
Subject: Re: how to pass array from dll into IDL?
Posted by [nmw](#) on Fri, 06 Jul 2001 10:24:52 GMT
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In article <fbb56367.0107050653.2730fd68@posting.google.com>, maxschautzer@my-deja.com writes:

> Hi ,
>
> I need to pass a bytearray from the dll to IDL (5.2).
> I am writing a wrapper for a framegrabber which uses the dll functions to acquire
> the single frames(monochrome).
>
> Then I try to pass the pointer address to idl, then this address seems not to work.
> Here my example:
>
> in dll:
>
> IDL_LONG TestFunction(int argc, void* argv[])
> {
> IDL_LONG *answer;
> BYTE b=255; //BYTE is UCHAR
> BYTE *pb;
> answer = (IDL_LONG *)argv[0];
> pb=&b;
> *answer = (IDL_LONG)pb;
> return(0L); //Return zero if all okay
> }
>
> in IDL:
>
> a=10L
> err=Call_External('acquire.dll','TestFunction',a)
> print,a
> IDL>10415668
>
> This address seems not to be the address for b in dll. I tested this with:
> var = EXTPROC_DEREF(addr,BYTE=1)
> print,var
> IDL>94 not 255
> -> EXTPROC_DEREF comes from <http://www.rlkling.com/>
>
> So here are my questions: How can I access these different address spaces?
> How can I test this address in IDL?
> Is there any possibility to transfer whole arrays(frames)?
> And if, how fast can I get these arrays(25ms)?
>
> Thanks
>

> Max

Personally, I'd forget trying to use `call_external` for this. Using that method you can only fill in the contents of variables which are created in IDL and passed to your code.

You're much better off going down the DLM route. You can then create IDL variables in your code and pass them back to IDL. It's a steeper learning curve but will pay off in the end. I'd advise getting Ronn's book on "Calling C from IDL". Alternatively you could learn it the hard way from the IDL on-line docs ...

Here's an example to get you started and to demonstrate just how simple it really is ;-) This DLM creates a byte array, fills it with values and passes it back to IDL. Copy the C code into a file `data.c`, and the DLM into a file `data.dlm`. Then compile the code into a shared object, on UNIX this is simply

```
cc -shared -o data.so data.c -I<path_to_IDL>/external
```

I don't know how to do this under Windows as I don't use that OS, hopefully someone in the group will be able to help. Failing that, there are instructions in the IDL online help (`edg.hlp`, section "Adding System Routines").

To use it run IDL:

```
ion:nmw 565$ idl_5.2
```

```
IDL Version 5.2.1 (IRIX mipseb). (c) 1999, Research Systems, Inc.
```

```
Installation number: 3437-9.
```

```
Licensed for use by: Radio and Space Plasma Physics Group
```

```
IDL> a=get_data()
```

```
% Loaded DLM: DATA.
```

```
IDL> print,a
```

```
 1  2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
28 29
30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55
56 57 58
...
```

Good luck.

--

Nigel Wade, System Administrator, Space Plasma Physics Group,
University of Leicester, Leicester, LE1 7RH, UK
E-mail : nmw@ion.le.ac.uk

Phone : +44 (0)116 2523568, Fax : +44 (0)116 2523555

Here are the source files:

data.c:

```
#include <stdlib.h>
#include <stdio.h>
#include <unistd.h>
#include <errno.h>

#include "export.h"

#define DATALEN 250

IDL_VPTR get_data(int argc, IDL_VPTR argv[], char *argk)
{
    IDL_VPTR array;
    IDL_LONG dims[IDL_MAX_ARRAY_DIM];

    IDL_VPTR result;

    unsigned char *data;
    int i;

    /*
     * get the data
     */
    data = malloc(DATALEN);
    if ( data == NULL )
        IDL_MESSAGE( IDL_M_NAMED_GENERIC, IDL_MSG_RET, strerror(errno));

    for ( i = 0; i < DATALEN; i++ )
        data[i] = i + 1;

    /*
     * create the return data array
     */
    dims[0] = DATALEN;

    array = IDL_ImportArray(1, dims, IDL_TYP_BYTE, data, NULL, NULL);

    return array;
}
```

```
int IDL_Load(void) {

    static IDL_SYSFUN_DEF function_addr[] = {
        { get_data, "GET_DATA", 0, 0, 0},
    };

    return IDL_AddSystemRoutine(function_addr, TRUE, 1);
}
```

data.dlm:

```
MODULE data
DESCRIPTION Create a simple data array.
VERSION 1.0
SOURCE Nigel Wade, Leicester University.
BUILD_DATE July 6, 2001
FUNCTION get_data 0 0
```

Subject: Re: how to pass array from dll into IDL?
 Posted by [Randall Frank](#) on Sat, 07 Jul 2001 00:04:20 GMT
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Nigel,
 Make sure you supply a free_cb function in your example.

The line:

```
array = IDL_ImportArray(1, dims, IDL_TYP_BYTE, data, NULL, NULL);
```

should read something like:

```
array = IDL_ImportArray(1, dims, IDL_TYP_BYTE, data,
(IDL_ARRAY_FREE_CB)free, NULL);
```

to avoid a memory leak in your example.

FWIW.

```
>
> data.c:
>
> #include <stdlib.h>
> #include <stdio.h>
> #include <unistd.h>
> #include <errno.h>
```

```

>
> #include "export.h"
>
> #define DATALEN 250
>
> IDL_VPTR get_data(int argc, IDL_VPTR argv[], char *argk)
> {
>
>     IDL_VPTR array;
>     IDL_LONG dims[IDL_MAX_ARRAY_DIM];
>
>     IDL_VPTR result;
>
>     unsigned char *data;
>     int i;
>
>     /*
>      * get the data
>      */
>     data = malloc(DATALEN);
>     if ( data == NULL )
>         IDL_MESSAGE( IDL_M_NAMED_GENERIC, IDL_MSG_RET, strerror(errno));
>
>     for ( i = 0; i < DATALEN; i++ )
>         data[i] = i + 1;
>
>     /*
>      * create the return data array
>      */
>     dims[0] = DATALEN;
>
>     array = IDL_ImportArray(1, dims, IDL_TYP_BYTE, data, NULL, NULL);
>
>     return array;
> }
>
> int IDL_Load(void) {
>
>     static IDL_SYSFUN_DEF function_addr[] = {
>         { get_data, "GET_DATA", 0, 0, 0},
>     };
>
>     return IDL_AddSystemRoutine(function_addr, TRUE, 1);
> }
>
> data.dlm:
>
> MODULE data

```

> DESCRIPTION Create a simple data array.
> VERSION 1.0
> SOURCE Nigel Wade, Leicester University.
> BUILD_DATE July 6, 2001
> FUNCTION get_data 0 0

--

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
