XMM and Hera Progress and Promise

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Summary

- What does Hera do for XMM?
- The Hera Framework
  - Local “runtask” Hera
  - Remote “standard” Hera
- Examples
- XMM on Hera – Current Status / Future Tasks

Why Hera? – The Problem

- SAS software is *fragile* in terms of portability.
- Even mature elements require *significant maintenance* with changes in OS, hardware technology.
- There is an eventual sunset in the availability of resources for such maintenance.

Why Hera? – The Problem

- The XMM-Newton archive risks being ***orphaned*** relatively shortly after end of mission.

Why Hera? – A solution.

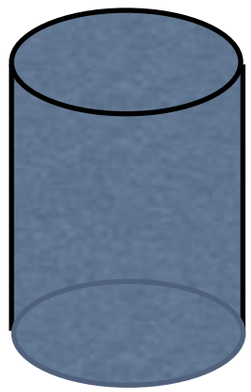
- The Hera facility can support *legacy* hardware, OS, and software infrastructure to maintain access to the SAS and XMM archive.

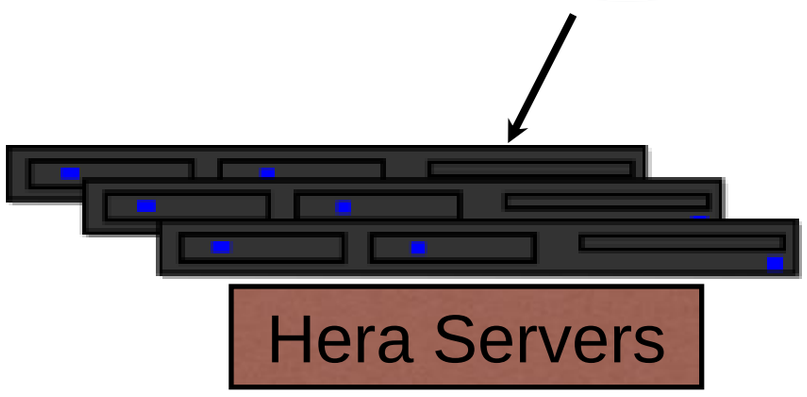
Why Hera? – But, Wait!

- A server farm providing computation and data storage services.
- Automatic, transparent access to the latest, patched SAS release and calibration data.
- Near instantaneous access to archive data products.

