

HOWTO install MusiX_TE_X under Linux/Unix

Table of Contents

1	Updating existing MusiX_{TEX} software.....	1
1.1	MusiX _{TEX} macros.....	1
1.2	MusiX _{TEX} bitmapped fonts.....	1
1.3	MusiX _{TEX} type 1 fonts.....	1
1.4	Updating the T _{EX} search path.....	2
2	Installing new MusiX_{TEX} software.....	2
2.1	Setting up a “private” T _{EX} MF tree.....	2
2.1.1	A “private” T _{EX} MF tree for all users.....	2
2.1.2	A “private” T _{EX} MF tree for single users.....	3
2.2	MusiX _{TEX} macros.....	4
2.3	MusiX _{TEX} bitmapped fonts.....	4
2.4	MusiX _{TEX} type 1 fonts.....	4
2.5	Updating the T _{EX} search path.....	4
2.6	Setting up a local PATH environment.....	4
2.7	The MusiX _{TEX} program <i>musicflx</i>	5
2.8	The MusiX _{TEX} manual.....	5
3	Installing <i>PMX</i>.....	6
3.1	Compiling the ‘pmxab’- and ‘scor2prt’ sources.....	6
3.1.1	Compiling the <i>FORTRAN</i> source files.....	6
3.1.1.1	Compiling with ‘g77’.....	6
3.1.1.2	Compiling with ‘f2c’.....	6
3.1.2	Installing ‘pmxab’ and ‘scor2prt’.....	7
3.2	Installing the <i>PMX</i> MusiX _{TEX} macros.....	7
3.3	The <i>PMX</i> manual.....	7
4	Installing <i>M-Tx</i>.....	7
4.1	Compiling the ‘prepmx’ source.....	7
4.2	The <i>M-Tx</i> manual.....	8
5	<i>musiclyr</i>.....	8
5.1	Installing the <i>musiclyr</i> macros.....	8
5.2	The <i>musiclyr</i> manual.....	8

1 Updating existing MusiX_{TEX} software

Start by unpacking the latest version of the MusiX_{TEX} distribution, for example <http://icking-music-archive.org/software/musixtex/musixtex-t112.zip> into a temporary directory, for example `‘/usr/local/src/’`.

You need to know the locations of the MusiX_{TEX} macros and METAFONT font sources. Use the command

```
kpsewhich musixtex.tex
```

to look up the directory storing the MusiX_{TEX} macros. The output will be something like `‘/usr/local/share/texmf/tex/generic/musixtex/musixtex.tex’`.

Use the command

```
kpsewhich musix20.mf
```

to look up the directory storing the MusiX_{TEX} METAFONT fonts sources. The output will be something like

```
‘/usr/local/share/texmf/fonts/source/public/musixtex/musix20.mf’
```

In the following text replace `‘/usr/local/share/texmf/tex/generic/musixtex/’` and `‘/usr/local/share/texmf/fonts/source/public/musixtex/’` with the actual paths of `‘musixtex.tex’` and `‘musix20.mf’` resp.

1.1 MusiX_{TEX} macros

From the subdirectory `‘tex’` of the MusiX_{TEX} distribution copy all files to `‘/usr/local/share/texmf/tex/generic/musixtex/’`.

1.2 MusiX_{TEX} bitmapped fonts

From the subdirectory `‘mf’` of the MusiX_{TEX} distribution copy all files to `‘/usr/local/share/texmf/fonts/source/public/musixtex/’`. Use the command

```
kpsewhich musix20.tfm
```

to look up the directory storing the MusiX_{TEX} font metric files. The output will be something like `‘/usr/local/share/texmf/fonts/tfm/public/musixtex/musix20.tfm’`. Then either delete all files from the directory

`‘/usr/local/share/texmf/fonts/tfm/public/musixtex/’` or copy all files from the directory `‘tfm’` of the MusiX_{TEX} distribution.

If you just delete the files from `‘/usr/local/share/texmf/fonts/tfm/public/musixtex/’` then they will be regenerated by _{TEX} when you start processing your MusiX_{TEX} source files.

