Subject: Re: IDLWAVE 4.6
Posted by John-David T. Smith on Mon, 04 Dec 2000 08:00:00 GMT
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Craig Markwardt wrote:
>
> Hi Carsten and JD,
>
> This little script, and JD's similar one, was indeed the kind of thing
> I was looking for.
>
> I am certainly comfortable in Emacs, and have tried my hand at
> programming elisp. However, as with anything very powerful and
> configurable, you end up with too much power and too many
> configurations! Part of the problem is just knowing where to start.
>
> The same goes for my IDL programming. I look back at my early
> programs and they look very arcane and kludgey by my (present day)
> standards, mostly because I didn't know how to harness the power of
> IDL as well.
>
> Sometimes I need a little mothering ... (sniff) Also, I think I'm
> getting old enough that the curmudgeon factor is starting to play a
> role. If those two aren't mutually exclusive.
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> The current IDLWAVE documentation appears to be excellent, however
> it's mostly reference material. The IDLWAVE Nutshell documentation is
> primarily a command summary. If you could put a suitably merged
> version of your tutorials in the documentation, perhaps as "Getting
> Started," that would be great.

It does sound good, and I had made some (apparently vacuous) promises to
turn out something of this sort. And yes David, the title was certainly
going to contain the word "Idiot". What I thought would really be neat
was an illustrated guide with screen shots accompanying the written
descriptions. Perhaps a third party effort would lend more credibility
(and permit me to graduate). I'll keep it in mind. (Of course,
Carsten, being infinitely more productive than most mortals, will likely
churn something out in the wee hours tonight)

JD

Subject: Re: IDLWAVE 4.6
Posted by Craig Markwardt on Mon, 04 Dec 2000 08:00:00 GMT
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Craig

Carsten Dominik <dominik@astro.uva.nl> writes:
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>
> 1. Edit your source file (and put a syntax bug in, to be sure).
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>   typo. Repeat C-c C-d C-c until this works.
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>   stop at the breakpoint. If not, I would like to know about it.
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> 6. Hold down the SHIFT key while you click with the middle mouse
>   button on variables in the source window you would like to check.
>   The shell prints their value.
>
> 7. Resume execution with C-c C-d C-r or step through the program with
>   C-d C-d C-s
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> 8. When you are done debugging, remove the breakpoints with C-c C-d C-a.
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> CM> including debugging, what would they be? And are there caveats to
> CM> remember?
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> Maybe the above was *not* after all what you wanted. Two or three
> things to remember? JD?
>
> CM> Thanks, and sorry for being an idiot, Craig
>
> I'd say, I need to improve the docs if you cannot understand how it
> works.
>
> - Carsten
>
> --
> Carsten Dominik <dominik@astro.uva.nl>   \ _ /
> Sterrenkundig Instituut "Anton Pannekoek" |X| _
> Kruislaan 403; NL-1098 SJ Amsterdam   /| |\ _ _   _/ \
> phone +31 (20) 525-7477; FAX +31 (20) 525-7484 __|o|___/ ~~ ___/   ~~~

--
 -- --------------
Craig B. Markwardt, Ph.D.   EMAIL: craigmnet@cow.physics.wisc.edu
Astrophysics, IDL, Finance, Derivatives | Remove "net" for better response
 -- --------------

Subject: Re: IDLWAVE 4.6
Posted by John-David T. Smith on Mon, 04 Dec 2000 08:00:00 GMT
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> Maybe the above was *not* after all what you wanted. Two or three
> things to remember? JD?

1. IDLWAVE is not IDLDE. The learning curve is somewhat steeper.
2. IDLWAVE is not IDLDE. You can do much more, efficiently.
3. IDLWAVE is not your mother. Read the excellent manual.