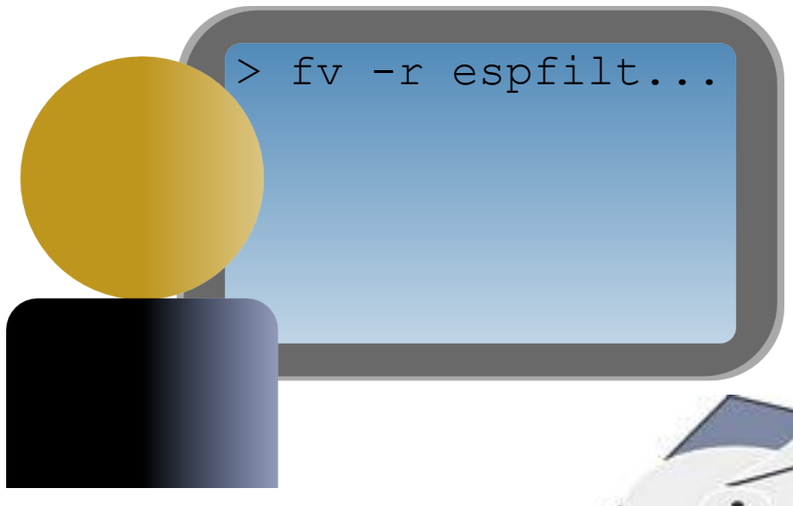
Runtask Hera

SAS installation / CCFs





SAS command lines



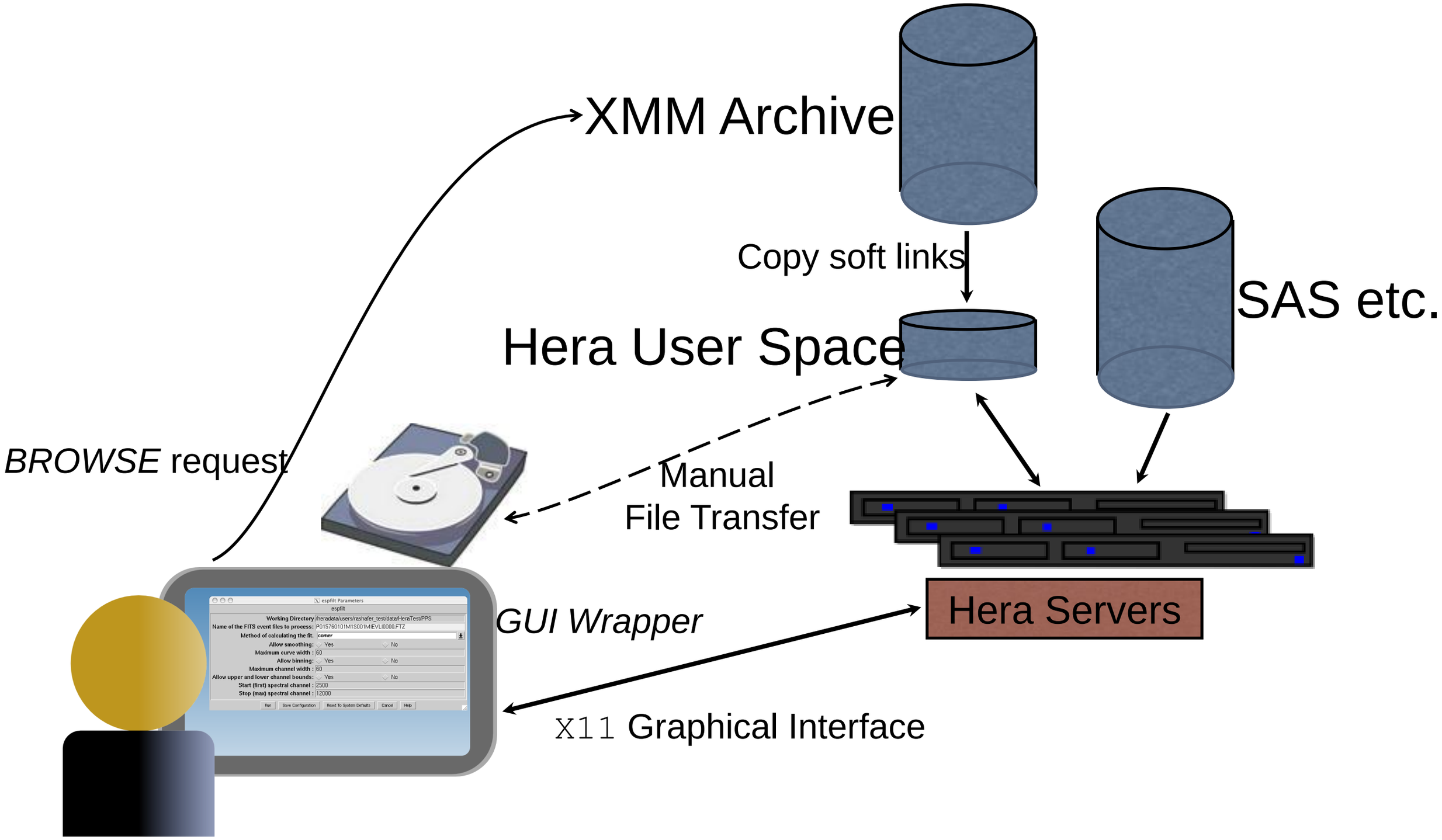
Data Up

Automatic File Transfer

Results Down

Local XMM data

Standard (Remote) Hera



Runtask *Hera* Example

```
rashafer% fv -r espfilt eventset="RawlistMIEVLI0000.FTZ"
uploading data file(s): RawlistMIEVLI0000.FTZ
execute command: espfilt

downloading result file(s): Rawlist-objimg.FIT
downloading result file(s): Rawlist-objlc.FIT
downloading result file(s): Rawlist-corlc.FIT
downloading result file(s): Rawlist-hist.qdp
downloading result file(s): Rawlist-gti.txt
downloading result file(s): Rawlist-gti.FIT
downloading result file(s): Rawlist-objevlifilt.FIT
downloading result file(s): Rawlist-objimgfilt.FIT
downloading result file(s): Rawlist-corevlifilt.FIT
downloading result file(s): Rawlist-corimgfilt.FIT
```

Browse – *Hera* interface

Query Information | Query Results | Data Products Retrieval | Help

Data Products Download Options and Other Services

Data Products Download Options

Create Download Script for data products for selected rows

Preview and Retrieve data products for selected rows

Retrieve data products for selected rows

Save to Hera data products for selected rows

What is Hera?

