[Credit John Swinbank, Dave Russell & Mike Nowak]

These instructions have been tested on Ubuntu 10.04 (Lucid Lynx) on the AMD64 platform, and on the Netbook version of Ubuntu 10.04 on an Asus Eee PC 1001PX. They were both untouched systems: just the base system with recent updates applied.

This instructions are intended to be read in conjunction with the documentation supplied with the various software packages!

Note that $ indicates commands which should be typed at a terminal prompt.

Preparation

Install all the required packages from the Ubuntu repository:

```
$ sudo aptitude install g++ gfortran x11proto-core-dev libx11-dev libxt-dev libncurses5-dev libslang2-dev slsh  slang-slirp
```

S-Lang Stats Module

For S-lang we require the stats module : download it from here (using your browser) or wget, then untar and uncompress it:

```
$ wget http://space.mit.edu/cxc/software/slang/modules/stats/src/slstats-1.0.2.tar.gz
$ tar zxvf slstats-1.0.2.tar.gz
```

Then configure and build it:

```
$ cd slstats-1.0.2/
$ ./configure
$ make
$ sudo make install
```

You will need to type your password.

This will install the module into /usr/local. You now need to instruct S-Lang to look for scripts in that location. Add the following lines to $HOME/.slshrc
(creating the file if necessary):

```
append_to_slang_load_path ("/usr/local/share/slsh/local-packages"$);
set_import_module_path ("/usr/local/lib/slang/v2/modules:"$+ get_import_module_path ());
```

To use the module in a S-lang script (more info here), it must be loaded into the interpreter:

```
$ slsh
slsh> require ("stats");
```

To quit slsh:

```
slsh:> quit
```

Heasoft 6.9

HEASoft includes FTOOLS (FITS manipulation tools) and XANADU (X-ray data analysis).
Any problems with your Heasoft installation?
First check for clues here then here
Detailed installation guides are also available here
and
here

You'll need approximately up to 900 Mb free disk space
Download the source (300 Mb), either using this direct link
or by visiting
the Heasoft website
.
Untar and uncompress it in the directory you want to unpack it in:

```
$ tar zxvf heasoft6.9src.tar.gz
```

Then configure it. You need to specify the installation location as part of this process: we'll

use your home directory in this example
NB if you don't use your home directory, you'll need to change the other instructions to match!

```
$ cd heasoft-6.9/BUILD_DIR
$ ./configure --prefix=$HOME/heasoft > config.out 2>&1
```

Wait until the configuration has finished, and build (this next step can take a very long time - don't kill the process):

```
$ make > build.log 2>&1
```

Then install the software:

```
$ make install
```

At the start of your session, the heasoft environment must be initialised. We can make that happen automatically:

```
$ echo "export
```

HEADAS=$HOME/heasoft/x86_64-unknown-linux-gnu-libc2.11.1-0/" >> $HOME/.bashrc
  $ echo ". $HEADAS/headas-init.sh" >> $HOME/.bashrc

Note that the platform string above (x86_64-unknown-linux-gnu-libc2.11.1-0
) might vary if Ubuntu release updated libc packages. Check what has been created in $HOME/heasoft
to confirm the correct value for your system.

You will need to open a new terminal for this to take effect. Please do that, and close the old one, before proceeding to the next section.

Now you are ready to run the various Heasoft software packages:
Introduction, tutorials (where available) or manuals: FTOOLS XANADU: XSPEC XRONOS

XIMAGE

Isis 1.6.0

ISIS interactively fits X-ray spectra. Any problems with your ISIS installation? First check for clues here then (more generally) here
A detailed installation guide is also available here

Download the source. You can do this directly with the command:

$ wget ftp://space.mit.edu/pub/cxc/isis/isis-1.6.0-12.tar.gz

or by visiting the ISIS website

Untar and uncompress it in the directory you want to unpack it in:

```
$ tar zxvf isis-1.6.0-12.tar.gz
$ cd isis-1.6.0-12/
```

Configure and build:

```
$ ./configure --with-headas=$HEADAS
$ make
```

There are some built in

diagnostic tests. Before proceeding, run them and check that everything is ok:

```
$ make check
```

If all the tests pass, you can install the software by running:

```
$ sudo make install
```

You will need to type your password.

Now you are ready to run ISIS: Tutorial Manual

Fermi Science Tools (v9r15p2)

Unfortunately, numerous errors in the build system for the Fermi Science Tools mean that compiling them from scratch is effectively impossible on this platform. However, it is possible to

download and install a pre-compiled version from the Fermi Science Support Centre. Choose the version compiled for Scientiifc Linux 5 libc2.5, and 32 or 64 bit depending on your platform. If you're not sure, check by running:

```
$ uname -m
```

A 64 bit machine will return x86_64

; a 32 bit machine will return i686

.

