Subject: Re: NetCDF and empty variables
Posted by David Fanning on Fri, 17 Apr 2009 13:46:05 GMT
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renaud.dussurget@gmail.com writes:

> I have found a simple way to deal with this, however I don't really
> like it...
> IDL>cmd = 'NCDF_VarGet, ncid, varId, data
> IDL>res= EXECUTE(cmd)
> % Array dimensions must be greater than 0.
>
> And then in the code, write something like this
> IF (res EQ 0) THEN data = -1
>
> Does anyone has a better solution???

I doubt there are better solutions. IDL makes it
extremely difficult to deal with errors coming
from all the scientific dataset routines. It is
a problem without good solutions. :-(

Cheers,

David
--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.dfanning.com/
Sepore ma de ni thui. ("Perhaps thou speakest truth.")

Subject: Re: NetCDF and empty variables
Posted by liamgumley on Fri, 17 Apr 2009 15:55:53 GMT
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On Apr 17, 8:18 am, renaud.dussur...@gmail.com wrote:
> IDL>ncid = NCDF_OPEN('myFile.nc')
> IDL>varId = NCDF_VARID(ncid,'HISTORY_INSTITUTION')
> IDL>out=NCDF_VARINQ(ncid, VarId)
> IDL>help, out, /str
> ** Structure <a9c098>, 5 tags, length=56, data length=52, refs=1:
> NAME STRING 'HISTORY_INSTITUTION'
> DATATYPE STRING 'CHAR'
> NDIMS LONG 3
> NATTS LONG 3
> DIM LONG Array[3]
>

> IDL>print, out.dim
> 6 8 12
>
> IDL>NCDF_VARGET, ncid, varId, data, COUNT=cnt
> % Array dimensions must be greater than 0.

Where is the array CNT defined?

Have you tried something like this?

```
PRO TEST
ncid = ncdf_open('myfile.nc')
varid = ncdf_varid(ncid, 'HISTORY_INSTITUTION')
if (varid eq -1) then message, 'Variable does not exist'
ncdf_varget, ncid, varid, value
help, value
END
```

If the code gets past the check for (varid eq -1) and it still
crashes, then something very odd is going on, and I think you have a
reason to contact ITTVIS technical support.

Liam.
Practical IDL Programming
http://www.gumley.com/

Subject: Re: NetCDF and empty variables
Posted by renaud.dussurget on Fri, 17 Apr 2009 19:34:47 GMT
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On 17 avr, 17:55, liamgum...@gmail.com wrote:
> On Apr 17, 8:18 am, renaud.dussur...@gmail.com wrote:
>
>
>
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>> NDIMS LONG 3
>> NATTS LONG 3
>> DIM LONG Array[3]
>
>> IDL>print, out.dim

>>   6   8   12
>
>> IDL>NCDF_VARGET, ncid, varId, data, COUNT=cnt
>> % Array dimensions must be greater than 0.
>
> Where is the array CNT defined?
>
> Have you tried something like this?
>
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> ncdf_varget, ncid, varid, value
> help, value
> END
>
> If the code gets past the check for (varid eq -1) and it still
> crashes, then something very odd is going on, and I think you have a
> reason to contact ITTVIS technical support.
>
> Liam.
> Practical IDL Programminghttp://www.gumley.com/

Hello

Well, as I've said, it is much nastier than this.
varid returned by NCDF_VARID is correct (the variable exists in the
netcdf file and this is its ID)
The return of NCDF_VARINQ also suppose that this variable should have
3 dimensions (as, I think,the creator of this file intended it...)
But there is simply NO DATA within this variable, and there is no way
to check this before trying to get the data from the file.

When I do a ncdump of this file I get this

netcdf 69003_prof {
dimensions:
        DATE_TIME = 14 ;
        STRING256 = 256 ;
        STRING64 = 64 ;
        STRING32 = 32 ;
        STRING16 = 16 ;
        STRING8 = 8 ;
        STRING4 = 4 ;
        STRING2 = 2 ;
        N_PROF = 16 ;
        N_PARAM = 2 ;

```
        N_LEVELS = 94 ;
        N_CALIB = 1 ;
        N_HISTORY = UNLIMITED ; // (0 currently)
variables:
[...]
        char HISTORY_INSTITUTION(N_HISTORY, N_PROF, STRING4) ;
                HISTORY_INSTITUTION:long_name = "Institution which
performed action" ;
                HISTORY_INSTITUTION:conventions = "Argo reference
table 4" ;
                HISTORY_INSTITUTION:_FillValue = " " ;
[...]
data:
}
```

-> so there is no data within this variable.
It seems that all "HISTORY_*" variables within this file have been forgotten... We cannot think that NetCDF file will always be perfectly defined as they should be, so here is our problem...

