Subject: IDL vs. PV-WAVE
Posted by toma on Tue, 03 Mar 1992 18:56:09 GMT
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Awhile back I posted a reply to someone who asked about the differences
between IDL and PV-WAVE.

My comments were to the effect that they were basically equivalent,
except that PV-WAVE had much more employees, and cost a lot more.

This information was based on my experience with the two packages
as of Oct.1990. I am now given to understand the the two
have since gone their separate ways and hence are no longer equivalent.
In particular IDL now has many features PV-WAVE apparently does not.

My own experience for the last 18 months has been exclusively with
IDL; it is more than sufficient for our needs.

Anyone desiring more information about the differences may email me.

I apologize for any misunderstanding this may have caused.

--
Tom Atwater

Subject: Re: IDL vs. PV-WAVE
Posted by davidf on Tue, 10 Jun 1997 07:00:00 GMT
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Grant W. Petty writes:

> This has got to be a novice FAQ, but I can't find a FAQ file that
> addresses it:
>
> What is the difference between IDL and PV-WAVE? I had understood they
> were two competing packages that did similar things, but the name of
> this newsgroup (comp.lang.idl-pvwave), plus the fact that EVERYONE
> here is talking only about IDL (at least today), seems to suggest
> otherwise.

Five years ago IDL and PV-Wave were the identical thing.
Then Precision Visuals (now Visual Numerics) bought a copy
of the IDL source code and the products have diverged from
there. The differences are mostly a matter of implementation,
not content, as both companies look over their shoulders
(quite literally at times in Boulder) at the other. There
is a "keep up with the Jones" mentality that at times makes

you weary.

> Anyway, I am looking at purchasing an IDL-like package for my research
> group and, assuming that PV-WAVE and IDL really are distinct
> creatures, would like to know what the crucial differences are. My
> applications will include the interactive graphic display and
> statistical analysis of scientific data sets and the preparation of
> publication quality figures on HP workstations. Particularly useful
> features would be the ability to project geographically referenced
> data as polygons, raster images, labeled contours, etc. on an
> arbitrary geographical map. Also, the ability to interactively label
> and edit plots and then produce PostScript output would be nice.
> Finally, the ability to read directly binary data in various formats
> directly from tape, rather than having to stage it to disk first, and
> to directly manipulate tape drives, would be nice. I have no idea how
> well either IDL or PV-WAVE matches these requirements.

I would say either IDL or PV-Wave would match these requirements
in spades. ENVI, a product that is written in IDL and runs on
top of IDL, can probably do all that you ask here without you having
to do any programming at all.

> After looking around this ng, I have to admit to being put off by a
> couple of seemingly recurring complaints about IDL: (1) persistent and
> difficult-to-work-around bugs in basic plotting routines -- e.g.,
> missing grid lines, etc., and (2) the apparently steep learning curve,
> based on people's remarks about the need for expensive IDL training
> courses to learn widgets, etc.

Don't be put off. IDL just released a new version of the
software and everyone is trying to figure it out. As usual,
reality does not jibe with marketing hype, so there is some
settling of expectations. The same thing happens when a new
release of PV-Wave is announced. If you want cheap training,
have a look at my web page.

> After years of struggling with similar
> problems with the NCAR Graphics package routines, I would really love
> to get my hands on a package that works dependably and which is easy
> for new users to figure out how to use from the hardcopy docs.

Yeah, you and everyone else. But I don't think it's going to
happen anytime soon, no matter what you buy. :-)

Cheers,

David

P.S. I'd flip a coin and pick the least expensive option.

P.S.S. This is just a hunch, but I would say you see more
IDL in atmospheric sciences than PV-Wave. Ask around and
get what your colleagues are using. It helps not to have
to write everything from scratch.

---------- ----------
David Fanning, Ph.D.
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IDL 5 Reports: http://www.dfanning.com/documents/anomaly5.html

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Subject: Re: IDL vs. PV-WAVE
Posted by wmc on Wed, 11 Jun 1997 07:00:00 GMT
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In article c6e@mozo.cc.purdue.edu, gpetty@rain.atms.purdue.edu (Grant W. Petty) writes:
> After looking around this ng, I have to admit to being put off by a
> couple of seemingly recurring complaints about IDL: (1) persistent and
> difficult-to-work-around bugs in basic plotting routines -- e.g.,
> missing grid lines, etc., and (2) the apparently steep learning curve,
> based on people's remarks about the need for expensive IDL training
> courses to learn widgets, etc.

