Subject: Re: Color Printer limitations - Postscript resolution
Posted by 8015 on Thu, 12 May 1994 17:11:24 GMT
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In article <2qtlak$im1@spool.cs.wisc.edu>,
Francois Pomport <frp@ssec.wisc.edu> wrote:
>
> Hi,
>
> I am trying to print some filled contour graphics on a color
> printer, but the printer seems to ignore them. Each time IDL warns
...
> Do you
> have any other references for new color printers with an estimated
> price?
>

About a year ago our first effort with IDL and color printers using postscript was pretty dismal. We blamed it on the printer (Sharp JX-7000 24-bit dye-sub), also. The problem was the time required to print because the imaging of the postscript was being done with Sun's NeWSPrint software rather than in the printer's hardware (non-PS printer). Anyway, the solution was to have IDL output a Sun Raster File using the write_srf procedure in IDL. The file was then sent to the printer. Processing time was cut from at least an hour to less than a minute. Priniting time was about five minutes.

If this sounds like a reasonable solution, here is some more info:
Vendor: APUNIX 800/827-8649 (Susan and Vince have been very helpful)
Printer: Sharp JX-7000 24-bit dye-sub printer connected via SCSI
Cost: $8,000
Cost per copy: ~$2 for paper, ribbons, etc.
Output time: 5 minutes once file is created by IDL and spooled to
printer (which takes whatever time is required for your computer to create and spool a 5 MByte file across the SCSI bus). In our case, using a Sun IPX, it was about 30 seconds to create the file and a few seconds to spool the file.

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Subject: Re: Color Printer limitations - Postscript resolution
Posted by andy on Thu, 12 May 1994 18:10:04 GMT
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In article <2qtlak$im1@spool.cs.wisc.edu>, frp@ssec.wisc.edu (Francois Pomport) writes:
>

> Hi,
>
> I am trying to print some filled contour graphics on a color
> printer, but the printer seems to ignore them. Each time IDL warns
> us that the number of polygon vertices may exceed some printer
> capabilities when it is generating the postscript file. I have
> tried to reduce the number of contour levels up to 7 (which is
> not very much) in order to be below the limitations but it
> doesn't work. Does anyone have encountered this warning message
> before? How did you succeed in printing your files? I know that my
> problem is related to the printer (Tektronix Pahser II). Do you
> have any other references for new color printers with an estimated
> price?
>
> Thanks for your answers.
>
>

Francois,

Please do not throw away your Phaser II printer.
We do this kind of stuff all the time and we often
send our output to the same model of printer which
you have. We do get the "polygon vertices" message,
but that doesn't mean we are unable to print the file.
Maybe your printer needs more memory.

Can you send me a simple example procedure which *doesn't*
work at your site? Maybe I can give it a try here.

Good luck.

Andy

P.S. Since you are working on such a problem, let me tell you
that many users are having difficulty (still) with the
/fill option to contour. We run into errors with the way it
is implemented all the time. A robust package like NCAR
graphics can color fill contours without any problem.

--
,__o Andrew F. Loughe (Code 971)
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Subject: Re: Color Printer limitations - Postscript resolution

Posted by jacobsen on Fri, 13 May 1994 11:12:24 GMT
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We've been using IDL to generate B&W and color PostScript
files for printing on a laser printer (proof) and
a Tektronix Phaser II SDX (the dye-sublimation phaser) for
almost two years. For a 2 MB file, we average send times of
a minute or so (parallel port on IBM RS/6000), and print
times as Tektronix advertises in its literature.

The Phaser II SDX talks PostScript, and I like that because
you can put text up at high (non-rasterized) resolution next
to the picture.

Since we bought ours, Tektronix has lowered the price
and Kodak and others have come out with competitors. At a
supposedly slight step down in print quality, there's a
Fargo Electronics dye-sub printer for <$2,000! (but it doesn't
talk PostScript - drive it from a PC).
--
****
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****

Subject: Re: Color Printer limitations - Postscript resolution
Posted by landers on Fri, 13 May 1994 13:49:01 GMT
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I have also had problems with long color PS printing time (from PV-WAVE).

In my case, the plots are large color images. I discovered that I could
reduce the print time by reducing the resolution of the PS image. This did not
degrade my plots because of the nature of my data. I think that the
default PS image output is at around 300dpi, but this is just a guess. Reducing
this by 1/3 (to what I guess is 100 - close to what I see on my screen) makes the
files almost 1/9 the size, and reduces PS processing time accordingly.

You could do this by taking a 'snapshot' of the screen, but this 'pixelizes' any
text and lines in the plot, and can really get ugly if you resize it. I prefer to
do the re-scaling straight to the PS file from PV-WAVE.

