Reprocessing an observation with the SAS procs

Giuseppe Vacanti (XMM-Newton SOC, gvacanti@xmm.vilspa.esa.es)

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Abstract

If you decide to reprocess your X-ray data, you may want to have a look at the *odfbrowser*, and the procs: *emproc*, *epproc*, and *rgsproc*.

1 The procs

Note: we call the SAS tasks *emproc*, *epproc*, and *rgsproc the procs*.

The SAS procs create calibrated event lists for the X-ray instruments aboard XMM-Newton. The processing algorithms used by the procs are close to, but not exactly the same as, those used in the Pipeline Processing System.

Due to the circumstances around their development, and the nature of the instruments, *emproc* and *epproc* put less emphasis than *rgsproc* on the analysis of the calibrated event lists.

The EPIC procs create calibrated and possibly filtered event lists, whereas *rgsproc* also allows the user to proceed further with the extraction of a number of products. For the details you should consult the documentation for each of the tasks.

2 The odfbrowser

Starting from the next public release of the SAS ($\approx$ February – March 2002), the user will have access to the *odfbrowser*.

Navigating an ODF, knowing what exposures are available, in what mode and filter they were taken, and what files belong to one exposure requires reading the long summary file generated by *odfingest*, or the PPS summary pages. In both cases transforming this knowledge into a suitable command line for the procs may not be obvious.

The *odfbrowser* will solve this problem by displaying a 'clickable' summary of the observation's structure, and by allowing the user to launch one or more of the procs on the selected exposures.

Some of the features of the *odfbrowser*:

- The observation structure is displayed in terms of exposures, organized by instrument.

- Each exposure box can be made display one of:
  - The exposure identifier: eg, M1S401 (see Figure 1).
  - The science mode: eg, PrimeFullWindow (see Figure 2).
  - The filter, if applicable: eg, Medium (see Figure 3).
- Placing the cursor on one exposure box will cause a "balloon" to appear, containing all of the information above, and the exposure start/stop dates.
- Individual exposures can be selected, and then the appropriate proc configured and invoked.
- It is possible to filter on what science modes should be displayed, and whether non-science exposures should be displayed as well.
- Upon request it is possible to see further information about the exposure (associated files in the ODF, for instance).
- The position and extent of each exposure box shall reflect the start and duration of the exposure.
- There is a common time axis with labeled time tags — the axis governs the horizontal alignment of the exposure boxes with respect to each other.

The further evolution of the *odfbrowser* will take into account the reactions of the users. Other features we are considering are:

- Allow the user to view more information about the observation. For instance, some of the details from the proposal record.
- Display the time interval covered by a user-supplied good time interval data set.
- Introduce functionality to navigate the products created by the procs.

3 Screen shots

Before you start the ODF browser you must point the variable `SAS_ODF` to a summary file created by *odfingest*.

Figure 1: By default the exposures are labelled with their extended identifier, for instance: `M1S002`. Engineering mode exposures are red, imaging mode exposures are blue, timing exposures are green.

Figure 2: You can toggle the display to show the exposure modes instead. For instance, `FastUncompressed`.

Figure 3: Another toggle, and you can see what filter was used. For instance, `Medium`.

Figure 4: The exposures can be selected by clicking on them, and the appropriate proc can be configured and launched.

