Subject: Unsigned Integer Math Problem
Posted by David Fanning on Wed, 21 Apr 2010 14:12:56 GMT
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Folks,

I've run into a problem with my Histoplot code this morning.

It is extremely important to the Histogram command that the data type of the BINSIZE argument be the same as the data type of the data for which the histogram is being calculated. I don't know why this is the case, but it is.

In any case, I'm extremely careful about this. But this is giving me a problem when I try to make a histogram plot of an image that is stored as unsigned integers (UINT).

Basically, to make my plot I take the output minimum and maximum from the histogram command and subtract (or add) a full binsize to those numbers to give the X axis range of the plot.

My problem is this. The OMIN of the histogram is 0, the binsize is 726.

```
IDL> help, omin, binsize
OMIN            UINT      =        0
BINSIZE         UINT      =      726
```

When I make the calculation for the minimum data range of my axis, I do this:

```
IDL> min_xrange = omin - binsize
IDL> Help, min_xrange
MIN_XRANGE      UINT      =    64810
```

Now, this causes the minimum x range to be larger than the maximum x range and results in complete chaos downstream.

Clearly, I don't want the minimum x range value to be less than zero in this case, but I also don't want to force the value to be zero if the minimum I want is somewhat higher than this, say 1200. How do I test for this? Clearly, this does not work:

```
min_xrange = (omin - binsize) > 0
```

Since this number 64810 *is* larger than zero, and WRONG!

I guess my real question is this: How do I do arithmetic operations with unsigned integers in a way that preserves the nature of unsigned integers?

Any ideas on this?

Cheers,

David
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Coyote's Guide to IDL Programming: http://www.dfanning.com/
Sepore ma de ni thui. ("Perhaps thou speakest truth.")
