

Installing the TX/PX fonts for SWP5/pdfTeX

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1 Introduction

Until SWP supports mathtime for PDF production, you can get a more-or-less equivalent effect by setting up Young Ryu's TX fonts. In fact, in some respects these are an improvement over mathtime, since you get the possibility of bold Greek in Times-like appearance, which you don't have under mathtime (mathtime substitutes Computer Modern versions of the fonts when you want bold Greek in math); and you also get a "slanted Times" font, which is completely missing from mathtime.

A second possibility, for the more adventurous, is to typeset for PDF using Palatino fonts, and Young Ryu supports that too; instructions are below. Taken together, the two systems illustrate some of interesting effects we can get in SWP5, now that PDF processing is supported directly; and also how relatively easy it is to set them up.

Note that this setup is for pdfTeX only — under recent versions of Windows (Win2K, WinXP, possibly also NT4) you should be able to install Type1 (pfb) fonts directly. However, for SWP users the issue is whether the TrueTeX previewer will be able to work with them. I've had varying results here, so I'm not even going to try and suggest how it could be done.

Update, June 20, 2003: I think I may have got mathtime working for pdfTeX and the beta. See mathtimeswp5beta.html for details.

Here are some non-math illustrations:

- PDF version of this document, using Times Fonts: [txfontsSWP-Times.pdf](#)

- PDF version of this document, using TX Times fonts (URW Times): txfontsSWP-TX.pdf
- PDF version of this document, using PX Palatino Fonts: txfontsSWP-PX.pdf

2 Installing the TX fonts

The TX fonts support Times-like typesetting, including a set of specially designed fonts for math.

Here are step-by-step instructions for installing the TX fonts, which should take perhaps 10 minutes after you get the archive. Note that the font metrics for the TX fonts differ from those of mathtime, so you're not guaranteed that documents processed with mathtime and with the TX fonts will look exactly the same: them's the breaks.

1. Get the support from CTAN. The location is in `fonts/txfonts`. Once you're there, you should be able to retrieve the entire directory (and all subdirectories) as a zip file (about 5.6MB). Alternatively, if you're a member of TUG, `txfonts.zip` is on the CTAN CD number 2.

The two methods give you different upper-level directory structures, but that's not important, because we'll be installing (some) of the files to our own special directories. Therefore, *you should turn off any facility in your unzipper that restores the directory structure*. For example, in WinZip, make sure that "Use Folder Names" is unchecked.

2. Create the following folder:

- `c:\swp50\TCITex\TeX\latex\contrib\supported\txfonts`

3. This step is not strictly necessary, but will keep (most of) the new files separate from those supplied with the beta, which is probably desirable. Create the following directories:

- `c:\swp50\TCITex\fonts\tfm\txfonts`
- `c:\swp50\TCITex\fonts\vf\txfonts`
- `c:\swp50\TCITex\fonts\type1\txfonts`

- Unzip the files to the indicated directories (where the part of destination in brackets refers to the folders you created in the previous step, and will of course be missing if you decided to lump everything together):

Archive Files	Destination
..\txfonts\tfm*.tfm	c:\swp50\TCITeX\fonts\tfm[\txfonts]\
..\txfonts\tfm*.vf	c:\swp50\TCITeX\fonts\vf[\txfonts]\
..\txfonts\tfm*.pfb	c:\swp50\TCITeX\fonts\type1[\txfonts]\
..\txfonts\input*.*	c:\swp50\TCITeX\TeX\latex\contrib\supported\t
..\txfonts\dvips\tx8r.enc	c:\swp50\TCITeX\fonts\type1[\txfonts]\
..\txfonts\dvips\txr2.map	c:\swp50\TCITeX\pdftex\config\

- Now open the included archive file tx_patch1.zip and unzip as follows, overwriting existing files:

Archive File	Destination
txmi.tfm	c:\swp50\TCITeX\fonts\tfm[\txfonts]\
txmi1.tfm	c:\swp50\TCITeX\fonts\tfm[\txfonts]\
txmi.vf	c:\swp50\TCITeX\fonts\vf[\txfonts]\
txmi1.vf	c:\swp50\TCITeX\fonts\vf[\txfonts]\

- Rename or copy txr2.map as txr3.map.
- Go to c:\swp50\TCITeX\pdftex\config and open pdftex.cfg in a text editor. At the end of the file insert the following line:

```
map +txr3.map
```

Close and save pdftex.cfg.