References

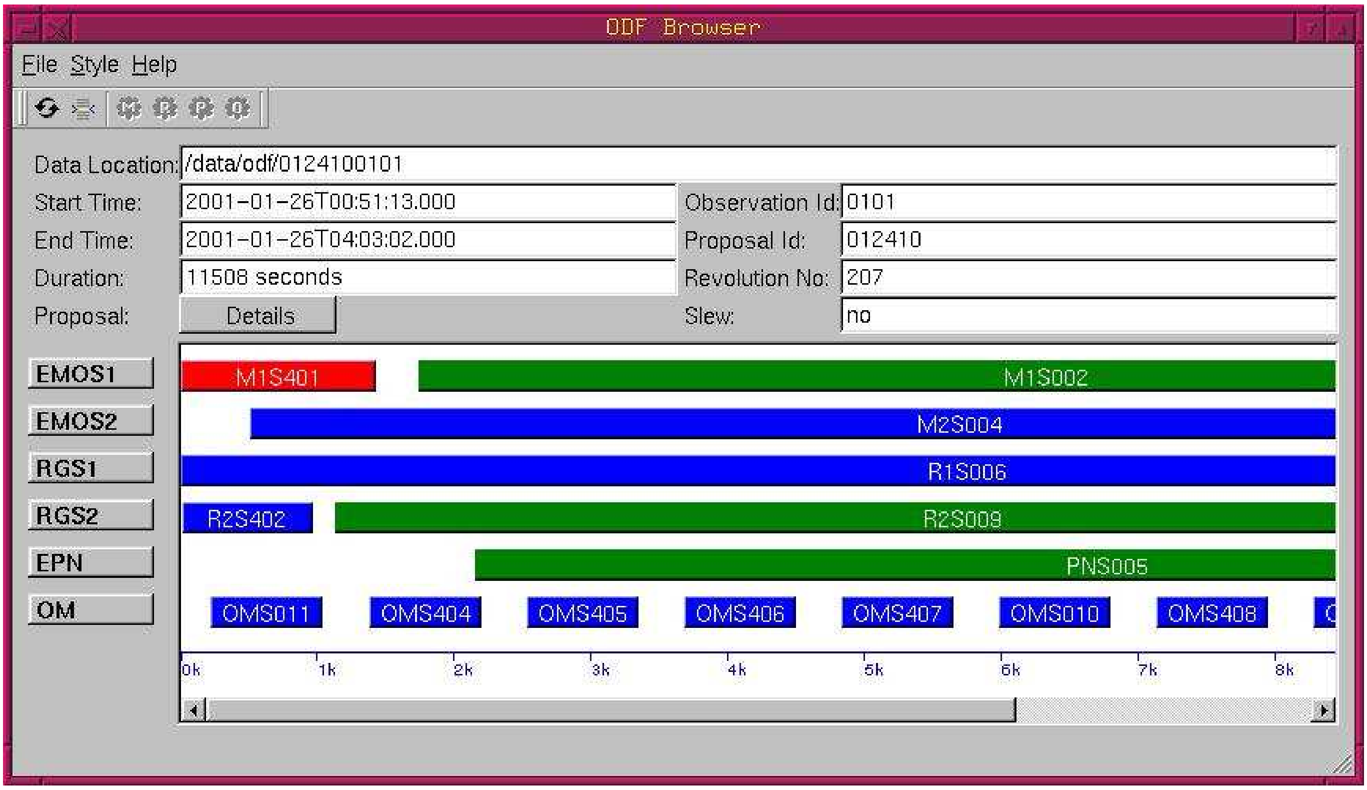

Figure 1: Start up screen.

