## Subject: Plea for IDL 2000 (was: a plea for more reliable mathematical routines) Posted by m218003 on Thu, 16 Sep 1999 07:00:00 GMT

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In article <MPG.124804e8864d03df9898ec@news.frii.com>,

>>

>> I definitely disagree. It is inferior to Java, Python, C/C++

>

- > I mean, honestly, that fact that IDL is still selling as well
- > as it does is not a testament to what a great language it is.
- > It is a testament to how hard it is to write something like
- > it that can beat it in the marketplace.
- > Somebody has to be looking at the ol' man and thinking
- > "I can do better than that." Perhaps that somebody is
- > you, Arno. [...][/color]

Sound to me as if Dave Stern should take this as a wakeup call and lock himself into the garage for a while ;-) Seriously: RSI has the source code, so for them it would be a head start to come up with a more modern version of IDL -- let's just name it IDL 2000 (although it might be a little late for this). Who really needs more features in IDL as it is? Why not consolidate all forces and give the old lady (why "man" David?) a rejuvenalization? Start from scratch and rebuild the language, but leave the general syntax (arguments and keywords, comma seperation) untouched, so it would be somewhat less hard to convert old programs (of course even better would be some kind of conversion tool which would be helpful enough if it could convert 90% of the code and mark the remaining 10%).

As a start, here a short list of fundamentals that I would like to see changed:

- \* Data types: The default integer should be 32 bit (if not even 64), so you would get rid of many problems with loops and array indices. For reading of binary files, a 2 byte integer should be kept as SHORT.
- \* Mathematical routines: well, see the thread. But definitively, they should all operate on DOUBLE as default and -- if at all -- allow a /SINGLE keyword in case one runs out of memory with DOUBLE arrays.
- \* PLOT and the likes: should also operate with DOUBLE values. There should be a solid 2D object oriented model together with a successor of the direct graphics routines (which are still useful to create real quick overview plots and maybe even for publication quality plots exactly because of the lack of interactivity!).

  All the keywords should be cleaned, e.g. it should be possible to call PLOT with an /OVERPLOT keyword (i.e. the same as OPLOT)

and you should definitively not need an /ADVANCE keyword for MAP\_SET. Also (as I remarked about a year ago) it should be more intuitive e.g. to turn of axis labels (would you have ever thought of TICKFORMAT='(A1)' on your own?). AND: please get rid of these annoying character units (e.g. MARGIN)!

- \* SMP (symmetric multiprocessing) is becoming more and more of a standard, so IDL should support it.
- \* Foreign language support in the vector fonts would also be on my wish list (but please don't go as far as Windows where you always have to access the system's control panel to change from ',' as decimal notation to '.' if you exchange data with colleagues in an Excel spreadsheet). It would just be nice if one could e.g. write "o for an o-umlaut (perhaps it would be great if the Tex2IDL interface would become some integral part of IDL. TeX is extremely powerful in formatting equations etc., and it is much more intuitive to write 'A\_3' or 'A\_{3,2}' instead of 'A!L3!N' or 'A!L3,2!N'. Also, TeX is fairly wide spread so people would not have to adapt to yet another formatting syntax.
- \* The image routines should be standardized and not consist of a mixture between procedures and functions as it is now.
- \* In order to achieve more consistency between the object oriented graphics and direct graphics, one should perhaps think of adapting the GNUPLOT approach: there you call a bunch of SET commands to specify the plot style, and then the PLOT command becomes much shorter. In principle one could map the object structure with its view, plotwindow, axis, etc. onto a hierachical structure which could be used in the same way by the direct graphics routines (probably direct graphics would in the end be only another interface for what in fact is object graphics?).

Once again: I really think IDL as we know it has reached its maturity a while ago, and now it's time to think of the future! Of course RSI still needs to support the current IDL version and its users, but I really think they should give their development team a new direction.

Subject: Re: Plea for IDL 2000 (was: a plea for more reliable mathematical routines) Posted by davidf on Thu, 16 Sep 1999 07:00:00 GMT

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Martin.Schultz@dkrz.de (m218003@modell3.dkrz.de) writes:

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New in IDL 5.3 (according to the on-line documentation in the beta version is a "compile option" routine that can change the default integer size from 16-bit to 32-bit:

```
IDL> Compile_Opt DefInt32
IDL> a = 0
IDL> Help, a
A LONG = 0
```

Cheers,

David

P.S. Note there is NO comma after the COMPILE\_OPT command! Took me about 10 minutes to realize that. :-(

--

David Fanning, Ph.D.

