



---

*AHELP for CIAO 3.4*

## lc\_clean

Context: [tools](#)

*Jump to:* [Description](#) [Examples](#) [NOTES](#) [Bugs](#) [See Also](#)

---

## Synopsis

lc\_clean.sl – Clean a lightcurve to match the ACIS "blank-sky" datasets

## Description

The script lc\_clean.sl is used to select those regions of the lightcurve that do not contain flares. The algorithm used is taken from the lc\_clean program created by Maxim Markevitch, and is different from that used by the analyze\_ltrv.sl script.

The script is run from within ChIPS ("ahelp chips"), as shown in the example, or Sherpa ("ahelp sherpa"). To load the script:

```
chips> () = evalfile( "lc_clean.sl" )
```

This step is only necessary once per ChIPS or Sherpa session.

This script is used in the [Using the ACIS "Blank-Sky" Background Files thread](#).

## Example 1

```
chips> lc->verbose = 1  
chips> lc_clean( "evt2_bg.lc" )
```

The script is run with all default parameter values, except the verbose flag is set to 1 to produce extra screen output:

```
Parameters used to clean the lightcurve are:  
mean      = NULL  
clip      = 3  
max_scale = 1.2  
max_sigma = NULL  
minfrac   = 0.1  
outfile   = NULL  
verbose   = 1
```

```
Total number of bins in lightcurve = 38
Max length of one bin = 255.997 s
Num. bins with a smaller exp. time = 9
Number of bins with a rate of 0 ct/s = 7

Calculated an initial mean (sigma-clipped) rate of 0.489577 ct/s
Lightcurve limits use a scale factor of 1.2 about this mean
Filtering lightcurve between rates of 0.407981 and 0.587492 ct/s
Number of good time bins (drawn in green) = 29
Mean level of filtered lightcurve = 0.488992 ct/s
```

## Example 2

```
chips> lc->verbose = 0
chips> lc->outfile = "evt2_bg.gti"
chips> lc_clean( "evt2_bg.lc" )
```

Since an output file is specified, the `lc_clean()` function runs the `dmgti` tool using the calculated range, and creates the an GTI file named "evt2\_bg.gti".

The screen output for this run is:

```
Total number of bins in lightcurve = 38
Max length of one bin = 255.997 s
Num. bins with a smaller exp. time = 9
Number of bins with a rate of 0 ct/s = 7

Calculated an initial mean (sigma-clipped) rate of 0.489577 ct/s
Lightcurve limits use a scale factor of 1.2 about this mean
Filtering lightcurve between rates of 0.407981 and 0.587492 ct/s
Number of good time bins (drawn in green) = 29
Mean level of filtered lightcurve = 0.488992 ct/s

Creating GTI file
Created: evt2_bg.gti
```

## NOTES

This script is not an official part of the CIAO release but is made available as "contributed" software via the [CIAO scripts page](#). Please see the [installation instructions page](#) for help on installing the package.

## Bugs

See the [bugs page for this script](#) on the CIAO website for an up-to-date listing of known bugs.

## See Also

*tools*

[acis\\_detect](#), [afterglow](#), [acis\\_find\\_hotpix](#), [axbary](#), [destreak](#), [dmcopy](#), [lightcurve](#)

## Ahelp: lc\_clean – CIAO 3.4

The Chandra X-Ray Center (CXC) is operated for NASA by the Smithsonian Astrophysical Observatory.  
60 Garden Street, Cambridge, MA 02138 USA.  
Smithsonian Institution, Copyright © 1998–2006. All rights reserved.

URL:  
[http://cxc.harvard.edu/ciao3.4/lc\\_clean.html](http://cxc.harvard.edu/ciao3.4/lc_clean.html)  
Last modified: March 2007

