



Lesson Module Checklist

- Slides
- WB

- Flash cards
- Page numbers
- 1st minute quiz
- Web Calendar summary
- Web book pages
- Commands

- Practice test uploaded

- Backup slides, CCC info, handouts on flash drive
- Check that backup room headset is charged
- Spare 9v battery for mic

Introductions and Credits



Jim Griffin

- Created this Linux course
- Created Opus and the CIS VLab
- Jim's site: <http://cabrillo.edu/~jgriffin/>



Rich Simms

- HP Alumnus
- Started teaching this course in 2008 when Jim went on sabbatical
- Rich's site: <http://simms-teach.com>

And thanks to:

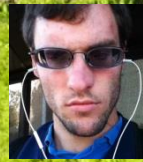
- John Govsky for many teaching best practices: e.g. the First Minute quizzes, the online forum, and the point grading system (<http://teacherjohn.com/>)



Aaron



Andrew B.



Andrew C.



Instructor: **Rich Simms**
Dial-in: **888-450-4821**
Passcode: **761867**



Arthur



Brian



Cory



Daniel



David G.



Dave L.



David P.



Debbie



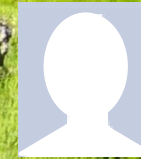
Edtson



Fidel



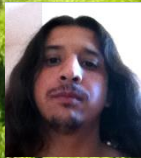
Humberto



Hunter



Imara



Ismael



Jessica



Joseph



Juliana



Lucie



Marc



Marty



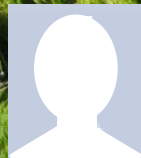
Matt



Michael



Rochelle



Shawn



Tabitha



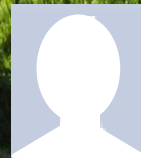
Taylor



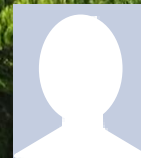
Tyler



Will



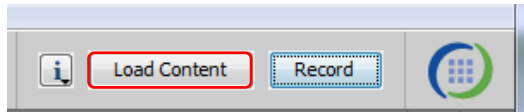
Zachary



Zsolt

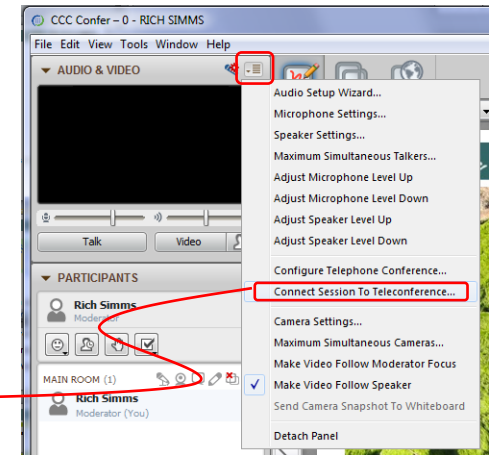
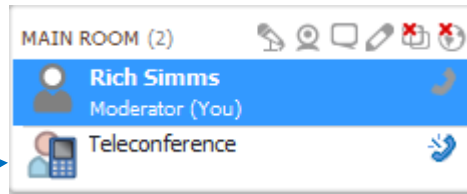


[] Preload White Board with *cis*lesson??*-WB*



[] Connect session to Teleconference

Session now connected to teleconference



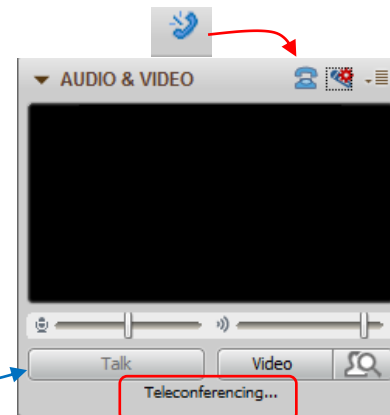
[] Is recording on?



Red dot means recording

[] Use teleconferencing, not mic

Should be greyed out





- [] Video (webcam) optional
- [] layout and share apps

The screenshot displays a Windows desktop environment with several applications open:

- CCC Confer**: A teleconference window on the left side of the screen.
- Chrome**: A web browser window displaying a document titled "Part 1 - Flashcards questions (1 point each)". The document contains two questions: [Q1] "What command shows the other users logged in to the computer?" and [Q2] "What environment variable is used by the shell to determine which directories to search when locating a command?".
- Putty**: A terminal window showing a login attempt for user "simben90" on a host named "oslab.cabrillo.edu". The terminal output includes "login as: simben90", "Access denied", and "Last login: Mon Oct 8 18:58:43 2012 from d.com". Below the terminal, there is a file tree structure with folders like "boot", "bin", "etc", and "sbin", and files like "mail" and "ls".
- vSphere Client**: A window showing the management interface for a virtual machine named "CIS 192".
- File Explorer**: A window showing a file tree structure with folders like "boot", "bin", "etc", and "sbin", and files like "mail" and "ls".

Red callout boxes with arrows point to the following elements:

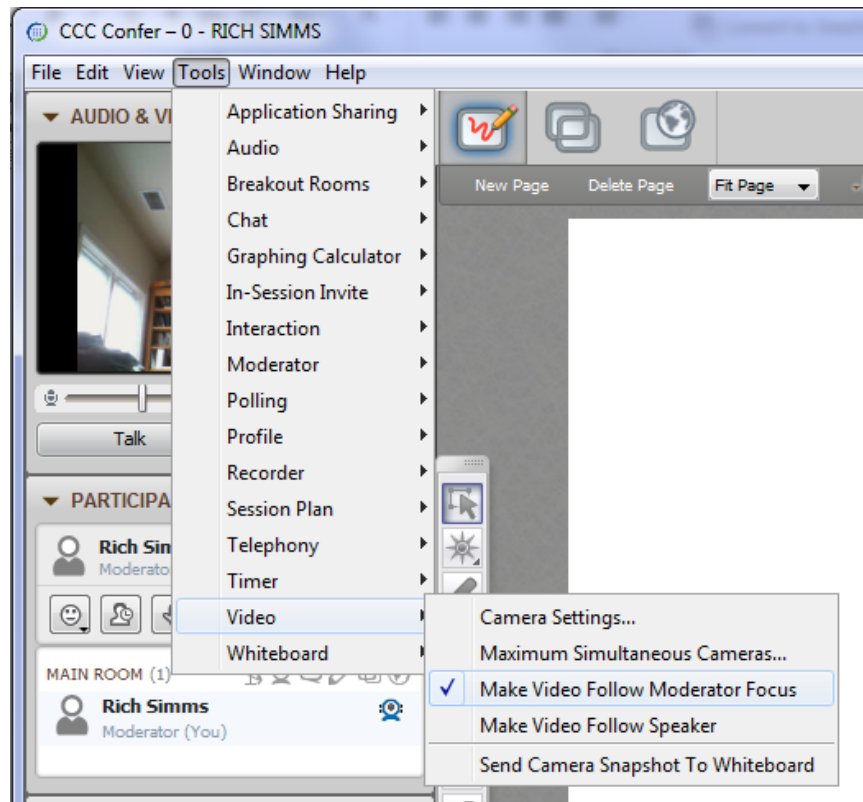
- foxit for slides**: Points to the File Explorer window.
- chrome**: Points to the Chrome browser window.
- putty**: Points to the terminal window.
- vSphere Client**: Points to the vSphere Client window.



[] Video (webcam) optional

[] Follow moderator

[] Double-click on postages stamps



Universal Fix for CCC Confer:

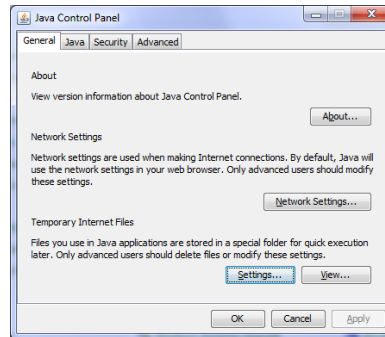
- 1) Shrink (500 MB) and delete Java cache
- 2) Uninstall and reinstall latest Java runtime



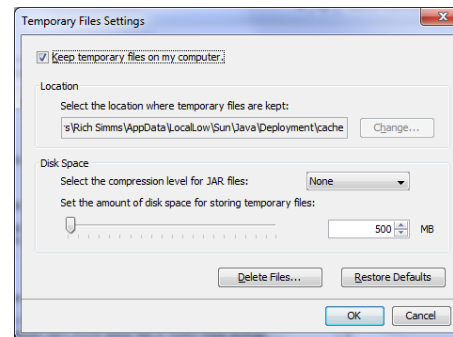
Control Panel (small icons)



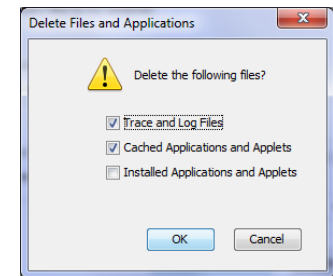
General Tab > Settings...



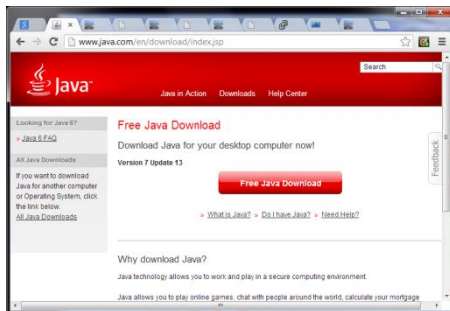
500MB cache size



Delete these



Google Java download



Quiz

**No Quiz
Today !**



File Transfer and Review

Objectives

- Transfer project files to Windows and Linux systems
- Prepare for final exam

Agenda

- No Quiz
- Questions from last week
- File transfer continued
- Project Presentations
- Practice Test #3



Questions



Questions?

Lesson material?

Labs? Tests?

How this course works?

- Graded work in home directories
- Answers in /home/cis90/answers

Who questions much, shall learn much, and retain much.

- Francis Bacon

If you don't ask, you don't get.

- Mahatma Gandhi

Chinese
Proverb

他問一個問題，五分鐘是個傻子，他不問一個問題仍然是一個傻瓜永遠。

He who asks a question is a fool for five minutes; he who does not ask a question remains a fool forever.



Housekeeping



Due 11:59 PM tonight:

- Final Project submittal

Due 11:59 PM next week:

- Five forum posts
- Extra credit labs

Grading rubric (60 points maximum)

Possible Points	Requirements
30	Implementing all five tasks (6 points each): <ul style="list-style-type: none"> Requirements for each task: <ul style="list-style-type: none"> Minimum of 10 "original" script command lines Has one or more non-generic comments to explain what it is doing Has user interaction
25	You don't have to do all of these but do at least five: <ul style="list-style-type: none"> Redirecting stdin (5 points) Redirecting stdout (5 points) Redirecting stderr (5 points) Use of permissions (5 points) Use of filename expansion characters (5 points) Use of absolute path (5 points) Use of relative path (5 points) Use of a PID (5 points) Use of inodes (5 points) Use of links (5 points) Use of scheduling (5 points) Use of a GID or group (5 points) Use of a UID or user (5 points) Use of a /dev/tty device (5 points) Use of a signal (5 points) Use of piping (5 points) Use of an environment variable (5 points) Use of /bin/mail (5 points) Use of a conditional (5 points) The maximum for this section is 25 points.
5	Present your script to the class
Points lost	
-15	Fails to run from allscripts
-15	Other students in the class are unable to read and execute your script.
-15	Error messages are displayed when running one or more tasks
-up to 90	No credit for any task which contains unoriginal script code that: <ul style="list-style-type: none"> Doesn't give full credit to the original author Doesn't indicate where the code was obtained from Doesn't include licensing terms Violates copyright or licensing terms
Extra credit	
30	Up to three additional tasks (10 points each)

← *Make sure you have at least five of these implemented*

← *Log in as cis90 and test your script so you don't lose any points*

Spring 2014 Linux Classes

CIS 90 Introduction to UNIX/Linux

Provides a technical overview of the UNIX/Linux operating system, including hands-on experience with commands, files, and tools. Recommended Preparation: CS 1L or CIS 172.

Transfer Credit: CSU.

Section	Days	Times	Units	Instructor	Room
82750	W	09:00AM-12:05PM	3.00	R.Simms	OL

Section 82750 is an ONLINE course. Meets weekly throughout the semester online at the scheduled times by remote technology using CCC Confer. For details, see instructor's web page at go.cabrillo.edu/online.

*Tell your friends
that want to learn
UNIX/Linux*

CIS 98 UNIX/Linux Shell Programming

Presents an introduction to shell programming in a UNIX/Linux environment, and is designed for system administrators or technical users with little or no programming background. Prerequisite: CIS 90.

Transfer Credit: CSU.

Section	Days	Times	Units	Instructor	Room
83707	TH	11:00AM-02:05PM	4.00	M.Matera	829
&	Arr.	Arr.		M.Matera	OL

Section 83707 is a Hybrid ONLINE course. Meets weekly throughout the semester at the scheduled times with an additional 5 hr 5 min online lab per week. Students will be required to show that they meet the course prerequisites. For details, see instructor's web page at go.cabrillo.edu/online.

*You have the
prerequisites
now for CIS 98*

*If you have taken CIS 81
then you also have the
prerequisites for CIS 192AB*

CIS 192AB UNIX/Linux Network Administration

Teaches the building of network infrastructures, and the installation, configuration, and protection services on Linux TCP/IP networks. Prerequisites: CIS 81 and CIS 90 or equivalent. Recommended Preparation: CIS 191AB.

Section	Days	Times	Units	Instructor	Room
82744	TH	05:30PM-09:35PM	4.00	M.Matera	OL
&	Arr.	Arr.		M.Matera	OL

Section 82744 is an ONLINE course. Meets weekly throughout the semester online at the scheduled times by remote technology using CCC Confer with an additional 2 hr 5 min online lab per week. Students will be required to show that they meet the course prerequisites. For details, see instructor's web page at go.cabrillo.edu/online.

Next week is **Cabrillo Finals Week**

- Our final exam is Test #3 (30 points)
- Time: 1:00PM - 3:50PM
- Date: Tuesday December 15
- Place: Room 828

The final exam:

- must be taken in Room 828 (no CCC Confer)
- timed test (no grace extension period till 11:59PM)
- no makeups
- contact instructor regarding any accommodations
- practice test available

<http://simms-teach.com/cis90grades.php>

GRADES

- Check your progress on the Grades page
- If you haven't already, send me a student survey to get your LOR secret code name
- Graded labs & tests are placed in your home directories on Opus
- Answers to labs, tests and quizzes are in the `/home/cis90/answers` directory on Opus

Current Point Tally

As of 12/09/2013

Points that could have been earned:	
10 quizzes:	30 points
10 labs:	300 points
2 tests:	60 points
3 forum quarters:	60 points
Total:	450 points

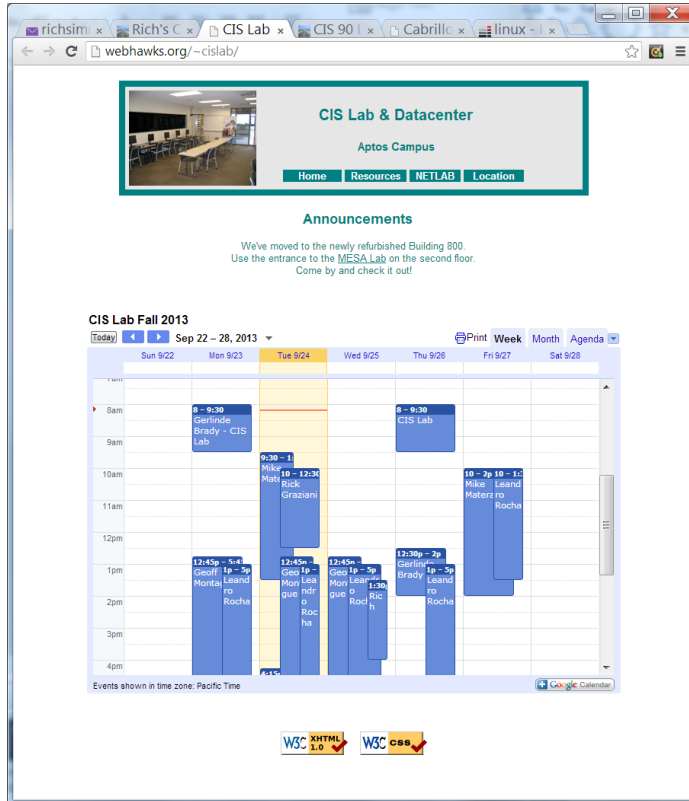
adaldrida: 95% (430 of 450 points)
 anborn: 0% (0 of 450 points)
 aragorn: 95% (428 of 450 points)
 arwen: 79% (357 of 450 points)
 balrog: 33% (150 of 450 points)
 barliman: 0% (4 of 450 points)
 beregond: 74% (336 of 450 points)
 boromir: 5% (25 of 450 points)
 celebrian: 79% (359 of 450 points)
 dori: 32% (146 of 450 points)
 dwalin: 71% (320 of 450 points)
 elrond: 92% (415 of 450 points)
 eomer: 66% (299 of 450 points)
 faramir: 95% (429 of 450 points)
 frodo: 97% (438 of 450 points)
 gimli: 93% (419 of 450 points)

Percentage	Total Points	Letter Grade	Pass/No Pass
90% or higher	504 or higher	A	Pass
80% to 89.9%	448 to 503	B	Pass
70% to 79.9%	392 to 447	C	Pass
60% to 69.9%	336 to 391	D	No pass
0% to 59.9%	0 to 335	F	No pass

goldberry: 109% (494 of 450 points)
 ingold: 103% (465 of 450 points)
 ioreth: 65% (295 of 450 points)
 legolas: 72% (328 of 450 points)
 marhari: 100% (450 of 450 points)
 pallando: 101% (456 of 450 points)
 pippen: 91% (413 of 450 points)
 quickbeam: 26% (121 of 450 points)
 samwise: 84% (379 of 450 points)
 sauron: 101% (457 of 450 points)
 shadowfax: 62% (280 of 450 points)
 strider: 87% (394 of 450 points)
 theoden: 99% (446 of 450 points)
 treebeard: 88% (399 of 450 points)
 tulkas: 82% (373 of 450 points)
 ulmo: 70% (316 of 450 points)



CIS Lab Schedule <http://webhawks.org/~cislab/>



Work on assignments together with other classmates



Get help from instructors and student lab assistants



MESA grants requires logging help sessions with MESA funded student assistants



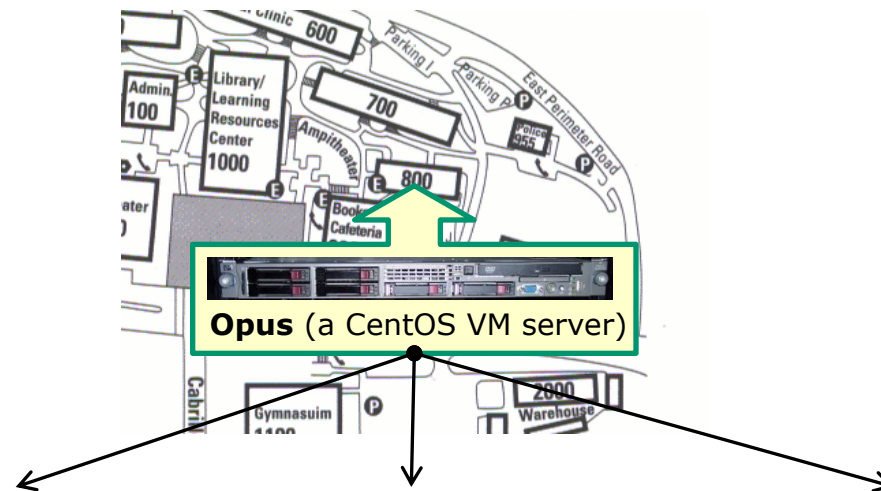
Michael, CIS 90 alumnus just hired, is now working mornings, Wednesday to Friday



File Transfer

File Transfer

Downloading your Opus files to your home computer



Windows



Mac



Linux



Many ways to transfer files:

- Between Linux and Windows
 - Filezilla or related applications
 - Putty SCP (PSCP)
- Between Linux and Linux/Mac
 - Filezilla or related applications
 - scp command

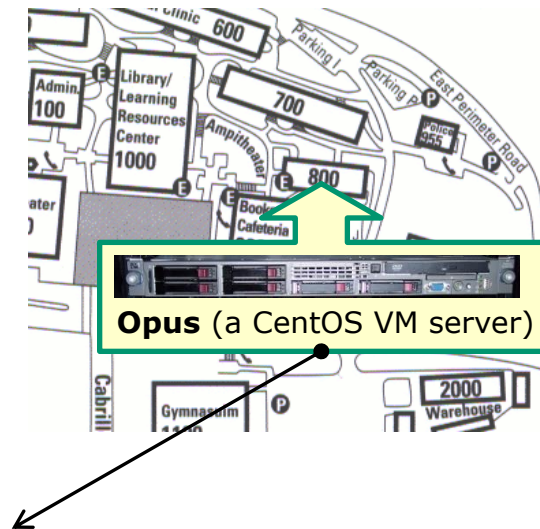


File Transfer To Windows

FileZilla

File Transfer

Downloading your Opus files to your home computer



Windows

Using  FileZilla

File Transfer

<http://filezilla-project.org>

The screenshot shows a web browser window with the FileZilla website. The browser's address bar displays <https://filezilla-project.org/download.php>. The page features the FileZilla logo and the tagline "The free FTP solution". A sidebar on the left contains navigation links for FileZilla (Home, Features, Screenshots, Download, Documentation), FileZilla Server (Download), Community (Forum, Project page, Wiki), General (Contact, License, Privacy Policy), Development (Source code, Nightly builds, Translations, Version history, Changelog, Issue tracker), and Other projects (OctoChess). A PayPal Donate button and a "Sponsors: Supported by artmotion" logo are also visible. The main content area is titled "Client Download" and states: "The latest stable version of FileZilla Client is 3.7.3. Please select the file appropriate for your platform below." Under the "Windows" section, there is a "Download Now" button with the SourceForge logo and the text "Trusted for Open Source (recommended)". Below this, it says "This installer may include bundled offers. Check below for more options. Windows XP, Vista and Windows 7 are supported, each both 32 and 64 bit." A "More download options" section follows, with the text "Not what you are looking for?" and a link to "Show additional download options". An inset image shows a Windows XP desktop with a FileZilla installer window open, displaying a list of files and folders.

