Subject: Getting memory overflow on array concat; why?
Posted by bleau on Tue, 24 Jan 1995 20:37:42 GMT
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Hello. I'm a fairly new user of IDL; so is a user of mine, on whose behalf I am posting this message. We are using IDL V2.0 on OpenVMS VAX.

The task is to read in a set of numbers from a disk file into a 2-dimensional array. The disk file has 3 numbers per line, about 4000 lines. I include at the end of this post the IDL code which does the read. Problem is, the code never finishes; IDL runs out of memory beforehand. I increased the user's max memory allotment, and the program went a little further before running out of memory. Back-of-envelope calculations showed the user needs about 48Kb to hold this data, of 93 pages (512 bytes/page). IDL itself uses ~6000 pages. I gave her account an upper limit of 25000 pages; enough room for IDL and a 810666x3 array! What is going on???

I suspect the array concatenation operator is the culprit, but I can't say why. Here's the relevant code fragment, which is within a loop:

```
    READF, 1, temp
    IF first THEN BEGIN
      data = temp
      first = ''
    ENDIF ELSE BEGIN
      data = [data,temp]
    ENDELSE
```

Both data and temp have been previously declared FLTARR(1,parameters), where parameters is 3. The help command, when given after the crash, shows DATA as being something like (3100,3), and only 2% of the symbol space used.

As I said, this doesn't make sense. My hunch is there's a side effect of array concatenation that eating up memory, never releasing it. Has anyone has experience with this type of programming bug and how to fix it?

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Complete IDL code:

```
;    this IDL program is for quick and dirty plotting
;    it opens a file, reads a given number of parameters and plots any number
;    of parameters versus one parameter
filename = ' '
PRINT, ' Enter name of data file'
READ, filename
PRINT, ' Enter number of parameters to read'
```

```
READ, parameters
data = FLTARR(1,parameters)
temp = FLTARR(1,parameters)
OPENR, 1, filename
first = 'first'
ret = ''
WHILE NOT EOF(1) DO BEGIN
;&
    temp_ret = size(data)
    if temp_ret(1) mod 1000 eq 0 then begin
    PRINT, ' ENTER RETURN'
    READ, ret
    endif
;&
    ON_IOERROR, go_on
    READF, 1, temp
    IF first THEN BEGIN
      data = temp
      first = ''
    ENDIF ELSE BEGIN
      data = [data,temp]
    ENDELSE
    go_on:
ENDWHILE
CLOSE, 1
;                                       get plot information
plot_start:
xlinlog = ' '
ylinlog = ' '
PRINT, '        Plot information'
PRINT, 'Enter log for logarithmic or lin for linear x axis '
READ, xlinlog
PRINT, 'Enter log for logarithmic or lin for linear y axis '
READ, ylinlog
PRINT, ''
PRINT, 'Enter the number of parameters to plot '
READ, plot_param
y_param = INTARR(plot_param)
PRINT, 'Enter parameter number for the x axis '
READ, x_param
x_param = x_param - 1
y_min = 1.e10
y_max = 0.
FOR i = 0, plot_param-1 DO BEGIN
    PRINT, 'Enter parameter number to plot '
    READ, temp1
    y_param(i) = temp1 - 1
    y_min = y_min < MIN(data(*,temp1-1))
```

```
    y_max = y_max > MAX(data(*,temp1-1))
ENDFOR
;                                       create plot
case_start:
CASE 1 OF
    xlinlog EQ 'log' AND ylinlog EQ 'log' : BEGIN
      PLOT_OO, data(*,x_param), data(*,y_param(0)), $
        YRANGE=[y_min, y_max]
    END
    xlinlog EQ 'log' AND ylinlog EQ 'lin' : BEGIN
      PLOT_OI, data(*,x_param), data(*,y_param(0)), $
       YRANGE=[y_min, y_max]
    END
    xlinlog EQ 'lin' AND ylinlog EQ 'log' : BEGIN
      PLOT_IO, data(*,x_param), data(*,y_param(0)), $
       YRANGE=[y_min, y_max]
    END
    xlinlog EQ 'lin' AND ylinlog EQ 'lin' : BEGIN
      PLOT, data(*,x_param), data(*,y_param(0)), $
       YRANGE=[y_min, y_max]
    END
    ELSE : BEGIN
      PRINT, ' Make sure lin and log entries are in lower case'
      PRINT, 'Enter log for logarithmic or lin for linear x axis '
      READ, xlinlog
      PRINT, 'Enter log for logarithmic or lin for linear y axis '
      READ, ylinlog
      GOTO, case_start
    END
ENDCASE
FOR i = 1, plot_param-1 DO OPLOT, data(*,x_param), data(*,y_param(i))
;                                       make another plot?
answer = ' '
PRINT, ' Do you want to make another plot?'
READ, answer
IF answer EQ 'Y' OR answer EQ 'y' THEN GOTO, plot_start
END
```

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