

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.

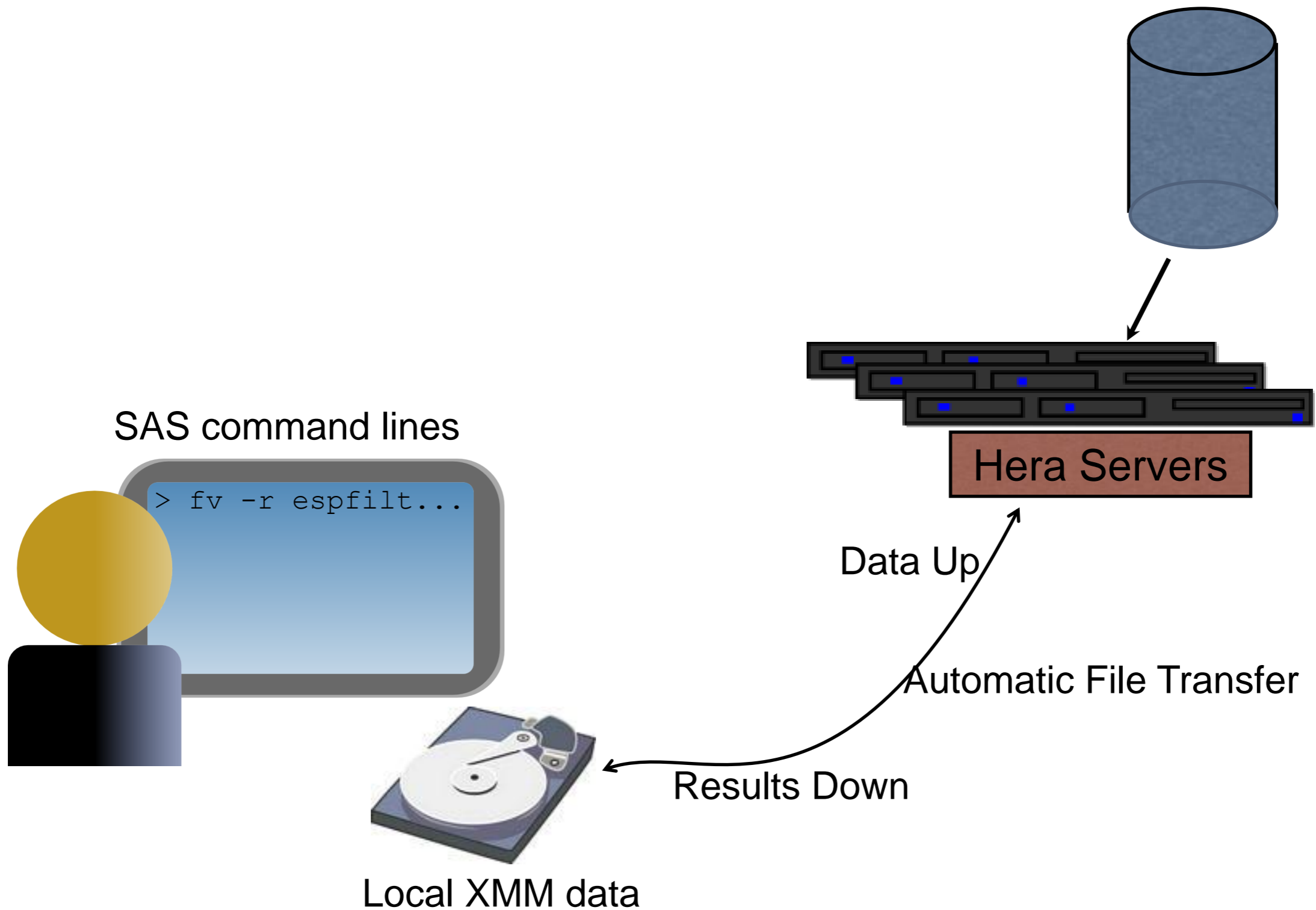
- The Hera facility can support *legacy* hardware, OS, and software infrastructure to maintain access to the SAS and XMM archive.

Why Hera? – But, Wait!