FileZilla On Windows, connect to your Opus

The screenshot shows the FileZilla client interface. The top toolbar contains icons for file operations. Below the toolbar, the connection fields are: Host: sftp://oslab.cishawks.net, Username: simben90, Password: [masked], and Port: 2220. A 'Quickconnect' button is to the right. The status bar shows the command 'mtime "lab05.graded"' and the response '1381935818'. The local site is 'C:\Users\Rich Simms\Documents\CIS 90 Class' and the remote site is '/home/cis90/simben'. The remote site view shows a directory listing with columns for Filename, Filesize, Filetype, and Last modified. The status bar at the bottom indicates 'Queue: empty'.

Opus username

Port: 2220

Host: sftp://oslab.cishawks.net

Opus Password

Filename	Filesize	Filetype	Last modified
..			
Hidden		File folder	2/1/2002
dogs		File folder	11/21/2010
.ssh		File folder	9/3/2013 8:12:
etc		File folder	10/9/2013 1:50:
newdir		File folder	10/16/2013 9:00:

Empty directory.

60 files and 16 directories. Total size: 7,459,152 bytes

Server/Local file Directi... Remote file

Queued files Failed transfers Successful transfers

Queue: empty

FileZilla Select destination and source directories

The screenshot shows the FileZilla interface with the following details:

- Host: sftp://oslab.cishawks.net:2220
- Username: simben90
- Port: 2220
- Remote site: /home/cis90/simben
- Local directory: C:\Users\Rich Simms\Documents\CIS 90 Class\
- Remote directory: /home/cis90/simben

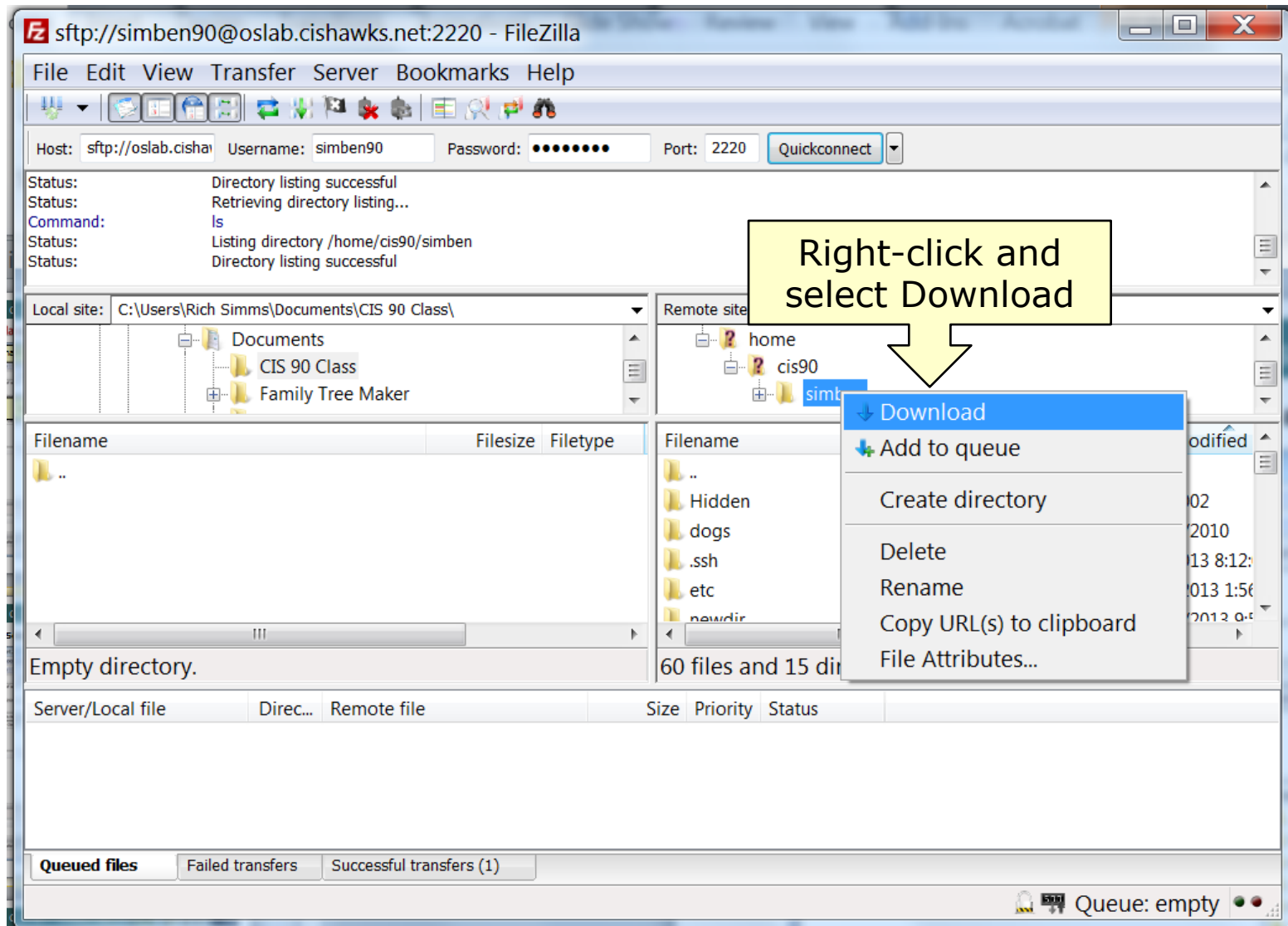
Annotations:

- Yellow callout: "As destination select a local folder" pointing to the local directory path.
- Yellow callout: "As source select your home directory (on Opus)" pointing to the remote site path.

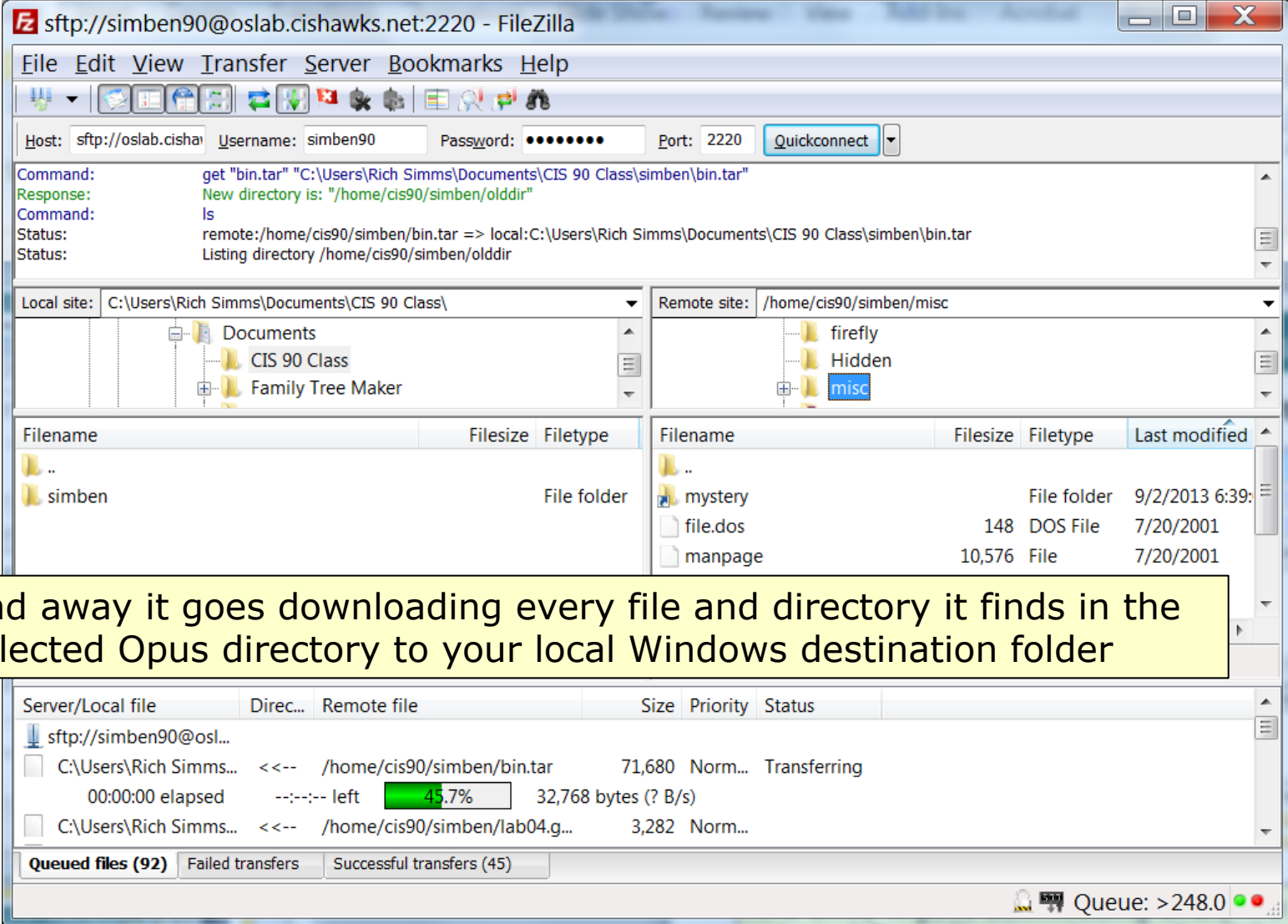
Files are downloaded from the source directory to the destination directory

Queue: empty

FileZilla Initiate Download



FileZilla Monitor transfer progress



Host: sftp://oslab.cishaw.net:2220 Username: simben90 Password: [REDACTED] Port: 2220 Quickconnect

```

Command: get "bin.tar" "C:\Users\Rich Simms\Documents\CIS 90 Class\simben\bin.tar"
Response: New directory is: "/home/cis90/simben/olddir"
Command: ls
Status: remote:/home/cis90/simben/bin.tar => local:C:\Users\Rich Simms\Documents\CIS 90 Class\simben\bin.tar
Status: Listing directory /home/cis90/simben/olddir
    
```

Local site	Remote site
C:\Users\Rich Simms\Documents\CIS 90 Class\	/home/cis90/simben/misc

Local site	Remote site
<ul style="list-style-type: none"> Documents CIS 90 Class Family Tree Maker 	<ul style="list-style-type: none"> firefly Hidden misc

Local site	Remote site																													
<table border="1"> <thead> <tr> <th>Filename</th> <th>Filesize</th> <th>Filetype</th> </tr> </thead> <tbody> <tr> <td>..</td> <td></td> <td></td> </tr> <tr> <td>simben</td> <td></td> <td>File folder</td> </tr> </tbody> </table>	Filename	Filesize	Filetype	..			simben		File folder	<table border="1"> <thead> <tr> <th>Filename</th> <th>Filesize</th> <th>Filetype</th> <th>Last modified</th> </tr> </thead> <tbody> <tr> <td>..</td> <td></td> <td></td> <td></td> </tr> <tr> <td>mystery</td> <td></td> <td>File folder</td> <td>9/2/2013 6:39:</td> </tr> <tr> <td>file.dos</td> <td>148</td> <td>DOS File</td> <td>7/20/2001</td> </tr> <tr> <td>manpage</td> <td>10,576</td> <td>File</td> <td>7/20/2001</td> </tr> </tbody> </table>	Filename	Filesize	Filetype	Last modified	..				mystery		File folder	9/2/2013 6:39:	file.dos	148	DOS File	7/20/2001	manpage	10,576	File	7/20/2001
Filename	Filesize	Filetype																												
..																														
simben		File folder																												
Filename	Filesize	Filetype	Last modified																											
..																														
mystery		File folder	9/2/2013 6:39:																											
file.dos	148	DOS File	7/20/2001																											
manpage	10,576	File	7/20/2001																											

And away it goes downloading every file and directory it finds in the selected Opus directory to your local Windows destination folder

Server/Local file	Direc...	Remote file	Size	Priority	Status
sftp://simben90@osl...					
C:\Users\Rich Simms...	<--	/home/cis90/simben/bin.tar	71,680	Norm...	Transferring
	00:00:00 elapsed	--:--:-- left	32,768 bytes (? B/s)		
C:\Users\Rich Simms...	<--	/home/cis90/simben/lab04.g...	3,282	Norm...	

Queued files (92) Failed transfers Successful transfers (45)

Queue: >248.0

FileZilla Failed transfers

FileZilla window: sftp://simben90@oslab.cishawks.net:2220

Host: sftp://oslab.cisha Username: simben90 Password: Port: 2220 Quickconnect

Status: Starting download of /home/cis90/simben/dogs/Greece/Aesop/Shadow
 Command: get "Shadow" "C:\Users\Rich Simms\Documents\CIS 90 Class\simben\dogs\Greece\Aesop\Shadow"
 Status: remote:/home/cis90/simben/dogs/Greece/Aesop/Shadow => local:C:\Users\Rich Simms\Documents\CIS 90 Class\simben\dogs\Greece\Aesop\Shadow
 Status: File transfer successful, transferred 639 bytes in 1 second

Local site:	Remote site:
C:\Users\Rich Simms\Documents\CIS 90 Class\	/home/cis90/simben
Documents CIS 90 Class Family Tree Maker	simben .ssh basket

Filename	Filesize	Filetype	Last modified
..			
simben		File folder	

Filename	Filesize	Filetype	Last modified
..			
Hidden		File folder	2/1/2002
dogs		File folder	11/21/2010

1 directory

60 files and 15 directories. Total size: 360,582 bytes

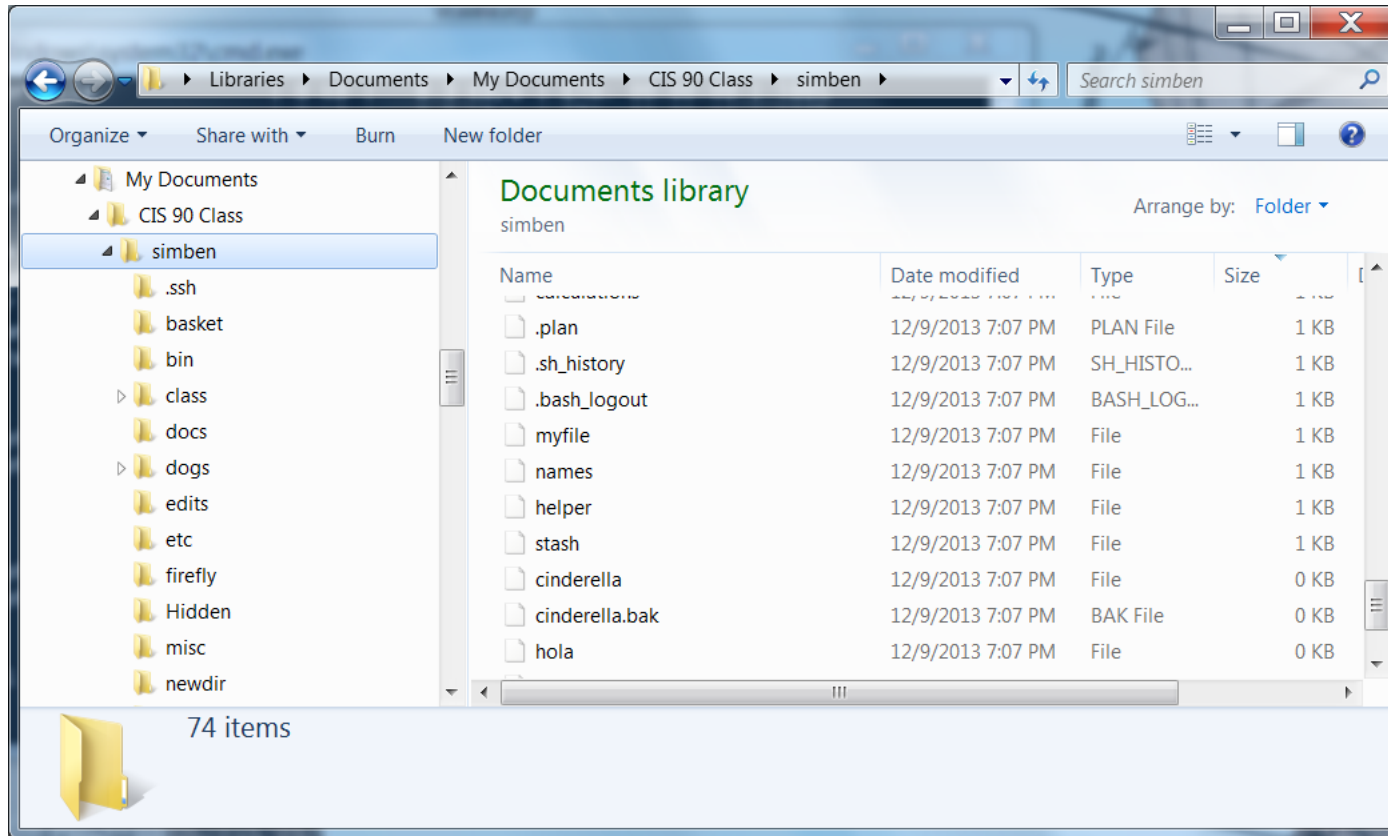
Server/Local file	Direc...	Remote file	Size	Priority	Time	Reason
sftp://simben90@osl...						
C:\Users\Rich Simms...	<<--	/home/cis90/simben/newer	0	Norm...	12/9/2013 ...	Could not start tran...

Queued files **Failed transfers (1)** Successful transfers (383)

Queue: empty

FileZilla File transfers

Your CIS 90 home directory files are now on Windows



Empty files are copied as well

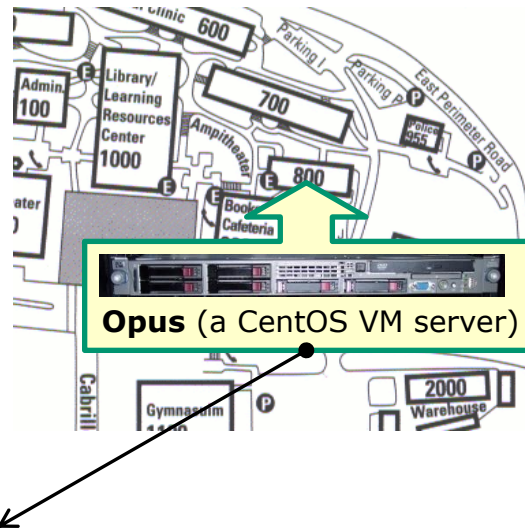


File Transfer To Windows

PSCP

File Transfer

Downloading your Opus files to your home computer



Using PSCP

Windows

PSCP (Putty SCP) Downloading

http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html

PuTTY Download Page

[Home](#) | [Licence](#) | [FAQ](#) | [Docs](#) | [Download](#) | [Keys](#) | [Links](#)
[Mirrors](#) | [Updates](#) | [Feedback](#) | [Changes](#) | [Wishlist](#) | [Team](#)

Here are the PuTTY files themselves:

- PuTTY (the Telnet and SSH client itself)
- PSCP (an SCP client, i.e. command-line secure file copy)
- PSFTP (an SFTP client, i.e. general file transfer sessions much like FTP)
- PuTTYtel (a Telnet-only client)
- Plink (a command-line interface to the PuTTY back ends)
- Pageant (an SSH authentication agent for PuTTY, PSCP and Plink)
- PuTTYgen (an RSA and DSA key generation utility).

LEGAL WARNING: Use of PuTTY, PSCP, PSFTP and Plink is illegal in countries where encryption is outlawed. I believe it is legal to use PuTTY, PSCP, PSFTP and Plink in England and Wales and in many other countries, but I am not a lawyer and so if in doubt you should seek legal advice before downloading it. You may find [this site](#) useful (it's a survey of cryptography laws in many countries) but I can't vouch for its correctness.

Use of the Telnet-only binary (PuTTYtel) is unrestricted by any cryptography laws.

The files we offer below are cryptographically signed. We also supply cryptographically signed lists of MD5 checksums. To download our public keys and find out more about our signature policy, visit the [Keys page](#). If you need a Windows program to compute MD5 checksums, you could try the one at [this site](#). (This MD5 program is also cryptographically signed by its author.)

Binaries

The latest release version (beta 0.60). This will generally be a version I think is reasonably likely to work well. If you have a problem with the release version, it might be worth trying out the latest development snapshot (below) to see if I've already fixed the bug, before reporting it to me.

For Windows on Intel x86

PuTTY:	putty.exe	(or by FTP)	(RSA sig)	(DSA sig)
PuTTYtel:	puttytel.exe	(or by FTP)	(RSA sig)	(DSA sig)
PSCP:	pscp.exe	(or by FTP)	(RSA sig)	(DSA sig)
PSFTP:	psftp.exe	(or by FTP)	(RSA sig)	(DSA sig)

*Download the
pscp.exe file and
place it in your
windows folder*

PSCP

PSCP syntax follows **scp** command syntax

recursive

*source
directory to
copy*

`pscp -P 2220 -r simben90@oslab.cishawks.net:/home/cis90/simben .`

```

C:\Windows\system32\cmd.exe
C:\Users\Rich Simms\Documents\CIS 90 Class>pscp -P 2220 -r simben90@oslab.cishawks.net:/home/cis90/simben .
simben90@oslab.cishawks.net's password:
lab05.graded | 0 kB | 0.9 kB/s | ETA: 00:00:00 | 100%
names | 0 kB | 0.0 kB/s | ETA: 00:00:00 | 100%
bigshell | 0 kB | 0.1 kB/s | ETA: 00:00:00 | 100%
treasure | 0 kB | 0.1 kB/s | ETA: 00:00:00 | 100%
.trove | 1 kB | 1.9 kB/s | ETA: 00:00:00 | 100%
treat2 | 0 kB | 0.7 kB/s | ETA: 00:00:00 | 100%
lab02.graded | 1 kB | 1.5 kB/s | ETA: 00:00:00 | 100%
uhistory.bak | 14 kB | 14.1 kB/s | ETA: 00:00:00 | 100%
.viminfo | 7 kB | 7.3 kB/s | ETA: 00:00:00 | 100%
treat3 | 1 kB | 1.1 kB/s | ETA: 00:00:00 | 100%
lab02.graded | 1 kB | 1.5 kB/s | ETA: 00:00:00 | 100%
lab04.graded | 3 kB | 3.2 kB/s | ETA: 00:00:00 | 100%
lab03.graded | 17 kB | 17.8 kB/s | ETA: 00:00:00 | 100%
lab01.graded | 0 kB | 0.6 kB/s | ETA: 00:00:00 | 100%
treat4 | 0 kB | 1.0 kB/s | ETA: 00:00:00 | 100%
treat5 | 0 kB | 0.8 kB/s | ETA: 00:00:00 | 100%
treat6 | 0 kB | 0.7 kB/s | ETA: 00:00:00 | 100%
sonnet10 | 0 kB | 0.6 kB/s | ETA: 00:00:00 | 100%
sonnet15 | 0 kB | 0.6 kB/s | ETA: 00:00:00 | 100%
sonnet16 | 0 kB | 0.6 kB/s | ETA: 00:00:00 | 100%
sonnet17 | 0 kB | 0.6 kB/s | ETA: 00:00:00 | 100%
sonnet18 | 0 kB | 0.6 kB/s | ETA: 00:00:00 | 100%

```

*destination is
"here" (the
current local
directory)*

*Note: empty
files or files
lacking read
permission
will not be
copied.*

Navigate to the local folder where you want to download your Opus files. Use the **pscp** command with the **-r** option to recursively download all the files from your home directory to the local Windows folder.