To do this in PV-WAVE, I do:

```
scale = 3.  ; the scale reduction factor
xsize = 6.  ; the final x,y sizes of the plot (inches in this case)
```

```
ysize = 6.
SET_PLOT, 'PS'
DEVICE, /Color, Bits_Per_Pixel=8, Xsize=xsize/scale, Ysize=ysize/scale, $
   /Inches, Scale_Factor=scale
!P.Charsize = 1./scale  ; set character sizes - Scale_Factor doesn't affect them

< plot commands >
DEVICE, /Close
!P.Charsize = 1.        ; reset it back to normal
SET_PLOT,'X' ; or whatever
```

Make sure that if you use Charsize keywords in your plot commands, to use them relative to !P.Charsize or scale. Otherwise they'll turn out much too large.

Also, there is no !P.Symsize, so if you use plot symbols, you'll need to set Symsize keywords relative to !P.Charsize, too.

Even if you want high resolution finals, you can use this for small, quick previews.

I figured all this out by playing with DEVICE and PS and stuff. If I am going about this the hard way, somebody let me know. There really ought to be a Resolution keyword for the PS device to make this easier.

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Subject: Re: Color Printer limitations - Postscript resolution
Posted by sigut on Fri, 13 May 1994 14:36:15 GMT
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In article <2qtlak$im1@spool.cs.wisc.edu> frp@ssec.wisc.edu (Francois Pomport) writes:

> I am trying to print some filled contour graphics on a color
> printer, but the printer seems to ignore them. Each time IDL warns
> us that the number of polygon vertices may exceed some printer
> capabilities when it is generating the postscript file. I have
> tried to reduce the number of contour levels up to 7 (which is
> not very much) in order to be below the limitations but it
> doesn't work. Does anyone have encountered this warning message
> before? How did you succeed in printing your files? I know that my

problem is related to the printer (Tektronix Pahser II). Do you
have any other references for new color printers with an estimated
price?

Francois
frp@ssec.wisc.edu
University of Wisconsin

Hi there,

I believe that your problem is NOT related to your printer, but to
the POLYFILL routine used by CONTOUR,/FILL or POLYCONTOUR.

This routine takes each closed contour as a polygon and sends it
to the PostScript device to be filled. When the POLYFILL routine
was developed, there was (and perhaps still is) a limit as to the
number of vertices the PostScript device would be able to handle.
If it is larger then 750 (or somesuch), it gives you a warning
and might do anything between ignoring the request and breaking off,
depending on the software version.

I wrote a hack to avoid this problem in the PV-Wave version of the
POLYCONTOUR routine, which could be reworked easily for IDL. The only
problem is, that in IDL you are discouraged to use POLYCONTOUR, because
it was replaced by the /FILL option to CONTOUR. Of course, the source
for CONTOUR is not available...

Anyway, since I started let's have a look. The tested change for
PV-Wave looks as follows:

```
pro polycontour, ...

...
 if col ge 100 then col = 199-col ;Drawing index = 1 less than orig
 col = color_index(col+1)

; This add-on was written to avoid the problem with
; "Too many vertices for PostScript polygon fill."
; The solution is to "thin out" the polygon and hope
; that it will still look the same.
        sec_dim=size(xyarr)
        gms_siz=sec_dim(2)
        if gms_siz gt 750 then begin
          gms_siz = gms_siz/2
          while gms_siz gt 750 do gms_siz = gms_siz/2
          xyarr=congrid(xyarr,2,gms_siz)
        endif
; end-of-the-hack
```

```
 if n_elements(pat) ne 0 then begin
  s = size(pat)
  if s(0) ne 3 then message, 'Pattern array not 3d.'
...
```

(you can find easily where to plug it in)

The UNTESTED version for IDL would look as follows:

```
pro polycontour, ...

...
 if col ge 100 then col = 199-col ;Drawing index = 1 less than orig
 col = color_index(col+1)

; This add-on was written to avoid the problem with
; "Too many vertices for PostScript polygon fill."
; The solution is to "thin out" the polygon and hope
; that it will still look the same.
        sec_dim=size(xyarr)
        gms_siz=sec_dim(1)
        if gms_siz gt 750 then begin
          gms_siz = gms_siz/2
          while gms_siz gt 750 do gms_siz = gms_siz/2
          xyarr=congrid(xyarr,gms_siz,2)
        endif
; end-of-the-hack

 if n_elements(pat) ne 0 then begin
  s = size(pat)
  if s(0) ne 3 then message, 'Pattern array not 3d.'
...
```

The file polycontour.pro can be found for Wave in .../wave/lib/std
and for IDL in .../idl/lib/userlib

Well, that's all.

Good luck,

George

 -- ----------
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>>>> >>>>> in case of email problems send the mail to "sigut@acm.org" <<<<<<<<<

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Subject: Re: Color Printer limitations - Postscript resolution
Posted by frp on Fri, 13 May 1994 22:01:28 GMT
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Thank you for all your replies.

Francois
frp@ssec.wisc.edu