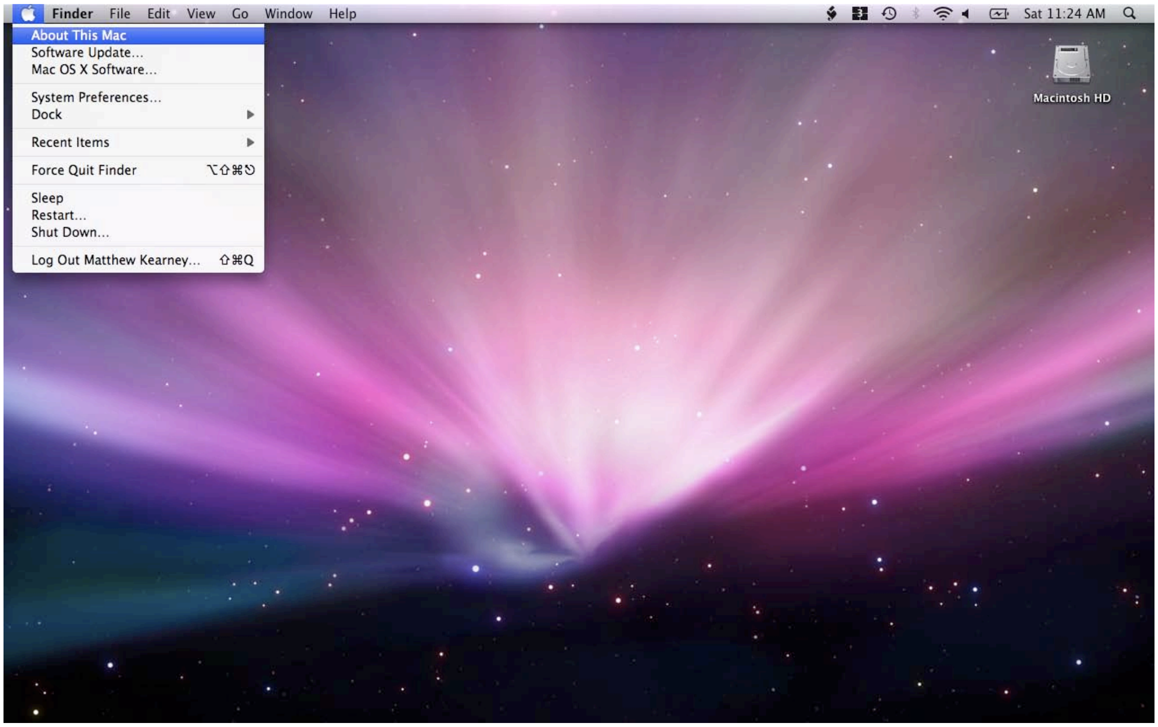
Instructions for installing and testing GCC on a mac with OS 10.5.

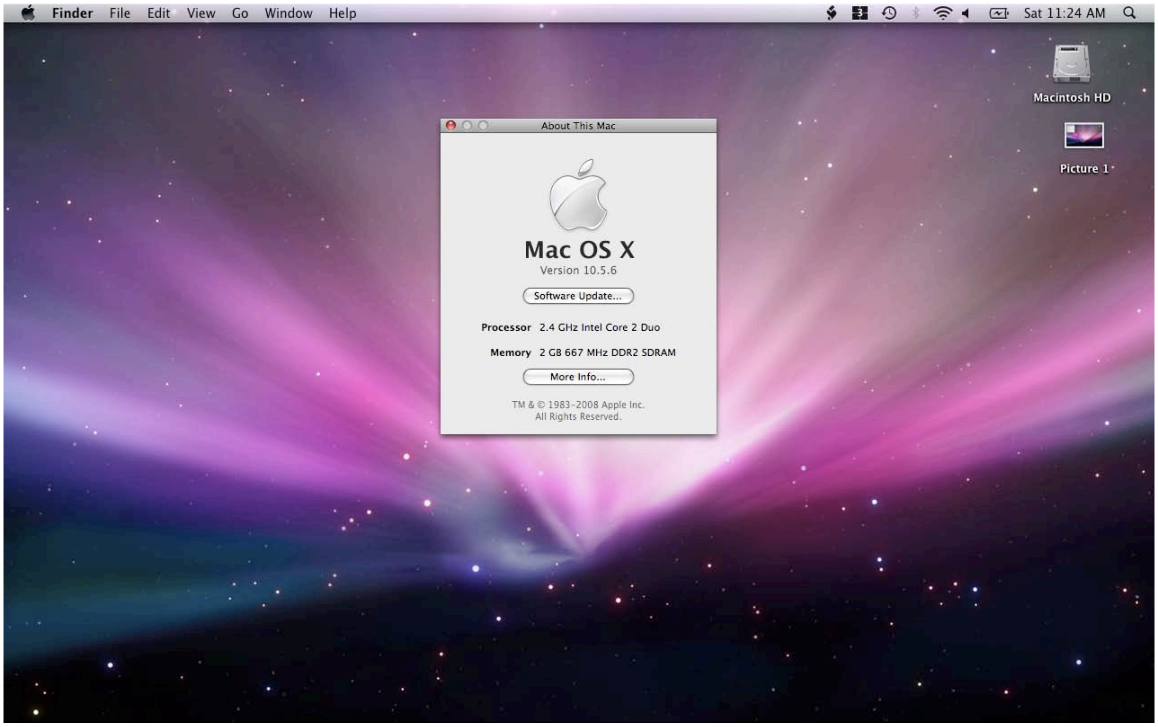
We start by checking on two things

1) The operating system you are using
2) The chipset you are operating with

Point your cursor at the apple in the upper left corner of the screen and click the “About This Mac” option.



This will bring up a window telling you the chipset you are using under the heading “Processor” (either Intel—as it is in this case—or PowerPC) and the operating system under the heading “Version” (in this case 10.5.6). These instructions are only for those using operating system 10.5 or higher.



Mac OS X
Version 10.5.6

Processor 2.4 GHz Intel Core 2 Duo

Memory 2 GB 667 MHz DDR2 SDRAM

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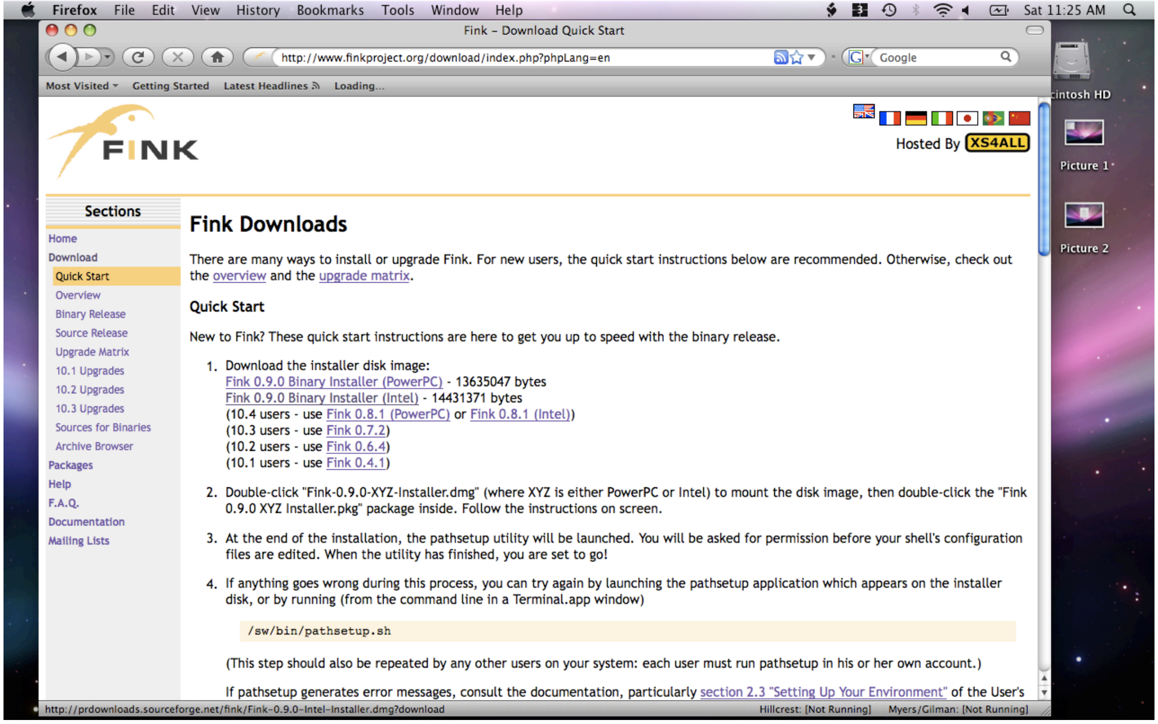
Once you have verified the version number and the chipset, you will need to download the appropriate software. This is done using Fink, an open source program that allows you to access a number of software utilities. To download Fink, your web browser to:

http://www.finkproject.org/download/index.php?phpLang=en



Firefox File Edit View History Bookmarks Tools Window Help
Sat 11:25 AM
Fink - Download Quick Start
http://www.finkproject.org/download/index.php?phpLang=en
Google
Most Visited Getting Started Latest Headlines Loading...
FINK
Hosted By XS4ALL
Sections
Home
Download
Quick Start
Overview
Binary Release
Source Release
Upgrade Matrix
10.1 Upgrades
10.2 Upgrades
10.3 Upgrades
Sources for Binaries
Archive Browser
Packages
Help
F.A.Q.
Documentation
Mailing Lists
intosh HD
Picture 1
Picture 2
http://prdownloads.sourceforge.net/fink/Fink-0.9.0-Intel-Installer.dmg?download
Hillcrest: [Not Running] Myers/Gilman: [Not Running]

Fink Downloads

There are many ways to install or upgrade Fink. For new users, the quick start instructions below are recommended. Otherwise, check out the overview and the upgrade matrix.

Quick Start

New to Fink? These quick start instructions are here to get you up to speed with the binary release.

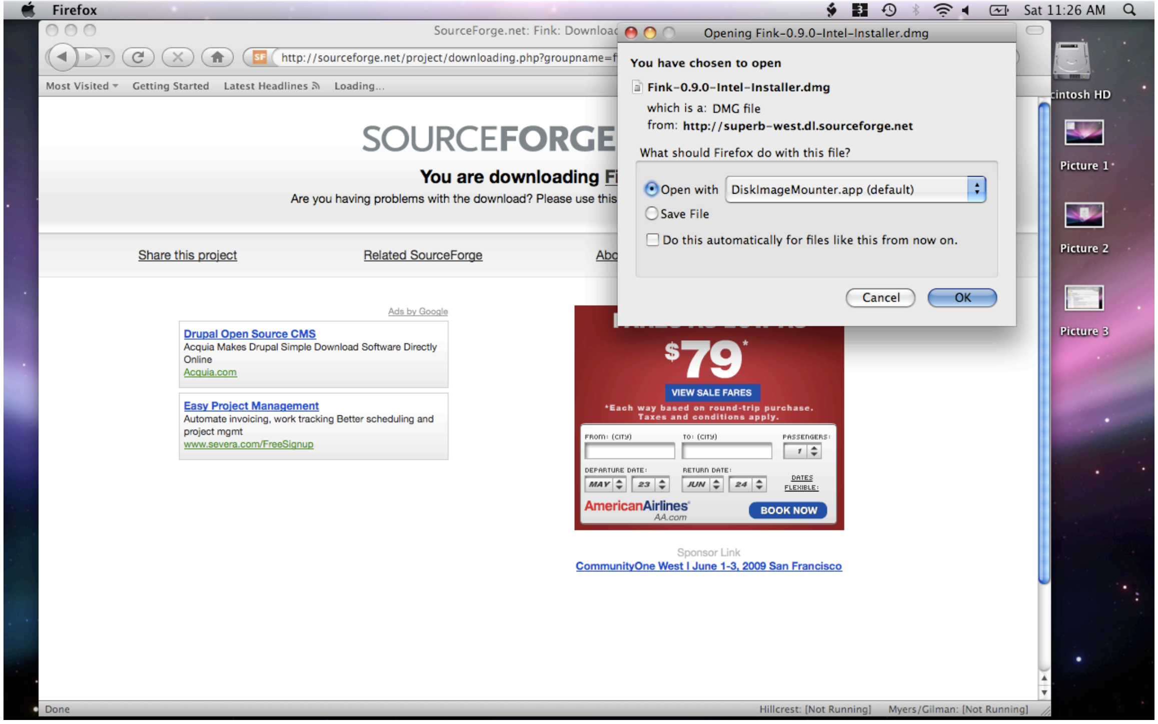
1. Download the installer disk image:
   Fink 0.9.0 Binary Installer (PowerPC) - 13635047 bytes
   Fink 0.9.0 Binary Installer (Intel) - 14431371 bytes
   (10.4 users - use Fink 0.8.1 (PowerPC) or Fink 0.8.1 (Intel))
   (10.3 users - use Fink 0.7.2)
   (10.2 users - use Fink 0.6.4)
   (10.1 users - use Fink 0.4.1)
2. Double-click "Fink-0.9.0-XYZ-Installer.dmg" (where XYZ is either PowerPC or Intel) to mount the disk image, then double-click the "Fink 0.9.0 XYZ Installer.pkg" package inside. Follow the instructions on screen.
3. At the end of the installation, the pathsetup utility will be launched. You will be asked for permission before your shell's configuration files are edited. When the utility has finished, you are set to go!
4. If anything goes wrong during this process, you can try again by launching the pathsetup application which appears on the installer disk, or by running (from the command line in a Terminal.app window)

   ```
   /sw/bin/pathsetup.sh
   ```

   (This step should also be repeated by any other users on your system: each user must run pathsetup in his or her own account.)

   If pathsetup generates error messages, consult the documentation, particularly section 2.3 "Setting Up Your Environment" of the User's

Click on the download for your chipset (either PowerPC or Intel, as verified earlier) and it will start to download. Once it starts, click ok to allow the installer to open.



Opening Fink-0.9.0-Intel-Installer.dmg

You have chosen to open

Fink-0.9.0-Intel-Installer.dmg

which is a: DMG file

from: http://superb-west.dl.sourceforge.net

What should Firefox do with this file?

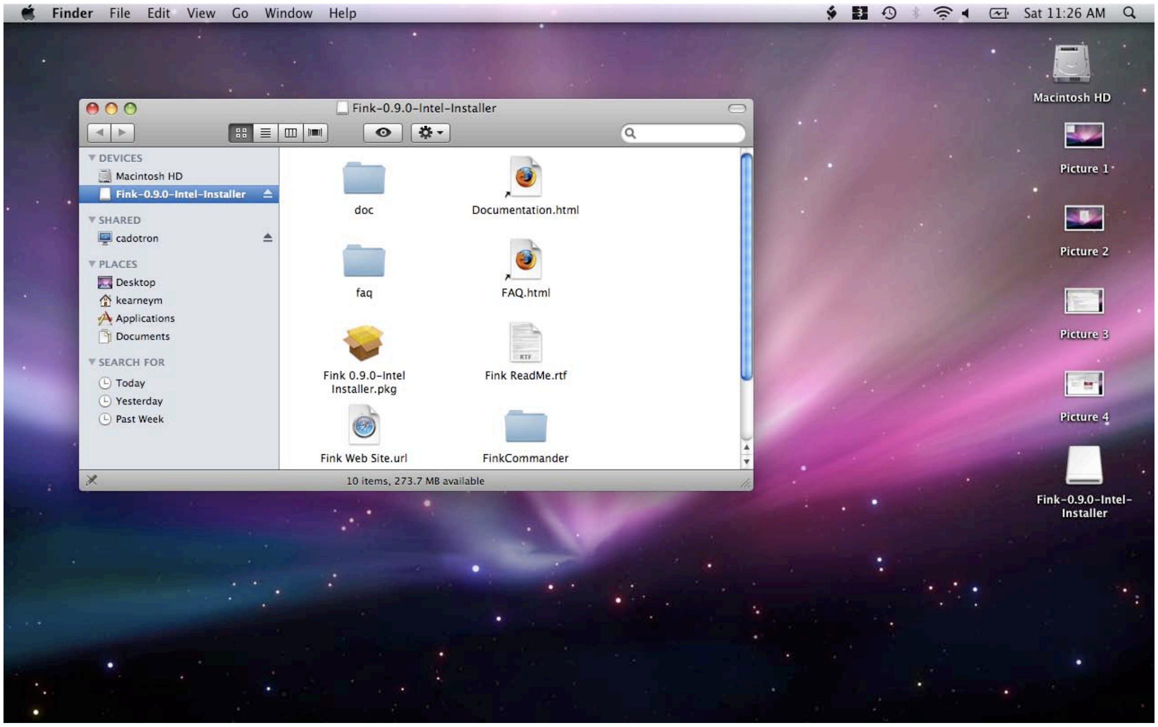
● Open with DiskImageMounter.app (default)

