
Subject: Object Graphics --> EPS Output how?

Posted by [Jason P. Meyers](#) on Tue, 25 Sep 2001 13:46:37 GMT

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Hello,

This list has helped me greatly in the past and I hope that you all will rise to the challenge yet once again. I have been working long and hard on my thesis research and recently had to find a way to plot what I would call a "3-D Polar Plot". Specifically, I am trying to plot Bi-directional Reflectance Distribution Function (BRDF) data which is a function of theta and phi. After several unsuccessful attempts with various commercial packages, I concluded I could get exactly what I wanted using IDL Object Graphics. And I was correct, well almost!

I now have a little IDL program that creates the type of plots I want using object graphics. My only problem is getting acceptable output from IDL. I am writing my thesis using LaTeX and therefore, my figures need to be in EPS format. This is no problem when I use direct graphics (DG) because IDL provides a PostScript device for outputting DG. I was a bit surprised to see (at least according to the help file) no such feature for object graphics.

I am using IDL 5.3.1 on a Windows NT 4.0 platform. Does anyone know of a way to output object graphics to an EPS file in this situation? The help file indicates that the Unix version does this via the system clipboard but under Windows, it uses a device independent bit map. I would much rather have a vector EPS file similar to the ones produced using the DG postscript device.

Any and all advice would be greatly appreciated. Thanks in advance!

--

Jason Meyers
Ph.D. Student, Center for Imaging Science
Rochester Institute of Technology
jpm7934@rit.edu

Subject: Re: Object Graphics --> EPS Output how?

Posted by [Mark Hadfield](#) on Tue, 25 Sep 2001 22:04:49 GMT

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From: "Jason P. Meyers" <jpm7934@cis.rit.edu>

> I am using IDL 5.3.1 on a Windows NT 4.0 platform. Does anyone know
> of a way to output object graphics to an EPS file in this situation?
> The help file indicates that the Unix version does this via the system
> clipboard but under Windows, it uses a device independent bit map. I
> would much rather have a vector EPS file similar to the ones produced

> using the DG postscript device.

You are probably being confused by the following paragraph in the documentation for the IDLgrClipboard device...

"An IDLgrClipboard object will send Object Graphics output to the operating system native clipboard in bitmap format. The format of bitmaps sent to the clipboard is operating system dependent: output is stored as a PICT image on the Macintosh, as a device-independent bitmap under Windows, and as an Encapsulated PostScript (EPS) image under UNIX and VMS."

The fact is that, as of version 5.3, the IDLgrClipboard supports bitmap *or* vector output, to the clipboard *or* a file. The formats supported are EPS (all platforms), WMF (Windows) and PICT (Macintosh).

Look at the documentation for IDLgrClipboard::Draw, in particular the VECTOR keyword.

Mark Hadfield
m.hadfield@niwa.cri.nz <http://katipo.niwa.cri.nz/~hadfield>
National Institute for Water and Atmospheric Research

--

Posted from clam.niwa.cri.nz [202.36.29.1]
via Mailgate.ORG Server - <http://www.Mailgate.ORG>

Subject: Re: Object Graphics --> EPS Output how?
Posted by [Martin Downing](#) on Wed, 26 Sep 2001 09:22:01 GMT
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Hi Mark,
Ok I just gave it a go: RTFM, created EPS output to the clipboard - but what do you do with it then?! Is there a method to write the clip board to file directly?
I tried pasting the unformatted text to file and then reading that into ghostview - but it was not at all impressed with my efforts! :(

Martin

"Mark Hadfield" <m.hadfield@niwa.cri.nz> wrote in message
news:003b01c1460e\$1dae4050\$d938a8c0@Hadfield...
> From: "Jason P. Meyers" <jpm7934@cis.rit.edu>
>> I am using IDL 5.3.1 on a Windows NT 4.0 platform. Does anyone know
>> of a way to output object graphics to an EPS file in this situation?