<insert sarcasmicon>

JD

Subject: Re: IDLWAVE 4.6
Posted by dominik on Mon, 04 Dec 2000 08:00:00 GMT
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>>>> > "CM" == Craig Markwardt <craigmnet@cow.physics.wisc.edu> writes:

CM> Hi Carsten (and JD?)--

Yes, definitely: and JD. He's my constant checkup and source of
inspiration. He is also the one guilty for at least half of these
options ;-)

CM> However I can't get a handle on this debugging stuff, and that's
CM> the thing I want the most! I am the first to admit that debugging
CM> under IDL is really not very satisfactory (even with my own
CM> DXDEBUG, which I use sporadically). In IDLWAVE I tried to set
CM> breakpoints, but they don't seem to take effect. Is it because I
CM> type ".RUN myscript.pro" by hand in the shell?

No this should not make a difference, I hope.

CM> I'm not big on three-key control sequences, so it doesn't come
CM> naturally to me to do C-c C-d C-b. I will remember if I need to
CM> though.

Well, firstly *all* the debugging related stuff starts with C-c C-d.
This is a hassle initially, but your fingers will learn to do these
two all by themselves.

After that, remembering gets a lot easier: If I omit the C-c C-d, it
is (highlighting the mnemnonic letter)

C-b   set a [b]reakpoint in the current line
C-d   [d]elete the breakpoint in the current line
C-a   clear [a]ll breakpoints
C-r   [r]esume execution to next breakpoint
C-h   continue to [h]ere
C-z   [z]ap corrupted state and reset IDL (does RETALL etc)
C-p   [p]rint the value of the variable at point
C-up (Thats the up arrow) Move up the calling stack
C-down (Thats the down arrow) Move down the calling stack

These last two are for you Craig, since you implemented this walking
the calling stack first and showed me how it could be done.

CM> Under Microsoft debuggers it used to be easy to "mouse" a
CM> breakpoint, and the program would run to that point immediately.
CM> I think GDB has something similar. Can I do that with IDLWAVE?

That would be `C-c C-d C-h'. I can show you how to bind this to a
mouse event if you like, but not now. Emacs is best with keys, and in
the end this is faster since you will not have to move your hands back
and forth between keyboard and mouse.

That said, there is lots of mouse support in IDLWAVE which you cannot
see. Under XEmacs, IDLWAVE has a toolbar just like every other
develloping environment. GNU Emacs users will have to wait for Emacs
21 to get the toolbar as well.

But I am getting too long again. Now here is what you and David are
asking for (I hope). Mini Tutorial version 1.

1. Edit your source file (and put a syntax bug in, to be sure).

2. Launch the shell with C-c C-l. Emacs should pop up a new window or
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CM> *three* top things to remember about IDLWAVE's shell interaction,
CM> including debugging, what would they be? And are there caveats to
CM> remember?

Maybe the above was *not* after all what you wanted. Two or three
things to remember? JD?

CM> Thanks, and sorry for being an idiot, Craig

I'd say, I need to improve the docs if you cannot understand how it
works.

- Carsten

--
Carsten Dominik <dominik@astro.uva.nl>   \ _ /
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Kruislaan 403; NL-1098 SJ Amsterdam   /| |\ _ _   _/ \
phone +31 (20) 525-7477; FAX +31 (20) 525-7484 __|o|___/ ~~ ___/   ~~~

Subject: Re: IDLWAVE 4.6
Posted by John-David T. Smith on Mon, 04 Dec 2000 08:00:00 GMT
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Craig Markwardt wrote:

> I really appreciate what you're doing here. I'm actually kicking
> myself because I downloaded 4.5 over the weekend. Doh.

>
> I have to admit though that I'm a bit baffled by all the options in
> these newer versions. I can figure out the Routine Info things, and
> eventually I will get my preferences plugged in there (finally I know
> how to indent my main levels to 2 characters)!
>
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> thing I want the most! I am the first to admit that debugging under
> IDL is really not very satisfactory (even with my own DXDEBUG, which I
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> top things to remember about IDLWAVE's shell interaction, including
> debugging, what would they be? And are there caveats to remember?
>
> Thanks, and sorry for being an idiot,
> Craig

OK, I'll bite, but Carsten can of course speak with the final
authority. Here I'll assume you're using GNU emacs (not xemacs, which
is even a bit fancier), with a unix system.