○ Save File

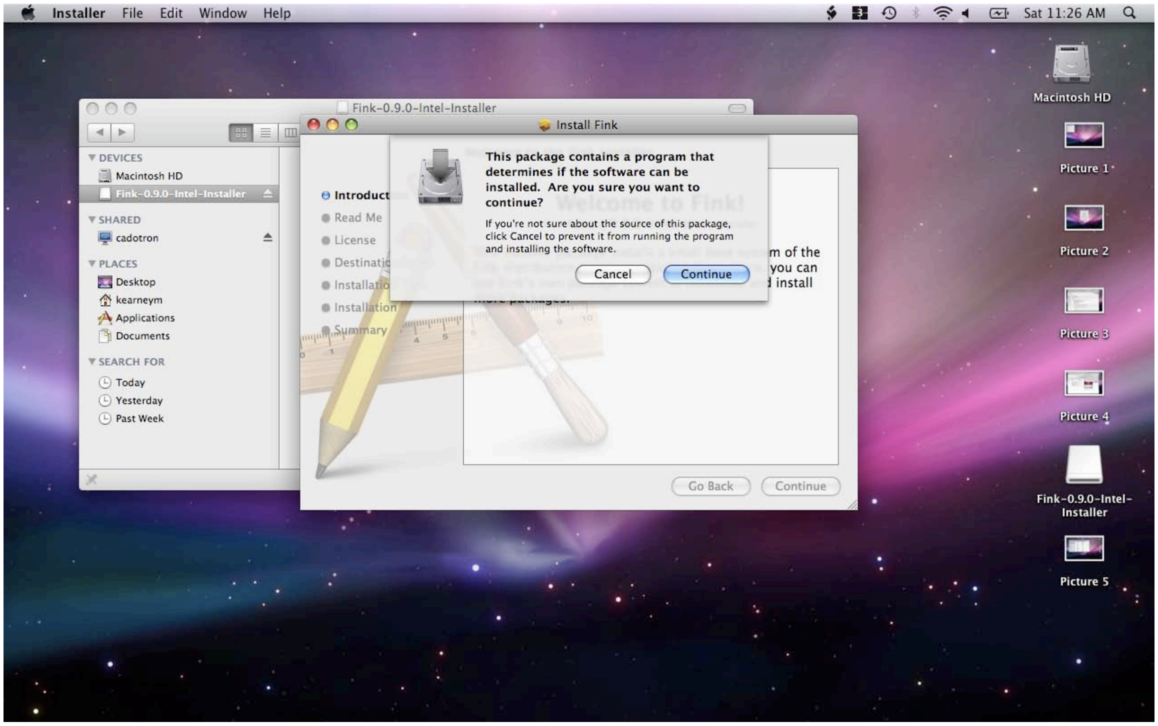
□ Do this automatically for files like this from now on.

Firefox
Sat 11:26 AM
SourceForge.net: Fink: Download
http://sourceforge.net/project/downloading.php?groupname=f
Most Visited
Getting Started
Latest Headlines
Loading...
SOURCEFORGE
You are downloading Fi
Are you having problems with the download? Please use this
Share this project
Related SourceForge
Abo
Ads by Google
Drupal Open Source CMS
Acquia Makes Drupal Simple Download Software Directly Online
Acquia.com
Easy Project Management
Automate invoicing, work tracking Better scheduling and project mgmt
www.severa.com/FreeSignup
$79
VIEW SALE FARES
AmericanAirlines
BOOK NOW
Sponsor Link
CommunityOne West I June 1-3, 2009 San Francisco
Cancel
OK
Macintosh HD
Picture 1
Picture 2
Picture 3
Done
Hillcrest: [Not Running]
Myers/Gilman: [Not Running]

Once it has finished downloading, the installer will open a folder on your desktop. Start by opening the Fink Installer, with an icon that looks like a brown package.



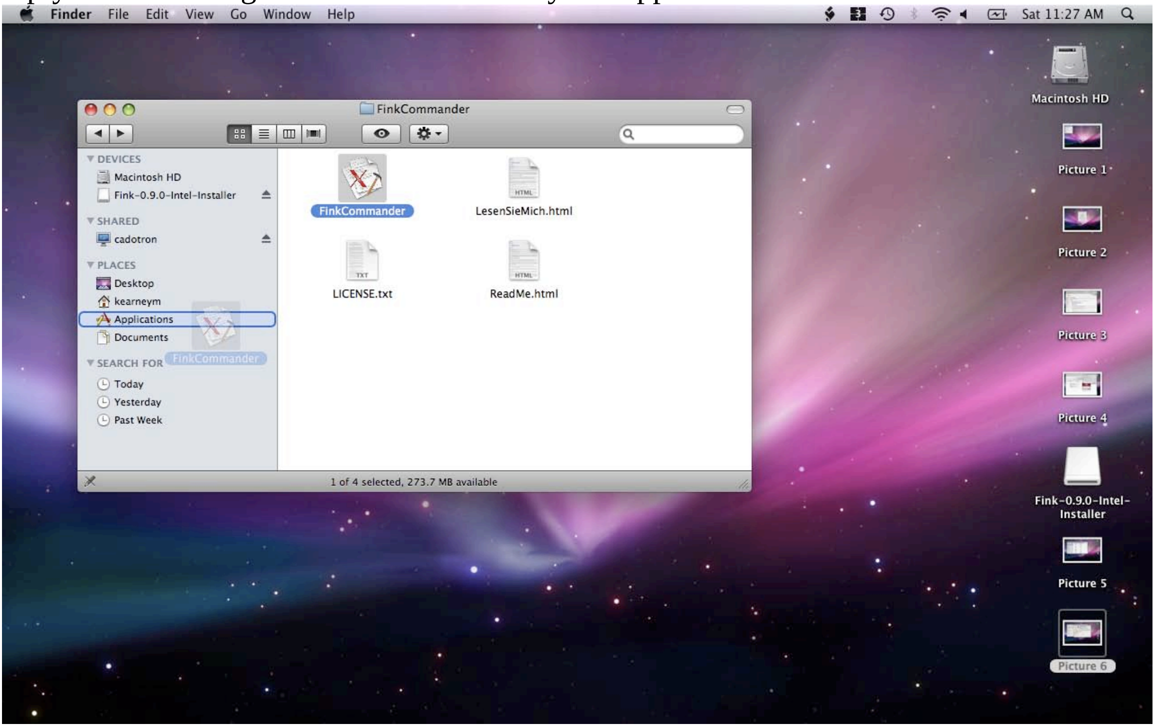
You will need to click continue number of times and may need to enter your password for Fink to install. Simply choose the default option in these cases and provide your password when needed.