>> The help file indicates that the Unix version does this via the system
>> clipboard but under Windows, it uses a device independent bit map. I
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the
> clipboard is operating system dependent: output is stored as a PICT image
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> the Macintosh, as a device-independent bitmap under Windows, and as an
> Encapsulated PostScript (EPS) image under UNIX and VMS."
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> vector output, to the clipboard *or* a file. The formats supported are EPS
> (all platforms), WMF (Windows) and PICT (Macintosh).
>
> Look at the documentation for IDLgrClipboard::Draw, in particular the
VECTOR
> keyword.
>
> ---
> Mark Hadfield
> m.hadfield@niwa.cri.nz <http://katipo.niwa.cri.nz/~hadfield>
> National Institute for Water and Atmospheric Research
>
>
>
> --
> Posted from clam.niwa.cri.nz [202.36.29.1]
> via Mailgate.ORG Server - <http://www.Mailgate.ORG>

Subject: Re: Object Graphics --> EPS Output how?
Posted by [Mark Hadfield](#) on Wed, 26 Sep 2001 22:03:40 GMT
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From: "Martin Downing" <martin.downing@ntlworld.com>
> Ok I just gave it a go: RTFM, created EPS output to the clipboard - but
what
> do you do with it then?! Is there a method to write the clip board to file
> directly?

Output destination & format is controlled through keywords to the IDLgrClipboard::Draw method. To send EPS output to a file the basic sequence of operations is

```
myview = [Create & populate your IDLgrView here]
myclipbrd = obj_new('IDLgrClipBoard')
myclipbrd->Draw, /VECTOR, /POSTSCRIPT, FILENAME=[your file name here]
obj_destroy, myclipbrd
```

The name "IDLgrClipboard" is a little confusing. It was originally intended only for output to the system clipboard, but then the IDL developers thought, "Hey, we could use this to write files too."

Mark Hadfield
m.hadfield@niwa.cri.nz <http://katipo.niwa.cri.nz/~hadfield>
National Institute for Water and Atmospheric Research

--

Posted from clam.niwa.cri.nz [202.36.29.1]
via Mailgate.ORG Server - <http://www.Mailgate.ORG>

Subject: Re: Object Graphics --> EPS Output how?
Posted by [David Fanning](#) on Wed, 26 Sep 2001 23:55:24 GMT
[View Forum Message](#) <> [Reply to Message](#)

Mark Hadfield (m.hadfield@niwa.cri.nz) writes:

```
> Output destination & format is controlled through keywords to the
> IDLgrClipboard::Draw method. To send EPS output to a file the basic sequence
> of operations is
>
> myview = [Create & populate your IDLgrView here]
> myclipbrd = obj_new('IDLgrClipBoard')
> myclipbrd->Draw, /VECTOR, /POSTSCRIPT, FILENAME=[your file name here]
> obj_destroy, myclipbrd
>
> The name "IDLgrClipboard" is a little confusing. It was originally intended
> only for output to the system clipboard, but then the IDL developers
> thought, "Hey, we could use this to write files too."
```

I just point out what is probably obvious: this produces PostScript output, not *encapsulated* PostScript output as was requested in the original

post.

To get encapsulated PostScript output, you have to convert PostScript files somewhere other than in IDL.

Cheers,

David

--

David W. Fanning, Ph.D.

Fanning Software Consulting

Phone: 970-221-0438, E-mail: david@dfanning.com

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

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

Subject: Re: Object Graphics --> EPS Output how?

Posted by [Mark Hadfield](#) on Thu, 27 Sep 2001 02:39:33 GMT

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From: "David Fanning" <david@dfanning.com>

> Mark Hadfield (m.hadfield@niwa.cri.nz) writes:

>

>> Output destination & format is controlled through keywords to
>> the IDLgrClipboard::Draw method. To send EPS output to a file
>> the basic sequence of operations is

>>

>> myview = [Create & populate your IDLgrView here]

>> myclipbrd = obj_new('IDLgrClipBoard')

>> myclipbrd->Draw, /VECTOR, /POSTSCRIPT, FILENAME=...

>> obj_destroy, myclipbrd

>

> I just point out what is probably obvious: this
> produces PostScript output, not *encapsulated*
> PostScript output as was requested in the original
> post.

Well you'd think so, wouldn't you?

On my system (IDL 5.4, Windows 2000), the above commands generate a text file which begins something like this...

```
%!PS-Adobe-2.0 EPSF-1.2
```

```
%%Title: Clipboard Image
```

```
%%Creator: IDL
```

```
%%BoundingBox: 0 0 344 344
```

```
gsave
```

...followed by a lot of Postscript commands ending with...

```
end  
grestore  
showpage
```

From my (admittedly limited) knowledge of Postscript this is a valid EPS file. It has the required comment at the beginning and it has a Bounding Box specification. If you give the file the extension ".eps" then it seems to *behave* like an EPS file. It can be imported into MS Word (resulting in the infamous plain box) and into LaTeX documents. When I open it with GSview with the "EPS Warn" option turned on, there are no warnings (implying, I think that GSview has found none of the operators forbidden to EPS files).