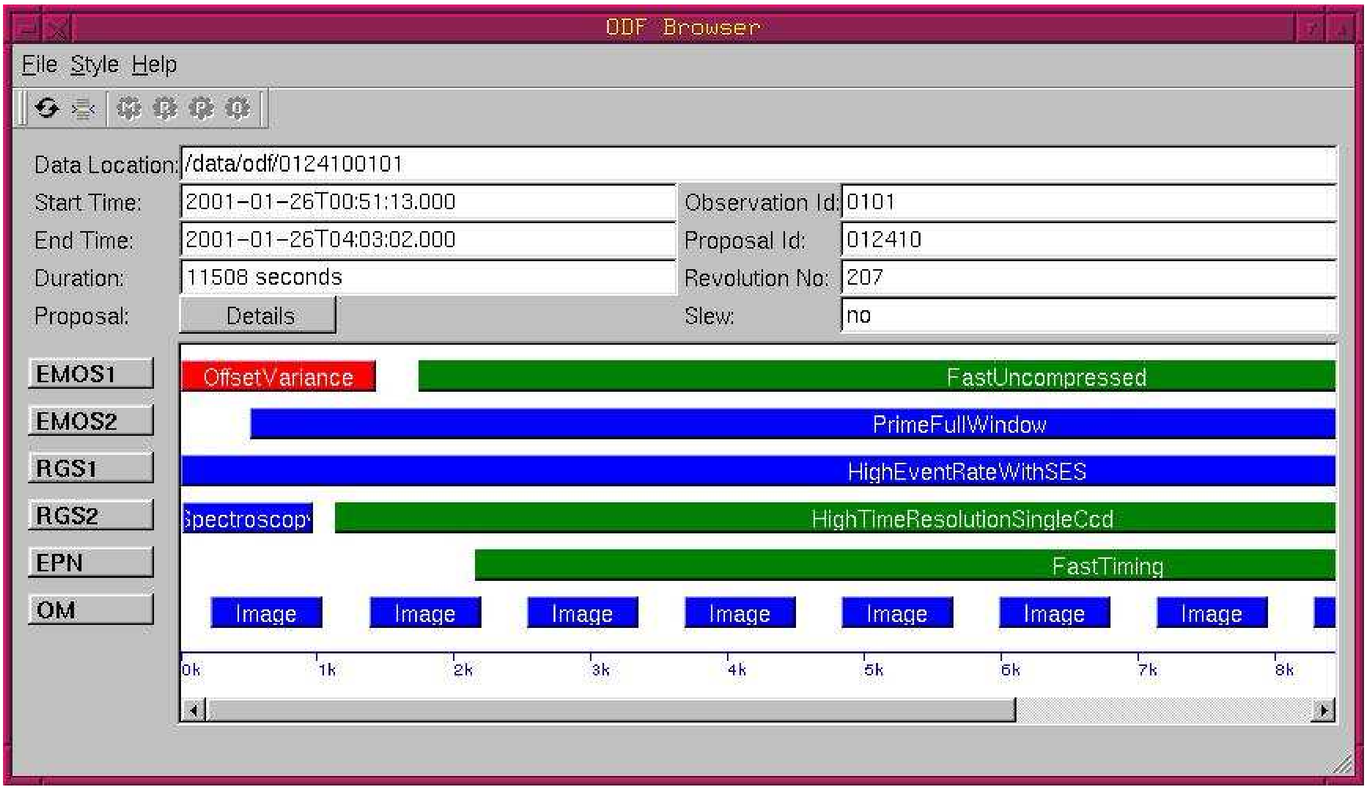

Figure 2: Display the exposure modes.

