
Subject: Allocating memory in LINKIMAGE program
Posted by [Virginia Rogers](#) on Wed, 19 Jul 2000 07:00:00 GMT
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I have a C program which queries a database and returns a list of all matching entries. I am making this routine callable in IDL with LINKIMAGE. I'd like to return a string array to the calling IDL program. My question is, how do I allocate the memory to store the strings? The C program has allocated space for all of the strings with malloc(). Can I call IDL_MakeTempArray() to create the string array and then set each of the string pointers to point to the location allocated by malloc()? Is there another source of information about using LINKIMAGE other than the IDL Advanced Development Guide?

Thanks! Ginny

Subject: Re: Allocating memory in LINKIMAGE program
Posted by [Randall Frank](#) on Thu, 20 Jul 2000 07:00:00 GMT
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Virginia,
You can use something like this to return an array of (n)
strings:

```
s = (IDL_STRING *)IDL_MakeTempVector(IDL_TYP_STRING,  
n, IDL_BARR_INI_ZERO, &vpTmp);  
for(i=0;i<n;i++) IDL_StrStore(s++,YourCStringArray[i]);  
IDL_VarCopy(vpTmp,argv[0]);
```

In general, do not pass memory you allocated with malloc back to IDL, especially if you want IDL to clean it up later for you.

Hope it helps.

Virginia Rogers wrote:

```
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> entries. I am making this routine callable in IDL with LINKIMAGE. I'd like to  
> return a string array to the calling IDL program. My question is, how do I  
> allocate the memory to store the strings? The C program has allocated space for  
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> LINKIMAGE other than the IDL Advanced Development Guide?  
>  
> Thanks! Ginny
```

--

rjf.
Randy Frank | ASCI Visualization
Lawrence Livermore National Laboratory | rjfrank@llnl.gov
B451 Room 2039 L-561 | Voice: (925) 423-9399
Livermore, CA 94550 | Fax: (925) 423-8704

Subject: Re: allocating memory
Posted by [krastoboy](#) on Thu, 18 Oct 2007 08:10:06 GMT
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I've the same problem!
I'm working with an image of 1.8 G. on a machine with 4GB of memory.
I've tried to use an half of the image but the problem still remains.

Any suggestion?

Thanks
Lo

Subject: Re: allocating memory
Posted by [MP](#) on Thu, 18 Oct 2007 15:25:51 GMT
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On Oct 18, 2:10 am, krasto...@gmail.com wrote:
> I've the same problem!
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> I've tried to use an half of the image but the problem still remains.
>
> Any suggestion?
>
> Thanks
> Lo

There's a tech tip on the ITT VIS website that addresses this issue:

<http://www.ittvis.com/services/techtip.asp?ttid=3346>

mp

Subject: Re: allocating memory
Posted by [R.G.Stockwell](#) on Thu, 18 Oct 2007 15:37:26 GMT
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<jtmcahill@gmail.com> wrote in message

news:1192673434.544923.139390@i38g2000prf.googlegroups.com.. .

> So, I have this large model file that I need to open. Although it is
> 650MB I should be able to open it in IDL on my pc computer which has
> ~4GB of Memory. However, it keeps telling me insufficient memory.
> However, if I try to open it in IDL on a linux machine with ~2GB
> memory I can open it no problem. Is there a way to make my windows
> based pc cooperate and allow me to open this file that should be no
> problem to open?
>
> Thanks,
> Hawaiianite

I've attached a short program memtest.pro below. I grabbed this
off the newsgroup.

It shows you the memory sizes you can allocate.