PSCP

Failed Transfers

```

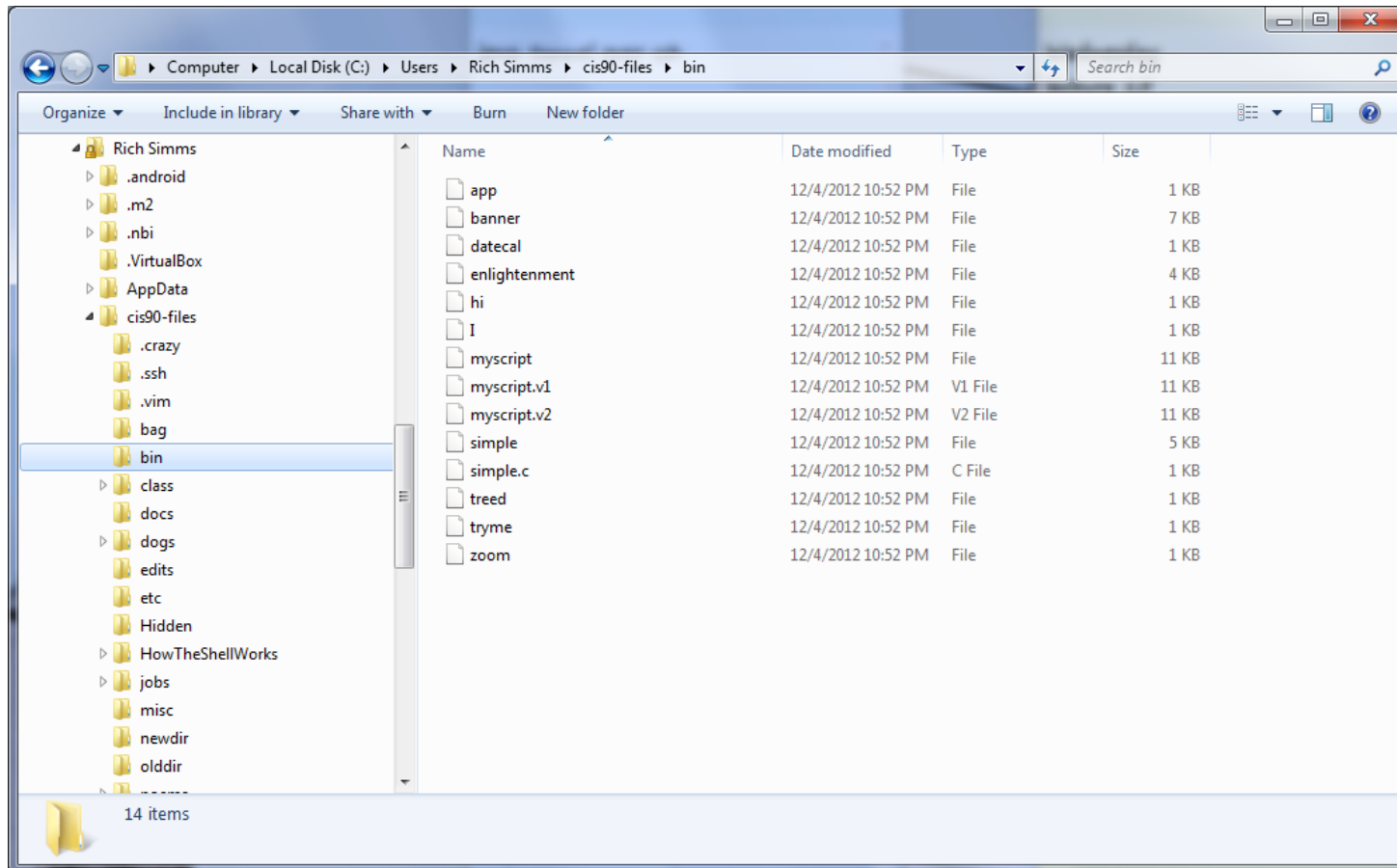
C:\Windows\system32\cmd.exe
Moon | 1 kB | 1.3 kB/s | ETA: 00:00:00 | 100%
readme | 0 kB | 0.1 kB/s | ETA: 00:00:00 | 100%
Hamlet | 0 kB | 0.2 kB/s | ETA: 00:00:00 | 100%
Caesar | 0 kB | 0.8 kB/s | ETA: 00:00:00 | 100%
Romeo | 0 kB | 0.8 kB/s | ETA: 00:00:00 | 100%
author | 0 kB | 0.0 kB/s | ETA: 00:00:00 | 100%
Persuasion | 0 kB | 0.7 kB/s | ETA: 00:00:00 | 100%
author | 0 kB | 0.0 kB/s | ETA: 00:00:00 | 100%
Sensibility | 0 kB | 0.7 kB/s | ETA: 00:00:00 | 100%
Phaedo | 2 kB | 2.1 kB/s | ETA: 00:00:00 | 100%
author | 0 kB | 0.0 kB/s | ETA: 00:00:00 | 100%
Apology | 1 kB | 1.8 kB/s | ETA: 00:00:00 | 100%
Shadow | 0 kB | 0.6 kB/s | ETA: 00:00:00 | 100%
Ass | 0 kB | 0.9 kB/s | ETA: 00:00:00 | 100%
author | 0 kB | 0.0 kB/s | ETA: 00:00:00 | 100%
Fox | 0 kB | 1.0 kB/s | ETA: 00:00:00 | 100%
errors | 3 kB | 3.7 kB/s | ETA: 00:00:00 | 100%
myfiles | 8 kB | 8.8 kB/s | ETA: 00:00:00 | 100%
.history | 0 kB | 0.2 kB/s | ETA: 00:00:00 | 100%
whomai | 0 kB | 0.1 kB/s | ETA: 00:00:00 | 100%
lab08 graded | 5 kB | 5.1 kB/s | ETA: 00:00:00 | 100%
whoami | 0 kB | 0.1 kB/s | ETA: 00:00:00 | 100%
pscp: unable to open /home/cis90/simben/newer: permission denied
C:\Users\Rich Simms\Documents\CIS 90 Class>
  
```

Note: empty files are ignored and not copied

Files lacking read permission generate an error and are not copied

PSCP

Your CIS 90 files are now on Windows



CIS 90 files copied from Opus to home Windows system

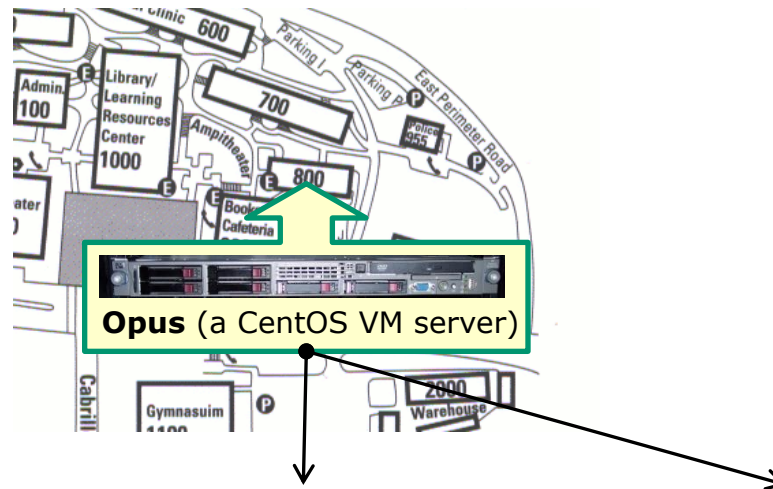
File Transfer

Linux or Mac

scp

File Transfer

Downloading your Opus files to your home computer



Mac



Linux

File Transfer

Downloading your Opus files to Pxx-Arwen (Linux Mint VM)

```
scp -P 2220 -r simben90@oslab.cishawks.net:/home/cis90/simben .
```

Arwen

```

cis90@p06-arwen:~/cis90 > scp -r -P 2220 simben90@oslab.cishawks.net:/home/cis90/simben/ .
simben90@oslab.cishawks.net's password:
lab05.graded      100% 923    0.9KB/s  00:00
names             100% 21     0.0KB/s  00:00
bigshell         100% 70     0.1KB/s  00:00
treasure         100% 93     0.1KB/s  00:00
.trove           100% 1910   1.9KB/s  00:00
treat2           100% 697    0.7KB/s  00:00
lab02.graded     100% 1523   1.5KB/s  00:00
uhistory.bak    100% 14KB   14.1KB/s 00:00
.vminfo         100% 7477   7.3KB/s  00:00
treat3           100% 1129   1.1KB/s  00:00
lab02.graded     100% 1523   1.5KB/s  00:00
lab04.graded     100% 3282   3.2KB/s  00:00
lab03.graded     100% 18KB   17.8KB/s 00:00
lab01.graded     100% 587    0.6KB/s  00:00
treat4           100% 1023   1.0KB/s  00:00
treat5           100% 795    0.8KB/s  00:00
treat6           100% 730    0.7KB/s  00:00
sonnet10         100% 620    0.6KB/s  00:00
sonnet15         100% 618    0.6KB/s  00:00
sonnet26         100% 601    0.6KB/s  00:00
sonnet3          100% 615    0.6KB/s  00:00
sonnet35         100% 598    0.6KB/s  00:00
sonnet6          100% 611    0.6KB/s  00:00
sonnet2          100% 631    0.6KB/s  00:00
sonnet4          100% 588    0.6KB/s  00:00
  
```

Source
directory on
Opus

Destination
directory on
Arwen

Files lacking read
permission generate
an error and are not
copied

Empty files are copied
as well

File Transfer

Downloading your Opus files to Pxx-Arwen (Linux Mint VM)

```

p06-arwen on
File View VM
cis90 : bash - Konsole
File Edit View Bookmarks Settings Help
cis90@p06-arwen:~/cis90 > ls
simben
cis90@p06-arwen:~/cis90 > ls simben
basket      class      experiment100 lab02.graded labx1.simben90 names      the
bf          cmds      experiment101 lab03.graded labx2          new        Torvalds
bigfile     dead.letter experiment99  lab04.graded labx2.graded  newdir    treat1
bigshell    docs      files.out   lab05.graded labx2.simben90 old        uhistory
bin         dogs      firefly     lab07         letter        olddir    uhistory.bak
bin.tar     dogs.tar  helper     lab07.graded  log           poems     whoami
calculations edits     Hidden     lab08         myfile       smallshell whomai
cinderella  errors    hola       lab08.graded  stash         stash     whomai
cinderella.bak etc       lab01.graded lab09         myfiles      test01.graded words
cis90@p06-arwen:~/cis90 > clear
cis90@p06-arwen:~/cis90 >
cis90 : bash
  
```

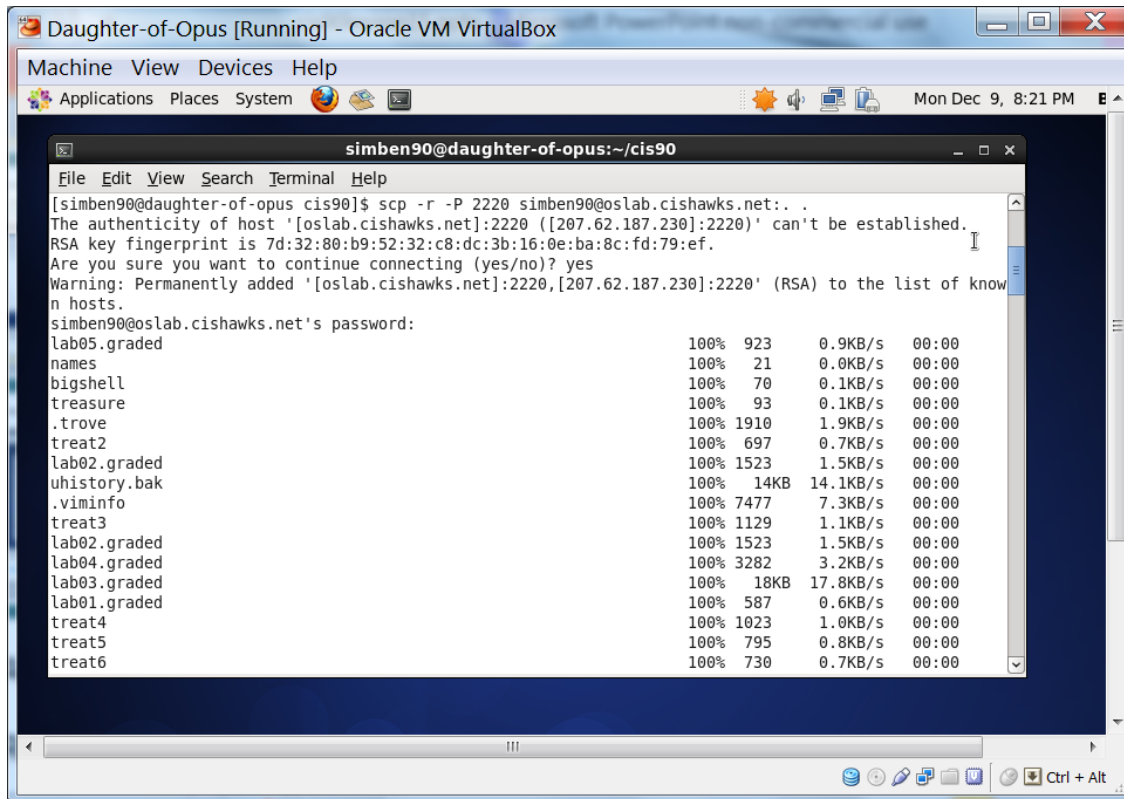
Now your Opus CIS 90 files are on Arwen

File Transfer

Downloading your Opus files to Daughter-of-Opus (CentOS)

```
scp -P 2220 -r simben90@oslab.cishawks.net:.. .
```

Daughter-of-Opus



Source
directory on
Opus

Destination
directory on
Daughter-of-
Opus

File Transfer

Downloading your Opus files to Daughter-of-Opus (CentOS)

```

simben90@daughter-of-opus:~/cis90
File Edit View Search Terminal Help
[simben90@daughter-of-opus cis90]$ ls
basket      class      experiment100  lab02.graded  labx1.simben90  names        the
bf          cmds      experiment101  lab03.graded  labx2           new          Torvalds
bigfile     dead.letter experiment99   lab04.graded  labx2.graded    newdir      treat1
bigshell    docs      files.out     lab05.graded  labx2.simben90  old         uhistory
bin         dogs      firefly       lab07         letter          olddir     uhistory.bak
bin.tar     dogs.tar  helper       lab07.graded  log            poems      whoami
calculations edits     Hidden       lab08         logfile        smallshell  whomai
cinderella  errors   hola         lab08.graded  myfile         stash       words
cinderella.bak etc      lab01.graded  lab09         myfiles        test01.graded
[simben90@daughter-of-opus cis90]$
  
```

CIS 90 files copied from Opus to home Linux system

Archiving & Restoring

Archiving

tar command (on Opus)

Use **wc** to count the number of files in the three directories

```
/home $ cd /home/cis90
/home/cis90 $ ls
adasha  bin      chejul  fekzso  halluc  medism  pauhun  rodduk  watroc
answers boyand  cis     frajos  josaar  menfid  pendav  simben  wootyl
balcor  brimar  depot   grodav  lamdav  milhom  pitmic  skizac  zamhum
bardeb  carand  dhaima  guest   leebri  mongeo  rawjes  smimat
beledt  caumar  error   hahtay  mahtab  norwil  roclea  tapart
```

```
/home/cis90 $ find simben bin/ answers depot | wc -l
568
```

The bin directory has allscripts, riddles and other files used in class. The answers directory has answers for each lab. Your home directory has all the files you made during the course.

Archiving

tar command (on Opus)

verbose

create

Name of tarball to create

directories to backup

```

/home/cis90 $ tar cvf simben/simben90.tar simben/ bin/ answers/ depot/
bin/tally
bin/checkgrades
bin/riddle
bin/check5
< snipped >
tar: simben/newer: Cannot open: Permission denied
< snipped >
tar: simben/simben90.tar: file is the archive; not dumped
< snipped >
depot/scrooge
depot/smb.conf
depot/randomjokes
tar: Error exit delayed from previous errors
/home/cis90 $

```

Backup all these files into a single tarball

Archiving

tar command (on Opus)

verbose

table of contents

Name of tarball

```

/home/cis90 $ tar tvf simben/simben90.tar | wc -l
563
/home/cis90 $ find bin answers depot simben | wc -l
568
/home/cis90 $
  
```

Note, some files might not have been added to the archive due to permission errors or it was the tarball itself.

These errors were displayed when the tarball was created:

```

tar: simben/simben90.tar: file is the archive; not dumped
tar: simben/newer: Cannot open: Permission denied
tar: answers/labx2: Cannot open: Permission denied
tar: answers/labx1: Cannot open: Permission denied
tar: answers/test03: Cannot open: Permission denied
tar: Exiting with failure status due to previous errors
  
```



Archiving

tar command (on Opus)

Archive everything in your home directory (including all sub directories) plus the class directories into one tarball.

Change "simben" to your home directory!

```
cd /home/cis90
```

```
find simben bin/ answers/ depot/ | wc -l
```

*Count the files to
be archived*

```
tar cvf simben/simben90.tar simben bin/ answers/ depot/
```

```
tar tvf simben/simben90.tar | wc -l
```

*This counts the files
that were archived*

Every CIS 90 student has their own Arwen system

Rich's Home Page

Home

Login

Flashcards

Admin

CIS 90
Previous Classes

11 days till term ends!

Cabrillo College
Web Advisor
Commands and Files

VLab RDP file

CIS 90 VLab VM Assignments

RIP Dennis Ritchie

Opus Status: UP

Metal SiteMap

CIS 90 VLab Assignments	
Student	VM
Aaron	P01-Arwen
Andrew B.	P03-Arwen
Andrew C.	P04-Arwen
Arthur	P05-Arwen
Benji	P06-Arwen
Brian	P08-Arwen
Cory	P11-Arwen
Daniel	P12-Arwen
David G.	P14-Arwen
David L.	P15-Arwen
David P.	P16-Arwen
Debbie	P18-Arwen
Duke	P19-Arwen
Edtson	P21-Arwen
Fidel	P22-Arwen
Homer	P23-Arwen
Humberto	P24-Arwen
Hunter	P25-Arwen
Imara	P28-Arwen
Ismael	P26-Arwen
Jessica	P27-Arwen
Joseph	P29-Arwen
Juliana	P30-Arwen
Leandro	P31-Arwen
Lucie	P32-Arwen
Marc	P33-Arwen
Marty	P34-Arwen
Matt	P35-Arwen
Michael	P37-Arwen
Rochelle	P40-Arwen
Shawn	P42-Arwen
Tabitha	P44-Arwen
Taylor	P45-Arwen
Tyler	P46-Arwen
Will	P48-Arwen
Zachary	P49-Arwen
Zsolt	P50-Arwen

Restoring

tar command (extracting on home Linux computer)

Login to your Arwen system

```
/home/cis90 $ ssh cis90@P06-Arwen
cis90@p06-arwen's password:
Welcome to Linux Mint 15 Olivia (GNU/Linux 3.8.0-26-generic x86_64)

Welcome to Linux Mint
* Documentation: http://www.linuxmint.com
Last login: Thu Dec  5 15:58:14 2013 from sun-hwa.cis.cabrillo.edu
cis90@p06-arwen:~ >
```

Restoring

tar command (extracting on home Linux computer)

Make a directory to put your Opus files

```
cis90@p06-arwen:~ > mkdir opus-files  
cis90@p06-arwen:~/opus-files >
```

Retrieve your archive from Opus using scp command

```
cis90@p06-arwen:~/opus-files > scp -P 2220 simben90@oslab.cabrillo.edu:simben90.tar .  
The authenticity of host '[oslab.cabrillo.edu]:2220 ([2607:f380:80f:f425::230]:2220)'  
can't be established.  
RSA key fingerprint is 7d:32:80:b9:52:32:c8:dc:3b:16:0e:ba:8c:fd:79:ef.  
Are you sure you want to continue connecting (yes/no)? yes  
Warning: Permanently added '[oslab.cabrillo.edu]:2220' (RSA) to the list of known  
hosts.  
simben90@oslab.cabrillo.edu's password:  
simben90.tar                                100% 1710KB    1.7MB/s    00:00  
cis90@p06-arwen:~/opus-files >
```



Restoring

tar command (extracting on home Linux computer)

```
cis90@p06-arwen:~/opus-files > ls  
simben90.tar
```

```
cis90@p06-arwen:~/opus-files > tar xvf simben90.tar  
simben/  
simben/lab05.graded  
simben/names  
simben/bigshell  
simben/.vim/  
< snipped >  
depot/scrooge  
depot/smb.conf  
depot/randomjokes
```

*Extract the
tarball*

```
cis90@p06-arwen:~/opus-files > ls  
answers bin depot simben simben90.tar
```

*Note the new
directories created*

Restoring

tar command (extracting on home Linux computer)

```
cis90@p06-arwen:~/opus-files > cd simben/bin
cis90@p06-arwen:~/opus-files/simben/bin > myscript
-bash: /home/cis90/bin/myscript: No such file or directory
[127]cis90@p06-arwen:~/opus-files/simben/bin > ./myscript
```

CIS, please Enter an option number from the list below:

- 1) What is today?
- 2) The users on p06-arwen
- 3) Warning, don't go here!!
- 4) Sort current directory
- 5) Back pat eCards
- 6) Check IP forwarding status

or enter Q to Quit

Enter Your Choice:

Note we have a different PATH on this system. The current "." directory is not on our PATH. To run a script that is not on the path add "./" to the front of the pathname of the script.



