

RESEARCH TOOLS 2011

LECTURE 04

2011-Sep-08

Kurt Schwehr

<http://schwehr.org>

UNH CCOM/JHC
VMWare Ubuntu Image





page discussion edit history move watch

Editing Research Tools 2011 (section)

B / **Ab**

== Resources ==

- [http://vislab-ccom.unh.edu/~schwehr/Classes/2011/esci895-researchtools/ Class Web Page] ""Under construction!!!""
- [[Researchtools.ccom.nh]] - Ubuntu Linux server (actually a virtual machine) for use during class projects

- navigation
- Main page
 - Community portal
 - Current events
 - Recent changes
 - Random page
 - Help

search

Go Search

- toolbox
- What links here
 - Related changes
 - Upload file
 - Special pages

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Summary: /* Resources */

This is a minor edit Watch this page

Save page Show preview Show changes [Cancel](#) | [Editing help](#) (opens in new window)



Help:Editing

CCOM's wiki is running mediawiki.

Contents [hide]

- 1 Editing mediawiki pages - External Links
- 2 Local notes about editing wiki text
 - 2.1 Adding Tags
 - 2.2 Adding Categories
 - 2.3 Discussions
- 3 Policy

Editing mediawiki pages - External Links [edit]

- [Wikipedia's Cheatsheet](#) ↗
- [Wikipedia's How to edit a page](#) ↗
- [Editing overview](#) ↗
- [Wikitext examples](#) ↗

Local notes about editing wiki text [edit]

(See also: [Wiki Guide](#))

Adding Tags [edit]

- There are a number of templates that can be used to add information to a page (e.g., that it needs verification, sets policy, is a stub that needs expansion, etc.)
- You can see all of the tags by going to the [Category:Template](#) page
- You add tags by adding `{{tag-name}}` to your page

Adding Categories [edit]

- Categories are a way to index our Wiki so that things are grouped logically together
- One page can belong to many categories
- You can find the list of categories from the main page (look in the 'Wiki Administration' section), or by going to [Special:Categories](#).
- Please attempt to add as many specific categories as you can to your pages
- Please attempt to use existing categories when you can
- You add categories to your page by adding `[[Category:category-name]]` to the page.

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Project page [Talk](#)

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Search

Wikipedia:Cheatsheet

From Wikipedia, the free encyclopedia

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 - Contact Wikipedia

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 - български
 - català
 - česky
 - Cymraeg
 - eesti
 - español
 - فارسی
 - galego
 - 한국어
 - hrvatski

[Welcome to Wikipedia](#)
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Wikipedia Cheatsheet

Shortcut:
WP:CHEAT

Works anywhere in the text

Description	You type	You get
Italic text	<code>''italic''</code>	<i>italic</i>
Bold text	<code>'''bold'''</code>	bold
Bold and italic text	<code>''''bold & italic''''</code>	<i>bold & italic</i>
Link to another Wikipedia page	<code>[[Name of page]] [[Name of page Text to display]]</code>	Name of page Text to display
Link internal heading	<code>[[#Heading name]] [[#Heading name2 Name2]]</code>	#Heading name Name2
Show an image	<code>[[File:Wiki.png thumb alt=text Caption]]</code>	

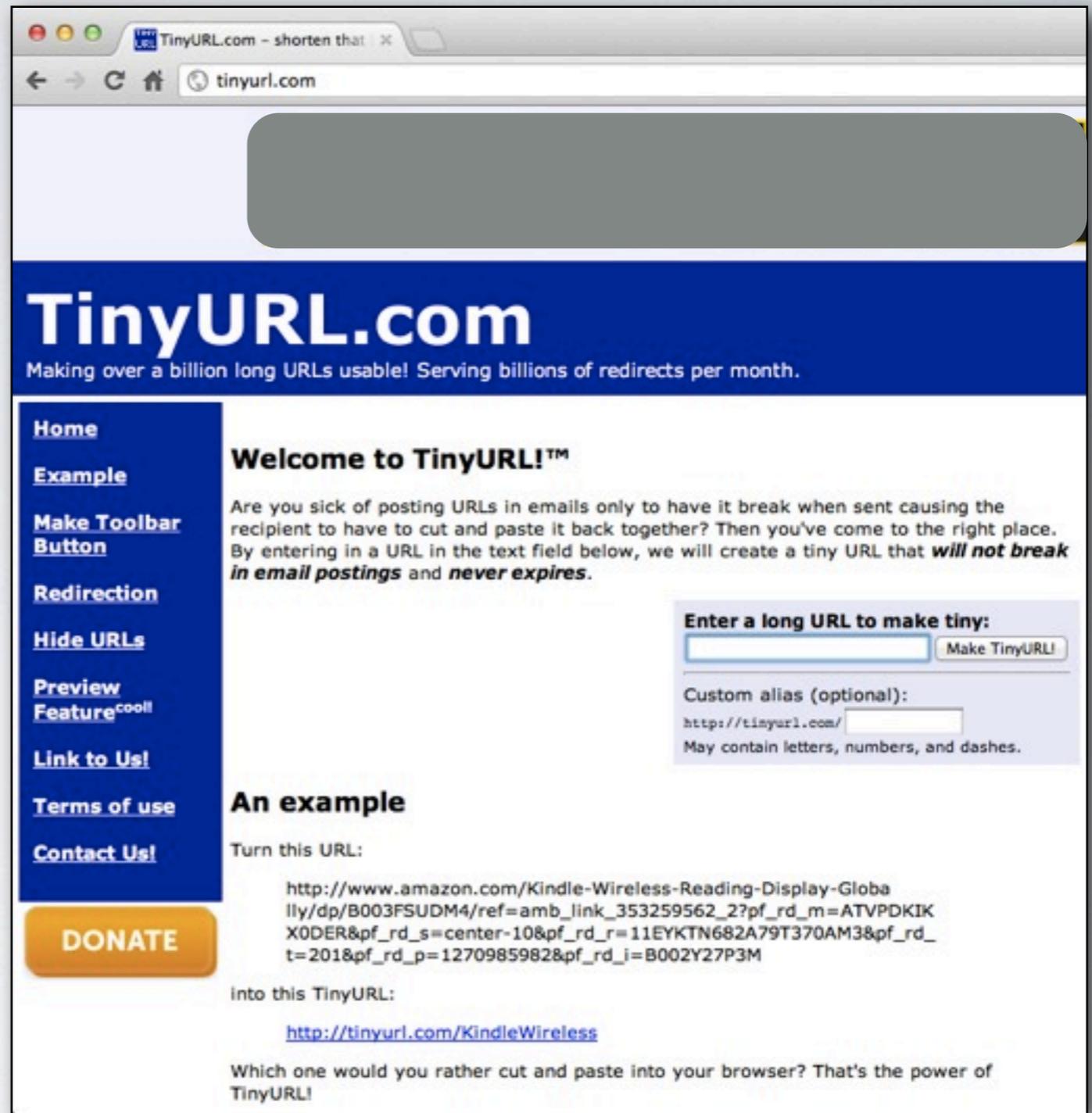


Tiny URL will shorten links

<http://tinyurl.com/researchtools2011>

points to

<http://vislab-ccom.unh.edu/~schwehr/Classes/2011/esci895-researchtools/>



The screenshot shows the TinyURL.com homepage in a browser window. The browser's address bar displays 'tinyurl.com'. The page features a blue header with the 'TinyURL.com' logo and the tagline 'Making over a billion long URLs usable! Serving billions of redirects per month.' A dark grey rounded rectangle is positioned above the header. On the left, a blue sidebar contains navigation links: Home, Example, Make Toolbar Button, Redirection, Hide URLs, Preview Feature^{cooll}, Link to Us!, Terms of use, and Contact Us!. Below these links is an orange 'DONATE' button. The main content area is titled 'Welcome to TinyURL!™' and includes a paragraph explaining the service's purpose. A form titled 'Enter a long URL to make tiny:' contains a text input field and a 'Make TinyURL!' button. Below the form, there is a section for 'An example' showing a long URL being converted into a shorter TinyURL. The long URL is: `http://www.amazon.com/Kindle-Wireless-Reading-Display-Globally/dp/B003FSUDM4/ref=amb_link_353259562_2?pf_rd_m=ATVPDKIKX0DER&pf_rd_s=center-10&pf_rd_r=11EYKTN682A79T370AM3&pf_rd_t=201&pf_rd_p=1270985982&pf_rd_i=B002Y27P3M`. The shortened URL is: `http://tinyurl.com/KindleWireless`. A concluding sentence asks the user to choose between the long and short versions, highlighting the power of TinyURL.

Known Networks 12 ChatZilla 0.9.88.2 Connected Networks 0

[HELLO] Welcome to ChatZilla...
 Below is a short selection of information to help you get started using ChatZilla.

[HELLO] Help is available from many places:

- `/commands` lists all the built-in commands in ChatZilla. Use `/help <command-name>` to get help on individual commands.
- The IRC Help website <http://www.irchelp.org/> provides introductory material for new IRC users.
- The ChatZilla website <http://chatzilla.hacksrus.com/> provides more information about IRC and ChatZilla, including the ChatZilla FAQ <http://chatzilla.hacksrus.com/faq>, which answers many common questions about using ChatZilla.

[INFO] Available networks are [dalnet, efnet, freenode, hispano, ircnet, mozneta, quakenet, serenia, slashnet, solidirc, undernet, webbneta].

client

schwehr_ ▾

/attach irc.freenode.net

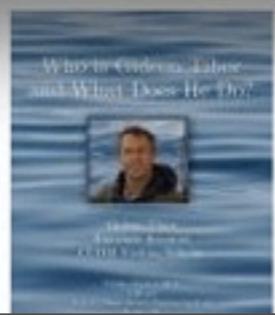
CCOM/JHC

Welcome to ChatZilla!