1.3 MusiX_{TEX} type 1 fonts

You should consider also installing Takanori Uchiyama’s type 1 versions of the MusiX_{TEX} fonts which allow you to generate high quality pdf output from your MusiX_{TEX} sources. Begin by downloading and unpacking the font distribution <http://mirrors.sunsite.dk/ctan/fonts/musixtex/ps-type1/musixps-unix.tar.gz>.

To perform the unpacking say

```
tar -zxf musixps-unix.tar.gz
```

The result will be a new directory ‘`/usr/local/src/musixps-unix`’.

See [\[unpacking tar archives\]](#), page 1. Then follow the instructions in the section “**3. INSTALLATION**” of the accompanying file ‘`README`’

1.4 Updating the \TeX search path

In order to tell \TeX where to look for the MusiX \TeX files update the \TeX file search database by saying as root

```
mktexlsr
```

or

```
texhash
```

2 Installing new MusiX \TeX software

2.1 Setting up a “private” TEXMF tree

\TeX macros and fonts coming with MusiX \TeX are additions to the standard \TeX distribution. In order to keep the MusiX \TeX stuff independent of \TeX you may want to create a directory structure separate from that of the base \TeX installation. If for example \TeX has been installed within the directory structure ‘`/usr/share/texmf`’ then you could create a “private” structure ‘`/usr/local/share/texmf`’ for storing all \TeX macros and fonts belonging to MusiX \TeX .

However, you must tell \TeX where to search for files in ‘`/usr/share/texmf`’. This is done in the configuration file ‘`texmf.cnf`’ the location of which you may look up by saying

```
kpsewhich texmf.cnf
```

the output of which will be something like ‘`/usr/share/texmf/web2c/texmf.cnf`’.

2.1.1 A “private” TEXMF tree for all users

Below follows an excerpt from a \TeX installation ‘`texmf.cnf`’ containing some commented out (‘`%`’ = comment) examples of adding “private” search directory structures for \TeX . If you have root root privileges you may edit ‘`texmf.cnf`’ as shown below by defining the environment variable `TEXMFLOCAL` and setting the overall environment variable `TEXMF` to incorporate `TEXMFLOCAL`.

```
% The main tree, which must be mentioned in $TEXMF, below:
```

```
TEXMFMAIN = /usr/share/texmf
```

```
% TEXMFLOCAL = /usr/share/texmf.local
```

```
TEXMFLOCAL = /usr/local/share/texmf
```

```
% If defined, teTeX’s texconfig stores modifications here (instead of the  
% TEXMFMAIN tree).
```

```
% VARTEXMF = /usr/share/texmf-var
```

```
% User texmf trees can be catered for like this...
%   HOMETEXMF = $HOME/texmf

% Now, list all the texmf trees. If you have multiple trees you can
% use shell brace notation, like this:
%   TEXMF = {$HOMETEXMF,!!$TEXMFLOCAL,!!$TEXMFMAIN}
% The braces are necessary. If you set VARTEXMF, you also have to
%   - list $VARTEXMF in the TEXMF definition;
%   - make sure that $VARTEXMF precedes $TEXMFMAIN in the TEXMF definition.
TEXMF = {!!$TEXMFLOCAL,!!$TEXMFMAIN}
```

When you have finished editing ‘texmf.cnf’ say as root

```
mktexlsr
```

or

```
texhash
```

to update the \TeX file search database to reflect the new TEXMFLOCAL directory structure.

2.1.2 A “private” TEXMF tree for single users

On some unix machines the global \TeX configuration file ‘texmf.cnf’ may have defined an environment variable HOMETEXMF as ‘\$HOME/texmf’ and made it part of the environment TEXMF. In that case you’ll be able to establish your own “private” TEXMF tree by creating a directory ‘texmf’ in your home directory. You should also initially add the directories ‘\$HOME/texmf/tex’ and ‘\$HOME/texmf/fonts’ for storing \TeX files and METAFONT font definitions resp.

