

XFree86 Font Deuglification Mini HOWTO

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How to improve ugly and unreadable X Window fonts. Various tips for improving font handling for XFree86, including sections on fonts servers, TrueType fonts, Netscape, and related topics.

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1. Introduction

One of the most annoying sets of problems I have had to deal with is the abysmal default fonts and font settings of X (I'm talking specifically about [XFree86](#), other versions of X may be better.) Many programs use fixed width default fonts when a variable width font would be more appropriate. Other programs use fonts that are ridiculously tiny and unreadable. The fonts that are bundled with XFree86 are barely adequate for the job. It does come with a halfway decent courier font, but its Times and Helvetica fonts are simple bitmap fonts that pixelize when they are scaled. Yuck!

This HOWTO attempts to show how to adjust various font settings, install new fonts, and do other things that will greatly improve the appearance and readability of fonts on the X Window Desktop. This is done by adjusting the `FontPath` in the `XF86Config` file, by adding switches to X server command line in **startx** or **xdm** (and variants), by adding new fonts, by installing a TrueType font server and fonts, and by using a feature in the K Desktop Environment 1.1 that automagically adjusts font settings in many applications, including non-KDE apps to set their fonts and colors to match KDE's style settings.

Comments, corrections, additions and critiques are always welcome. You can reach the authors at [<meldroc@frii.com>](mailto:meldroc@frii.com), or [<hal@foobox.net>](mailto:hal@foobox.net)

1.1. Conventions

- Where examples of commands are used, a "#" character is used to denote where typically the command would be run as the root user. A "\$" is used where typically a non-root user would be executing the command.
- The examples use `/usr/local/share/fonts/ttfonts` as our TrueType font directory. There is no magic to this location, and could conceivably just as well be in any number of other locations.
- References to "xfs" are to the xfs as packaged by Redhat for versions 6.x and later. This differs significantly in some respects from the stock XFree86 xfs.
- References to "Netscape" are to the entire suite of programs from Netscape: Communicator, Navigator, Messenger, etc. For all intents and purposes, font configuration in Mozilla is the same.
- 'XF86Config' is the X configuration file. For Redhat based distros, as of Redhat 7.0, this is now 'XF86Config-4' for XFree86 4.x. For the most part, we'll just use 'XF86Config' here.

Also, while some aspects of XFree86 4.x configuration are the same as 3.3.x, there are some significant differences. We'll only highlight the differences. So unless noted otherwise, any comments or examples will apply to both 3.x and 4.x versions.

1.2. Change Log

- 0.1: Feb. 21, 1999: First release.
- 0.11: Feb. 27, 1999: Added copyright info to protect my butt.
- 0.12: Jun. 10, 1999: Added A Plea for Help.
- 0.20: Sep. 14, 1999: Added section on xfs for Redhatters. Many thanks to Hal Burgiss for his contribution.

- 1.0: Nov. 23, 1999: Converted document to SGML, for submission to the Linux Documentation Project. Removed Plea for Help.
 - 1.5: July 25, 2000: New sections added on fonts.alias, XFree86 4.x, and xfsft. Miscellaneous other changes and additions.
 - 1.55: Oct 11, 2000: Additional info on XFree86 4.x, especially Redhat's changes for RH7.0. A few other minor updates and additions.
-

1.3. New Versions

Version 1.55 adds additional information relating to XFree86 4.x, and in particular what is new with Redhat 7.0. Also adding a neglected credit to Kristin Aanestad for his insight into much of what this document is all about.

Version 1.5 includes new sections on xfsft, fonts.alias and XFree86 4.x. Also, includes new Links and Notes sections, as well as a rewrite of the xfs sections. Various other changes and additions.

The latest version of this document can be found at <http://feenix.eyep.net/ldp/fdu/index.html>.

1.4. Copyright

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1.5. Credits

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Special thanks go to:

- The developers of the [XFree86 Project](#), for all the hard work and time they have given. Also, Juliusz Chroboczek for his work with xfsft, and XFree86 4.x to help bring TrueType to the masses.
 - Font wizard Kristin Aanestad, whose legwork and insight on much of the xfs, TrueType, Netscape, and especially, the fonts.alias sections are much appreciated. More from Kristin at [Some Linux for Beginners](#) on a wide range of topics.
 - The folks at [comp.os.linux.x](#) who gave me a hand in figuring all of this out in the first place.
 - The Linux community in general who made all of this possible in the first place.
 - Microsoft and Apple: for providing the fonts that adorn my desktop.
-

2. X Server Configuration

There are a few easy steps that can be taken that will help X do its job better.