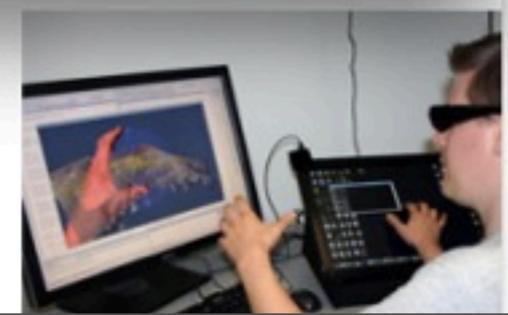


Diving Deeper: Safe Navigation
National Ocean Service Jun. 21, 2012
 CCOM alum Rachel Soraruf Medley was interviewed for this National Ocean Service podcast about nautical charts.

[More >](#)



Who is Gideon Tibor and What Does He Do?
 Gideon Tibor
 Visiting Scholar
 CCOM/JHC
 Friday, Jun. 1, 2012, 3:00pm





Center for Coastal and Ocean Mapping Joint Hydrographic Center

User schwehr_ on ``freenode" (chat.freenode.net:6667)

URL <irc://freenode/> **Connected** Lag 5.38 seconds

```

==== - indicates your acceptance of this policy. For details on
==== - freenode network policy, please take a look at our policy
==== - page (http://freenode.net/policy.shtml). Thank you for using
==== - the network!
==== -
==== - Don't forget to check out these other Peer-Directed Projects:
==== - FOSSCON [http://www.fosscon.org] and fossevents
==== - [http://www.fossevents.org], and soon we'll repeat last years
==== - success with Picnics for Geeks across the globe, more info at
==== - [http://geeknic.org]
==== -
==== - freenode is a service of Peer-Directed Projects Center Ltd,
==== - a not for profit organisation registered in England and Wales.
==== -
==== - If you support the work we do and wish to donate to the PDPC,
==== - you may do so over at http://freenode.net/pdpc\_donations.shtml
==== -
==== - Thank you for using freenode!
==== -
==== - *****
==== - Please read http://blog.freenode.net/2010/11/be-safe-out-there/
==== - *****
--- End of /MOTD command.
==> User mode for schwehr_ is now +i

```

client freenode

schwehr_ /join #unhresearchtools

Welcome to ChatZilla!

Partners

Ho

ham, NH 03824

f v



Center for Coastal and Ocean Mapping Joint Hydrographic Center



@schwehr_ on #unhresearchtools (+ns): No Topic

schwehr_

URL <irc://freenode/unhresearchtools> Mode **+ns** Users **1, 1@, 0%, 0+**
Topic <none>

#unhresearchtools

--> YOU (schwehr_) have joined #unhresearchtools
== Mode #unhresearchtools +ns by card.freenode.net

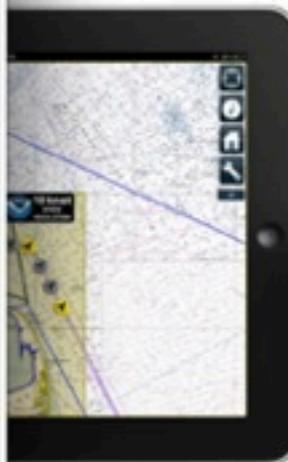
client freenode #unhresearchtools

@schwehr_

Welcome to ChatZilla!

Partners

Ho



ham, NH 03824

f v

#+STARTUP: showall

#+TITLE: Class 4: VMWare Ubuntu Virtual Machine

#+AUTHOR: Kurt Schwehr

#+EMAIL: schwehr@ccom.unh.edu

#+DATE: <2011-09-08 Thu>

#+DESCRIPTION: Marine Research Data Manipulation and Practices

#+KEYWORDS:

#+LANGUAGE: en

#+OPTIONS: H:3 num:nil toc:t \n:nil @:t ::t |:t ^:t -:t f:t *:t <:t

#+OPTIONS: TeX:t LaTeX:nil skip:t d:nil todo:t pri:nil tags:not-in-toc

#+INFOJS_OPT: view:nil toc:nil ltoc:t mouse:underline buttons:0 path:http://orgmode.org/org-info.js

#+EXPORT_SELECT_TAGS: export

#+EXPORT_EXCLUDE_TAGS: noexport

#+LINK_HOME: http://vislab-ccom.unh.edu/~schwehr/Classes/2011/esci895-researchtools/

* Introduction

Before this lecture, we used putty on Windows to log into researchtools.ccom.nh using the ssh protocol. In this lecture we will download a Ubuntu Virtual Machine that can be run from the VMWare Player.

* Troubles connecting to irc.freenode.net

:irc:

We hit serious trouble in this class with irc.freenode.net. CCOM uses network address translation just like you usually do at your house. All of the computers at CCOM look like they are ccom.unh.edu to the outside world and inside computers all have IP addresses like 192.168.*.* (which is a local use only address).

In future classes we will use an irc server that is inside of CCOM. This has the drawback that you must be inside of CCOM to access the IRC server.

* What is a virtual machine or "VM"?

http://en.wikipedia.org/wiki/Virtual_machine



WIKIPEDIA
The Free Encyclopedia

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Virtual machine

From Wikipedia, the free encyclopedia

A **virtual machine (VM)** is a "completely isolated guest operating system installation within a normal host operating system".^[1] Modern virtual machines are implemented with either [software emulation](#) or [hardware virtualization](#). In most cases, both are implemented together.

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- [VM Definitions](#)
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VM Definitions [\[edit\]](#)

A virtual machine (VM) is a software implementation of a machine (i.e. a computer) that executes programs like a physical machine. Virtual machines are separated into two major categories, based on their use and degree of correspondence to any real machine. A system virtual machine provides a complete [system platform](#) which supports the execution of a complete [operating system](#) (OS). In contrast, a process virtual machine is designed to run a single [program](#), which means that it supports a single [process](#). An essential characteristic of a virtual machine is that the software running inside is limited to the resources and abstractions provided by the virtual machine—it cannot break out of its virtual environment.

A virtual machine was originally defined by [Popek and Goldberg](#) as "an efficient, isolated duplicate of a real machine". Current use includes virtual machines which have no direct correspondence to any real hardware.^[2]

- MMIX, MMIXAL
- Neko virtual machine, currently [Neko](#) and [haXe](#)
- O-code machine, BCPL
- p-code machine, Pascal
- Parrot, Perl 6
- Perl virtual machine, Perl
- CPython, Python
- YARV, Ruby MRI
- Rubinius, Ruby
- ScummVM, Scumm
- SECD machine, ISWIM, Lispkit Lisp
- Sed the stream-editor can also be seen as a VM with 2 storage spaces
- Smalltalk virtual machine, Smalltalk language
 - Squeak virtual machine, Squeak language
- SQLite virtual machine, SQLite opcodes
- SWEET16
- Tamarin ([JavaScript engine](#)), ActionScript VM in Flash 9
- TrueType virtual machine, TrueType
- V8 ([JavaScript engine](#)), JavaScript VM
- Valgrind, checking of memory accesses and leaks in x86/x86-64 code under Linux
- Virtual Processor (VP) from [Tao Group \(UK\)](#).
- VX32 virtual machine, application-level virtualization for native code
- Waba, virtual machine for small devices, similar to Java
- Warren Abstract Machine, Prolog, CSC GraphTalk
- Z-machine, Z-Code
- Zend Engine, PHP
- [libJIT Just-In-Time compilation library](#), [libJIT bytecode](#)

Some of the many
virtual machine
systems

- Virtual Server
- Oracle VM
- OVPsim is a freely available virtual platform simulator designed to simulate complex multiprocessor systems at very high speeds
- [Palacios](#) is an OS independent embeddable VMM, it is an open source virtual machine monitor for modern architectures
- [Parallels Workstation](#), virtualizes x86 to run unmodified PC operating systems
- [Parallels Desktop for Mac](#), virtualizes x86 to run virtual machines on Mac OS X
- QEMU, is a simulator based on a virtual machine
- SheepShaver
- Simics
- Sun xVM
- SVISTA
- twoOSTwo
- User-mode Linux
- VirtualBox
- Virtual Iron (Virtual Iron 3.1)
- VM from IBM
- [VMLite](#)
- VMware (ESX Server, Fusion, Virtual Server, Workstation, Player and ACE)
- Xen (Opensource)
- [TransVirtual Systems](#) [↗](#) emulation of Wang Laboratories VS hardware.
- IBM POWER systems

Operating system level virtualization software

- Microsoft Hyper-V
- OpenVZ
- [FreeVPS](#)
- Linux-VServer
- FreeBSD Jails
- Solaris Containers
- AIX Workload Partitions
- LXC