1. There are some irritating bugs in the plotting (especially doing polar
stereos...) but they are few and far between.

2. Widgets seem to be particularly complex, but you probably don't need them.
As far as I can tell, they are mostly useful for polished-product programs and
not so useful for research-type work.

- William

William M Connolley | wmc@bas.ac.uk | http://www.nbs.ac.uk/public/icd/wmc/
Climate Modeller, British Antarctic Survey | Disclaimer: I speak for myself

---

Subject: Re: IDL vs. PV-WAVE
Posted by thompson on Wed, 11 Jun 1997 07:00:00 GMT
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gpetty@rain.atms.purdue.edu (Grant W. Petty) writes:

> This has got to be a novice FAQ, but I can't find a FAQ file that
> addresses it:

The FAQ can be found at

 http://ww2.sd.cybernex.net/~mgs/idl_faq.html
> What is the difference between IDL and PV-WAVE? ...

Look at question G06.

Bill Thompson

Subject: Re: IDL vs. PV-WAVE
Posted by davidf on Thu, 12 Jun 1997 07:00:00 GMT
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William Connolley writes:

> 2. Widgets seem to be particularly complex, but you probably don't need them.
> As far as I can tell, they are mostly useful for polished-product programs and
> not so useful for research-type work.

Now hold on there just a minute, William! In my humble, professional
opinion I find that people who hold this view (present company excluded,
of course) don't generally know how to write widget programs.
Most of the time they have tried to learn how to do it from the IDL
manuals. When they are shown how easy it really is, they often start
taking the view that widget programs are essential to their research and
they don't know how they worked without them.

On the other hand, those folks who refuse to jump on the bandwagon
sometimes have the last laugh. Look at the COBOL programmers, for
example, laughing all the way to the bank these days. :-)

Cheers,

David

--
David Fanning, Ph.D.
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Subject: Re: IDL vs. PV-WAVE
Posted by jackel[1] on Fri, 13 Jun 1997 07:00:00 GMT
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In article <339e670b.0@wltss01.nerc-wallingford.ac.uk> wmc@bsfiles.nerc-bas.ac.uk (William Connolley) writes:

> 1. There are some irritating bugs in the plotting (especially doing polar
> stereos...) but they are few and far between.

Yup. I've got a few complaints about a few things, but there's a huge amount of stuff in IDL which works just fine.

> 2. Widgets seem to be particularly complex, but you probably don't need them.
> As far as I can tell, they are mostly useful for polished-product programs and
> not so useful for research-type work.

Actually, I've got several data browsing widgets which are absolutely essential. More flexible than scripts, less tedious than typing at the command line, if I need a new feature I can add it in a few lines. I don't think I could have carried out my research (sifting through megabytes of radar data) without widget tools. All built without a single expensive training course.

Brian

Subject: Re: IDL vs. PV-WAVE
Posted by davidf on Fri, 13 Jun 1997 07:00:00 GMT
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William Young writes:

>> On the other hand, those folks who refuse to jump on the bandwagon
>> sometimes have the last laugh. Look at the COBOL programmers, for
>> example, laughing all the way to the bank these days. :-)
>>
>
> Okay, I know this was off newsgroup topic, but it peaked my curiosity.
> Why are COBOL programmers laughing all the way to the bank?

Will, get your latest copy of ComputerWorld and turn to the Help Wanted ads in the back. COBOL programmers are pulling down upwards of $100K a year to fix the year 2000 problems in ancient code. Recruiters can't find enough people who know (or admit they know) how to write COBOL programs.

(I happen to know this because at certain times of the

month I look at a LOT of Help Wanted ads.) :-)

David

--
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Subject: Re: IDL vs. PV-WAVE
Posted by sritcey on Fri, 13 Jun 1997 07:00:00 GMT
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William Connolley wrote:

> 2. Widgets seem to be particularly complex, but you probably don't
> need them.