2.1. Setting The FontPath

The first place to look for curing font problems is the `XF86Config` file.

`/usr/X11/lib/X11/XF86Config` or `/etc/X11/XF86Config` are the common locations. (This may be `XF86Config-4` for X 4.x.) If you haven't guessed already, the most important part of this file relating to fonts is the `FontPath`. Before we get into that, this would be a good time to check the other parts of your X configuration. Bad monitor settings can be even more of a headache than bad fonts, so make sure your refresh rate is as high as your monitor can handle (85 Hz is great, 75 Hz is OK, 60 Hz is painful.)

Use your favorite text editor and edit `XF86Config`. Near the top of the file in the "Files" section, you should see something like this:

```
FontPath    "/usr/X11R6/lib/X11/fonts/misc/"
FontPath    "/usr/X11R6/lib/X11/fonts/Type1/"
FontPath    "/usr/X11R6/lib/X11/fonts/Speedo/"
FontPath    "/usr/X11R6/lib/X11/fonts/75dpi/"
FontPath    "/usr/X11R6/lib/X11/fonts/100dpi/"
```

This much should be the same, or at least similar, for both XFree86 3.x and 4.x. The `FontPath` tells X where to find the fonts it uses to render text on your display. Order is important — when an X application asks X to render some text, the X server usually has some leeway to choose the font that is used. The X server then goes through the `FontPath` and grabs the first font it sees that matches the X client's criteria, and then renders. Note that Redhat's xfs for versions 6.x has a different way of setting the `FontPath`. See the [Section 3.2.2](#) below for more on xfs.

Default installations typically put 75dpi fonts before the 100dpi fonts. If you have a high resolution display, this means very tiny fonts. If this is the case, the first tweak you'll use is to switch the 75dpi and 100dpi `FontPath` lines:

```
FontPath    "/usr/X11R6/lib/X11/fonts/misc/"
FontPath    "/usr/X11R6/lib/X11/fonts/Type1/"
FontPath    "/usr/X11R6/lib/X11/fonts/Speedo/"
FontPath    "/usr/X11R6/lib/X11/fonts/100dpi/"
FontPath    "/usr/X11R6/lib/X11/fonts/75dpi/"
```

Next, specify that you prefer to use unscaled bitmap fonts. If you've ever used Netscape or any other program that displays titles using big fonts, you'll likely notice that those fonts are pixelized. This is ugly and needs to be fixed. So add `:unscaled` to the ends of the `misc`, `100dpi` and `75dpi` fonts. You can even use both unscaled and scaled fonts if you want, just put the unscaled `FontPath` lines first to tell X you prefer unscaled fonts if possible:

```
FontPath    "/usr/X11R6/lib/X11/fonts/misc:unscaled"
FontPath    "/usr/X11R6/lib/X11/fonts/100dpi:unscaled"
FontPath    "/usr/X11R6/lib/X11/fonts/75dpi:unscaled"
FontPath    "/usr/X11R6/lib/X11/fonts/Type1"
FontPath    "/usr/X11R6/lib/X11/fonts/Speedo"
FontPath    "/usr/X11R6/lib/X11/fonts/misc"
FontPath    "/usr/X11R6/lib/X11/fonts/100dpi"
FontPath    "/usr/X11R6/lib/X11/fonts/75dpi"
```

After making these changes, restart X. Doesn't the desktop look better already?

2.2. X Server Command Line Options

The next thing you need to do is adjust the command line options for the X server. You'll want to use the `-dpi` switch which specifies the display resolution in dots per inch. As a lot of systems use high resolution displays these days, chances are they'll be working at 100 dpi.

If you start X from the console command prompt, type:

```
$ startx -dpi 100
```

If you use `xdm` (or friends such as `gdm`) for graphical logins, you'll want to edit your `/usr/X11/lib/X11/xdm/Xservers` file (or possibly `/etc/X11/xdm/Xservers`) which will have the command line for the Xserver in it. Mine has the line:

```
:0 local /usr/X11R6/bin/X -dpi 100 -gamma 1.6
```

More information is in the X and Xserver man pages.

