Subject: envi_get_data
Posted by yychongzi on Mon, 21 Jan 2008 19:42:16 GMT

Hi, I am writing a program to calcualte a new image from an old one.
But I always get error about the envi_get_data.

The message reads:
% Variable is undefined: POS.
% Execution halted at: ENVI_GET_DATA

I got the same message even when I did not put 'pos=pos' in the
envi_get_data statement.

Thanks a lot. Here is the code:

```
pro cal
envi, /restore_base_save_files
envi_init, /batch_mode
envi_open_file,'E:\image1999',r_fid=fid
if (fid eq -1) then return
envi_file_query, fid, ns=ns, nl=nl, nb=nb, pos=pos ,dims=dims
image=fltarr(nb,nl,ns)
image2=fltarr(nb,nl,ns)
image = envi_get_data (fid=fid,dims=dims, pos =pos)
For i=0, nb-1 Do Begin
 For j=0,nl-1 Do Begin
  For k=0,ns-1 Do Begin
      image2[i,j,k]=image[i,j,k]* 0.8 + 100
  Endfor
 Endfor
Endfor
ENVI_WRITE_ENVI_FILE,image2,data_type=2,nb=nb,nl=nl,ns=ns, out_name='E:
\test.img'
END
```

Subject: Re: envi_get_data
Posted by lbusett@yahoo.it on Fri, 25 Jan 2008 14:03:21 GMT

Hi,

 I don't know if it will solve all your problems, but I believe that
you should replace the instruction:

> image2=fltarr((nb,nl,ns)

with:

  image2 = fltarr (nb, ns, nl)

because ENVI_GET_DATA returns an array in samples by lines order (see the help). (Obviously, if you have a square image nothing will change)

You can also remove the instruction

> image=fltarr((nb,nl,ns)

since the "image" variable is overwritten by the "envi_get_data" instruction.

Hope this helps,

Lorenzo

On 23 Gen, 22:57, yychon...@gmail.com wrote:
> Thank you Jean. I did correct the error you pointed out, and I found
> something werid for the output image. I used a 2bands input file and
> the output image seems twist and even does not have the correct
> boundary shape, and the data was wrong.
>
> Then I tested it with a one band input image, when I tried to multiply
> the input image by a constant to get a new image(my output) it did not
> work (it did not get the image that supposed to). If I just add the
> input image with a small number, it works fine. But if I add the image
> with a large number, like 35000(the min. data on the input image is
> -32768), then it went wrong again.
>
> I thought it might be due to the format of the image, then I changed
> fltarr to dblarr, it still wont give the right output image.
>
> Many thanks.
>
> Now my code looks like this:
>
> pro cal
> envi, /restore_base_save_files
> envi_init, /batch_mode
> envi_open_file,'F:\testinput.img',r_fid=fid
> if (fid eq -1) then return
> envi_file_query, fid, ns=ns, nl=nl, nb=nb, data_type=data_type
> map_info = envi_get_map_info(fid = fid)
> dims = [-1L, 0, ns - 1, 0, nl - 1]
> pos=lindgen(nb)
> image=fltarr((nb,nl,ns)

```
> image2=fltarr((nb,nl,ns)
> For i=0, nb-1 Do Begin
>        image = envi_get_data (fid=fid,dims=dims,pos=i)
>        image2[i,*,*]=image
> Endfor
>  ENVI_WRITE_ENVI_FILE,image2,data_type=data_type,nb=nb,nl=nl, ns=ns,map_info
> = map_info, $
> out_name='F:\testoutput.img'
> END
>
> On Jan 21, 3:00 pm, Jean H <jghas...@DELTHIS.ucalgary.ANDTHIS.ca>
> wrote:
>
>>>  envi_file_query, fid, ns=ns, nl=nl, nb=nb, pos=pos ,dims=dims
>
>>  ... in the help file, there is no POS keyword in this function... so
>>  later on, when you try to use it, pos is undefined.
>
>>  Jean
```

Subject: Re: envi_get_data
Posted by peter.eddy@shaw.ca on Fri, 25 Jan 2008 17:18:12 GMT
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Hi,
Typical ENVI format files are "usually" band sequential:
Array=fltarr(ns, nl, nb) as its quickest to display.
You can obtain the interleave within the ENVI_FILE_QUERY with the
keyword Interleave=interleave where bsq=0, bil=1 and bip=2 - or by
looking at the header. Next I would check the datatype of your input
file. In your code you read in the file, query the datatype create a
new float array then write the file with the datatype of your input.
What if your input was byte or integer? Since you're output is float
you could hardcode the data_type=4 (or 5 for double).

