CIAO 2.2 Threads

cxc.harvard.edu/ciao/documents_threads.html

"Threads" are processing recipes. They are designed to teach users by leading, step-by-step, through a procedure. These threads range from basic (downloading data) to complex (multi-chip exposure map), but each describes the process in the same easy-to-use manner. The threads are organized by subject and instrument. If you do not find what you are looking for below, try using CIAO's ahelp system (e.g. while running CIAO, type "about" and the subject you are interested in) or the "CXC Search" at the page top.

Some threads have been made more automated in the form of 'scripts'. Visit the scripts page for a more complete description and the complete list of scripts. The threads below also contain cross-links to the relevant scripts. As always, we invite you to email **ciaoenhancements@head-cfa.harvard.edu** with suggestions for new threads and scripts.

- Introduction (Beginners should start **HERE**)
  - How to Download Chandra Data from the Archive [L][A4]
  - A Note on Processing Versions [L][A4]
  - A Note on Filenames & Directories [L][A4]
  - CIAO:
    - Introduction to CIAO [L][A4]
    - Starting CIAO [L][A4]
  - Introduction to the Data Model [L][A4]
  - Introduction to *Firstlook* [L][A4]
  - Introduction to *Prism* [L][A4]
  - Introduction to *ChIPS* [L][A4]
  - Introduction to *Filtwin* [L][A4]
  - Introduction to *Toolagent* [L][A4]

  - A **Complete List** of CIAO tools can be found at the Introduction to Tools page.
    If you are looking for a general topic, try the **CXC Search**, at the top of the page.

- Data Preparation
  - General
    - Use Observation-specific Bad Pixel Files [L][A4] (see also the acis_set_ardlib script)
    - Use the New geom.par File [L][A4]
    - Correction for Aspect Offsets [L][A4]
    - Data Filtering [L][A4]
    - Filtering Light Curves [L][A4] (see also the analyze_ltcrv.sl S-Lang script)
    - How to Restore WCS Info To Images [L][A4] (see also the wcscopy script)
    - Creating Accurate RA, Dec Coordinates for src2 Files [L][A4]
  - ACIS
    - acis_process_events

- - - ■ Apply an ACIS Gain Map [L][A4]
      - ■ Remove Pixel Randomization [L][A4]
      - ■ Apply/Remove PHA Randomization [L][A4]
      - ■ Caveat for acis_process_events on Level=2 Event Files [L][A4]
    - ■ ACIS Background Subtraction [L][A4] (see also the `acis_bkgrnd_lookup` and `lc_clean.sl` scripts)
    - ■ Remove the acis_detect_afterglow Correction [L][A4]
    - ■ Use Optional ACIS vN0004 QE File [L][A4]
  - ○ HRC
    - ■ HRC-I Degap Correction [L][A4]
    - ■ HRC-S Degap Correction [L][A4]

- ● Imaging
  - ○ How To Match the Binning of an Image [L][A4] (see also the get_sky_limits.tar script package)
  - ○ Merging Data from Multiple Imaging Observations [L][A4] (see also the combine_obsid script)
  - ○ Create A True Color Image [L][A4] (see also the color_image script)
  - ○ Create an Image of Diffuse Emission ⚡coming soon⚡
  - ○ Detecting Sources in Imaging Observations [L][A4]
  - ○ Estimating Source Counts in Imaging Observations [L][A4]
  - ○ Obtain and Fit a Radial Profile [L][A4]
  - ○ Create a PSF [L][A4]
  - ○ Exposure Maps
    - ■ Compute an HRC-I Exposure Map and Build Fluxed Image [L][A4]
    - ■ Compute an ACIS Exposure Map (Single Chip) and Build Fluxed Image [L][A4]
    - ■ Compute an ACIS Exposure Map (Multiple Chips) and Build Fluxed Image [L][A4]
    - ■ Compute an ACIS Exposure Map for Merged Data (Multiple Chip) and Build Fluxed Image ⚡coming soon⚡
    - ■ Calculating Spectral Weights [L][A4] (see also the spectrum.sl S-Lang script)
  - ○ Calculating Statistics of Images [L][A4] (see also the sstats.sl S-Lang script)
  - ○ Reprojecting Coordinates of a Solar System Object [L][A4]
  - ○ Notes on Chandra Astrometric Accuracy ▶

- ● Imaging Spectroscopy
  - ○ Extract ACIS Spectra for Pointlike Sources and Make RMFs and ARFs [L][A4]
  - ○ Extract ACIS Spectra for Pointlike Sources and Make RMFs and ARFs Step-by-Step [L][A4]
  - ○ Weighting ARFs and RMFs [L][A4] (see also the `show_wgt.sl` script)
  - ○ Change the Grouping Scheme of a Previously-grouped PHA File [L][A4]
  - ○ Displaying the FEF Regions Covered by a Source [L][A4] (see also the regions.sl S-Lang script)
  - ○ Create a Phase-binned Spectrum [L][A4]

- ● Grating Spectroscopy
  - ○ Visit the Chandra Grating Analysis Page ▶
  - ○ Examining PHA2 Files [L][A4]
  - ○ Correcting PHA2 Header Keywords [L][A4]

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