Subject: problems with IDL-IDL bridge spawning
Posted by Marshall Perrin on Thu, 23 Jul 2009 01:35:18 GMT
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Hi all,

Recently I've started using the IDL-IDL bridge to parallelize some simulations. Only certain parts of the algorithm are suitable for this, so my approach is to alternate, thus:
- run Do_Stuff_1 in main IDL session,
- spawn 8 bridges, each of which runs a copy of Do_Stuff_2
- when they're done, back in the main session, obj_destroy all the bridges, run Do_Stuff_3, and then loop back to the start for the next iteration.

Thus the code alternates between running bridged code and just regular IDL. At first I thought things were working fine, but for some reason, part way through the 5th overall loop, I'm unable to start any more bridges. I get this terribly helpful error message,

% Unable to start IDL_IDLBRIDGE slave process.

Oddly, this happens after I've started 7 of my 8 threads, repeatably each time, during the 5th iteration of my main loop. Is there some reason one can't open more than 40 IDL sessions total? You would think any such limit would get reset when one kills off a previous process.

I enclose below a bit of sample code, which repeatably encounters this problem on my 8-core Mac Pro, crashing partway through the 7th iteration every time. On my 2-core laptop, it only spawns 2 threads per loop, and makes it to the 54th loop before dying.

Further oddities: After a crash, .reset does NOT fix the problem; I have to exit and restart IDL. And if I launch two separate IDL sessions and run my test code in them both, they each independently run and die at the same exact point, without apparently affecting one another. So it's a per-IDL-session limit, not a total OS processes thing.

Am I doing anything obviously wrong here, or is this a real bug?

- Marshall

pro bridgetest

```
nt = 100
nbparallel = !CPU.TPOOL_NTHREADS  ; 1 thread per core
bridges = ptrarr(nbparallel)

for it=0L,nt-1 do begin
 print, "Running loop iteration", it
 for ipar=0L,nbparallel-1 do begin
   bridges[ipar] = ptr_new(obj_new('IDL_IDLBridge'))
   (*bridges[ipar])->Execute, $
   'for c=0,10 do detector = findgen(1000,1000)'
 endfor
 going = 1
 stats =intarr(nbparallel)
 ; wait for them to finish
 while (going) do begin
  for ipar=0L,nbparallel-1 do $
   stats[ipar] = (*bridges[ipar])->Status()
  if total(stats) eq 0 then going=0
 endwhile
 message,/info, "Parallel computation done!"
 message,/info, " Destroying bridges"
 for ipar=0L,nbparallel-1 do obj_destroy, (*bridges[ipar])
endfor


end
```