Subject: Re: HDF Data sets containg strings?
Posted by davidf on Sun, 01 Nov 1998 08:00:00 GMT
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Richard Penrose (rpenrose@uk.ibm.com) writes:

> I would very much like to be able to append an array of three character
> strings to an HDF file using the 'HDF_SD_ADDDATA' command. I have tried
> to do this without any luck, and can find no documentation to help me
> with this.
>
> In the end I have had to resort to appending a 3*n dimensional array,
> i.e. 3 characters * however many dimensions are required.
>
> Does anyone have a solution to this problem, I would be most grateful!

I'm no HDF expert by any means, but a quick look at the
HDF chapter in my IDL Programming Techniques book suggests that
the HDF_SD_ADDDATA command is for adding a "slab" of data.
I understand "slab" to mean a two or three dimensional
array which has been assigned an SDS identifier with the
HDF_SD_Create command. For character data, I guess I would
use a byte array. Probably something like this:

```
strArray = StrArr(4)
strArray[0] = 'ABC'
strArray[1] = 'DEF'
strArray[2] = 'GHI'
strArray[3] = 'JKL'
hdfFileID = HDF_SD_START('newfile.hdf')
sdsID = HDF_SD_CREATE(hdfFileID, 'Comment Array', [3,4], /Byte)
HDF_SD_ADDDATA, sdsID, Byte(strArray)
```

Another alternative is to add each string to the file as a file
attribute with the HDF_SD_AttrSet command.

Cheers,

David

David Fanning, Ph.D.
Fanning Software Consulting
E-Mail: davidf@dfanning.com
Phone: 970-221-0438, Toll-Free Book Orders: 1-888-461-0155
Coyote's Guide to IDL Programming: http://www.dfanning.com/

Note: A copy of this article was e-mailed to the original poster.

Subject: Re: HDF Data sets containg strings?
Posted by Richard Penrose on Mon, 02 Nov 1998 08:00:00 GMT
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David Fanning wrote:

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> ---
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David

Thanks very much for you're prompt response.

I had already tried the 'byte' method that you suggested, it just creates a 3 * n dimensional dataset with a byte in each element, I actually did this using '/STRING' instead of '/BYTE' the result is the same but you get characters instead of byte values in each dataset element.

I hadn't thought of the 'HDF_SD_AttrSet' work around, I think I will either use this or just accept that I'll get a dataset element for each character.

Thanks again

Richard

P.S. I thought the newsgroup was pretty good, its the first time I've used it.

Subject: Re: HDF Data sets containg strings?
Posted by davidf on Mon, 02 Nov 1998 08:00:00 GMT
View Forum Message <> Reply to Message

Martin Schultz (mgs@io.harvard.edu) writes:

> prompts me to adevrtise my str2byte function that may help you getting byte
> arrays with fixed length from strings with variable length. Please find it
> attached below.

I can see some applications for Martin's Str2Byte function, but I wanted to remind you of something I learned from Ray Sterner a long time ago: if you have a string array with strings of variable lengths, you can easily turn that into a 2D byte array, in which each string is as long as the longest string in the array by using the BYTE function.

```
a = StrArr(4)
a[0] = 'hello'
a[1] = 'my name is coyote'
a[2] = 'what is yours?'
a[3] = 'bye'
done = Byte(a)
Help, done
  DONE          BYTE      = Array[17, 4]
```

Not only that, but they come back out properly!

```
  Print, String(done[*,0])
    hello

  Print, StrLen(String(done[*,0]))
    5
```

Cheers,

David

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Posted by Martin Schultz on Mon, 02 Nov 1998 08:00:00 GMT
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>
> I'm no HDF expert by any means, [...]

me neither, but what David suggests next

> [...]. For character data, I guess I would
> use a byte array. [...]

prompts me to adevrtise my str2byte function that may help you getting byte arrays with fixed length from strings with variable length. Please find it attached below.

Regards,
Martin.

--
-- -------
Dr. Martin Schultz
Department for Engineering&Applied Sciences, Harvard University
109 Pierce Hall, 29 Oxford St., Cambridge, MA-02138, USA

phone: (617)-496-8318
fax : (617)-495-4551

e-mail: mgs@io.harvard.edu
Internet-homepage: http://www-as.harvard.edu/people/staff/mgs/
-- -------

```
; $Id: str2byte.pro,v 1.1 1998/10/09 19:53:32 mgs Exp $
;------------------------------------------------------------ --
;+
; NAME:
;       STR2BYTE (function)
;
; PURPOSE:
;       Convert a string into a byte vector of a given length
;       for output in binary data files.
;
; CATEGORY:
;       Tools
;
; CALLING SEQUENCE:
;       bstr = STR2BYTE(string [,length])
;
; INPUTS:
;       STRING -> The string to be converted
;
;       LENGTH -> Length of the byte vector. Default is to use the
;           length of the string. If LENGTH is shorter, the string
;           will be truncated, if it is longer, it will be filled
;           with blanks (32B).
;
; KEYWORD PARAMETERS:
;       none
;
; OUTPUTS:
;       A byte vector of the specified length
```

```
;
; SUBROUTINES:
;
; REQUIREMENTS:
;
; NOTES:
;
; EXAMPLE:
;       ; write a 80 character string into a binary file
;       openw,lun,'test.dat',/F77_UNFORMATTED,/get_lun
;       writeu,lun,str2byte('Test string',80)
;       free_lun,lun
;
; MODIFICATION HISTORY:
;       mgs, 24 Aug 1998: VERSION 1.00
;
;-
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; kept with any copy of this software. If this software shall
; be used commercially or sold as part of a larger package,
; please contact the author to arrange payment.
; Bugs and comments should be directed to mgs@io.harvard.edu
; with subject "IDL routine str2byte"
 ;------------------------------------------------------------ --


function str2byte,str,len

    if (n_elements(str) eq 0) then return,[0B]

    ; if len argument is not given, use actual string size
    if (n_elements(len) eq 0) then len=strlen(str)
    if (len le 0) then return,[0B]

    ; convert string to byte; cut if too long
    bytstr = byte(strmid(str,0,len))

    ; make result array of desired length
    result = bytarr(len)+32B    ; byte array, fill with spaces

    ; copy string into result array
    result[0:n_elements(bytstr)-1] = bytstr

    return,result
```

end

File Attachments

1) str2byte.pro, downloaded 108 times