David Fanning wrote:

> Now hold on there just a minute, William! ....<snip>...
> When they are shown how easy it really is, they often start
> taking the view that widget programs are essential to their research
> and they don't know how they worked without them.

Jonathan Rogness (rogness@NO.sg1.SPAM.cr.usgs.gov) wrote:

: I'd be interested in hearing some of these people speak up, just because
: I'm curious about how exactly they incorporate widgets into their
: research. Personally, I write about 5-10 programs a day, either in IDL
: or C, and only one of them (about a year ago) has ever been a widget
: application.
[snip]
: Perhaps it just depends on the type of research

Perhaps. Most of what I write isn't widget based either, in the
sense that the stuff that takes thought and time is small, modular
routines which I then call from

1. Wave command line
2. Wave scripts
3. Widget interface

I use [1] when I'm developing an analysis concept, [2] to process a large mass of data when I'm sure I'm doing the right thing, and [3] to explore a new data set when I've previously chosen which tools to use but want to quickly apply one, then the other, in an unpredictable way.

Although the learning curve is steep (at least the Wave manuals have lots of examples), widgets are the quickest way to jump easily from one data set to another and from one analysis mode to another. I find it preferable to repeatedly typing command line variations as one explores. I suppose it really is useless if there is not some degree of sameness to your analysis from data set to data set or from day to day.

Sorry if this is a bit rambling, but I for one find widget programs useful for personal use in addition to supplying them to to nonprogrammers.

Subject: Re: IDL vs. PV-WAVE
Posted by William Young on Fri, 13 Jun 1997 07:00:00 GMT
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David Fanning wrote:
>
> On the other hand, those folks who refuse to jump on the bandwagon
> sometimes have the last laugh. Look at the COBOL programmers, for
> example, laughing all the way to the bank these days. :-)
>

Okay, I know this was off newsgroup topic, but it peaked my curiosity.
Why are COBOL programmers laughing all the way to the bank?

-Will

Subject: Re: IDL vs. PV-WAVE
Posted by Jonathan Rogness on Fri, 13 Jun 1997 07:00:00 GMT
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David Fanning wrote:
>
> William Connolley writes:
>
>> 2. Widgets seem to be particularly complex, but you probably don't
>> need them. As far as I can tell, they are mostly useful for
>> polished-product programs and not so useful for research-type work.
>
> Now hold on there just a minute, William! ....<snip>...
> When they are shown how easy it really is, they often start

> taking the view that widget programs are essential to their research
> and they don't know how they worked without them.

I'd be interested in hearing some of these people speak up, just because I'm curious about how exactly they incorporate widgets into their research. Personally, I write about 5-10 programs a day, either in IDL or C, and only one of them (about a year ago) has ever been a widget application. This, of course, puts me in the large group of unfortunate souls who learned from the manuals. =)

Perhaps it just depends on the type of research; I generally use IDL to manipulate large arrays and images, and then spend some time TVSCLing the results in order to decide what needs to be done next. Sometimes I'll use it to fit models to data, but generally I write programs in C using the NAG numerical library to do that. But it seems to me that using widgets would just slow me down, since I can usually accomplish what I need with a few commands at the prompt or a half page procedure.

Jon

Subject: Re: idl vs. pv-wave
Posted by davidf on Tue, 22 Jul 1997 07:00:00 GMT
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William B. Gunter writes:

> My boss wants a comparison between idl and pv-wave. I know they are
> similar, but what are the main differences between them? Can an idl
> program run under pv-wave with no, minimal or many modifications? What
> are the advantages/disadvantages?

The main differences between IDL and PV-Wave are all the good enhancements that have been added to each of them over the past 4-5 years since they diverged as products. This will include almost all of the good math routines, map projects, ability to add graphical user interfaces, etc, etc, etc.

There is virtually no chance these days that an IDL program will run unmodified in PV-Wave and visa versa unless it is a very simple program, indeed.