- You must now make a few changes in the new txr3.map file, to get the “Times” fonts provided by the SWP distribution. Open txr3.map in a text editor. You must first change the names of the first 6 pfb fonts as follows:

TX name	PFB file
rtxptmb	utmb8a.pfb
rtxptmbo	utmb8a.pfb
rtxptmbi	utmbi8a.pfb
rtxptxr	utmr8a.pfb
rtxptxro	utmr8a.pfb
rtxptxri	utmri8a.pfb

where “TX Name” is the identifier at the far left of the line in the map file, “PFB file” is the name that replaces the existing .pfb font name.

Then you must make another set of four changes in the section of the file referring to “URW NimbusSanL”. These changes are as follows:

TX name	PFB file
rtxphvr	uhvr8a.pfb
rtxphvro	uhvr8a.pfb
rtxphvb	uhvb8a.pfb
rtxphvbo	uhvb8a.pfb

Remember not to omit the “<” preceding each of the pfb file names: this is what ensures that the fonts get included in your PDF file.

That’s it.

To use the new facility, you will want to replace the `mathtime` package with the `txfonts` package — but only when using pdfTeX. However, there’s one complication: there appears to be a small inconsistency between `tcilatex.tex` — loaded by all non-portable documents — and the `txfonts` package. Therefore you must load `txfonts` *after* the line `\input{tcilatex}` in the preamble. There may be a better way to handle this, so if anyone has an idea, let me know. Alternatively, the MSI folks might take a look and see if they can spot the problem.

I believe the following code — tested just once — in the preamble after the load of `tcilatex` — will do this for you:

```
\ifx\pdfoutput\undefined
\RequirePackage[noTS1]{mathtime}
\else
\ifcase\pdfoutput
\RequirePackage[noTS1]{mathtime}
\else
\RequirePackage{txfonts}
\fi
\fi
```

if you’re using my `alltimes` cover package, replace the load of `mathtime` with `\RequirePackage{alltimes}`. Note that if you’ve loaded the `mathtime` package via SWP’s “Options and Packages” dialog, you’ll need to remove the package using the dialog, and instead rely on the instructions in the preamble. What’s going on in this snippet is that we need to check whether `\pdfoutput` is defined at all: if it isn’t then we’re producing DVI and we want to load `mathtime`. If

`\pdfoutput` is defined, then it could have the value 0, which also produces DVI output (and so again we want to load `mathtime`). Otherwise, if `\pdfoutput` is non-zero, then we're really producing PDF, so we load the `txfonts` package. This is what the `\ifcase` construct is doing.

3 Installing the PX fonts

You're bored with Times, and you want to try something new? Young Ryu has also produced a set of TeX/LaTeX support for math typesetting in Palatino rather than Times: these are the PX fonts.

Here's how to set them up: again, note that this is for PDF production only.

1. **Important** : the PX fonts require that you also install the TX fonts, since they have some files in common, and those files are not repeated in the PX fonts archive. In particular, you need `tx8r.enc` (and there is no equivalent in the PX fonts distribution). So if you've not done so, install the TX fonts, per the instructions above.
2. Obtain the PX font support. This is available on CTAN, in `fonts/pxfonts`. The procedure for getting the archive is the same as for obtaining the TX fonts; the zip file is about 4.2MB (and is also available on the CTAN CD from TUG). Note that the next couple of steps are the same as for installing the TX fonts, with "tx" replaced by "px".
3. Create the following folder:
 - `c:\swp50\TCITex\TeX\latex\contrib\supported\pxfonts`
4. This step is not strictly necessary, but will keep (most of) the new files separate from those supplied with the beta, which is probably desirable. Create the following directories:
 - `c:\swp50\TCITex\fonts\tfm\pxfonts`
 - `c:\swp50\TCITex\fonts\vf\pxfonts`
 - `c:\swp50\TCITex\fonts\type1\pxfonts`
5. Unzip these files to the indicated directories (where the part of destination in brackets refers to the folders you created in the previous step, and will of course be missing if you decided to lump everything together):

