

2 Meter Observer Help

2.1 Meter Operation and Observation Workstations

As of the end of the 2010 maintenance shutdown the telescope operation, and instrument control workstations in the 2.1 meter control room have been physically replaced with two Mac mini workstations. These new workstations function strictly as front-end displays for either the telescope control, or instrument control software interfaces. In addition, they provide a convenient platform for doing data reductions, document editing, printing, web browsing or running skype.

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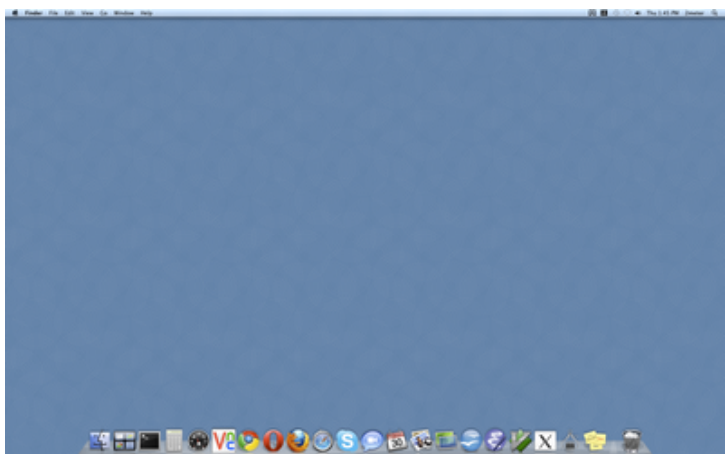
Operating The Telescope

The operator's station, at the left end of the counter, is called, *second-1*. It is set up to allow operation of both the telescope, and instrument control if desired. Various icons arranged on the desktops allow you to start-up the needed software for telescope control, or whatever instrument is in use. Macintosh applications are in the Mac-panel along the bottom of the left monitor. Note that, instrument control can instead be executed, if desired, from *second-2*, the workstation at the right end of the counter.

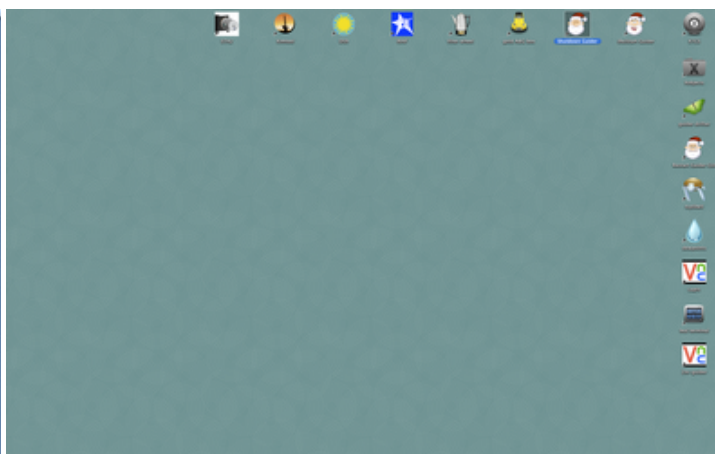
Both the [opening checklist](#) and the [closing checklist](#) have been amended to reflect procedural changes resulting from this new setup. Most notable is that one is no longer required to logout of the telescope control workstation (now *second-1*) at the end of the night; simply quitting the *XTCS* and *XObjects* programs via the **Quit** or **Exit** buttons provided, and double-clicking the **Shutdown Guider** icon, are all that is required.

