

QUICK GUIDE ON **CRAYSHIELD**

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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 Port: 2727 to num_w SOFVOF.a Southings sta Data source Bash Manual Monitor PV Monitor Folder \$crayshield send FILEWORE SOURCE	art/Stop Status	Frocessing pre-processing ✓ enable max_cutoff: ✓ enable 'Documents/mc_sdm/crayshield/src/crayshield/bad_pixel_location_yx.txt main-processing Algorithm parameters remove_blob_double_threshold Parameter Value count_cutoff 8 track_crays ✓	100000 \$ Select
low threshold	high threshold	background output	
Settings Settings Show C-rays Show bbox layout 1X8 vmin	n 0	vmax 2 icmap jet AutoRange	Re-Plot
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START THE SERVER

Server

Port:	2727 \$	num_workers	2	DataType	DoubleThre: 🔻	Start/Stop	Stopped
Server	r						
Port:	2727	num_workers	2	DataType	DoubleThre: 👻	Start/Stop	Running

- 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

Data source						max_cu	max_cuton.	
Bash Manual Monitor PV Monitor Fold	er				✓ enable	rayshie	ld/src	
		Select TIF Files (or	n oriana.xray.aps.a	inl.gov)			×	
Mannually select raw tif/tiff files for postprocess	Look in:	/home/beams28/RIXS		- G	00	6 ::		
	Compu.	Name	▼ Size	Туре	Date Mo	dified	-	
	TRIXS	肩 adl		Folder	6/5/24 4	1:03 PM		
		📄 anaconda2		Folder	4/5/19 4	1:23 PM		
splay		anaconda3		Folder	4/12/23	4:03 PM		
партау		Apps 📄		Folder	10/20/2	0 4:06 PM		
		📄 bin		Folder	12/1/24	8:01 PM		
		📻 C2		Folder	7/10/24	11:46 AM	1	
		📄 crontab		Folder	3/2/18 4	1:06 PM		
		🚞 Data		Folder	9/16/24	10:35 AM	1	
		📄 Data_backup		Folder	10/4/18	9:24 AM		
		📄 dave		Folder	2/18/16	12:45 PM	1	
low threshold		📄 Desktop		Folder	10/21/2	0:06 AM	1	
		📄 Documents		Folder	4/3/23 5	5:28 PM		
		📄 Downloads		Folder	9/25/24	9:42 PM		
		📄 epics		Folder	3/25/15	2:56 PM		
		aotthard		Folder	5/20/10	1.51 PM		
	File <u>n</u> ame:					Op	en	
	Files of type:	TIF Files (*.tif *.tiff)			*	X Can	icel	



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

Bash Manual Monitor PV Monitor Folder					
A new job is submitted each time the PV value changes.					
PV: 27idLambda60k:TIFF1:FileName	Monitoring				

- Monitoring Folder
 - Select the folder, then click "start"

Bash	Manual	Monitor PV	Monitor Folder			
A new job is submitted each time new files are added to the folder.						
Folder:	/home/bea	ams28/RIXS/Data	3	select Monitoring		



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.