Archives

gzip and gunzip

Archiving

gzip and gunzip commands (on Opus)

```
/home/cis90/simben $ ls -l simben90.tar  
-rw-rw-r--. 1 simben90 cis90 1751040 Dec 10 07:57 simben90.tar
```

*Next, compress the archive with **gzip***

```
/home/cis90/simben $ gzip simben90.tar  
/home/cis90/simben $ ls -l simben90.tar.gz  
-rw-rw-r--. 1 simben90 cis90 440895 Dec 10 07:57 simben90.tar.gz
```

*Later, uncompress the archive with **gunzip***

```
/home/cis90/simben $ gunzip simben90.tar.gz  
/home/cis90/simben $ ls -l simben90.tar  
-rw-rw-r--. 1 simben90 cis90 1751040 Dec 10 07:57 simben90.tar
```

*Note: **gzip** renames the tarball by adding the **.gz** suffix and **gunzip** removes the suffix*



Final Exam

Final Exam

The CIS 90 Final Exam is Test #3

- **The Final Exam is Dec 17 - 1:00 to 3:50PM**
- **The final exam will be Test #3
(worth 30 points + 3 points extra credit)**
 - Open book, open notes, open computer.
 - During the test you must work alone and not ask or give assistance to others.

Final Exam

The CIS 90 Final Exam is Test #3

- **A Practice Test 3 is available on the web site**

- Advice:

- ❖ Work EVERY question on the practice test and NOTE exactly the steps required to answer each question.
 - ❖ Use the notes you took doing the practice test on the final exam.
- You may work with others and use the forum to discuss questions and answers on the practice test prior to the final exam.

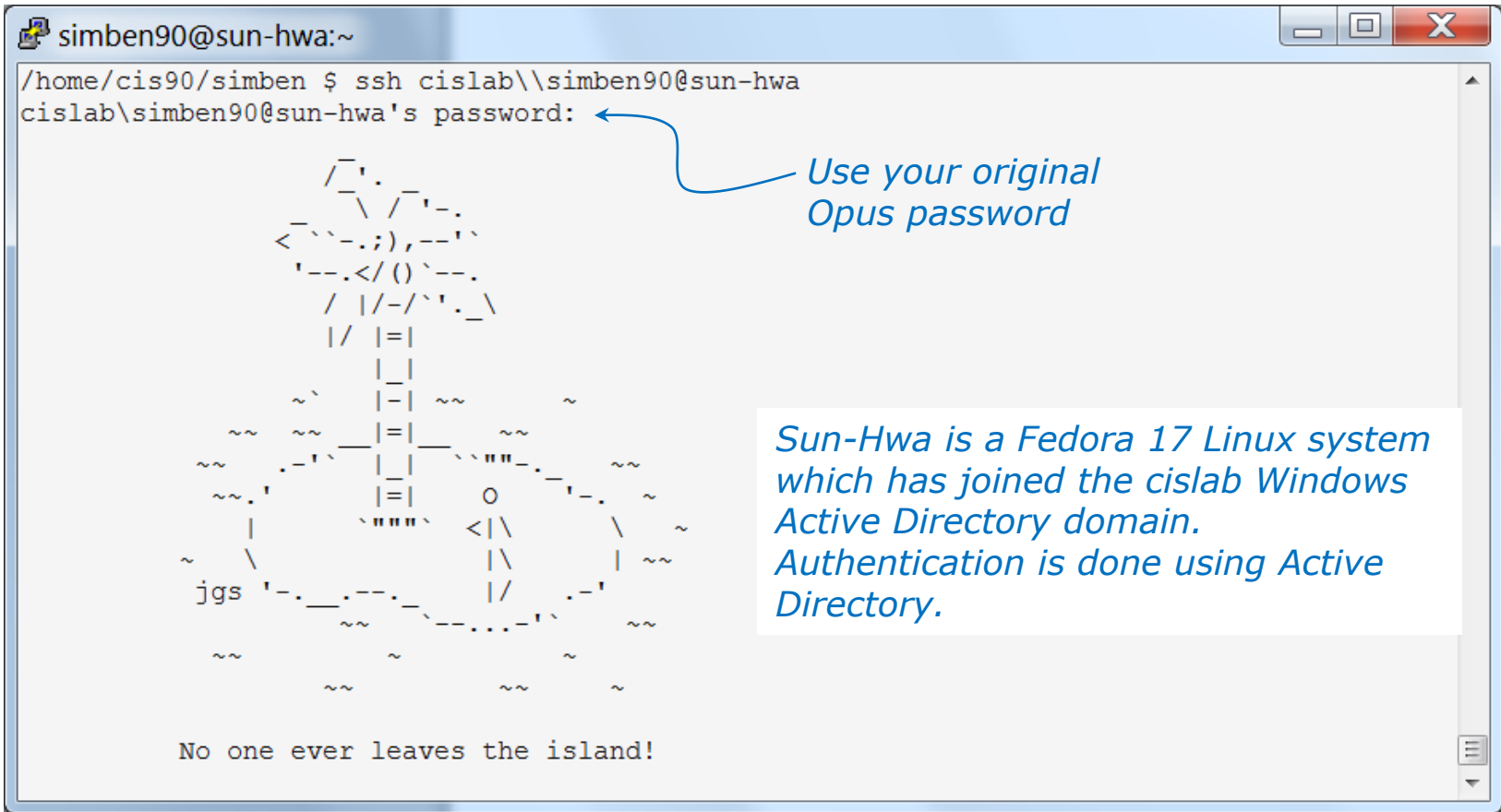
Sun-Hwa ≠ Opus

(Fedora 17)

(CentOS 6.2)

Sun-Hwa Differences

`ssh cislalab\simben90@sun-hwa`
The login needs the domain name "cislalab\\" added



```
simben90@sun-hwa:~/cis90/simben $ ssh cislalab\simben90@sun-hwa
cislalab\simben90@sun-hwa's password:
  /  \
 /  \  /  \
<  \  \  \  \
'---< / () \---
   / ||- / \ ' \  \
   ||  ||=|
   ||  ||
  ~  ~  ~  ~  ~
 ~  ~  ~  ~  ~
 ~  ~  ~  ~  ~
  \  \  \  \  \
jgs '---'---'---'---'---
   ~  ~  ~  ~  ~
   ~  ~  ~  ~  ~
   ~  ~  ~  ~  ~

No one ever leaves the island!
```

*Use your original
Opus password*

Sun-Hwa is a Fedora 17 Linux system which has joined the cislalab Windows Active Directory domain. Authentication is done using Active Directory.

Sun-Hwa Differences

```

CISLAB\simben90@sun-hwa:~$ cat /etc/passwd
root:x:0:0:root:/root:/bin/bash
bin:x:1:1:bin:/bin:/sbin/nologin
daemon:x:2:2:daemon:/sbin:/sbin/nologin
adm:x:3:4:adm:/var/adm:/sbin/nologin
lp:x:4:7:lp:/var/spool/lpd:/sbin/nologin
sync:x:5:0:sync:/sbin:/bin/sync
shutdown:x:6:0:shutdown:/sbin:/sbin/shutdown
halt:x:7:0:halt:/sbin:/sbin/halt
mail:x:8:12:mail:/var/spool/mail:/sbin/nologin
uucp:x:10:14:uucp:/var/spool/uucp:/sbin/nologin
operator:x:11:0:operator:/root:/sbin/nologin
games:x:12:100:games:/usr/games:/sbin/nologin
gopher:x:13:30:gopher:/var/gopher:/sbin/nologin
ftp:x:14:50:FTP User:/var/ftp:/sbin/nologin
nobody:x:99:99:Nobody:/sbin/nologin
usbmuxd:x:113:113:usbmuxd user:/sbin/nologin
avahi-autoipd:x:170:170:Avahi IPv4LL Stack:/var/lib/avahi-autoipd:/sbin/nologin
smolt:x:999:998:Smolt:/usr/share/smolt:/sbin/nologin
dbus:x:81:81:System message bus:/sbin/nologin
abrt:x:173:173:./etc/abrt:/sbin/nologin
avahi:x:70:70:Avahi mDNS/DNS-SD Stack:/var/run/avahi-daemon:/sbin/nologin
rtkit:x:172:172:RealtimeKit:/proc:/sbin/nologin
openvpn:x:998:996:OpenVPN:/etc/openvpn:/sbin/nologin
saslauth:x:997:995:"Saslauthd user":/run/saslauthd:/sbin/nologin
colord:x:996:994:User for colord:/var/lib/colord:/sbin/nologin
nm-openconnect:x:995:993:NetworkManager user for OpenConnect:./sbin/nolo
mailnull:x:47:47:./var/spool/mqueue:/sbin/nologin
smmmp:x:51:51:./var/spool/mqueue:/sbin/nologin
sshd:x:74:74:Privilege-separated SSH:/var/empty/ssh:/sbin/nologin
chrony:x:994:992:./var/lib/chrony:/sbin/nologin
tcpdump:x:72:72:./sbin/nologin
pulse:x:993:991:PulseAudio System Daemon:/var/run/pulse:/sbin/nologin
gdm:x:42:42:./var/lib/gdm:/sbin/nologin
rsimms:x:201:201:Rich Simms:/home/rsimms:/bin/bash
ntp:x:38:38:./etc/ntp:/sbin/nologin
jimjg:x:752:1000:Jim Griffin:/home/jimjg:/bin/bash
cis90:x:1234:1234:CIS 90 student:/home/cis90:/bin/bash
sawyer:x:1235:1235:James Ford:/home/sawyer:/bin/csh
kate:x:1236:1236:Kate Austen:/home/kate:/bin/sh
hugo:x:1237:1237:Hugo Reyes:/home/hugo:/bin/ksh
igneous:x:202:1238:Igneous Rocks:/home/igneous:/bin/bash
sedimentary:x:203:1239:Sedimentary Rocks:/home/sedimentary:/bin/bash
romeo:x:1238:1240:Romeo, son of Montague:/home/romeo:/bin/bash
juliet:x:1239:1241:Juliet, daughter of Capulet:/home/juliet:/bin/bash
[CISLAB\simben90@sun-hwa ~]$
    
```

The CIS 90 accounts are not in /etc/passwd on Sun-Hwa!

Only local accounts are found there.

Instead they are on the CISLAB domain controller on a remote Windows server

Name	Type	Description	User Logon Name
Andrew Evans	User	CIS 90 Student	evaand90@cislabs.net
Benjamin Lyons	User	CIS 90 Student	lyoben90@cislabs.net
Benji Simms	User	CIS 90 Student	simben90@cislabs.net
Bryn Kanar	User	CIS 90 Student	kanbry90@cislabs.net
Carlie Ellis	User	CIS 90 Student	elcar90@cislabs.net
Carlos Ramirez	User	CIS 90 Student	ramcar90@cislabs.net
Carter Frost	User	CIS 90 Student	frocarr90@cislabs.net
Chad Mesiroff	User	CIS 90 Student	mescha90@cislabs.net
Dajan Henk	User	CIS 90 Student	hendaj90@cislabs.net
Donald Davis	User	CIS 90 Student	davdon90@cislabs.net
Duke Roddy	User	CIS 90 Student	rodduk90@cislabs.net
Evan Norbom	User	CIS 90 Student	noreva90@cislabs.net
Evie Vergara	User	CIS 90 Student	verev90@cislabs.net
Fidel Mendoza	User	CIS 90 Student	menfid90@cislabs.net
Gustavo Ramirez	User	CIS 90 Student	rangus90@cislabs.net
Homer Miller	User	CIS 90 Student	milhom90@cislabs.net
Humberto Zamora	User	CIS 90 Student	zanhum90@cislabs.net
Jacob Williams	User	CIS 90 Student	wiljac90@cislabs.net
Jessica Rawlings	User	CIS 90 Student	rawjes90@cislabs.net
Joshua Potter	User	CIS 90 Student	potjos90@cislabs.net
Kelly Libbey	User	CIS 90 Student	libkel90@cislabs.net
Michael Messina	User	CIS 90 Student	mesmic90@cislabs.net
Raymond Marr	User	CIS 90 Student	marray90@cislabs.net
Rita Kennedy	User	CIS 90 Student	kenrit90@cislabs.net

Sun-Hwa Differences

On Sun-Hwa the LOGNAME variable does not work as a mail destination address!

```

simben90@sun-hwa:~
[CISLAB\simben90@sun-hwa ~]$ echo hola | mail -s "Note #1" $LOGNAME
[CISLAB\simben90@sun-hwa ~]$ mail
Heirloom Mail version 12.5 7/5/10.  Type ? for help.
"/var/spool/mail/CISLABsimben90": 1 message 1 new
>N 1:Mail Delivery Subsys Tue Dec 10 08:43 71/2552 "Returned mail: see transcript f"
& q
Held 1 message in /var/spool/mail/CISLABsimben90
[CISLAB\simben90@sun-hwa ~]$ echo hola | mail -s "Note #1" SMLOGNAME
[CISLAB\simben90@sun-hwa ~]$ mail
Heirloom Mail version 12.5 7/5/10.  Type ? for help.
"/var/spool/mail/CISLABsimben90": 2 messages 1 new 2 unread
U 1 Mail Delivery Subsys Tue Dec 10 08:43 72/2562 "Returned mail: see transcript f"
>N 2 "CISLAB\simben90"@s Tue Dec 10 08:44 20/818 "Note #1"
& q
Held 2 messages in /var/spool/mail/CISLABsimben90
[CISLAB\simben90@sun-hwa ~]$

```

This doesn't work!

This works!

The MLOGNAME variable is set in your .bash_profile

Sun-Hwa Differences

Four backslashes must be used (domain\\\\"username) to send a classmate an email on Sun-Hwa!

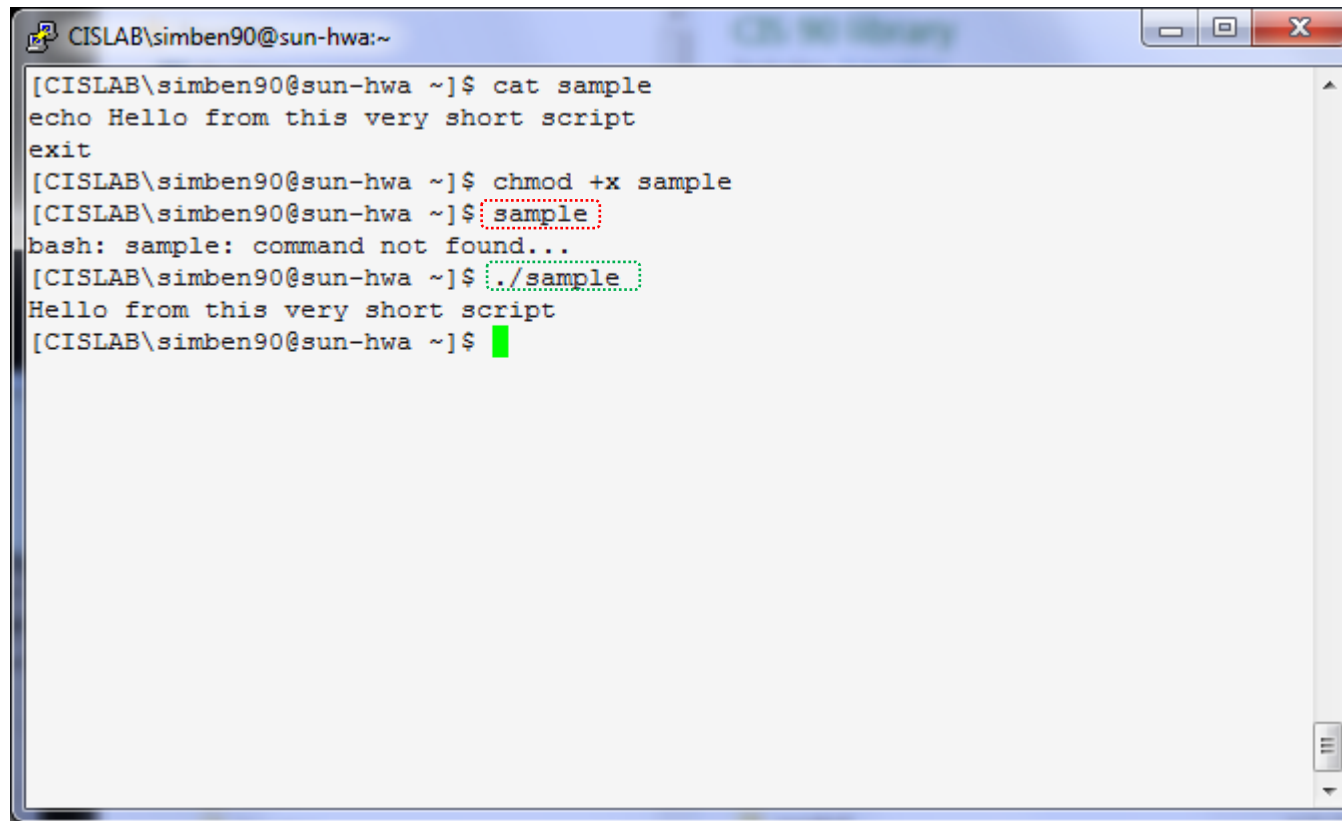
```

CISLAB\milhom90@sun-hwa:~
[CISLAB\simben90@sun-hwa ~]$ mail cislabs\\\\"milhom90: cislabs\\\\"rodduk90
Subject: Chicken pot pies
At my house tonight. Be there or be square!
- Benji
.
EOT
[CISLAB\simben90@sun-hwa ~]$ su - cislabs\\\\"milhom90
Password:
/home/CISLAB/milhom90 $ mail -f /var/mail/CISLABmilhom90
Heirloom Mail version 12.5 7/5/10. Type ? for help.
"/var/mail/CISLABmilhom90": 10 messages 2 new 4 unread
  1 Romeo Sun Nov 25 09:34 21/769 "testrh"
  2 Mail Delivery Subsys Sun Nov 25 14:08 72/2499 "Returned mail: see tr"
  3 Mail Delivery Subsys Sun Nov 25 14:10 72/2589 "Returned mail: see tr"
  4 "CISLAB\\\\"milhom90"@s Sun Nov 25 14:12 21/812 "testmm4"
  5 "CISLAB\\\\"milhom90"@s Sun Nov 25 14:29 21/817 "TestHH15"
  6 "CISLAB\\\\"milhom90"@s Tue Dec 4 16:32 21/845 "Reminder"
  U 7 "CISLAB\\\\"milhom90"@s Tue Dec 4 16:36 21/844 "Reminder"
  U 8 "CISLAB\\\\"milhom90"@s Tue Dec 4 16:47 21/803 "test"
>N 9 "CISLAB\\\\"milhom90"@s Wed Dec 5 01:00 20/834 "Reminder"
  N 10 "CISLAB\\\\"simben90"@s Wed Dec 5 08:21 21/827 "Chicken pot pies"
&

```

Sun-Hwa Differences

The . directory is not on your path

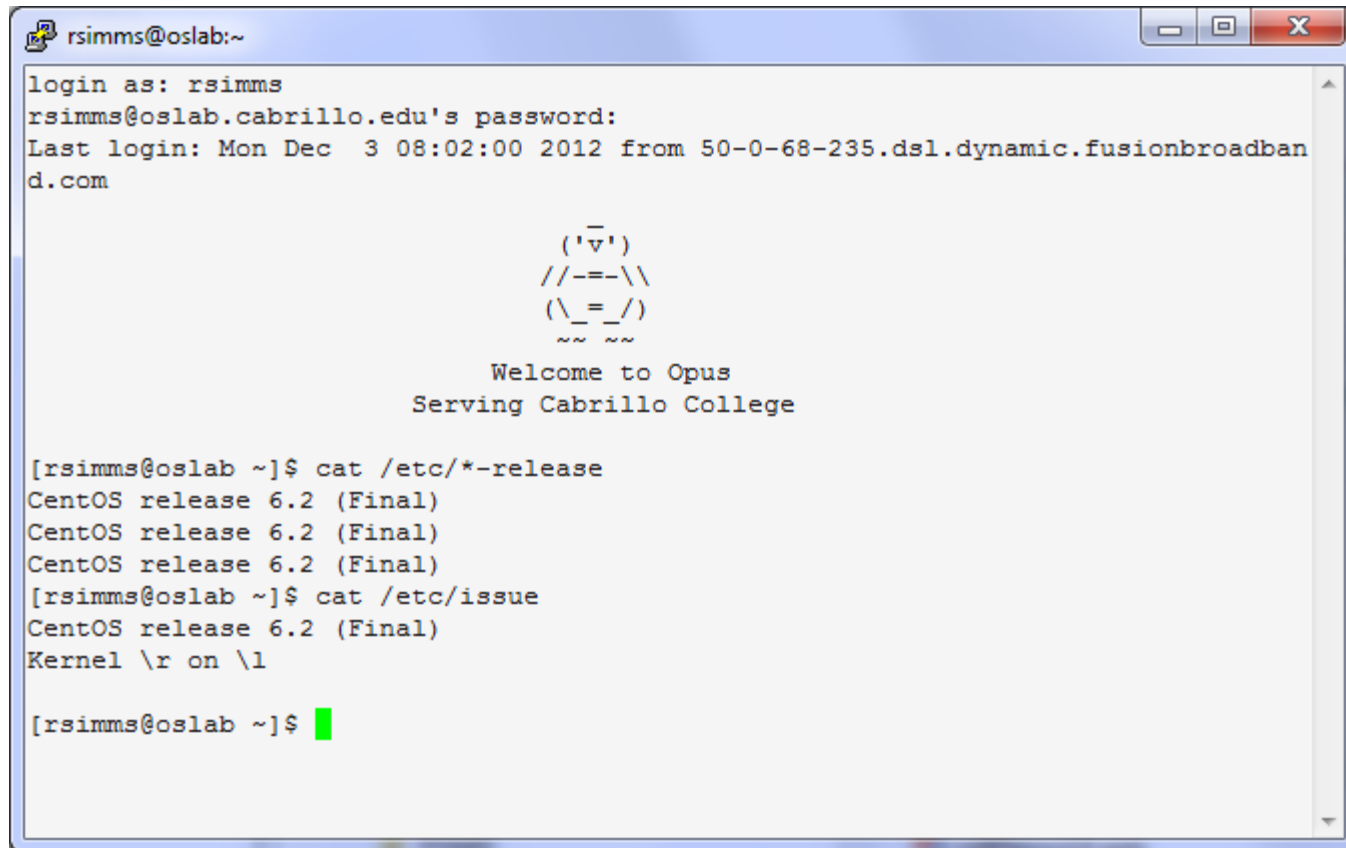


```
CISLAB\simben90@sun-hwa:~  
[CISLAB\simben90@sun-hwa ~]$ cat sample  
echo Hello from this very short script  
exit  
[CISLAB\simben90@sun-hwa ~]$ chmod +x sample  
[CISLAB\simben90@sun-hwa ~]$ sample  
bash: sample: command not found...  
[CISLAB\simben90@sun-hwa ~]$ ./sample  
Hello from this very short script  
[CISLAB\simben90@sun-hwa ~]$
```

Preface scripts you create with "./" to run them as shown in the example above



Make your own Opus at home



```
rsimms@oslab:~  
login as: rsimms  
rsimms@oslab.cabrillo.edu's password:  
Last login: Mon Dec 3 08:02:00 2012 from 50-0-68-235.dsl.dynamic.fusionbroadband.com  
  
      ( 'v' )  
    //--=\ \  
  ( \_ _ / )  
    ~ ~ ~ ~  
      Welcome to Opus  
      Serving Cabrillo College  
  
[rsimms@oslab ~]$ cat /etc/*-release  
CentOS release 6.2 (Final)  
CentOS release 6.2 (Final)  
CentOS release 6.2 (Final)  
[rsimms@oslab ~]$ cat /etc/issue  
CentOS release 6.2 (Final)  
Kernel \r on \l  
  
[rsimms@oslab ~]$ █
```

Opus is a CentOS 6.2 Linux system



Ingredients

To make your own Opus at home you will need to purchase the following to add to your home computer:

- A CentOS Linux distribution ... price: \$0.00
- Virtualization software
 - For Windows
 - VirtualBox ... price: \$0.00
 - *or* VMware Workstation ... price: \$0.00 (via VMware Academy)
 - For Mac
 - VirtualBox ... price: \$0.00
 - *or* VMware Fusion ... price: \$0.00 (via VMware Academy)

← → ↻ simms-teach.com/resources.php

Rich's Cabrillo College CIS Classes Resources

Home Resources Forums CIS Lab Blackboard

Login
Flashcards
Admin

CIS 90
Previous Classes

11 days till term ends!

