ATF Video Frame Grabber Subsystems

- Frequently Asked Questions
- Tips and Techniques

For ATF Staff, Operators and Visiting Users

Contact: R. Malone, X2084; malone@bnl.gov

Last updated: Tue Aug 4 15:21:48 EDT 2009
Revision history at end of document.

==========

Part III - Re-creating images from captured data

(Q1) Using Matlab, how can I recreate an image from captured data (without using the ATF frame grabber program)?

(A1) The easiest way is to open the file and then use the Matlab command "DLMREAD" to read the data file.

Example:

```
image_matrix = dlmread("C:\Images\my_image_file.asc' );

colormap_matrix = dlmread( "C:\Images\my_colormap.atf_cm' );
colormap( color_matrix );

image( image_matrix );
```

(Q2) How do you change the value separator in the captured data files from a comma to something else?

(A2) Most statistics, graphics, and mathematical analysis tools support reading data in comma separated value (CSV) format. So do spreadsheets, like Microsoft Excel. If, however, you have a reason to change the separator you have a few options:

1) Edit the image data or color map file using your favorite editor.

   Make a global change, substituting ',' with whatever separator character you want. The global change is safe since the comma character is never used as part of a data item. Obviously, you don't want to change the separator to any character in the set [0123456789.] since those are used as part of the data items themselves, at least at present. In addition, it's also not advisable to use any characters in the set [+-Ee] since these might conflict with future data formats.

2) If you are running under Unix/Linux, using a Mac, have Cygwin installed or have the stand-alone Gnu tools installed

   Use the command line to make the substitution:

   ```
   tr ',' ' ' < csv_file.asc > space_file.asc
   ```

   which translates ',' to a blank character, reading from the intput file "csv_file.ase" and writing the converted file to "space_file.asc". The second argument to "tr" is the desired replacement character, in this example a space character.

(Q3) I'm working under Unix/Linux and am having problems with the default

line terminator of ASCII <CR> <LF>. What can I do?

(A3) You have 2 choices:

i) Use your favorite editor and replace the <CR> <LF> strings with <LF>. If you are using Vim, the command is :%s/CTRL-VCTRL-M// the text inside the first set of slashes is Control-V followed immediately by Control-M.

ii) Use the dos2unix tool. It's installed under most Linux-based systems and can be downloaded and built for other systems. This will convert the Windows <CR> <LF> to the Unix/Linux standard <CR>.

(Q4) When I recreate an image on my own computer, I don't see the same image, colors, features etc. that I viewed on the ATF frame grabber when I originally captured the data. Why?

(A4) Remember an ATF image file contains only the raw, unprocessed video data as collected by the frame grabber. You will need to reapply the colormap, gain and black level you were using at the time of capture to recreate the original view.

(Q5) I forgot to capture the color map while I was using the frame grabber and now I need the map. Is there anything I can do?

(A5) Maybe. If you used a default ATF colormap and can remember its name (e.g., "jet", "hsv", "bone", etc.) you can grab an arbitrary frame, set the color map and save it to an ATF color map file.

If you edited a default color map and did not save it, you will have to re-edit the color map again. Save it this time!

(Q6) Can I use a screen capture in place of the full raw image data file?

(A6) No. A screen capture can not take the place of a true image data file, particularly for any image analysis application. This is because pixels in the screen capture do not have a one-to-one correspondence with the pixels of the frame grabber image.

(Q7) Using program X, how can I re-create an image from captured data?

(A7) We don't have recipes for every possible program, but will add them here if we create any. Users can also submit their own solutions and we will include them in this FAQ.