Optionally, add a file name constraint to specify product types, e.g., */hri/*.gif* Use a semicolon (;) for multiple contraints, e.g., *fits*;*gif*

File name filter

Other services

Display all the c

Web-based service

NED
SIMBAD
SkyView:ROSAT All
SkyView:DSS
CoCo

Web-based service

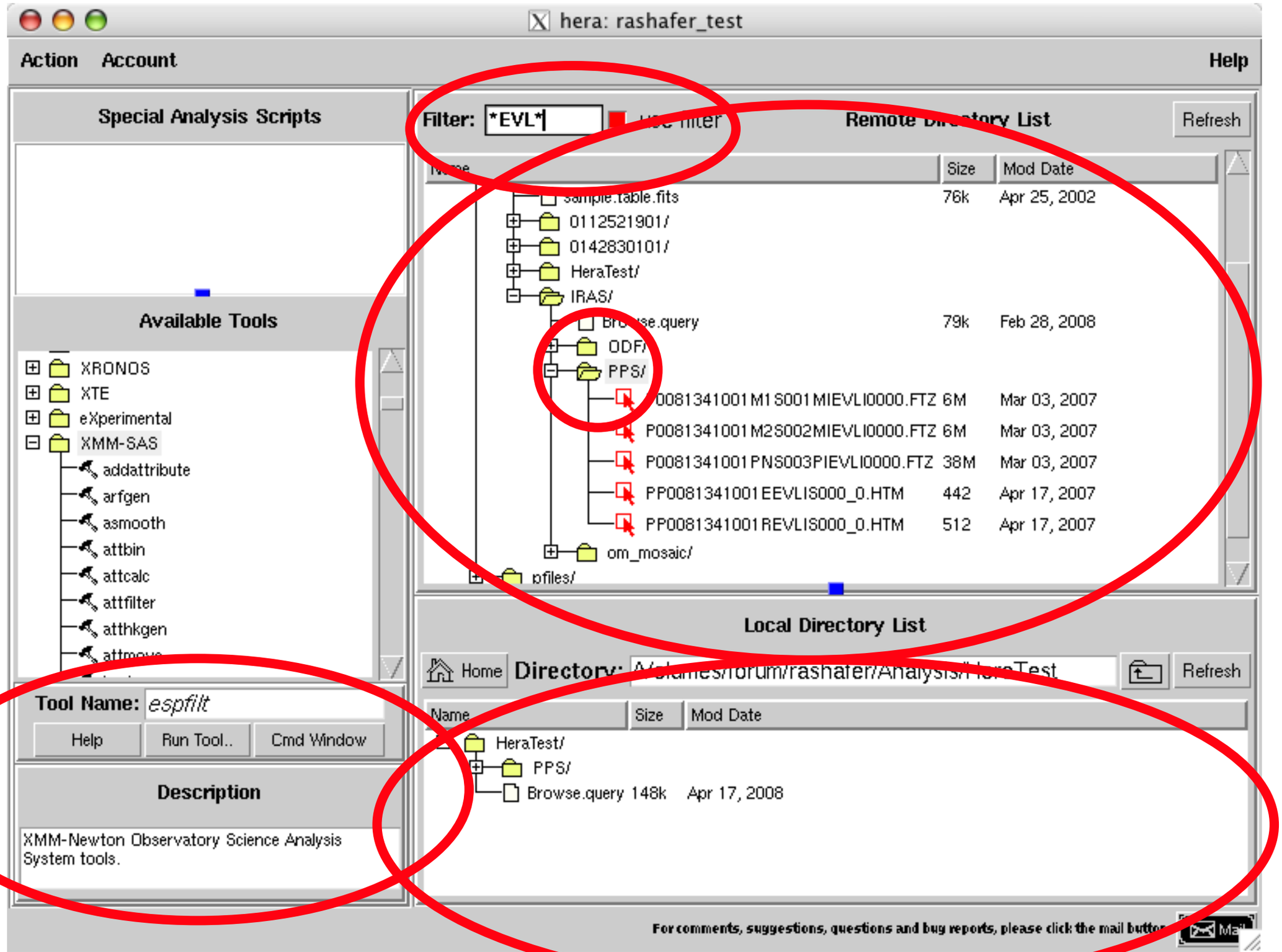
Data products that you have selected will be appear below