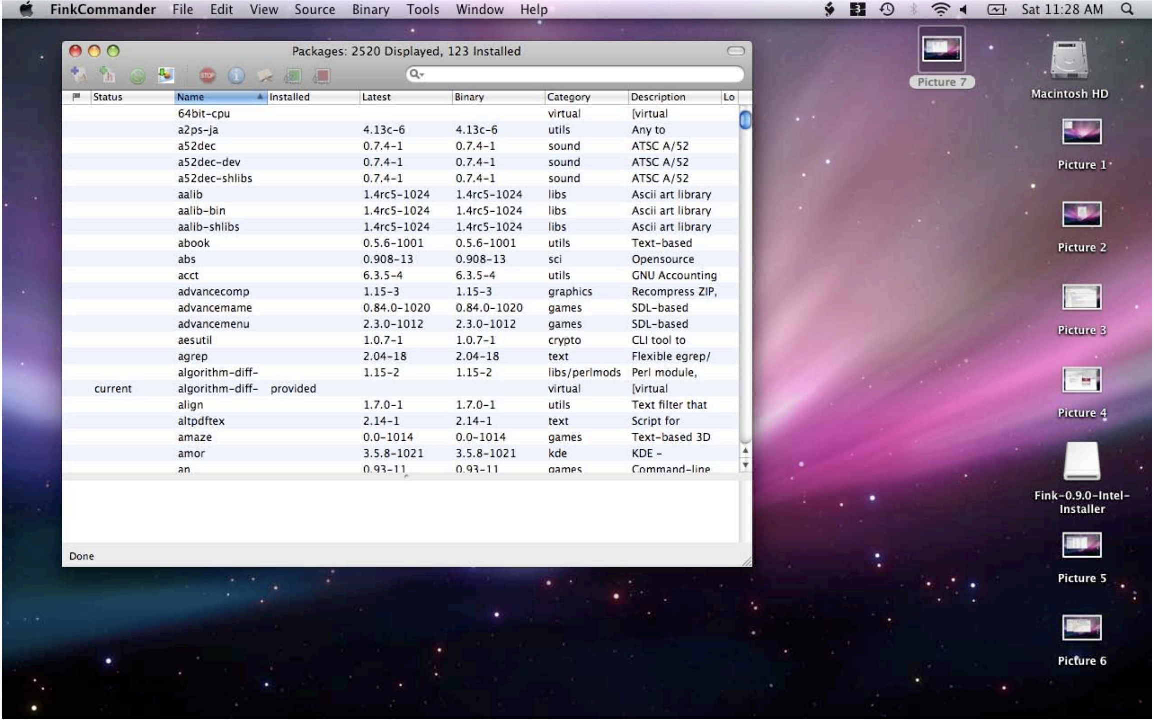
This package contains a program that determines if the software can be installed. Are you sure you want to continue?

If you're not sure about the source of this package, click Cancel to prevent it from running the program and installing the software.

Once you have installed Fink, you will also need to install the Fink Commander. To do this, go back to the folder with the installer and open the subfolder called FinkCommander. To install this, simply click and drag FinkCommander into your Applications folder.



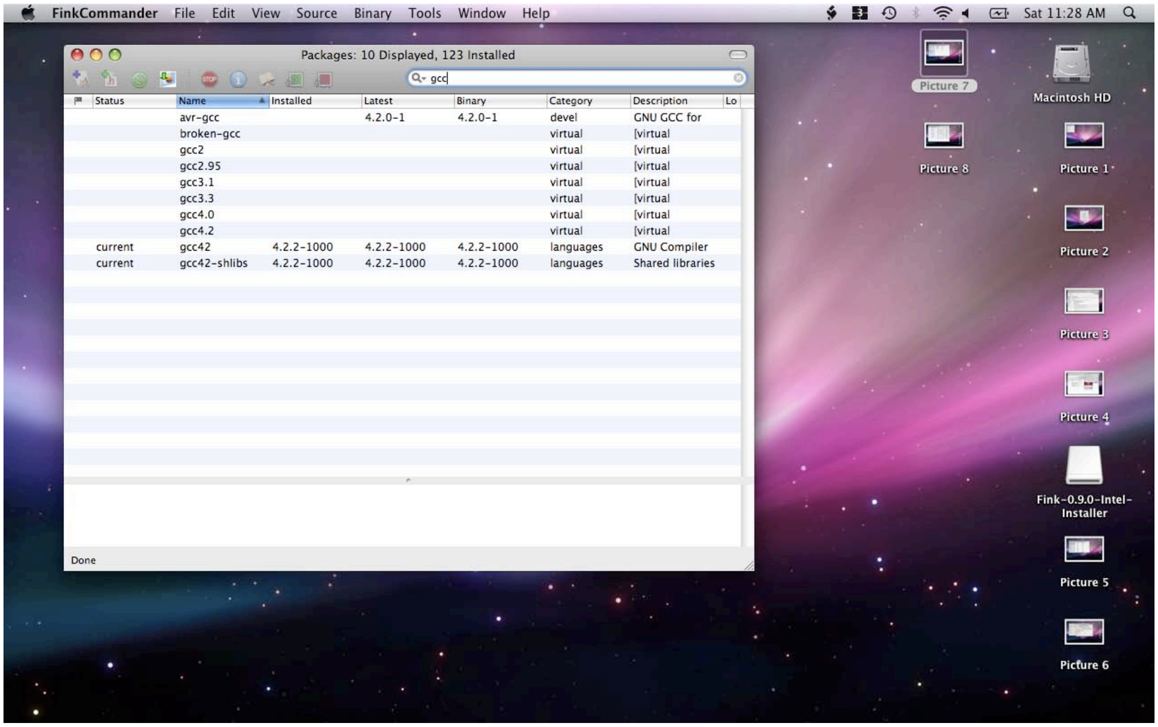
Once you have installed FinkCommander you are done with the installer and can delete it. After deleting the installer, proceed to the Applications folder and open FinkCommander. Fink Commander will show you all of the packages available through Fink.



⚑	Status	Name	Installed	Latest	Binary	Category	Description	Lo
		64bit-cpu				virtual	[virtual	
		a2ps-ja		4.13c-6	4.13c-6	utils	Any to	
		a52dec		0.7.4-1	0.7.4-1	sound	ATSC A/52	
		a52dec-dev		0.7.4-1	0.7.4-1	sound	ATSC A/52	
		a52dec-shlibs		0.7.4-1	0.7.4-1	sound	ATSC A/52	
		aalib		1.4rc5-1024	1.4rc5-1024	libs	Ascii art library	
		aalib-bin		1.4rc5-1024	1.4rc5-1024	libs	Ascii art library	
		aalib-shlibs		1.4rc5-1024	1.4rc5-1024	libs	Ascii art library	
		abook		0.5.6-1001	0.5.6-1001	utils	Text-based	
		abs		0.908-13	0.908-13	sci	Opensource	
		acct		6.3.5-4	6.3.5-4	utils	GNU Accounting	
		advancecomp		1.15-3	1.15-3	graphics	Recompress ZIP,	
		advancemame		0.84.0-1020	0.84.0-1020	games	SDL-based	
		advancemenu		2.3.0-1012	2.3.0-1012	games	SDL-based	
		aesutil		1.0.7-1	1.0.7-1	crypto	CLI tool to	
		agrep		2.04-18	2.04-18	text	Flexible egrep/	
		algorithm-diff-		1.15-2	1.15-2	libs/perlmods	Perl module,	
	current	algorithm-diff-	provided			virtual	[virtual	
		align		1.7.0-1	1.7.0-1	utils	Text filter that	
		altpdftex		2.14-1	2.14-1	text	Script for	
		amaze		0.0-1014	0.0-1014	games	Text-based 3D	
		amor		3.5.8-1021	3.5.8-1021	kde	KDE -	
		an		0.93-11	0.93-11	games	Command-line	

Done

The easiest way to get to the package we want is by searching. Just go to the search box in the upper right corner of the window and search for “gcc”. This will show only the packages with “gcc” in the name. In the screenshot here, 4.2 is the latest version available. You want the most recent version of the gcc compiler. You can tell which is the most recent because it says “current” in the first column. You want the one that is labeled as “languages” in the category and “GNU Compiler” in the description category. Select this by clicking on it once, the install it by clicking the blue plus in the upper left corner of the FinkCommander Window.



