Subject: Re: Sun fonts on DECWindows
Posted by thompson on Tue, 03 Mar 1992 15:15:00 GMT
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In article <1992Mar3.033704.13849@bnlux1.bnl.gov>, rivers@bnlux1.bnl.gov (mark rivers) writes...
>
> I am trying to run IDL on a Sun and display on a VAXStation (VMS) or on a
> Tektronix XP-29 terminal. On either display it works fine until I run IDL
> Widgets: when I do I get a fatal IDL error (i.e. exit IDL) on the Sun about a
> "Button font" not found. Does anyone know of a font alias file I can use to
> substitute a DECWindows font for the missing Sun fonts or another way to fix
> this problem?

This is discussed in the file "widget_fonts.doc" in the directory $IDL_DIR/notes on the Sun. Unfortunately, the documentation only refers to Unix system, and the differences for VMS are not discussed. However, I reproduce the documentation below.

Bill Thompson

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25 September 1991

Running the Sun version of IDL on a Non-OpenWindows Display Server

IDL version 2.x on the Sun is usually run from OpenWindows. If IDL is run with a different X server, such as X11R4 from MIT, IDL Widget applications will not work correctly unless the OpenWindows fonts for buttons and scrollbars are available to the display server. This situation might occur if OpenWindows is replaced with a different X server or if a different machine without OpenWindows is used as the display server.

This situation is complicated by the fact that different font formats are used by Sun (Sun X11/News), DEC (pcf) and the standard X11 server from MIT (bdf). The process is the the same for converting to DecWindows or the MIT server, although the actual commands differ in name.

The required fonts are supplied with OpenWindows. It is necessary to convert them to the correct format for your server. The procedure for converting the fonts to the appropriate format is described below.

Many thanks to Dave Biron of MIT Lincoln Laboratories who came up with this approach and documented it.

This description assumes that the OpenWindows distribution is installed in the directory OPENWINHOME. This is a Unix environment variable that contains the location of the root OpenWindows directory. On many systems, this is defined as:

% setenv OPENWINHOME /usr/openwin

You should make sure it is defined properly for your system before starting this procedure.

On the machine running the non-OpenWindows server, we assume the location of the X11 installation is X11HOME. On many systems, this is defined as:

% setenv X11HOME /usr/lib/X11

You should make sure it is defined properly for your system before starting this procedure.

ON THE MACHINE WITH OPENWINDOWS:
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1. Find the fonts in the OpenWindows distribution. They are usually in the $OPENWINHOME/lib/fonts directory, with names like "d12butto12.fb" or "d12sbarv12.fb". The important files have extensions of ".fb"; don't worry about the ".ff" files. There are 61 files whose names should match the list of ".snf" files shown below except for the ".fb" suffix. Use the following command to list the files:

   ls $OPENWINHOME/lib/fonts/?12*.fb

   Use the command "xlsfonts" to list the actual names of the fonts:

   $OPENWINHOME/bin/xlsfonts | grep '[a-h]'12

2. Use the OpenWindows utility "convertfont" to create ".bdf" format font files from the ".fb" files. First make a subdirectory of the fonts directory, and create the new files there. This process must be done as superuser, unless it is done in a user's directory.

   ```
   % cd $OPENWINHOME/lib/fonts
   % mkdir bdf_fonts_for_widgets
   % cd !$
   % foreach name (../?12*.fb)
   ?   $OPENWINHOME/bin/convertfont -x -o `basename $name .fb` $name
   ? end
   ```

3. Copy the ".bdf" format font files to the machine that will run as the
   display server for IDL. If only one machine is being used to run both
   OpenWindows and X11, skip this step.

```
% cd /usr/lpp/fonts
% mkdir openwin
% cd !$
% rcp mysun:"$OPENWINHOME/lib/fonts/bdf_fonts_for_widgets/*" .
```

ON THE MACHINE WITH X11:
---

4. Convert the ".bdf format font files to the correct format for your
   server.

   FOR THE MIT SERVER:

```
% cd /usr/lpp/fonts/openwin
% foreach name (*.bdf)
?   echo $name
?   bdftosnf $name > `basename $name .bdf`.snf
? end
```

   FOR THE DecWindows SERVER:

```
% cd /usr/lpp/fonts/openwin
% foreach name (*.bdf)
?   echo $name
?   dxfc $name > `basename $name .bdf`.pcf
? end
```

5. Generate the file "fonts.dir". This file contains a line for each
   font file in the directory, and maps the actual name of each font
   to the file containing it:

   FOR THE MIT SERVER:

```
% mkfontdir `pwd`
```

   FOR THE DecWindows SERVER:

```
% dxmkfontdir `pwd`
```

6. Edit the "fonts.dir" file to make the font names (the second field on each
   line) match the OpenWindows font names. On some servers, the font names
   end with "-10", "-12", or "-14", but the Sun version of IDL looks for
   fonts without that suffix.

