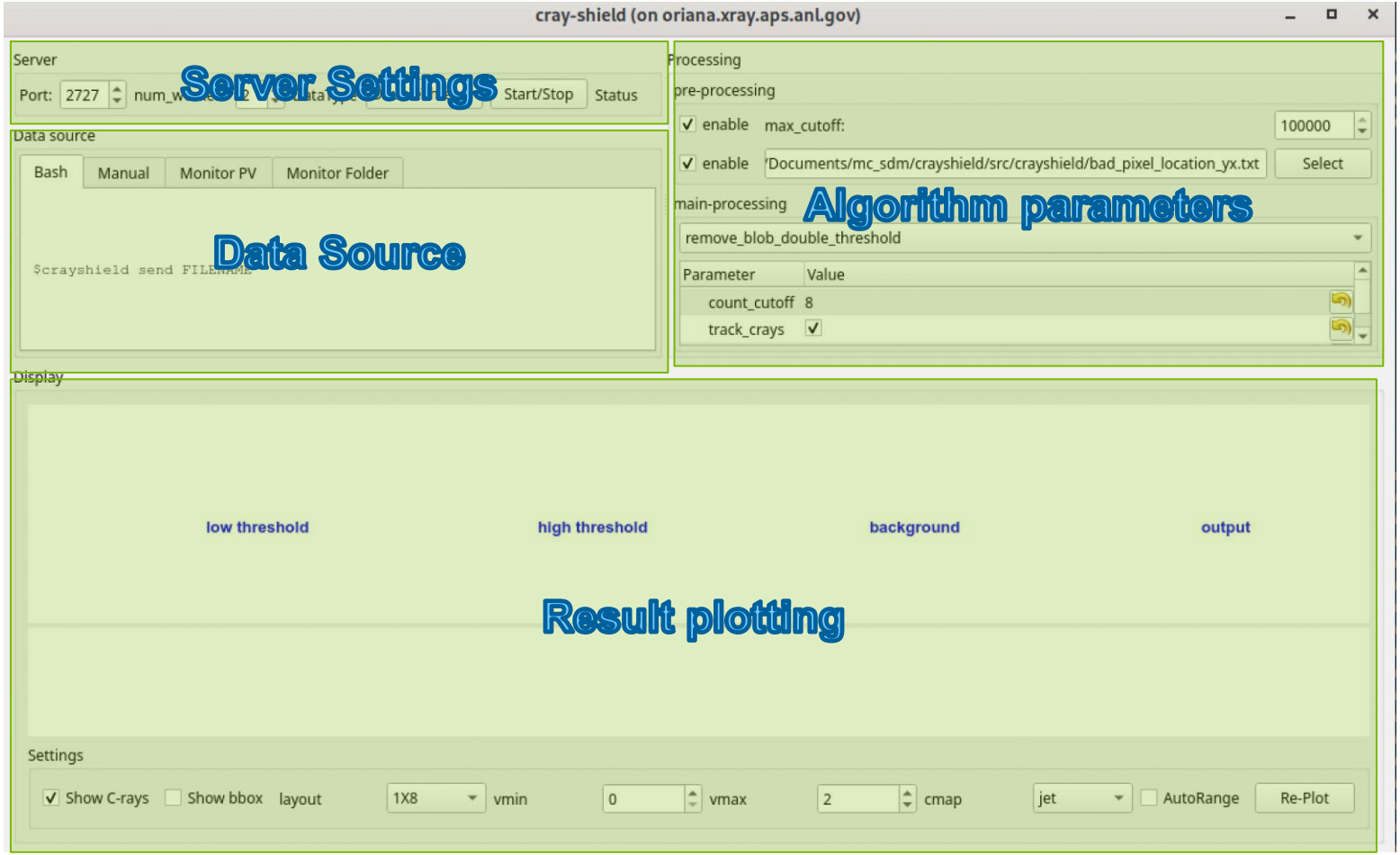
Argonne NATIONAL LABORATORY

QUICK GUIDE ON CRAYSHIELD

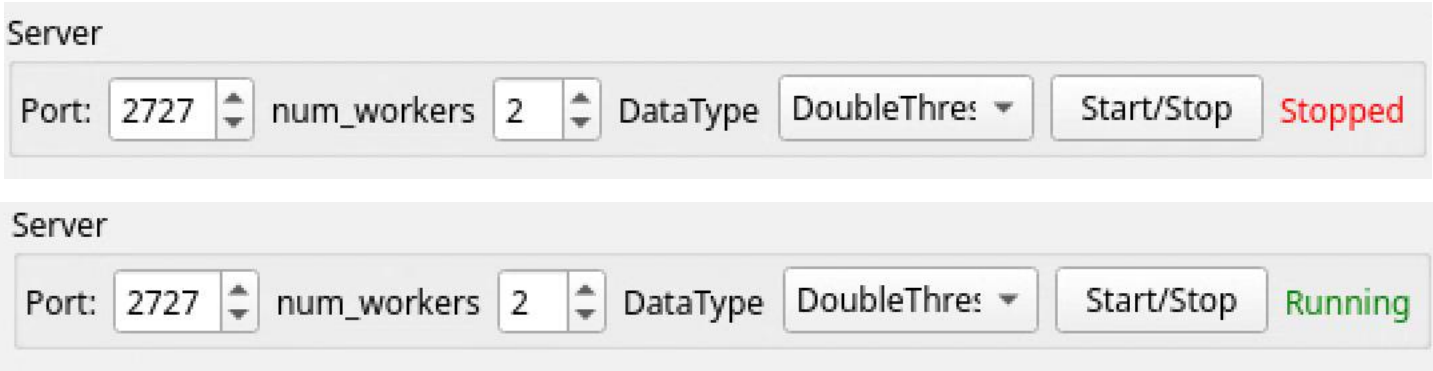
MIAOQI CHU

LAUNCH THE APPLICATION

- The crayshield is a server-client framework in which the computation is done mostly on the server side, and the client submits jobs (files to be processed).
- The application has been deployed for the linux account “rixs” and can be run on any computer that can access the APS network.
- To launch the application
  - Open a terminal on a target machine. Here we select ”Oriana”
  - Run “launch_crayshield gui” in the terminal. launch_crayshield is a script in /home/beams28/RIXS/bin, which points to the application installed in a conda environment.
  - A GUI window will pop up.


cray-shield (on oriana.xray.aps.anl.gov)
Server
Server Settings
Port: 2727
Start/Stop
Status
Data source
Bash
Manual
Monitor PV
Monitor Folder
Data Source
$crayshield send FILENAME
Processing
pre-processing
enable
max_cutoff:
100000
enable
Documents/mc_sdm/crayshield/src/crayshield/bad_pixel_location_yx.txt
Select
main-processing
Algorithm parameters
remove_blob_double_threshold
Parameter
Value
count_cutoff 8
track_crays
Display
low threshold
high threshold
background
output
Result plotting
Settings
Show C-rays
Show bbox
layout
1X8
vmin
0
vmax
2
cmap
jet
AutoRange
Re-Plot