Archive Files	Destination
..\pxfonts\tfm*.tfm	c:\swp50\TCITeX\fonts\tfm[\pxfonts]\
..\pxfonts\tfm*.vf	c:\swp50\TCITeX\fonts\vf[\pxfonts]\
..\pxfonts\tfm*.pfb	c:\swp50\TCITeX\fonts\type1[\pxfonts]\
..\pxfonts\input*.*	c:\swp50\TCITeX\TeX\latex\contrib\supported\p
..\pxfonts\dvips\pxr2.map	c:\swp50\TCITeX\pdftex\config\

6. Now open the included archive file `px_patch1.zip` and unzip as follows, overwriting existing files:

Archive File	Destination
<code>pxmi.tfm</code>	<code>c:\swp50\TCITeX\fonts\tfm[\pxfonts]\</code>
<code>pxmi1.tfm</code>	<code>c:\swp50\TCITeX\fonts\tfm[\pxfonts]\</code>
<code>pxmi.vf</code>	<code>c:\swp50\TCITeX\fonts\vf[\pxfonts]\</code>
<code>pxmi1.vf</code>	<code>c:\swp50\TCITeX\fonts\vf[\pxfonts]\</code>

7. Rename or copy `pxr2.map` as `pxr3.map`.
8. Go to `c:\swp50\TCITeX\pdftex\config` and open `pdftex.cfg` in a text editor. At the end of the file insert the following line:

```
map +pxr3.map
```

Close and save `pdftex.cfg`.

9. You must now make a few changes in the new `pxr3.map` file, to get the “Palatino” fonts provided by the SWP distribution. Open `pxr3.map` in a text editor. You must change the names of the first 6 pfb fonts as follows:

PX name	PFB file
<code>rxppplb</code>	<code>uplb8a.pfb</code>
<code>rxppplbo</code>	<code>uplb8a.pfb</code>
<code>rxppplbi</code>	<code>uplbi8a.pfb</code>
<code>rxppplr</code>	<code>uplr8a.pfb</code>
<code>rxppplro</code>	<code>uplr8a.pfb</code>
<code>rxppplri</code>	<code>uplri8a.pfb</code>

where “PX Name” is the identifier at the far left of the line in the map file, “PFB file” is the name that replaces the existing `.pfb` font name. Remember not to omit the “<” preceding each of the pfb file names: this is what ensures that the fonts get included in your PDF file.

10. To use the PX fonts, just include the `pxfonts` package, eg via `\RequirePackage{pxfonts}` in the preamble. Just as with the TX fonts, this must be loaded *after* `\input{tcilatex}`.

Note that using the PX fonts is a bit more problematic than the TX fonts, because DVI production has no facilities at all for Palatino. This means that documents produced using these Palatino fonts will be compile-able *only* through pdfTeX. If you need both, one strategy is to produce DVI using mathtime and PDF using Palatino: in this case, you'd include the code snippet of the last section, changing “txfonts” to “pxfonts”. A second is to use Computer Modern for DVI, in which case just leave out the lines involving mathtime in their entireties.

4 Concluding Remarks

The catch in all this, or course, is the disconnect it introduces between PDF and DVI. It would be very nice if the TrueTeX previewer could be made to handle Type1 fonts reliably (either using Windows native facilities, or via the free ATM-Lite system). In my view, integrating Type1 fonts should be considered an urgent priority for TrueTeX development.