Cabrillo College
Web Advisor
Commands and Files

VLab RDP file

CIS 90 VLab VM Assignments

RIP Dennis Ritchie

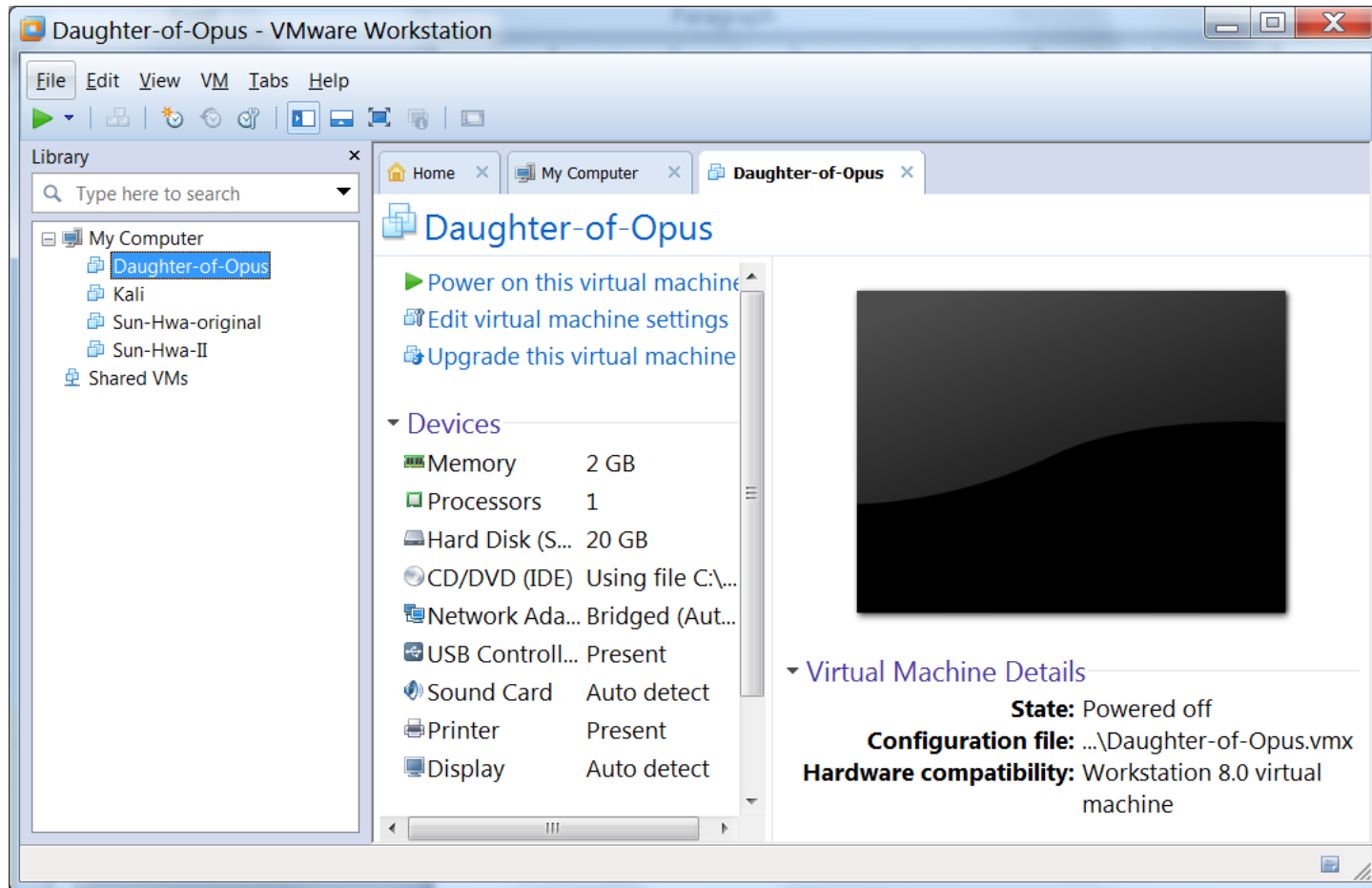
Opus Status: UP

Links

Instructors <ul style="list-style-type: none">Linux Master JimProgramming Master EdNetwork Master GerlindeNetwork Master RickWeb Master JohnSystems Master Michael	Getting Linux/UNIX <ul style="list-style-type: none">Linux ISOsKernelsRPMs (rpmfind)RPMs (pbone)OpenSolaris Tools and Software <ul style="list-style-type: none">ApacheBastilleCoRDcygwinDOS boot disksDynamips/DynagenJohn the RipperNetfilterPutty SSH ToolsQuagga routing suiteTripwireWireshark e-academy sites for CIS students <ul style="list-style-type: none">MSDN Academic AllianceVMware e-academy Virtualization <ul style="list-style-type: none">VirtualBoxVMware ESXi and vSphere client Standards <ul style="list-style-type: none">IETF (RFCs)IEEE	Commands <ul style="list-style-type: none">PracticalSummaryUsefulvi summaryvi cheat sheet Howtos <ul style="list-style-type: none">HowtoForgeemailDNSEthernet (NIC drivers)NFSNISPPPPutty SSH Keyssed Student Howtos <ul style="list-style-type: none">Monitor Script by Sean CallahanWiFi Penetration by Ryan SchellLogging into Opus from a Mac by Laura SreckovicLDAP Implementation by Tim ChildersInstall and DualBoot into Microsoft Windows 7 and Linux Ubuntu by Richie FouMaking an ethernet cable by Michael GeorgeHome VM access via Linksys router by Marc RomanskyPutty to VMs by Marc Romansky
--	--	--

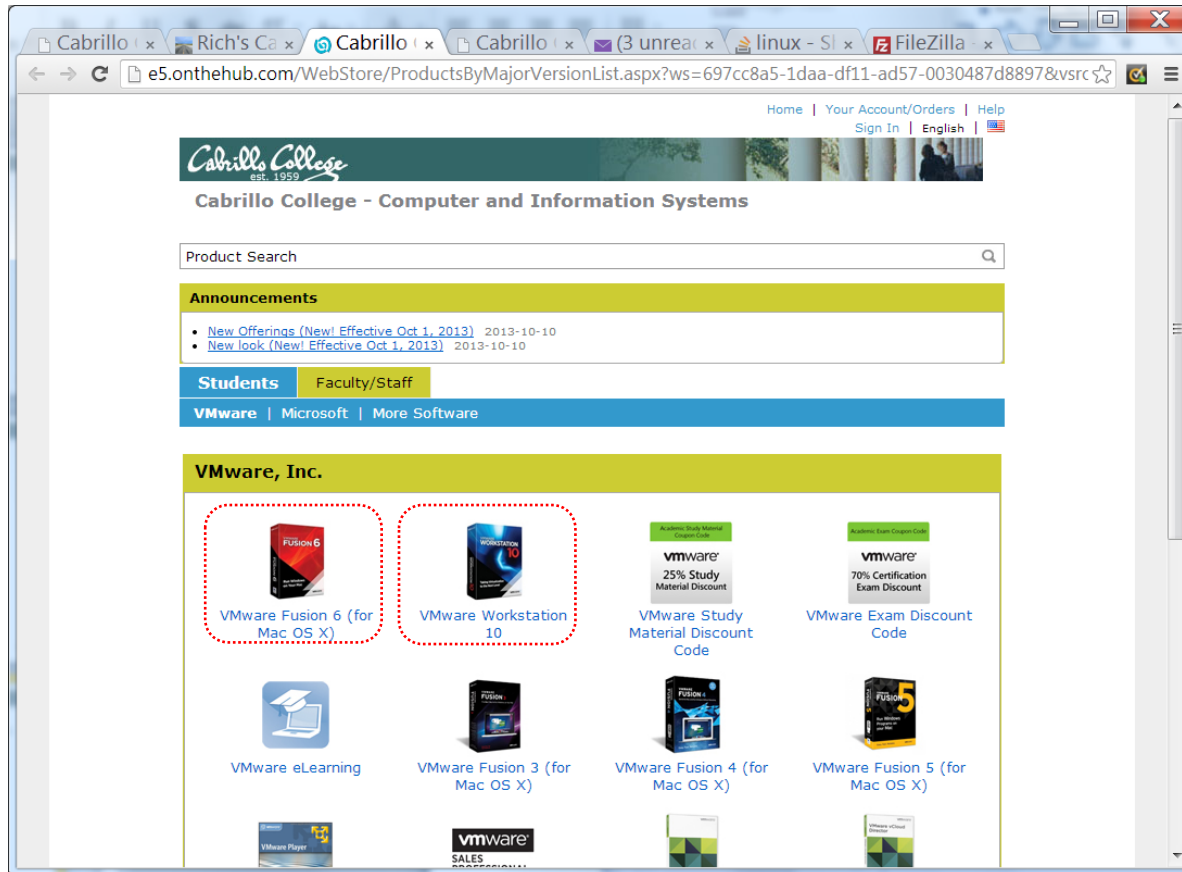
Shopping for the ingredients

VMware Workstation

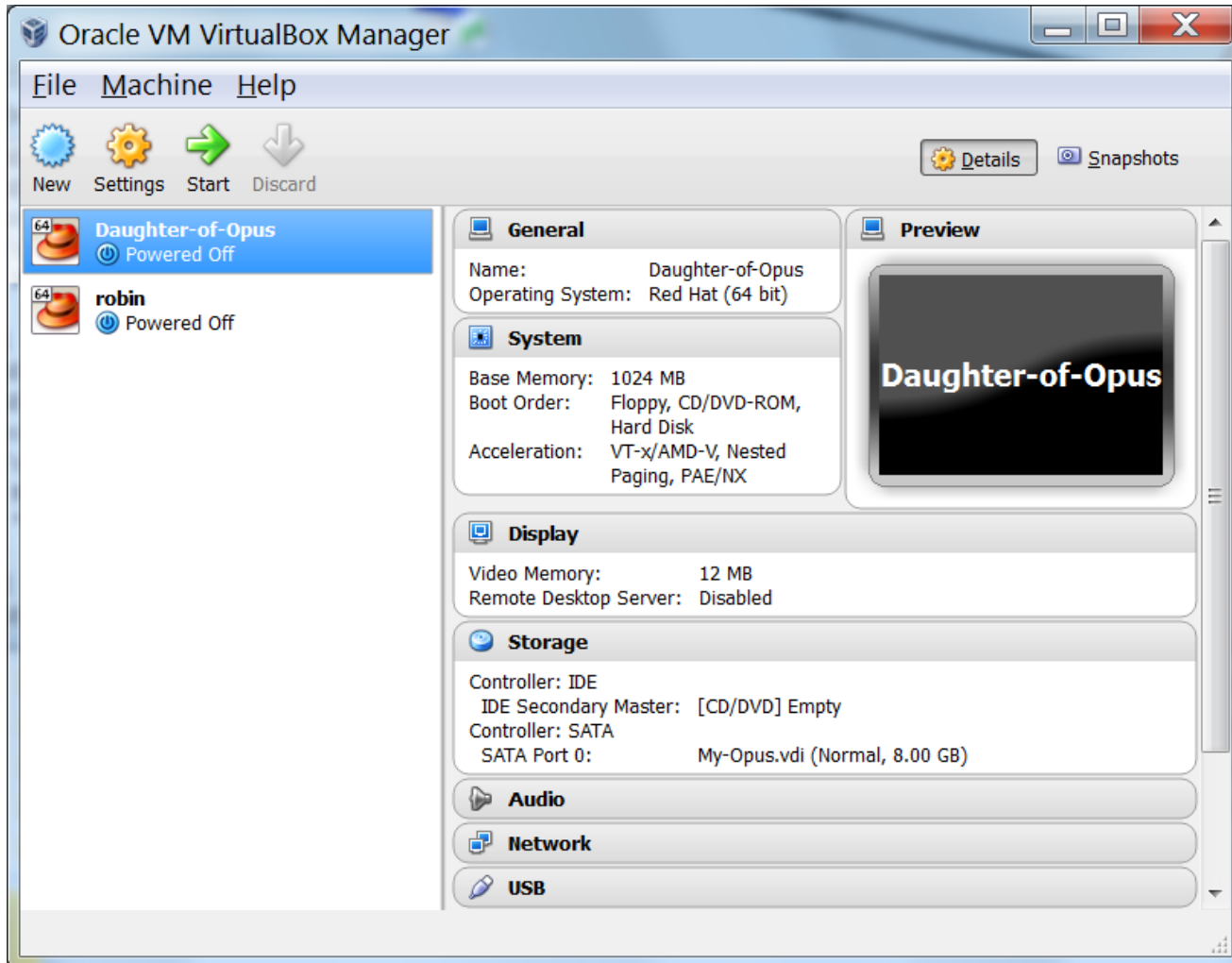


Provides you with an empty (No OS) virtual computer

VMware Workstation (Windows) or Fusion (Mac)



Oracle VirtualBox



Provides you with an empty (No OS) virtual computer

virtualbox.org



The screenshot shows a web browser window with the URL <https://www.virtualbox.org/wiki/Downloads>. The page features the VirtualBox logo on the left and a navigation menu with links for About, Screenshots, Downloads, Documentation, End-user docs, Technical docs, Contribute, and Community. The main content area is titled "Download VirtualBox" and contains the following text:

Here, you will find links to **VirtualBox** binaries and its source code.

VirtualBox binaries

By downloading, you agree to the terms and conditions of the respective license.

- **VirtualBox platform packages.** The binaries are released under the terms of the GPL version 2.
 - **VirtualBox 4.2.4 for Windows hosts** ⇨ x86/amd64
 - **VirtualBox 4.2.4 for OS X hosts** ⇨ x86/amd64
 - **VirtualBox 4.2.4 for Linux hosts**
 - **VirtualBox 4.2.4 for Solaris hosts** ⇨ x86/amd64
- **VirtualBox 4.2.4 Oracle VM VirtualBox Extension Pack** ⇨ All supported platforms
Support for USB 2.0 devices, **VirtualBox** RDP and PXE boot for Intel cards. See [this chapter from the User Manual](#) for an introduction to this Extension Pack. The Extension Pack binaries are released under the **VirtualBox** Personal Use and Evaluation License (PUEL).
*Please install the extension pack with the same version as your installed version of **VirtualBox**!*
If you are using **VirtualBox 4.1.22**, please download the extension pack ⇨ [here](#).
If you are using **VirtualBox 4.0.16**, please download the extension pack ⇨ [here](#).
- **VirtualBox 4.2.4 Software Developer Kit (SDK)** ⇨ All platforms

See the [changelog](#) for what has changed.
You might want to compare the

- ⇨ [SHA256](#) checksums or the

http://iso.linuxquestions.org/

The screenshot shows the LinuxQuestions.org website with a navigation menu on the left, a main content area with a 'Linux Download' section, and a right sidebar with a 'Main Menu' and an advertisement for Google Nexus 7. The main content area features a list of '15 Latest Linux Distribution Releases' and 'Popular Linux Distributions'.

LinuxQuestions.org > ISOs

LQ ISOs

- Search
- Alphabetical List
- Latest Releases
- Release Notification
- Suggest Additions

Search

Need Help?

- Downloading ISOs
- Burning ISOs

Sponsored Links

- Linux Desktop
- Jobs
- Linux Operating System
- Linux Os
- Linux Computers
- Laptop Deals
- Linux Servers

Statistics

Distros: 449
Versions: 2408
Mirrors: 1814
Downloads: 29,619,502

LQ Job Board

Jobs

Embedded Linux
Platform Engineer
Fremont, CA
Synectics

Welcome to LQ ISOs

Linux Download
techtarget.com/Linux
Answer Your Linux Questions. Expert Articles & Tips. Free Guide!

Welcome to LQ ISO

This site is [designed](#) to meet all of your Linux distribution download needs, including searching for fast [mirrors](#), receiving email updates when new versions of your favorite distributions are released and reading reviews. If you do not see the distribution you [are looking for](#) below, you can view the complete alphabetical list. Please let us know if you have any suggestions.

If you find the site useful, you can help spread the word by telling 10 friends the URL (<http://www.lqiso.org/>). Thanks.

15 Latest Linux Distribution Releases

1. [SparkyLinux 3.2 "LXDE", "Ultra", "Razorgt"](#)
2. [PCLinuxOS 2013.12](#)
3. [DoudouLinux 2.1](#)
4. [ROSA 2012 R2 "Desktop Fresh"](#)
5. [Canaima GNU/Linux 4.0](#)
6. [Oracle Linux 6.5](#)
7. [CentOS 6.5](#)
8. [Tiny Core Linux 5.1](#)
9. [Linux Mint 16](#)
10. [Peppermint OS Four-20131113](#)
11. [Centrych 12.04.3](#)
12. [Linux Deepin 2013](#)
13. [MakuluLinux 4.3](#)
14. [Manjaro Linux 0.8.8](#)
15. [NetSecL OS 5.0](#)

Popular Linux Distributions

- [Ubuntu](#)
- [Fedora](#)
- [Linux Mint](#)
- [openSUSE](#)
- [PCLinuxOS](#)
- [Debian](#)
- [Mageia](#)
- [Slackware](#)
- [CentOS](#)
- [Puppy](#)
- [Arch](#)
- [MEPIS](#)

View by Topic: [Desktop](#), [Server](#), [Security](#), [Mobile](#), [Live](#), [Firewall](#), [Rescue](#)

15 Most Downloaded Distribution Versions (last 30 Days)

1. [BackTrack 5 R3](#) (194567)
2. [CentOS 6.3](#) (61005)

15 Most Downloaded Distributions (Ever)

1. [Fedora](#)
2. [Red Hat Enterprise Linux](#)

Main Menu

- Linux Forums
- Android Forum
- Chrome OS Forum
- Linux HCL
- Linux Tutorials
- Linux Wiki
- Distro Reviews
- Book Reviews

Ad

Google

Nexus 7.
Google's highest resolution 7" tablet.

You will need a Linux Distro to install on your virtual Computer

centos.org

The image shows two browser windows. The left window displays the main CentOS website (www.centos.org) with the logo, navigation menu, and an overview section. The right window shows a mirror page (mirrors.sonic.net/centos/) with a table of available ISO images.

CentOS Overview

CentOS is an Enterprise-class Linux Distribution derived from sources freely provided to the public by a prominent North American Enterprise Linux vendor. CentOS conforms fully with the upstream vendor's redistribution policy and aims to be 100% binary compatible. (CentOS mainly changes packages to remove upstream vendor branding and artwork.) CentOS is free.

CentOS is developed by a small but growing team of core developers. In turn the core developers are supported by an active user community including system administrators, network administrators, enterprise users, managers, core Linux contributors and Linux enthusiasts from around the world.

CentOS has numerous advantages over some of the other done projects including: an active and growing user community, quickly rebuilt, tested, and QA'ed errata packages, an extensive **mirror network**, developers who are contactable and responsive, multiple free support avenues including **IRC Chat**, **Mailing Lists**, **Forums**, a dynamic **FAQ**.

This site makes use of Javascript. If your browser doesn't work with Javascript we recommend you use **Firefox**.