Showing monitors with both clear and active desktops

Second-1 left monitor

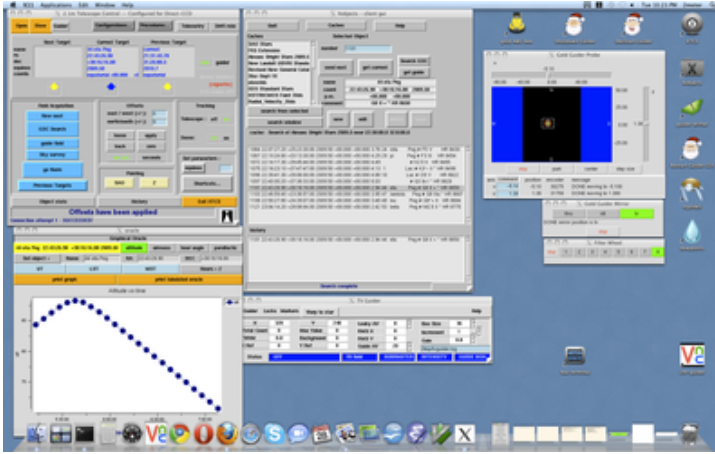


Second-1 right monitor

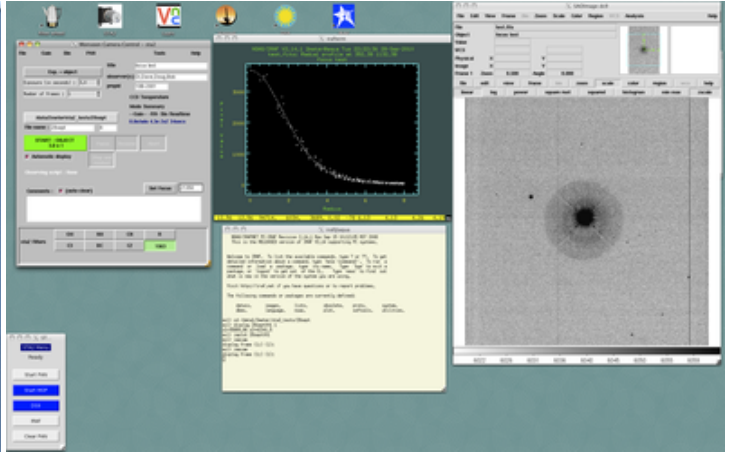


There are, three *hot* corners on the display (assuming the two screens are one display). Placing the cursor in the lower left or the upper right corners will make visible all **Spaces**. The lower right corner activates the **Dashboard**.

second-1left monitor



second-1 right monitor



Helpful Hints

- Handy keyboard shortcuts for screen and selection capture
 - `command-shift-3` will make a screen shot of the entire desktop (both desktops) and write the "screen shot" image to the left desktop.
 - `command-shift-4` turns your cursor into a "cross-hair" selection tool which you can use to draw a rectangle on the desktop and capture whatever is within it. The captured image (a `.png` file), again, is written to the left desktop.
- You may want to keep the very upper left corner clear so you can see any new windows that pop up. By default, this is where new applications appear.

Observing - Data Taking and Instrument Interfaces

Observing can be done as it always has, from the other Mac mini workstation, *second-2*, at the right end of the counter. Here, only instrument control is available.

Second-2left monitor



Second-2 right monitor

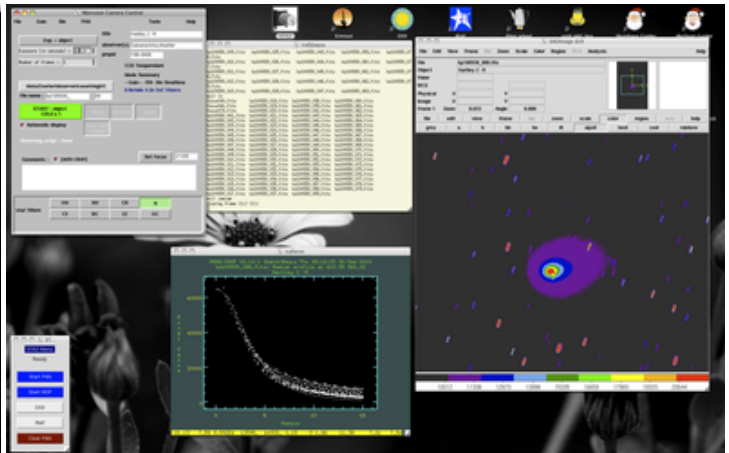


As with the operations workstation there are three hot corners on the display (assuming the two screens are one display). Placing the cursor in the lower left or the upper right corners will make visible all **Spaces**. The lower right corner activates the **Dashboard**.