START THE SERVER

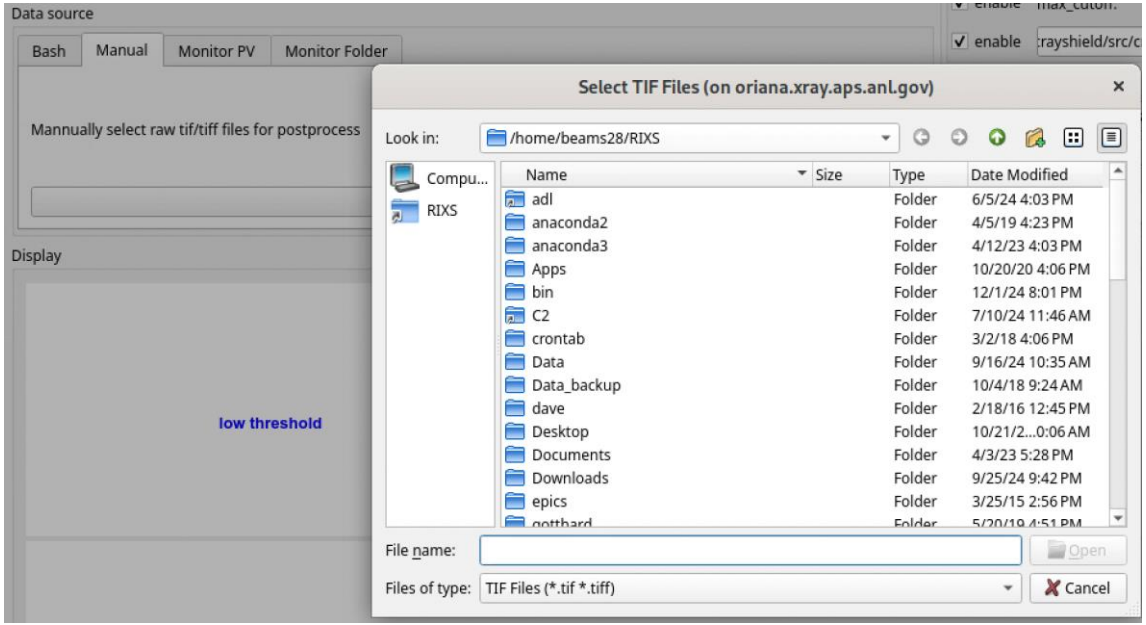


- Specify the port number you want to use, an integer > 1000 and <= 65535
- Specify the number of workers. One worker can reach ~500 fps for Lambda60k.
- DataType: use the default selection. We want to add other data types for Ayman.
- Click the “Start/Stop” button to start or stop the server.
- A status string will indicate whether the server is running or not.

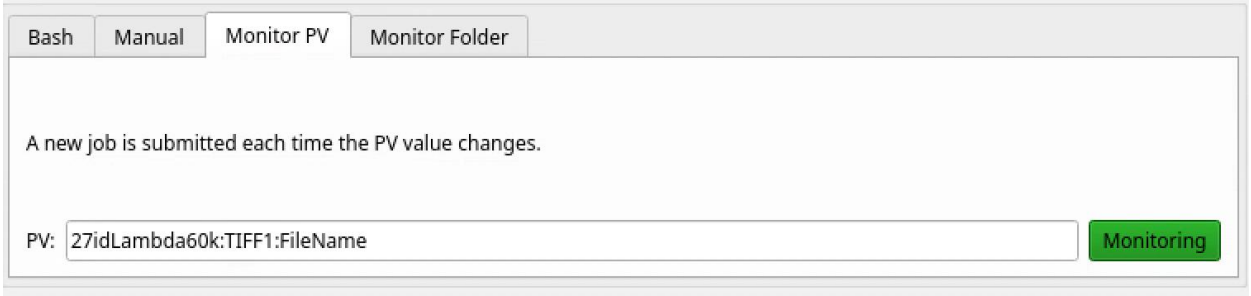
SUBMIT JOBS ON THE CLIENT SIDE

- The client can be the same machine that runs the server, or the IOC computer, or the SPEC computer etc.
- There are multiple ways to submit jobs.
- 1. through the command line
  - In the terminal, run “echo FILENAME | nc 10.54.126.20 2727”
    - 10.54.126.20 is the IP of oriana, 2727 is the port number. Change these values if you’re running the server on different machines/ports.
    - You can embed this command in your SPEC/BASH scripts.

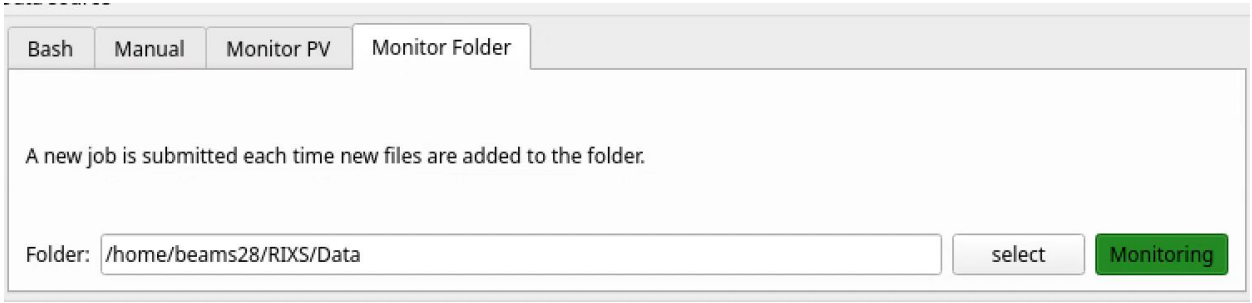
- 2. manually add raw files
  - This is good for postprocessing archived datasets



- Monitoring PV
  - Put the pv of the TIFF:FILENAME and click “start”
  - This function has NOT been tested yet.



- Monitoring Folder
  - Select the folder, then click “start”



RESULTS

- Results will be saved to a folder named cray_clean , which is located in the rawfile directory.
- For example:
- If the raw file and its ”cleaned” version will be:
- `/net/s27data/export/sector27/lambda/2024-3/slot10/bulk_scan19_point001.tif`
- `/net/s27data/export/sector27/lambda/2024-3/slot10/cray_clean/bulk_scan19_point001.tif`
- The resulting file only contains the signal after cosmic ray removal. But we can change the behavior if you want.