3. TrueType Fonts (One of the few things Windows is good for)

Because the boys at Redmond are very concerned with the appearance of their software (as opposed to the internal workings ;) they built TrueType font support into Windows. And of course, they got the idea from MacOS which is where TrueType originated. Windows 9x and nearly every other flavor of Windows comes with Arial, Times New Roman, and Courier New, which are roughly equivalent to Helvetica, Times and Courier. TrueType fonts are scalable, so they look good in large sizes, and they are well hinted, so they are readable at small sizes. Many windows applications come with dozens more TrueType fonts. Don't microwave your Windows CD yet, you'll want to get those fonts first!

Unfortunately, XFree86 3.x does not come with built in TrueType support, so you'll have to add it yourself. XFree86 4.x does have built in support however (see [Section 4](#)). This will mean installing a font server that does support TrueType and, of course, installing the fonts themselves. You won't find decent TrueType fonts included with any distribution. The likely reason is that there are not any quality TrueType fonts available under a suitable license at this time.

3.1. Making TrueType Fonts Available

Let's start with the fonts first. Any TrueType font included with the various MS Windows incarnations should work. Don't forget word processors and other apps that may include their own fonts too. MacOS fonts will not work. There are also some 'free' TrueType fonts available for download if you have already nuked that CD (see Links in [Section 6.2](#)).

In order to use TrueType, the fonts will have to be always accessible to the font server. This means they will have to be on a filesystem that is *always* mounted. This can conceivably be a Windows partition on a dual boot system. Alternately, the fonts can be copied to Linux. First **su** to root:

```
# su -  
# mkdir -p /usr/local/share/fonts/ttfonts
```

Now, change to the new font directory:

```
# cd /usr/local/share/fonts/ttfonts
```

Then, add the fonts to this directory, either by copying them from your Windows system:

```
# cp /mnt/<path_to_fonts>/*.ttf .
```

or by downloading those available directly from [Microsoft](#). These fonts are in self-extracting zip archives. You will need to get the ones labeled for use with 'Windows 3.1' if you need to extract them under Linux. You can indeed unpack these in Linux with the Linux zip utility:

```
# ls *.exe | xargs -n 1 unzip -L
```


The '-L' option will convert to lower case font names (this may be necessary for some versions of xfsft and Redhat's xfs). Note that the current Linux zip utility does not work with the 32 bit Win9x font archives. (It also looks like Microsoft no longer has the 16 bit Arial, Courier and Times–Roman on this site.) Or you can get an RPM of WebFonts that contains some of the MS TrueTypes [here](#). This has enough fonts to keep Netscape and other web browsers happy.

You will also have to include the new TrueType directory(s) in the X server's fontpath. So with your text editor of choice add the line(s) as appropriate:

```
FontPath    "/usr/local/share/fonts/ttfonts"
FontPath    "/usr/X11R6/lib/X11/fonts/misc:unscaled"
FontPath    "/usr/X11R6/lib/X11/fonts/100dpi:unscaled"
FontPath    "/usr/X11R6/lib/X11/fonts/75dpi:unscaled"
FontPath    "/usr/X11R6/lib/X11/fonts/Type1"
FontPath    "/usr/X11R6/lib/X11/fonts/Speedo"
FontPath    "/usr/X11R6/lib/X11/fonts/misc"
FontPath    "/usr/X11R6/lib/X11/fonts/100dpi"
FontPath    "/usr/X11R6/lib/X11/fonts/75dpi"
```

3.2. Font Servers

There are several font servers available that will do the job: xfstt, xfsft, and Redhat's patched version of xfs based on xfsft. While these names are all too similar, these are different packages. One, or more, of these should be included with any recent Linux distribution, and you may have one installed already.

Historically, font servers were used to serve fonts over a network. Font resources could then reside on one host, and clients could access them as needed. But, the developers have enhanced these to include features such as the ability to render TrueType fonts. (XFree86 4.x has this ability included already, and thus an additional font server is not really needed just solely for the purpose of having TrueType support.)

3.2.1. xfstt

One such font server is xfstt. xfstt was designed specifically with TrueType fonts in mind.

3.2.1.1. Installation

xfstt is *very* easy to install and configure. If it isn't already installed, you'll want to download the tarball, or check your CD. The most current version can be found at <http://metalab.unc.edu/pub/Linux/X11/fonts/>

Once you have the tarball, unpack it:

```
$ tar -zxvf xfstt-*.tgz
```

Then build and install it. Read the INSTALL file for quick instructions, but it's a no brainer.