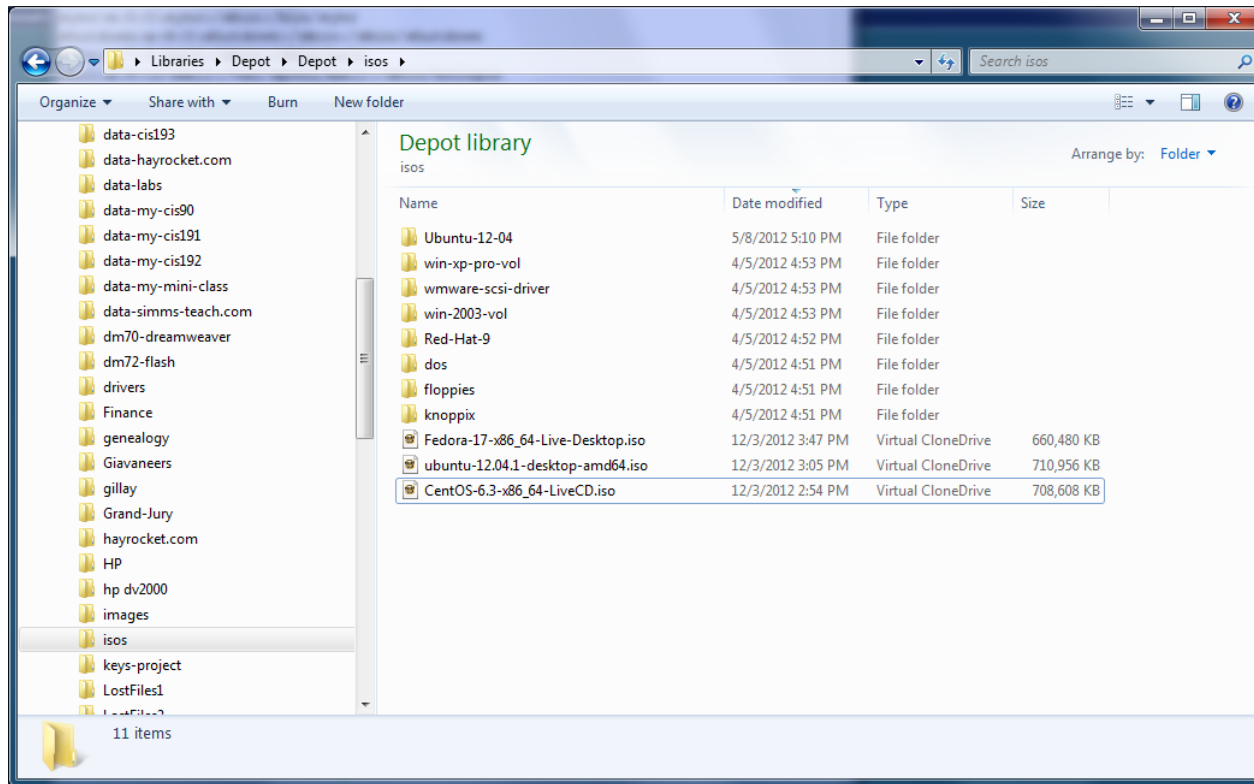
CentOS 6 Releases

July 9th 2012

The CentOS team is pleased to **announce** the immediate availability of CentOS-6.3 for i386 and x86_64 Architectures.

Name	Last modified	Size	Description
Parent Directory			
2.1/	08-Sep-2009 22:18	-	
2/	08-Sep-2009 22:18	-	
3.1/	02-Mar-2011 15:44	-	
3.3/	02-Mar-2011 15:44	-	
3.4/	02-Mar-2011 15:44	-	
3.5/	02-Mar-2011 15:44	-	
3.6/	02-Mar-2011 15:44	-	
3.7/	02-Mar-2011 15:44	-	
3.8/	02-Mar-2011 15:44	-	
3.9/	02-Mar-2011 15:44	-	
3/	02-Mar-2011 15:44	-	
4.0/	18-Jul-2005 14:11	-	
4.1/	21-Oct-2005 10:54	-	
4.2/	04-Nov-2006 04:43	-	
4.3/	10-Nov-2006 14:15	-	
4.4/	07-Jul-2007 11:21	-	
4.5/	10-Jan-2008 08:12	-	
4.6/	31-Mar-2009 04:55	-	
4.7/	08-Mar-2010 02:56	-	
4.8/	12-Mar-2012 17:14	-	
4.9/	12-Mar-2012 17:16	-	
4/	12-Mar-2012 17:16	-	
5.0/	10-Jan-2008 08:11	-	
5.1/	29-Jul-2008 14:01	-	
5.2/	07-Aug-2009 05:47	-	
5.3/	14-Feb-2010 04:36	-	
5.4/	11-Aug-2010 14:18	-	
5.5/	20-May-2011 02:28	-	
5.6/	19-Sep-2011 09:40	-	
5.7/	12-Mar-2012 17:20	-	
5.8/	27-Feb-2012 11:57	-	
5/	07-Mar-2012 19:47	-	
6.0/	31-Jul-2012 09:47	-	
6.1/	31-Jul-2012 09:47	-	
6.2/	31-Jul-2012 09:46	-	
6.3/	09-Jul-2012 13:10	-	
6/	09-Jul-2012 13:10	-	
RPM-GPG-KEY-CentOS-3	15-Mar-2004 15:16 1.8K		
RPM-GPG-KEY-CentOS-4	26-Feb-2005 09:51 1.8K		
RPM-GPG-KEY-CentOS-5	19-Feb-2007 09:57 1.5K		
RPM-GPG-KEY-CentOS-6	10-Jul-2011 07:28 1.7K		
RPM-GPG-KEY-CentOS-Debug-6	10-Jul-2011 07:28 1.7K		
RPM-GPG-KEY-CentOS-Security-6	10-Jul-2011 07:28 1.7K		
RPM-GPG-KEY-CentOS-Testing-6	10-Jul-2011 07:28 1.7K		
RPM-GPG-KEY-beta	19-Feb-2007 09:56 1.5K		
RPM-GPG-KEY-centos4	26-Feb-2005 09:51 1.8K		
TIME	03-Dec-2012 16:00 11		
html/	12-Jun-2005 05:56	-	

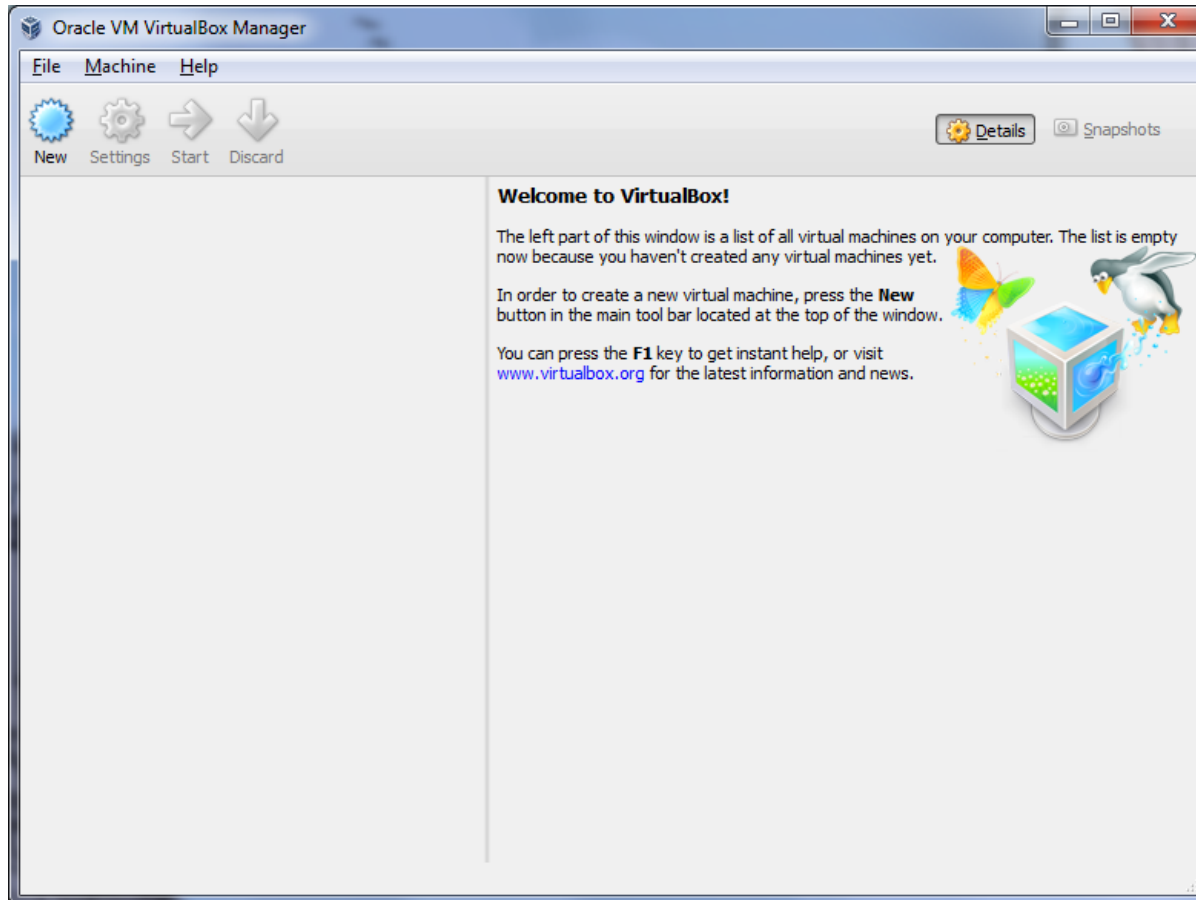
Use the CentOS Distro to make your own Opus



Download an iso image of the Linux distribution

VirtualBox

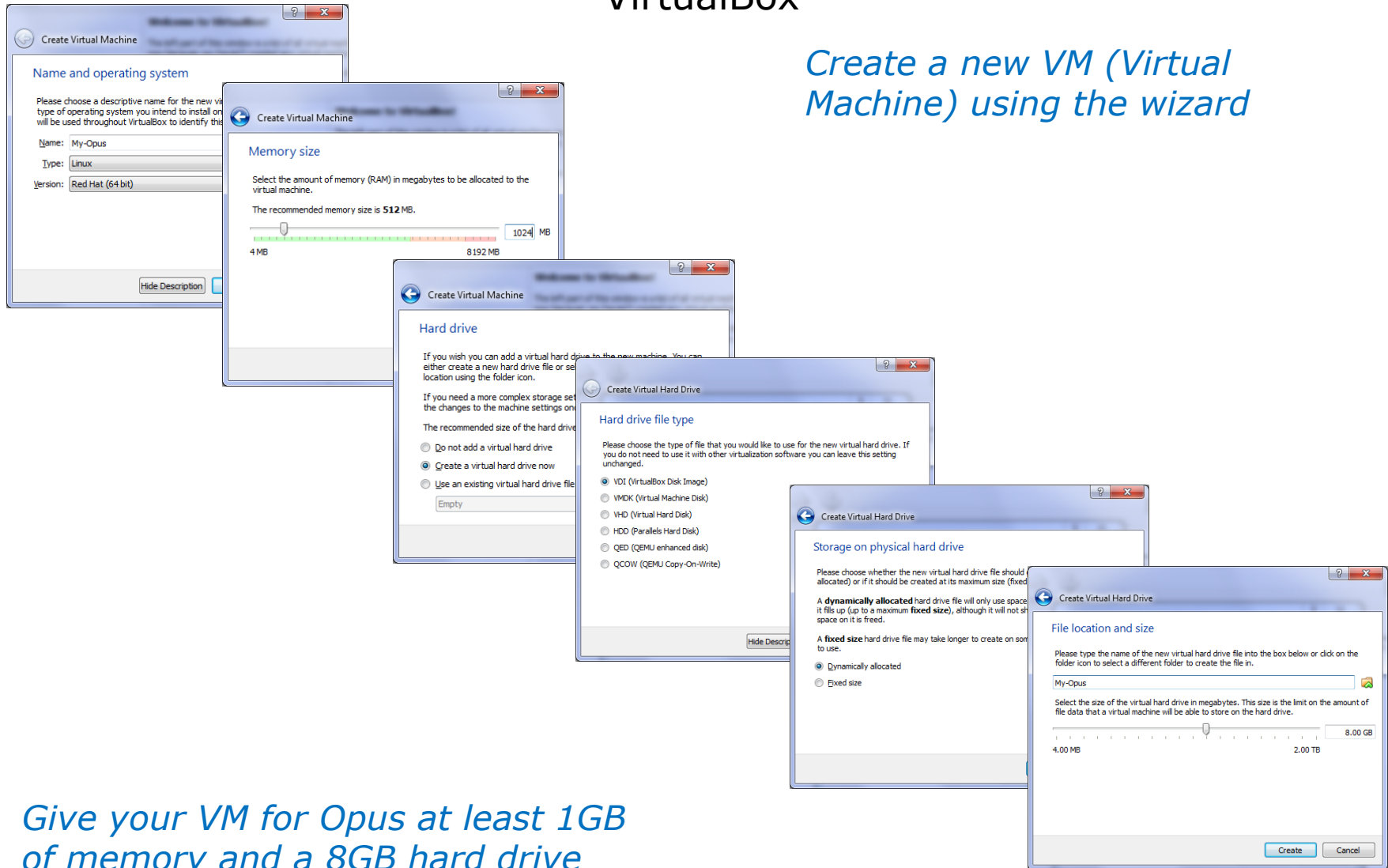
*Click the
New button
to create a
new VM.*



*Download and install one of the virtualization products.
This example will use VirtualBox.*

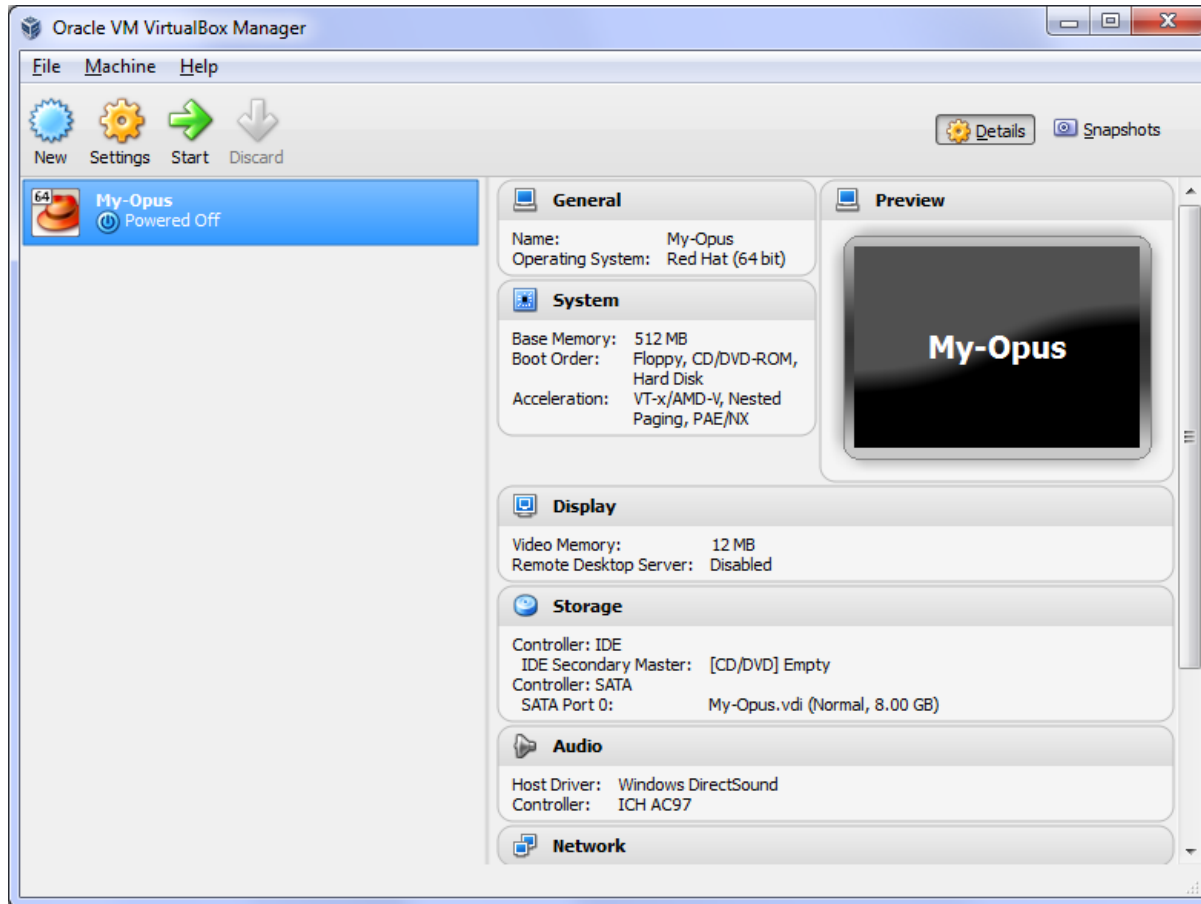
VirtualBox

Create a new VM (Virtual Machine) using the wizard



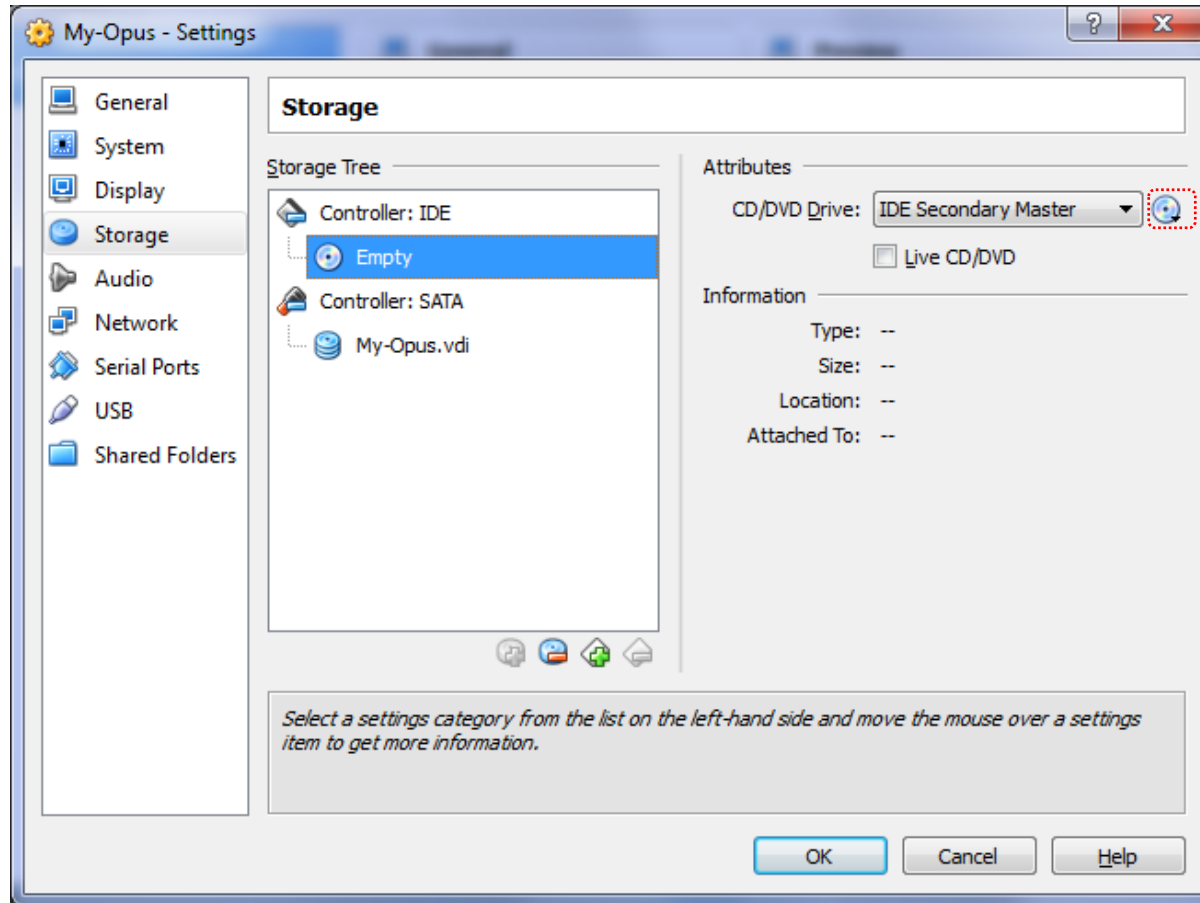
Give your VM for Opus at least 1GB of memory and a 8GB hard drive

VirtualBox



The new VM has no operating system

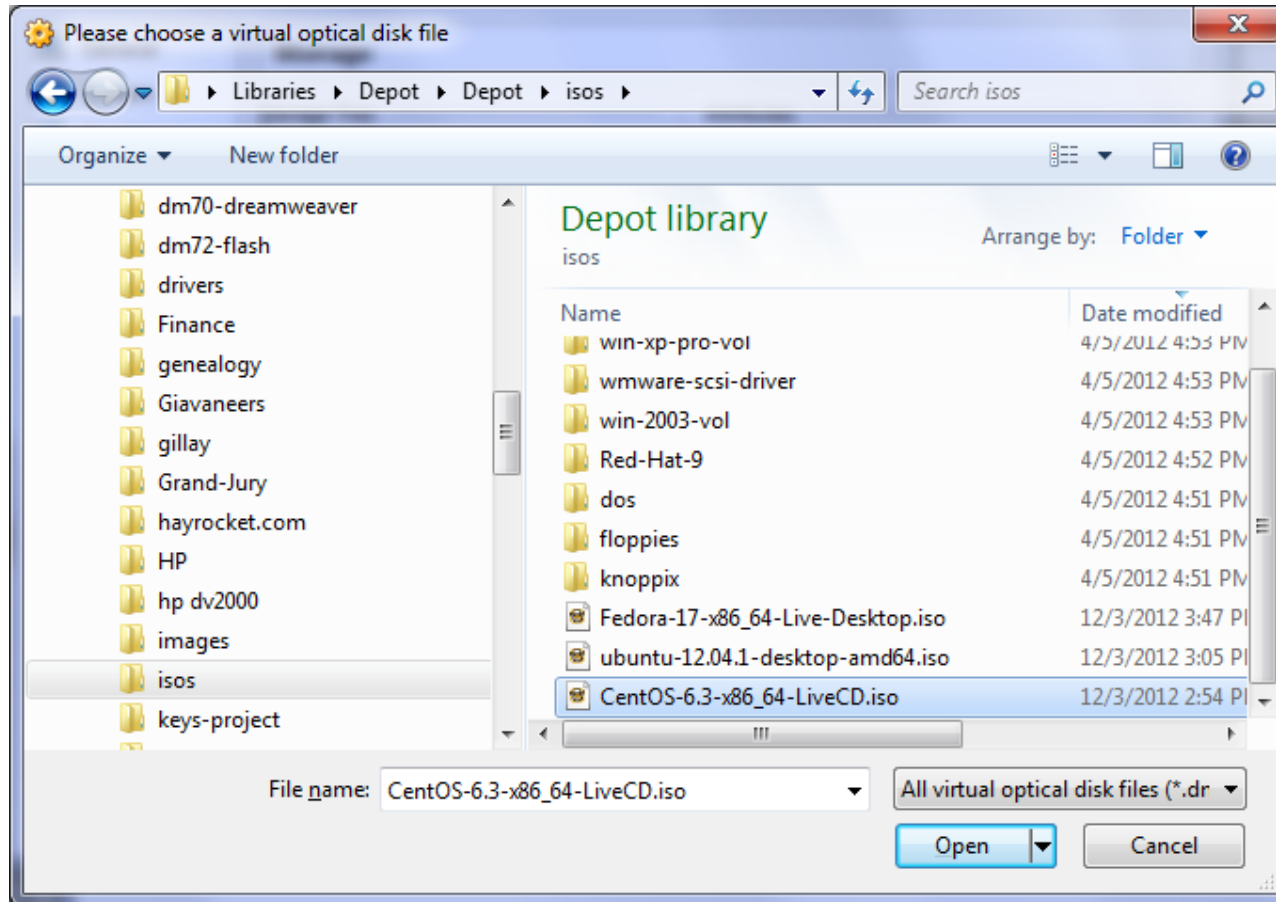
VirtualBox



Click the little CD icon to the left to browse to the CentOS ISO image to install

In Settings locate Storage so we can "put the CentOS CD into the DVD drive" by configuring the virtual IDE DVD drive with the ISO image downloaded earlier.