0. Take a deep breath and realize that IDLWAVE shell interactions don't
do anything you couldn't do in IDL itself. It just does it much faster,
and with more features (e.g., highlighting first line with a syntax
error, breakpoints, etc.). You can let IDLWAVE do much of the grunt
work for you, or you can do it yourself, if you enjoy that kind of
thing. An example is setting a breakpoint. You can look up the line
number, carefully take note of the file name, and enter by hand "IDL>
breakpoint,'/path/to/foo.pro',42", or you can let IDLWAVE do all that
for you with a simple keystroke. There is no trouble mixing these.

1. Read
 http://www.strw.LeidenUniv.nl/~dominik/Tools/idlwave/idlwave .html#SEC2,
also known as "IDLWAVE in a nutshell". Don't be afraid of the .emacs
settings you see there. If the sight of lisp frightens you, do not feel
that you are some sort of inferior being. It frightens most people (me
included), although not Carsten, who occassionally writes me notes like:

```
((mailto (smith . jd) 'please find attached
 (quote (, file))))
```

2. Build a user catalog. Carsten made this really easy: it examines
your IDL_PATH and uses those directories as the starting point. You can
get it from the IDLWAVE menu->Routine info. IDLWAVE then scans all of
your routines or libraries (e.g., the Nasa Library), and can give you
all kinds of information about calling options, etc. This isn't too
relevant for debugging, but important nonetheless.

3. If you don't like C-c C-d C-b, and your alt key is free, you can
switch all C-c C-d C-x to A-x with
idlwave-shell-activate-alt-keybindings, or set it to any other prefix
key with idlwave-shell-prefix-key. You can also of course redefine any
keys you like, in your .emacs. For example, suppose you'd like F5-F8 to
be debugging commands. You could simply add:

```
(local-set-key [f5] 'idlwave-shell-break-here)
(local-set-key [f6] 'idlwave-shell-clear-current-bp)
(local-set-key [f7] 'idlwave-shell-cont)
(local-set-key [f8] 'idlwave-shell-clear-all-bp)
```

to your idlwave-mode-hook and idlwave-shell-mode-hook. See the manual
for examples on using these hooks (it's pretty much cut and paste). Now
I can use F5 to set a break (the line is highlighted in a color of my
choosing, or if you have xemacs or some future version of emacs, a
little glyph appears next to the line), F6 to clear it, F7 to continue
past if I've hit a break. F8 to clear them all. You should never live
with key bindings you aren't comfortable with... it's so easy to change
them.

4. The mouse bindings shift middle-click and control-shift middle click
for printing or help on variables you click on are very important (for
me at least) Here's an example fast debugging cycle:

a) Set a breakpoint with C-c C-d C-b (or F5, or whatever).
b) .run with program with C-c C-d C-c (or again, the key combo of your
choosing). You can also do this by hand... no problem.
c) If there are any compile errors, the first offending line will be
highlighted. Fix your dumb mistake, repeat b).
d) Run your command (up arrow in the shell - or setup C-c C-d C-y to
send and execute "myfunnyroutinewhichisbuggy, a, b, c, .1").
c) When stopped at the breakpoint (still highlighted), shift mouse-2 on
a few things to find out what their values are. C-c C-d C-up (or
whatever -- I use C-keypad+ or -) to skip up and down the calling stack
above your breakpoint. You are transported to that call in the code
(which is highlighted). Use the mouse print and help freely...
variables are teleported from other levels (this is where idlwave puts

the idlde debugger to real shame).
d) Convince yourself you've fixed the bug. C-c C-d C-d to delete the
breakpoint, repeat b).

Other hints (sorry this is so long). Sometimes you want to set your own
breakpoints, by hand (but remember that you can set "after breakpoints"
trivially - e.g. C-u 3 C-c C-d C-b to get
"breakpoint,'/home/jdsmith/foo.pro',10,after=3"). This is no problem.
Simply use M-x idlwave-shell-bp-query to update IDLWAVE's notion of
breakpoints, if you want the highlighting to be accurate (but as soon as
you run into the break IDLWAVE will figure that out). Guess what? I
bound that to a key too.