From the xfstt directory is all you have to do.

```
# make
# make install
```

Then start xfstt with:

```
# xfstt --sync      # updates xfstt's font database
# xfstt &           # runs xfstt in the background.
```

xfstt should be started before the X server starts. Once you have this working correctly, you can add the above lines to `/etc/rc.d/rc.local`, or other suitable start up file. Then type:

```
$ xset +fp unix/:7101  # tells X about xfstt, and where to look for fonts.
```

or add:

```
FontPath "unix/:7101"
```

to your `XFree86Config` to tell X about the font server. Rerun **xfstt --sync** any time the `FontPath`, or contents, change.

3.2.1.2. Adjusting the Default Font Size

If your TrueType fonts appear to be very tiny, the following commands may help.

Add the `-dpi` switch to your X server command line (see section 3 above to do this.)

Use the `--res` switch to tell xfstt to increase the default resolution. Use the following command line.

```
# xfstt --res 120
```

3.2.2. Redhat's xfs

As of Redhat Linux 6.0, Redhat based distributions (Mandrake, etc) have included a specially patched version of xfs, the XFree86 Font Server, and patched X servers as well. Redhat's xfs includes the xfsft patch set which in turn is built upon the FreeType Font library. Redhat's xfs provides similar functionality to xfstt. xfs is able to serve both TrueType and Type 1 fonts, as well as legacy X fonts.

If you are using a Redhat based distro, you should have xfs installed already. If not, it is in the `XFree86-xfs*rpm`. To make sure it runs as one of the default services, either use **ntsysv** or:

```
# chkconfig --add xfs
```

Now xfs will start every time you boot.

3.2.2.1. Setting the xfs FontPath

The default Redhat installation of xfs serves fonts via a Unix Domain Socket. We'll need to tell the X server where to look for xfs, and thus fonts. The FontPath in `/etc/X11/XF86Config` must include:

```
FontPath "unix/:-1"
```

for Redhat 6.x, or for Redhat 7.x:

```
FontPath "unix/:7100"
```

At least for a default configurations. This is a reference to the socket where xfs is listening. You may include additional FontPaths, but these will be handled by the X server, and not xfs. A clean install of Redhat 6/7 should have this already set up, but if you are upgrading from an older version, you may have to change this yourself!

xfs then has its own, separate FontPath stored in `/etc/X11/fs/config`. This is where it will look to find fonts. This is over and above the X server's FontPath in `XF86Config`. You can either add the new path(s) with a text editor, or use the **chkfontpath** command:

```
# chkfontpath --add /usr/local/share/fonts/ttfonts
```

The FontPath must exist before running **chkfontpath**. The relevant section of `/etc/X11/fs/config` should now look something like this:

```
catalogue = /usr/X11R6/lib/X11/fonts/misc:unscaled,  
            /usr/X11R6/lib/X11/fonts/100dpi:unscaled,  
            /usr/X11R6/lib/X11/fonts/75dpi:unscaled,  
            /usr/X11R6/lib/X11/fonts/Type1,  
            /usr/X11R6/lib/X11/fonts/Speedo,  
            /usr/X11R6/lib/X11/fonts/misc,  
            /usr/X11R6/lib/X11/fonts/100dpi,  
            /usr/X11R6/lib/X11/fonts/75dpi,  
            /usr/local/share/fonts/ttfonts
```

3.2.2.2. Getting the Fonts Ready

We still have a bit of work to do before we can actually use any TrueType fonts. xfs requires a few things to be in order. First, all font files must have lower case names. Secondly, they shouldn't have embedded spaces. And then, we will need to create a couple of files to make things go.

Su to root, and change to the directory where the TrueType fonts are.

```
# su -
# cd /usr/local/share/fonts/ttfonts
```

If there are any upper case font names, you can use the following script to convert all names to lower case:

```
#!/bin/sh
#
## ----- convert upper to lower case -----

ls * | while read f
do
  if [ -f $f ]; then
    if [ "$f" != "`echo \"$f\" | tr A-Z a-z`" ]; then
      #Note that 'This' will overwrite 'this'!
      mv -iv "$f" "`echo \"$f\" | tr A-Z a-z`"
    fi
  fi
done

## eof
```

Note the punctuation — the backquotes are important! Remove any spaces from font names too. Once the TrueType fonts are properly installed, you must create both `fonts.dir` and `fonts.scale` files. The following commands do this:

```
# ttmkfdir -o fonts.scale
# mkfontdir
```