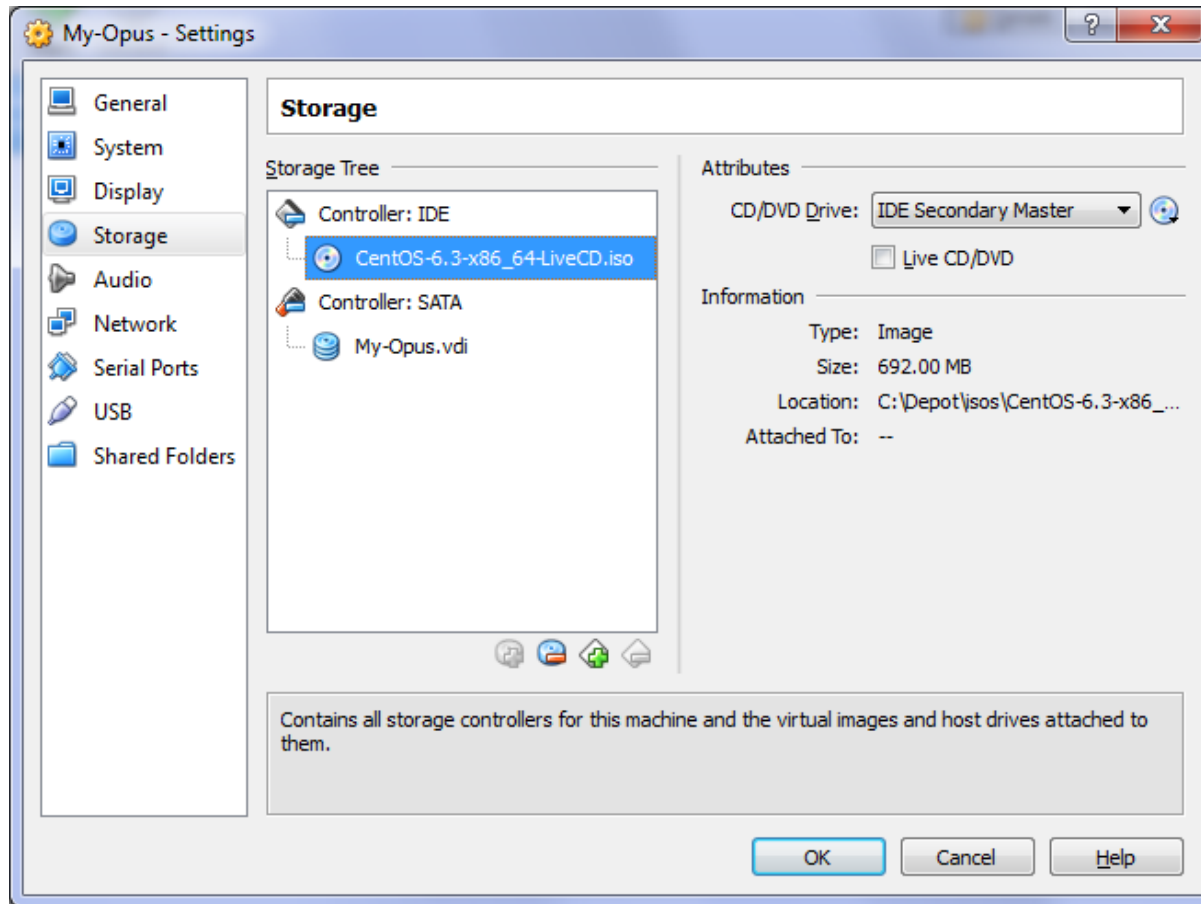
VirtualBox



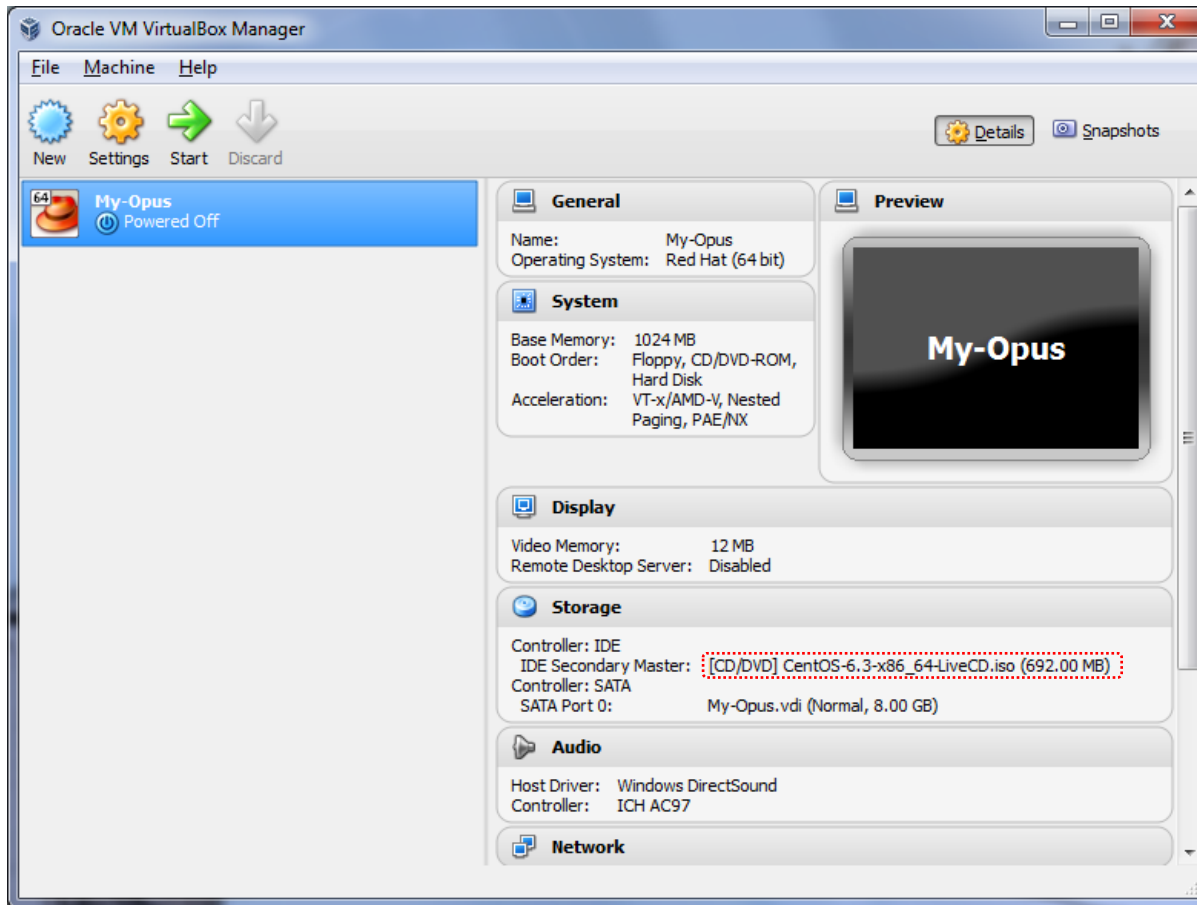
*Locate the
ISO image
to install*

CentOS-6.3-x86_64-LiveCD.iso

VirtualBox

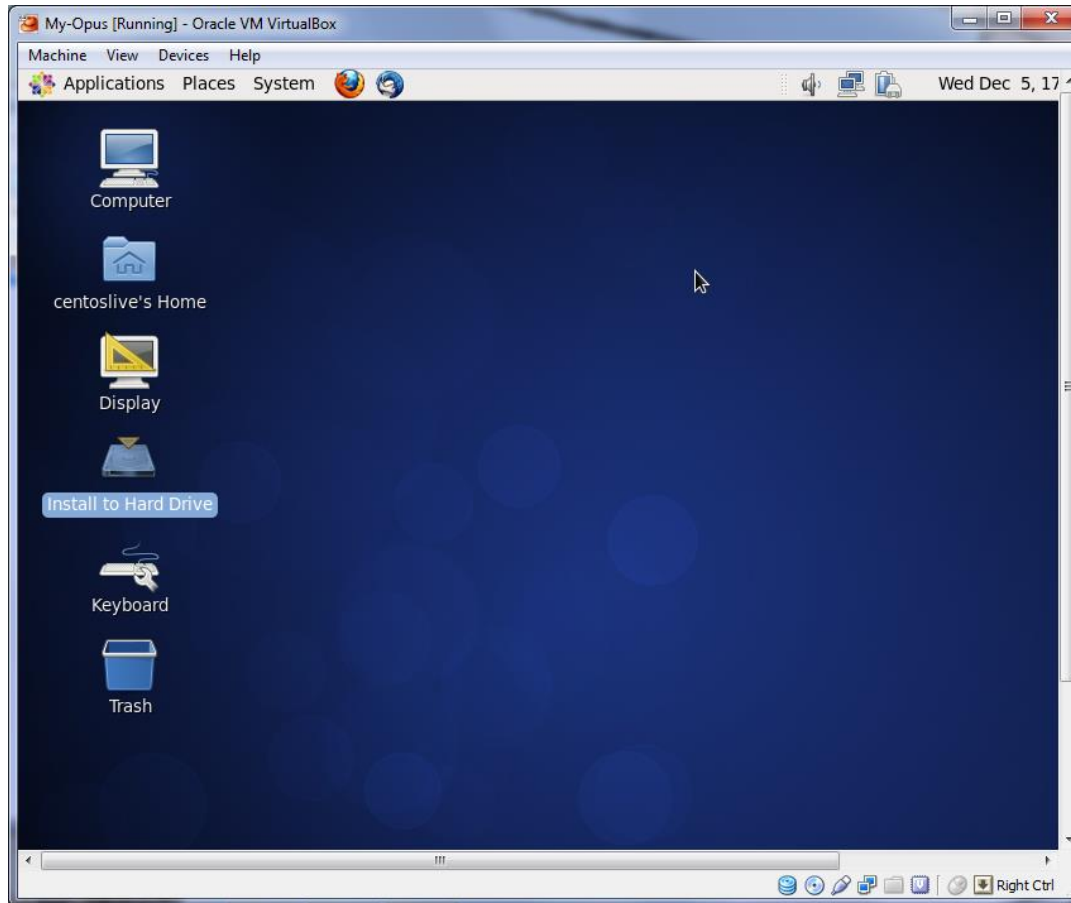


VirtualBox



If you see the correct ISO image in the drive you can power on the VM

VirtualBox



If it complains you don't have a 64-bit CPU (and you do have 64-bit CPU) then enable Virtualization Technology in your BIOS.

Otherwise just let it boot up using the live image which runs in memory and is not installed to the hard drive.

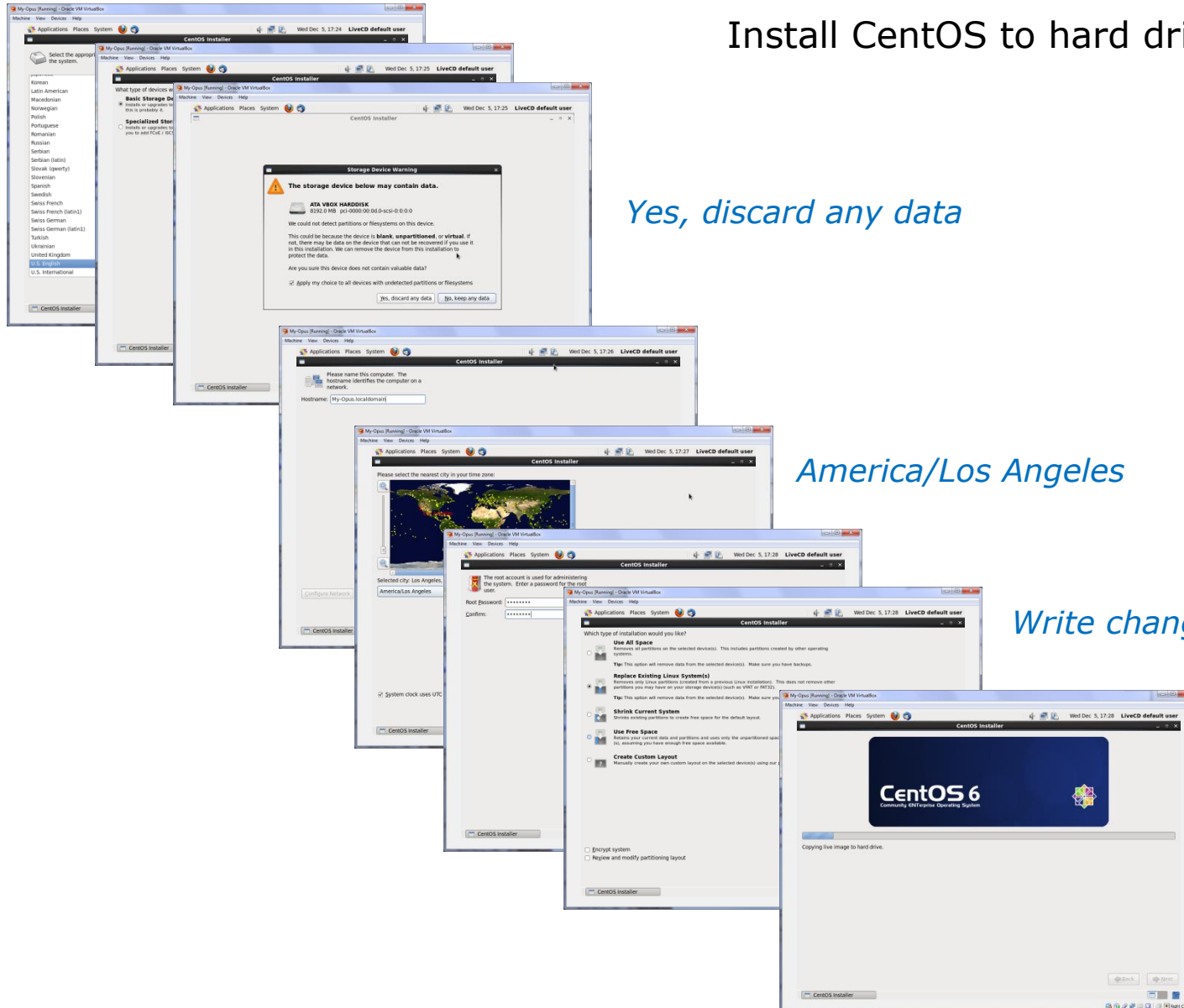
To install permanently to the VM hard drive open the "Install to Hard Drive" icon on the desktop

VirtualBox

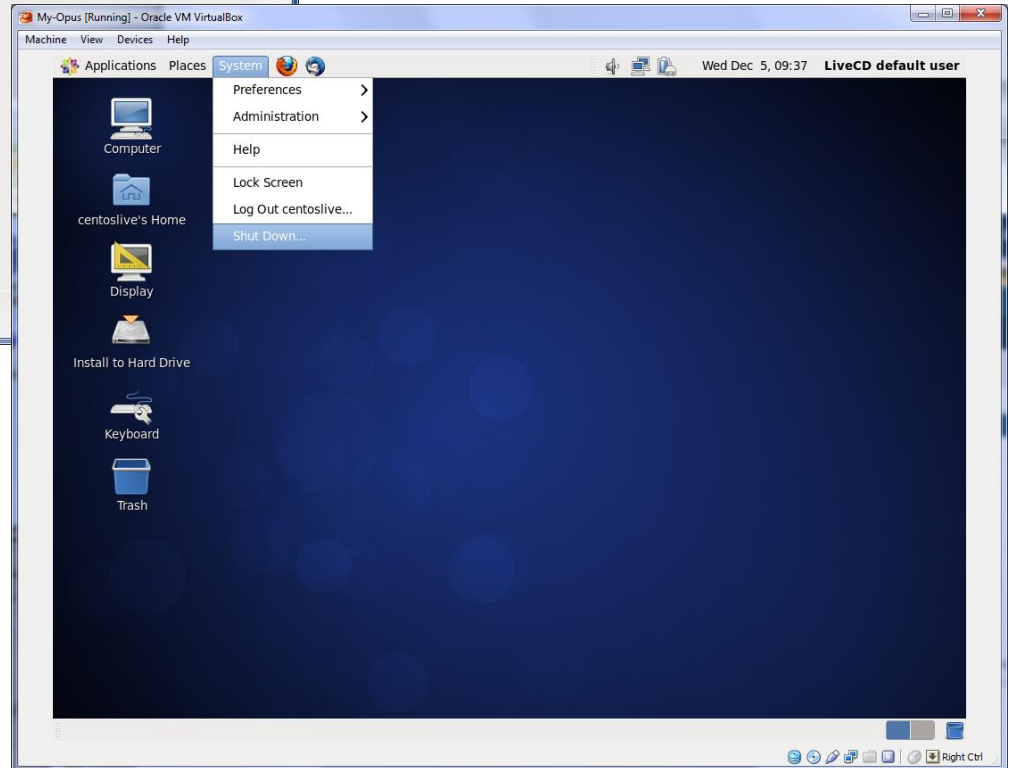
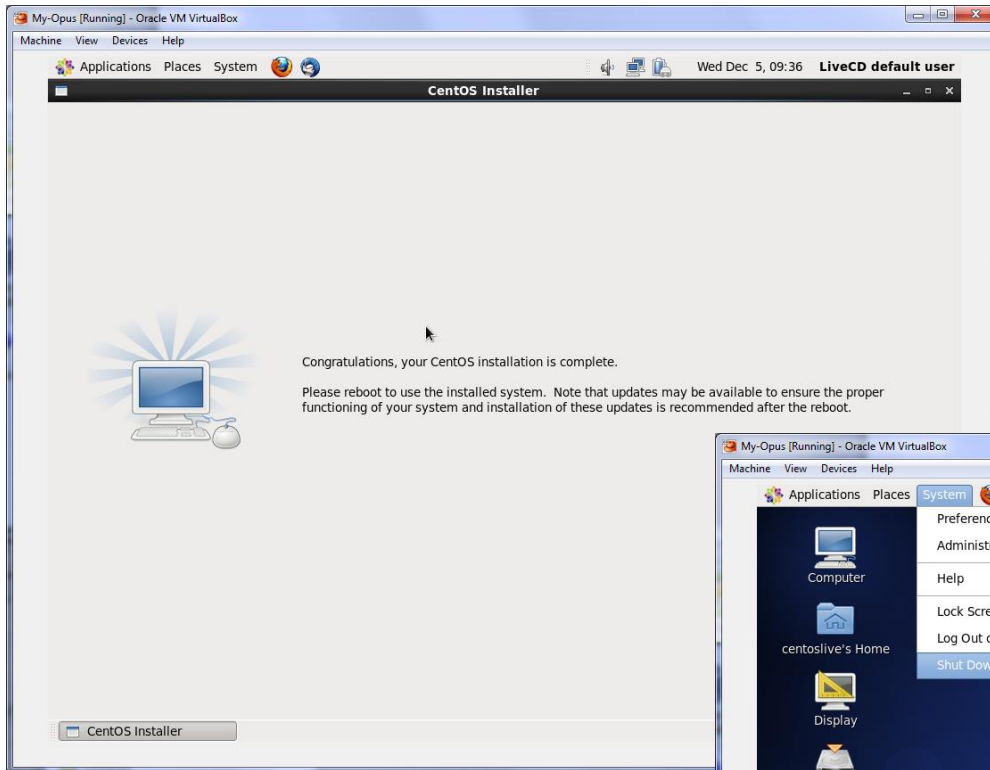


Keep hitting the Next button to let the wizard install the CentOS Linux distribution