For example you could do the following:

```
pro cal
envi, /restore_base_save_files
envi_init, /batch_mode
envi_open_file,'F:\testinput.img',r_fid=fid
if (fid eq -1) then return
envi_file_query, fid, ns=ns, nl=nl, nb=nb, data_type=data_type,  $
   interleave=interleave, dims=dims
   ;Could have an "if" statement to check and set the interleave
map_info = envi_get_map_info(fid = fid)
;dims = [-1L, 0, ns - 1, 0, nl - 1]  **you can get the dimensions from
```

the query above
pos=lindgen(nb)
image=fltarr(ns, nl, nb) ; storage array for multi band processing
(loop over bands)
;image2=fltarr((nb,nl,ns) ** not required
For i=0, nb-1 Do Begin
    ;read band and convert to float
    inBand = Float(envi_get_data (fid=fid,dims=dims,pos=i)) ;read the
2d array
    image[*,*,i]=inBand* 0.8 + 100   ;do processing and store in
array
Endfor
 ENVI_WRITE_ENVI_FILE,image,data_type=4,nb=nb,nl=nl,ns=ns,map _info=
map_info, $
out_name='F:\testoutput.img'
END

With this method you may run into memory problems, as you are reading
by entire bands and storing the whole image. When the image gets
larger you will have to look into ENVI's tiling routines.

Hopefully this gets you started,

Pete

Subject: Re: envi_get_data
Posted by yychongzi on Fri, 25 Jan 2008 21:25:37 GMT
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Thank you Lorenzo and Pete.

Pete, you are right on the datatype. My input file is integer, it has
to be changed. Now the program runs just fine :)

By the way, I have another question:
I used ENVI to do layer stacking, sometimes I got a big .ige file and
a small .img file, sometimes, more often, I got a big .img file with a
small .rrd file. I dont know why and the difference.

Thank you guys again.

On Jan 25, 10:18 am, Pete <peter.e...@shaw.ca> wrote:
> Hi,
> Typical ENVI format files are "usually" band sequential:
> Array=fltarr(ns, nl, nb) as its quickest to display.
> You can obtain the interleave within the ENVI_FILE_QUERY with the
> keyword Interleave=interleave where bsq=0, bil=1 and bip=2 - or by

> looking at the header. Next I would check the datatype of your input
> file. In your code you read in the file, query the datatype create a
> new float array then write the file with the datatype of your input.
> What if your input was byte or integer? Since you're output is float
> you could hardcode the data_type=4 (or 5 for double).
>
> For example you could do the following:
>
> pro cal
> envi, /restore_base_save_files
> envi_init, /batch_mode
> envi_open_file,'F:\testinput.img',r_fid=fid
> if (fid eq -1) then return
> envi_file_query, fid, ns=ns, nl=nl, nb=nb, data_type=data_type, $
>   interleave=interleave, dims=dims
>   ;Could have an "if" statement to check and set the interleave
> map_info = envi_get_map_info(fid = fid)
> ;dims = [-1L, 0, ns - 1, 0, nl - 1] **you can get the dimensions from
> the query above
> pos=lindgen(nb)
> image=fltarr(ns, nl, nb) ; storage array for multi band processing
> (loop over bands)
> ;image2=fltarr((nb,nl,ns) ** not required
> For i=0, nb-1 Do Begin
>   ;read band and convert to float
>   inBand = Float(envi_get_data (fid=fid,dims=dims,pos=i)) ;read the
> 2d array
>   image[*,*,i]=inBand* 0.8 + 100   ;do processing and store in
> array
> Endfor
> ENVI_WRITE_ENVI_FILE,image,data_type=4,nb=nb,nl=nl,ns=ns,map _info=
> map_info, $
> out_name='F:\testoutput.img'
> END
>
> With this method you may run into memory problems, as you are reading
> by entire bands and storing the whole image. When the image gets
> larger you will have to look into ENVI's tiling routines.
>
> Hopefully this gets you started,
>
> Pete

Subject: Re: envi_get_data
Posted by Jean H. on Fri, 25 Jan 2008 21:49:56 GMT
View Forum Message <> Reply to Message

yychongzi@gmail.com wrote:
> Thank you Lorenzo and Pete.
>
> Pete, you are right on the datatype. My input file is integer, it has
> to be changed. Now the program runs just fine :)
>
> By the way, I have another question:
> I used ENVI to do layer stacking, sometimes I got a big .ige file and
> a small .img file, sometimes, more often, I got a big .img file with a
> small .rrd file. I dont know why and the difference.
>
> Thank you guys again.