Select all rows

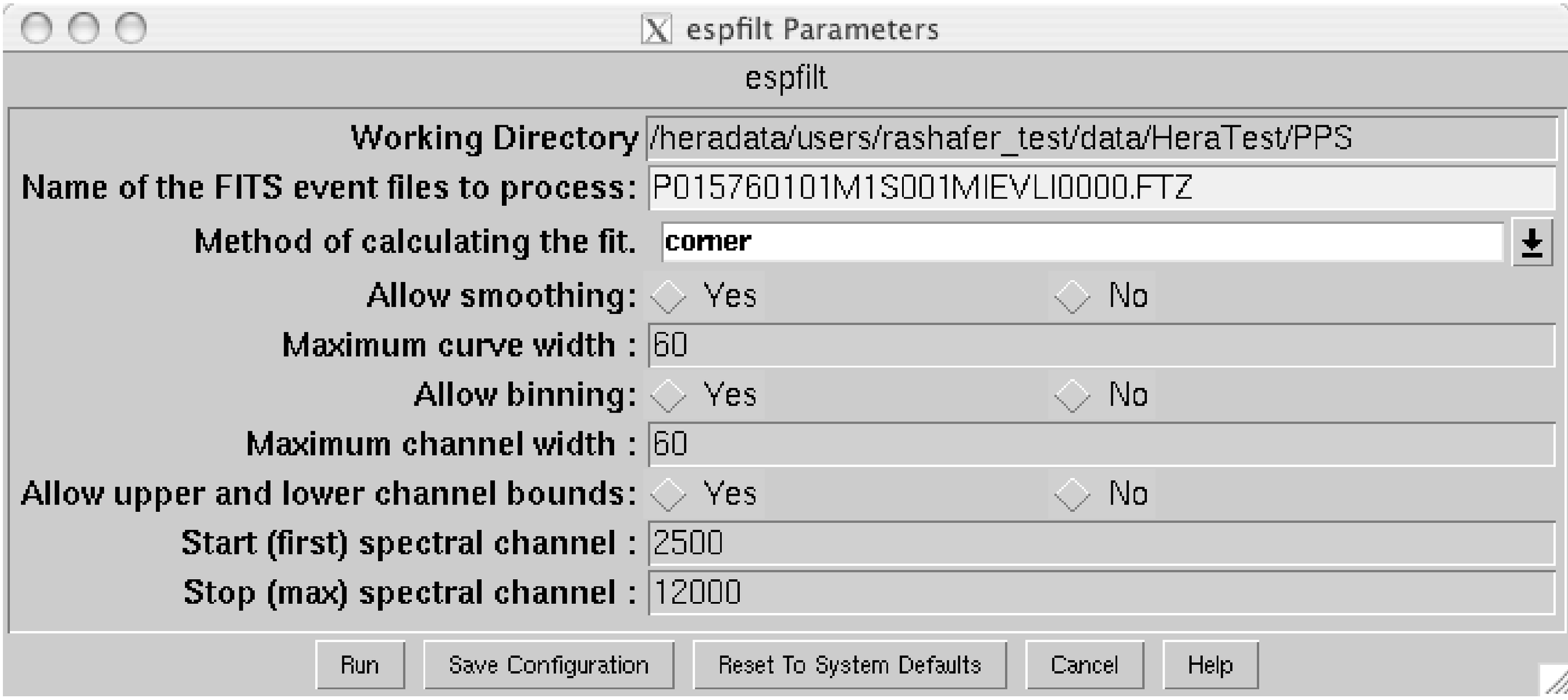
XMM-Newton Master Log & Public Archive

	obsid	status	name	ra	dec	time	duration	pi lname
☑	0081341001	archived	IRAS19254-72	19 31 32.48	-72 38 37.0	2001-03-30 09:06:52	23209	Franceschi

Standard *Hera* – Main Interface Window



espfilt wrapper



Command Window

Current Status

- Initially only *arfgen* and *rmfgen* supported
- Currently every SAS task included in *Hera*
  - Thorough wringout required for both runtask *and* standard use
  - Some GUI based tasks (e.g. *xmmselect)* may require *Hera* modifications.
  - Documentation scripts and walkthroughs demonstrate basic end to end for simple spectral analysis
- Transparent application of SAS patches and updates, and calibration revisions (CCFs)

Future Progress

- Wring out of individual SAS Tasks (*xmmselect)*
- Generate *Hera* specific scripts
- Document end-to-end additional XMM analysis problems using *Hera*
  - Time Series Analysis
  - RGS Analysis