Packages: 10 Displayed, 123 Installed

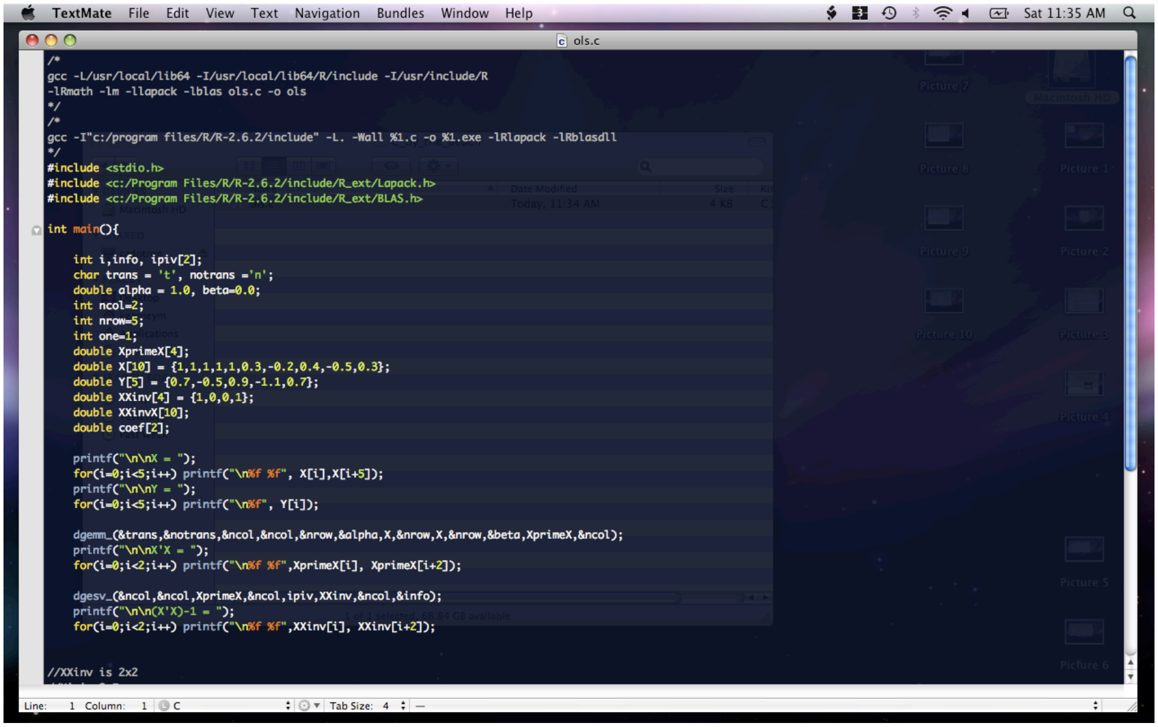
Status	Name	Installed	Latest	Binary	Category	Description	Lo
	avr-gcc		4.2.0-1	4.2.0-1	devel	GNU GCC for	
	broken-gcc				virtual	[virtual	
	gcc2				virtual	[virtual	
	gcc2.95				virtual	[virtual	
	gcc3.1				virtual	[virtual	
	gcc3.3				virtual	[virtual	
	gcc4.0				virtual	[virtual	
	gcc4.2				virtual	[virtual	
current	gcc42	4.2.2-1000	4.2.2-1000	4.2.2-1000	languages	GNU Compiler	
current	gcc42-shlibs	4.2.2-1000	4.2.2-1000	4.2.2-1000	languages	Shared libraries	

Done

It will take a minute or two for the GCC Compiler to download an install. Text in the bottom of the window will show the progress. During this process, you may be asked to enter your password or affirm changes to your system by typing “Y”. Reach the questions and enter responses appropriately.

Now you have installed GCC and can complie C code on your Mac.

You can test your installation using code provided on the “C by the Beach” website. First, download the “ols.c” program. Before proceeding you’ll need to edit a couple of things in the program to make it run on a Mac. First, open the program in a text editor (this one has syntax highlighting for C).



```
/*
gcc -L/usr/local/lib64 -I/usr/local/lib64/R/include -I/usr/include/R
-lRmath -lm -llapack -lblas ols.c -o ols
*/
/*
gcc -I"c:/program files/R/R-2.6.2/include" -L. -Wall %1.c -o %1.exe -lRlapack -lRblasdll
*/
#include <stdio.h>
#include <c:/Program Files/R/R-2.6.2/include/R_ext/Lapack.h>
#include <c:/Program Files/R/R-2.6.2/include/R_ext/BLAS.h>

int main(){

    int i,info, ipiv[2];
    char trans = 't', notrans ='n';
    double alpha = 1.0, beta=0.0;
    int ncol=2;
    int nrow=5;
    int one=1;
    double XprimeX[4];
    double X[10] = {1,1,1,1,1,0.3,-0.2,0.4,-0.5,0.3};
    double Y[5] = {0.7,-0.5,0.9,-1.1,0.7};
    double XXinv[4] = {1,0,0,1};
    double XXinvX[10];
    double coef[2];

    printf("\n\nX = ");
    for(i=0;i<5;i++) printf("\n%f %f", X[i],X[i+5]);
    printf("\n\nY = ");
    for(i=0;i<5;i++) printf("\n%f", Y[i]);

    dgemm_(&trans,&notrans,&ncol,&ncol,&nrow,&alpha,X,&nrow,X,&nrow,&beta,XprimeX,&ncol);
    printf("\n\nX'X = ");
    for(i=0;i<2;i++) printf("\n%f %f",XprimeX[i], XprimeX[i+2]);

    dgesv_(&ncol,&ncol,XprimeX,&ncol,ipiv,XXinv,&ncol,&info);
    printf("\n\n(X'X)-1 = ");
    for(i=0;i<2;i++) printf("\n%f %f",XXinv[i], XXinv[i+2]);


//XXinv is 2x2
```

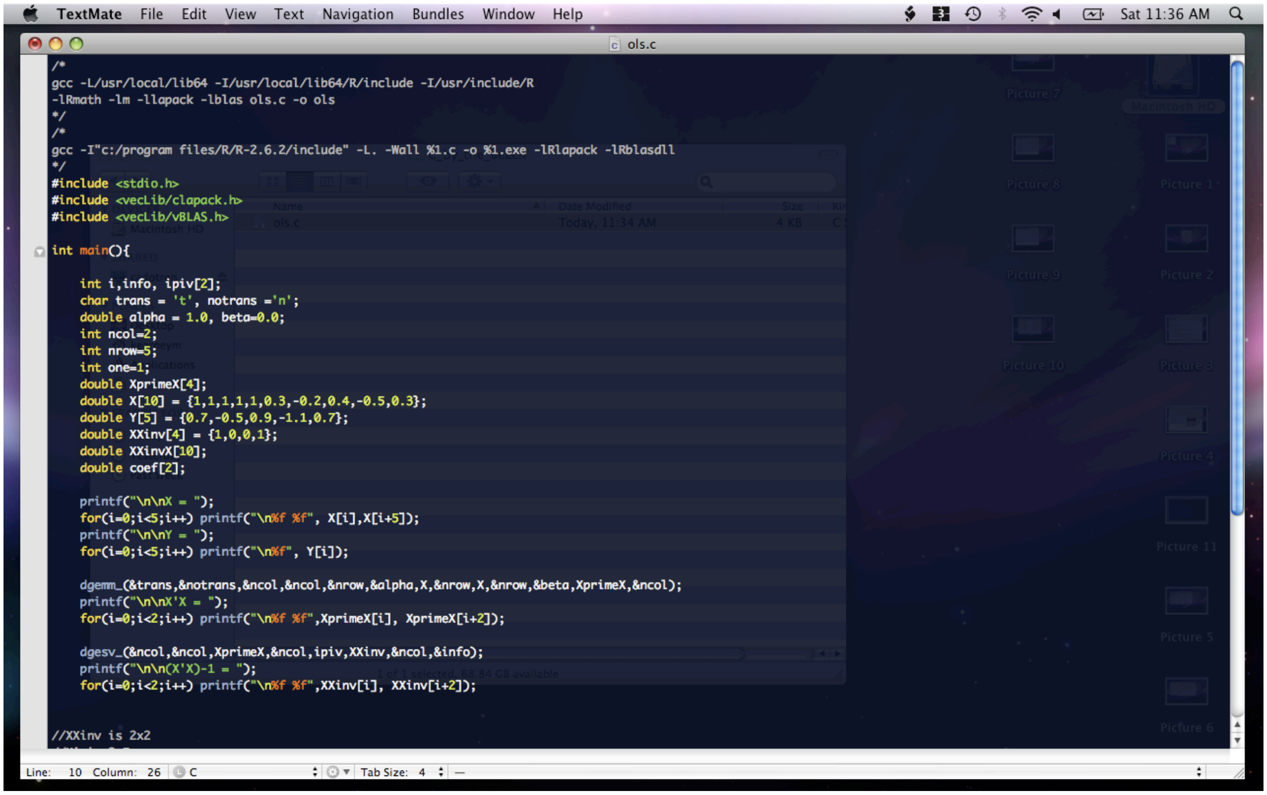
The 9th and 10th lines tell GCC where the header files for BLAS and LAPACK are located. They currently read:

```
#include <c:/Program Files/R/R-2.6.2/include/R_ext/Lapack.h>
#include <c:/Program Files/R/R-2.6.2/include/R_ext/BLAS.h>
```

