PRISM LOIS QUICK START GUIDE

Key

- ❑ Button labels are written in a Geneva font
- ❑ Commands you type are written in a `Courier` font

Make sure MOVE is running

MOVE must be running before you start LOIS

Make sure the large LN2 storage tank is not connected to camera's dewar

See Perkins QSG for more information

On perkins

- ❑ `xhost +hans`
- ❑ `ds9&`

Open a new window on perkins, connecting to hans. One way to do this would be to drag down from Applications->System Tools->Terminal, getting a new window (or `xgterm&` in a perkins window), then `telnet hans`

On hans

Login as obs72 (same password as on perkins)

- ❑ `setenv DISPLAY perkins:0.0`
- ❑ `setenv IMTDEV inet:5137:perkins`
- ❑ `lois&`

Configure LOIS

in the LOIS console window:

- ❑ click Configure

in the "configlois" window that pops up:

- o for PRISM, select Telescope Interface->"perkins", Camera Interface->"prism", Instrument Interface->"PrismInst", and Display Interface->"DS9/Saotng" (not "DS9/XPA")
- ❑ enter your name and affiliation for "Observer(s)" and "Affiliation" (once set, your parameters will be remembered so you won't need to re-enter them)
- ❑ click Start
- ❑ wait until LOIS finishes loading everything; generally, it is ready when the "Perkins Telescope Control" window is up and values are filled in

Set up recording of weather station information into headers

In the LOIS console window:

- ❑ `load mesa_env.so`

Note that this command is not necessary. If you don't do it, you just won't get the weather station information into your headers.

Set up data storage in LOIS

in the LOIS console window:

- ❑ click Storage

in the "store" window that pops up:

- ❑ enter the root you want for your files
- ❑ enter the starting extension number
- ❑ select the directory you want your images to be stored in; the directory should be named with the date and be in /perkins/data/pcdata/
- ❑ the default is to add a ".fits" extension, click Off if you don't want this
- ❑ your files will be named: root.extension.fits or root.extension
- ❑ auto-storing of images is On by default, click Off if you don't want to store your images

Using PRISM filters

Upon first starting up, click on Home Wheel in the PRISM Control Panel for each of the three wheels. This initializes the wheels so they know where they are (there are no absolute encoders). Note that even if you're not using the Polarimetry or Grism wheels, you still need to home them, so you'll know that each is in an open position.

If you move your cursor off the home button after you've clicked it, then you'll see that button turn red while it's searching for home, then gray after it's found it. The Pos1 button will also turn green. Another indication that the wheel has homed successfully is in the right-hand side of the LOIS Console Window. Look here for "Sending Command HM0\r". Occasionally, the Filter Wheel (top) will fail to find home. The only indication you'll get about this will be in the right-hand side of the LOIS Console Window. It will beep and several red error messages will be printed. If this happens, just click Home Wheel again. If this doesn't work, call Amanda.

To change to a different filter, click on one of the Pos# in the PRISM Control Panel. When finished, the new position button will light up green. Also, in the right-hand side of the LOIS Control Window you'll see "Delta Position: 0\r" followed by "Sending Command RP5\r". Note: For the Filter Wheel, you can move only one position at a time, otherwise it will fail. For example, to go from 1 to 4, you need to click 2 then 3 then 4. To get from 6 back to 1, you'll need to click 5, 4, 3, 2, 1. Or try clicking Home Wheel again.

The names of objects in the Filter Wheel are kept up to date. If the U filter is to be inserted, it goes in position2, not 1. The Pol wheel has the Hα filter in. The Grism wheel is completely empty.

Changing PRISM masks

All of these commands are done in the LOIS console window (normally the window across the bottom of the screen).

Note that these commands are temporary, until the GUI in the PRISM Control Panel is fixed. Until then, there is no graphical feedback about when one of these commands has finished. Below I've listed things to look for so you'll know when each is done.

Before putting in a new mask, make sure that all masks are already out of the way. Any mask-in command will automatically do this home command first, but if you want to be extra sure to avoid a bad collision, you can run it yourself too.

- ❑ `mask mask=0`

To see what's happening, watch the right-hand side of the LOIS Console Window. You'll see commands go by that are checking each mask to see if the home switch has been activated. If there is a mask in place, it will be moved out and you'll see lots of lines like "`Delta Position: 2147465677`". The large numbers are due to a bug, signed ints being read into an unsigned int. You'll know this command is done when you see four "`Sending Command HM0\r`" lines go by (depending on which mask is in, these may be scattered before and after the Delta Position commands).

To move a mask (1-4) into place:

- ❑ `mask mask=1`

Once again, look at the right-hand side of the LOIS Console Window. Watch the "Delta Position" values change. The numbers will ramp up, then stay large for a while, then ramp down. When you see "`Delta Position: 0\r`", the mask is in place.

Currently (16 Dec. 2003), mask 1 is a Hartmann-type mask, and mask 2 is Ken Janes' M67 mask.