If I repeat this operation with Matlab, using the ncload command, I have this:

```
>> ncload 'myFile.nc'
>> whos
[...]
HISTORY_INSTITUTION             0x0                0  double
[...]
```

So Matlab is able to detect that the variable exists,even if it is empty, and does not crash reading it.

But, anyway, the EXECUTE() trick works well, as I've been able to read my whole data set without any problem.

I think I'll write a mail to ITT tech support to work around this bug.

Bye

Subject: Re: NetCDF and empty variables
Posted by Mark[1] on Sun, 19 Apr 2009 23:08:27 GMT

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On Apr 18, 7:34 am, renaud.dussur...@gmail.com wrote:
> Well, as I've said, it is much nastier than this.
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> within this variable, and there is no way
> to check this before trying to get the
> data from the file.

To the best of my knowledge the only way you can get an "empty" variable in a netCDF file is for that variable to depend on the unlimited dimension, and for the unilimited dimension to have 0 records. You can check for the ID of the unlimited dimension with NCDF_INQUIRE and then determine its size with NCDF_DIMINQ. You can determine the dimensions associated with each variable with NCDF_VARINQ. And you can use the ncdump utility (outside IDL) to give you a user-friendly listing of the file structure and contents.

Yes, it's a pity IDL doesn't support empty arrays, isn't it?

Subject: Re: NetCDF and empty variables
Posted by R.Bauer on Mon, 20 Apr 2009 09:25:07 GMT
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-----BEGIN PGP SIGNED MESSAGE-----
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renaud.dussurget@gmail.com schrieb:
> Hi,
> I've been trying reading a NC file with David Fanning's (very handy!)
> NCDF_DATA object, and it failed reading a file while parsing it.
> After trying to understand where it was crashing, I've realised that
> this variable was empty (though it is supposed to have 3 dimensions)
> and that IDL NCDF_VARGET function was not able to deal with this
> problem...

Can you share an example file? I am interested if my read_ncdf routine crashes too.

cheers
Reimar

>
> An example :
>
> IDL>ncid = NCDF_OPEN('myFile.nc')
> IDL>varId = NCDF_VARID(ncid,'HISTORY_INSTITUTION')
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>
>

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kjwAnihW7lT92JMA/JDNyvNOExlRfGI/
=7Ip4
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Subject: Re: NetCDF and empty variables
Posted by renaud.dussurget on Mon, 20 Apr 2009 12:11:31 GMT
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Here is the file:
ftp://ftp.ifremer.fr/ifremer/argo/dac/coriolis/69003/69003_p rof.nc

Renaud

On 20 avr, 11:25, Reimar Bauer <R.Ba...@fz-juelich.de> wrote:
> -----BEGIN PGP SIGNED MESSAGE-----
> Hash: SHA1
>
> renaud.dussur...@gmail.com schrieb:
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> iEYEARECAAYFAknsP3IACgkQ5aOc3Q9hk/kaowCggAblq8UPEa2u5UpvS4Gk Ym39
> kjwAnihW7lT92JMA/JDNyvNOExlRfGI/
> =7Ip4
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Subject: Re: NetCDF and empty variables
Posted by renaud.dussurget on Mon, 20 Apr 2009 12:18:32 GMT
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On 20 avr, 01:08, Mark <mark.h...@gmail.com> wrote:
> On Apr 18, 7:34 am, renaud.dussur...@gmail.com wrote:
>
>> Well, as I've said, it is much nastier than this.
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> you a user-friendly listing of the file structure and contents.

NCDF_INQUIRE and NCDF_DIMINQ just give what the properties of the variable should be, and not what it really is in the file (i.e. no data)

Subject: Re: NetCDF and empty variables
Posted by Mark[1] on Tue, 21 Apr 2009 00:11:08 GMT
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On Apr 21, 12:18 am, renaud.dussur...@gmail.com wrote:
> NCDF_INQUIRE and NCDF_DIMINQ just give what the
> properties of the variable should be, and not what
> it really is in the file (i.e. no
> data)

To misquote a very wise man who wasn't talking about NetCDF files, what is is, what isn't isn't, there is no should.

Perhaps you could put a copy of the file on an FTP server, so we could look at it. Or if it's small, maybe you could convert it to CDL (text) format and post that on the group.