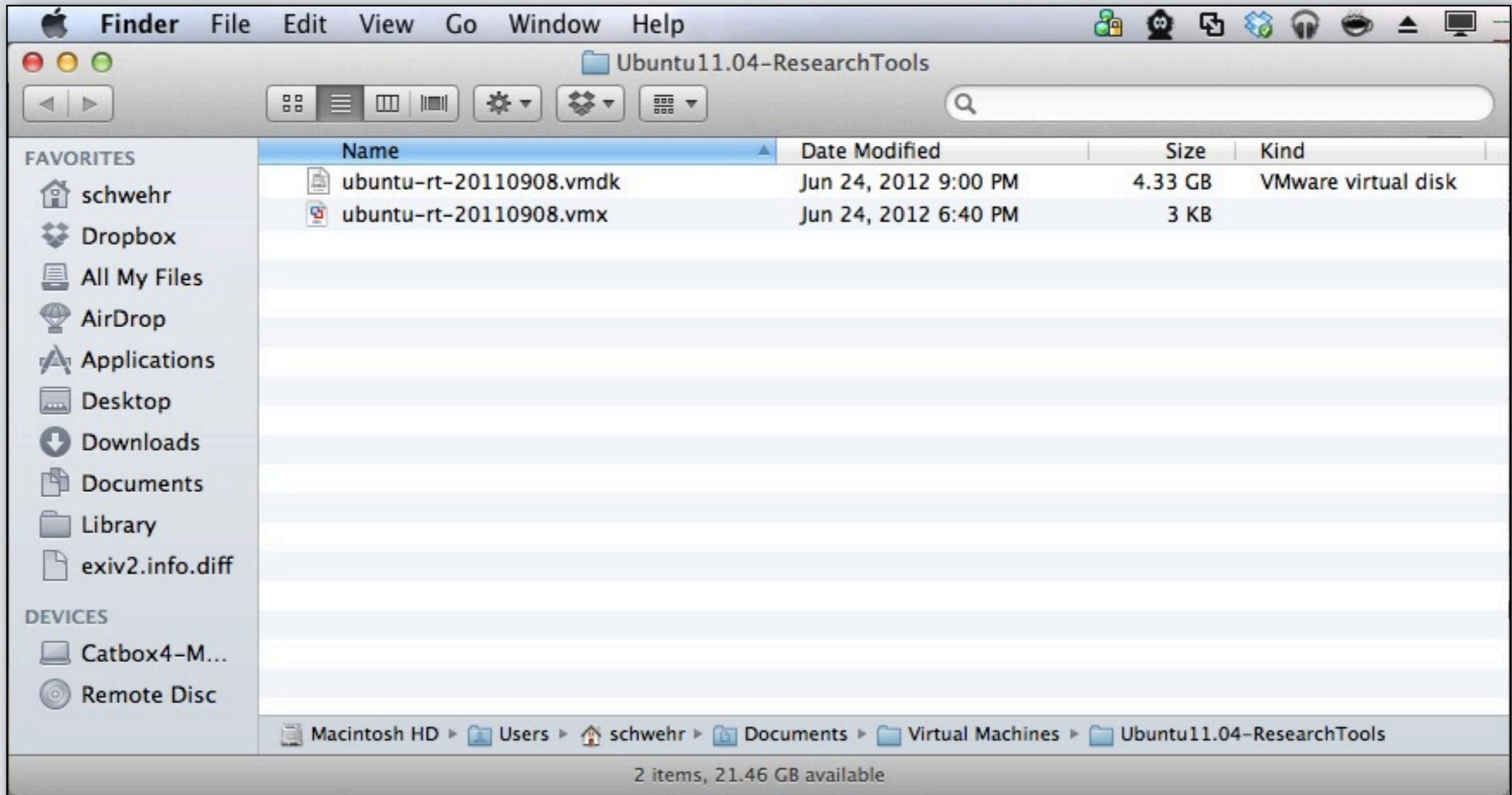
Index of /~schwehr/Classes/2011/esci895-researchtools/virtual-machines/vm-20110908

Name	Last modified	Size	Description
----------------------	-------------------------------	----------------------	-----------------------------

 Parent Directory		-	
 ubuntu-rt-20110908.vmdk	08-Sep-2011 10:19	4.0G	
 ubuntu-rt-20110908.vmx	08-Sep-2011 10:21	2.8K	

Apache/2.2.20 (Ubuntu) Server at vislab-ccom.unh.edu Port 80

I ended up sticking with this one virtual machine (vm) for the whole semester.



```
Terminal Shell Edit View Window Help
schwehr — schwehr@researchtools: ~ — ssh — 80x24
by authorized personnel. THERE IS NO RIGHT OF PRIVACY IN THIS SYSTEM. System
personnel may give to law enforcement officials any potential evidence of
crime found on UNH CCOM computer systems. USE OF THIS SYSTEM BY ANY USER,
AUTHORIZED OR UNAUTHORIZED, CONSTITUTES CONSENT TO THIS MONITORING,
INTERCEPTION, RECORDING, READING, COPYING, OR CAPTURING and DISCLOSURE.

**WARNING**WARNING**WARNING**
Welcome to Ubuntu 11.04 (GNU/Linux 2.6.38-8-generic-pae i686)

* Documentation:  https://help.ubuntu.com/

System information as of Tue Jun 26 21:57:54 EDT 2012

System load:   0.0          Processes:      93
Usage of /home: 1.5% of 21.54GB Users logged in: 0
Memory usage:  53%         IP address for eth0: 192.168.2.28
Swap usage:    0%

Graph this data and manage this system at https://landscape.canonical.com/
New release 'oneiric' available.
Run 'do-release-upgrade' to upgrade to it.

Last login: Sun Jun 24 16:47:27 2012 from webmail.ccom.unh.edu
schwehr@researchtools:~$ █
```



VMware Player

THE EASIEST WAY TO RUN A VIRTUAL MACHINE

Download

VMware Player is the easiest way to run multiple operating systems at the same time on your PC. With its user-friendly interface, VMware Player makes it effortless for anyone to try out Windows 8 developer release, Windows 7, Chrome OS or the latest Linux releases, or create isolated virtual machines to safely test new software and surf the Web. VMware Player can also be used to run a virtual copy of an old PC so that you can recycle the old machines you have under your desk or stored in the closet.

Questions? 1-877-486-9273

Email Sales

Join Discussion

- ### Products
- Datcenter Products
 - Desktop Products**
 - SMB Products
 - Application Platform

Share

Related Products

[VMware Workstation](#)

Next Steps

[Download Player](#)

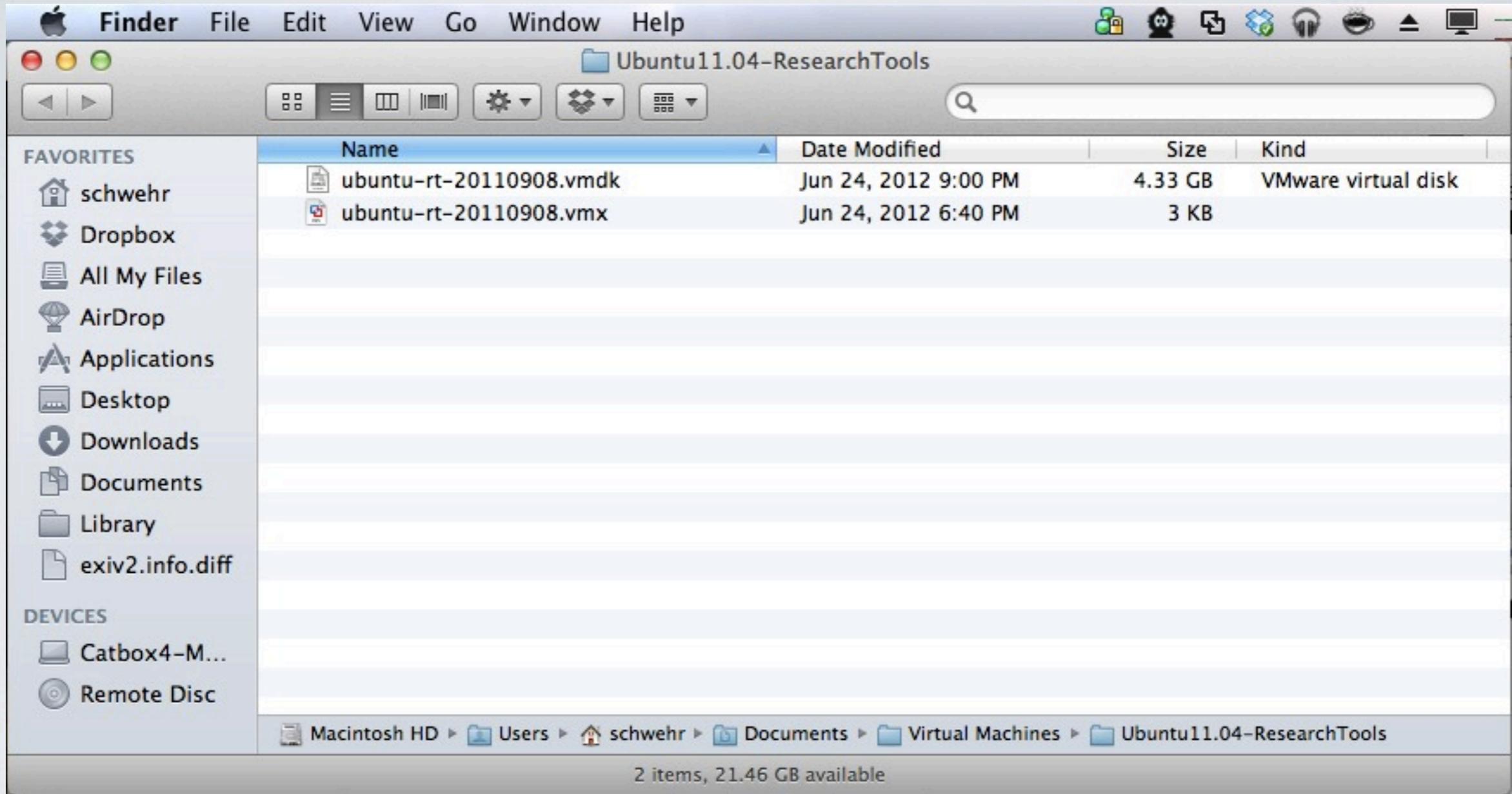
- ### Player Resources
- [Documentation](#)
 - [Community Forum](#)
 - [Workstation Zealot Blog](#)
 - [Follow Us on Twitter](#)