Moving a mask in takes: 5 sec to check all at home, 55 sec to move mask in
Moving a mask out takes: 52 sec to move mask out, and 5 sec to check all others are at home. The exception to this is for the one mask helped by gravity; this takes only 15-30 sec to move back out. Gravity doesn't seem to help in moving masks in.

Taking an image

in the camera control window:

- ❑ enter the desired exposure time and number of exposures (boxes at top of window)
- ❑ choose the frame type: Object, Flat, Dark, or Bias (radio buttons at bottom of window)
- ❑ click Go to take an image that will be saved to an unique filename
- ❑ click Test to take an image that will be saved to "test.fits" and overwritten the next time you click Test

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Interfacing with iraf, method #1

Note that with this method, the backspace/delete keys don't work properly, so you may want to try method #2...

on the desktop (not in a window)

- ❑ mouse click with the right button

- ❑ double click the iraf icon on the desktop

in the new xgterm that pops up:

- ❑ `cd /perkins/data/pcdata/<your data directory>`
- ❑ `imexam`

Interfacing with iraf, method #2

on the desktop (not in a window)

- ❑ mouse click with the right button

- ❑ select Workspace->Windows->xgterm

in the new xgterm that pops up:

- ❑ `cd /perkins/home/obs72/iraf`
- ❑ `cl (to start iraf)`
- ❑ `cd /perkins/data/pcdata/<your data directory>`
- ❑ `imexam`

In iraf, imexam keys

move the cursor to the image, then use one of the following:

- ❑ `r` radial profile
- ❑ `e` contour plot
- ❑ `c` column plot
- ❑ `l` line plot
- ❑ `h` histogram
- ❑ `a` circular aperture photometry (prints to xgterm rather than graphics window)
- ❑ `j` line 1D gaussian fit
- ❑ `k` column 1D gaussian fit
- ❑ `s` 3D surface plot
- ❑ `u,v` vector plot
- ❑ `q` quit

Decoding the information in an imexam radprof

There is a lot of information printed to the display when you do a radprof from imexam (above). Here's what the bottom line means:

The output consists of the final radius used for the photometry and fitting, magnitude, flux, mean background, peak value of the profile fit, e, pa (in degrees between -90 and

+90 with 0 along the x axis), the Moffat beta value if a Moffat profile is fit, and three measures of the FWHM.

The FWHM values are, in order, (1) the profile fit to the enclosed flux, (2) the profile fit to the individual pixels, and (3) the direct measurement from the derivative of the enclosed flux profile. Note that except for the direct method, the other estimates are not really measurements of the FWHM but are quantities which give the correct FWHM for the specified profile type. [From iraf help files.]

tcl scripts—Not working well for PRISM yet

create a file in the directory /perkins/home/obs72/
most of the syntax can be figured out by noticing what is displayed in the console window when you execute a command, or by looking at other tcl scripts

Creating a clickable button for a tcl script—Don't do this

after you have created a tcl file as directed above, in the console window:

- ❑ `source <file>.tcl`
- ❑ `cbutton proc=<name>`
- ❑ click User Buttons

In the User Buttons window that appears:

- ❑ enter the parameter values (if available)
- ❑ click the button labeled with your function name to execute your script

SPECIAL COMMANDS

To automatically move the telescope between exposures (used when taking sky flats), type this in the LOIS system console window:

- ❑ `flat_dither on`

To turn this off, enter:

- ❑ `flat_dither off`

Note that the throw is hardwired at 120 arcseconds to the west.

OTHER NOTES

If LOIS dies, please do this:

If LOIS gets into a state where you can still click on buttons but it won't take an image, please go to your hans window, in the obs72 home directory, and run:

- ❑ `lois.snap`

This will create a file called lois.snapcore_x.xxx where the x are numbers. When lois gets into a state that it stuck and you are unable to do anything please run this script. Include the snapcore filename in your failure report.

Please Report Problems!

Please report any problems you may have experienced during your observing, even if it was resolved by a telephone call to someone. To report a problem, send an email to:

> 72failure@lowell.edu

Note that the "@lowell.edu" part is necessary even when sending from the observer account.

Problems that are not time-critical enough to warrant a telephone call can be reported in the same manner.

Create an automatic electronic log of your night's data—Not for PRISM yet

In any window, cd to your data directory. Type:

- ❑ `autolog`

This is an iraf script, and will take a few minutes to complete (depending on how many files you have). If your data files are called "base.nnn.fits", it will create a file "base.LOG" in your data directory. For this initial version of the script, it requires that the "*.fits" extension be used.

Instructions for printing this file are included within the file, on the first line. It is printed in a landscape mode with no borders to allow the maximum printable space on the page.

Updates

- ❑ Please send requests for additional information, corrections, updates, etc. to: amanda.bosh@lowell.edu. Or you can leave a marked-up copy in my mailbox in the PRC at Lowell.