We need to change them so they call the Mac versions of these files. Remove these two lines and replace them with lines the following:

```
#include <vecLib/clapack.h>
#include <vecLib/vBLAS.h>
```

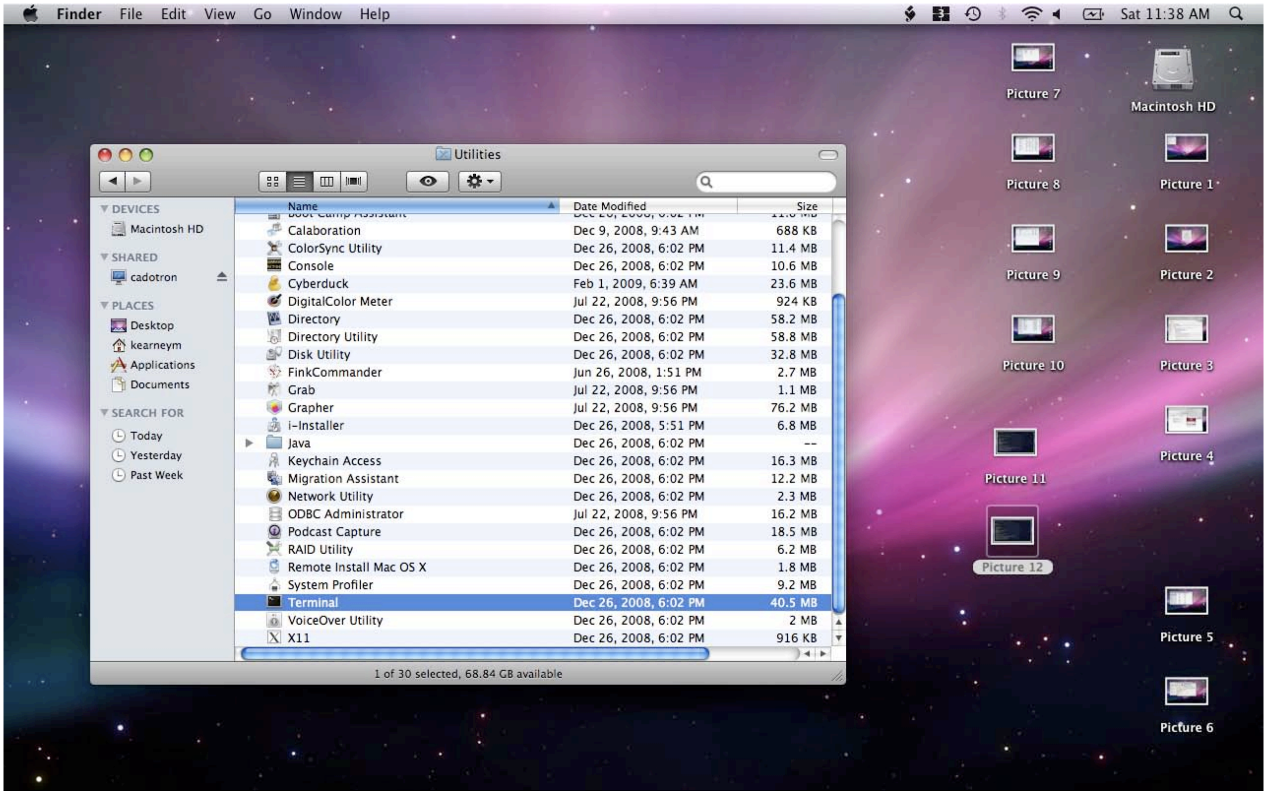
Now the program should look like this:



```
/*
gcc -L/usr/local/lib64 -I/usr/local/lib64/R/include -I/usr/include/R
-lRmath -lm -llapack -lblas ols.c -o ols
*/
/*
gcc -I"c:/program files/R/R-2.6.2/include" -L. -Wall %1.c -o %1.exe -lRlapack -lRblasdll
*/
#include <stdio.h>
#include <vecLib/clapack.h>
#include <vecLib/vBLAS.h>

int main(){

    int i,info, ipiv[2];
    char trans = 't', notrans ='n';
    double alpha = 1.0, beta=0.0;
    int ncol=2;
    int nrow=5;
    int one=1;
    double XprimeX[4];
    double X[10] = {1,1,1,1,1,0.3,-0.2,0.4,-0.5,0.3};
    double Y[5] = {0.7,-0.5,0.9,-1.1,0.7};
    double XXinv[4] = {1,0,0,1};
    double XXinvX[10];
    double coef[2];

    printf("\n\nX = ");
    for(i=0;i<5;i++) printf("\n%f %f", X[i],X[i+5]);
    printf("\n\nY = ");
    for(i=0;i<5;i++) printf("\n%f", Y[i]);

    dgemm_(&trans,&notrans,&ncol,&ncol,&nrow,&alpha,X,&nrow,X,&nrow,&beta,XprimeX,&ncol);
    printf("\n\nX'X = ");
    for(i=0;i<2;i++) printf("\n%f %f",XprimeX[i], XprimeX[i+2]);

    dgesv_(&ncol,&ncol,XprimeX,&ncol,ipiv,XXinv,&ncol,&info);
    printf("\n\n(X'X)-1 = ");
    for(i=0;i<2;i++) printf("\n%f %f",XXinv[i], XXinv[i+2]);


//XXinv is 2x2
```

Save the program and close your editor.

Now we need to use the terminal to access the compiler. In the Applications folder open the Utilities subfolder. In Utilities, open the Terminal program.