Fanning Software Consulting

Phone: 970-221-0438 E-Mail: davidf@dfanning.com

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

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

Subject: Re: Plea for IDL 2000 (was: a plea for more reliable mathematical routines) Posted by davidf on Fri, 17 Sep 1999 07:00:00 GMT

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Greg (ushomirs@my-deja.com) writes:

- > yeah.. IDL started out as a big hack, so I could understand some of
- > these inconsistensies in the original version. But still developing it
- > as a hack after 16 years? c'mon!

"A big hack" is one way to describe a program that started out of solve some interesting scientific problems, but I doubt it is the most helpful way to think about it. Did David Stern have \*this\* IDL in mind when he started out 16 years ago? I doubt it. He was just trying to make something useful for his colleagues and create a job for himself. I know David personally and I am pretty sure that is \*still\* his motivation. And after all, it's not like he has a ton of shareholders he has to please. RSI is privately owned and David can do whatever he likes, including chuck it all and move to Cancun.

You can say whatever you like about IDL, but I can assure you there are LOTS of people who find it useful. And there are probably more of us than you like to think who wouldn't think of programming in anything else. By that standard IDL has been amazingly successful.

I can think of several software products that do specific tasks better than IDL, but I can't think of one that does the range of things IDL can do any better than IDL can do them.

What I don't understand is the heat behind these feelings that IDL is a big hack. Heck, go use something else if you feel that way. It's a competitive marketplace that IDL lives in and you are free to buy (or build) anything that does the job for you. IDL only exists because \*somebody\* keeps buying it.

The only explanation I can come up with for the strong animosity is that that "somebody" is your boss, who purchased IDL against your recommendation. But, hey, it's a programmer's market out there. You can always get a new boss. :-)

Cheers,

David

--

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Greg (ushomirs@my-deja.com) writes:

- > see! that's yet another example of how poorly thought out IDL is!!
- > other directives (such as .RUN, .COMPILE) don't need a comma after
- > their names. Why not make it .COMPILE\_OPT, so that the lack of comma
- > would at least make sense? I guess that would be too reasonable and
- > well thought-out for RSI.. sigh..

Well, to be fair, other "compiler option" commands don't take commas either. For example, "Forward\_Function foobar". Such syntax is undoubtedly necessary to make the compiler aware of an option for it rather than to compile a procedure or function, which it would do otherwise. It makes sense to me and I would have probably realized it if I had taken 5 seconds to think about it, rather than typing away. Or, I could have just looked at the example in the book. It was pretty obvious there. :-)

Cheers,

David

P.S. Incidentally, another compiler option will make it necessary to use square bracket subscripting for all

array subscripts. This will virtually eliminate the need for Forward Function, I think.

--

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Subject: Re: Plea for IDL 2000 (was: a plea for more reliable mathematical routines) Posted by ushomirs on Fri, 17 Sep 1999 07:00:00 GMT

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In article <7rtldk\$bmu\$1@nnrp1.deja.com>,
Mirko Vukovic <mvukovic@taz.telusa.com> wrote:

- > It seems to me that they should have a comp.lang.
- > specialist that would help them with routine names,
- > and parameter and keyword names and usages.
- > Sometimes a parameter is used to signal two different things.

>

> Mirko

yeah.. IDL started out as a big hack, so I could understand some of these inconsistensies in the original version. But still developing it as a hack after 16 years? c'mon!

greg

>

- > Sent via Deja.com http://www.deja.com/
- > Share what you know. Learn what you don't.

>

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Subject: Re: Plea for IDL 2000 (was: a plea for more reliable mathematical routines) Posted by Mirko Vukovic on Fri, 17 Sep 1999 07:00:00 GMT

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```
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Agreed
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Mirko

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Subject: Re: Plea for IDL 2000 (was: a plea for more reliable mathematical routines) Posted by davidf on Sat, 18 Sep 1999 07:00:00 GMT

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

> Love/Hate, that's what it is!

I never said \*this\* wasn't true. :-)

Cheers.

David

--

David Fanning, Ph.D.

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Greg (ushomirs@my-deja.com) feels like this discussion is getting a little hot. I'm sorry he feels that way and I'm sorry if he feels like I'm contributing some of the heat.

Let me just say, again, that I am completely in favor of discussions of IDL's weaknesses. Many people at RSI read this newsgroup (I know this from my personal experience of feeling a little heat myself from time to time) and this is a useful forum for making our thoughts, feelings, and even our wish-lists known to them. They DO pay attention. And they DO care about what you have to say. Their goal--as even the most cynical among us must acknowledge--is to sell software. They can't write software that is indifferent to the needs and wishes of their users if they want to be successful.

