

MathML for Gecko-Based Browsers and Linux

The acquisition and installation of fonts sufficient to enable browsers based on the Gecko Display Engine to handle MathML is described. Mozilla and Firefox are Gecko-based.

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Introduction

As installed on linux systems, the Firefox and Mozilla browsers do a poor job of displaying MathML. The reason for this is that certain fonts are missing. RedHat and other distributors of linux do not include these fonts in their installation packages because the fonts are proprietary or otherwise restricted. Satisfactory fonts can, however, be downloaded separately from organizations that have the right to distribute them. This document describes a procedure for downloading and installing these fonts.

Troubleshooting

Math Symbols: Incorrect Rendering

If some symble is all the sudden displayed incorrectly in browsers although it was rendered properly in the past, it may be due to some recent Linux update. In that case, repeat "Install the Type 1 Symbol Font" and reload the page containing the problematic symbol(s).

Download the Fonts and Copy to /tmp

Download the required fonts by clicking on these URLs:

TeX Truetype fonts ¹

Mathematica Truetype fonts ²

Symbol Type 1 font ³

Copy the three downloaded archives from wherever your browser put them (the default is your home directory) to the /tmp directory.

Install the Truetype Fonts

We will be installing two sets of TrueType fonts. One set was developed for TeX, and the other for Mathematica.

1. Open a terminal window, then become root by executing this command:

```
su -
```

2. Make a directory for the fonts:

```
mkdir /usr/X11R6/lib/X11/fonts/MathML
```

3. Expand the downloaded font archives:

```
cd /tmp
unzip texcm-ttf.zip
unzip MathFonts_TrueType_42.exe
```

4. Copy the font files to the MathML directory:

```
cp Math*.ttf /usr/X11R6/lib/X11/fonts/MathML
cp texcm-ttf/* /usr/X11R6/lib/X11/fonts/MathML
```

5. Inform X-Windows about the fonts:

```
cd /usr/X11R6/lib/X11/fonts/MathML
ttmkfdir > fonts.scale
mkfontdir
chkfontpath -a /usr/X11R6/lib/X11/fonts/MathML
```

Make Fonts Available to Browser

At this point the fonts are known to the X-Windows system. This should be good enough for Firefox and Mozilla. For some reason it is not. A simple work-around, however, is to copy the fonts to the ~/.fonts subdirectory of your home directory:

```
exit          # become an ordinary user
cd ~
mkdir -p .fonts
cp /usr/X11R6/lib/X11/fonts/MathML/*.ttf .fonts
```

Install the Type 1 Symbol Font

1. Open a terminal window, then become root by executing this command:

```
su -
```

2. Expand the downloaded archive:

```
cd /tmp
tar xvzf symfontconfig.tar.gz
cd symfontconfig
./install.sh
```

The script will ask you several questions. Answer *y* each time.

Restart X-Windows

Restart X-Windows by restarting your desktop. This is usually accomplished by logging out of the desktop, then logging back in.

Try It Out

You can evaluate your browser's newly acquired facility with MathML by accessing the W3C MathML TestSuite ⁴. When you first click this link, a pop-up window titled "Missing MathML Fonts" may appear. The pop-up contains a link to a page at Mozilla.org. If you follow the link, you will find a recommendation that linux users need to add exactly the same fonts that you have just installed. You can ignore this warning.

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Notes

1. <http://mozilla.org/projects/mathml/fonts/bakoma/texcm-ttf.zip>
2. http://support.wolfram.com/mathematica/systems/windows/general/MathFonts_TrueType_42.exe
3. <http://silas.psfc.mit.edu/tth/symfontconfig.tar.gz>
4. <http://www.w3.org/Math/testsuite/testsuite/Presentation/GeneralLayout/msqrt-mroot/mrootSfonts3.xml>
5. <http://www.opencontent.org/openpub/>