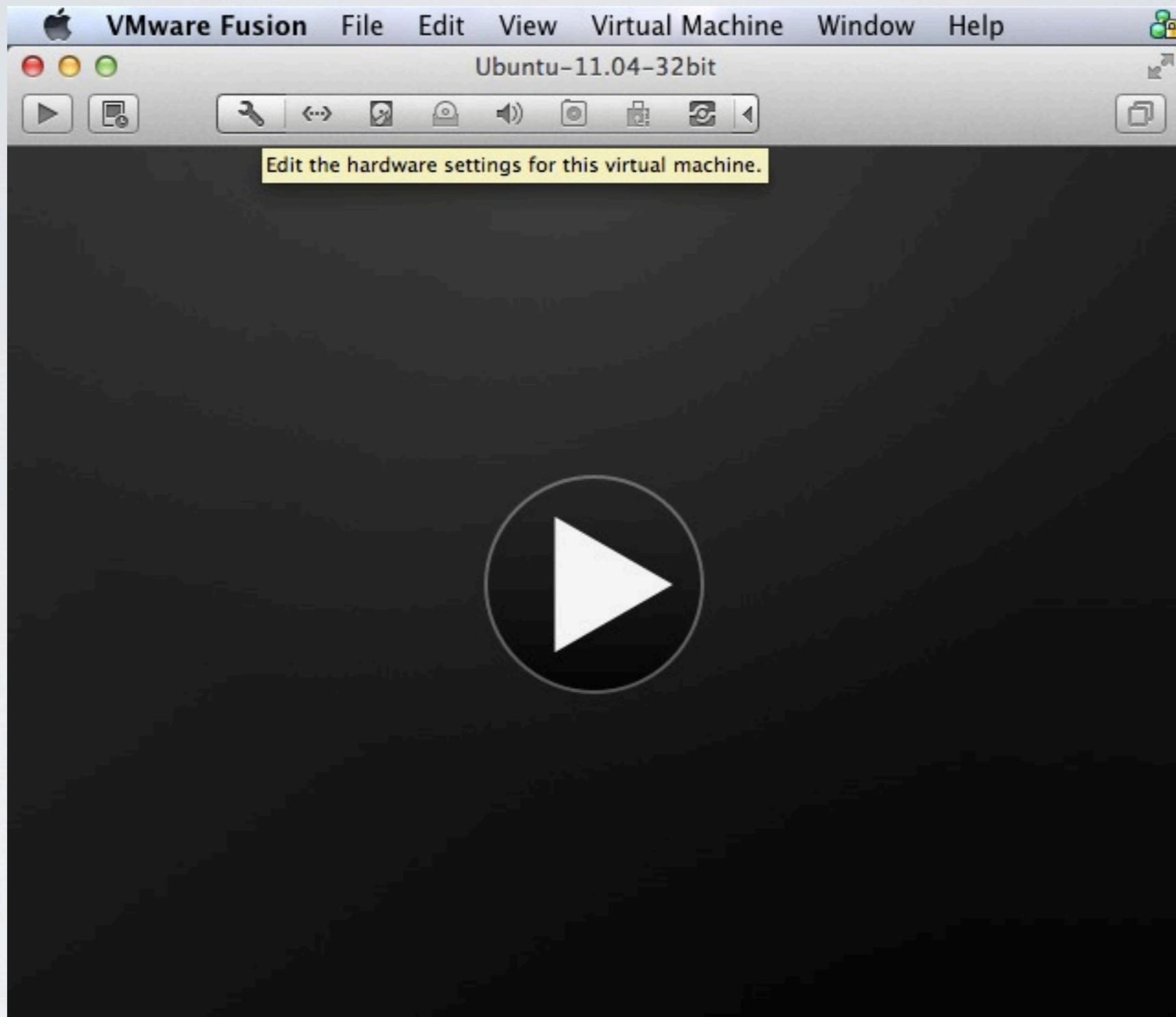
Why VMware Player [FAQs](#)

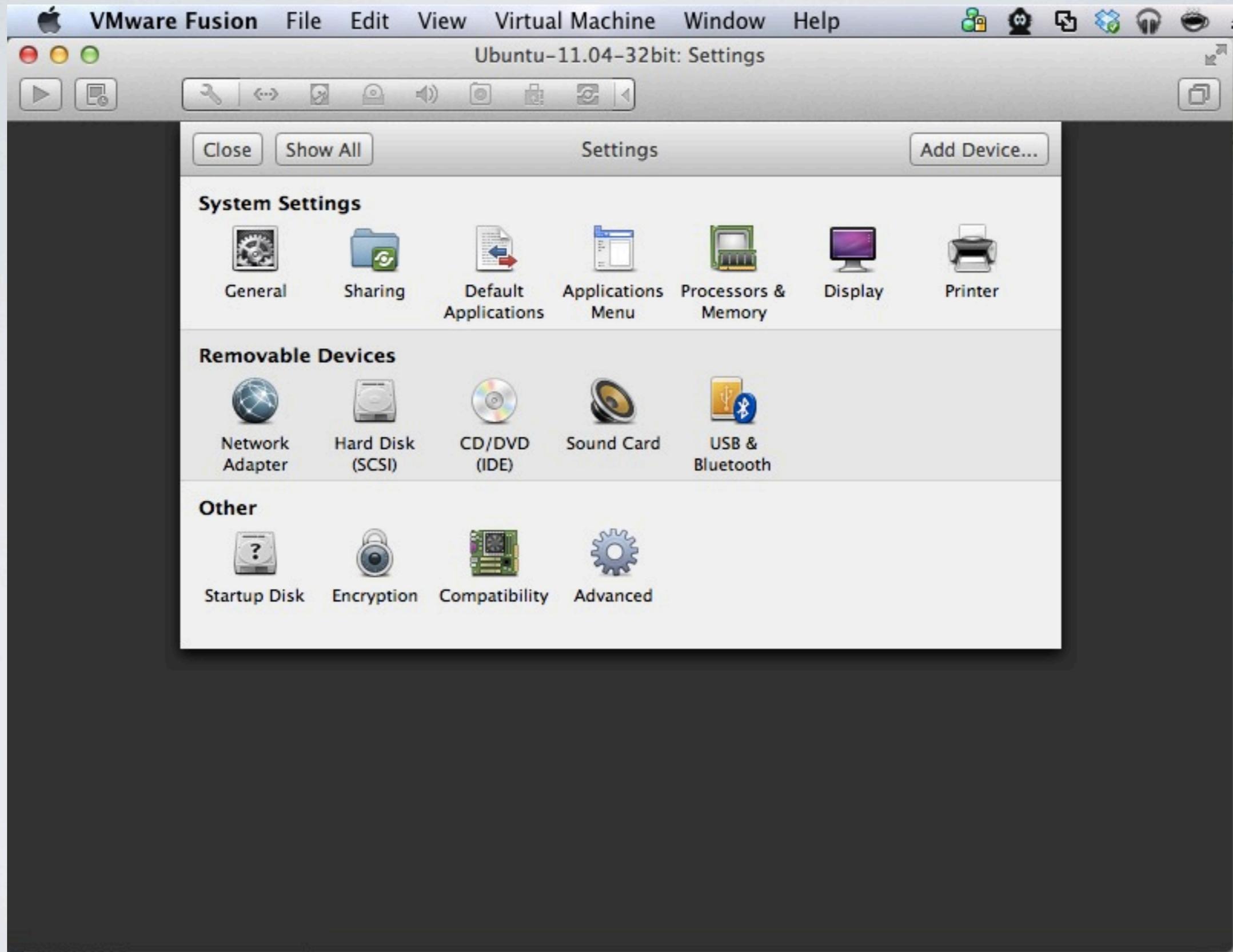
Better than Windows XP Mode

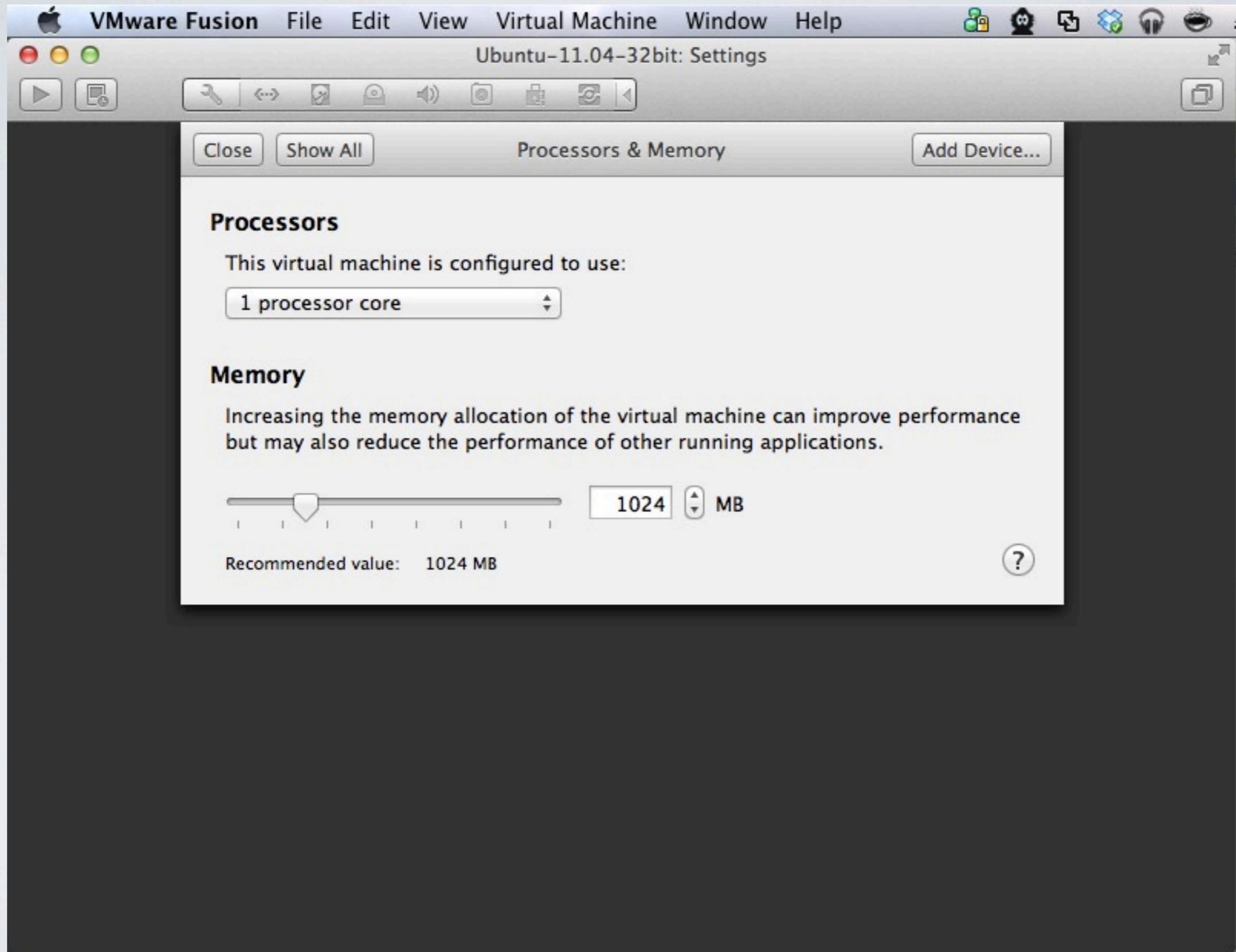
Run legacy Windows XP applications with better graphics, faster performance, and tighter integration than Windows XP mode offers. With Unity, shared folders and drag and drop convenience, VMware Player is the better way to run Windows XP on Windows 7. Use [VMware vCenter Converter](#) to transform your existing Windows PC into a virtual machine and eliminate the need to re-install and re-configure your existing applications which is necessary with Windows











