Subject: reading binary files
Posted by Vince Oliver on Tue, 19 Jun 2007 07:49:17 GMT
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Hi All,

I write first time here.  I have a problem with reading out binary files written in Linux/FORTRAN. I tryed several things but without positive result. I would like to hear your opinion and any idea to solve it is very-very wellcome :)

The binary file contain 100000 spectra (2 column X 7323 lambda-point). In FORTRAN it is written like

```
niw=7323
close (61)
open (61,file='spectra2.bin', status='unknown', form='unformatted')
write
(61) (wl(i), fprop(i), i=1,niw)
```

I made spectra10.bin file with first 10 spectra to try reading out. I will copy-paste several starting and ending rows of first two spectra here to know what numbers we should expect.

```
firts:
 91.  2.0477294E-23
 94.  5.73141842E-23
 96.  1.12217811E-22
 ...
 360000000.  2.11874862E-22

second:
 91.  2.3658085E-12
 94.  4.20825007E-12
 96.  6.12436013E-12
...
 360000000.  1.0040658E-21
```

##############################################

Firest try was using Assoc function. It was somehow natural choice since the number of spectra is large. So:

```
data = 'c:\users\spectra10.bin'
spectra = Assoc(lun, Fltarr(2,7323))
aSpectra = spectra[0]
print, aSpectra[0,0],aSpectra[1,0]
```

```
print, aSpectra[0,7322],aSpectra[1,7322]
print
aSpectra = spectra[1]
print, aSpectra[0,0],aSpectra[1,0]
print, aSpectra[0,7322],aSpectra[1,7322]
```

The outout is

```
8.20937e-041      91.0000
1.07971e-021 3.60000e+008

2.11875e-022 8.20937e-041
2.57653e-020 2.40000e+008
```

It was clear that I should put an offset keyword in Assoc like spectra = Assoc(lun, Fltarr(2,7323),4). The output in this case is:

```
91.0000 2.04773e-023
3.60000e+008 2.11875e-022

8.20937e-041 8.20937e-041
2.40000e+008 5.08605e-021
```

So the 1st spectrum is properly read out but the second not. It seems that there is an offset between each spectra. How to read out spectra properly in this case?

##########

The second try was

```
data = 'c:\users\spectra10.bin'
Openr, lun, data, /Get_Lun;, /F77_UNFORMATTED
data = Fltarr(2,7323,10)
skip = READ_BINARY(lun, DATA_DIMS = 0, DATA_START = 0,  DATA_TYPE = 4)
ReadU, lun, data
Close, lun
Free_Lun, lun
print, data[0,0,0], '    ',data[1,0,0]
print, data[0,7322,0],   '    ', data[1,7322,0]
print
print, data[0,0,1], '    ',data[1,0,1]
print, data[0,7322,1],   '    ', data[1,7322,1]
```

with the same result

91.0000     2.04773e-023
3.60000e+008     2.11875e-022

8.20937e-041     8.20937e-041
2.40000e+008     5.08605e-021

I had to quit from this option since if I put data =
Fltarr(2,7323,100000) then I have this error message "Unable to
allocate memory: to make array". But ok, I can overcome this by
splitting binary files into peaces.

############################################################

this work perfectly but I need 83 days for reading out all 100000
spectra :)

```
nlam = 7323
nmod = 100

;define arrays
lam = fltarr(nmod,nlam) & flux = fltarr(nmod,nlam)

;for each model
step=4l
for imod = 0, nmod-1 do begin
 for ilam = 0, nlam-1 do begin
  lam[imod,ilam] = READ_BINARY(unit, DATA_DIMS = 0, DATA_START =
step,  DATA_TYPE = 4)
  flux[imod,ilam] = READ_BINARY(unit, DATA_DIMS = 0, DATA_START = step
+4,  DATA_TYPE = 4)
  step=step+8
 endfor
endfor
```

############################################################

What is you opinion?  How to read spectra out properly?  Any ideas?
Similar experiences? Copmpressed, spectra10.bin file is only about 1/2
MB large so if it is easier to one to try I can send it.

Well...thanks in advance
oliver