You may install all files belonging to MusiX \TeX within your “local” ‘texmf’ directory structure. Don’t forget to make these - and other files added to ‘\$HOME/texinf’ - known to the \TeX file search database by saying

```
mktexlsr $HOME/texmf
```

or

```
texhash $HOME/texmf
```

If the global \TeX environment HOMETEXMF has not been defined you should ask the system administrator to do so. Alternatively you may define your own \TeX environment variables TEXINPUTS (search path for \TeX files) and MFINPUTS (search path for METAFONT font definitions). If you’re using sh as your shell interpreter add this line to your configuration file ‘\$HOME/.profile’ (or to ‘\$home/.bash_profile’ if you’re using bash)

```
TEXINPUTS=".:$HOME/texmf/tex/"
MFINPUTS=".:$HOME/texmf/fonts/"
export TEXINPUTS MFINPUTS
```

If you’re using csh or tcsh add this line to your configuration file ‘\$HOME/.login’

```
setenv TEXINPUTS ".:$HOME/texmf/tex/"
```

```
setenv MFINPUTS ".:$HOME/texmf/fonts/"
```

The two slashes after the path names cause \TeX to search all directories under ‘\$HOME/texmf’.

2.2 MusiX \TeX macros

Start by unpacking the latest version of the MusiX \TeX distribution, for example <http://icking-music-archive.org/software/musixtex/musixtex-t112.zip> into a temporary directory, for example ‘/usr/local/src/’.

In your “private” TEXMF tree create a directory ‘tex/generic/musixtex’. Copy all files from the subdirectory ‘tex’ of the MusiX \TeX distribution to ‘tex/generic/musixtex’.

2.3 MusiX \TeX bitmapped fonts

In your “private” TEXMF tree create a directory ‘fonts/source/musixtex’. Copy all files from the subdirectory ‘mf’ of the MusiX \TeX distribution to ‘fonts/source/musixtex’.

2.4 MusiX \TeX type 1 fonts

You should consider also installing Takanori Uchiyama’s type 1 versions of the MusiX \TeX fonts which allow you to generate high quality pdf output from your MusiX \TeX sources. In order to do so download and unpack the fonts distribution <http://mirrors.sunsite.dk/ctan/fonts/musixtex/ps-type1/musixps-unix.tar.gz>. In your “private” TEXMF tree create a directory ‘fonts/type1/musixtex’. Then follow the instructions from point 3 of section “3. INSTALLATION” of the accompanying file ‘README’.

2.5 Updating the \TeX search path

In order to tell \TeX where to look for the MusiX \TeX files you must update the \TeX file search database of your “private” TEXMFLOCAL by saying

```
mktexlsr /usr/local/share/texmf
```

or

```
texhash /usr/local/share/texmf
```

where ‘/usr/share/texmf’ must be replaced with the actual path of your “private” TEXMFLOCAL directory structure.

2.6 Setting up a local PATH environment

If you’re doing a single user MusiX \TeX installation you need to install executable files belonging to MusiX \TeX so that your shell interpreter may look them up in the program search path PATH. If it does not already exist then create a directory ‘bin’ in your home directory for storing executable files. Check whether the PATH environment includes this directory by saying

```
echo $PATH
```

If the output contains something like

```
‘:/home/christian/bin:/usr/local/bin:’
```

then your shell interpreter will first look for executable files in your own ‘bin’ directory.

If ‘/home/christian/bin’ doesn’t show up you need to add ‘\$HOME/bin’ to the PATH environment. If you’re using `sh` as your shell interpreter add this line to your configuration file ‘\$HOME/.profile’ (or to ‘\$home/.bash_profile’ if you’re using `bash`)

```
PATH="$PATH:$HOME/bin"
export PATH
```

If you’re using `csh` or `tcsh` add this line to your configuration file ‘\$HOME/.login’

```
setenv PATH "$PATH:$HOME/bin"
```

2.7 The MusiX_{TEX} program *musixflx*

Processing MusiX_{TEX} sourcefiles requires a program `musixflx` that must be compiled from a c-source file ‘`musixflx.c`’ found in the directory ‘`systems/c-source`’ of the MusiX_{TEX} distribution.