Ubuntu-11.04-32bit



Would you like to upgrade this virtual machine?

An upgraded virtual machine offers support for new features, but cannot be used by earlier versions of VMware Fusion until you downgrade it.

Never show this dialog again

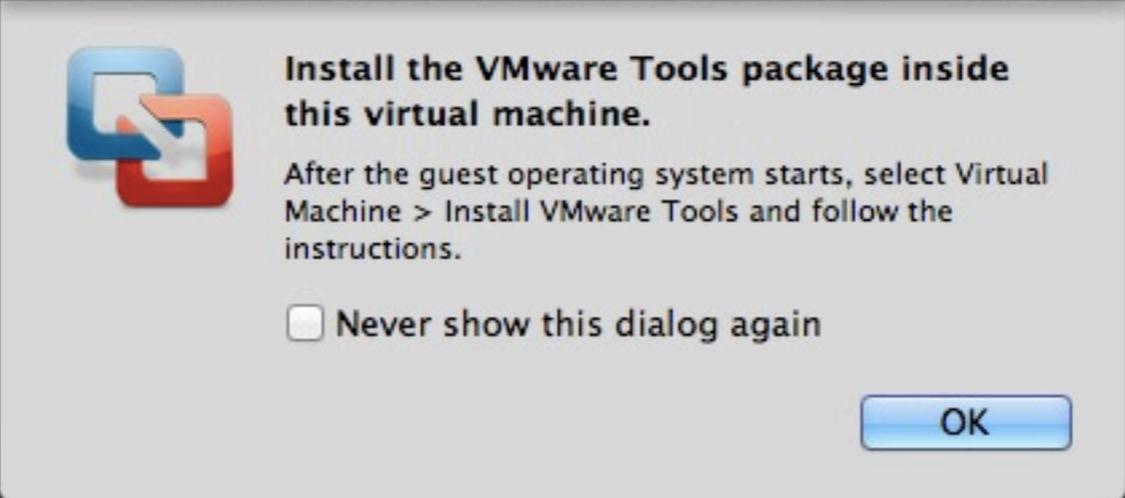
Don't Upgrade

Upgrade



VMware Fusion File Edit View Virtual Machine Window Help

Ubuntu-11.04-32bit



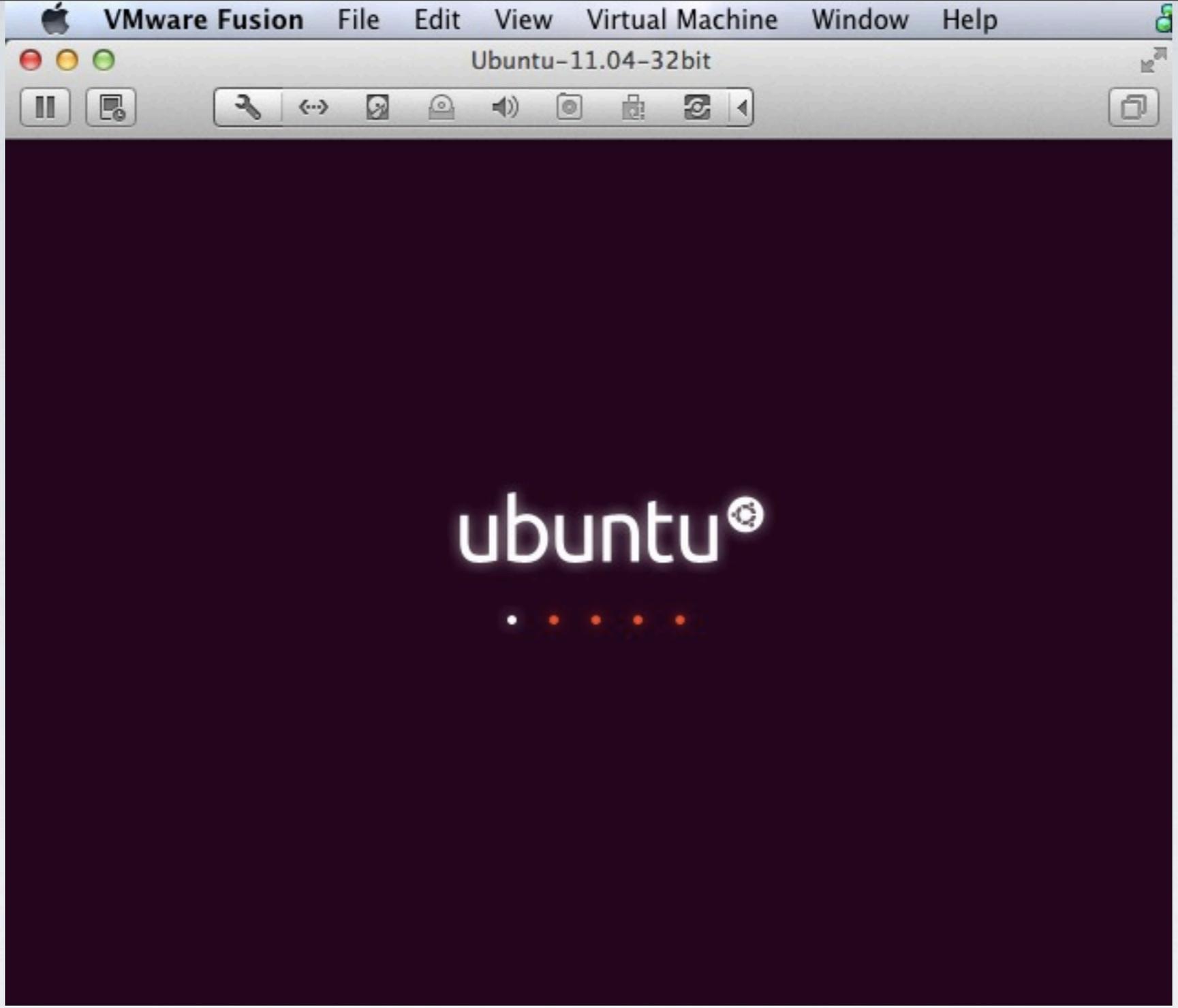
 **Install the VMware Tools package inside this virtual machine.**

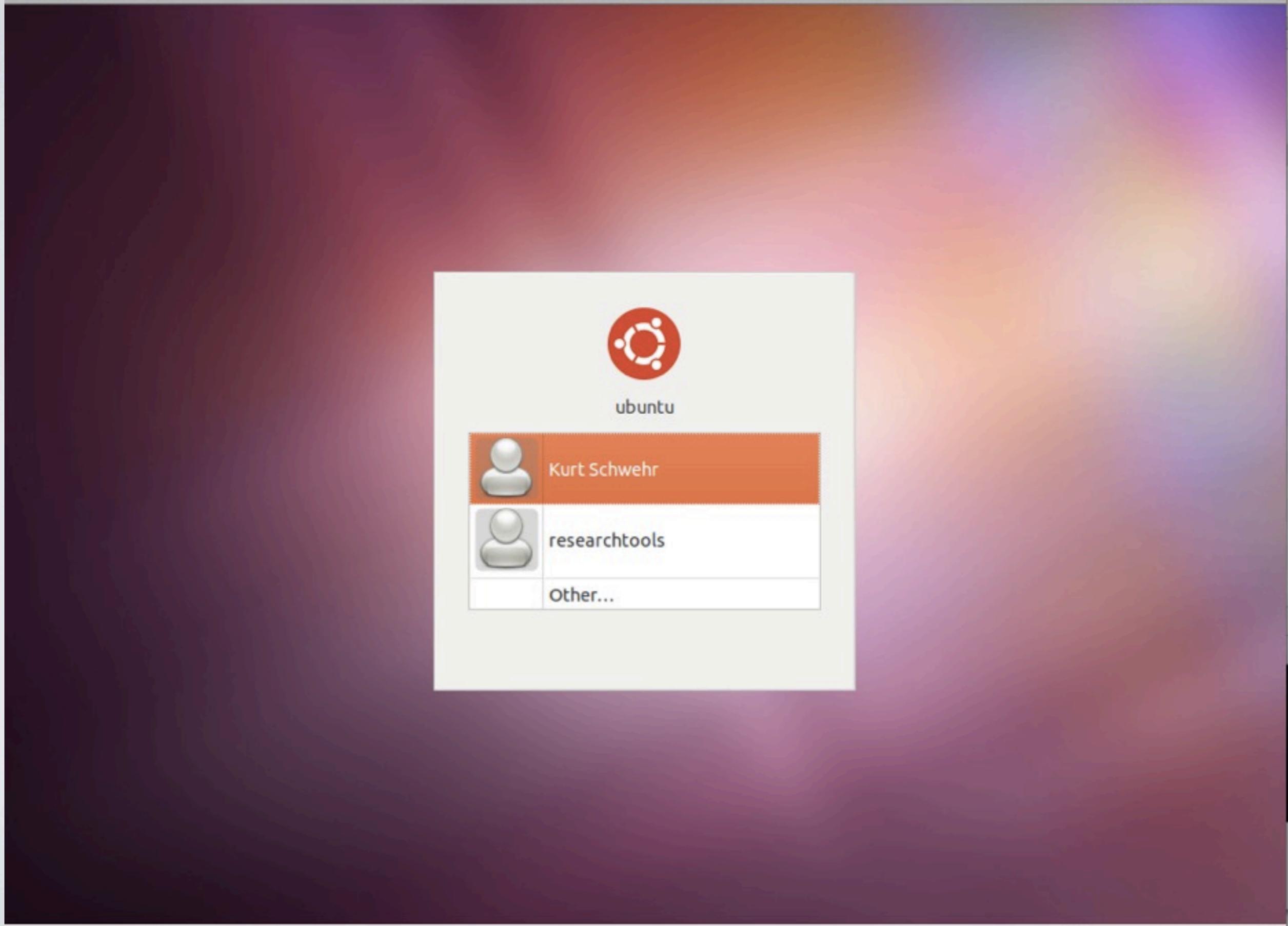
After the guest operating system starts, select Virtual Machine > Install VMware Tools and follow the instructions.

