electrumadf

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Abstract

Hirwen Harendal, Arkandis Digital Foundry (ADF) has produced the Electrum ADF font collection. This guide outlines the TEX/LATEX support provided by electrumadf for version 1.005 of the fonts.

Contents

1 Introduction

This document explains how to use the TEX/LATEX support provided for version 1.005 of the Electrum ADF font collection developed by Hirwen Harendal of the Arkandis Digital Foundry (ADF). **electrumadf** includes copies of the fonts in postscript type 1 format. Further information about the fonts themselves and alternative font formats for use with other programmes can be found at http://arkandis.tuxfamily.org/adffonts.html. The fonts are released under the GNU General Public License as published by the Free Software Foundation; either version 2 of the License, or any later version, with font exception. For details, see NOTICE.txt and COPYING.

The TEX/LATEX support package consists of all files listed in `manifest.txt` and these files are released under the LATEX Project Public Licence as explained in the included licensing notices. Please let me know of any problems so that I can solve them if I can. If you can correct the problems and send me the fix, that would be even better.

2 The collection

Electrum ADF is a slab serif family designed as a substitute for Eurostyle or URWCity. The family currently includes upright, oblique, small-caps and oblique small-caps shapes in each of light, regular, semi-bold and bold weights (table 1). Four sets of digits are provided: oldstyle, lining, inferior and superior[1]. The support package renames the fonts according to the Karl Berry fontname scheme and defines six families. Two of these primarily provide access to the 'standard' or default characters while the two 'ligature' families support additional non-standard ligatures[2]. The included package files provide access to these features in LATEX as explained in section 4 and section 5.

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[1] In fact, the fonts also include denominator and numerator figures. Since there is currently no use for these in TeX, however, the support package ignores them.

[2] Section 4.1 describes the encodings used to create these families. The fifth and sixth families include the inferior and superior figures, together with any other complementary characters included in the fonts. For further details see the encoding (`.etx`) files.

Table 1: LaTeX families

TeX directory	font families	Original name	TeX name
electrum	yes, yesj, yesjw, yesw, yes0, yes1	ElectrumADFExp-Light	yesl8a
		ElectrumADFExp-LightOblique	yeslo8a
		ElectrumADFExp-Regular	yesr8a
		ElectrumADFExp-Oblique	yesro8a
		ElectrumADFExp-SemiBold	yess8a
		ElectrumADFExp-SemiBoldOblique	yesso8a
		ElectrumADFExp-Bold	yesb8a
		ElectrumADFExp-BoldOblique	yesbo8a

3 Requirements

Apart from such obvious requirements as LaTeX 2$_\varepsilon$, the LaTeX support provided by `electrum.sty` requires nfssext-cfr. Without this, you will get errors complaining that the package cannot be found and you will not be able to use any of the additional font commands described in section 5.

The documentation requires additional packages. These are all standard and available from CTAN but you can always comment out the relevant lines in `electrumadf.tex` if you wish.

Note that creating the font files, as opposed to just the package and documentation files, *requires* `l3build` and a set of custom `lua` scripts available on `codeberg`. More specifically, if you want to build the font definition files (`.fd`) yourself, you *must* use `l3build fnttarg` and this requires files available from the code repository, but not included in this package.

The reason for this is that fontinst provides no way[3] to enable variable scaling. While it is entirely possible to scale a font by any factor you please, it is not, as far as I can tell, possible to enable scaling by any factor a user later pleases. In particular, while it is possible to define shapes and families to use a variable factor, it is not possible to write a definition of that factor into the font definition file, which is the way variable scaling is usually configured.

In order to enable this functionality, `lua` is used to inject the relevant code into the `.fd` files after fontinst has generated them. If you simply process the relevant TeX files by hand, you will create broken definition files, since the code produced by fontinst assumes the relevant lines have been injected.

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[3] Or no way I've yet discovered.

