Subject: Bugs in IDL HDF routines
Posted by rivers on Mon, 09 Oct 1995 07:00:00 GMT
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I have found a number of serious bugs in IDL's HDF routines. I have informed RSI about these, but I am posting them here for 2 reasons:

- To prevent others from wasting time tracking down and document these same bugs.

- To solicit reports of any other bugs other poeple have found in the HDF routines so that RSI can fix them all at once.

1) Routine HDF_VG_ADDTR does not work at all. It always generates an error. This routine is used to add various entities (SDS, other Vgroups, etc.) to a Vgroup.

2) Routine HDF_SD_IDTOREF() is not documented. It is required to be able to use HDF_VG_ADDTR.

3) Routine HDF_SD_GETDATA crashes IDL when reading an SDS whose data type is DFNT_CHAR8. The technical support people at NCSA have stated that DFNT_CHAR8 is a valid data type for an SDS.

4) Routine HDF_SD_ATTRINFO returns corrupted strings when the attribute is of type DFNT_CHAR8 (character data). The returned strings have a trailing NULL character which renders them useless in IDL programs.

5) An error occurs under the following conditions:
- Create a Scientific Data Set with HDF_SD_CREATE, specifying a data type.
- Write data to that SDS with HDF_SD_ADDDATA, but pass it an array of a different data type than that specified in HDF_SD_CREATE.
- HDF_SD_ADDDATA appears to work, but the error message
  % Temporary variables are still checked out - cleaning up...
  occurs when HDF_SD_END is called.

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Subject: Re: Bugs in IDL HDF routines
Posted by rivers on Sat, 14 Oct 1995 07:00:00 GMT

In article <1995Oct13.234957.5791@arete.com>, Adam Shane <shane@arete.com arete.com> writes:
> rivers@cars3.uchicago.edu (Mark Rivers) wrote:
>>
>> 4) Routine HDF_SD_ATTRINFO returns corrupted strings when the attribute is of
>> type DFNT_CHAR8 (character data). The returned strings have a trailing NULL
>> character which renders them useless in IDL programs.
>>
>
> This is standard HDF as far as I know (your other problems seem
> to be real bugs). Many character strings written to HDF files
> will be null character terminated strings. IDL has some documentation
> to this effect and there is an example of how to deal with it.

This is not true. The count parameter which is passed to the native HDF routine SD_setattr and the count parameter one receives back from SD_attrinfo do NOT include the trailing NULL when the attribute is a string (see the examples in Chapter 3 of the HDF User's Guide). It would be the C programmer's responsibility to make sure the receive buffer contains a trailing NULL.

The IDL routine HDF_SD_ATTRINFO correctly returns, in COUNT, the length of the string without the NULL. IDL should only create a string of this length and not add a NULL. A C routine would want the trailing NULL, but IDL should not add it. Doing so corrupts the strings and makes the resulting strings unusable with the IDL string operators (such as +). It would be easy for IDL to not add the NULL. I notice that the IDL routines HDF_DFAN_GETLABEL and HDF_DFAN_GETFDS return NULL terminated strings by defaults, but add a /NONULL keyword to turn this off. I think this is absolutetly the wrong way to do it. Why make returning a corrupt IDL string (one which does not work with IDL operators) the default behavior? Who would ever want an IDL string to be NULL terminated?

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