I have been treating these files as EPS for quite some time and never run into any problems.

BTW, here are a couple of links with info about EPS

<http://www-cdf.fnal.gov/offline/PostScript/AdobePS.html#EPS>
<http://www-cdf.fnal.gov/offline/PostScript/EPSF.ps>

Section 5.3 of the latter has some handy info about the "showpage" command. The presence of this command at the end of the file above means that it produces output when sent straight to a printer. An application that encapsulates an EPS file is expected to deactivate the showpage command temporarily so that more than one of them can be displayed on a page.

Mark Hadfield
m.hadfield@niwa.cri.nz <http://katipo.niwa.cri.nz/~hadfield>
National Institute for Water and Atmospheric Research

--

Posted from clam.niwa.cri.nz [202.36.29.1]
via Mailgate.ORG Server - <http://www.Mailgate.ORG>

Subject: Re: Object Graphics --> EPS Output how?
Posted by [David Fanning](#) on Thu, 27 Sep 2001 03:47:12 GMT
[View Forum Message](#) <> [Reply to Message](#)

Mark Hadfield (m.hadfield@niwa.cri.nz) writes:

> Well you'd think so, wouldn't you?
>
> On my system (IDL 5.4, Windows 2000), the above commands generate a text
> file which begins something like this...
>
> %!PS-Adobe-2.0 EPSF-1.2
> %%Title: Clipboard Image
> %%Creator: IDL
> %%BoundingBox: 0 0 344 344
> gsave
>
> ...followed by a lot of Postscript commands ending with...
>
> end
> grestore
> showpage
>
> From my (admittedly limited) knowledge of Postscript this is a valid EPS
> file.

Well, now. It's not often I'm taken to task twice
(or was it three times?) in the same day. I guess
I know what I'll be taking to bed for my evening
reading: my good ol' IDL manuals.

Cheers,

David

P.S. Let's just say that my wife saw me coming
with the hand truck and now I'm been banished
to the living room. :-(

--

David W. Fanning, Ph.D.
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Coyote's Guide to IDL Programming: <http://www.dfanning.com/>
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Subject: Re: Object Graphics --> EPS Output how?
Posted by [Mark Hadfield](#) on Thu, 27 Sep 2001 04:04:02 GMT
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From: "David Fanning" <david@dfanning.com>
> Well, now. It's not often I'm taken to task twice

> (or was it three times?) in the same day. I guess
> I know what I'll be taking to bed for my evening
> reading: my good ol' IDL manuals.

I think reading the manuals was what led you astray in the first place.
(We're talking about IDL: here.) I mean, they called a keyword POSTSCRIPT
and you thought it meant that it produced Postscript output. Really!

You obviously need to take a laptop to bed so can you try out things you
think of in the middle of the night. (We're still talking about IDL.)

Mark Hadfield
m.hadfield@niwa.cri.nz <http://katipo.niwa.cri.nz/~hadfield>
National Institute for Water and Atmospheric Research

--

Posted from clam.niwa.cri.nz [202.36.29.1]
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Subject: Re: Object Graphics --> EPS Output how?
Posted by [David Fanning](#) on Thu, 27 Sep 2001 05:00:50 GMT
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Mark Hadfield (m.hadfield@niwa.cri.nz) writes:

> You obviously need to take a laptop to bed so can you try out things you
> think of in the middle of the night. (We're still talking about IDL.)

I was going to say. Does "laptop" mean the same
thing in your country. :-)

Cheers,

David

--

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Fanning Software Consulting
Phone: 970-221-0438, E-mail: david@dfanning.com
Coyote's Guide to IDL Programming: <http://www.dfanning.com/>
Toll-Free IDL Book Orders: 1-888-461-0155

Subject: Re: Object Graphics --> EPS Output how?
Posted by [Mark Hadfield](#) on Thu, 27 Sep 2001 21:39:53 GMT
[View Forum Message](#) <> [Reply to Message](#)

```
From: "Mark Hadfield" <m.hadfield@niwa.cri.nz>  
> myview = [Create & populate your IDLgrView here]  
> myclipbrd = obj_new("IDLgrClipBoard")  
> myclipbrd->Draw, /VECTOR, /POSTSCRIPT, FILENAME=[your file name here]  
> obj_destroy, myclipbrd
```