The compilation is done by saying

```
gcc musixflx.c -o musixflx
```

The resulting binary executable file ‘`musixflx`’ must be copied to a directory listed in your environment PATH, for example ‘`/usr/local/bin`’ or ‘`$HOME/bin`’. See [\[Setting up a local PATH environment\]](#), page 4.

2.8 The MusiX_{TEX} manual

In your “private” TEXMF tree create a directory ‘`doc/musixtex`’. Copy all files from the subdirectory ‘`doc`’ of the MusiX_{TEX} distribution to ‘`doc/musixtex`’. The MusiX_{TEX} manual has been compiled into the file ‘`musixdoc.dvi`’ which you may view on screen with the program ‘`xdvi`’.

In order to generate a pdf version of the manual say

```
pdflatex musixdoc.tex
musixflx musixdoc.tex
pdflatex musixdoc.tex
```

To get a reasonable result out of using the command `pdflatex` type 1 fonts must be installed. See [\[MusiX_{TEX} type 1 fonts\]](#), page 1. If you have only bitmapped fonts installed you should use the command `latex` instead. The result will be a *postscript* document. You may also generate a *postscript* manual from the file ‘`musixdoc.dvi`’ by saying

```
dvips musixdoc.dvi -o musixdoc.ps
```

3 Installing *PMX*

3.1 Compiling the ‘pmxab’- and ‘scor2prt’ sources

3.1.1 Compiling the *FORTRAN* source files

pmxab is frequently updated and published with *FORTRAN* source file in a zip archive, for example ‘pmx2510.zip’ while *scor2prt* can be found in the most recent major release, for example ‘pmx2504.zip’

Download the most recent *PMX* source distribution, for example <http://icking-music-archive.org/software/pmx/pmx2510.zip> into a temporary directory, for example ‘/usr/local/src/pmx-2510’ and unzip it.

You need to perform a few edits of both fortran sources. Initially copy the *FORTRAN* source, say ‘pmxab.for’ to a file with the extension ‘.f’, say ‘pmxab.f’. In ‘pmxab.f’ locate the lines containing references to `getarg`. That’ll be something like

```

c      call getarg(1,jobname,idum) ! May need to replace this w/ next line
      call getarg(1,jobname)

```

Do as indicated in the comment text ‘May need to replace this w/ next line’ so that the lines now look like this

```

c      call getarg(1,jobname,idum) ! May need to replace this w/ next line
      call getarg(1,jobname)

```

There are two such pairs of lines in ‘pmxab.f’ and one in ‘scor2prt.f’ The letter ‘c’ in front of the line makes the whole line a comment which doesn’t become compiled.

3.1.1.1 Compiling with ‘g77’

On some *unix* computers it may be sufficient to compile the *FORTRAN* sources edited as above described with the *FORTRAN* compiler ‘g77’ coming with the ‘gcc’ c-compiler. In fact ‘g77’ translates the *FORTRAN* into *C*, then compiles the *C*-source with ‘gcc’, but all this happens transparently. To use this method say

```

g77 pmxab.f -o pmxab
and
g77 scor2prt.f -o scor2prt

```

3.1.1.2 Compiling with ‘f2c’

Some users have encountered problems with a ‘g77’-compiled ‘pmxab’. In that case you’ll have to do the compilation in two separate steps, 1. converting the *FORTRAN* sources to *C* sources and 2. compiling the resulting *C* sources.

In order to do this you must make sure that the utility to convert *FORTRAN* sources to *C* sources, *f2c* is installed on your computer. For some types of *linux* there are *rpm* distributions of *f2c* available. To install an *rpm* distribution say as root


```
rpm -i f2c-19991109-2.i386.rpm
```

Otherwise you'll have to install *f2c* from the source distribution which you may download from [ftp://netlib.bell-labs.com/netlib/f2c](http://netlib.bell-labs.com/netlib/f2c)

To perform the FORTRAN-to-C conversion say

```
f2c pmxab.f -Nx400 -Nn802
```

and then

```
gcc pmxab.c -lf2c -lm -o pmxab
```

Perform the same two steps with 'scor2prt.f'.

