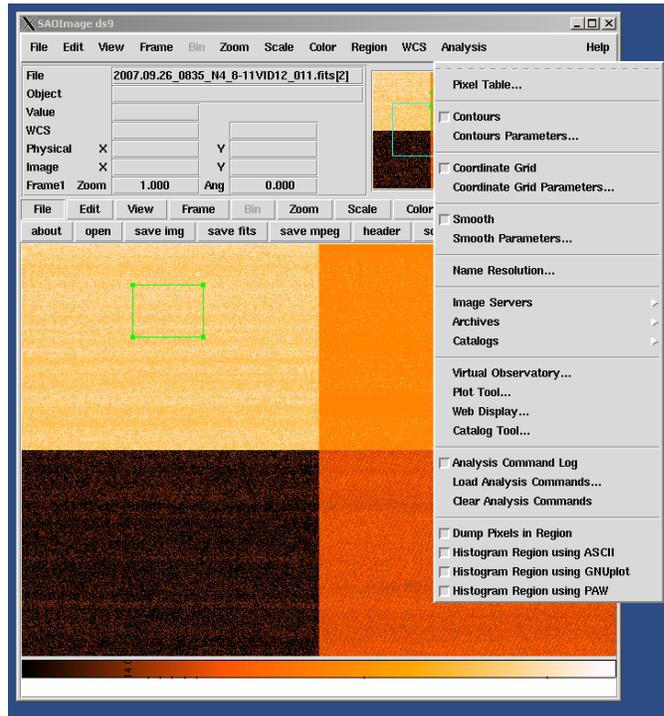


DS9 Analysis Tools Modification (aka “pimp my ds9”)

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DS9 is used to view and analyze FITS files. I have developed an add-on to DS9 that allows us to analyze the pixel values in a user-defined region of the image. First draw a region (box, circle, etc.) in DS9 then go to the Analysis menu. At the bottom of the menu there should be four choices:



- **Dump Pixels in Region** opens a window and simply prints all of the pixel values in the region. In this list there are three columns: X, Y, and pixel value. For some reason the (integer) pixel values are converted to floating point.
- **Histogram Region using ASCII** opens a window and produces a text-based histogram of the pixels in the region.
- **Histogram Region using GNUplot** makes a graphical histogram of the pixel values.
- **Histogram Region using PAW** makes a graphical histogram but uses the PAW tool to create a postscript file, which is viewed using gv. The PAW histogram includes mean and RMS values.

This document describes how to add this functionality to DS9.

Install funtools. Funtools are a collection of utilities for working with FITS files. These tools are distributed at source code and must be compiled on your machine. The default location for the executables is `/usr/local/bin` which requires root access. This

- 1) download the latest funtools source code
- 2) `gunzip funtools*.tar.gz`
- 3) `tar -xf funtools*.tar`
- 4) `cd funtools*`
- 5) `./configure`
- 6) `make`
- 7) `make install` (you need to be root for this step!)
- 8) `make clean`

Download `ds9.ans` and save this into your default user home directory. For our machines this is `/home/monsoon`. This file adds the menu items to the DS9 GUI.

Download `tools.zip` and unzip it into `/usr/tools` *note that you will need to be root for this step*. This installs PAW, GNUplot, and associated scripts.

Open your default user shell resource script (we use `tsh` so for us this file is `/home/monsoon/.cshrc`) and verify the following:

- the path includes `/usr/local/bin`
- `alias ds9 /usr/tools/ds9`
- `alias paw /usr/tools/paw`

Log out and log back in to re-run the shell resource script and pick up any changes to the path and/or aliases. Now open a FITS file in DS9 and try it out.