But what is not helpful--indeed it might even be counterproductive--is to couch our disappointments and displeasure and whatever it is that is not working for us in invective. Better, and MUCH more productive, to voice our concerns and offer a few constructive suggestions, as Mr. Vukovic did a day or so ago. You might even try wit and humor if you are capable of it. Although humor sometimes goes awry in print form, it at least makes for more interesting reading than a rant of the things you don't like and it can be every bit as sharp.

Will RSI respond to everything we want? Not likely. While the software costs more than Microsoft Office, RSI probably sells the same number of licenses in a year that Microsoft sells in an hour. Pockets and staff (whatever you may have heard) are not

nearly so deep. So wish-lists have to be balanced against time, priorities, and staff considerations. What people have asked for and what they want DOES figure into that equation. More now, I think, than it did several years ago when I was more familiar with the process.

The bottom line is this: keep those cards and letters pouring in. RSI \*needs\* our feedback. But nobody--from dogs to children to software companies--responds well to shouted criticism. Show them the stick (and your wallet), but give them the carrot, too.

- > So i don't see how unsound programming practices
- > that would have been acceptable in a prototype could pass in a real,
- > shipping product.

Several years ago now RSI realized that what seemed like a good program structure 16 years ago wasn't working so well anymore. It was becoming more and more difficult to graph new features onto the underlying program scaffolding. So they took nearly one and a half years to completely rewrite the IDL internals, using the best programming practices at the time. The idea was to create an internal structure that would allow things like objects and pointers and the new development environment, which would probably not have been possible with the old structure.

What I remember most about that time was how often I had to face irate people who were screaming at me that for a year and a half they had gotten NOTHING for their maintenance dollars! Why was RSI ripping them off! Was David Stern talking the whole company on vacations to Mexico with their money, etc., etc. I felt like \*I\* was under a lot of pressure, and I wasn't even writing the code. I can imagine what the engineers were feeling, working 10-12 hour days. I think the fact that a fair number of them left the company at the end of that effort is testament to the strain they were under.

But you see, it is the nature of people that they want to have their cake and eat it too. I wouldn't be a programmer for a software company for anything. You are always in the hot seat, no matter what you do. And who among us can write bug-free code under that kind of pressure? > And boy, does Microsoft get major flak for bugs in their stuff!

Yeah, well, they deserve it. Gates is rich as hell. :-)

- > SO while my original complaint about bad documentation for LSODE started
- > this big flame war, nobody even bothered to take on my second question,
- > how the heck do i call an IDL function from an external (linkimage or
- > dlm) module??

Donno. Not my job as Defender of the Realm. :-)

Cheers.

David

--

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davidf@dfanning.com (David Fanning) writes:

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- > that IDL lives in and you are free to buy (or build)
- > anything that does the job for you. IDL only exists because
- > \*somebody\* keeps buying it.

Hi David--

I love IDL. It's got a wonderfully expressive language, powerful vectorizable operators, and mountains of library software (my own, and from others). As an interactive analysis language it has profoundly changed how I work (for the better). I have made software the beats the socks off its C/FORTRAN equivalents.

I could hate IDL. It's got a quirky language with objects tacked on. I have made a large investment in mountains of software that won't run on any other system. IDL is not very friendly to the programmer/maintainer and has introduced and obsoleted several

language features over the course of a year or less. Software bugs persist through several versions. When a bug appears we have no recourse in fixing it, since we don't have the core IDL source code. For example, witness the arguments about mathematical functions. I have spent a profound amount of my time working around IDL bugs. Making a simple hardcopy in direct graphics is a serious inconvenience.

Love/Hate, that's what it is!	
Craig	
	craigmnet@cow.physics.wisc.edu Remove "net" for better response

Subject: Re: Plea for IDL 2000 (was: a plea for more reliable mathematical routines) Posted by ushomirs on Sat, 18 Sep 1999 07:00:00 GMT View Forum Message <> Reply to Message

well, i knew i'd be in for some flames when i wrote this, so heck, bring 'em on.

but seriously, you do NOT need to convince me that IDL it is useful. I've been using it for ..pause to count.. well, since 1991. not continuously of course, there have been periods of order months when i just haven't needed it. i've used it for processing satellite data (GOES, YOHKOH, DMSP), but most recently for crunching though the output of my simulations and making publication-quality plots.

and yes, i instructed my advisor to buy idl, not the other way around. in fact, my department has 50 licenses now.

it's just that the number of hoops one has to jump through to get a decent (publication-quality) plot out of idl is tremendous. for example, you can say device,font\_size=12 when in postscript mode to request 12pt fonts. but if you stack 2 plots on a page with !p.multi, you won't get 12pt fonts, but something much smaller? so you have to go back and screw around with charsize keywords. i can name a gazzilion things like that. in fact, there's not a single element of the plot that i don't end up doing by hand (including placing axis captions, etc). what's the point in having a PLOT command if i basically have to do everything by hand?? i don't have time for that...