The take home message is that IDLWAVE debugging (and in general) can be
whatever you want it to be, thanks to the ease with which emacs can be
modified, and the tremendous underlying functionality IDLWAVE provides.
If you have trouble getting your breakpoints to take, let Carsten know,
but I suspect it was a simple misunderstanding.

JD

Subject: Re: IDLWAVE 4.6
Posted by Pavel A. Romashkin on Mon, 04 Dec 2000 08:00:00 GMT
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David Fanning wrote:

> P.S. And I don't know what is going on with my computer
> these days. First, I can't get into the JHUAPL FTP site
> and then when I tried to ftp IDLWAVE 4.6 this morning,
> I got put into some kind of infinite loop that soaked
> up all my CPU cycles. Couldn't even get CTL-ALT-DELETE
> to do anything.

Windows NT has detected that the ratio of MS products in your office is
about to decrease to an intolerably small quantity. Sorry, it is not allowed.

Cheers,
Pavel

Subject: Re: IDLWAVE 4.6
Posted by davidf on Mon, 04 Dec 2000 08:00:00 GMT
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Craig Markwardt (craigmnet@cow.physics.wisc.edu) writes:

> I have to admit though that I'm a bit baffled by all the options in
> these newer versions. I can figure out the Routine Info things, and
> eventually I will get my preferences plugged in there (finally I know
> how to indent my main levels to 2 characters)!

Martin Schultz was visiting here over the weekend, so
he helped me screw my courage up to try another Linux
installation on my portable computer. (And that actually
went well, thank goodness.) But we decided to take
advantage of a perfect Colorado day and go skiing instead
of getting the IDLWAVE mode installed, so I'm doing this
on my own. :-(

So what I'm thinking is, maybe JD and Carsten can have
a sort of "idiot's tutorial" here. Of course, I'm not
advanced enough to even get into *that* class, but I
promise to save all the posts and study them diligently,
and try to learn something about this thing everyone
raves about. :-)

Cheers,

David

P.S. And I don't know what is going on with my computer
these days. First, I can't get into the JHUAPL FTP site
and then when I tried to ftp IDLWAVE 4.6 this morning,
I got put into some kind of infinite loop that soaked
up all my CPU cycles. Couldn't even get CTL-ALT-DELETE
to do anything. In other words, this is going just about
the way I expected. :-(

--
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: IDLWAVE 4.6
Posted by Craig Markwardt on Mon, 04 Dec 2000 08:00:00 GMT
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Carsten Dominik <dominik@astro.uva.nl> writes:

> Subject: IDLWAVE 4.6
>
> Hello IDLWAVE/Emacs users,
>
> I have uploaded version 4.6 of IDLWAVE. You can get it as usually at
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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
 --- --------------

Subject: Re: IDLWAVE 4.6

Posted by Mark Hadfield on Mon, 04 Dec 2000 21:51:17 GMT

"Carsten Dominik" <dominik@astro.uva.nl> wrote in message
news:qzud7f8sch8.fsf@antares.astro.uva.nl...
> Subject: IDLWAVE 4.6
>
> Hello IDLWAVE/Emacs users,
>
> I have uploaded version 4.6 of IDLWAVE. You can get it as usually at
>
> http://www.strw.leidenuniv.nl/~dominik/Tools/idlwave

You know, some day I might give this thing a try!

Mark Hadfield
m.hadfield@niwa.cri.nz http://katipo.niwa.cri.nz/~hadfield/
National Institute for Water and Atmospheric Research
PO Box 14-901, Wellington, New Zealand

Subject: Re: IDLWAVE 4.6
Posted by davidf on Tue, 05 Dec 2000 08:00:00 GMT

Carsten Dominik (dominik@astro.uva.nl) writes:

> However, I think Craig has a point in saying that a tutorial for the shell
> is missing. I don't think something fancy like JD has in mind is
> really necessary. Rather I am thinking of a few pages which
> introduce a small but realy world piece of code. The tutorial should
> make the user type the code in (pacticing indentation and routine
> info). Then launch the shell, compile, debug and run the code.

