

Logistics & basics....

1. Computer & Power must live in the hutch.
2. Turn on Computer & log in using the local keyboard/monitor.
3. Turn on the Pilatus Power Supply, preferably after you have mounted the detector!!!!
4. Shutdown: In the reverse order.

How to log into Pilatus DAQ Computer, remotely?

- Please open all the control windows from outside the hutch.
- Connect the Pilatus Computer via Unix or X-server software on PC (e.g., cygwin or EXCEED).

```
ssh -Y det@164.54.107.199 (at Sector 7... IP might vary.. 164.54.107.19?)  
[Pilatus2]
```

Notes:

1. You might not need the -Y depending on your version of UNIX. It is sometimes needs to get X-Windows forwarding to work properly.
2. You can get the IP address by logging into the computer from the Console and open an xterm. The IP should be listed in the prompt. If not, then you did not get on the network.

Starting Pilatus software:

From the home directory (/home/det/):

```
start_tvx
```

This starts two windows: camserver and TVX.

Keep the camserver window around, since it will tell you if the system is having problems.

Initializing:

From TVX, you need to load the trim files. If E_beam = 9.5keV, type this in TVX:

```
trim_load_7_5kev
```

-- This will use the shortest shaping time (Vrf = -0.3, ~ 125ns)

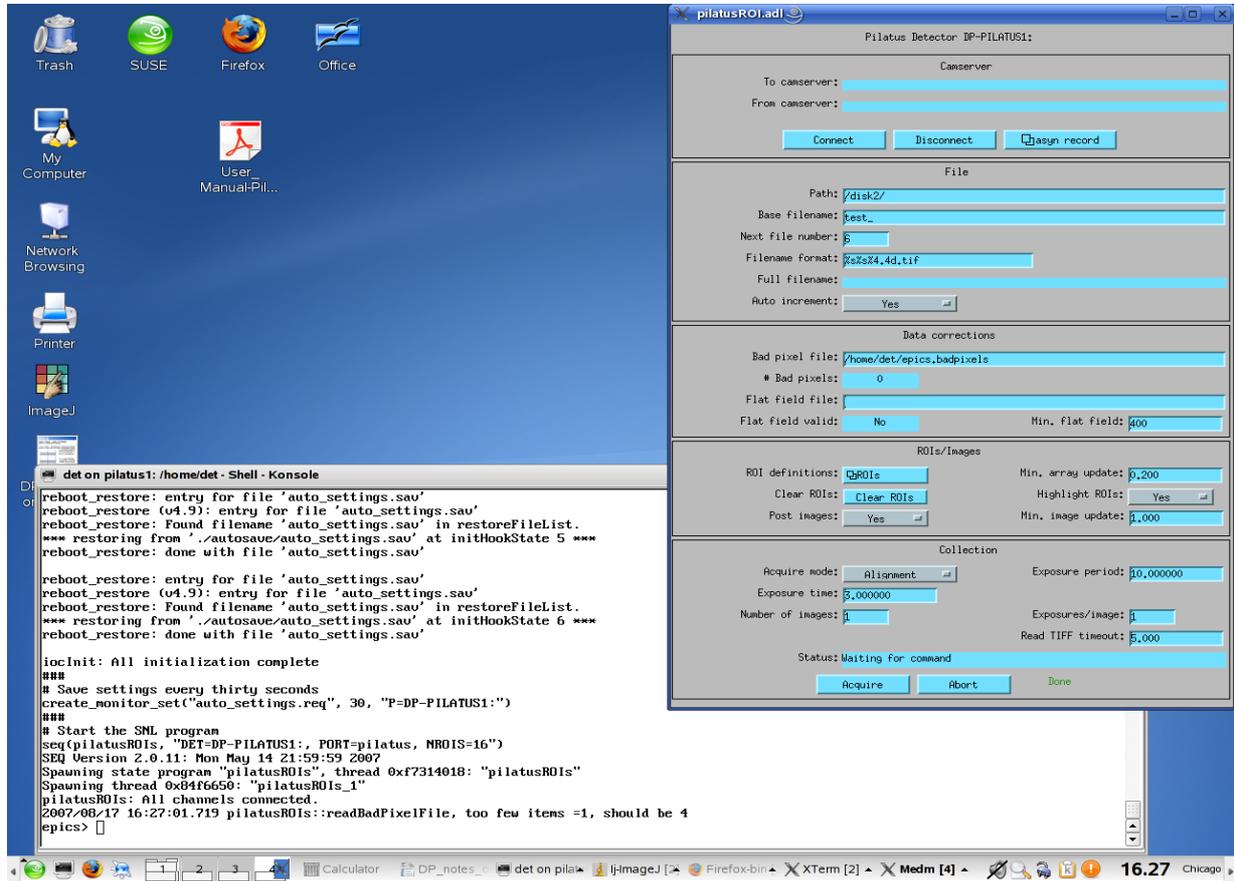
To start EPICS:

- 1.) In the TVX window, type disconnect
- 2.) From Pilatus DAQ computer (e.g., det@164.54.107.199), type:

cd /home/det (i.e., go to the home directory on the Pilatus DAQ computer)

start_epics

-- This will start up the EPICS IOC shell and the Pilatus MEDM screen, which look like:



Nino's Psuedo-Real-time Image Viewer

This displays the last image that was taken. It requires the EPICS IOC to be running.

In order to start, from the Pilatus DAQ computer (det@164.54.107.199), type:

```
cd /home/det/python
loop_focus_mode.py
```

In order to stop this, you need to hit Control-C

Psuedo-Real-time Difference Viewer

From the Pilatus DAQ computer (det@164.54.107.199), type:

```
cd /home/det/python
realtime_diff.py
```

* This produces two plots. The top plot is the difference between the last 2 images. It will only subtract unique pairs (i.e, non-overlapping pairs). The bottom plot is a running sum of the difference images. This running sum of the difference files is saved in the directory where you are saving the data (from the EPICS medm screen). The file is called diff_image_sum_temp.tif

* In order to stop this, you need to hit Control-C

Useful Commands in TVX:

focus [exptime] (This repeatedly takes images... useful for alignment)
e.g., focus 1

- If you want to use TVX, please see manual from PSI/Dectris, which is on the Desktop.

* Troubleshooting *

1.) If you see DMA or DCB errors in the CAMSERVER window, it is best to re-initialize the detector. Do the following:

- In the CAMSERVER window, type: **dcb**
- Close the EPICS IOC and MEDM screens.
- In the TVX window, type:
connect
trim_load_7_5kev
disconnect
- Now, restart the EPICS server and MEDM windows.

Things to consider when using the Pilatus Detector

- In **external enable mode**, the detector will timeout after 16 seconds if it does not receive any gate pulse. If this happens, you will get DCB/DMA errors in the CAMSERVER. You

must re-initialize the Pilatus. See the troubleshooting section.

- **Detector Protection**

- No direct beam or strong Bragg spots
- SLS uses large-aperture ion chamber in front of Pilatus which triggers a fast and slow shutter and then filters are re-adjusted.

- **Calibration**

- Trimming / Threshold settings
- Flat-field