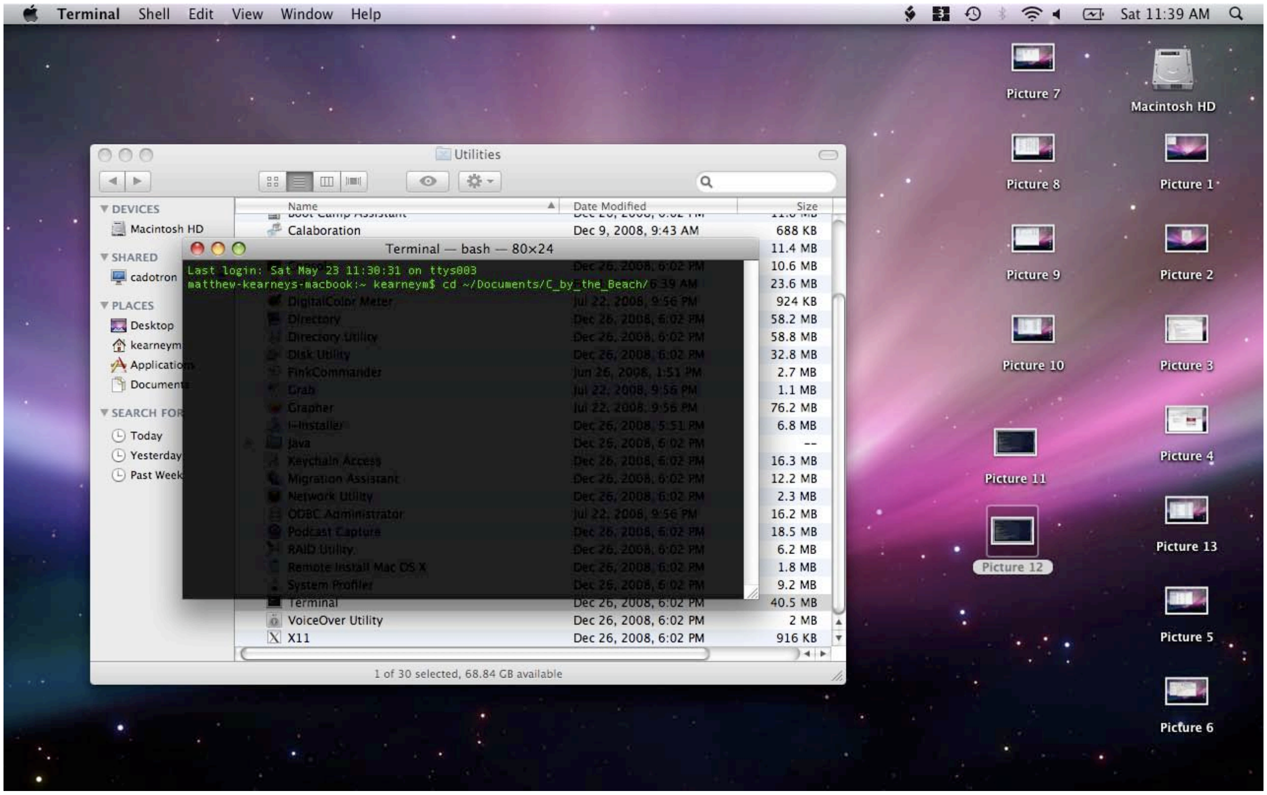
Name	Date Modified	Size
Calaboration	Dec 9, 2008, 9:43 AM	688 KB
ColorSync Utility	Dec 26, 2008, 6:02 PM	11.4 MB
Console	Dec 26, 2008, 6:02 PM	10.6 MB
Cyberduck	Feb 1, 2009, 6:39 AM	23.6 MB
DigitalColor Meter	Jul 22, 2008, 9:56 PM	924 KB
Directory	Dec 26, 2008, 6:02 PM	58.2 MB
Directory Utility	Dec 26, 2008, 6:02 PM	58.8 MB
Disk Utility	Dec 26, 2008, 6:02 PM	32.8 MB
FinkCommander	Jun 26, 2008, 1:51 PM	2.7 MB
Grab	Jul 22, 2008, 9:56 PM	1.1 MB
Grapher	Jul 22, 2008, 9:56 PM	76.2 MB
i-Installer	Dec 26, 2008, 5:51 PM	6.8 MB
Java	Dec 26, 2008, 6:02 PM	--
Keychain Access	Dec 26, 2008, 6:02 PM	16.3 MB
Migration Assistant	Dec 26, 2008, 6:02 PM	12.2 MB
Network Utility	Dec 26, 2008, 6:02 PM	2.3 MB
ODBC Administrator	Jul 22, 2008, 9:56 PM	16.2 MB
Podcast Capture	Dec 26, 2008, 6:02 PM	18.5 MB
RAID Utility	Dec 26, 2008, 6:02 PM	6.2 MB
Remote Install Mac OS X	Dec 26, 2008, 6:02 PM	1.8 MB
System Profiler	Dec 26, 2008, 6:02 PM	9.2 MB
Terminal	Dec 26, 2008, 6:02 PM	40.5 MB
VoiceOver Utility	Dec 26, 2008, 6:02 PM	2 MB
X11	Dec 26, 2008, 6:02 PM	916 KB

1 of 30 selected, 68.84 GB available

This program gives you access to the UNIX system that lies underneath the Mac operating system. Start here by navigating to the folder where you've stored "ols.c". This is done using the `cd` command. For example, I've stored my ols.c in my Documents folder, then in a subfolder called C_by_the_Beach. So I'll type

```
cd ~/Documents/C_by_the_Beach/
```

In this case, I can use the "~" character as a shortcut for my home folder.



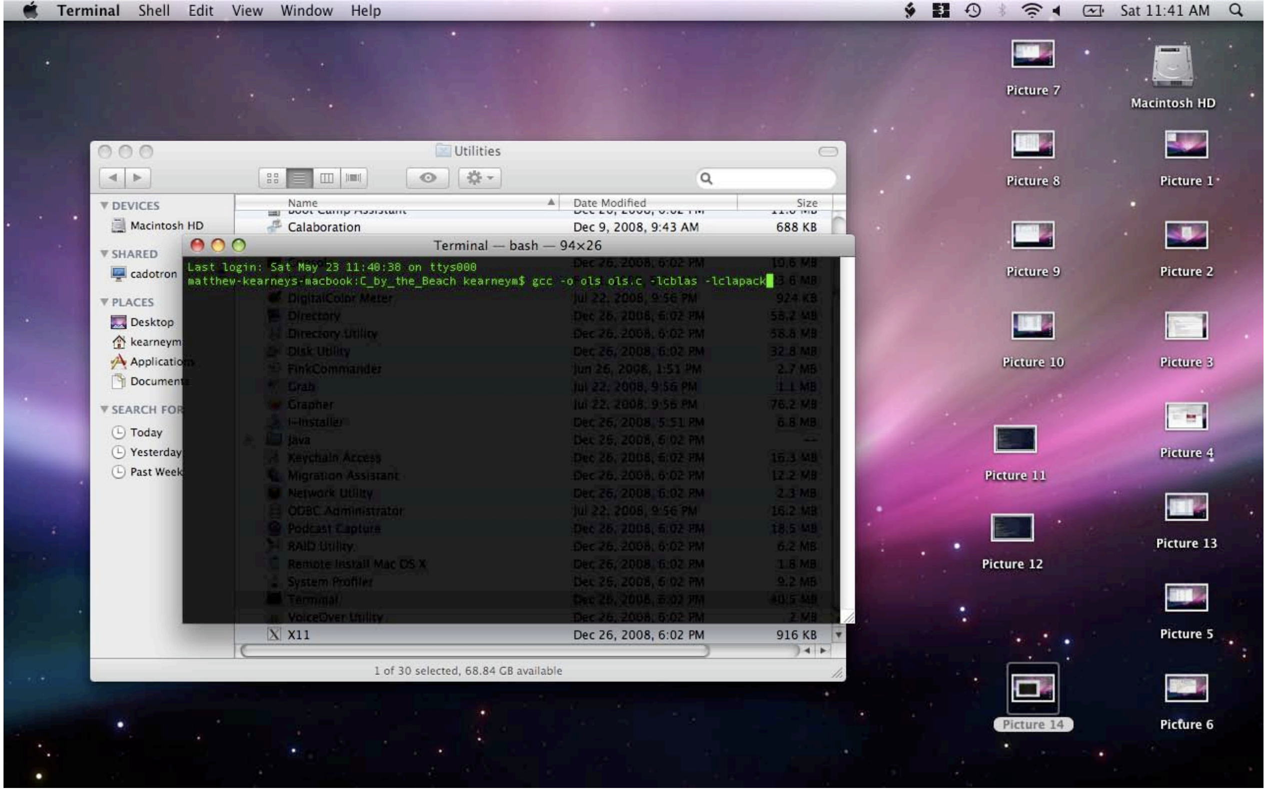
```
Last login: Sat May 23 11:30:31 on ttys003
matthew-kearneys-macbook:~ kearneym$ cd ~/Documents/C_by_the_Beach/
```

You can check the contents of the current folder by typing `ls`. This will show a list of all items in the current folder.

