Linux Console Fonts from The ZAP Group Australia

Contents

Introduction

This package contains two varieties of Linux console fonts from The ZAP Group Australia: one set that mimics the traditional VGA fonts, and a second that provides a lighter, easier to read look. Both font varieties contain a somewhat more useful set of characters than traditional console fonts, and are available in versions with either 256 or 512 glyphs.

The following font files contain 256 glyphs:

- *zap-vga09.psf* — The ZAP Group Australia traditional VGA font, 8×9 pixels
- *zap-vga16.psf* — The ZAP Group Australia traditional VGA font, 8×16 pixels
- *zap-vga32.psf* — The ZAP Group Australia traditional VGA font, 16×32 pixels

- *zap-light16.psf* — The ZAP Group Australia lighter font, 8×16 pixels
- *zap-light18.psf* — The ZAP Group Australia lighter font, 8×18 pixels
- *zap-light20.psf* — The ZAP Group Australia lighter font, 10×20 pixels
- *zap-light24.psf* — The ZAP Group Australia lighter font, 10×24 pixels
- *zap-light32.psf* — The ZAP Group Australia lighter font, 16×32 pixels

The following extended font files contain 512 glyphs:

- *zap-ext-vga09.psf* — The ZAP Group Australia traditional VGA font, 8×9 pixels
- *zap-ext-vga16.psf* — The ZAP Group Australia traditional VGA font, 8×16 pixels
- *zap-ext-vga32.psf* — The ZAP Group Australia traditional VGA font, 16×32 pixels

- *zap-ext-light16.psf* — The ZAP Group Australia lighter font, 8×16 pixels
- *zap-ext-light18.psf* — The ZAP Group Australia lighter font, 8×18 pixels
- *zap-ext-light20.psf* — The ZAP Group Australia lighter font, 10×20 pixels
- *zap-ext-light24.psf* — The ZAP Group Australia lighter font, 10×24 pixels
- *zap-ext-light32.psf* — The ZAP Group Australia lighter font, 16×32 pixels

Note that the 10×20, 10×24 and 16×32 versions of these fonts can be displayed on framebuffer-style consoles only; traditional VGA consoles can only display fonts that are eight pixels wide.

Traditional VGA-style video hardware uses a single bit to indicate either colour intensity or the presence of a 512-glyph font. Thus, on such VGA consoles, using such an extended font will reduce the number of colours that can be displayed, from 16 down to 8. Using a 256-glyph font will allow the use of all 16 colours. Framebuffer-style consoles do not have this limitation.

Unicode coverage

All fonts contain an extensive Unicode mapping table that covers as many European languages as possible. Fonts containing 256 glyphs cover the following single-byte encodings (code pages):

- **ascii** (US English)
- **iso-8859-1** (Latin-1 Western European)
- **iso-8859-9** (Latin-5 Turkish)
- **iso-8859-15** (Latin-9 Western European)
- **cp850** (DOS Latin-1 Western European) (four characters missing)
- **cp857** (DOS Turkish) (three characters missing)
- **windows-1252** (Windows Western European)
- **windows-1254** (Windows Turkish)

In addition to these encodings, fonts containing 512 glyphs also cover:

- **iso-8859-2** (Latin-2 Central European)
- **iso-8859-3** (Latin-3 South European)
- **iso-8859-4** (Latin-4 North European)
- **iso-8859-5** (Latin/Cyrillic)
- **iso-8859-7** (Latin/Greek) (one character missing)
- **iso-8859-10** (Latin-6 Nordic)
- **iso-8859-13** (Latin-7 Baltic Rim)
- **iso-8859-14** (Latin-8 Celtic)
- **iso-8859-16** (Latin-10 South-Eastern European)
- **cp775** (DOS Baltic Rim) (five characters missing)
- **cp852** (DOS Latin-2 Central European) (three characters missing)
- **cp855** (DOS Cyrillic) (three characters missing)
- **cp869** (DOS Greek) (three characters missing)
- **windows-1250** (Windows Central/Eastern European)
- **windows-1251** (Windows Cyrillic)
- **windows-1253** (Windows Greek)
- **windows-1257** (Windows Baltic)

Also included in all 256 and 512-glyph fonts are special VT100 characters used by Curses, including box drawing glyphs, and various symbols used in typography. See also the section on Utility programs in this document for additional details on coverage.

Installation

To create (or recreate) the binary PSF Linux console fonts shipped as part of this package, use the supplied Makefile by running:

```
make
```

You can verify that the created binary fonts match what is distributed by The ZAP Group Australia; each line of the output should end with `OK`:

```
make check
```

To use a particular font, such as *zap-light16.psf*, on the current Linux console, run the `setfont` utility program while in the current directory:

```
setfont zap-light16.psf
```

Note that running `setfont` in this way only affects the *current* console, not any other consoles, and only until the next `setfont` invocation or until the computer is rebooted.

To use a particular font as the default on *all* consoles, follow the steps appropriate for your Linux distribution. Instructions are included for Debian, Ubuntu, Fedora, Red Hat Enterprise Linux, CentOS and OpenSUSE, as well as distributions based on these. If these instructions do not work for you or are incorrect or obsolete, please contact the author of this package; see Feedback for details.

For Debian-based distributions

These instructions apply to Debian, Ubuntu and any distribution based on these. Note that these steps must be done as root (system administrator).