3.1.2 Installing 'pmxab' and 'scor2prt'

The resulting binary executable files 'pmxab' and 'scor2prt' must be copied to a directory listed in your environment PATH, for example '/usr/local/bin'. If you're doing a single user installation you should copy 'pmxab' and 'scor2prt' to '\$HOME/bin'. See [Setting up a local PATH environment], page 4.

3.2 Installing the *PMX* MusiX_{TEX} macros

If you have created a "private" TEXMFLOCAL directory structure then copy the file 'pmx.tex' from the *PMX* source distribution to the directory where you store the MusiX_{TEX} macros. See [Setting up TEXMFLOCAL], page 2. Otherwise copy 'pmx.tex' to any suitable directory within the TEXMF directory structure, for example '/usr/local/share/texmf/tex/generic/musixtex/'.

Don't forget to update the T_EX file search database by saying as root

```
mktexlsr
```

or

```
texhash
```

3.3 The *PMX* manual

Pdf versions of the *PMX* manual and reference card are available as <http://icking-music-archive.org/software/pmx/pmx250.pdf> and <http://icking-music-archive.org/software/pmx/ref250.pdf> .

4 Installing *M-Tx*

4.1 Compiling the 'prepmx' source

You need to download and install the Open Source Pascal compiler <http://www.freepascal.org/> in order to compile the *M-Tx* source files.

Download the *M-Tx* source distribution <http://icking-music-archive.org/software/mtx/mtxP060.zip> into a temporary directory, for example '/usr/local/src/'/mtx-060 and unzip it.

Compile the Pascal source files by saying

```
make
```

Afterwards copy the compiled program, ‘prepmx’, to a directory within your PATH environment, eg. ‘/usr/local/bin’. If you’re doing a single user installation you should select an install directory like ‘\$HOME/bin’. See [Setting up a local PATH environment], page 4.

4.2 The *M-Tx* manual

A pdf version of the *M-Tx* manual is available as

<http://icking-music-archive.org/software/mtx/mtxdoc.pdf>

5 *musixlyr*

Processing MusiX_TE_X -, *PMX*- and *M-Tx* source files involving lyrics requires the *musixlyr* macros to be installed. In a temporary directory, for example ‘/usr/local/src/’ create a directory ‘Musixlyr’. Download the distribution archive <http://icking-music-archive.org/software/musixtex/add-ons/musixlyr21c.tgz> to that directory and unpack it. See [unpacking tar archives], page 1.

5.1 Installing the *musixlyr* macros

If you have created a “private” TEXMFLOCAL directory structure then copy the file ‘musixlyr.tex’ from the *musixlyr* distribution to the directory where you store the MusiX_TE_X macros. See [Setting up TEXMFLOCAL], page 2. Otherwise copy ‘musixlyr.tex’ to any suitable directory within the TEXMF directory structure, for example ‘/usr/local/share/texmf/tex/generic/musixtex/’.

5.2 The *musixlyr* manual

In order to generate a pdf version of the manual say

```
pdflatex mxlyrdoc.tex
musixflx mxlyrdoc.tex
pdflatex mxlyrdoc.tex
```

To get a reasonable result out of using the command `pdflatex` type 1 fonts must be installed. See [MusiX_TE_X type 1 fonts], page 1. If you have only bitmapped fonts installed you should use the command `latex` instead. The result will be a *postscript* document. You may also generate a *postscript* manual from the file ‘mxlyrdoc.dvi’ by saying

```
dvips mxlyrdoc.dvi -o mxlyrdoc.ps
```

2006-01-23, Christian Mondrup

Werner Icking Music Archive <http://icking-music-archive.org/>