as far as developing idl as a "hack". i'm sure none of the original

code Stern wrote at LASP is in idl. that would be property of University of Colorado, he wouldn't be able to sell that commercially. Just like netscape people had to rewrite netscape from scratch, without using any of the mosaic code. So i don't see how unsound programming practices that would have been acceptable in a prototype could pass in a real, shipping product. a product that costs many times more than microsoft office. and boy, does Microsoft get major flak for bugs in their stuff!

the story is that in astronomy (my field) idl has become one of the de-facto standards (god, it's a lesser evil than IRAF). there's tons of data reduction software written in IDL. stuff that has been tested and works. so many people's sense is that, while idl has many shortcomings, using something different to replace it would take a while to get up to speed. now, since we don't program for programming sense, but only to get scientific results, it's easier to deal with all the quirks than start fresh.

SO while my original complaint about bad documentation for LSODE started this big flame war, nobody even bothered to take on my second question, how the heck do i call an IDL function from an external (linkimage or dlm) module??

greg

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Subject: Re: Plea for IDL 2000 (was: a plea for more reliable mathematical routines) Posted by ushomirs on Sun, 19 Sep 1999 07:00:00 GMT View Forum Message <> Reply to Message

In article <onyae3c0ui.fsf@cow.physics.wisc.edu>, craigmnet@cow.physics.wisc.edu wrote:

- > have spent a profound amount of my time working around IDL bugs.
- > Love/Hate, that's what it is!

i'm very glad to see i'm not the only one feeling this way!

greg

Sent via Deja.com http://www.deja.com/

Subject: Re: Plea for IDL 2000 (was: a plea for more reliable mathematical routines) Posted by m218003 on Mon, 20 Sep 1999 07:00:00 GMT

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>

```
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    craigmnet@cow.physics.wisc.edu wrote:
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    Love/Hate, that's what it is!
```

at least the quirks keep your attention focused on IDL ;-) (not on your scientific problem though ;-() But to be constructive: how about a user-bug-fix initiative? A great many of IDL's routine are written in the IDL language, so everyone can go ahead and check them through (at least it's partly open source that way -- although RSI imposes a pretty stringent copyright notice on their routines). If RSI would be willing to cooperate here and perhaps set up a web site, ftp archive etc. where people could download the most recent versions of the IDL procedures, and upload their corrected versions (or submit them with some guarantee that they would appear in the archive with a reasonable response time) that could give them a bunch of programmers for free so to speak. To name an example: just last week I eliminated an annoying restriction in VELOVECT.PRO which is that it does not accept 2D arrays for X and Y and hence does not work for irregularily gridded data. Well, now it does;-) and I would be happy to contribute this fix. BUT OF COURSE: We need to be sure that our effort will be honored in that bug fixes will make it into the official distribution! Another example: wouldn't it be great to see MP\_FIT appear in the official online help?

Although they would have to loosen copyright on those routines which have a user component, I believe...

Nice start for a week! Martin

Subject: Re: Plea for IDL 2000 (was: a plea for more reliable mathematical routines) Posted by ronn on Wed, 22 Sep 1999 07:00:00 GMT

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In article <7s4q2u\$51j\$1@alster.dkrz.de>, m218003@modell3.dkrz.de (Martin.Schultz@dkrz.de) wrote:

- > But to be constructive:
- > how about a user-bug-fix initiative? ..... LOTS CUT
- > where people could download the most recent versions
- > of the IDL procedures, and upload their corrected versions .... LOTS CUT

On my web site (www.rlkling.com) I have a place for modified IDL routines that people create. RSI knows about this and has given me the OK for posting them. The only restricition they asked for was that the routines be renamed with the authors initials as the first two characters. This will avoid any confusion with their tech support.

To name an example: just last week I eliminated an

- > annoying restriction in VELOVECT.PRO which is that it does not accept
- > 2D arrays for X and Y and hence does not work for irregulariliy gridded
- > data. Well, now it does;-) and I would be happy to contribute this fix.

If you send it to me I will post it as MSVELOVECT.PRO!

- > BUT OF COURSE: We need to be sure that our effort will be
- > honored in that bug fixes will make it into the official distribution!

I cannot promise that, but RSI does know about the site and I as new routines are added I will let them know that they are there.

-Ronn

--

Ronn Kling Ronn Kling Consulting www.rlkling.com

Sent via Deja.com http://www.deja.com/ Share what you know. Learn what you don't.