Subject: Re: VARRAY, memory & extracting subarrays
Posted by Craig Markwardt on Mon, 02 Jul 2001 05:10:34 GMT
View Forum Message <> Reply to Message

Kristine Hensel <kristine@esands.com> writes:
> I'm processing large (105 MB) arrays of images, and I've been running
> into memory problems. (Not surprisingly, right?) I've started using
> Eric Korpela's VARRAY routine, which has helped, but I still can't
> manage to extract a subarray without using all of the available memory.
> Theoretically I have 1 GB of memory, and we've tried maximizing every
> system variable that we can, but I'm still crashing ("Unable to allocate
> memory to create array") when I try to run my image processing program.
...

VARRAY is a pretty extreme measure for your needs. Avoid it if you
can. [Although I admit Korpela's routine is *very* cool!]

1. Can you increase your swap space?
2. Have you checked your process limits (ie, "limit" or "ulimit"
command before running IDL)?
3. Big problem is that you say "sector_images = images", which deletes
the old mapping of sector_images. You can do this instead:
sector_images(*,*,*) = images ; or even better,
sector_images(0,0,0) = images ; which is faster but sneaky
4. Investigate chunking or banding.

Hope these help! I would really bet on number 2 though.
Craig

--
---------- ----------
Craig B. Markwardt, Ph.D. EMAIL: craigmnet@cow.physics.wisc.edu
Astrophysics, IDL, Finance, Derivatives | Remove "net" for better response
---------- ----------

Subject: Re: VARRAY, memory & extracting subarrays
Posted by Kristine Hensel on Mon, 02 Jul 2001 07:38:00 GMT
View Forum Message <> Reply to Message

Craig Markwardt wrote:

> VARRAY is a pretty extreme measure for your needs.

Not to mention that it's too much for my very small brain ...

>
> 1. Can you increase your swap space?

> 2. Have you checked your process limits (ie, "limit" or "ulimit"
> command before running IDL)?

We've tried our best with these. We're working with HP-UX's, and there isn't really a resident expert around. The swap space and process limits both seem to be very big numbers.

> 3. Big problem is that you say "sector_images = images", which deletes
> the old mapping of sector_images. You can do this instead:
> sector_images(*,*,*) = images ; or even better,
> sector_images(0,0,0) = images ; which is faster but sneaky

I *knew* it'd be something simple like that - thanks! (And thanks for being up so late!)

Kristine

--
Kristine Hensel
Environmental Systems & Services Phone: +61-3-9835-7901
20 Council St.
Hawthorn East, VIC 3123 Australia e-mail: kristine@esands.com

---

Subject: Re: VARRAY, memory & extracting subarrays
Posted by Richard French on Mon, 02 Jul 2001 12:27:08 GMT
View Forum Message <> Reply to Message

You've probably thought about this, but it appears that your images array is a stack of images (a 3-D array) - if you can get away with processing a single image at a time, or extracting a subsection of each image in succession, you can always use the ASSOC command to set up an associated variable. This is very handy when you are working with a huge number of individual images. For example, let's say you had 20 images of size 500 x 600:

images = fltarr(500,600,20)

and you wanted to make a sub=array of (100:300, 200:400, 11:14) of this hunk. You could do:

```
openr,lun,/GET_LUN,image_file
image=ASSOC(fltarr(500,600))

sub_array=fltarr(201,201,4)

for i=11,14 do begin
 sub_array[0,0,i]=(image[i])[100:300,200:400]
```

endfor

THis way, you never need to have the entire large image cube in memory at a given time.

I do this all the time for sequences of astronomical images which are stored in time order in an image cube. For your application, it may or may not be a time-saver.

Hope this helps,

Dick French

Subject: Re: VARRAY, memory & extracting subarrays
Posted by Richard French on Mon, 02 Jul 2001 12:28:14 GMT
View Forum Message <> Reply to Message

That should be:

```
>
>  openr,lun,/GET_LUN,image_file
>  image=ASSOC(lun,fltarr(500,600))
          ^^^^
>
>  sub_array=fltarr(201,201,4)
>
>  for i=11,14 do begin
>         sub_array[0,0,i]=(image[i])[100:300,200:400]
>  endfor
```

Subject: Re: VARRAY, memory & extracting subarrays
Posted by Richard French on Mon, 02 Jul 2001 12:29:21 GMT
View Forum Message <> Reply to Message

OOPS! Yet another typo - that's what I get for coding on the fly....

```
>
>  That should be:
>
>>
>>  openr,lun,/GET_LUN,image_file
>>  image=ASSOC(lun,fltarr(500,600))
>              ^^^^
>>
>>  sub_array=fltarr(201,201,4)
```

```
>>
>>  for i=11,14 do begin
>>          sub_array[0,0,i-11]=(image[i])[100:300,200:400]
                    ^^^^
>>  endfor
```

Subject: Re: VARRAY, memory & extracting subarrays
Posted by Kristine Hensel on Tue, 03 Jul 2001 00:23:23 GMT
View Forum Message <> Reply to Message

"Richard G. French" wrote:
>
> OOPS! Yet another typo - that's what I get for coding on the fly....

That's okay - I'll just wait here patiently until you get it right! ;)

Thanks for your suggestion - I'll certainly consider keeping my images
separate. We were heading that direction anyway.

Kristine

--
Kristine Hensel
Environmental Systems & Services Phone: +61-3-9835-7901
20 Council St.
Hawthorn East, VIC 3123 Australia e-mail: kristine@esands.com

---