Chandra X-ray Center

AHELP for CIAO 3.4   **dmmakereg**   Context: tools

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Synopsis

Convert a region string to a CXC FITS region file

Syntax

```
dmmakereg  region outfile [append] [kernel] [wcsfile] [verbose]
[clobber]
```

Description

`dmmakereg' creates (or adds to) a FITS region file from an ASCII region description. It is intended to provide an easy way to generate such region files for testing, and also to modify bad pixel files.

dmmakereg will accept any ASCII region description recognized by the CXC data model (see "ahelp dmregions"). However, note that not all tools which use FITS region files can handle arbitrary regions. For instance, the bad pixel files used by ACIS pipeline tools are valid FITS region files, but may only contain the shapes "point" and "rectangle". Consult the documentation for the application in question to check for such restrictions.

Using celestial coordinates

If your region is in celestial coordinates, you have to also supply a file which contains the WCS coordinate system (using the wcsfile parameter). The coordinate transformation to pixels will be read from this file.

Converting FITS to ascii region files

dmmakereg can also be used to make ASCII region files from FITS by the 'kernel=ascii' option. This has not been extensively tested and may not work well for very complicated regions. Note that 'dmlist reg.fits data' on a region file will give the ASCII interpretation of the region before dumping the lower level table information.

Adding regions to a bad–pixel file

If a region is added to an existing FITS region file, dmmakereg will check whether the output file is a bad–pixel file or not. In the first case the new region will be inserted at the beginning of the block that is being modified, otherwise the new region will be appended at the end of the file. The reason is that bad pixels (or bad columns) in a block of a bad–pixel file should always be time–sorted. dmmakereg will assign the new bad pixel(/column) a time equal to the first time in the column TIME of the given bad–pixel block.

Example 1

```
dmmakereg "circle(4183,5870,200)-annulus(4222,5970,100,1000)" reg.fits
```

Create a region file that includes a circle centered a the coordinates (X,Y) = (4183,5870) with a radius of 200 and excludes the specified annulus.

Example 2

```
dmmakereg "circle(10:58:2.0134,-52:26:41.6329,0.05')" reg.fits
wcsfile=acisf00752_000N003_evt1.fits
```

Create a region file that includes a circle centered a the coordinates (RA,DEC) = (10:58:02.0134,−52:26:41.6329) with a radius of 0.05 armin (3 arcsec). The information required to convert from RA and DEC into X and Y is contained in the header of the file specified by the wcsfile parameter.

Example 3

```
dmmakereg "point(332,418)" "acisf00732_004N002_bpix1.fits[badpix3]"
append=yes
```

A new bad pixel at the coordinates (CHIPX,CHIPY) = (332,418) is added to the "BADPIX3" extension of the specified bad–pixel file. In this case, the existing bad pixels and columns in this extension are appended to the the new bad pixel. The file is modified in place; the clobber parameter is ignored. If the BADPIX3 table does not exist, it is created.

Example 4

```
dmmakereg "rectangle(332,1,332,1024)"
"acisf00732_004N002_bpix1.fits[badpix3]" append=yes
```

A new bad column for CHIPX = 332 and 1 <= CHIPY <= 1024 is added to the "BADPIX3" extension of the specified bad–pixel file. In this case, the existing bad pixels and columns in this extension are appended to the new bad column. The file is modified in place; the clobber parameter is ignored. If the BADPIX3 table does not exist, it is created.

Example 5

```
dmmakereg "region(region_list.txt)"
"acisf00732_004N002_bpix1.fits[badpix3]" append=yes
```

The new bad pixels and columns in the ASCII file region_list.txt are added to the "BADPIX3" extension of the specified bad–pixel file. The file region_list.txt contains one pixel or column per line. For example,

```
point(332,418)
rectangle(332,1,332,1024)
point(10,13)
```

In this example, the existing bad pixels and columns in the extension BADPIX3 are appended to the new bad column. The file is modified in place; the clobber parameter is ignored. If the BADPIX3 table does not exist, it is created.

Parameters

name	type	ftype	def	min	max	reqd
region	string					yes
outfile	file	output				yes
append	boolean		no			no
kernel	string		fits			no
wcsfile	file		none			no
verbose	integer		0	0	5	
clobber	boolean		no			

Detailed Parameter Descriptions

Parameter=region `(string required)`

Input region string

The region ASCII string which will be turned into a region data file.

Parameter=outfile `(file required filetype=output)`

Output file name and block name

Name of the output CXC region file

Parameter=append `(boolean not required default=no)`

Create a new file ("no") or merge the new region with existing regions in the output file ("yes")

Example 5   3

The default value for this parameter is "no." In this case a new output file is created. If the output file exists, it is overwritten unless the clobber="no." If append="yes," then the existing regions in the output file are appended to the new region.

Parameter=kernel `(string not required default=fits)`

Output file format

Usually "FITS"; "ASCII" creates an ASCII region file.

Parameter=wcsfile `(file not required default=none)`

File containing coordinate information.

This parameter is only need if your region is given in celestial coordinates, such as "circle(10:58:2.0134,−52:26:41.6329,0.05')". In order to convert the coortinates into "sky" (ie pixel) coordinates, the details of the WCS transformation is read from the header of the file given in the wcsfile parameter.

If the parameter is not given, or set to "none", then the region coordinates will just be converted into decimal degrees.

Parameter=verbose `(integer default=0 min=0 max=5)`

Verbose can be from 0 to 5, generating different amounts of output.

Parameter=clobber `(boolean default=no)`

If outfile already exists, clobber=yes will allow you to overwrite it.

CHANGES IN CIAO 3.4

Using regions given in celestial coordinates

The wcsfile parameter is now used to convert regions such as

```
circle(10:58:2.0134,−52:26:41.6329,0.05')
```

into pixel coordinates. Prior to CIAO 3.4 the coordinates were converted into decimal degrees instead of applying the coordinate transformation given in the wcsfile.

Bugs

The append option does not work with ASCII files

You can not append to an ASCII region file (i.e. when the kernel parameter is set to "ascii"). The tool will complain that the output file already exists and that the clobber parameter is set to no. If the cloober parameter is changed to yes then the outout file will be over−written, even if the append option is set to yes.

See the bugs page for this tool on the CIAO website for an up−to−date listing of known bugs.

See Also

concept

      subspace

dm

      dmregions

tools

      dither_region, dmcontour, dmimg2jpg, get_src_region, tg_create_mask

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See Also