Fonts in X11R7.7

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Two font systems

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Installing fonts

Configuring Xft

Installing fonts in Xft

11 /usr/share/fonts/X11/*
.fonts/

```
$ cp lucbr.ttf ~/.fonts/
```

```
$ fc-cache
```

```
$ su -c fc-cache
```

Fine-tuning Xft

```
                /etc/fonts/fonts.conf
          /etc/fonts/conf.d/                                  /etc/fonts/
local.conf                                  .fonts.conf
                                              FONTCONFIG_FILE
```

```
<?xml version="1.0"?>
<!DOCTYPE fontconfig SYSTEM "fonts.dtd">
<fontconfig>
```

```
</fontconfig>
```

```
                                                              ~/.fonts/
```

```
<dir>/usr/local/share/fonts/</dir>
```

```
<match target="font">
    <test qual="any" name="family">
        <string>Lucida Console</string>
    </test>
    <edit name="antialias" mode="assign">
        <bool>false</bool>
```

```
    </edit>
</match>
```

```
<match target="font">
    <edit name="antialias" mode="assign">
        <bool>false</bool>
    </edit>
</match>
```

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```
$ xdpyinfo -ext RENDER | grep sub-pixel
```

```
<match target="font">
    <edit name="rgba" mode="assign">
        <const>rgb</const>
    </edit>
</match>
```

rgb <const> </const>

rgb bgr vrgb vbgr

Configuring applications

-fa XTerm*faceName

```
XTerm*faceName: Courier
```

```
$ xterm -fa "Courier"
```

Configuring the core X11 fonts system

Installing bitmap fonts

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```
$ bdftopcf courier12.bdf
```

```
$ gzip courier12.pcf
```

/usr/local/share/fonts/bitmap/ fonts.dir
1 1

```
$ mkdir /usr/local/share/fonts/bitmap/
$ cp *.pcf.gz /usr/local/share/fonts/bitmap/
$ mkfontdir /usr/local/share/fonts/bitmap/
```

Installing scalable fonts

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fonts.dir

fonts.scale

```
$ mkfontscale /usr/local/share/fonts/Type1/
$ mkfontdir /usr/local/share/fonts/Type1/
```

fonts.scale

1

1 1 1

CID-keyed fonts

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Setting the server's font path

:unscaled

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```
$ xset q
```

Font path catalogue directories

catalogue:<dir>

catalogue:

unscaled

pri

```
75dpi:unscaled:pri=20 -> /usr/share/X11/fonts/75dpi
ghostscript:pri=60 -> /usr/share/fonts/default/ghostscript
misc:unscaled:pri=10 -> /usr/share/X11/fonts/misc
```

```
 type1:pri=40 -> /usr/share/X11/fonts/Type1
 type1:pri=50 -> /usr/share/fonts/default/Type1

    /usr/share/X11/fonts/misc
unscaled


 /usr/share/X11/fonts/misc:unscaled,
 /usr/share/X11/fonts/75dpi:unscaled,
 /usr/share/X11/fonts/Type1,
 /usr/share/fonts/default/Type1,
 /usr/share/fonts/default/ghostscript
```

Temporary modification of the font path

```
$ xset +fp /usr/local/fonts/Type1
$ xset fp+ /usr/local/fonts/bitmap
```

1 1

Permanent modification of the font path

xorg.conf
FontPath Files