Once you are in the folder you need to compile ols.c. This is done using the following command:

```
gcc -o ols ols.c -lcblas -lclapack
```

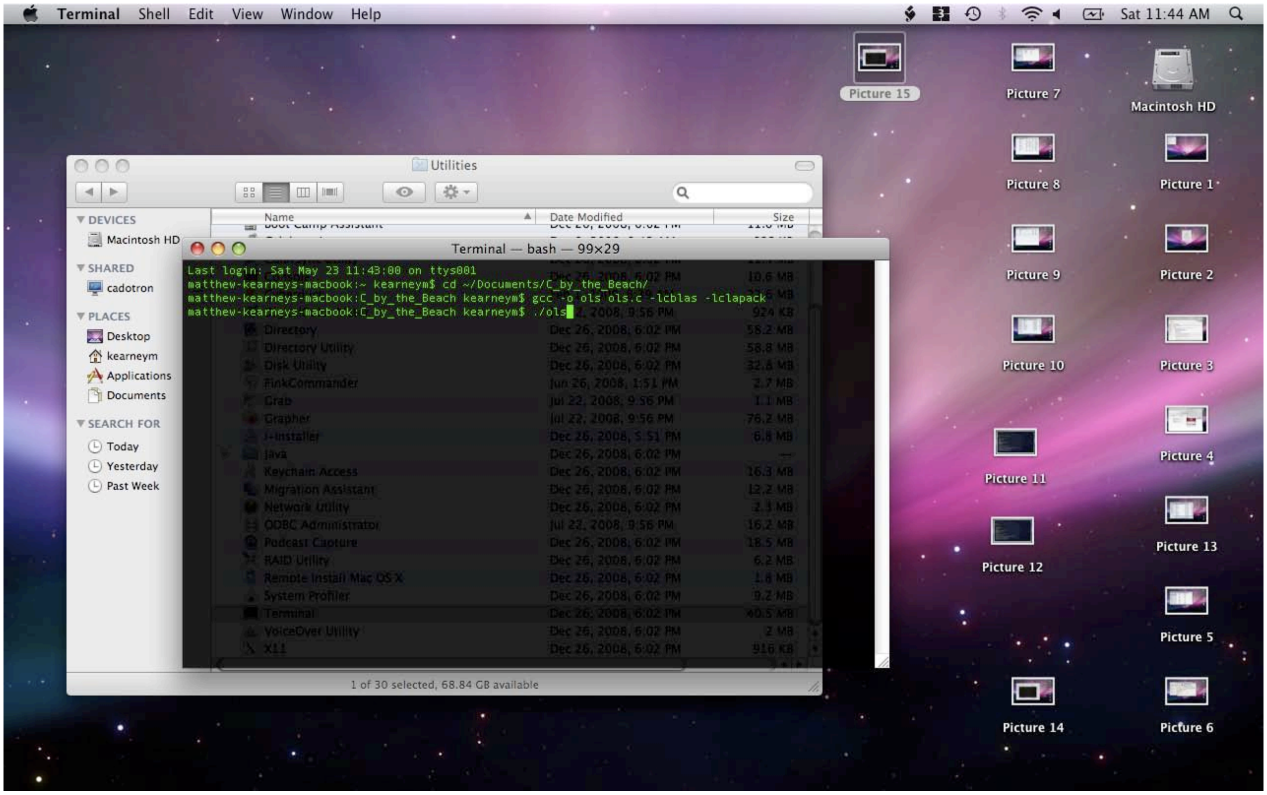
The command `gcc` calls up the `gcc` compiler. The `-o` options says you would like the output to be written to a file, and is followed by the name of that file, which will be `ols`. Then name `ols.c` refers to the file you are compiling. The last options `-lcblas` and `-lclapack` tell the compiler that you want to use the BLAS and LAPACK libraries.



```
Last login: Sat May 23 11:40:38 on ttys000
matthew-kearneys-macbook:C_by_the_Beach kearneym$ gcc -o ols ols.c -lcblas -lclapack
```

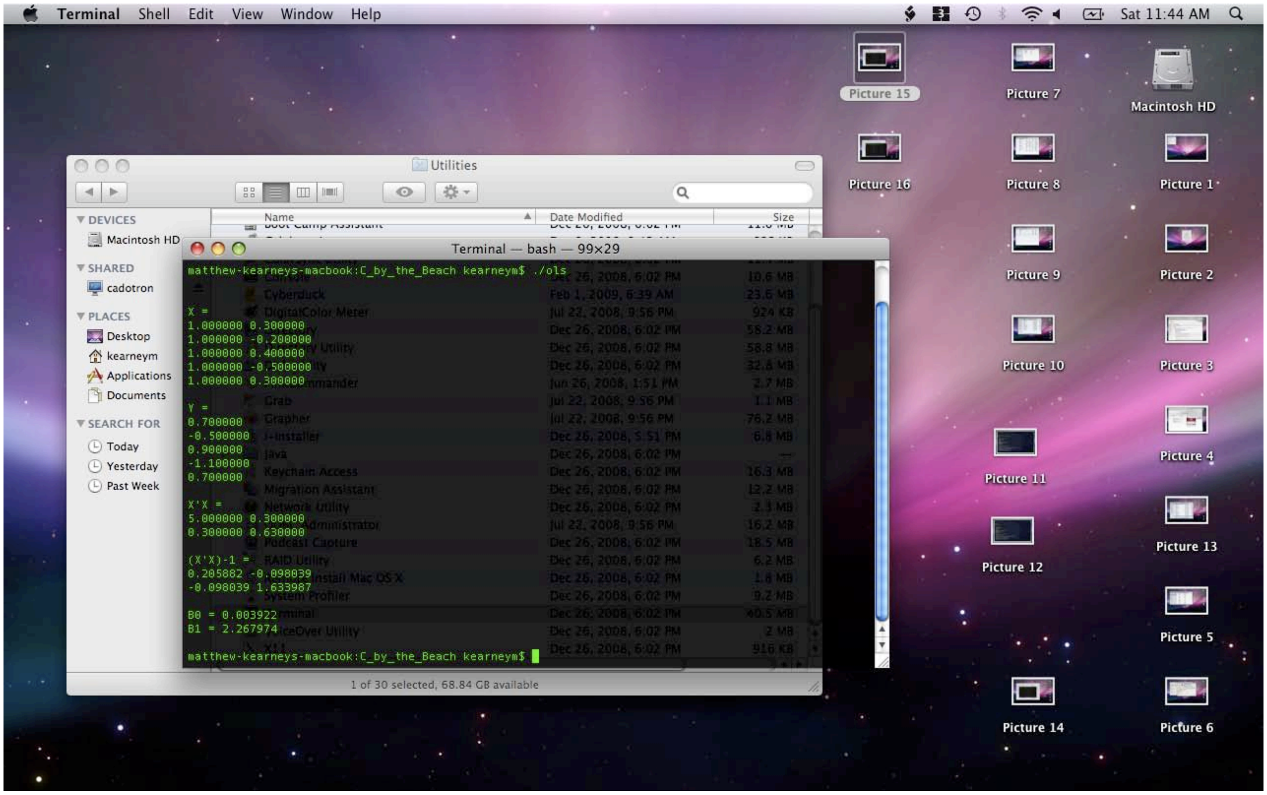
If the program compiles with no errors, you should just get another command line. If you get some messages labeled as warnings, this should be fine as well. If you would like to check that the complier worked properly, you can type the `ls` command. If the complier worked properly there should be both an `ols.c` file and an `ols` file. The `ols` file is a UNIX executable file, which can be run using the command

```
./ols
```



```
Last login: Sat May 23 11:43:00 on ttys001
matthew-kearneys-macbook:~ kearneym$ cd ~/Documents/C_by_the_Beach/
matthew-kearneys-macbook:C_by_the_Beach kearneym$ gcc -o ols ols.c -lcblas -lclapack
matthew-kearneys-macbook:C_by_the_Beach kearneym$ ./ols
```

If everything is working properly, this should display the output of the program:



```
matthew-kearneys-macbook:C_by_the_Beach kearneym$ ./ols

X =
1.000000 0.300000
1.000000 -0.200000
1.000000 0.400000
1.000000 -0.500000
1.000000 0.300000

Y =
0.700000
-0.500000
0.900000
-1.100000
0.700000

X'X =
5.000000 0.300000
0.300000 0.630000

(X'X)-1 =
0.205882 -0.098039
-0.098039 1.633987

B0 = 0.003922
B1 = 2.267974

matthew-kearneys-macbook:C_by_the_Beach kearneym$
```

If the ols executable displays the output, you have gcc, lapack, and blass running properly on your computer.