Subject: strings and memory usage
Posted by Conor on Wed, 22 Aug 2007 18:54:29 GMT
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Does anyone know how IDL stores strings? I'm creating some very large string arrays and running out of memory when I shouldn't. So, for the following example I'm using the linux command 'top' to keep track of memory usage on a per-process basis. In the beginning, IDL is using 59 megabytes. Then, I create a string array with 5 million elements like this:

test = strarr(5000000) + 'asdf'

Now I have a string array with 5,000,000 elements, each with 4 characters in it. According to top idl is now consuming 177 megabytes! That means that each string takes up an average of 23 bytes! To make matters worse, when I delete test (delvar,test) IDL drops back down to 120 megabytes!

What in the world is going on? Naievly, I would expect a string array with strings 4 characters long to take up an absolute maximum of 8 bytes per element (4 bytes for the characters, 2 bytes for the length, and maybe two bytes for pointers). Why is it taking up 23 bytes??? Am I just confused about something? Also, why doesn't the memory usage drop back down to it's original value? I did notice one thing. When I then created more large variables, the memory usage didn't increase right away, so maybe IDL is clearing the memory but not releasing it to the operating system. Still, I find these problems very troubling. Is there something very wrong with the string arrays in IDL, or am I just being silly?