Never show this dialog again

OK








ubuntu

	Kurt Schwehr
	researchtools
	Other...



The password is !rt20 | lvm

ubuntu

researchtools

Password:

Cancel Login



It seems that you do not have the hardware required to run Unity. Please choose Ubuntu Classic at the login screen and you will be using the traditional environment.

 Close

Ubuntu 11.10 Upgrade Available

A new version of Ubuntu is available. Would you like to upgrade?

Welcome to Ubuntu 11.10 'Oneiric Ocelot'

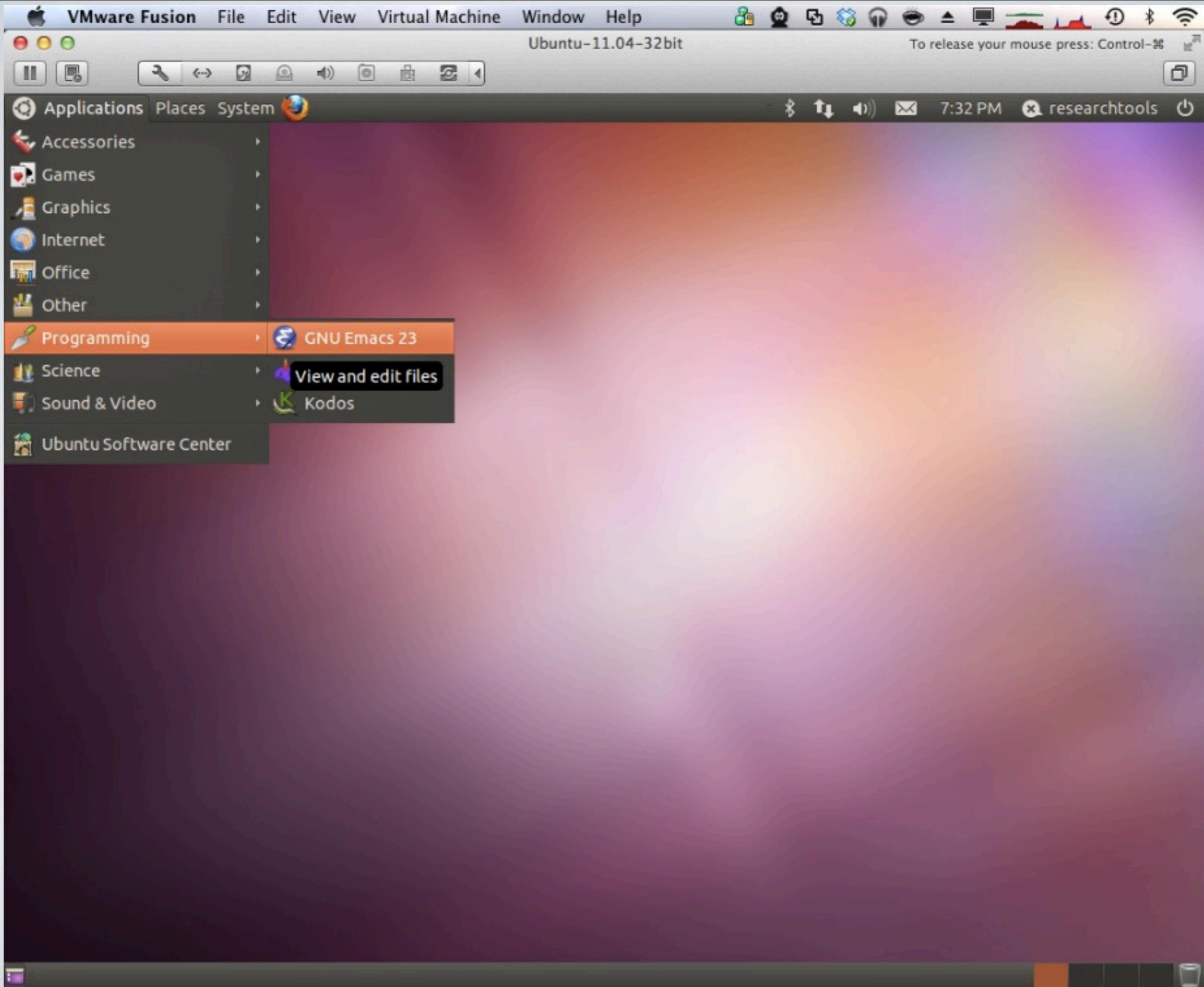
The Ubuntu team is proud to announce Ubuntu 11.10 'Oneiric Ocelot'.
To see what's new in this release, visit:
<http://www.ubuntu.com/desktop/features>

Ubuntu is a Linux distribution for your desktop or server, with a fast and easy install, regular releases, a tight selection of excellent applications installed by default, and almost any other software you can imagine available through the network.

We hope you enjoy Ubuntu.

Feedback and Helping

[Release Notes](#)



Browse and run installed applications

emacs23@ubuntu

File Edit Options Buffers Tools Help



Welcome to [GNU Emacs](#), one component of the [GNU/Linux](#) operating system.

Emacs Tutorial	Learn basic keystroke commands
Emacs Guided Tour	Overview of Emacs features at gnu.org
View Emacs Manual	View the Emacs manual using Info
Absence of Warranty	GNU Emacs comes with ABSOLUTELY NO WARRANTY
Copying Conditions	Conditions for redistributing and changing Emacs
Ordering Manuals	Purchasing printed copies of manuals

To start... [Open a File](#) [Open Home Directory](#) [Customize Startup](#)
 To quit a partially entered command, type Control-g.

This is GNU Emacs 23.2.1 (i686-pc-linux-gnu, GTK+ Version 2.24.4)
 of 2011-04-04 on rothera, modified by Debian
 Copyright (C) 2010 Free Software Foundation, Inc.

-U:%%- *GNU Emacs* All L5 (Fundamental)-----
 For information about GNU Emacs and the GNU system, type C-h C-a.

VMware Fusion File Edit View Virtual Machine Window Help
 Ubuntu-11.04-32bit To release your mouse press: Control-⌘

Applications Places System

- Accessories
 - Calculator
 - Character Map
 - Disk Usage Analyzer
 - GNU Emacs 23
 - Help
 - KeepassX
 - Search for Files...
 - Take Screenshot
 - Terminal**
 - Text Editor
 - Time & Date
 - Tomboy Notes
 - VMware Toolbox
- Games
- Graphics
- Internet
- Office
- Other
- Programming
- Science
- Sound & Video
- Ubuntu Software Center

Help



component of the [GNU/Linux](#) operating system.

[Emacs Tutorial](#) Learn basic keystroke commands
[Emacs Guided Tour](#) Overview of Emacs features at gnu.org
[View Emacs Manual](#) View the Emacs manual using Info
[Absence of Warranty](#) GNU Emacs comes with **ABSOLUTELY NO WARRANTY**
[Copying Conditions](#) Conditions for redistributing and changing Emacs
[Ordering Manuals](#) Purchasing printed copies of manuals

To start... [Open a File](#) [Open Home Directory](#) [Customize Startup](#)
 To quit a partially entered command, type Control-g.

This is GNU Emacs 23.2.1 (i686-pc-linux-gnu, GTK+ Version 2.24.4)
 of 2011-04-04 on rothera, modified by Debian
 Copyright (C) 2010 Free Software Foundation, Inc.

