Subject: Re: IDL Memory Leaks
Posted by David Fanning on Mon, 05 Nov 2001 18:22:14 GMT
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Myron Brown (brownmz1@jhuapl.edu) writes:

> Recently, I have noticed that my IDL programs leak memory, but I never
> use pointers directly. This is true when running with IDL on a Windows
> PC or on an SGI workstation. Widgets seem to be one source of
> problems. File I/O seems to be another, but I'm not yet sure. Due to
> the problems I'm having with memory leaks, my long runs eventually die
> when memory is exhausted.
>
> Does anyone have any hints on ways to avoid memory leaks in IDL?

Well, be *very* careful whose programs you use.
Those ones from that Coyote site are notorious
for having memory leaks. :-)

Having embarrassed myself with memory leaks far too
often for it to be amusing anymore, I have learned
a couple of things about the subject. Here are some
rules of thumb I use.

1. In widget programs put your clean-up routines
in a procedure that is called when the top-level
base dies. (In other words, use the CLEANUP keyword
to the XMANAGER call.) *Don't* put your clean-up
routines in a QUIT button event handler. People
don't exit your programs with the QUIT button!

2. Put your CLEANUP procedure (in widget or object
programs) VERY close to the GUI or INIT procedures
in your program file.

Most memory leaks come from adding a pointer to the
program somewhere during development and forgetting
to put the complementary cleanup in the CLEANUP
procedure. Having it very close by helps a lot.

3. Don't create a pointer without *immediately*
adding the line that cleans it up in the CLEANUP
routine (see 2, above).

4. If you are putting something new into a pointer,
always do this:

```
*ptr = somethingNew
```

Or, if you have to, this:

```
Ptr_Free, ptr
ptr = Ptr_New(somethingNew)
```

But, never this:

```
ptr = Ptr_New(somethingNew)
```

5. Before you show your program to *anyone*,
(a) start a new IDL session, (b) run your program,
(c) exit the program, and (d) type "HELP, /HEAP".
If anything exists on the heap, immediately read
steps 1-4 again.

That (and damn careful programming) should help. :-)

Cheers,

David
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