4 The support package

4.1 Encodings

The package supports modified EC/T1 and Text Companion (TS1) encodings. Most characters in the EC encoding are available and the fonts provide a small number of characters from the TS1 encoding as well, including the €. The regular versions of the EC/T1 encoding (`t1-yes.etx`/`t1j-yes.etx`) reassign three slots which would otherwise be empty due to missing glyphs which `fontinst` cannot fake. In the T1 encoding, these slot are standardly used for the per thousand zero and the unfakable Sami Eng/eng characters (Ŋ/ŋ). The modified encodings use `zero.denominator` in place of the per thousand zero which should provide a reasonable substitute (‰/‱) when lining figures are in use and a substitute which is at least intelligible (‰/‱) for oldstyle digits. The two further slots are used for the alternate 'Q' (Q) and the `t_t` ligature (tt).

The 'ligature' versions of the EC/T1 encoding (`t1-yesw.etx`/`t1j-yesw.etx`/`t1-yesw-sc.etx`/`t1j-yesw-sc.etx`) provide access to the full range of ligatures available — including 'ct', 'ft', 'sp' and 'st'. In addition the alternate 'Q' (Q) becomes the default 'Q' and the standard 'Q' is installed as an alternate (Q). Because further slots are required to accommodate the additional ligatures, a number of characters normally available in the EC encoding are unavailable in upright and oblique shapes. These are the ASCII upward-pointing arrowhead (^), the ASCII tilde (~) and the `dbar` (đ). Attempting to access these characters while using the ligature versions of the fonts may result in errors of various kinds and will certainly produce unexpected output even though the characters are provided by the fonts, as the previous sentence demonstrates. To access these glyphs, ensure that the regular version of the fonts is active.

The difference between the `t1-` and `t1j-` encodings is that the latter use oldstyle rather than lining figures and the corresponding symbols designed to complement them. For example, `0123456789 \& \$ \pounds\ \%` produces 0123456789 & $ £ % when an encoding of the former kind is active, but 0123456789 & $ £ % when an encoding of the latter sort is used.

Finally, `t1-dotinfs.etx` and `t1-dotsups.etx` support the inferiors and superiors provided by the fonts. This amounts to the digits ($_{0123456789}$/^{0123456789}), some basic punctuation ($_{(,)-.}$/$^{(,)-.}$) and symbols ($_{+£\$}$/$^{+£\$}$) and, in the case of superiors, a selection of lowercase letters (^{abdeilmnorst}).

The `ts1-` encodings complement the corresponding `t1-` encodings as usual. `ts1-yes.etx` simply adapts the names appropriately for Electrum. `ts1-dotoldstyle-yes.etx` also replaces standard symbols with oldstyle variants where these are available. This means that

```
\oldstylenums{0} \oldstylenums{1} \oldstylenums{2} \oldstylenums{3}
\oldstylenums{4} \oldstylenums{5} \oldstylenums{6} \oldstylenums{7}
\oldstylenums{8} \oldstylenums{9} \textdollaroldstyle\ \textcentoldstyle
```

should produce 0 1 2 3 4 5 6 7 8 9 $ ¢ for both encodings, but

```
\textdollar\ \textcent\ \textsterling\ \texteuro\ \textyen\ \textperthousand
```

for example, will produce $ ¢ £ € ¥ ‰ if lining figures are active but $ ¢ £ € ¥ ‰ when oldstyle digits are in use. Similarly, `ts1-dotinf.etx` and `ts1-dotsup.etx` contain subscript and superscript symbols where available ($_{€£¥\$¢}$/$^{€£¥\$¢}$). Unlike `ts1-dotoldstyle-yes.etx`, however, the 'standard' symbols make no sense here so when inferiors or superiors are in use *only* those symbols available in subscript or superscript form are provided.

