
Subject: Re: Running IDL from cron

Posted by [Kenneth Mankoff](#) on Thu, 22 Feb 2001 17:31:25 GMT

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This is a pretty ugly hack, but one i use with at and cron.

create a save file of your IDL session, with the following two commands:

```
IDL> save, /var, file='variables.sav'
```

```
IDL> save, /all, file='procedures.sav'
```

Then, i have my at job restore those two save files.

I usually have my at jobs run a third file that is full of .com commands to compile any other procedures i'm interested in using...

wait for some other people to respond to this post, i'm sure there is a better way... :)

-k.

On Thu, 22 Feb 2001, Gwyn Fireman wrote:

> Hi, everyone -

>

> With Deja gone and Google barely functional I have to ask here what I'm
> sure has been addressed before:

>

> How do you run IDL routines from cron - while maintaining IDL_PATH and
> other environment variables?

>

> I have had no trouble running my idl routines using batch or at, when
> starting in the same directory as the main-level routine. In that case
> my environment is copied to the spawned process.

>

> Now I have the need to run these from cron. I have been able to write
> scripts to cd to the appropriate directory and to run my .cshrc (where
> my IDL_PATH and other environment variables are defined), but keep
> running into problems. The latest is than .cshrc bombs on a
> system-level env that apparently isn't defined when running from cron.

>

> So can anyone point me in the right direction?
> I'm running { alpha OSF unix 5.3 Nov 11 1999}.

>

> Many thanks in advance,
> Gwyn Fireman

>

>

Subject: Re: Running IDL from cron
Posted by [Craig Markwardt](#) on Thu, 22 Feb 2001 18:44:23 GMT
[View Forum Message](#) <> [Reply to Message](#)

Gwyn Fireman <Gwyn.Fireman@gsfc.nasa.gov> writes:

> Hi, everyone -
>
> With Deja gone and Google barely functional I have to ask here what I'm
> sure has been addressed before:

Heh, I tried this in my newsgroup archive and nothing found. Hmm.

The main problems I've found with running cron jobs are:

1. environment variables not set, and
2. programs won't run because path is not set right (consequence of #1)

The answer to number 2 is to specify all program paths explicitly. As for number 1, I would say that you should to write your shell script to set those variables explicitly as well, and bypass your .cshrc. Something like this:

```
#!/bin/sh
HOME=/home/fireman
$HOME/bin/setup_dirs

IDL_PATH=+$HOME/lib/idl:+/usr/local/rsi/idl/lib
EXPERIMENT_DIR=/data/fireman
/usr/local/bin/idl $HOME/scripts/run_job.pro
```

This way everything is explicit and there isn't a chance for cron to monkey with it.

Good luck,
Craig

--

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

Subject: Re: Running IDL from cron
Posted by [thompson](#) on Thu, 22 Feb 2001 19:48:41 GMT
[View Forum Message](#) <> [Reply to Message](#)

Gwyn Fireman <Gwyn.Fireman@gsfc.nasa.gov> writes:

> Hi, everyone -

> With Deja gone and Google barely functional I have to ask here what I'm
> sure has been addressed before:

> How do you run IDL routines from cron - while maintaining IDL_PATH and
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> scripts to cd to the appropriate directory and to run my .cshrc (where
> my IDL_PATH and other environment variables are defined), but keep
> running into problems. The latest is than .cshrc bombs on a
> system-level env that apparently isn't defined when running from cron.

> So can anyone point me in the right direction?
> I'm running { alpha OSF unix 5.3 Nov 11 1999}.

> Many thanks in advance,
> Gwyn Fireman

Gwyn:

I suspect that your trouble is that you have environment variables which are being defined in your .login file rather than in .cshrc. That's pretty common practice, but one which I personally avoid. If you include the statement "source ~/.login", that should get around the problem.

Bill Thompson

Subject: Re: Running IDL from cron
Posted by [Liam E. Gumley](#) on Thu, 22 Feb 2001 19:57:22 GMT
[View Forum Message](#) <> [Reply to Message](#)

Gwyn Fireman wrote:

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> other environment variables?