Carsten, you and JD are so nice! :-)

Of course, I need a LOT more mothering than Craig
does, but I'll bet there are others lurking out there
who would benefit as well. Thanks so much for both
of your efforts.

Cheers,

David

--
David Fanning, Ph.D.

Fanning Software Consulting
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Coyote's Guide to IDL Programming: http://www.dfanning.com/
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Subject: Re: IDLWAVE 4.6
Posted by dominik on Tue, 05 Dec 2000 08:00:00 GMT
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>>>> > "JDS" == J D Smith <jdsmith@astro.cornell.edu> writes:

JDS> It does sound good, and I had made some (apparently vacuous)
JDS> promises to turn out something of this sort. And yes David, the
JDS> title was certainly going to contain the word "Idiot". What I
JDS> thought would really be neat was an illustrated guide with screen
JDS> shots accompanying the written descriptions. Perhaps a third
JDS> party effort would lend more credibility (and permit me to
JDS> graduate). I'll keep it in mind. (Of course, Carsten, being
JDS> infinitely more productive than most mortals, will likely churn
JDS> something out in the wee hours tonight)

Don't bet on it - we have a holiday here, and tonights wee hours are
not for you.

However, I think Craig has a point in saying that a tutorial for the shell
is missing. I don't think something fancy like JD has in mind is
really necessary. Rather I am thinking of a few pages which
introduce a small but realy world piece of code. The tutorial should
make the user type the code in (pacticing indentation and routine
info). Then launch the shell, compile, debug and run the code.

When I find time....

- Carsten

--
Carsten Dominik <dominik@astro.uva.nl>   \ _ /
Sterrenkundig Instituut "Anton Pannekoek" |X| _
Kruislaan 403; NL-1098 SJ Amsterdam   /| |\ _ _   _/ \
phone +31 (20) 525-7477; FAX +31 (20) 525-7484 __|o|___/ ~~ ___/   ~~~

Subject: Re: IDLWAVE 4.6
Posted by davidf on Wed, 06 Dec 2000 08:00:00 GMT
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Carsten Dominik (dominik@astro.uva.nl) writes:

> Have you been able to install IDLWAVE by now? If not, where are the
> problems.?

Oh, don't even start with me, Carsten!

I've got one or two *other* problems to solve before
I get here. :-(

Cheers,

David

--
David Fanning, Ph.D.
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Phone: 970-221-0438 E-Mail: davidf@dfanning.com
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Subject: Re: IDLWAVE 4.6
Posted by dominik on Wed, 06 Dec 2000 08:00:00 GMT
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>>>> > "DF" == David Fanning <davidf@dfanning.com> writes:

DF> Of course, I need a LOT more mothering than Craig does, but I'll
DF> bet there are others lurking out there who would benefit as
DF> well. Thanks so much for both of your efforts.

Have you been able to install IDLWAVE by now? If not, where are the
problems.?

Cheers

your mother

Subject: Re: IDLWAVE 4.6
Posted by dominik on Wed, 06 Dec 2000 08:00:00 GMT
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>>>> > "CD" == Carsten Dominik <dominik@astro.uva.nl> writes:

CD> Well, firstly *all* the debugging related stuff starts with C-c

CD> C-d. This is a hassle initially, but your fingers will learn to
CD> do these two all by themselves.

IDLWAVE 4.7 will have a better way to assign the debugging commands to
keys. Basically it will allow you to say

(setq idlwave-shell-debug-keys-modifiers '(shift control))

and then you get the debugging commands with pressing a single letter
while holding down control and shift. I hope this will make more
people comfortable with these commands.

- Carsten

--
Carsten Dominik <dominik@astro.uva.nl>   \ _ /
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Kruislaan 403; NL-1098 SJ Amsterdam   /| |\ _ _   _/ \
phone +31 (20) 525-7477; FAX +31 (20) 525-7484 __|o|___/ ~~ ___/   ~~~