I see that nobody spotted the deliberate mistake. That should be

```
myclipbrd->Draw, myview, /VECTOR, /POSTSCRIPT, FILENAME=[your file name  
here]
```

Mark Hadfield
m.hadfield@niwa.cri.nz <http://katipo.niwa.cri.nz/~hadfield>
National Institute for Water and Atmospheric Research

--

Posted from clam.niwa.cri.nz [202.36.29.1]
via Mailgate.ORG Server - <http://www.Mailgate.ORG>

Subject: Re: Object Graphics --> EPS Output how?
Posted by [David Fanning](#) on Fri, 28 Sep 2001 02:28:37 GMT
[View Forum Message](#) <> [Reply to Message](#)

Mark Hadfield (m.hadfield@niwa.cri.nz) writes:

```
> I see that nobody spotted the deliberate mistake. That should be  
>  
> myclipbrd->Draw, myview, /VECTOR, /POSTSCRIPT, FILENAME=[your file name  
> here]
```

Actually, I noticed it when I was implementing a
"Save As PostScript File" button for my FSC_Surface
program. But I had already reached my daily quota
of newsgroup posts fooling around with all that
sexual innuendo, so I couldn't post. :-(

Cheers,

David

--

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Subject: Re: Object Graphics --> EPS Output how?
Posted by [Martin Downing](#) on Fri, 28 Sep 2001 07:13:18 GMT
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"Mark Hadfield" <m.hadfield@niwa.cri.nz> wrote in message
news:001401c1479c\$fcf305e0\$d938a8c0@Hadfield...
> From: "Mark Hadfield" <m.hadfield@niwa.cri.nz>
>> myview = [Create & populate your IDLgrView here]
>> myclipbrd = obj_new('IDLgrClipboard')
>> myclipbrd->Draw, /VECTOR, /POSTSCRIPT, FILENAME=[your file name
here]
>> obj_destroy, myclipbrd
>
> I see that nobody spotted the deliberate mistake. That should be
>
> myclipbrd->Draw, myview, /VECTOR, /POSTSCRIPT, FILENAME=[your file
name
> here]
>

I thought you had preset the Graphics_Tree property of the clipboard
instance, eg using:

```
myClipboard = obj_new('IDLgrClipboard', GRAPHICS_TREE = myView)  
or:  
myClipboard->SetProperty, GRAPHICS_TREE = myView
```

However I have a feeling I'm about to find out why that is not a good idea!
(i.e. am I right in thinking that if you destroy the clipboard object after
attaching the view object then
you lose that graphic object?)

Martin

Subject: Re: Object Graphics --> EPS Output how?
Posted by [Mark Hadfield](#) on Sun, 30 Sep 2001 22:00:35 GMT
[View Forum Message](#) <> [Reply to Message](#)

From: "Martin Downing" <martin.downing@ntlworld.com>
> I thought you had preset the Graphics_Tree property of the clipboard
> instance, eg using:
>
> myClipboard = obj_new('IDLgrClipBoard', GRAPHICS_TREE = myView)
> or:
> myClipboard->SetProperty, GRAPHICS_TREE = myView

That's charitable of you. Yes, that must have been what I meant...it wasn't a mistake at all. Phew and here was I thinking that I had blemished my record of 100% accurate posts to the newsgroup!

> However I have a feeling I'm about to find out why that is not a good idea!
> (i.e. am I right in thinking that if you destroy the clipboard object after
> attaching the view object then
> you lose that graphic object?)

Indeed. Whether that is a good thing or a bad thing depends on how you structure your object applications. My usual practice is to build object-graphics applications out of IDLgrWindow objects and attach each view (or other graphics tree) to a window, using the window's GRAPHICS_TREE property. This means, as you say, that in the normal course of events the view will be destroyed when the window is closed. This is the most convenient behaviour as it means I don't have to keep a separate reference to the view and clean it up manually. When I want to direct output to a file I create a temporary destination object (IDLgrBuffer, IDLgrClipboard, IDLgrPrinter) as necessary and draw to it without setting its GRAPHICS_TREE. But I'm sure there are other valid ways of doing things.

BTW if you want to see what my "usual practice" is for object graphics applications you are welcome to take a look at my IDL library at

<http://katipo.niwa.cri.nz/~hadfield/gust/software/idl/>

Mark Hadfield
m.hadfield@niwa.cri.nz <http://katipo.niwa.cri.nz/~hadfield>
National Institute for Water and Atmospheric Research

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