Creating XTE Filter Files

Recipes from the RXTE Cook Book

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Introduction

The following recipe details all steps for producing XTE filter files, starting from the original GO data received on tape or from the XTE Archive. An XTE filter file contains most of the housekeeping data deemed useful for creating Good Time Interval (GTI) files to filter unwanted events from XTE science data. See the section on filter files in *The ABC of XTE* for further information.

Caveats

- The recipe below assumes that your data are in an *unchanged* xte proposal database structure. This means that you have a directory (usually named for your proposal number) under which you have an FMI file and a sub-directory for each ObsId (e.g., subdirectories:

  ```
  10001-01-01-00A
  10001-01-01-00
  10001-01-01-00Z
  10001-01-02-00A
  etc.
  ```

  If you do not have a proposal FMI file, or if you have deleted any of the other index files (`FI*`), acs, hexte or pca directories under your individual ObsIds directories, the xtefilt recipe will not work for your data! To find out how to remake an FMI file, see the Database Management recipe.

  Other directories (e.g., `cal`, etc.) are not necessary for filter-file production. In addition, if (for reasons of disk space) you have deleted any HEXTE, PCA, or other *science* data files, you may still safely produce filter files. If the `hexte` directory itself has been deleted, xtefilt may generate an error message (depending on the circumstances, the program may also crash, but most likely it will just go on to the next type of data, and leave HEXTE housekeeping information out of your filter file).

- The recipe below produces *one* filter file for a *single* XTE ObsId (i.e. one of the sub-directories in the proposal directory). Type **fhelp xtefilt** for further details.

- If you are creating a filter file from "realtime" XTE data (i.e., data obtained directly from the XTE

SOF, or from the realtime data directory in the XTE anonymous FTP area), you will get warning messages about missing data. Realtime data do not have some of the attitude information and other pointing specifics contained in processed data. Additionally, the contents of realtime data depend heavily on what data the user requested or conditions of the observation.

Filter files generated from realtime data will have some missing quantities, and, in some cases, might not be produced at all.

Running Xtefilt to Make a Filter File

1. **Uncompress all housekeeping data for the observation in question.** If you are in the directory above the proposal directory, you can do this using the "gunzip" command:

   1. for a single ObsId (e.g. 12345-01-01-00):

      ```
      gunzip P12345/12345-01-01-00/*/FH*.gz
      ```

   2. or, for a whole proposal, to uncompress everything:

      ```
      gunzip P12345/*/*/FH{0e,0f,10,11,14,18,53,59,5a,5b,5c,5d,5e,f1,f2,fb,fc}
      ```

   Note: for proposals with a lot of ObsIds, gunzip may give an error message, "too many arguments". This means there are more files to uncompress than gunzip can handle. [The very specific wildcard command given in the second example above is designed to limit the list of input files as much as possible.] If you get this error message, try uncompressing the files in batches, either by doing all PCA files, then all ACS files, etc., or by limiting the number of ObsIds included by the wildcard, above.

2. **Create an ASCII file containing application Ids:**

   - Type "fhelp xtefilt".
   - Using your favorite editor, cut-and-paste the *entire* list of application Ids at the end of the help into a new file.

     [Note: in FTOOLS 3.6 and earlier releases, there are two listings of AppIds - a minimum set followed by additional AppIds. Take both.]
   - Your finished file should be an ASCII text file containing *only* the list of application Ids as they appear in the help file - no comments or column headers, etc. should remain.

3. **Run xtefilt:**

   ```
   xtefilt -s -c -a appidlist -o 12345-01-01-00 -p /data/P12345 -t 16.0
   ```

   where, *for example*:

```
      appidlist   is the name of the file you created in step-2.
                  Include the path to the file if "appidlist" isn't in
                  the directory where you're running xtefilt.

  12345-01-01-00  is the ObsId you want to create a filter file for.

    /data/P12345  is the path to the top of your proposal directory.
                  This may be a relative path name (e.g. ../P12345) or
                  an absolute path name (e.g. /data/myname/P12345).
```

Please note:

- In this example, data are collected in 16-second bins ("-t" option).
- The "-s" option places the new filter file in the "stdprod" directory for the given ObsId; it can then be found by XDF under the subsystem "stdprod" and AppId/configuration "filter file".
- The "-c" option overwrites (clobbers) any existing filter file in the same location.

4. **Repeat step-3 for as many ObsIds as desired.**

If you have a question about RXTE, please send email to one of our help desks. This page is maintained by the RXTE GOF and was last modified on Friday, 19-Jun-1998 17:59:57 EDT.

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