 From Envi Help file:

ERDAS IMAGINE 8.x image files larger than 2 GB use a raster spill file
to store the data from large data sets. That is, images larger than 2 GB
are defined by two files: header information is stored in the .img file,
and the image data is stored in a second file with the same root name
using an .ige extension.

Now, the .rrd is an overview of your data..
Jean

Subject: Re: envi_get_data
Posted by Robert Moss, PhD on Mon, 14 Sep 2009 18:59:02 GMT
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On Sep 14, 11:07 am, woods1 <merria...@yahoo.fr> wrote:
> Hi,
> I have a problem. I want to display an image an d i do this:
>
> imag = make_array(ns, nl) ; with ns=21815 and nl=10636
>
> imag = envi_get_data(fid=fid, dims=dims, pos=pos)
>
> but i become an error message '" Unable to allocate memory: to make
> array."
>
> can somebody help me?
>
> thanks in advance
>
> Woods

First, do not preallocate the image array; i.e. remove the MAKE_ARRAY
line. That might solve your problem right there. If you still get the

error you should probably use the DIMS keyword to read only a subset.

Subject: Re: envi_get_data
Posted by woods1 on Tue, 15 Sep 2009 07:12:54 GMT
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On 14 Sep., 20:59, Robert <robert.m...@gmail.com> wrote:
> On Sep 14, 11:07 am, woods1 <merria...@yahoo.fr> wrote:
>
>> Hi,
>> I have a problem. I want to display an image an d i do this:
>
>> imag = make_array(ns, nl) ; with ns=21815 and nl=10636
>
>> imag = envi_get_data(fid=fid, dims=dims, pos=pos)
>
>> but i become an error message '" Unable to allocate memory: to make
>> array."
>
>> can somebody help me?
>
>> thanks in advance
>
>> Woods
>
> First, do not preallocate the image array; i.e. remove the MAKE_ARRAY
> line. That might solve your problem right there. If you still get the
> error you should probably use the DIMS keyword to read only a subset.

thank you, thank you!
thanks of your help!

Subject: Re: envi_get_data
Posted by David Fanning on Tue, 29 Sep 2009 13:18:12 GMT
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woods1 writes:

> i try this: img = envi_get_data(fid=De_fid, dims=dims,pos=pos), but i
> obtain this error : "Unsble to allocate memory; to make array"
> my image is big. ns=36800 , nl=57600.
> i want to display tihs image.
>
> can somebody help me?

Probably not. How many bytes, do you suppose,
are in that image?

Cheers,

David

--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.dfanning.com/
Sepore ma de ni thui. ("Perhaps thou speakest truth.")

Subject: Re: envi_get_data
Posted by Chris Jengo on Tue, 29 Sep 2009 14:40:05 GMT
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Display where? If you want an ENVI display, take a look at
ENVI_DISPLAY_BANDS. Displaying in your own draw widget will take some
special effort.

Chris

Subject: Re: envi_get_data
Posted by woods1 on Wed, 30 Sep 2009 08:02:45 GMT
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On 29 Sep., 16:40, Chris Jengo <cje...@gmail.com> wrote:
> Display where? If you want an ENVI display, take a look at
> ENVI_DISPLAY_BANDS. Displaying in your own draw widget will take some
> special effort.
>
> Chris

I have used at all times envi_get_data, but her i have a big image and
i don't no what i can do.
when i do envi_display_bands,i obtain an envi display, but this is no
my anbition.
I want to reurns a spatial image data from file.