Second-2 left monitor



Second-2 right monitor



Doing Data Reductions

We currently have four different instrument control interfaces at the 2.1 Meter. Since some of the control computers are aged and inherently slow we have tried to provide productive solutions for doing data reductions while observations are ongoing. On each Mac mini, *second-1* and *second-2*, there is an NFS mount to where the data is being written on the data-taking computer. To work on this data from either *second-1*, or *second-2*, simply start an IRAF session, and a DS9 or Ximtool session from the Mac mini desktop, then change directory as listed below.

Optical observing

- Using **ICE (Direct Imaging with T2KA/B, Goldcam)**: Data are written to, *lapis*. In a *Terminal* window on *second-1*, or *second-2*, type:

```
cd /data/lapis/
```
- Using **MOP (Direct Imaging with STA2)**: You are okay to login to the data acquisition computer, *aqua* and work on the data there. In a *Terminal* window on *second-1*, or *second-2*, type:

```
ssh aqua
```

You can run IRAF and an image display tool from here.

Infrared observing

- Using **Wildfire (SQIID)**: Data are also written to, *lapis*. In a *Terminal* window on *second-1*, or *second-2*, type:

```
cd /data/lapis/
```
- Using **Flamingos** Not yet determined


Data Transfers and Backup - using a USB device

Given the data directory information above, change directory to where your data is written, verify it is there. Example: in a *Terminal* window on *second-1*, or *second-2*, type:

```
cd /data/lapis/tonights_directory/  
ls
```

Backup procedure:

Connect your USB device to the lefthand side of the lefthand monitor.

Now confirm the device has connected. On the desktop's Mac-panel single-click the Finder icon :

In the upper left corner of the Finder window you should see something that indicates the presence of your USB device.

We suggested that you first do the data backup to your USB device, then transfer (sftp, scp, etc) your data home, from there. This will be the fastest method.

Change directory to your USB device. You may want to bring up a second *Terminal* window first, to find your device_name, type:

```
ls /Volumes
```

Once you find the name of your device change directory to the device, and to wherever you want to backup your data:

```
cd /Volumes/your_USB_device/.../
```

Now, copy your data to the USB device:

```
scp -vr /data/lapis/tonights_directory/*.fits .
```

This will copy your data and any subdirectories (-r option) to the the USB directory you've changed to, and it will display the progress (-v option).

Transfer Procedure (using scp):


If you did a backup of your data to a USB device as described above you can now transfer (sftp, scp, etc.) your data from the backup location. If you are not backing up your data and just want to transfer it you will need to create a directory on the Mac mini, preferable under the /Users/2meter/ directory, then transfer your data there as described above for doing a backup.

From your backup directory, in a *Terminal* window, type:

```
scp -rv *.fits your_user_name@home_machine/your_data_dir/
```

This will transfer your data and all subdirectories, within the current directory, to your machine at home and put it in whatever directory you choose (/your_data_dir/.../), and it will display the transfer progress to the *Terminal* window.

Important: Once your data is backed up and transfered to your home institutions you need to properly disconnect your USB device from the Mac mini computer.

Go to the Finder window and click on the eject icon () next to you device's name. You will know it is safe to remove your USB device when either the name of your device disappears, or the entire Finder window disappears.