>

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> starting in the same directory as the main-level routine. In that case
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- > scripts to cd to the appropriate directory and to run my .cshrc (where
- > my IDL_PATH and other environment variables are defined), but keep
- > running into problems. The latest is that .cshrc bombs on a
- > system-level env that apparently isn't defined when running from cron.

Craig has given you a good start in a previous post. The other item which often causes problems when running IDL via cron is that you can't use graphics windows (unless you are prepared to leave a login session running all the time).

The solution is to use the Z-buffer, which allows you to emulate the functionality of an 8-bit graphics window. Let's say you want to call this procedure (myplot.pro):

```
;---  
PRO MYPLOT, X  
plot, x  
END  
;---
```

You'll need an IDL script which sets up the Z-buffer, calls the procedure, and saves the resulting image (script.pro):

```
;---  
;- Set up Z buffer for 8-bit graphics  
set_plot, 'Z'  
device, z_buffering=0, set_resolution=[640, 480], $  
  set_colors=256, set_character_size=[10, 12]  
  
;- Run my plotting procedure  
myplot, findgen(10)  
  
;- Save the result to a GIF file  
tv!ct, r, g, b, /get  
write_gif, 'myplot.gif', tvrd(), r, g, b  
  
;- Exit IDL  
exit  
;---
```

Finally, you need a shell script to configure and run IDL (script.csh):

```
#---  
#!/bin/csh  
cd $HOME/myplot  
source /usr/local/rsi/idl/bin/idl_setup  
setenv IDL_PATH ${IDL_PATH}:+${IDL_DIR}/user_contrib/jhu_apl  
setenv IDL_STARTUP
```

```
idl script.pro >& script.out
#---
```

Make sure the shell script has execute permission, and you're done. Test the script to make sure it works:

```
% ./script.csh
```

and you should get the following output in script.out:

```
IDL Version 5.3 (IRIX mipseb). (c) 1999, Research Systems, Inc.
Installation number: 13221.
Licensed for use by: Space Science & Engineering Cntr, Univ of WI
```

```
% Compiled module: MYPLOT.
% Compiled module: WRITE_GIF.
% Loaded DLM: GIF.
```

```
Cheers,
Liam.
http://cimss.ssec.wisc.edu/~gumley/
```

Subject: Re: Running IDL from cron
Posted by [R.Bauer](#) on Fri, 23 Feb 2001 07:34:02 GMT
[View Forum Message](#) <> [Reply to Message](#)

"Liam E. Gumley" wrote:

Dear Liam,

write_png instead of write_gif ...

cheers

Reimar

>

> Gwyn Fireman wrote:

>> How do you run IDL routines from cron - while maintaining IDL_PATH and
>> other environment variables?

>>

>> I have had no trouble running my idl routines using batch or at, when
>> starting in the same directory as the main-level routine. In that case
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>> scripts to cd to the appropriate directory and to run my .cshrc (where

```

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>> running into problems. The latest is than .cshrc bombs on a
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>
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> use graphics windows (unless you are prepared to leave a login session
> running all the time).
>
> The solution is to use the Z-buffer, which allows you to emulate the
> functionality of an 8-bit graphics window. Let's say you want to call
> this procedure (myplot.pro):
>
> ;---
> PRO MYPLOT, X
> plot, x
> END
> ;---
>
> You'll need an IDL script which sets up the Z-buffer, calls the
> procedure, and saves the resulting image (script.pro):
>
> ;---
> ;- Set up Z buffer for 8-bit graphics
> set_plot, 'Z'
> device, z_buffering=0, set_resolution=[640, 480], $
>   set_colors=256, set_character_size=[10, 12]
>
> ;- Run my plotting procedure
> myplot, findgen(10)
>
> ;- Save the result to a GIF file
> tvlct, r, g, b, /get
> write_gif, 'myplot.gif', tvrd(), r, g, b
> write_png, 'myplot.png', tvrd(), r, g, b
>
> ;- Exit IDL
> exit
> ;---
>
> Finally, you need a shell script to configure and run IDL (script.csh):
>
> #---
> #!/bin/csh
> cd $HOME/myplot
> source /usr/local/rsi/idl/bin/idl_setup
> setenv IDL_PATH ${IDL_PATH}:+${IDL_DIR}/user_contrib/jhu_apl
> setenv IDL_STARTUP

