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Subject: Re: !ERR and MPFIT

Posted by [davidf](#) on Tue, 16 Nov 1999 08:00:00 GMT

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Craig Markwardt ([craigmnet@cow.physics.wisc.edu](mailto:craigmnet@cow.physics.wisc.edu)) writes:

> \* to everybody: any suggestions on how to generically signal an error  
> condition? My thoughts were:  
>  
> - ERROR keyword variable - don't like this, since then the  
> function has to accept keywords  
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> - define a new system variable - don't like this either, since  
> it's hard to do system variables right  
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> - common block variable - not very pretty, but gets the job done.  
>  
> To be clear, this is some kind of error flag that a user routine would  
> (optionally!) set to signal an abnormal termination condition. Right  
> now I am leaning toward the common-block approach. Sorry David.

Oh, I like it. And to tell you the truth, this might  
be the \*perfect\* situation for a common block. Just  
don't be putting 'em in a widget program! :-)

Cheers,

David

--

David Fanning, Ph.D.

Fanning Software Consulting

Phone: 970-221-0438 E-Mail: [davidf@dfanning.com](mailto:davidf@dfanning.com)

Coyote's Guide to IDL Programming: <http://www.dfanning.com/>

Toll-Free IDL Book Orders: 1-888-461-0155

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Subject: Re: !ERR and MPFIT

Posted by [Craig Markwardt](#) on Wed, 17 Nov 1999 08:00:00 GMT

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Pavel Romashkin <[promashkin@cmdl.noaa.gov](mailto:promashkin@cmdl.noaa.gov)> writes:

>  
> How about putting something like a conditional  
>  
> message, 'Number of iterations exceeded limits'  
>  
> in the user procedure, to signal MPFIT. Put no CATCH in user

- > procedure. Then, in MPFIT you have CATCH statment followed by a
- > graceful return. If a parameter is so out of bounds that user
- > procedure signals, its unlikely you can obtain anything meaningful
- > from MPFIT, then why not let it quit with CATCH? No common blocks,
- > pointers or anything else. Fully self-contained, no conflicts due to
- > multiple instances running, etc.

Good suggestion, and that actually what happens right now :-)

But I also want something a little more formal. I still feel a little attached to the common block implementation. Still purely optional on the part of the user. We'll see multi-threaded IDL coming from a mile away, if it ever comes. I'll deal with it then.

Right now I multiprocess MPFIT on my dual-CPU machine by running two IDL sessions. Works great!

Craig

--

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Craig B. Markwardt, Ph.D.      EMAIL:    craigmnet@cow.physics.wisc.edu  
Astrophysics, IDL, Finance, Derivatives | Remove "net" for better response  
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Subject: Re: !ERR and MPFIT  
Posted by [Pavel Romashkin](#) on Wed, 17 Nov 1999 08:00:00 GMT  
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- > In this case it's more of a termination condition than an error. For
- > example, the user function may decide that a parameter has gotten out
- > of bounds unrecoverably. I would like MPFIT to return gracefully
- > rather than barfing if possible, so the user routine needs a way to
- > signal MPFIT that something is wrong.

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Pavel Romashkin <[promashkin@cmdl.noaa.gov](mailto:promashkin@cmdl.noaa.gov)> writes:

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> solving. I just want to ask why can't you use CATCH to handle errors  
> conditions? It seems to me that CATCH combined with MESSAGE procedure works  
> quite well for user-defined errors, and CATCH by itself works great for  
> internal IDL routines. This also eliminates the need for separate error  
> handlers.

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Cheers,  
Pavel

Craig Markwardt wrote:

> Unfortunately I chose to use the !ERR system variable. If !ERR is set  
> to a negative number, then MPFIT aborts the run, assuming that there  
> was an unrecoverable error.  
>  
> I now realize that using !ERR was probably a mistake. Why? RSI seems  
> to want to make it obsolete. Through their error-handling flavor of  
> the month program, !ERR seems to have fallen out of favor. Also,  
> there are quite a few actions which might set !ERR accidentally in the  
> user's function without actually signalling an error condition.  
>  
> So I have two questions:  
>  
> \* to people who use MPFIT: does anybody actually use the !ERR status  
> variable to control the fitting process? If not, then I would  
> consider removing it.  
>  
> \* to everybody: any suggestions on how to generically signal an error  
> condition? My thoughts were:  
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>  
> Craig

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Subject: Re: !ERR and MPFIT  
Posted by [Craig Markwardt](#) on Wed, 17 Nov 1999 08:00:00 GMT  
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m218003@modell3.dkrz.de (Martin Schultz) writes:

>  
> In article <MPG.129be687cb5374e598996c@news.frii.com>,  
> davidf@dfanning.com (David Fanning) writes:  
>> Craig Markwardt (craigmnet@cow.physics.wisc.edu) writes:  
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>> Oh, I like it. And to tell you the truth, this might
>> be the *perfect* situation for a common block. Just
>> don't be putting 'em in a widget program! :-)
>>
>
> Now, what happens if you have two or three widgets open each of which
> is calling MPFIT through some means. Would a common block still work?
> And please think once more: may not be possible now, but I am quite certain
> that RSI will one day support SMP, so it could indeed happen that those
> calls to MPFIT were executed simultaneously! I'd go for the keyword - this
> is clean.
```

I totally understand what you are saying. Keywords make everything clean. But consider the following function:

```
function myfunc, x, p
...
end
```

It doesn't accept keywords. Now, if MPFIT tries to call this function with an ERROR keyword, everything crashes. I could try CATCHing such an error, and retrying the function call with without the ERROR keyword, but then what's more ugly? By the way, I've changed the implementation of MPFITFUN to use common blocks instead of pointers (handles really), and it's become much more clean and easy to read now.

The common block implementation has its virtues. It's totally optional. It wouldn't collide with any other system error variables. It's certainly better than my current use of !ERR. And, currently, it's guaranteed that only one session of MPFIT can be running simultaneously.

I am sure that when (if!) RSI implements multithreaded IDL, almost everything is going to crash. Not just MPFIT. Consider every program that uses common blocks, \*especially\* the thousands of IDL library scripts, assumes a single thread of execution. RSI will have to implement some kind of new functionality to keep things working and I for one will depend on that! :-)

Craig

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Cheers,  
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```

[[ Dr. Martin Schultz  Max-Planck-Institut fuer Meteorologie  [[
[[      Bundesstr. 55, 20146 Hamburg      [[
[[      phone: +49 40 41173-308      [[
[[      fax: +49 40 41173-298      [[
[[ martin.schultz@dkrz.de      [[
[[

```

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