Subject: Re: HDF SDS array access in IDL
Posted by davidf on Tue, 27 Oct 1998 08:00:00 GMT
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William Clodius (wclodius@lanl.gov) writes:

> I am confused by some comments in the IDL documentation for HDF file
> access e.g., the documentation for HDF_SD_GETDATA
>
> "The HDF_SD_GETDATA procedure retrieves a hyperslab of values from an SD
> dataset. By default, the retrieved data is transposed from HDF's column
> order format into IDL's row order which is more efficient in IDL. To
> retrieve the dataset without this transposition, set the NOREVERSE
> keyword."
>
> I believe that IDL, like Fortran, is column major and transposing the
> data would be exactly the wrong thing to do for the default. Am I
> mistaken or has a misguided C programmer been at work at RSI?

I think the problem here is that William changes the
"column order" words of the writer to "column major"
and misinterprets what is meant. Since I am *always*
confused about what "column major" means, I'll tell you
what I *do* know. :-)

IDL stores information in a row-order format. That is
to say that in memory row elements are contiguous. HDF
apparently stores information in a column-order format,
so that column elements are contiguous.

Does this matter? Most of the time, not a whit. It has
nothing to do with how columns or rows are specified
in variables, or whether the column notation is first
or second. Where it does matter is if you are doing
something in a loop. If data is stored row-ordered
and you loop over a column index, the loop can be
quite slow, since you have to grab successive chunks
of memory that are not next to each other.

Thus, I think it is a good thing to allow IDL to
do the switch for you. Saves you having to remember
yet one more thing as you work with the data.

Cheers,

David

WARNING: My brain is still several time zones away

from being completely engaged, so my confidence level
in this answer is somewhat lower than my normal 50
percent. :-)

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