```

```
> idl script.pro >& script.out
> #---
>
> Make sure the shell script has execute permission, and you're done. Test
> the script to make sure it works:
>
> % ./script.csh
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> and you should get the following output in script.out:
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> IDL Version 5.3 (IRIX mipseb). (c) 1999, Research Systems, Inc.
> Installation number: 13221.
> Licensed for use by: Space Science & Engineering Cntr, Univ of WI
>
> % Compiled module: MYPLOT.
> % Compiled module: WRITE_GIF.
> % Loaded DLM: GIF.
>
> Cheers,
> Liam.
> http://cimss.ssec.wisc.edu/~gumley/
```

--

Reimar Bauer

Institut fuer Stratosphaerische Chemie (ICG-1)

Forschungszentrum Juelich

email: R.Bauer@fz-juelich.de

<http://www.fz-juelich.de/icg/icg1/>

=====

a IDL library at Forschungszentrum Jülich

http://www.fz-juelich.de/icg/icg1/idl_icglib/idl_lib_intro.html

<http://www.fz-juelich.de/zb/text/publikation/juel3786.html>

Subject: Re: Running IDL from cron

Posted by [Martin Schultz](#) on Fri, 23 Feb 2001 12:21:18 GMT

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I just want to stress this point:

"Liam E. Gumley" wrote:

```
>
>
> ;- Exit IDL
> exit
> ;---
```

>

You might be able to get away with a "dead" IDL session in an interactive shell, but with cron you should try to avoid it.

Cheers,

Martin

--

```

[[ 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      [[
[[

```

Subject: Re: Running IDL from cron
Posted by [Vapuser](#) on Fri, 23 Feb 2001 21:06:59 GMT
[View Forum Message](#) <> [Reply to Message](#)

Gwyn Fireman <Gwyn.Fireman@gsfc.nasa.gov> writes:

> Hi, everyone -
>
> With Deja gone and Google barely functional I have to ask here what I'm
> sure has been addressed before:
>
> How do you run IDL routines from cron - while maintaining IDL_PATH and
> other environment variables?
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> I have had no trouble running my idl routines using batch or at, when
> starting in the same directory as the main-level routine. In that case
> my environment is copied to the spawned process.
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> Now I have the need to run these from cron. I have been able to write
> scripts to cd to the appropriate directory and to run my .cshrc (where
> my IDL_PATH and other environment variables are defined), but keep
> running into problems. The latest is than .cshrc bombs on a
> system-level env that apparently isn't defined when running from cron.
>
> So can anyone point me in the right direction?
> I'm running { alpha OSF unix 5.3 Nov 11 1999}.
>
> Many thanks in advance,
> Gwyn Fireman

Cron uses a crippled environment in the Bourne shell, it defines only a limited number of environmental variables.

from the crontab manpage

The shell is invoked from your \$HOME directory with an arg0 of sh. Users who desire to have their .profile executed must explicitly do so in the crontab file. Cron supplies a default environment for every shell, defining HOME, LOGNAME, USER, SHELL(=/bin/sh), PATH(=/usr/sbin:/usr/bsd:/usr/bin:/bin:/etc:/usr/etc), and TZ.

You have to explicitly source whatever files you need to define the correct env. Usually, one does this by sourcing their .profile as the first part of a multi-part command, but you can source any file if you want to restrict the cronjob environment in some way. To execute two or more commands in the same shell, you put them inside parantheses separated by a semi-colon. When run the first command ensures the correct environment for the second.

Like this.

```
0 * * * * (. /path/to/rc/file; /path/to/script) > some-file 2>&1;
```

(Note the `.' there!)

If your .profile sets up your environment and you don't think you need to restrict the cron job in anyway, simply source it as the first part of each crontab entry. e.g.

```
0 * * * * (. $HOME/.profile ; /path/to/script) > some-file 2>&1;
```

(`some-file' can be /dev/null if you desire. If nothing is there and there is any output to stdout/stderr, crontab mails it to you)

If you're using the csh, you can convert all the commands to their Bourne shell equivalents. I think you'll find this easier in the long run than trying to figure out how to correctly configure a Bourne shell using Csh configuration files.