Subject: Re: envi_get_data
Posted by woods1 on Wed, 30 Sep 2009 08:09:44 GMT

On 30 Sep., 10:02, woods1 <merria...@yahoo.fr> wrote:
> On 29 Sep., 16:40, Chris Jengo <cje...@gmail.com> wrote:
>
>> Display where? If you want an ENVI display, take a look at
>> ENVI_DISPLAY_BANDS. Displaying in your own draw widget will take some
>> special effort.
>
>> Chris
>
> I have used at all times envi_get_data, but her i have a big image and
> i don't no what i can do.
> when i do envi_display_bands,i obtain an envi display, but this is no
> my anbition.
> I want to reurns a spatial image data from file.

I have used at all times envi_get_data, but her i have a big image
and
i don't no what i can do.
when i do envi_display_bands,i obtain an envi display, but this is no
my anbition.
I want to reurns a spatial image data from file.

Subject: Re: envi_get_data
Posted by woods1 on Wed, 30 Sep 2009 08:25:08 GMT

On 29 Sep., 15:18, David Fanning <n...@dfanning.com> wrote:
> woods1 writes:
>> i try this: img = envi_get_data(fid=De_fid, dims=dims,pos=pos), but i
>> obtain this error : "Unsble to allocate memory; to make array"
>> my image is big. ns=36800 , nl=57600.
>> i want to display tihs image.
>
>> can somebody help me?
>
> Probably not. How many bytes, do you suppose,
> are in that image?
>
> Cheers,
>
> David
>
> --
> David Fanning, Ph.D.
> Fanning Software Consulting, Inc.

> Coyote's Guide to IDL Programming:http://www.dfanning.com/
> Sepore ma de ni thui. ("Perhaps thou speakest truth.")

I don't no how many bytes are in the image. The dimension of image is
36800x57600

Subject: Re: envi_get_data
Posted by wita on Wed, 30 Sep 2009 09:39:09 GMT

woods1 wrote:
> Hi,
> i have a problem.
> i try this: img = envi_get_data(fid=De_fid, dims=dims,pos=pos), but i

Hi,

Using ENVI_Get_Data() on such large images is really a bad idea.
Trying to read the whole image will take more then 2Gb of memory (in
case of 8bit data) and you will have trouble to fit it in memory on
any 32 bit operating system.

What you should do instead is use ENVI's tiling mechanism to read your
image in chunks and loop over the number of tiles. Then resample each
tile to be able to display it (or do whatever processing you want) and
stitch the results together. So in pseudo code it should look like
this:

```
tile_ID = ENVI_Init_Tile(File_ID, NUM_TILES=num_tiles,
INTERLEAVE=1, ....)
FOR i=0L, num_tiles-1 DO BEGIN
   data = ENVI_Get_Tile(tile_ID)
   <processing data goes here>
ENDFOR
ENVI_Tile_Done, tile_ID
```

Setting INTERLEAVE=1 ensures that you read your file line by line. It
may be more efficient to use INTERLEAVE=0 but then you need to write
some logic that handles the size of the tile that ENVI_Get_Tile
returns, which depends on you memory settings.

Hope this helps.

Allard

Subject: Re: envi_get_data
Posted by woods1 on Wed, 30 Sep 2009 14:14:49 GMT
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On 30 Sep., 11:39, Allard de Wit <allard.de...@wur.nl> wrote:
> woods1 wrote:
>> Hi,
>> i have a problem.
>> i try this: img = envi_get_data(fid=De_fid, dims=dims,pos=pos), but i
>
> Hi,
>
> Using ENVI_Get_Data() on such large images is really a bad idea.
> Trying to read the whole image will take more then 2Gb of memory (in
> case of 8bit data) and you will have trouble to fit it in memory on
> any 32 bit operating system.
>
> What you should do instead is use ENVI's tiling mechanism to read your
> image in chunks and loop over the number of tiles. Then resample each
> tile to be able to display it (or do whatever processing you want) and
> stitch the results together. So in pseudo code it should look like
> this:
>
> tile_ID = ENVI_Init_Tile(File_ID, NUM_TILES=num_tiles,
> INTERLEAVE=1, ...)
> FOR i=0L, num_tiles-1 DO BEGIN
>   data = ENVI_Get_Tile(tile_ID)
>   <processing data goes here>
> ENDFOR
> ENVI_Tile_Done, tile_ID
>
> Setting INTERLEAVE=1 ensures that you read your file line by line. It
> may be more efficient to use INTERLEAVE=0 but then you need to write
> some logic that handles the size of the tile that ENVI_Get_Tile
> returns, which depends on you memory settings.
>
> Hope this helps.
>
> Allard

My question is, what are the processing data here, when i will display
an image?

thank you

Subject: Re: envi_get_data
Posted by David Fanning on Wed, 30 Sep 2009 14:34:28 GMT

woods1 writes:

> I don't no how many bytes are in the image. The dimension of image is
> 36800x57600

Multiplying those two numbers together might give you
a ballpark figure. My guess is you would then have to
multiply that result by 2 or 4 to come up with the
actual number. But something in the range of 2-8 Gigabytes
would be my best guess.

