Subject: Re: reading unformatted data into a structure
Posted by David Fanning on Tue, 19 Mar 2002 02:52:42 GMT
View Forum Message <> Reply to Message

Rick Towler (rtowler@u.washington.edu) writes:

> I have an unformatted data file which I am trying to read and I am having
> only limited success. The data file was created on a Sun machine and it is
> being read on a win32 machine (I have set the swap_if_little_endian keyword
> on the open statement). As for the file format, all I have to go on is the
> C header file that describes the records in the file.
>
> Early on in the header I find this:
>
> // Variable types:
> //   int   is 32 bit integer.
> //   short is 16 bit integer.
>
>
> Here are the first few lines of the header (all of the data types found in
> the header are in these lines):
>
> typedef struct
> {
>   int fileFormatVersion;   /* The file format version number. */
>   int points;   /* Number of xyz points on the file. */
>   int time;   /* UNIX time of file generation,
>   seconds since 1/1 1970. */
>   unsigned short coordSys;   /* The coordinate system used:
>   0 = Geographical lat/long.
>   1 = Projection */
>   char projection[32];   /* Projection name (see above)   */
>   int projParam1;   /* 1. projection parameter (see above). */
>   int projParam2;   /* 2. projection parameter (see above). */
>   int projParam3;   /* 3. projection parameter (see above). */
>   int projParam4;   /* 4. projection parameter (see above). */
>   int projParam5;   /* 5. projection parameter (see above). */
>   char datum[32];   /* Name of the datum (see above).   */
>   char ellLargeHalfAxis[16]; /* Large half axis of the ellipsoide. */
>   ....
>
>
> From the comments about variable types and the structure definition I
> created an IDL structure that I think matches the C struct (again, I'll list
> the first few lines):
>
> header = { fileFormatVersion:0L, $
>   points:0L, $

```
>            time:0L, $
>            coordSys:0, $
>            projection:bytarr(32), $
>            projParam1:0L, $
>            projParam2:0L, $
>            projParam3:0L, $
>            projParam4:0L, $
>            projParam5:0L, $
>            datum:bytarr(32), $
>            ellLargeHalfAxis:bytarr(16), $
>            ....
>
>
> I open the data file and read the header like so:
>
>   openr, lun, 'J:\hydrographic\1.xyz', /get_lun, $
>        /swap_if_little_endian
>   readu, lun, header
>
>
>
> Am I doing this correctly?  I know I am close because I get what seems like
> a valid time and I know I get a valid datum.  But my data doesn't seem
> right.  I just want to check that I am using the correct types in my IDL
> struct and that I am reading in the data correctly.
```

It certainly appears correct to me, at first glance,
although it is possible to run into a lot of weird
things with data. It always helps to have a good
example of what the numbers are *suppose* to be.
That's about the only way that you can find out
the documentation forgot to mention that those
integers were *unsigned* integers, for example. :-)

```
> Also, I know I have seen this but how do I convert the decimal ASCII chars
> in my bytarr's to a string?
```

Use the STRING function:

```
   Print, String(header.projection)
```

Cheers,

David

--
David W. Fanning, Ph.D.
Fanning Software Consulting

Phone: 970-221-0438, E-mail: david@dfanning.com
Coyote's Guide to IDL Programming: http://www.dfanning.com/
Toll-Free IDL Book Orders: 1-888-461-0155