This does *not* mean, by the way, that you have to convert *all* the scripts you call to any particular shell! All my cron jobs call perl scripts as the second command but they could just as easily run csh scripts. All that's being done with the first script is to configure the environment.

If you need help with the differences between Bourne and CSH configuration syntax, I'm sure there's someone around you who can help.

All of my automated processing for my web page (<http://haifung.jpl.nasa.gov>) is done by cronjobs with a combination of perl scripts calling IDL using temporary files constructed on the fly by the perl scripts. I just source \$HOME/.profile, which then sources other .rc files, as the first thing in each crontab entry. By the way, as my native shell, I run the tcsh, so I'm sympathetic to csh users.

The only other problem is the matter of the display, which you can get around, as Liam(?) pointed out, by using the Z buffer. No problem if you're doing gifs or grayscale jpegs. But it's an inconvenient but not insurmountable difficulty if you're doing true-color graphics. The solution is to operate on the individual color planes individually in the Z buffer and then assemble the image at the end and write it out. It's harder to do, but it isn't impossible. This is precisely how I make the truecolor jpegs on haifung.

In fact, were it not for a problem caused by an SGI utility, which is necessary to my processing, I wouldn't even need to be logged into the console for it to run. As it is, I have to be or the animation processing will timeout waiting for a connection to the X server when this SGI utility (dmconvert) goes to convert the 60 .gif files into a quicktime movie. The words I spoke when I found out that despite spending a week ridding my IDL code of all connections to the X server only to discover that it was the blackbox of the SGI utility that was the fatal stumbling block to my goal of complete 'X' independence are not reproducible in polite company.

whd

--

William Daffer: 818-354-0161: William.Daffer@jpl.nasa.gov

Subject: Re: Running IDL from cron

Posted by [davidf](#) on Fri, 23 Feb 2001 23:14:23 GMT

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Vapuser (vapuser@catspaw.jpl.nasa.gov) writes:

- > The words I spoke when I found out
- > that despite spending a week ridding my IDL code of all connections
- > to the X server only to discover that it was the blackbox of the SGI

- > utility that was the fatal stumbling block to my goal of complete
- > 'X' independence are not reproducible in polite company.

I don't think you will find any polite company here.
Oh, maybe Ben Tupper never says any bad words. But
surely he is the only one. :-)

Cheers,

David

--

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: Running IDL from cron
Posted by [thompson](#) on Fri, 23 Feb 2001 23:53:32 GMT
[View Forum Message](#) <> [Reply to Message](#)

Vapuser <vapuser@catspaw.jpl.nasa.gov> writes:

- > Cron uses a crippled environment in the Bourne shell, it defines
- > only a limited number of environmental variables.

I've been able to use a fully functional C shell in my cron jobs, by the simple
expedient of explicitly telling it what shell to run. This is done by putting

```
#!/bin/csh
```

as the first line of the script. For example, the extremely simple script

```
#!/bin/csh
printenv
```

when run as a cron job, demonstrates that my .cshrc file is being automatically
executed. On the other hand, my .login file is not. To do that, I would have
to use

```
#!/bin/csh
source .login
printenv
```

which works, although I do get a "not a terminal" error. For myself, it's not
necessary to run .login--all setup is done in .cshrc.

A valid C-shell script to run IDL would be

```
#!/bin/csh
idl << done
print,'Hello world'
done
```

I do have a cron job which uses IDL in just this fashion, which nightly creates some images for a web page. As somebody has already pointed out before me, the way to do this in a cron job is to use the Z buffer.

William Thompson

Subject: Re: Running IDL from cron
Posted by [Ben Tupper](#) on Mon, 26 Feb 2001 23:52:20 GMT
[View Forum Message](#) <> [Reply to Message](#)

My dear mother-in-law will let wind a big, 'Oh, fiddlesticks!' when pressed.

I prefer to leave the rough stuff to Pavel, where is he?

David Fanning wrote:

```
> Vapuser (vapuser@catspaw.jpl.nasa.gov) writes:
>
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>
> I don't think you will find any polite company here.
> Oh, maybe Ben Tupper never says any bad words. But
> surely he is the only one. :-)
>
> Cheers,
>
> David
>
> --
> 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
```

--

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