Subject: unknown instruction error...
Posted by Richard G. French on Fri, 10 Apr 1998 07:00:00 GMT
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Hi - I have been going crazy trying to track down a bug, and I have succeeded in isolating it to a problem with restoring a savefile inside of a procedure. I have constructed two test programs (attached)
this_works.pro
and
this_bombs.pro

Each of these programs has within it a routine to create a savefile, which I have included so that you folks won't need to decode binary files. Each program also reads a short data file. I can't make the problem happen unless the data file is read. It is called

test.dat

On my DEC Alpha, running IDL 5.0.3, I get the following:

```
IDL> .run this_bombs
ABOUT TO BOMB....
% Stopped at unknown instruction(242) at 4294840816.
% Execution halted at:  TEST2            15 this_bombs.pro
%                      $MAIN$           57 this_bombs.pro
```

When i run the working version, I get:

```
IDL> .run this_works
insavefile=test.sav
worked fine
```

OK, fair enough. Now here is the strange part:
If I run this_bombs.pro to failure, and then say .go, it suddenly works:

```
IDL> .run this_bombs
ABOUT TO BOMB....
% Stopped on unknown instruction(242) at 4294840816.
% Execution halted at:  TEST2            15 this_bombs.pro
%                      $MAIN$           57 this_bombs.pro
IDL> .g
ABOUT TO BOMB....
ABOUT TO BOMB....
ABOUT TO BOMB....
ABOUT TO BOMB....
ABOUT TO BOMB....
IDL>
```

The differences between this_works.pro and this_bombs.pro are only in order in which the savefile is restored and the data file is read. The savefile does not have any variable names in it that conflict with those in the routine that restores it.

I would really appreciate it if some of you would test this and tell me if it bombs on your hardware. It seems to work on without failure on the PC version of IDL. I can't see any programming errors (elegance has been sacrificed to get a short program that actually fails). I don't think I am breaking any rules by restoring a savefile within a procedure.

Here are the files:

```
========test.dat - do not include this line ===============
nim     dt (s)
0       0
1       164.51
2       178.14
3       180
4       181
======= cut here - do not include this line in data file

;================ this_bombs.pro starts here ===============
pro test2, insavefile, timing_file

restore, insavefile

string=''
openr,lun,/get_lun,timing_file
readf,lun,string
nim_arr=[-1]
dt_arr=[-1.d0]
nim=0L ; define as integer
while not eof(lun) do begin
        readf,lun,nim,dt
        nim_arr=[nim_arr,nim]
print,'ABOUT TO BOMB....'
        dt_arr=[dt_arr,dt]
endwhile
free_lun,lun
end

; ********************** procedure to make a savefile
pro make_savefile
CATALOG_SAVEFILE = '../savefiles/6806C6V124_catalog3.sav'
CUBEFILE        = '../data/6806C6V124.cube'
DR              =       100.000
```

```
DTHETA          =      0.100000
DTHETA_VALS     =fltarr(800)
DU_KM           =fltarr(28)
DV_KM           =fltarr(28)
IF_MAX          =fltarr(28)
LREBIN          =       20
NR_VALS         =      750
NTHETA_VALS     =      800
RTHETA_CF       = '../data/6806C6V124.rtheta.cube'
RTHETA_CUBEFILE = '../data/6806C6V124.rtheta.cube'
R_MAX           =       145000.
R_MIN           =       70000.0
R_VALS          =fltarr(750)
SMOOTH_INTERP   =        1
THETA_HALFRANGE =       40.0000
THETA_MAX       =       130.000
THETA_MIN       =       50.0000
TH_ANSAE        =fltarr(28)
UCUBEFILE       = '../data/6806C6V124.U.cube'
VCUBEFILE       = '../data/6806C6V124.V.cube'
WHICH_IMAGES    =intarr(26)
save,file='test.sav'
end

; ********** MAIN - this progam bombs

make_savefile   ; this creates the savefile named below

insavefile = 'test.sav'

timing_file = 'test.dat'

test2, insavefile, timing_file

end

;=================end of this_bombs.pro



;=================this_works.pro starts here

pro test1, insavefile, timing_file

string=''
openr,lun,/get_lun,timing_file
readf,lun,string
nim_arr=[-1]
```

```
dt_arr=[-1.d0]
nim=0L ; define as integer
while not eof(lun) do begin
        readf,lun,nim,dt
        nim_arr=[nim_arr,nim]
        dt_arr=[dt_arr,dt]
endwhile
free_lun,lun
print,'insavefile=',insavefile
restore, insavefile
print,'worked fine'
end

pro make_savefile
CATALOG_SAVEFILE = '../savefiles/6806C6V124_catalog3.sav'
CUBEFILE        = '../data/6806C6V124.cube'
DR              =       100.000
DTHETA          =      0.100000
DTHETA_VALS     =fltarr(800)
DU_KM           =fltarr(28)
DV_KM           =fltarr(28)
IF_MAX          =fltarr(28)
LREBIN          =       20
NR_VALS         =      750
NTHETA_VALS     =      800
RTHETA_CF       = '../data/6806C6V124.rtheta.cube'
RTHETA_CUBEFILE = '../data/6806C6V124.rtheta.cube'
R_MAX           =       145000.
R_MIN           =       70000.0
R_VALS          =fltarr(750)
SMOOTH_INTERP   =        1
THETA_HALFRANGE =       40.0000
THETA_MAX       =       130.000
THETA_MIN       =       50.0000
TH_ANSAE        =fltarr(28)
UCUBEFILE       = '../data/6806C6V124.U.cube'
VCUBEFILE       = '../data/6806C6V124.V.cube'
WHICH_IMAGES    =intarr(26)
save,file='test.sav'
end

; ********** MAIN - this progam works fine

make_savefile
insavefile = 'test.sav'

timing_file = 'test.dat'
```

test1, insavefile, timing_file

end