



Mask File

The mask file (`msk1.fits`) is included in the secondary data products portion of the distribution. One of the pieces of information contained in the mask file is the valid part of the CCD used for the observation (i.e. the portion for which events can be telemetered). For example, the active portion of a CCD is $2 \leq \text{CHIPX} \leq 1023, 2 \leq \text{CHIPY} \leq 1023$ for TIMED FAINT mode observations and $2 \leq \text{CHIPX} \leq 1023, 3 \leq \text{CHIPY} \leq 1022$ for TIMED VFaint mode observations. The active portion of a CCD may be smaller than these default regions if an observation was performed using subarrays or custom windows.

For a user to have an accurate representation of the useful part of a CCD for their observation, they need both the mask file and the [observation-specific bad-pixel file](#).

Which analyses should use the mask file:

- exposure-corrected images of extended sources that span more than one CCD or that extend to the edges of a CCD, subarray or window.
- ARFs for sources that are near the edge of a CCD, subarray or window. This applies to both imaging ARFs and grating ARFs. Here "near" means within the extent of the dither pattern (about 16 arcsec).

Which analyses can omit the mask file:

- spectral, spatial or temporal analysis of a source well away from the edges

To make sure the (g)ARF or [exposure map](#) is correct, the `maskfile` parameter of the `mkarf`, `mkgrarf`, or `mkinstmap` tool should be set to the appropriate mask file for the observation. If the parameter is left at the default value of NONE, no mask is applied in the calculation.

There is a **caveat** for observations that use a window(s): existing mask files for observations that use the default TIMED VFaint mask or that use windows may be off by one row. The error does not introduce a big effect, and is preferable over omitting the mask file entirely.

Dictionary Entry - CIAO 3.4