```
FontPath "/usr/local/fonts/Type1"
...
FontPath "/usr/local/fonts/bitmap"
```

Troubleshooting

fonts.dir

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11

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"bitmap" *.bdf *.pcf *.snf

"freetype" *.ttf *.ttc *.otf
*.otc 1 *.pfa *.pfb

Fonts included with X11R7.7

Standard bitmap fonts

11
fixed

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/usr/share/fonts/X11/misc/6x13.bdf

-misc-fixed-medium-r-semicondensed--13-120-75-75-c-60-iso10646-1

fixed

111

6x13-ISO8859-1.bdf
6x13-ISO8859-2.bdf
...
6x13-ISO8859-15.bdf
6x13-KOI8-R.bdf

-misc-fixed-medium-r-normal--13-120-75-75-c-60-iso8859-1
...
-misc-fixed-medium-r-normal--13-120-75-75-c-60-iso8859-15
-misc-fixed-medium-r-normal--13-120-75-75-c-60-koi8-r

fixed

-misc-fixed-medium-r-normal--13-120-75-75-c-60-iso8859-1

The ClearlyU Unicode font family

1 1

-mutt-clearlyu-medium-r-normal--17-120-100-100-p-101-iso10646-1

/usr/share/fonts/X11/misc/cu12.pcf.gz

-mutt-clearlyu alternate glyphs-medium-r-normal--17-120-100-100-p-91-iso10646-1
-mutt-clearlyu pua-medium-r-normal--17-120-100-100-p-111-iso10646-1
-mutt-clearlyu arabic extra-medium-r-normal--17-120-100-100-p-103-fontspecific-0
-mutt-clearlyu ligature-medium-r-normal--17-120-100-100-p-141-fontspecific-0

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Standard scalable fonts

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Standard Type 1 fonts

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-adobe-courier-medium-*-*--0-0-0-0-m-0-*-*

```
/usr/share/fonts/X11/Type1/cour*.pfa
```

1

```
-adobe-utopia-*-*-normal--0-0-0-0-p-0-iso8859-1
```

```
/usr/share/fonts/X11/Type1/UT*.pfa
```

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```
-bitstream-courier-*-*-normal--0-0-0-0-m-0-iso8859-1
-bitstream-charter-*-*-normal--0-0-0-0-p-0-iso8859-1
```

```
/usr/share/fonts/X11/Type1/c*bt_.pfb
```

The Bigelow & Holmes Luxi family

11 1

```
-b&h-luxi serif-medium-*-normal--*-*-*-*-p-*-*-*
```

```
-b&h-luxi sans-medium-*-normal--*-*-*-*-p-*-*-*
```

```
-b&h-luxi mono-medium-*-normal--*-*-*-*-m-*-*-*
```

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<info@urwpp.de>

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More about core fonts

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Core fonts and internationalisation

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fonts.dir fonts.dir
1

```
cour.pfa -adobe-courier-medium-r-normal--0-0-0-0-m-0-iso8859-1
cour.pfa -adobe-courier-medium-r-normal--0-0-0-0-m-0-iso8859-2
```

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The *fontenc* layer

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11

iso8859-1

iso10646-1

iso8859-1 1

iso8859-2

iso8859-3

iso8859-4

iso8859-5

iso8859-6

iso8859-7

iso8859-8

iso8859-9

iso8859-10

iso8859-15

koi8-r

koi8-u 1

koi8-ru

koi8-uni

koi8-e 111

microsoft-symbol apple-roman

fonts.dir encodings.dir

-e

encodings.dir 1 1

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Backend-specific notes about fontenc

The *FreeType* backend

1

adobe-fontspecific 1

Format of encoding directory files

encodings.dir
/usr/share/fonts/X11/encodings/

encodings.dir fonts.dir

```
3
mulearabic-0 /usr/share/fonts/X11/encodings/mulearabic-0.enc
mulearabic-1 /usr/share/fonts/X11/encodings/mulearabic-1.enc
mulearabic-2 /usr/share/fonts/X11/encodings/mulearabic-2.enc
```

STARTENCODING
ALIAS encodings.dir

encoding.dir
1 1

Format of encoding files

size SIZE SiZE

256 0x100
0400

# #
#

```
STARTENCODING mulearabic-0
ALIAS arabic-0
```

_

1

```
SIZE 0x2B
```

jisx0208.1990-0 1

```
SIZE 0x75 0x80
```

FIRSTINDEX
FIRSTINDEX

```
FIRSTINDEX 0x20 0x20
```

FIRSTINDEX

FIRSTINDEX

SIZE FIRSTINDEX

1 1

STARTMAPPING

1

```
STARTMAPPING unicode
```

STARTMAPPING cmap 3 1

STARTMAPPING postscript

0x21 0x0660
0x22 0x0661
...