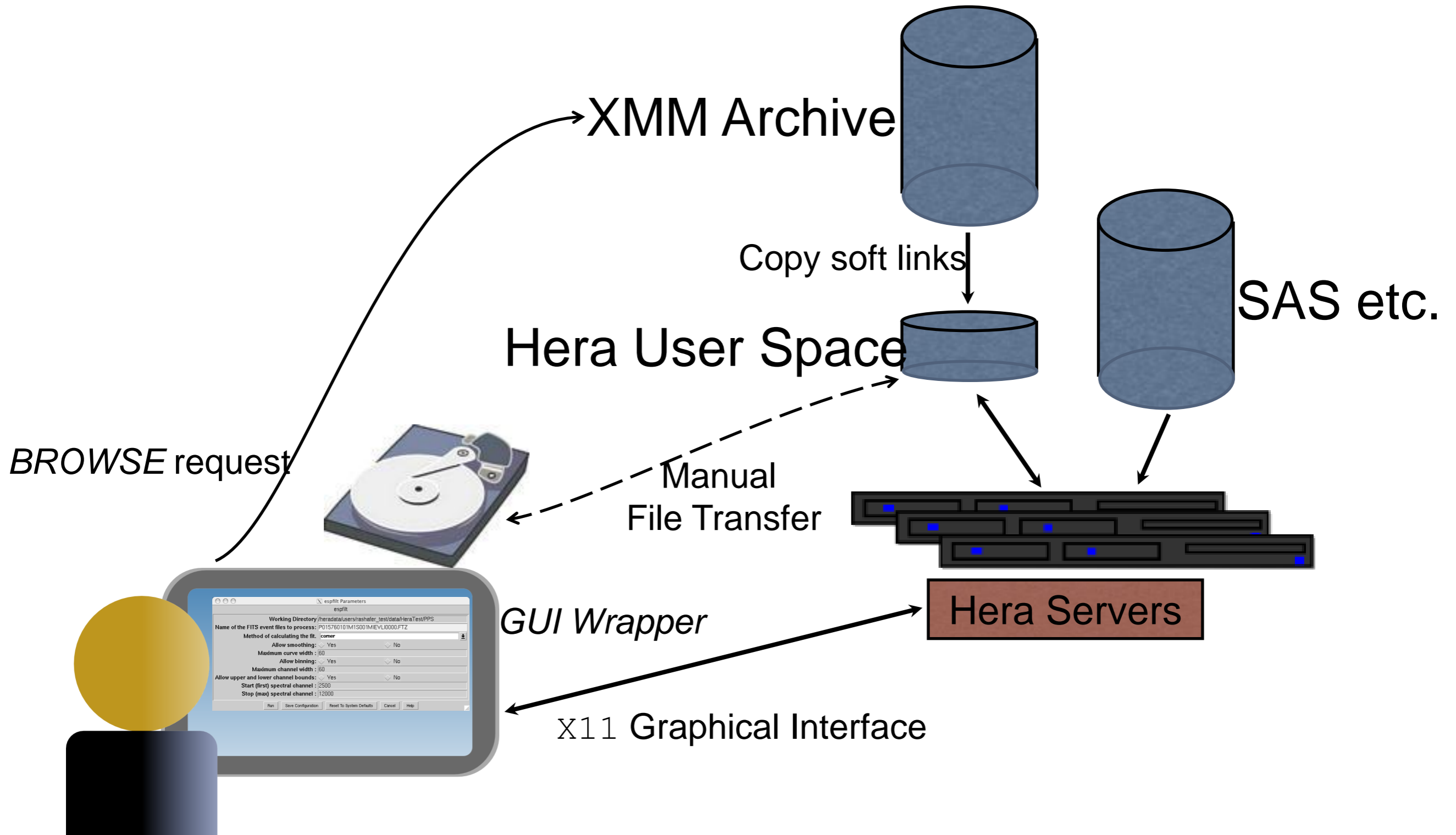
- A server farm providing computation and data storage services.
- Automatic, transparent access to the latest, patched SAS release and calibration data.
- Near instantaneous access to archive data products.

Runtask Hera

SAS installation / CCFs



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-coringfilt.FIT
```

Browse – Hera interface

[Query Information](#)[Query Results](#)[Data Products Retrieval](#)[Help](#)

Data Products Download Options and Other Services

Data Products Download Options

for data products for selected rows

data products for selected rows

data products for selected rows

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 constraints, e.g., `*fits*;*.gif*`

[File name filter](#)

Other services

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
<input checked="" type="checkbox"/>	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

The screenshot displays the Standard Hera Main Interface Window. The window title is "hera: rashafer_test". The interface is divided into several sections:

- Special Analysis Scripts:** A section on the left side of the top panel.
- Filter:** A text input field containing "*EVL*" and a "Filter" button.
- Remote Directory List:** A table listing files and folders in a remote directory. The table has columns for Name, Size, and Mod Date. The files listed are:

Name	Size	Mod Date
sample.table.fits	76k	Apr 25, 2002
0112521901/		
0142830101/		
HeraTest/		
IRAS/		
Browse.query	79k	Feb 28, 2008
ODF/		
PPS/		
0081341001M1S001MIEVLI0000.FTZ	6M	Mar 03, 2007
P0081341001M2S002MIEVLI0000.FTZ	6M	Mar 03, 2007
P0081341001PNS003PIEVLIS000.FTZ	38M	Mar 03, 2007
PP0081341001EEVLIS000_0.HTM	442	Apr 17, 2007
PP0081341001REVLIS000_0.HTM	512	Apr 17, 2007
om_mosaic/		
pfiles/		
- Available Tools:** A list of tools on the left side of the middle panel, including XRONOS, XTE, eXperimental, and XMM-SAS. Under XMM-SAS, there are several tools like addattribute, arfgen, asmooth, attbin, attcalc, attfilter, atthkgen, and attmove.
- Tool Name:** A text input field containing "espfilt".
- Buttons:** Help, Run Tool.., and Cmd Window.
- Description:** A text area containing "XMM-Newton Observatory Science Analysis System tools."
- Local Directory List:** A table listing files and folders in a local directory. The table has columns for Name, Size, and Mod Date. The files listed are:


Name	Size	Mod Date
HeraTest/		
PPS/		
Browse.query	148k	Apr 17, 2008
- Directory:** A text input field containing "A:\james\forum\rashafer\Analysis\HeraTest".
- Buttons:** Home, Refresh.

At the bottom of the window, there is a footer with the text: "For comments, suggestions, questions and bug reports, please click the mail button" and a mail icon.

esfilt wrapper

esfilt Parameters

esfilt

Working Directory	/heradata/users/rashafer_test/data/HeraTest/PPS	
Name of the FITS event files to process:	P015760101M1S001MIEVLI0000.FTZ	
Method of calculating the fit.	comer 	
Allow smoothing:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Maximum curve width :	60	
Allow binning:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Maximum channel width :	60	
Allow upper and lower channel bounds:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Start (first) spectral channel :	2500	
Stop (max) spectral channel :	12000	

Command Window



```
Terminal> espfilt eventset='/FTP/xmm/data/rev0//0112521901/PPS/P0112521901M1S001MIEVL10000.FTZ' method='corner' withsmoothing='true' smooth='60' withbinning='true' binsize='60' withspecranges='true' specchanmin='2500' specchanmax='12000'
```

Terminal>

espfilt: Running...

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