Install CentOS to hard drive

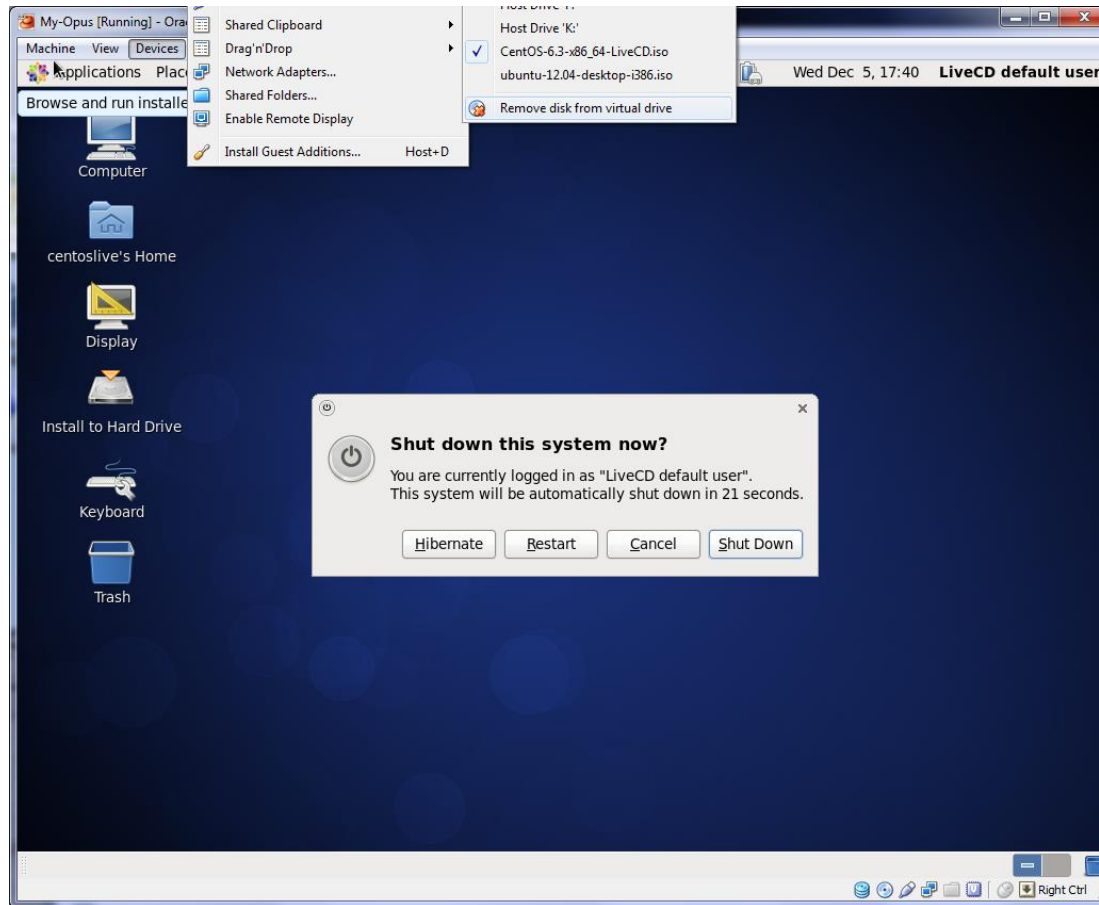


VirtualBox

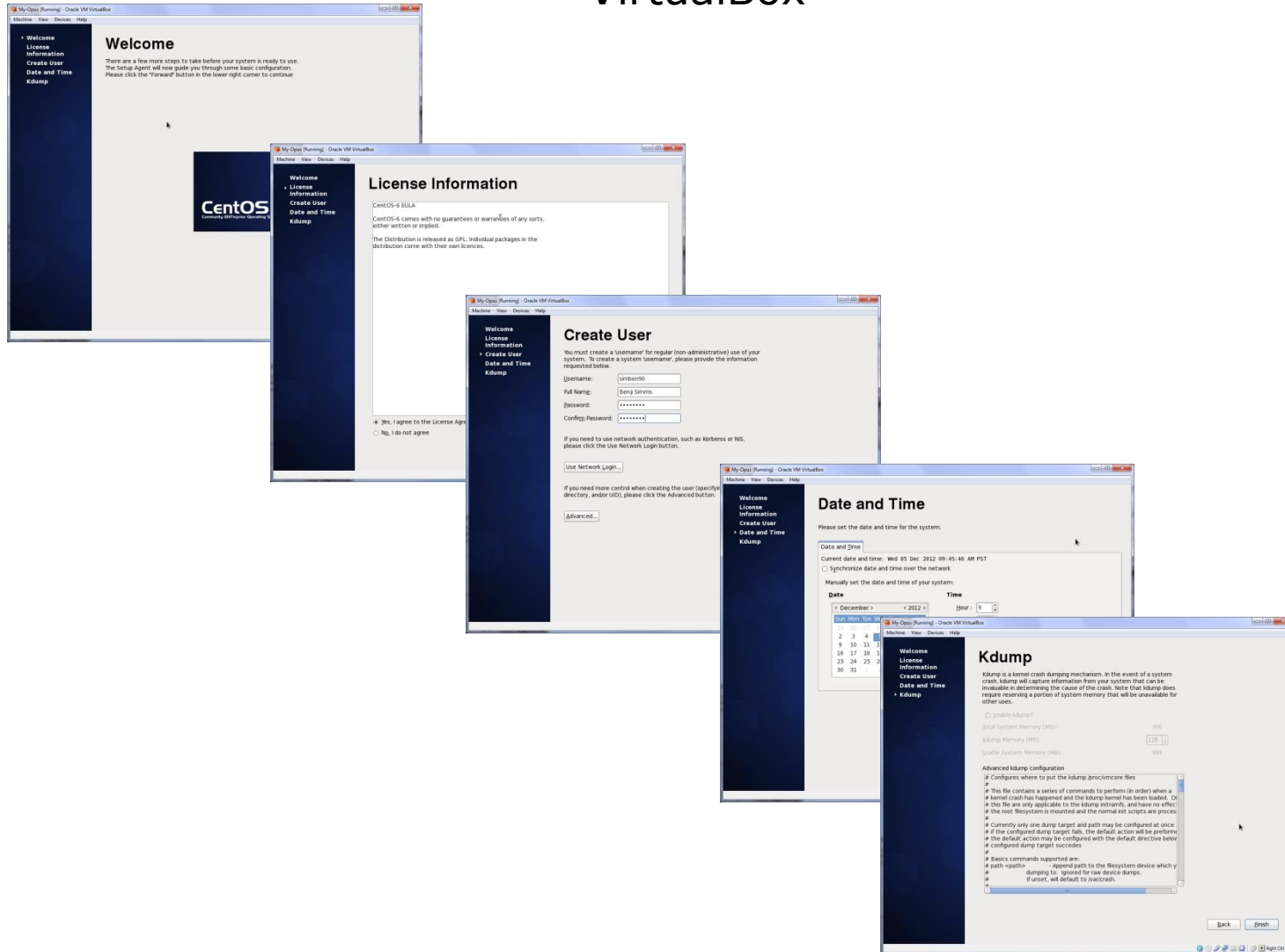


Shutdown the system and before starting again remove the CD from the drive (Settings > Storage)

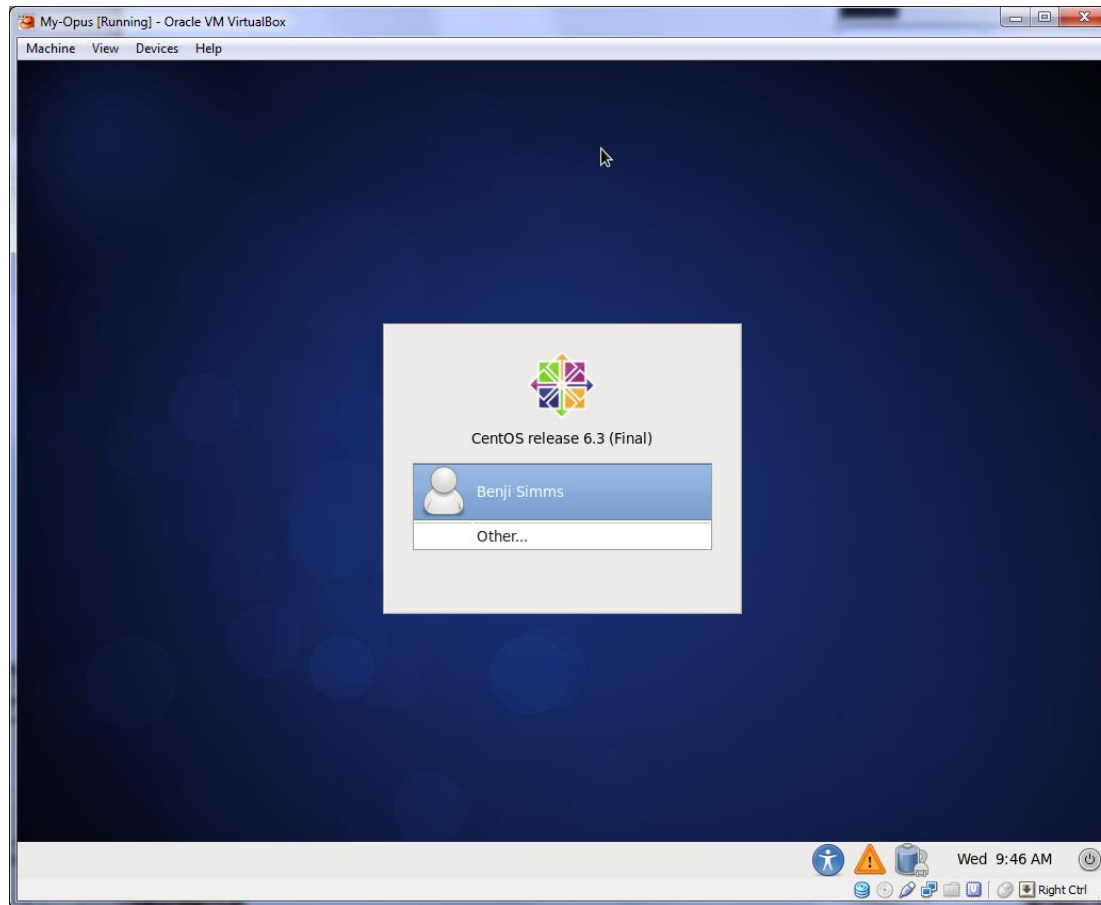
VirtualBox



VirtualBox



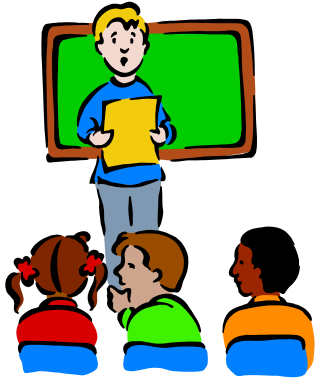
Voilà



If you like doing this you will love CIS 191!



Project Presentations



To demo your project and earn five points:

Join CCC Confer and share desktop when it is your turn

- Remote users should dial or Skype to 888-450-4821 and use passcode: 761867
- Classroom students can use Station #5 next to the Polycom

Five minutes max please!

CCC Confer - Attending class online

The screenshot displays the CCC Confer application window titled "CCC Confer - 0 - RICH SIMMS". The interface includes a menu bar (File, Edit, View, Tools, Window, Help) and a toolbar with icons for drawing, erasing, and navigating. The main content area shows a slide titled "CIS Linux Classes" with the Cabrillo College logo and instructor information: "Instructor: Rich Simms" and "Dial-in: 888-450-4821". A grid of 40 white silhouette icons represents participants in the "MAIN ROOM (2)".

On the left side, there are three panels:

- AUDIO & VIDEO:** Shows a video feed for "Rich Simms" and controls for "Talk" and "Video".
- PARTICIPANTS:** Lists "Benji" and "Rich Simms (Moderator)". Below the list is a row of four icons: a smiley face, a hand, a hand with a raised index finger, and a checkmark. This row is highlighted with a red box.
- CHAT:** Shows a chat history with messages: "- You joined the Main Room. (2:23 PM) -" and "- Rich Simms joined the Main Room. (2:24 PM) -". This area is also highlighted with a red box.

Two blue callout boxes provide instructions:

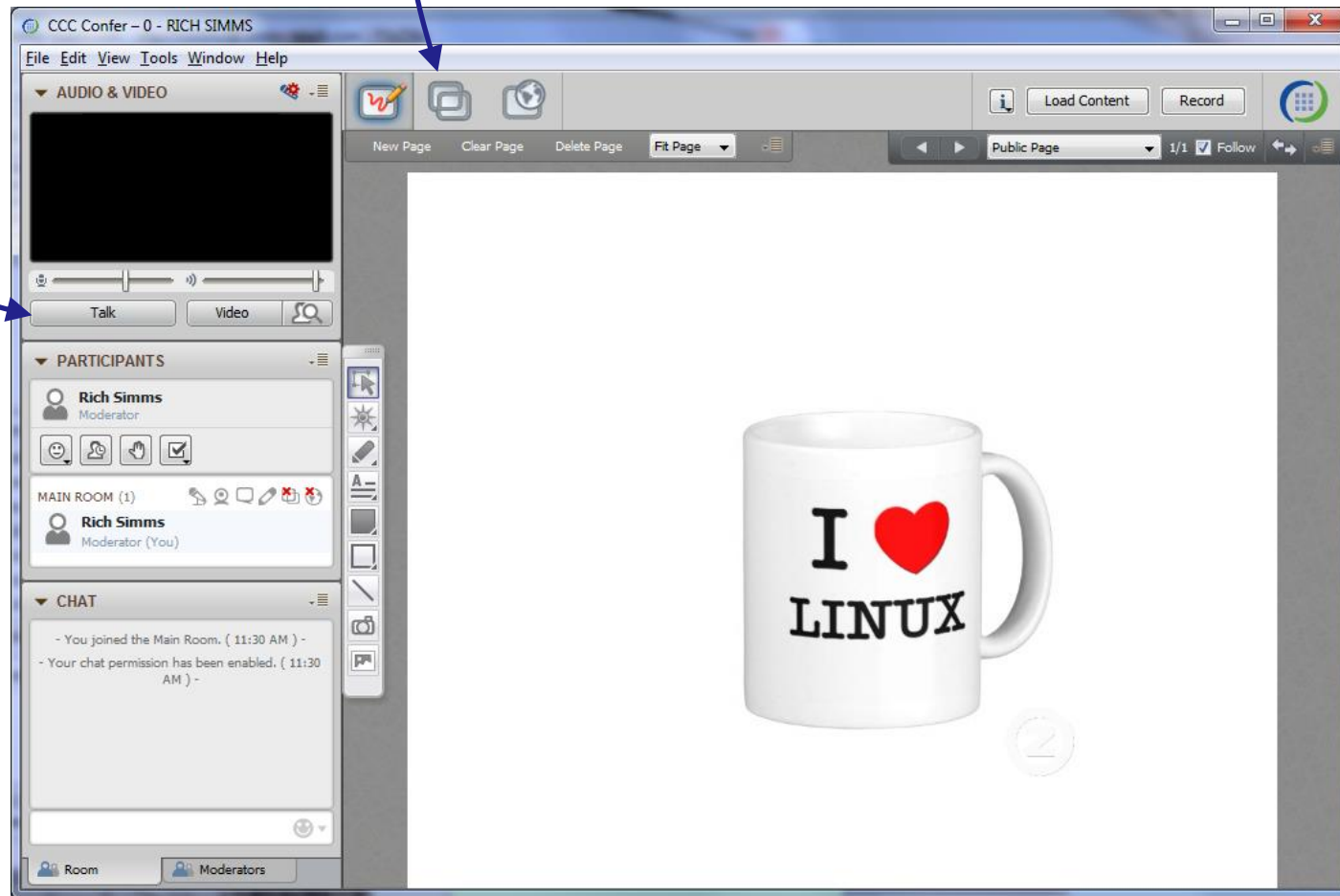
- The top callout box, pointing to the participant control icons, says: "Raise your hand, make gestures, use emoticons and indicate responses using these controls".
- The bottom callout box, pointing to the chat area, says: "Ask public or private questions using the chat area".

At the bottom right of the slide, there is a small text prompt: "of your face for 3 points extra credit".

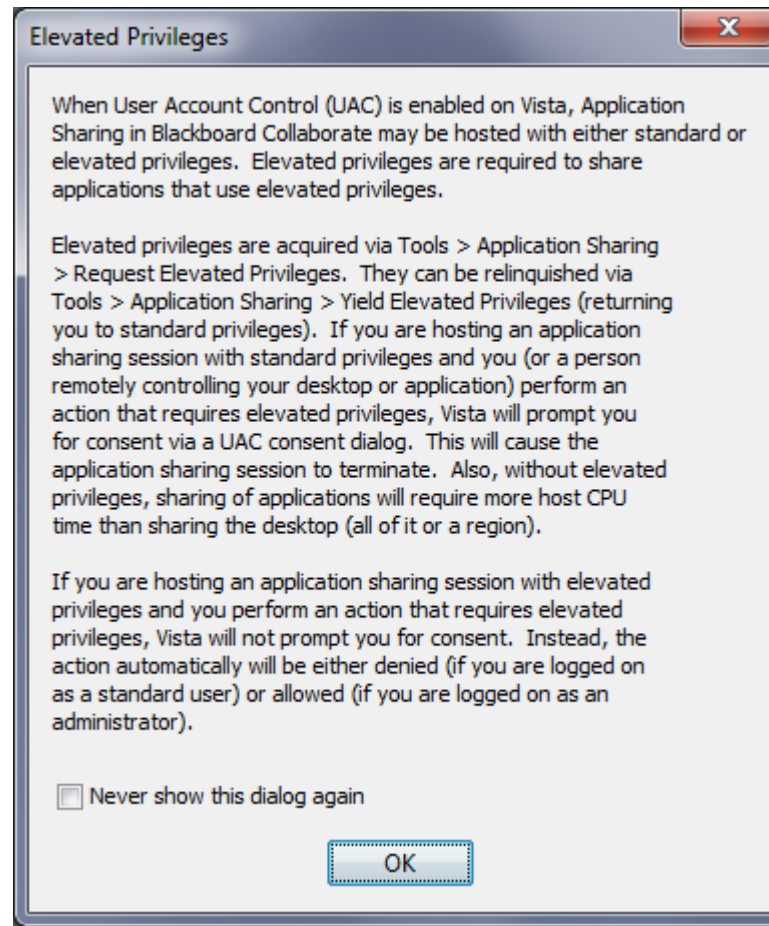
Sharing from CCC Confer

Click **Talk** so we can hear you from your computer's microphone

Click **overlapping rectangles** to share

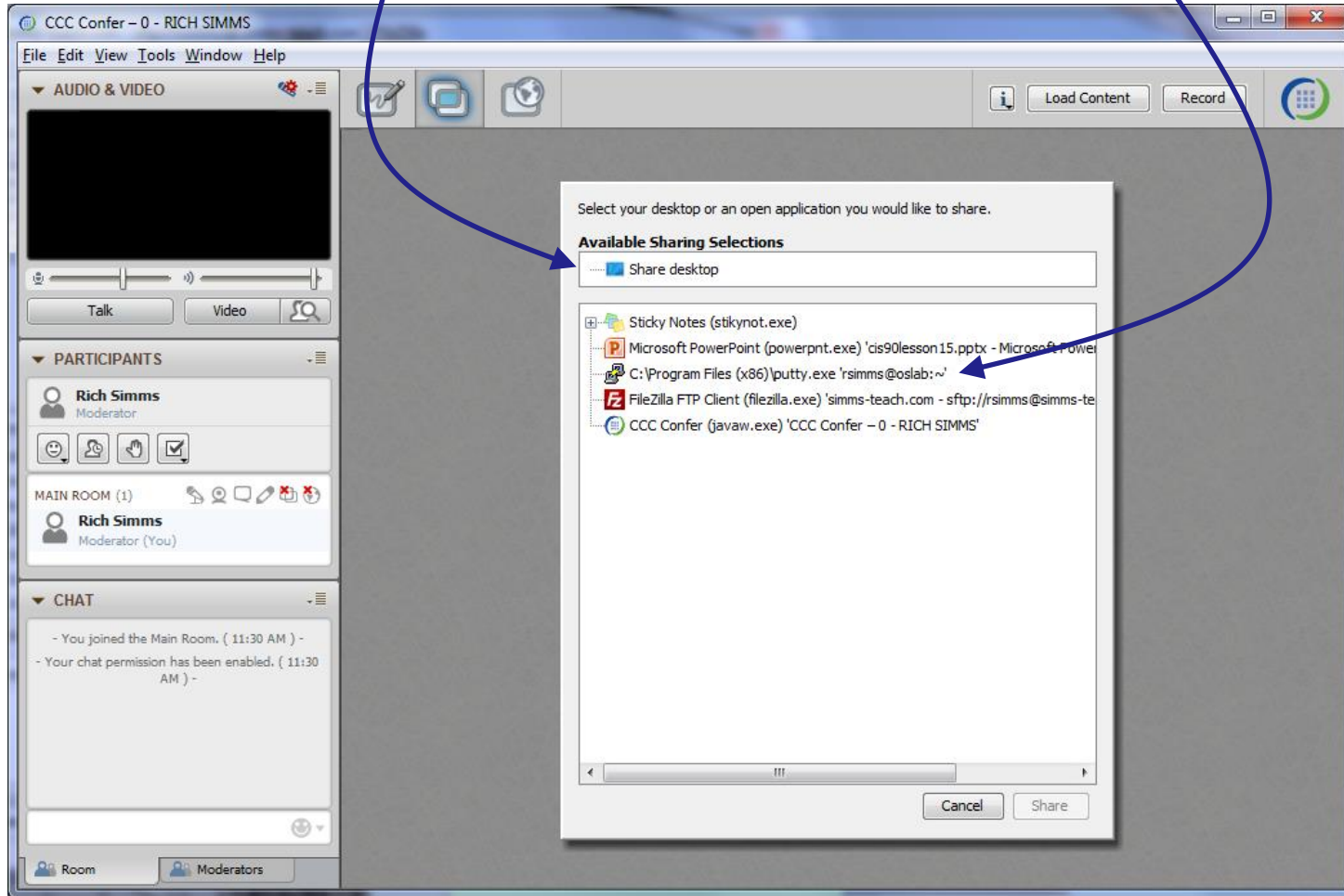


Sharing from CCC Confer



Sharing from CCC Confer

Either share putty/terminal or entire desktop



Sharing from CCC Confer

Click stop symbol to end sharing

The screenshot shows a Windows desktop environment. On the left, there is a 'CCC Confer' application window with tabs for 'AUDIO & VIDEO', 'PARTICIPANTS', and 'CHAT'. The 'PARTICIPANTS' tab shows 'Rich Simms' as the moderator. The 'CHAT' tab shows system messages. In the center, a terminal window titled 'rsimms@oslab:~' is open, displaying a login prompt and a welcome message: 'Welcome to Opus Serving Cabrillo College'. The terminal prompt is '[rsimms@oslab ~]\$'. In the bottom-left corner of the desktop, there is a taskbar with various application icons. A blue arrow points from the text 'Click stop symbol to end sharing' to the stop button (two vertical bars) in the taskbar.



Wrap up

New commands:
tar

Backup and restore files

New Files and Directories:

Next Class is the Final Exam

Test #3

Five Posts

Lab X1 (extra credit)

Lab X2 (extra credit)



Backup

File Transfer

Downloading your Opus files to Linux or Mac using scp

More examples of using scp on your local Mac or Linux system:

```
scp -P2220 -r simben90@oslab.cabrillo.edu:* .
```

Recursive copy of remote home directory to current local directory (doesn't copy home directory hidden files)

```
scp -P2220 -r simben90@oslab.cabrillo.edu:. .
```

Recursive copy of remote home directory to current local directory (includes hidden files in home directory)

```
scp -P2220 simben90@oslab.cabrillo.edu:simben90.tar .
```

Copies archive file in remote home directory to current local directory

```
scp -P2220 -r simben90@oslab.cabrillo.edu:/home/cis90/answers answers/
```

Recursive copy of class answers directory to local directory named answers (which must be created first)