Icons for Telescope Control

Instrument Icons	Icons Function Descriptions - double clicking activates all desktop icons.
 XTCS	<ul style="list-style-type: none">• XTCS will bring up the telescope control GUI.
 Xobjects	<ul style="list-style-type: none">• XObjects - starts the target cache program.
 Shutdown Guider	<ul style="list-style-type: none">• Shutdown Guider - shuts down <i>TV Guider</i> software and kills the <i>TV Guider</i> GUI, plus shuts down <i>2m-guider</i> VNC (if running).
 (Re)Start Guider	<ul style="list-style-type: none">• (Re)Start Guider - starts or kills then restarts the <i>TV Guider</i> software and GUI.
 guider drifter	<ul style="list-style-type: none">• Guider Drifter - starts the <i>Guider Drifter</i> GUI. Used for guiding, with the <i>TV Guider</i>, at a chosen non-sidereal rate.
 Restart Guider GUI	<ul style="list-style-type: none">• Restart Guider GUI - simply restarts the <i>TV Guider</i> GUI, if for some reason it was quit out of. Note: this does not restart the guiding software.
 tcpShell	<ul style="list-style-type: none">• tcpShell - starts the command line interface to the TCS computer <i>cyan</i> for controlling telescope and guider motions manually.
 dewpoints	<ul style="list-style-type: none">• dewpoints - starts the dewpoints and relative humidity display terminal window.
 teal terminal	<ul style="list-style-type: none">• teal terminal - opens an ssh shell to the computer <i>teal</i>.



- **VNC 2m-guider** - opens a *VNC Viewer* to the *2m-guider* computer.

Icons for Instruments and Instrument & Data-taking Menus

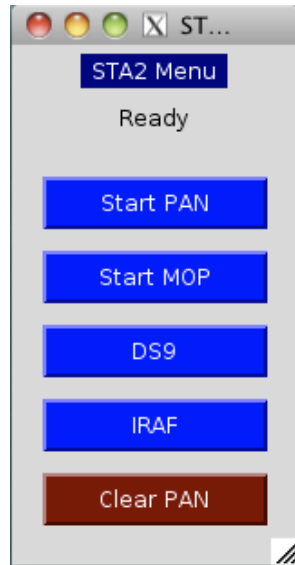
Instrument Icons

Icons Function Descriptions - double clicking activates all desktop icons.



STA2

- **STA2**, will give you the STA2 Imager Menu...



- **Start PAN** - connects to the **P**ixel **A**cquisition **N**ode computer, starting the PAN software. Then, brings up two *Terminal* windows that provide the PAN telemetry (these can be minimized) .
- **Start MOP** - brings up both the *MOP* (**M**onsoon **O**bserving **P**latform) for data acquisition, and a *DS9* for image display.
- **DS9** - starts a *DS9* image display tool.
- **IRAF** - starts an *IRAF* session for image manipulation and reduction tasks.
- **Clear PAN** - clear all PAN process and PAN related temporary files.

- **Ximtool** will start a local 24-bit *Ximtool* session (not connected to data acquisition).



Ximtool

- **DS9** will start a *DS9* session (not connected to data acquisition).



DS9

- **IRAF** will start a *IRAF* session (not connected to data acquisition).



IRAF

- **VNC lapis** - opens a *VNC Viewer* to the computer *lapis*, for taking Optical data with **ICE**, includes:
 the **Cass Focus Imager** ie., **T2KA, T2KA**,...
 and **Goldcam**
 or, IR data with **SQIID**



Lapis



- **filter wheel** will bring up a filter wheel control GUI. For optical imaging. The filter buttons are numbered 1-8.
- **gold A&G box** brings up the gold A&G menu. Buttons bring up individual GUIs to perform different tasks with Gold Guider components.



- **Filter Wheel** - Shows filter wheel position and allows filter wheel movement via button click.
- **Guide Probe** - Gui shows position of guide probe and allows manual positioning with mouse or keyboard.
- **Guide Mirror** - Show acquisition mirror position and allow selection of position via button click.
- **Calibration Control** - Shows position of Flat mirror and Lens; current calibration source; on/off status of lamp. And, allows positioning or choice of all via button click.
- **ND Filters** - Shows status and allows setting value of ND filtering for calibration sources.
- **Controller Diagnostics** - Menu to display low level diagnostic GUIs for guide-probe x & y stages, acquisition mirror, and comparison components.
- **Filter Wheel Diagnostics** - Displays low level diagnostics GUI for filter wheel.

Mac Mini specifications

- Mac Mini 2.53GHz + 320GB hard drive + 4GB RAM
- Two 24" Dell U2410 monitors; both set to 1920x1200 resolution
- Video camera - Logitech webcam pro 9000