You should now have `fonts.dir` and `fonts.scale` files in your TrueType font directory. **ttmkfdir** is in the `Freetype` RPM, and must be run before **mkfontdir**. These commands don't seem to always report errors, so verify that they were created and are not empty files:

```
$ ls -l fonts.*
-rw-r--r-- 1 root  root  11657 Aug 17 10:31 fonts.dir
-rw-r--r-- 1 root  root  11657 Aug 17 10:31 fonts.scale
```

If you encounter any problems, try **ttmkfdir** with the **-m** switch. This will discard bad characters from the font file. Specify a number such as 50 or 100 (**ttmkfdir -m 50**). The files themselves are text files. Have a look:

```
$ less fonts.dir
114
webdings.ttf -microsoft-Webdings-medium-r-normal--0-0-0-0-p-0-microsoft-symbol
verdanaz.ttf -microsoft-Verdana-bold-i-normal--0-0-0-0-p-0-ascii-0
verdanaz.ttf -microsoft-Verdana-bold-i-normal--0-0-0-0-p-0-fcd8859-15
verdanaz.ttf -microsoft-Verdana-bold-i-normal--0-0-0-0-p-0-iso8859-15
verdanaz.ttf -microsoft-Verdana-bold-i-normal--0-0-0-0-p-0-iso8859-9
verdanaz.ttf -microsoft-Verdana-bold-i-normal--0-0-0-0-p-0-iso8859-1
[...]
```

Next, update xfs and your X server's FontPath:

```
# /etc/rc.d/init.d/xfs restart
$ xset +fp /usr/local/share/fonts/ttfonts
$ xset fp rehash
```

Rerun the first and last of these commands anytime you add or remove fonts. **xset +fp** only needs to be run when adding a new font directory to an existing Fontpath.

You should now be in business. You can check which fonts are available to X:

```
$ xlsfonts | less
```

or check them out further with **xfontsel**, or **gfontsel**. If they are visible to **xlsfonts**, then they are available to X and vice versa. If they are not there, try restarting X with Ctrl-Alt-BS.

3.3. xfsft

[xfsft](#) is a TrueType solution from Juliusz Chroboczek. xfsft is based on the FreeType font library as developed by Mark Leisher and others. It is essentially a patch for XFree86's xfs and related libraries — xfs + ft. Redhat's xfs is essentially xfsft with a few minor modifications. Also, XFree86 4.x includes the freetype font module which is also the result of Juliusz's work, and is one of the TrueType solutions available for XFree86 4.x.

Building xfsft requires having at least some of the XFree86 source available, in addition to xfsft itself, so this is not for the faint of heart. Instructions for building and configuring xfsft are in the tarball, so I won't go into details here. They are pretty straight forward. There are links to binaries available at the xfsft home page (see above).

Note that you *must* also create `fonts.scale` and `fonts.dir` files for xfsft. `fonts.scale` can be created manually (ugh!), or with the **ttmkfdir** utility. This is not included with xfsft but you can get it here: <http://www.joerg-pommnitz.de/TrueType/ttmkfdir.tar.gz>, or probably on many Linux archives sites too.

Redhat has this as part of the `Freetype RPM`.

You will also need a configuration file. Here is a sample:

```
-----  
  
clone-self = off  
use-syslog = off  
  
client-limit = 20  
  
catalogue = /usr/local/share/font/ttfonts  
  
error-file = /home/jec/fonts/xfs.errors  
  
# in decipoints  
default-point-size = 120  
  
# x,y  
default-resolutions = 100,100,75,75  
  
-----
```

You can then run `start xfsft`:

```
# xfs -port 7100 -config /path/to/your/config/file &
```

You can then add `xfsft` to the X server's `FontPath`:

```
$ xset +fp tcp/localhost:7100
```

If all goes well, you could then add this `FontPath` to `XF86Config`.

3.4. The `fonts.alias` File

`fonts.alias` is yet another font configuration file that can be used to tweak how fonts are handled. Like `fonts.scale` and `fonts.dir`, `fonts.alias` must be in the same directory as the fonts you are aliasing. It is not mandatory however, but does solve certain potential problems. Here is an example from the first line of `/usr/X11R6/lib/X11/fonts/misc/fonts.alias` on a Redhat system:

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

`fixed` is the 'alias' here. Any time this is requested, we actually get the font definition from the second column. Font too small? Just change the definition. (Warning: this is a critical file, at least on Redhat.) The same principle applies to all fonts, including TrueType. In fact, if you don't have TrueType, you could

conceivably use this trick to have a comparable Type 1, or other, font aliased as a TrueType.