That seems a little, uh, largish to put into a single
IDL variable. I'm guessing you don't have one of those nifty
machines with a 64-bit operating system and 100 GBytes of
RAM, probably. :-(

And where do you intend to display it? Have you rented
out the giant screen on Times Square? Have you given
any thought to the resolution of your display? What do
you suppose you would actually see if you *could* display
this image?

I know you are complaining about all the *processing*
that has to occur. But maybe it would be a good idea
to start with more *thinking* about the problem.

Cheers,

David

--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.dfanning.com/
Sepore ma de ni thui. ("Perhaps thou speakest truth.")

Subject: Re: envi_get_data
Posted by woods1 on Thu, 01 Oct 2009 16:48:12 GMT

On 29 Sep., 15:05, woods1 <merria...@yahoo.fr> wrote:
> Hi,
> i have a problem.
> i try this: img = envi_get_data(fid=De_fid, dims=dims,pos=pos), but i

> obtain this error : "Unsble to allocate memory; to make array"
> my image is big. ns=36800 , nl=57600.
> i want to display tihs image.
>
> can somebody help me?
> thank you in advence
>
> Woods

Thank you an all.
I have to reduce an image with envi_get_data(dims = dims, fid=file ID
[, INTERP={0 | 1 | 2 | 3}], POS=long integer [, XFACTOR=integer] [,
YFACTOR=integer])

Subject: Re: envi_get_data
Posted by Andrew Rodger on Fri, 02 Oct 2009 13:29:53 GMT
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On Oct 2, 12:48 am, woods1 <merria...@yahoo.fr> wrote:
> On 29 Sep., 15:05, woods1 <merria...@yahoo.fr> wrote:
>
>> Hi,
>> i have a problem.
>> i try this: img = envi_get_data(fid=De_fid, dims=dims,pos=pos), but i
>> obtain this error : "Unsble to allocate memory; to make array"
>> my image is big. ns=36800 , nl=57600.
>> i want to display tihs image.
>
>> can somebody help me?
>> thank you in advence
>
>> Woods
>
> Thank you an all.
> I have to reduce an image with envi_get_data(dims = dims, fid=file ID
> [, INTERP={0 | 1 | 2 | 3}], POS=long integer [, XFACTOR=integer] [,
> YFACTOR=integer])

I am not sure if it applies but I think there is also an IDL object
called IDLgrImage that handles displays for large imagery (assuming
you are not wanting to display it all at once) and I think it only
loads as much of the image as required and thus reduces the memory
requirements. May also handle zoom type stuff as well.

Subject: Re: envi_get_data

Posted by lefsky@gmail.com on Mon, 12 Nov 2012 04:22:13 GMT

On Sunday, November 11, 2012 7:54:38 PM UTC-7, lef...@gmail.com wrote:
> I am trying to extract a spatial subset of a compressed file from within an envi program. envi_get_data returns an array of the appropriate size and data type, but the values within the array aren't meaningful. Extracting the same data from within the ENVI gui results in correct data.
>
>
>
> Is this a problem that arises from compression or should I be looking elsewhere for a solution?

To clarify, the compressed file is an envi file

Subject: Re: envi_get_data
Posted by lefsky@gmail.com on Mon, 12 Nov 2012 22:02:30 GMT

On Sunday, November 11, 2012 7:54:38 PM UTC-7, lef...@gmail.com wrote:
> I am trying to extract a spatial subset of a compressed file from within an envi program. envi_get_data returns an array of the appropriate size and data type, but the values within the array aren't meaningful. Extracting the same data from within the ENVI gui results in correct data.
>
>
>
> Is this a problem that arises from compression or should I be looking elsewhere for a solution?

I have solved the problem, sort of. What I did is translate the code to the new envi API and it worked right away.