-U:%%- *GNU Emacs* All L5 (Fundamental)-----
 For information about GNU Emacs and the GNU system, type C-h C-a.

emacs23@ubuntu

```
researchtools@ubuntu: ~  
File Edit View Search Terminal Help  
To run a command as administrator (user "root"), use "sudo <command>".  
See "man sudo_root" for details.  
researchtools@ubuntu:~$
```

researchtools@ubuntu: ~

File Edit View Search Terminal Help

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

researchtools@ubuntu:~\$ pwd

/home/researchtools

researchtools@ubuntu:~\$ mkdir test

researchtools@ubuntu:~\$ cd test

researchtools@ubuntu:~/test\$ pwd

/home/researchtools/test

researchtools@ubuntu:~/test\$ ls -l

total 0

researchtools@ubuntu:~/test\$ ls -la

total 8

drwxr-xr-x 2 researchtools researchtools 4096 2012-06-26 19:38 .

drwxr-xr-x 22 researchtools researchtools 4096 2012-06-26 19:38 ..

researchtools@ubuntu:~/test\$ cd ~

researchtools@ubuntu:~\$

researchtools@ubuntu: ~

File Edit View Search Terminal Help

```

researchtools@ubuntu:~$ ls -la
total 132
drwxr-xr-x 22 researchtools researchtools 4096 2012-06-26 19:38 .
drwxr-xr-x  4 root          root          4096 2011-09-01 16:33 ..
-rw-r--r--  1 researchtools researchtools  220 2011-09-01 16:33 .bash_logout
-rw-r--r--  1 researchtools researchtools 3353 2011-09-01 16:33 .bashrc
drwxr-xr-x  6 researchtools researchtools 4096 2012-06-26 19:26 .cache
drwxr-xr-x  7 researchtools researchtools 4096 2012-06-26 19:10 .config
drwx-----  3 researchtools researchtools 4096 2012-06-26 19:08 .dbus
drwxr-xr-x  2 researchtools researchtools 4096 2012-06-26 19:08 Desktop
-rw-r--r--  1 researchtools researchtools   63 2012-06-26 19:26 .dirc
drwxr-xr-x  2 researchtools researchtools 4096 2012-06-26 19:08 Documents
drwxr-xr-x  2 researchtools researchtools 4096 2012-06-26 19:08 Downloads
drwxr-xr-x  3 researchtools researchtools 4096 2012-06-26 19:33 .emacs.d
-rw-----  1 researchtools researchtools   16 2012-06-26 19:08 .esd_auth
-rw-r--r--  1 researchtools researchtools  179 2011-09-01 16:33 examples.desktop
drwx-----  4 researchtools researchtools 4096 2012-06-26 19:26 .gconf
drwx-----  2 researchtools researchtools 4096 2012-06-26 19:35 .gconfd
drwx-----  5 researchtools researchtools 4096 2012-06-26 19:09 .gnome2
-rw-r--r--  1 researchtools researchtools  177 2012-06-26 19:26 .gtk-bookmarks
dr-x-----  2 researchtools researchtools    0 2012-06-26 19:26 .gvfs
-rw-----  1 researchtools researchtools  636 2012-06-26 19:26 .ICEauthority
drwxr-xr-x  3 researchtools researchtools 4096 2012-06-26 19:09 .local
drwxr-xr-x  2 researchtools researchtools 4096 2012-06-26 19:08 Music
drwxr-xr-x  2 researchtools researchtools 4096 2012-06-26 19:09 .nautilus
drwxr-xr-x  2 researchtools researchtools 4096 2012-06-26 19:08 Pictures
-rw-r--r--  1 researchtools researchtools  675 2011-09-01 16:33 .profile
drwxr-xr-x  2 researchtools researchtools 4096 2012-06-26 19:08 Public
drwx-----  2 researchtools researchtools 4096 2012-06-26 19:26 .pulse
-rw-----  1 researchtools researchtools  256 2012-06-26 19:08 .pulse-cookie
drwxr-xr-x  2 researchtools researchtools 4096 2012-06-26 19:08 Templates
drwxr-xr-x  2 researchtools researchtools 4096 2012-06-26 19:38 test
drwxr-xr-x  2 researchtools researchtools 4096 2012-06-26 19:08 Videos
-rw-----  1 researchtools researchtools 3174 2012-06-26 19:40 .xsession-errors
-rw-----  1 researchtools researchtools 7129 2012-06-26 19:14 .xsession-errors.old
researchtools@ubuntu:~$

```

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researchtools@ubuntu: ~

File Edit View Search Terminal Help

```
researchtools@ubuntu:~$ ipython --pylab
*****
Welcome to IPython. I will try to create a personal configuration directory
where you can customize many aspects of IPython's functionality in:

/home/researchtools/.ipython
Initializing from configuration: /usr/lib/python2.7/dist-packages/IPython/UserConfig

Successful installation!

Please read the sections 'Initial Configuration' and 'Quick Tips' in the
IPython manual (there are both HTML and PDF versions supplied with the
distribution) to make sure that your system environment is properly configured
to take advantage of IPython's features.

Important note: the configuration system has changed! The old system is
still in place, but its setting may be partly overridden by the settings in
"~/.ipython/ipy_user_conf.py" config file. Please take a look at the file
if some of the new settings bother you.

Please press <RETURN> to start IPython.
```

researchtools@ubuntu: ~

File Edit View Search Terminal Help

Please read the sections 'Initial Configuration' and 'Quick Tips' in the IPython manual (there are both HTML and PDF versions supplied with the distribution) to make sure that your system environment is properly configured to take advantage of IPython's features.

Important note: the configuration system has changed! The old system is still in place, but its setting may be partly overridden by the settings in "~/.ipython/ipy_user_conf.py" config file. Please take a look at the file if some of the new settings bother you.

Please press <RETURN> to start IPython.

Python 2.7.1+ (r271:86832, Apr 11 2011, 18:05:24)
Type "copyright", "credits" or "license" for more information.

IPython 0.10.1 -- An enhanced Interactive Python.
? -> Introduction and overview of IPython's features.
%quickref -> Quick reference.
help -> Python's own help system.
object? -> Details about 'object'. ?object also works, ?? prints more.

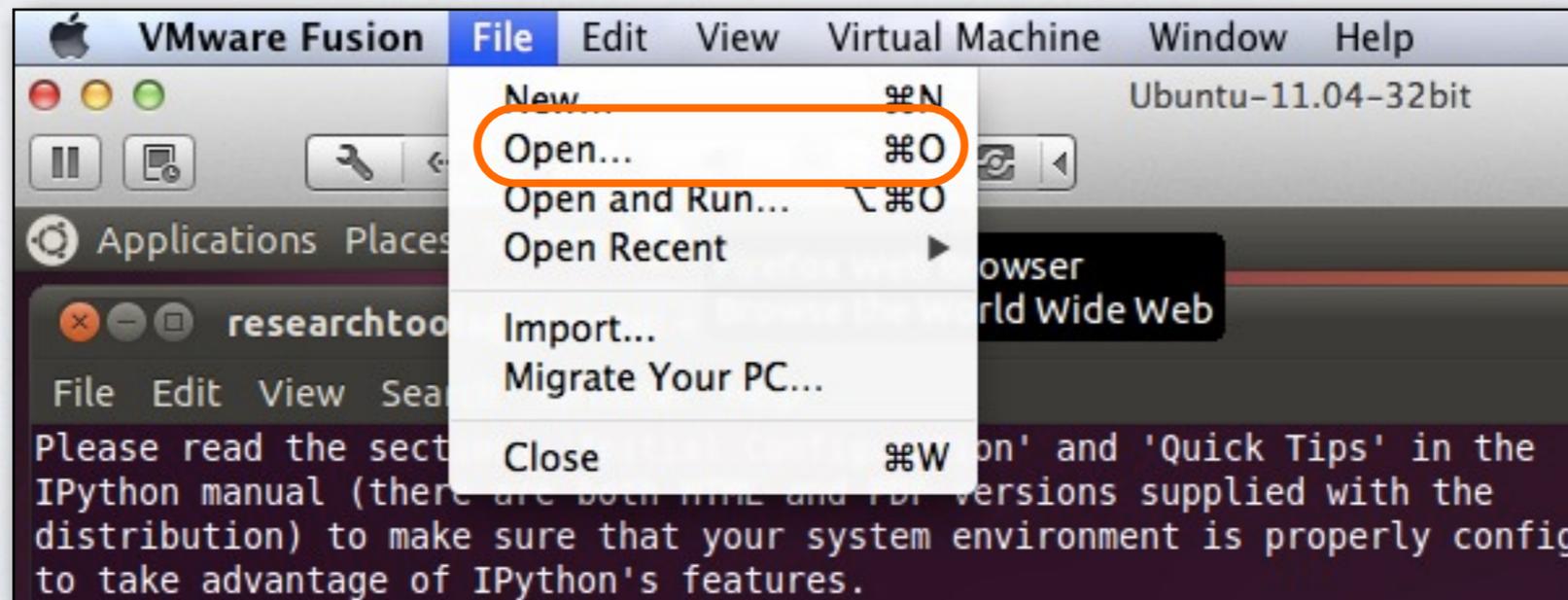
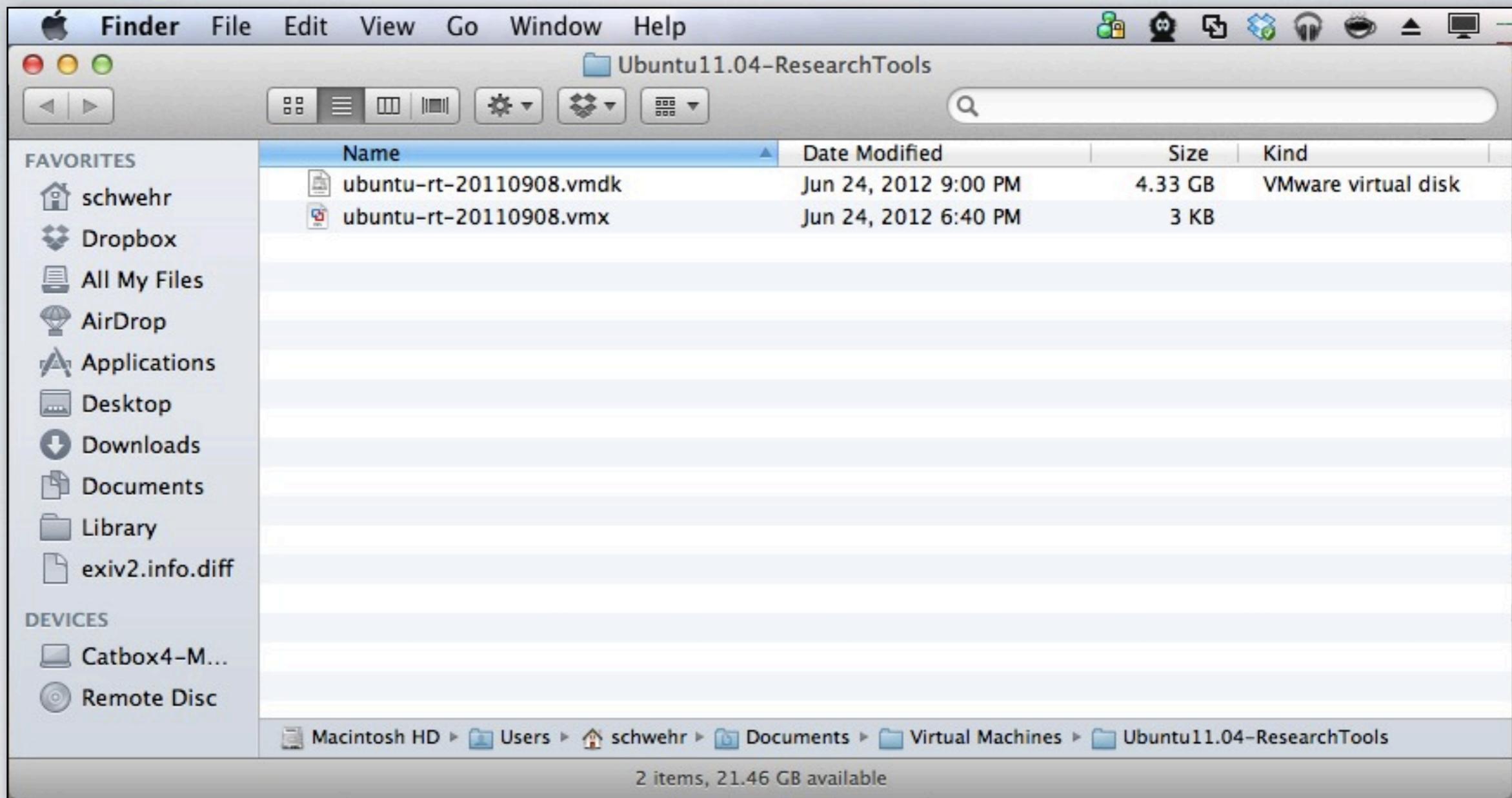
Welcome to pylab, a matplotlib-based Python environment.
For more information, type 'help(pylab)'.