4.2 LaTeX package

To use the fonts in a LaTeX document, add `\usepackage{electrum}` to your document preamble. This will set the default serif/roman family to yes (electrum) and enable access to the various alternates, styles and ligatures. Three optional arguments are available to tailor the behaviour of the package: `lf`, `osf`, and `lig`. By default, oldstyle figures are used as standard and lining digits are available using the commands explained in section 5. To make lining figures the default instead, use one of the following when loading the package:

```
\usepackage[lf]{electrum}
\usepackage[lf=true]{electrum}
\usepackage[osf=false]{electrum}
```

Similarly, to explicitly request oldstyle figures:

```
\usepackage[osf]{electrum}
\usepackage[osf=true]{electrum}
\usepackage[lf=flase]{electrum}
```

Loading electrum with `lig` or `lig=true` will select the versions which enable the additional ligatures and the alternate Q as default (table 2). ***This option is not recommended unless you are* certain *you do not wish to access any of the characters described in section 4.1.*** You should also note that this option will mean all of the additional ligatures will be active, which may not be what you want. Again, passing `lig=false` will explicitly request the default — and strongly recommended — behaviour which is to *not* enable the additional ligatures by default.

Note that loading `electrum.sty` will not affect the default sans-serif or typewriter families.

5 Additional font selection commands

The LaTeX package electrum loads nfssext-cfr which is an extension of the package nfssext supplied by Philipp Lehman as part of The Font Installation Guide. The file extends the

Table 2: ElectrumADF

weights	**shapes**	**ligatures**	**Q**	**Q***	**figures**	**family**
light, regular, semi-bold, bold	upright, oblique, small-caps, oblique small-caps	standard, tt	Q	Q	lining	yes
					oldstyle	yesj
		standard, ct, it, sp, st, it	Q	Q	lining	yesw
					oldstyle	yesjw
	upright (very incomplete)	—	—	—	inferior	yes0
					superior	yes1

Table 3: Weights

weight	**weight command**	**text command**
light	`\lgweight`	`\textlg{}`
semibold	`\sbweight`	`\textsb{}`

font selection commands to facilitate access to various font features. Both the original and the extension are designed for use with a wide range of fonts. For this reason, only a subset of the additional commands are relevant to any particular font support package. Those relevant to electrumadf are described below.

5.1 nfssext-cfr

These commands are available when electrum is loaded. If for some reason you wish to make them available when no relevant package is loaded, use `\usepackage{nfssext-cfr}` in your document preamble.

5.1.1 Weights

The commands in table 3 work in the same way as the standard LaTeX commands for switching to bold text, `\bfseries` and `\textbf{}` except that since these commands affect only the weight and not the width, `weight` replaces `series`.

```
\textlg{From Light} through regular \textsb{and semibold} \textbf{to bold.}
```

produces:

From Light through regular **and semibold to bold.**

Table 4: Shapes

shape	shape command	text command
oblique small-caps	`\scshape\slshape`[a] `\slshape\scshape`[a] `\itshape\scshape`[b] `\scshape\itshape`[b] `\sishape`	`\textsc{\textsl{}}`[a] `\textsl{\textsc{}}`[a] `\textit{\textsc{}}`[b] `\textsc{\textit{}}`[b] `\textsi{}`

[a] Only supported on post-2020 LaTeX 2ε.
[b] Supported for all versions of LaTeX 2ε.

Table 5: Styles

style	style command	text command	effect
ligature/swash	`\swashstyle`	`\textswash{}`	italic, regular script

5.1.2 Shapes

The commands in table 4 provide access to oblique small-caps, which also serves as italic small-caps. On post-2020 LaTeX, support for these sequences is built into the kernel. On pre-2020 LaTeX, support is provided by nfssext-cfr. For example, `\textsc{⟨\textit{⟨Lewis Carroll \textulc{⟨wrote⟩}, ‘I \emph{⟨always \textup{⟨avoid⟩}⟩} a \textup{⟨kangaroo⟩}’.⟩}⟩}` produces:

LEWIS CARROLL wrote, ‘I ALWAYS avoid *A* KANGAROO*’.*

Note the somewhat unexpected behaviour of the LaTeX 2ε kernel’s `\textup` here. Intuitively, one might have expected the command to simply reverse the effect of `\emph` as well as `\textit`, but, within the scope of `\emph`, it also reverses the effects of `\textsc`. This reflects the fact that, unlike most LaTeX 2ε font commands, `\emph` is a simple wrapper around TeX’s `\em`, so it does not engage directly with the machinery of NFSS.