`fonts.alias` is important for some applications that don't handle the data provided by `fonts.scale` well. Most notably here is Netscape. Without a `fonts.alias` you will find that Netscape will only show point sizes of 0 and 12 available. `fonts.alias` fixes this. You might also find that if you specify another size with the `scalable font` option under Preferences, Netscape will not remember this setting. Annoying! This is also fixed. So we really need this file. Sample excerpt from a `fonts.scale`:

```
arial.ttf -monotype-Arial-medium-r-normal--0-0-0-0-p-0-ascii-0
arial.ttf -monotype-Arial-medium-r-normal--0-0-0-0-p-0-fcd8859-15
arial.ttf -monotype-Arial-medium-r-normal--0-0-0-0-p-0-iso8859-15
arial.ttf -monotype-Arial-medium-r-normal--0-0-0-0-p-0-iso8859-1
```

These are scalable so we don't get any predefined point sizes. We will need to create our `fonts.alias` something like this excerpt for Arial:

```
-monotype-Arial-medium-r-normal--6-60-0-0-p-0-iso8859-1 \
    -monotype-Arial-medium-r-normal--9-90-75-75-p-0-iso8859-1

-monotype-Arial-medium-r-normal--7-70-0-0-p-0-iso8859-1 \
    -monotype-Arial-medium-r-normal--9-90-75-75-p-0-iso8859-1

-monotype-Arial-medium-r-normal--8-80-0-0-p-0-iso8859-1 \
    -monotype-Arial-medium-r-normal--10-100-75-75-p-0-iso8859-1

-monotype-Arial-medium-r-normal--9-90-0-0-p-0-iso8859-1 \
    -monotype-Arial-medium-r-normal--11-110-75-75-p-0-iso8859-1

-monotype-Arial-medium-r-normal--10-100-0-0-p-0-iso8859-1 \
    -monotype-Arial-medium-r-normal--12-120-75-75-p-0-iso8859-1

-monotype-Arial-medium-r-normal--11-110-0-0-p-0-iso8859-1 \
    -monotype-Arial-medium-r-normal--12-120-75-75-p-0-iso8859-1

-monotype-Arial-medium-r-normal--12-120-0-0-p-0-iso8859-1 \
    -monotype-Arial-medium-r-normal--12-120-75-75-p-0-iso8859-1

-monotype-Arial-medium-r-normal--13-130-0-0-p-0-iso8859-1 \
    -monotype-Arial-medium-r-normal--13-130-75-75-p-0-iso8859-1

-monotype-Arial-medium-r-normal--14-140-0-0-p-0-iso8859-1 \
    -monotype-Arial-medium-r-normal--14-140-75-75-p-0-iso8859-1

-monotype-Arial-medium-r-normal--15-150-0-0-p-0-iso8859-1 \
    -monotype-Arial-medium-r-normal--15-150-75-75-p-0-iso8859-1

-monotype-Arial-medium-r-normal--18-180-0-0-p-0-iso8859-1 \
```

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```
-monotype-Arial-medium-r-normal--18-180-75-75-p-0-iso8859-1
-monotype-Arial-medium-r-normal--24-240-0-0-p-0-iso8859-1 \
-monotype-Arial-medium-r-normal--24-240-75-75-p-0-iso8859-1
```

(Please note that I have split each line for readability. There should be two columns all on one line, without the "\", and separated by at least one space.) This will keep Netscape happy. Also, if font names should have embedded spaces, then you should enclose the filename in quotes. You might also note the `pointsize` discrepancy between the first and second columns of the first few rows. The first column of the first entry has a '6', whereas this is aliased to a '9' in the second column, and thus '9' point. This is by design and is an excellent way to overcome the Netscape 'damn tiny fonts' syndrome. Adjust to suit your tastes, resolution, and eyesight.

This file can be created manually with a text editor, or conceivably with some fancy `sed` or `awk` scripting. There is an excellent discussion of this file, and other font related topics at Kristin Aanestad's site at <http://home.c2i.net/dark/linux.html>. There is also a link to a python script which can reportedly automatically generate a `fonts.alias` file at this same site. Thanks to Kristin whose work and insight was the inspiration for this section!

4. XFree86 4.x

[XFree86 4.0](#) introduced native support for TrueType fonts, along with other new features. The enhanced font support is based on xfsft from Juliusz Chroboczek, which in turn is based on the FreeType font library originally from Mark Leisher, so the configuration is similar to xfsft and Redhat's patched xfs.

The `FontPath` is still in `XF86Config`, as always. For Redhat 6/7 using a stock XFree86 4.x (i.e. NOT the Redhat 7.x supplied version), this will mean moving the Redhat xfs `FontPath` from `/etc/X11/fs/config` back to `XF86Config`. A separate font server is no longer needed just for TrueType support. You may disable it, unless it is needed to serve fonts to other clients in a network environment. See the section below for Redhat 7.x specific configuration issues.