<it/start/ <it/end/ <it/target/

start *target*

start+1 *target*+1

...

end *target+end-start*

0x2121 0x215F 0x8140

0x2121 0x8140
0x2122 0x8141
...
0x215F 0x817E

UNDEFINE

```
UNDEFINE 0x00 0x2A


UNDEFINE 0x1234



0x41 A
0x42 B
...

                              ENDMAPPING

ENDMAPPING
                                                    ENDENCODING

ENDENCODING
```

Using symbol fonts

1 adobe-fontspecific

microsoft-symbol apple-roman
microsoft-
cp1252 microsoft-win3.1

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ZapfDingbats encodings/
adobe-dingbats.enc

Hints about using badly encoded fonts

Using fonts with the designer's encoding

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adobe-fontspecific

adobe-standard
iso8859-1 microsoft-cp1252 microsoft-win3.1
microsoft-symbol 1

microsoft-
symbol microsoft-cp1252 microsoft-win3.1 apple-roman

Specifying an *ad hoc* encoding file

encodings/adobe-dingbats.enc

Specifying font aliases

adobe-fontspecific microsoft-
win3.1

fonts.alias

fonts.alias

```
"-ogonki-alamakota-medium-r-normal--0-0-0-0-p-0-iso8859-2" \
  "-ogonki-alamakota-medium-r-normal--0-0-0-0-p-0-adobe-fontspecific"
```

fonts.alias
1 1

Additional notes about scalable core fonts

About the *FreeType* backend

*.ttf *.otf
*.ttc *.otc 1
*.pfa *.pfb

```
:1:mincho.ttc -misc-pmincho-medium-r-normal--0-0-0-0-p-0-jisx0208.1990-0
```

1 mincho.ttc

fonts.dir

option=value:

1

ai ds bw

```
mincho.ttc -misc-mincho-medium-r-normal--0-0-0-0-c-0-jisx0208.1990-0
ds=y:mincho.ttc -misc-mincho-bold-r-normal--0-0-0-0-c-0-jisx0208.1990-0
ai=0.2:mincho.ttc -misc-mincho-medium-i-normal--0-0-0-0-c-0-jisx0208.1990-0
ds=y:ai=0.2:mincho.ttc -misc-mincho-bold-i-normal--0-0-0-0-c-0-jisx0208.1990-0
bw=0.5:mincho.ttc -misc-mincho-medium-r-normal--0-0-0-0-c-0-jisx0201.1976-0
bw=0.5:ds=y:mincho.ttc -misc-mincho-bold-r-normal--0-0-0-0-c-0-jisx0201.1976-0
bw=0.5:ai=0.2:mincho.ttc -misc-mincho-medium-i-normal--0-0-0-0-c-0-jisx0201.1976-0
bw=0.5:ds=y:ai=0.2:mincho.ttc -misc-mincho-bold-i-normal--0-0-0-0-c-0-jisx0201.197
```

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Delayed glyph rasterisation

vl=y

vl=y

vl=n

```
vl=n:luxirr.ttf -b&h-Luxi Serif-medium-r-normal--0-0-0-0-p-0-iso10646-1

                    c

-misc-mincho-medium-r-normal--0-0-0-0-c-0-jisx0208.1990-0

fs=c:mincho.ttc -misc-mincho-medium-r-normal--0-0-0-0-p-0-jisx0208.1990-0
```

Appendix: background and terminology

Characters and glyphs

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Font files, fonts, and XLFD

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-adobe-courier-medium-r-normal--12-120-75-75-m-70-iso8859-1

iso8859-1

-adobe-courier-medium-r-normal--0-0-0-0-m-0-iso8859-1

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fixed

cursor

fixed

cursor

/usr/share/font/X11/misc/fonts.alias

Unicode

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iso10646-1

References

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1 1