5.1.3 Styles

`\swashstyle` and `\textswash{}` (table 5) switch to the ‘ligature’ families (yesw/yesjw). Within the scope of these commands:

- `Q` will typeset the alternate ‘Q’ (Q);
- `Q*` will typeset the default ‘Q’ (Q);
- in upright and oblique text, `ct`, `it`, `sp` and `st` will typeset the corresponding ligature (ct/it/sp/st);

- attempting to typeset certain standard characters will produce unexpected results (see section 4.1).

Outside the scope of these commands:

- `Q` will typeset the default 'Q' (Q);
- `Q*` will typeset the alternate 'Q' (Q);
- `ct`, `it`, `sp` and `st` will not produce ligatures (ct/it/sp/st);
- except as explained in section 4.1, typesetting standard characters should produce the expected results.

For example, suppose that `electrum` was loaded and the following commands set up:

```
\newcommand{\fytext}{%
  Q*ueenie, actor-spy and Queen of AQ*UA as Acting Erector Aesthete,\\
  deactivated the sporadically impacted TORQUE despite aspirating stridently\\
  amidst the hysteria of wispy, wasted wasps wistfully whistling.}
\newcommand{\fytest}{%
  \fytext\\[1em]
  \textswash{\fytext}\\[1em]
  \textsl{\fytext}\\[1em]
  \textswash{\textsl{\fytext}}\\[1em]
  \textsc{\fytext}\\[1em]
  \textsc{\textswash{\fytext}}\\[1em]
  \textsc{\itshape\fytext}\\[1em]
  \textswash{\textsc{\itshape\fytext}}}
```

Then:

```
\fytest
```

produces:

Queenie, actor-spy and Queen of AQUA as Acting Erector Aesthete,
deactivated the sporadically impacted TORQUE despite aspirating stridently
amidst the hysteria of wispy, wasted wasps wistfully whistling.

Queenie, actor-spy and Queen of AQUA as Acting Erector Aesthete,
deactivated the sporadically impacted TORQUE despite aspirating stridently
amidst the hysteria of wispy, wasted wasps wistfully whistling.

Queenie, actor-spy and Queen of AQUA as Acting Erector Aesthete,

Table 6: Figures

figure style	**style command**	**text command**
lining	`\lstyle`	`\textl{}`
oldstyle	`\ostyle`	`\texto{}`
inferior/subscript	`\infstyle`[a]	`\textinf{}`[a]
superior/superscript	`\sustyle`	`\textsu{}`

[a] Previous versions of nfssext-cfr provided `\instyle` and `\textin`. Unfortunately, hyperref now breaks `\textin` in a particularly confusing way: it causes an error because the command is not defined for the current font encoding. Although `\instyle` is still available for compatibility reasons and `\textin` is provided if hyperref is not loaded, `\infstyle` and `\textinf` should be used in all new documents and older documents may need to be updated if they use hyperref.

deactivated the sporadically impacted TORQUE despite aspirating stridently amidst the hysteria of wispy, wasted wasps wistfully whistling.

Queenie, actor-spy and Queen of AQUA as Acting Erector Aesthete, deactivated the sporadically impacted TORQUE despite aspirating stridently amidst the hysteria of wispy, wasted wasps wistfully whistling.

Queenie, actor-spy and Queen of AQUA as Acting Erector Aesthete, deactivated the sporadically impacted TORQUE despite aspirating stridently amidst the hysteria of wispy, wasted wasps wistfully whistling.

Queenie, actor-spy and Queen of AQUA as Acting Erector Aesthete, deactivated the sporadically impacted TORQUE despite aspirating stridently amidst the hysteria of wispy, wasted wasps wistfully whistling.

Queenie, actor-spy and Queen of AQUA as Acting Erector Aesthete, deactivated the sporadically impacted TORQUE despite aspirating stridently amidst the hysteria of wispy, wasted wasps wistfully whistling.