The problem may be fragmentation of your ram by the many
dlls loaded by windows and other programs. I'd remove everything
you can from the startup (and other automatically loading programs)
and reboot (remove spyware, antivirus, firewalls, mail programs, but
be careful not to forget to turn them back on). That may help.

pro memtest

compile_opt idl2 ; set default integers to 32-bit and enforce [] for
indexing

MB = long64(2)^20
currentBlockSize = MB * 2047 ; 2 GB

print,'current block size = ',currentblocksize
maxIterations = 10 ; Max loop iterations
memPtrs = ptrarr(maxIterations)
memBlockSizes = ulonarr(maxIterations)

for i=0, maxIterations-1 do begin
; Error handler
catch, err

; Sepcifically designed for "Failure to allocate memory..." error
if (err ne 0) then begin
currentBlockSize = currentBlockSize - MB ; ...try 1 MB smaller
allocation
if (currentBlockSize lt MB) then break ; Give up, if currentBlockSize
< 1 MB
endif

```

; This 'wait' enables Ctrl-Break to interrupt if necessary (Windows).
wait, 0.0001

; Allocate memory (if possible)
memPtrs[i] = ptr_new(bytarr(currentBlockSize, /nozero), /no_copy)
memBlockSizes[i] = currentBlockSize ; Store the latest successful
allocation size

; Print the current allocated block size and the running total, in Mb
print, format='(%sMemory block #%2d: %6d Mb (total: %4d Mb))', $
    i + 1, ishft(currentBlockSize, -20),
ishft(ulong(total(memBlockSizes)), -20)
endfor

ptr_free, memPtrs
end

```

Subject: Re: allocating memory
Posted by [Jean H.](#) on Thu, 18 Oct 2007 15:41:08 GMT
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krastoboy@gmail.com wrote:

```

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> I've tried to use an half of the image but the problem still remains.
>
> Any suggestion?
>
> Thanks
> Lo

```

Hi,
 You can use the procedure memtest from ITTVIS in order to find out the size of the biggest array you could create.

Now, with windows, you can only have up to 2Gb of memory for any process... even if your computer has 42 Gb available!. There is a way to allocate up to 3 Gb, but this solution might make your system instable (I use it quite often here, and I never had any issue).

You have to do 2 things: in your windows startup file (boot.ini), add the option /3gb ... I suggest you not to modify the curent entry, but to add a new one so if your system doesn't like it, it is easy to use the normal configuration. Your entry should look somewhat like this:
 multi(0)disk(0)rdisk(0)partition(2)\WINDOWS="Microsoft Windows XP Professional 3G" /noexecute=optin /fastdetect /3GB

Restart your computer in the 3Gb mode.

Now you also have to modify the Idl executable... I did it with v6.2 and v6.3 and it works perfectly. Again, make a copy of it, so you can choose to launch IDL with up to 3gb of memory or with up to 2gb.

So, using visual studio (the free version from Microsoft works well), you need to specify /LARGEADDRESSAWARE to the IDL executable (google it, I don't remember what to do). Now run this new exe, and run memtest again... you should see a big difference!

Personally, each time I need a lot of memory, I do it under Linux as there is no silly memory limitations!

Jean

Subject: Re: allocating memory

Posted by [rtowler](#) on Thu, 18 Oct 2007 16:24:07 GMT

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On Oct 18, 3:41 pm, Jean H wrote:

> Now, with windows, you can only have up to 2Gb of memory for any
> process... even if your computer has 42 Gb available!. There is a way to
> allocate up to 3 Gb, but this solution might make your system instable
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> the normal configuration. Your entry should look somewhat like this:
> multi(0)disk(0)rdisk(0)partition(2)\WINDOWS="Microsoft Windows XP
> Professional 3G" /noexecute=optin /fastdetect /3GB

It is also worth noting that you can use the /USERVA switch to tune the amount of RAM that is available to "large address aware" applications. That extra GB comes at the expense of RAM available for the kernel and some applications can run into issues when the kernel is squeezed. I specifically had issues with the LANDesk remote management tools on a machine with 4GB and I had issues with enumerating files on network shares on a machine with 3GB of RAM. Giving back a 100 MB or so by setting /USERVA=2900 solved the issues in both cases.

By default I run my machine with the /3GB /USERVA=2900 switches and have had no stability or compatibility issues to speak of.