To make the font names in the file "fonts.dir" match the OpenWindows font names from step 1, simply edit the "fonts.dir" file and correct the names. (It is probably possible to use a "fonts.alias" file, but editing the "fonts.dir" file seemed like the most simple approach.) For example, to use vi to remove the "-1?" suffixes, enter:

```
vi fonts.dir
:g/-..$/s///
```

7. Add the directory containing the fonts to the font path of the server and rehash the font path to add the fonts.

```
xset +fp /usr/lpp/fonts/openwin
xset fp rehash
```

These "xset" commands could be placed in a user's startup file so that the fonts are added when the server is initialized. On some systems, including the IBM RS6000 the commands could be put in the ".xinitrc" file. For other systems, such as Ultrix machines, the commands should be put in the ".X11start" file. On the SGI, the files were placed in an existing font directory, and then the "fonts.dir" file was updated to include the new fonts. Use "xset q" to make sure that the font path has been modified as desired. Use the same "xlsfonts" command shown in step one to make sure that the fonts are installed in the server.

ADDITIONAL NOTES

After the fonts are installed, they can be viewed using the X11 utility "xfd".

The MIT X11 server can read ".bdf" format fonts but the ".snf" format is more compact.

Some installations might be missing the utility "xset". Usually the source can be found and compiled. You might have to remove a call to XmuPrintDefaultErrorMessage to allow xset.c to compile.

On Suns running MIT X11, many of these utility programs require that the environment variable LD_LIBRARY_PATH be set to the lib subdirectory of the X installation. For example, on the machine running OpenWindows, enter:

```
setenv LD_LIBRARY_PATH $OPENWINHOME/lib
```

On other machines which normally run X11, enter:

setenv LD_LIBRARY_PATH /usr/lib

IDL may also look for a set of pushpin bitmaps. If your
system has the OpenWindows distribution installed they should be available
in $OPENWINHOME/lib/bitmaps. Simply define the environment variable
OPENWINHOME and the toolkits should then be able to access them.
On other machines which normally run X11 copy the bitmaps to a bitmaps
subdirectory of the lib directory of the X installation. Then enter:
setenv OPENWINHOME $X11HOME/lib

LIST OF FONT FILES

The following is a list of the converted fonts and their OpenWindows font
names for Open Windows 2.0. (It is actually the file "fonts.dir".)
Some of these may not be required, but if all are converted IDL Widgets
will run.

61
a12biluc12.snf a12biluc
a12bluci10.snf a12bluci
a12butto12.snf a12butto
a12iluci12.snf a12iluci
a12lucid10.snf a12lucid
a12sbarh12.snf a12sbarh
a12sbarv12.snf a12sbarv
a12sldrh12.snf a12sldrh
a12sldrv12.snf a12sldrv
b12bluci10.snf b12bluci
b12butto12.snf b12butto
b12lucid12.snf b12lucid
b12sbarh12.snf b12sbarh
b12sbarv12.snf b12sbarv
b12sldrh12.snf b12sldrh
b12sldrv12.snf b12sldrv
c12bluci12.snf c12bluci
c12butto12.snf c12butto
c12iluci12.snf c12iluci
c12lucid12.snf c12lucid
c12sbarh12.snf c12sbarh
c12sbarv12.snf c12sbarv
c12sldrh12.snf c12sldrh
c12sldrv12.snf c12sldrv
d12bluci14.snf d12bluci
d12butto12.snf d12butto
d12iluci14.snf d12iluci

d12lucid14.snf d12lucid
d12sbarh12.snf d12sbarh
d12sbarv12.snf d12sbarv
d12sldrh12.snf d12sldrh
d12sldrv12.snf d12sldrv
e12bluci10.snf e12bluci
e12butto12.snf e12butto
e12lucid10.snf e12lucid
e12sbarh12.snf e12sbarh
e12sbarv12.snf e12sbarv
e12sldrh12.snf e12sldrh
e12sldrv12.snf e12sldrv
f12bluci10.snf f12bluci
f12butto12.snf f12butto
f12lucid12.snf f12lucid
f12sbarh12.snf f12sbarh
f12sbarv12.snf f12sbarv
f12sldrh12.snf f12sldrh
f12sldrv12.snf f12sldrv
g12bluci10.snf g12bluci
g12butto12.snf g12butto
g12lucid10.snf g12lucid
g12sbarh12.snf g12sbarh
g12sbarv12.snf g12sbarv
g12sldrh12.snf g12sldrh
g12sldrv12.snf g12sldrv
h12bluci12.snf h12bluci
h12butto12.snf h12butto
h12iluci12.snf h12iluci
h12lucid12.snf h12lucid
h12sbarh12.snf h12sbarh
h12sbarv12.snf h12sbarv
h12sldrh12.snf h12sldrh
h12sldrv12.snf h12sldrv