download a CentOS 7 LiveKDE iso image [file name: CentOS-7-x86_64-LiveKDE-1708.iso]. Here is one place you can get the image from: http://ftp.osuosl.org/pub/centos/7/isos/x86_64/ or search for other mirror sites here http://isoredirect.centos.org/centos/7/isos/x86_64/. You will use this image to install CentOS 7 on your Virtual Machine. Make sure to read through the next section before you boot into the CentOS 7 image!

Install image on your VM and Customize it

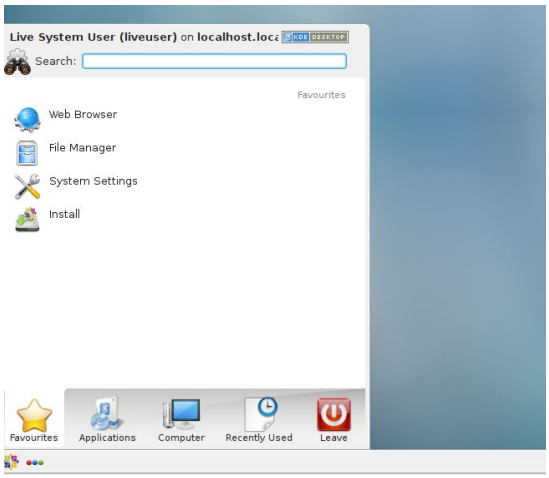
Create and install the CentOS 7 Linux image on a VM
When you create a new VM using VMWare Player, you will have several options to customize the hardware. Please read below to choose the options we need.

Important notes:

- Allocate enough memory: On a laptop with 8GB of RAM, we recommend setting the VM memory to 4GB. If you have 12-16GB of memory, then use 6-8GB for the VM. The option to select memory is available by clicking on the "*Customize Hardware*" button in the wizard to create a new VM.
- Use more processors: Allocate at least 2 processors to your VM to get better speed. If you have more than four processors/cores, than allocate half the processors to your VM!
- Allocate enough hard drive space: You will need to allocate 100G for your hard drive so you can install all the needed hardware and build your projects.

Additional Notes:

- If you get an error when you try to start your VM, you may need to enable virtualization in your BIOS. If you google something like "enable virtualization in bios windows 10" there are several videos/tutorials showing you how to do this.
- When it boots it is booting a live image, but it isn't actually installed yet. A live image is good to play with it before an actual install. However, it is read only and cannot be modified until we actually install it! Click on the CentOS icon on the bottom left and choose the install option to actually install it onto your VM.



- Make sure to add yourself as an admin user when asked.

Customize the CentOS 7 KDE Plasma Desktop workstation.
After CentOS 7 Linux installation is complete, reboot the VM and login.

1. Right click on the desktop and start a terminal (konsole). You can increase the font size with keystroke combo: Ctrl++ You can also customize the look and feel of the konsole from the *Settings* menu.

2. Do a full update as follows:
   sudo yum update

3. Install additional software. To list groups, type:
   sudo yum group list

4. We recommend installing the following groups and packages that we will need for this class.
   sudo yum group install "Development Tools"
   sudo yum install kernel-devel
   sudo yum install qt-devel xz-libs openssl-devel elfutils-libelf-devel
   sudo yum install valgrind gitk

Submission

Files committed to git (backpack)

Required files to submit through git (backpack), if you created more helper files that is fine.

1. Screenshot of your running VM

Run the following commands

1. make clean
2. git add <file ...> (on each file!)
3. git commit -am “Finished homework”
4. git push

Submit to Blackboard

You must submit the sha1 hash of your final commit on the correct branch. Your instructor needs this in order to troubleshoot any problems with submission that you may have.

- git rev-parse HEAD

Functional Requirements

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