Queenie, actor-spy and Queen of AQUA as Acting Erector Aesthete, deactivated the sporadically impacted TORQUE despite aspirating stridently amidst the hysteria of wispy, wasted wasps wistfully whistling.

5.1.4 Figures

In this document, lining figures are used when available by default:

0123456789

but oldstyle figures are also accessible. For example, `\texto{0123456789}` produces:

0123456789

In addition to modifying the figure style, the commands in table 6 affect the style of certain complementary characters in the T1 and TS1 encodings as explained in section 4.1. This means that:

```
50\%\ off! That's just \texteuro 2.95, \pounds 3.41, \textyen 5.28
\& \$8.67\textcent\ \textsl{or} less than \textdollar 1 \& \textsterling 0.99!!
```

produces:

50% off! That's just €2.95, £3.41, ¥5.28 & $8.67¢ *or* less than $1 & £0.99!!

when lining digits are in use, but:

50% off! That's just €2.95, £3.41, ¥5.28 & $8.67¢ *or* less than $1 & £0.99!!

after switching to oldstyle figures.

Note that the commands for inferior and superior figures make further changes. ***Normal text cannot be typeset within the scope of the commands for inferiors or superiors.*** The commands for subscript activate basic symbols and punctuation to complement the digits. So `Llundain\textinf{(1,4+\$5)}` produces Llundain$_{(1,4+\$5)}$. The commands for superscript activate a partial lowercase in as well. For example, `postbox\textsu{9(iii)}` produces postbox$^{9(iii)}$.

A Installation

The vast majority of users should IGNORE this section entirely. electrumadf is included in all major TeX distributions and should be installed as part of your TeX installation. Installing the package yourself should be done only as a last resort or an educational exercise.

Note, in particular, that this version of electrumadf should **not** be installed on older LaTeX kernels as it is designed to work with the (New) New Font Selection Scheme, as updated around 2020[4]. Use the initial release of electrumadf if your installation of LaTeX predates those changes.

Installation varies with TeX distribution so you should consult the documentation which came with your system for details. In most cases, you will need to perform three steps:

1. move or copy the package files to appropriate locations on your system;
2. refresh the TeX database;
3. incorporate the included map file fragments for the different engines your distribution supports.

The following instructions assume you are using TeX Live[5]. They should not be too difficult to adapt if you are using a different distribution.

A.1 Install the files

The files should be installed in one of two locations: *either* the local system-wide TeX tree *or* your personal tree. If the package is installed system-wide, all users will have access to it. On the other hand, you may need privileges you do not have to do this in which case you must use your personal tree.

There are serious disadvantages to installing the package into your personal tree. In particular, these pertain to use of `updmap –user` rather than `updmap –sys`. If you are not aware of these disadvantages, please ensure you are fully cognisant of them before proceeding[6]. Merely removing the package from your personal tree at a later point will *not* undo the effects.

For TeX Live, `kpsewhich -var-value TEXMFLOCAL` will return the path to the local tree and `kpsewhich -var-value TEXMFHOME` the path to your personal tree. The

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[4] The package should™ work fine on older kernels, but the new version is bound to have some bugs and there is no reason to use it on these systems. The sole purpose of the update is to accommodate the breaking changes made to font selection. If you don't have those changes installed locally, nothing should be broken and the newer version of electrumadf offers no advantage at all.

[5] This includes MacTeX for OS X users.

[6] See, for example, Why shouldn't I use `getnonfreefonts` to install additional fonts? Why shouldn't I use `updmap` when installing or removing fonts?.

package already includes a hierarchy of files to help you install them correctly. Ignoring any symbolic link in the top directory, move or copy the files in `doc`, `fonts` and `tex` into the appropriate locations. If the tree is initially empty, you can simply move or copy the directories in as they are. If the tree already contains other packages, you may need to merge the package hierarchy with the pre-existing one. For example, if you already have a `doc/fonts` directory, move or copy `doc/fonts/electrum` into `doc/fonts/`. If you have a `doc` directory but not a `doc/fonts`, move `doc/fonts` into `doc/`.