In [1]: pwd
Out[1]: '/home/researchtools'

In [2]: ls
Desktop/ Downloads/ Music/ Public/ test/
Documents/ examples.desktop Pictures/ Templates/ Videos/

In [3]: cd test/
/home/researchtools/test

In [4]:



- Accessories
 - Calculator
 - Character Map
 - Disk Usage Analyzer
 - GNU Emacs 23
 - Help
 - KeePassX
 - Search for Files...
 - Take Screenshot
 - Terminal**
 - Text Editor
 - Time & Date
 - Tomboy Notes
 - VMware Toolbox
- Games
- Graphics
- Internet
- Office
- Other
- Programming
- Science
- Sound & Video
- Ubuntu Software Center

researchtools@ubuntu: ~

File Edit View Search Terminal Help

See "man sudo_root" for details.

researchtools@ubuntu:~\$ pwd

/home/researchtools

researchtools@ubuntu:~\$ socat

The program 'socat' is currently not installed. You can install it by typing:

sudo apt-get install socat

researchtools@ubuntu:~\$ sudo apt-get install socat

[sudo] password for researchtools:

Reading package lists... Done

Building dependency tree

Reading state information... Done

The following extra packages will be installed:

libreadline5

The following NEW packages will be installed:

libreadline5 socat

0 upgraded, 2 newly installed, 0 to remove and 9 not upgraded.

Need to get 478 kB of archives.

After this operation, 1,282 kB of additional disk space will be used.

Do you want to continue [Y/n]? y

Get:1 http://us.archive.ubuntu.com/ubuntu/ natty/main libreadline5 i386 5.2-7build1 [132 kB]

Get:2 http://us.archive.ubuntu.com/ubuntu/ natty/universe socat i386 1.7.1.3-1 [346 kB]

Fetched 478 kB in 2s (174 kB/s)

Selecting previously deselected package libreadline5.

(Reading database ... 193944 files and directories currently installed.)

Unpacking libreadline5 (from ../libreadline5_5.2-7build1_i386.deb) ...

Selecting previously deselected package socat.

Unpacking socat (from ../socat_1.7.1.3-1_i386.deb) ...

Processing triggers for man-db ...

Processing triggers for doc-base ...

Processing 1 added doc-base file(s)...

Registering documents with scrollkeeper...

Setting up libreadline5 (5.2-7build1) ...

Setting up socat (1.7.1.3-1) ...

Processing triggers for libc-bin ...

ldconfig deferred processing now taking place

researchtools@ubuntu:~\$

researchtools@ubunt...

researchtools@ubuntu: ~

File Edit View Search Terminal Help

```
researchtools@ubuntu:~$ socat
2012/06/26 19:59:33 socat[2455] E exactly 2 addresses required (there are 0); use option "-h" for help
researchtools@ubuntu:~$ socat datalogger1.ccom.nh:36000 - | head
2012/06/26 19:59:41 socat[2457] E unknown device/address "datalogger1.ccom.nh"
researchtools@ubuntu:~$ socat TCP4:datalogger1.ccom.nh:36000 - | head
# 1340765965.71
$GPGGA,,,,,0,,,,,,*66
# 1340765965.99
$HCHDT,26.2,T*1F
# 1340765966.04
$WIMWV,140.4,R,1.6,N,A*25
# 1340765966.09
$GPVTG,,,,,,N*30
# 1340765966.19
$WIMDA,29.6511,I,1.0041,B,14.0,C,,,,,,*39
2012/06/26 19:59:46 socat[2459] E write(1, 0x8fbc7c0, 16): Broken pipe
researchtools@ubuntu:~$
```

researchtools@ubuntu: ~

File Edit View Search Terminal Help

socat(1) socat(1)

NAME

socat - Multipurpose relay (SOcket CAT)

SYNOPSIS

socat [options] <address> <address>

socat -V

socat -h[h[h]] | -?[?[]]

filan

procan

DESCRIPTION

Socat is a command line based utility that establishes two bidirectional byte streams and transfers data between them. Because the streams can be constructed from a large set of different types of data sinks and sources (see address types), and because lots of address options may be applied to the streams, socat can be used for many different purposes.

Filan is a utility that prints information about its active file descriptors to stdout. It has been written for debugging **socat**, but might be useful for other purposes too. Use the -h option to find more infos.

Procan is a utility that prints information about process parameters to stdout. It has been written to better understand some UNIX process properties and for debugging **socat**, but might be useful for other purposes too.

The life cycle of a **socat** instance typically consists of four phases.

In the init phase, the command line options are parsed and logging is initialized.

During the open phase, **socat** opens the first address and afterwards the second address. These steps are usually blocking; thus, especially for complex address types like socks, connection requests or authentication dialogs must be completed before the next step is started.

In the transfer phase, **socat** watches both streams' read and write file descriptors via `select()`, and, when data is available on one side and can be written to the other side, socat

Manual page socat(1) line 1

researchtools@ubunt...

emacs23@ubuntu

File Edit Options Buffers Tools Help



Welcome to [GNU Emacs](#), one component of the [GNU/Linux](#) operating system.

Emacs Tutorial	Learn basic keystroke commands
Emacs Guided Tour	Overview of Emacs features at gnu.org
View Emacs Manual	View the Emacs manual using Info
Absence of Warranty	GNU Emacs comes with ABSOLUTELY NO WARRANTY
Copying Conditions	Conditions for redistributing and changing Emacs
Ordering Manuals	Purchasing printed copies of manuals

To start... [Open a File](#) [Open Home Directory](#) [Customize Startup](#)
 To quit a partially entered command, type Control-g.

This is GNU Emacs 23.2.1 (i686-pc-linux-gnu, GTK+ Version 2.24.4)
 of 2011-04-04 on rothera, modified by Debian
 Copyright (C) 2010 Free Software Foundation, Inc.

-U:%%- *GNU Emacs* All L5 (Fundamental)-----

For information about GNU Emacs and the GNU system, type C-h C-a.


```
VMware Fusion  File  Edit  View  Virtual Machine  Window  Help
Ubuntu-11.04-32bit To release your mouse press: Control-⌘
Pyro name server daemon: disabled, see /etc/default/pyro-nsd
Broadcast message from root@ubuntu
        (unknown) at 20:03 ...

The system is going down for halt NOW!
speech-dispatcher disabled; edit /etc/default/speech-dispatcher
acpid: exiting

init: tty4 main process (901) killed by TERM signal
init: tty5 main process (907) killed by TERM signal
init: tty2 main process (917) killed by TERM signal
init: tty3 main process (919) killed by TERM signal
init: tty6 main process (922) killed by TERM signal
init: cron main process (935) killed by TERM signal
init: tty1 main process (1166) killed by TERM signal
init: plymouth-upstart-bridge main process (2504) terminated with status 1
* Stopping open-vm guest daemon umtoolsd [ OK ]
FATAL: Module vmhgfs not found.
FATAL: Module vmsync not found.
FATAL: Module umblock not found.
* Removing open-vm-tools modules [ OK ]
* Stopping bluetooth [ OK ]
Checking for running unattended-upgrades: modem-manager[501]: <info> Caught signal 15, shutting down...

init: Disconnected from system bus
init: dbus main process (447) killed by TERM signal
* Asking all remaining processes to terminate... [ OK ]
```