After you have identified the correct package, download with your browser or with wget:

```
  $ wget
http://fermi.gsfc.nasa.gov/ssc/data/analysis/software/tar/ScienceTools-v9r15p2-fssc-20090808-x86_64-unknown-linux-
```

gnu-libc2.5.tar.gz

Note that the instructions provided by FSSC for installing the binary distribution also contain some errors. In particular, you should skip steps 3 & 4. Installation proceeds as follows:

```
$ tar zxvf ScienceTools-v9r15p2-fssc-20090808-x86_64-unknown-lin
```

ux-gnu-libc2.5.tar.gz

You may wish to move the resulting files to a more conveniently memorable location:

```
$ mv ScienceTools-v9r15p2-fssc-20090808-x86_64-unknown-linux-gnu-libc2.5 $HOME/fermi_science_tools
```

Then set the $FERMI_DIR

environment variable to point to the newly-installed tools:

```
$ export FERMI_DIR=$HOME/fermi_science_tools/x86_64-unknown-linux-gnu-libc2.5
```

You may wish to add this to $HOME/.bashrc , so that it happens automatically when you log in:

```
$ echo "export
```

```
FERMI_DIR=$HOME/fermi_science_tools/x86_64-unknown-linux-gnu-libc2.5"
>> $HOME/.bashrc
```

In order to access the science tools, you can now run:

```
  $ source $FERMI_DIR/fermi-init.sh
```

Note that rather than integrating with the rest of the system, the Fermi Science

Tools include an additional (and often outdated) copy of a number of standard system tools (such as Python, tcl/tk, etc). For the duration of your session after you source the fermi-init.sh
script, you will automatically use the Fermi-supplied tools rather than your system defaults. Therefore, it is strongly suggested you only source
fermi-init.sh

when you specifically need to work with Fermi tools, rather than as part of your normal login process!

SAOImage DS9 6.1.2

DS9 is a tool to view and analyze astronomical images. It is available for download from its website either directly using your browser or using wget on the command line.

Grab the "Linux64" version if you have a 64 bit machine, or "Linux" for 32 bit. If you're not sure, check using:

```
$ uname -m
```

"x86_64" indicates 64 bit; "i686" 32.

After downloading, it can be uncompressed and run directly without any further configuration:

```
$ wget http://hea-www.harvard.edu/saord/download/ds9/linux64/ds9.linux64.6.1.tar.gz
$ tar zxvf ds9.linux64.6.1.tar.gz
$ ./ds9 &
```

You may wish to move it to a location on your path so you can access it without specifying the full location:

```
$ sudo mv ds9 /usr/local/bin
$ ds9 &
```

AIPS 31DEC10

AIPS ("Astronomical Image Processing System") is a radio data reduction/manipulation package: for details, see its website. In particular, for problems regarding the Install Wizard, check here

, otherwise see
here
and
here
. If you are replacing a previous installation of AIPS, please clean up first:
follow
these
instructions (half way down part 2).

The following instructions are for binary installation, not "text" (ie, compilation from source). This is generally to be recommended, as AIPS is notoriously picky about compilers (see the vaguely

hilarious note on the website). You'll need approximately 1 GB free disk space.

CVS is required:

```
$ sudo aptitude install cvs
```

Next download the small Install Wizard file (a Perl script) from this direct link or by using wget. Choose a new directory to install AIPS, cd to it and put the file there.

Make the install file executable then execute it:

```
$ mkdir aips
$ cd aips
$ wget
ftp://ftp.aoc.nrao.edu/pub/software/aips/
```

31DEC10/install.pl

$ chmod +x install.pl

$ perl install.pl -n

Read & follow the on-screen instructions. Refer to the more detailed notes here at each

step. The following options seem to work for me, but you may wish to customize them. Note that the numbers are not actually consecutive(!)

Screen 0 -- hit enter
Screen 4 -- hit enter (ie accept the default choice)
Screen 4b -- hit enter (ie, allow yourself to have write access)
Screen 5 -- choose a name; can be whatever you like

Screen 5a -- enter "y"
Screen 5b -- accept the default (LNX64 on a 64 bit machine)
Screen 6 -- hit enter to accept LOCALHOST
Screen 7 -- add the data area suggested

(ie, /home///DATA/LOCALHOST_1)

Screen 8 -- press "A" to accept current settings, then type A4

Screen 9 -- press "A" to accept current settings

Screen 9b -- press

"A" to accept current settings
Screen 11 -- press "A" to accept, then "Y" to start the installation.

You will now need to wait for several minutes while the

data files are downloaded and installed.

Eventually, the configuration system will set up configuration for a "midnight job" (MNJ; ie, an automatic

update of the AIPS files): just hit return to acknowledge the default settings, then again to enter a blank CVS password (as instructed), then again when "ready to proceed" (you can examine thedo_daily

.localhost
file if you plan to run a midnight job). You will then be prompted to hit enter for a fourth time(!) before finally being told:

AipsWiz: That's it.

You should now have the latest AIPS! Enjoy.

Edit your $HOME/.bashrc to ensure that AIPS is initialised when you log in:

```
$ echo "source $HOME/aips/LOGIN.SH" >> ~/.bashrc
```

Now you are ready to run AIPS. The cookbook can be viewed online here and as a pdf here

CASA 3.0.2

Note that before downloading CASA, NRAO encourage you to register with their portal at
so they can notify you of updates etc. This is not actually

required for installation, though.

CASA is releasing the new version 3.0.2 this week (10 June 2010). Download the release

candidates (which should turn into the final release, probably by the time you read this) which are:

here for a 32 bit

machine or here for a 64 bit machine

(See the previous notes on uname to figure out

which you have)

.

Please read these notes in

conjuncti
on with
the
official

documen
tation at .

You shouldn't need it, but

version 3.0.1 and other

previous versions of CASA can be

downloaded from

After downloading, unpack

the file:

$ tar zxvf

casapy-#######

#####

.tar.gz

This will

create a director

y with the unwield

y name of casapy-

30.1.11
097-00
1-64b --

you might prefer

to move that to somew

here

more

conveni

ent:

$ mv

casapy-########

$HOME/casa

Change to that

directory and add it

to your path:

$ cd $HOME/casa

$

export

```
PATH=`pwd`:$PATH
```

You

can

now

start

CASA:

$

casapy