```
Section "Files"
FontPath "/usr/X11R6/lib/X11/fonts/misc:unscaled"
FontPath "/usr/X11R6/lib/X11/fonts/100dpi:unscaled"
FontPath "/usr/X11R6/lib/X11/fonts/75dpi:unscaled"
FontPath "/usr/X11R6/lib/X11/fonts/misc"
FontPath "/usr/X11R6/lib/X11/fonts/Type1"
FontPath "/usr/X11R6/lib/X11/fonts/Speedo"
FontPath "/usr/share/fonts/default/Type1"
FontPath "/usr/local/share/fonts/ttfonts"
FontPath "/usr/X11R6/lib/X11/fonts/100dpi"
FontPath "/usr/X11R6/lib/X11/fonts/75dpi"
EndSection
```

In order to use TrueType, you must also specify which font module the X server should be using in the "Module" section:

```
Section "Module"
Load "freetype"
Load "speedo"
Load "type1"
EndSection
```

You also must to create `fonts.scale` and `fonts.dir` file for each TrueType font directory, just like for xfsft and Redhat's xfs. [ttmkfdir](#) will come in handy for `fonts.scale`. See the xfs [Section 3.2.2](#) above for more details and examples.

`xtt` is another available TrueType module that is best known for supporting ideographic (Oriental) type fonts. You can use either, but only one at a time.

X server commandline options are still the same as previous versions of X:

```
$ startx -dpi 100
```

4.1. Redhat 7.0 Differences

Redhat 7.0 introduces some changes to X configuration over previous Redhat versions. It is also different from the stock XFree86 configuration as addressed above. Notable differences:

- Both XFree86 3.3.6 and 4.01 are included. If upgrading you may wind up with 3.3.6. The X configuration file is `XF86Config` for 3.3.6 and `XF86Config-4` for 4.x. Of course, you'll need to know which is which for editing and configuration purposes.
 - xfs is still handling all font duties. A default Redhat 7.x installation does not use the 'modules' section of `XF86Config`. Instead it relies on xfs. This is different from a stock installation of XFree86 4.x where the X server does all the font work — including TrueType.
 - The socket for xfs is `"unix:/7100"` with RH 7.x, as opposed to `"unix:-1"` in previous versions.
-

5. Adjusting Fonts in Specific Applications

5.1. KDE

KDE is one of the best things that have happened to Linux and X in a long time. It provides a consistent user interface that goes a long way towards making Linux accessible to the average non-geek. More information about KDE can be found at <http://www.kde.org/>. So why am I singing its praises here? This is because KDE 1.1 has a new feature that will make the fonts and colors in your programs, including non-KDE applications consistent with KDE's current style.

5.1.1. Applying KDE Fonts and Colors to non-KDE Applications

This is very easy. Simply start up the KDE Control Center, go to Desktop, and go to Style inside Desktop. In there, there will be a toggle switch labeled "Apply fonts and colors to non-KDE apps". Turn it on, click OK, and you're done! The next time you start up many X applications, they will use the same colors and fonts that your KDE applications do. Some people may like this feature better than others, but if you don't like it you can always turn it off.

5.2. Netscape

Let's face it, Netscape is an important application in Linux. We all use it, and we all need it, so let's look at it specifically for a minute. An out of the box Netscape installation is prone to the font problems we've discussed — large fonts that get pixelized, splotchy looking fonts, fonts so small they are unreadable. In short, ugly. Maybe this is why you are here?

Hopefully, at this point you have followed the above suggestions. These steps can help greatly. TrueType font availability is almost a necessity, and you need a TrueType font server for this. Many web pages specify font families — like Arial — that are not typically available to Linux users. This is bad design, but having some of the basic TrueType fonts available will help greatly in overcoming the short-sightedness of some designers. Microsoft — can't live with 'em, can't live without 'em.

Assuming you have TrueType working, from the Netscape menu select `Edit -> Preferences -> Fonts`. Open the `Variable Width Font` droplist on the right side of the window. Your TrueTypes should be there along with other fonts. Choose whichever one suits your fancy as the default. Check the `Allow Scaling` checkbox too. If the available point sizes are 0 and 12, you can go down and, and enter your desired point size in the box to the right and click on the OK button. The downside to this is that Netscape will not remember these settings, and you will have to do this each time you start Netscape. *Unless* — you have `fonts.alias` set up already. Then this will solve these problems. See [Section 3.4](#) for more on `fonts.alias`.

You might consider experimenting with some `~/.Xdefaults` (or perhaps it's `~/.Xresources` on your system) settings too:

```
Netscape*DocumentFonts.sizeIncrement: 10
Netscape*documentFonts.xResolution*iso-8859-1: 120
```

Netscape*documentFonts.yResolution*iso-8859-1: 120

The 'sizeIncrement' controls how much of a jump Netscape makes when different 'basefont' sizes are specified ala:

```
<basefont size=7>
```

for instance. The default is '20', which is a pretty good jump. Changing this can help Netscape from scaling to too large and too small of a font. The x and y resolutions are roughly equivalent to 'dpi' settings. Any random number within reason can be used here. Experiment.

Then run:

```
$ xrbdb -load ~/.Xdefaults
```

(or `.Xresources` as the case may be) and restart Netscape. There are many settings that can be tweaked or altered this way. Look at the `Netscape.ad` (app defaults) file that should be included with Netscape packages.

If this approach does not get the job done as far as the 'tiny fonts' problem in Netscape, then see the `fonts.alias` section above. You can really fine tune many things with this approach.

Mozilla configuration should be roughly the same. You might find, however, that Mozilla does a better job of handling fonts in X, and pages will look better overall.

6. Odds and Ends

6.1. Notes

- Unfortunately there is no unified font handling system for Linux. You will have to configure each individual program so you can use TrueType, Type 1 or fonts that pique your fancy. And each program may well have its own way of doing this so you will have to RTFM.
 - Most GUI apps should be able to use TrueType, and Type 1 fonts too. Wordperfect for Linux, however, cannot use TrueType. (See the links section below for more on Wordperfect.) Text editors, terminal programs and the like need fixed width fonts, and do not play well with TrueType or other scalable fonts.
 - Though not discussed here, Type 1 fonts provide many of the same benefits as TrueType. You likely have many of these installed already. Unfortunately however, Type 1 are not a web standard like TrueType. But they are suitable for many other purposes. They are where it's at for printing. See [ghostscript](#) for more on this.
 - Anti-aliasing is not supported by any version of XFree86.
 - While it is possible to specify a default point size for the xfs font server, very few applications will actually use this value.
-

6.2. Links

- The [Video Timings HOWTO](#), the ins and outs of getting the most from your monitor.
- [Font HOWTO](#) Many good tips for installing fonts and for applications such as StarOffice, Applixware, Wordperfect, Ghostscript, TeX/LaTeX.
- A [TrueType HOWTO](#), good tips for printing, and a few application specific tips.
- [xfsft Homepage](#), TrueType font support for X. This is the origin of the "freetype" font module for XFree86 4.x, and Redhat's xfs. Good site, and links to other information related to fonts and TrueType.
- [Some Linux for Beginners](#). Great font site, and other Linux topics. Covers many of the topics discussed here in more detail.
- [X-TrueType Homepage](#), and yet another TrueType Font server, especially good for Japanese, Chinese and Korean character sets.
- Tips on font size problems from [Netscape](#).
- [Wordperfect for Linux -- Fonts and Printers](#) by Rod Smith, the author of *Using Corel Wordperfect 8 for Linux* from Que. Excellent information on Wordperfect and where TrueType fits in.
- [XFree86 Project](#), the guys and gals who do an incredible amount of work to give us a killer GUI environment. Some info on fonts in [XFree86 4.x](#).
- [Microsoft Web Fonts](#) direct from the Lion's den — and they are free! If you don't have access to a win32 system to unpack these, then get the ones labeled for Win3.1. These can be unpacked in Linux (see above).
- [Web Fonts RPM package](#), contains a few of the MS web browser fonts.
- [HP FontSmart TrueType Fonts](#) from Hewlett Packard — Garamond, Bodoni, Dark Courier, Euro Sign and Ozzie Black. Can be unzipped in Linux with the **unzip** utility.
- [Freeware Connection -- Free Fonts Sites](#) lots of links to lots of sites.
- [Bitstream's Geometric Slabserif](#) TrueType Font.