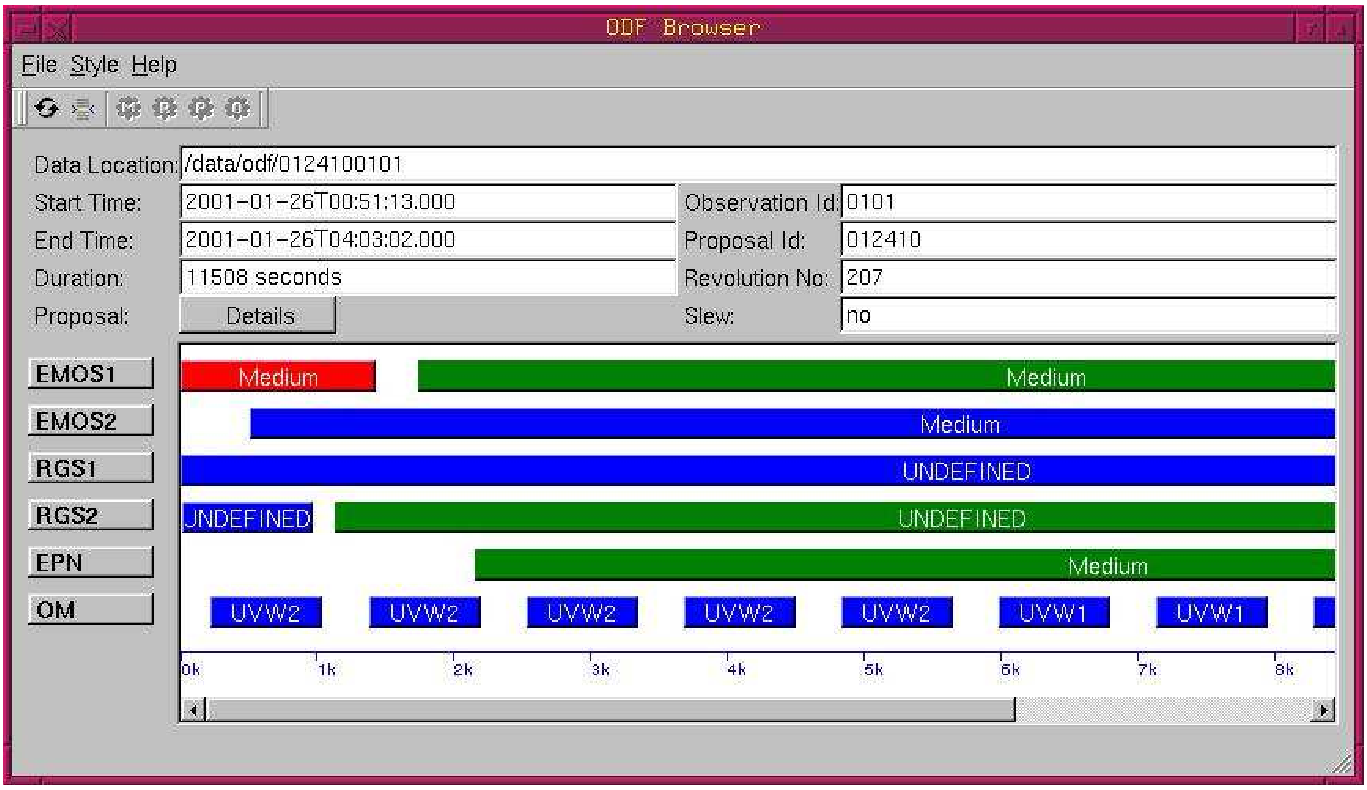

Figure 3: Display the filter used during the exposure.

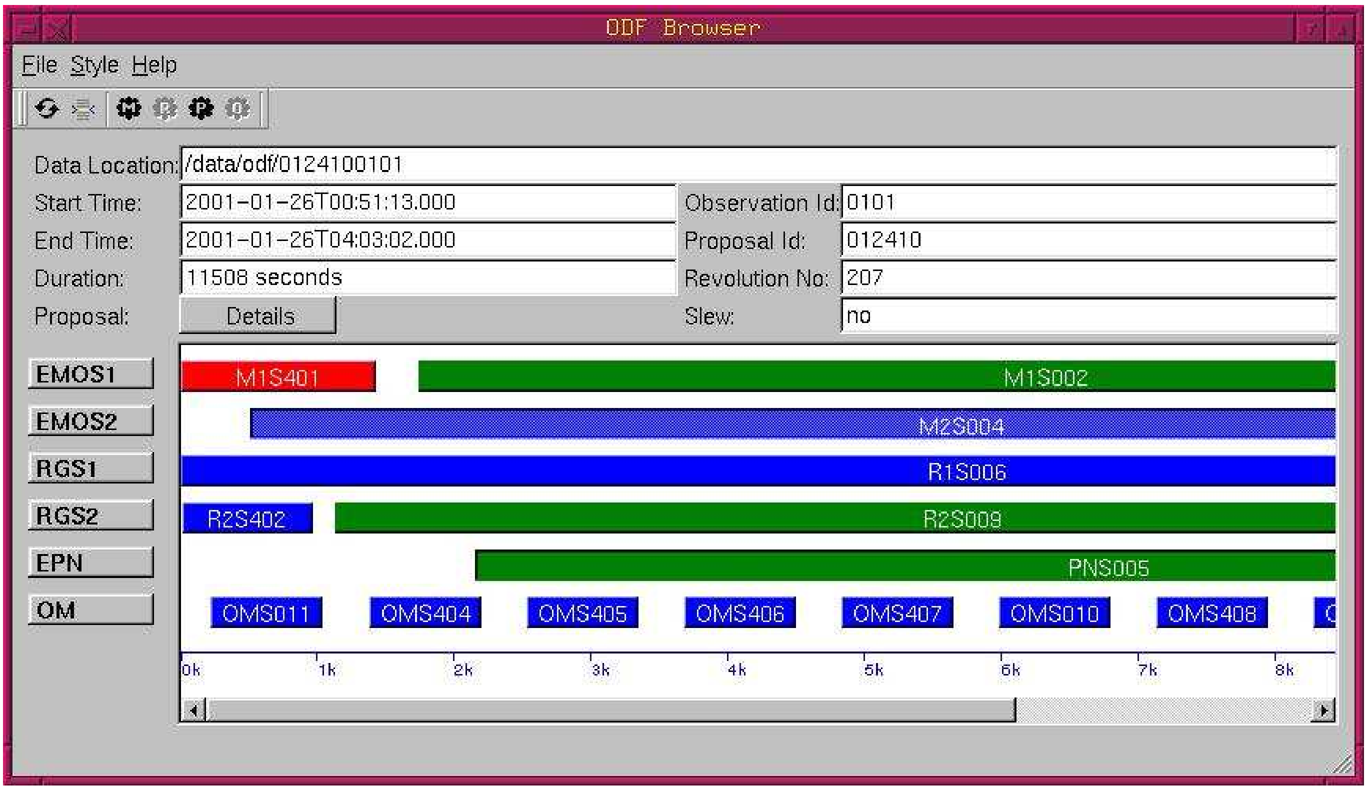

Figure 4: Once some of the exposures are selected, we are ready to start one of the SAS procs.