-Rick

Subject: Re: allocating memory
Posted by [Karl Schultz](#) on Thu, 18 Oct 2007 18:52:24 GMT
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R.G. Stockwell <noemail@please.com> wrote:

>
> <jtmcahill@gmail.com> wrote in message
> news:1192673434.544923.139390@i38g2000prf.googlegroups.com...
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> The problem may be fragmentation of your ram by the many
> dlls loaded by windows and other programs. I'd remove everything
> you can from the startup (and other automatically loading programs)
> and reboot (remove spyware, antivirus, firewalls, mail programs, but
> be careful not to forget to turn them back on). That may help.

Each Windows process gets its own 32-bit virtual address space. So, eliminating other processes won't help the IDL process in terms of virtual address space fragmentation, but might help overall system performance by reducing paging demand.

What you do need to look out for is various types of "junkware" that causes extra DLL's to get loaded either for every process on the machine or only for processes with windows. The Windows OS does a pretty good job of placing system DLL's in the virtual address space of each process in order to leave a big contiguous free space in the middle. But these non-Microsoft add-ons are sometimes notorious for plopping themselves into the middle of this free space, which directly effects the size of the biggest chunk you can allocate later from IDL.

One of the biggest problem programs used to be the software that you could optionally install with nVidia and ATI video cards. Some of these "value-add" packages would add items and do-dads to the window title bar to let you tweak things, etc. I found that by turning these off or rebasing the offending DLL's, I could ease the problem. I don't know if these sorts of programs are causing these problems today, but it's worth turning off these extra gadgets just to see if it helps.

--

Karl Schultz kws@frii.com

There are 844,739 ways to enjoy a Waffle House hamburger.

Subject: Re: allocating memory

Posted by [Andrew Cool](#) on Sat, 20 Oct 2007 08:14:21 GMT

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On Oct 19, 12:37 am, "R.G. Stockwell" <noem...@please.com> wrote:

> <jtmcah...@gmail.com> wrote in message

>

> news:1192673434.544923.139390@i38g2000prf.googlegroups.com.. .

>

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> MB = long64(2)^20

> currentBlockSize = MB * 2047 ; 2 GB

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> print,'current block size = ',currentblocksize

> maxIterations = 10 ; Max loop iterations

> memPtrs = ptrarr(maxIterations)

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>

> for i=0, maxIterations-1 do begin

```

> ; Error handler
>   catch, err
>
> ; Sepcifically designed for "Failure to allocate memory..." error
>   if (err ne 0) then begin
>     currentBlockSize = currentBlockSize - MB ; ...try 1 MB smaller
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>     if (currentBlockSize lt MB) then break ; Give up, if currentBlockSize
> < 1 MB
>   endif
>
> ; This 'wait' enables Ctrl-Break to interrupt if necessary (Windows).
>   wait, 0.0001
>
> ; Allocate memory (if possible)
>   memPtrs[i] = ptr_new(bytarr(currentBlockSize, /nozero), /no_copy)
>   memBlockSizes[i] = currentBlockSize ; Store the latest successful
> allocation size
>
> ; Print the current allocated block size and the running total, in Mb
>   print, format=('%"Memory block #%2d: %6d Mb (total: %4d Mb)"', $
>     i + 1, ishft(currentBlockSize, -20),
> ishft(ulong(total(memBlockSizes)), -20)
>   endfor
>
>   ptr_free, memPtrs
> end

```

Hmm, Here's what I get on my 4GB of RAM Quad core system running 64 bit IDL (v6.4) under 64 bit Vista :-

```

IDL> memtest
current block size =      2146435072
Memory block # 1:  2047 Mb (total: 2047 Mb)
Memory block # 2:  2047 Mb (total: 4094 Mb)
Memory block # 3:  2047 Mb (total: 2045 Mb)
Memory block # 4:  2045 Mb (total: 4090 Mb)
Memory block # 5:  2043 Mb (total: 2037 Mb)
Memory block # 6:  2041 Mb (total: 4078 Mb)
Memory block # 7:  1803 Mb (total: 1785 Mb)

```

Can't say I know how to interpret that at all !!

Andrew C.