At the moment IDL seems more advanced in writing object-oriented programs, which I think have the chance (if anyone can learn to write them) of revolutionizing the art of IDL programming as much as widgets did several years ago. PV-Wave, on the other hand, seems to be paying a whole lot more attention to JAVA and getting applications to work on the network.

I think they are both excellent programs with great features.

Many people I know who have been in your shoes have ended up tossing a coin, or at least that's how it appeared to me. My favorite reason for choosing PV-Wave, back in the days when the two products were still identical, was that PV-Wave's "syntax was easier to use". Sigh...

Cheers,

David
--
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Subject: Re: idl vs. pv-wave
Posted by David Ritscher on Wed, 23 Jul 1997 07:00:00 GMT
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William B. Gunter wrote:
> My boss wants a comparison between idl and pv-wave. I know they are
> similar, but what are the main differences between them? Can an idl
> program run under pv-wave with no, minimal or many modifications? What
> are the advantages/disadvantages?

As I am currently using PV-Wave in my cardiology research, I have a few comments to offer. This post is similar to one I sent in response to the same question from Steven Jaffe.

This PV-Wave vs. IDL question is, appropriately, a recurring question here - maybe, if enough good responses come in, the FAQ keepers could add a detailed section on this theme; or perhaps it belongs in a separate document (would anyone care to take over this function?).

I am a long-time IDL and PV-Wave user. The comparison between the two products is currently rather complicated. I try to program so that most of what I do is compatible with both packages (at least, except for the widget part of things). The body of the two languages has remained 90% identical up till the newest release of IDL (5.0). Up till this point the basics of the languages were the same, with only trivial differences, except for:
1. A different widget interface

2. A different set of math extension routines. IDL uses Recipes in C, PV-Wave uses the IMSL routines. After the makers of IMSL and PV-Wave merged, IDL lost access to the IMSL routines and then chose to adopt the Recipes in C routines.
3. Each offers their own point-and-click type of interface for those who don't want to use a command-line programming approach or wish to supplement this approach with some quick-access tools.

IDL 5.0 introduces some elements of object-oriented programming. I have developed a software system for high resolution ECG analysis that is in daily use in our hospital. It contains some 35,000 lines of code. It is not object oriented, and at this point much time and energy is lost repairing things in this code, fixing things that get broken when a new feature is added, etc. From this experience the need for an object-oriented approach has become clear to me. The PV-Wave folks say that they have no current intention of changing the basis of the language so that it would support object-oriented programming. (They speak about object oriented, but this has to do with some pre-packaged tools, not with the basis of the language itself). IDL 5.0 also introduces the ability to deal more directly with pointers, which can be handy when dealing with large data sets, such as my ECG measurements.

Whether object oriented is important for your application depends on what you'll be doing. If the chief goal is to use the software as a hand calculator with good graphics display capabilities, it is probably irrelevant. If the goal is to design software components to be used and extended by a group of people, then I would consider it crucial.

But speaking of object oriented, the makers of PV-Wave are demonstrating some strides in this direction, namely JWave and JNL. It looks like they have given up on the idea of updating their own language and are instead jumping on the Java bandwagon, and providing tools for Java that provides advantages normally available within PV-Wave. There is a writeup on JWAVE on a Netscape DevEdge page:
http://developer.netscape.com/guides/components/
JNL is an extension to Java that provides needed numerical capabilities.

It is a hard time to make a choice between these two branches of the language, since both companies are working hard to try to differentiate themselves. There remain problems within the common core language, and I hope that this competition will lead to solutions to these problems. As someone here recently mentioned, when one write, in either language, "a = 3", one has just defined a TWO BYTE INTEGER variable. This was probably a logical default back when the language was first conceived. This leads to strange things, such as:
print, 850 * 77

-86
A mechanism for backwards compatibility plus future development needs to be reached; perhaps a system flag, where, for example, !LANGUAGE_LEVEL=1 inserted into old routines would provide backwards compatibility to a specified language version.