A.2 Refresh the database

Again, this depends on your distribution. For TEX Live, `mktexlsr <path to directory>` for the directory you used in the first step should do the trick. Note that you *may* be able to skip this step if you install into your personal tree. Whether this is so depends on the details of your set-up. As a test, move to a directory containing none of the package files and try `kpsewhich electrum.sty`. If the file is found, you don't need to refresh the database; otherwise use `mktexlsr` and then try again.

A.3 Install the map fragments

For TEX Live, there are at least two ways of doing this. The second method varies according to the version of TEX Live and instructions are provided accordingly. Both methods depend on whether you installed into TEXMFLOCAL or TEXMFHOME. If you installed system-wide, the choice is relatively straightforward — it obviously makes sense in that case to update the font maps system-wide as well.

If, on the other hand, you installed into your personal tree, the matter is more complex. On the one hand, updating the system-wide maps may create difficulties or confusion for other users because while the map files will list the fonts as available, they will not be able to access them. On the other hand, maintaining personal font map files can produce difficulties and confusions of its own[7]. Whether it is to be preferred or not is a complex issue and depends on the details of your TEX distribution, local configuration and personal preference. The one clear case is that in which you install into your personal tree because you lack the privileges needed to install system-wide. In that case, you have no choice but to maintain personal font map files or forgo the use of all fonts not provided by your administrator. Other cases are thankfully beyond the scope of this document.

A.3.1 Method 1

If you installed the package system-wide, use the command:

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[7] See, for example, Why shouldn't I use `getnonfreefonts` to install additional fonts? Why shouldn't I use `updmap` when installing or removing fonts?.

```
updmap-sys --enable Map=yes.map
```

If you installed the package in your personal tree, you *may* prefer[8]:

```
updmap --enable Map=yes.map
```

Either way, `updmap` will output a good deal of information after each incantation. This is normal. Just check that it does not end with an error and that it found the new map file.

A.3.2 Method 2: TEX Live 2008 (and probably earlier)

If you installed the package system-wide, use `updmap-sys --edit`.

If you installed into your personal tree, you *may* prefer to use `updmap --edit`[8].

Either way, a configuration file will be opened which you can edit. Move to the end of the file and add the following line:

```
Map yes.map
```

When you are done, save the file. `updmap` or `updmap-sys` will produce a great deal of output if all is well. Just check that it does not end with an error and that `yes.map` is found.

A.3.3 Method 2: TEX Live 2009 (and possibly later)

If you installed the package system-wide, edit or or create `TEXMFLOCAL/web2c/updmap-local.cfg` and add the following line to the end of the file:

```
Map yes.map
```

Save the file and tell `tlmgr` to merge in your addition using the command:

```
tlmgr generate updmap
```

`tlmgr` will then tell you that you need to ensure the changes are propagated correctly by calling `updmap-sys`. This should produce a great deal of output. Check that it finds the new map file and does not end with an error.

If you installed into your personal tree, you *may* prefer to use `updmap --edit` as described above for TEX Live 2008[8].

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[8] See, for example, Why shouldn't I use `getnonfreefonts` to install additional fonts? Why shouldn't I use `updmap` when installing or removing fonts?.

A.3.4 Method 3: Current/Recent TEX Live

If you installed the package system-wide, tell `\updmap` to enable the map file:

```
updmap --sys --enable Map=yes.map
```

This should produce a great deal of output. Check that it finds the new map file and does not end with an error.

If you installed into your personal tree, you *could* use `updmap --user` in place of `updmap --sys` as described above for TEX Live 2008, but this is **not** recommended[9].

To test your installation and that the package works on your system, latex this file (`electrumadf.tex`). The console output and/or log should tell you whether any fonts were not found. If you are careful not to overwrite it, you may also compare your output with `electrumadf.pdf`.

Change History

v1.0
  General: First public release. 1

v1.1
  General: Belated update for (New) NFSS and revised nfssext-cfr. Try switching to DTX/INS. 1

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[9] See, for example, Why shouldn't I use `getnonfreefonts` to install additional fonts? Why shouldn't I use `updmap` when installing or removing fonts?.