Don't forget to look at MATLAB as another possible choice. They are also making strides now, and it looks like they are adding enough new language features that one could now program a real system within MATLAB (before, there were major deficiencies, such as no 2-D arrays, no integer type, etc.). Particularly interesting with MATLAB are the availability of 'compilers' that convert MATLAB code to C or C++ code. They have also recently added some object-oriented features. My initial impression is that They do not seem to be as strongly integrated into the language as do those of IDL. A major advantage of MATLAB is the rich collection of toolboxes, often written by software has been developed under MATLAB; I can send you references, if that's of interest.

I would be interested in hearing from current IDL users as to how sufficient the current object-oriented features are, and what is missing. Reading through the documentation I see, for example, that polymorphism and overloading aren't there.

Regards,

David Ritscher

--
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Subject: Re: idl vs. pv-wave
Posted by chitturk on Wed, 23 Jul 1997 07:00:00 GMT
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William B. Gunter (wbg@crml.uab.edu) wrote:
: My boss wants a comparison between idl and pv-wave. I know they are
: similar, but what are the main differences between them? Can an idl

: program run under pv-wave with no, minimal or many modifications? Waht
: are the advantages/disadvantages?

There _are_ differences and IMO, not trivial. I tried to run an
IDL program in PV Wave .. took me a while, had some widgets that
were different ... once I got past that point, it was OK ...

If you going to _buy_ a new program (IDL or PV Wave) perhaps it
does not matter ... if you have a LOT of programs in one or the
other ... I'd be careful ... Ask IDL / PV WAVE (the companies) as
to how well (or poorly) you may be able to handle it ...

Subject: Re: idl vs. pv-wave
Posted by Franz.Dollinger on Thu, 24 Jul 1997 07:00:00 GMT
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In article <33D603BD.4FDA@zibmt.uni-ulm.de>, David Ritscher
<david.ritscher@zibmt.uni-ulm.de> writes:
>
> Don't forget to look at MATLAB as another possible choice. They are
> also making strides now, and it looks like they are adding enough new
> language features that one could now program a real system within
> MATLAB (before, there were major deficiencies, such as no 2-D arrays,
> no integer type, etc.).

After using PV-WAVE a few years I changed the company I'm working for and had to take a look at MATLAB as it was the only available program around for data analysis.
All I encountered was deficiencies. I was really disappointed by the bad performance of MATLAB with every single command I entered. Tens of minutes for a contour plot PV-WAVE needs about half a minute for. When trying to produce a surface plot MATLAB painted every single point in a way a first semester student would implement it as quick_and_dirty solution. (Of course screwing up the information)
In addition MATLAB needed tons of memory and CPU time, causing me to run it on a machine equipped for doing huge FEM analysis.(I am working on a UNIX workstation most of the time)

When running an application under NT that needed repeated system calls, MATLAB made working on the desktop impossible as it created an iconized DOS-window for every system call deleting every mouse selection or pulldown menu that was activated at that moment.
A collegue had to pre-format data using a C program to make MATLAB work with that data. (he is an experienced programmer)

> Particularly interesting with MATLAB are the
> availability of 'compilers' that convert MATLAB code to C or C++ code.

has anyone got experience with the efficiency of the C/C++ code generated
by MATLAB? If the performance is like that of MATLAB programs itself
one better sticks with C/C+ and appropriate toolboxes.

> They have also recently added some object-oriented features. My
> initial impression is that They do not seem to be as strongly
> integrated into the language as do those of IDL. A major advantage of
> MATLAB is the rich collection of toolboxes, often written by
> software has been developed under MATLAB; I can send you references,
> if that's of interest.

Advantage??? You have to buy a toolbox for every single command PV-WAVE
already integrated (at least in PV-WAVE Advantage)!

Its hard for me to believe that so many people use that program. The performance
I experienced was worse than that of a typical MS/Windows program.

And they want real $$$ for that hack. If you buy a license for UNIX the license
has to be renewed (=$$$$) every single year!!

I understand the Windows/PC philosophy to get less quality and less performance
for less $$$ making things more affordable. But the price for MATLAB seems (only
got second hand info) to be even higher than that of PV-WAVE Advantage (!!!!!!)
whith drastically worse performance and much less flexibility. Not talking about
the lack of functionality (navigator, wz_plots, data structures, IMSL numerics,
...)

bye
Franz

(I never worked with IDL - so I cant comment on that)