1. Copy the font files to the */etc/console-setup* directory:

   ```
   cp -p *.psf /etc/console-setup
   ```

2. Modify the configuration file */etc/default/console-setup* with a text editor. Comment out the lines with `CODESET`, `FONTFACE` and `FONTSIZE` by placing "#" at the beginning of those lines, and insert a line with a relevant `FONT` declaration:

   ```
   # CODESET="guess"
   # FONTFACE="Fixed"
   # FONTSIZE="8x16"

   FONT="/etc/console-setup/zap-light16.psf"
   ```

3. Recreate the file */etc/console-setup/cached_setup_font.sh* while logged into a console:

   ```
   /etc/init.d/console-setup.sh force-reload
   ```

4. On current Ubuntu-based systems, the previous step may trigger a bug. Manually edit */etc/console-setup/cached_setup_font.sh* and remove the duplicate listing of your selected font from the `setfont` command line.

5. Recreate the file */boot/initrd.img*:

   ```
   update-initramfs -u
   ```

6. Reboot your computer. You should now see your selected font in use on all Linux consoles.

For Fedora-based distributions

These instructions apply to Fedora, Red Hat Enterprise Linux, CentOS and any distribution based on these. Note that these steps must be done as root (system administrator).

1. Copy the font files to the */lib/kbd/consolefonts* system directory:

   ```
   cp -p *.psf /lib/kbd/consolefonts
   ```

2. If the file */etc/vconsole.conf* exists, edit the `FONT` line in that file and set it to your preferred font:

   ```
   FONT="zap-light16"
   ```

   If the file does not exist, create it and add that line to it.

3. Rebuild the initramfs kernel files:

   ```
   dracut --regenerate-all --force
   ```

4. Reboot your computer and enjoy.

For OpenSUSE-based distributions

These instructions apply to OpenSUSE and any distributions based on it. Note that these steps must be done as root (system administrator).

1. Copy the font files to the */usr/share/kbd/consolefonts* system directory:

   ```
   cp -p *.psf /usr/share/kbd/consolefonts
   ```

2. If the file */etc/vconsole.conf* exists, edit the `FONT` line in that file and set it to your preferred font:

   ```
   FONT="zap-light16"
   ```

   If the file does not exist, create it and add that line to it.

3. If the line `FONT_UNIMAP=` is present in */etc/vconsole.conf*, remove it entirely.
4. Rebuild the initramfs kernel files:

   ```
   dracut --regenerate-all --force
   ```

5. Reboot your computer and enjoy.

Utility programs

This font package includes utility programs from the console-fonts-utils package. Five of these convert PSF and other binary fonts to and from a text representation, allowing easy font editing using an ordinary text editor. Another five applications are included to further work with the text representation of a font. These programs are located in the *utils* directory; see *utils/README* for more information.

Four of these programs in particular may prove very useful:

- `psftx-codechart` — Generate a PDF font coverage codechart
- `psftx-screenshot` — Generate a simulated screenshot image
- `psftx-sampler` — Generate a text output font coverage sampler

- `psftx-encodings` — Check PSFTX for charmap encodings coverage

To generate PDF codecharts from the fonts included in this package, use the supplied Makefile by running `make pdfs`. You will need the reportlab Python package installed to be able to do so.

To generate simulated screenshot PNG images of the fonts, use the supplied Makefile by running `make images`; this requires the Pillow Python package to be installed.

To generate UTF-8 sample strings that can be displayed by a font, run the `psftx-sampler` utility program:

```
./utils/psftx-sampler zap-light16.psftx
```

To check the details of character encodings, run `psftx-encodings`:

```
./utils/psftx-encodings zap-light16.psftx
```

Glyph designs

The VGA fonts **zap-vga09**, **zap-vga16**, **zap-ext-vga09** and **zap-ext-vga16** were inspired by the traditional VGA glyphs that are found in the kbd package, in the files *default8x9.psfu* and *default8x16.psfu* respectively. However, many glyphs have been tweaked in some way, particularly the digit zero, many symbols and most uppercase accented letters. In addition, the traditional fonts do not contain the glyphs needed for The ZAP Group Australia fonts, so additional glyphs were designed in the VGA style.

The VGA fonts are designed to work with both traditional VGA consoles, in which eight-pixel-wide glyphs are displayed in a 9-pixel-wide cell, and in newer framebuffer-style consoles, which use a character cell width the same as the font.

The fonts **zap-vga32** and **zap-ext-vga32** were created by doubling each pixel in **zap-vga16** and **zap-ext-vga16** horizontally and vertically. No attempt was made to smooth out the resulting glyphs.

The **zap-light16** and **zap-ext-light16** fonts were inspired by the GNU Unifont project, as released in the X11 font file *unifont.pcf*; this font has the X11 Logical Font Description (XFLD) `-gnu-unifont-medium-r-normal-sans-16-*-*-*-c-*-iso10646-1`. However, similar to the VGA fonts, every glyph has been modified in some way; the font baseline, in particular, is one pixel higher. In addition, the digits zero and seven, all lowercase letters with descenders or ascenders and many symbols have also been tweaked for greater clarity.

The **zap-light18** and **zap-ext-light18** fonts were derived from **zap-light16** and **zap-ext-light16**, with one additional row of pixels above and one below; accents on capital letters were shifted one pixel higher. The effect is to give an extra 12.5% space (called *leading*) between rows of text.

The **zap-light20** and **zap-ext-light20** fonts were inspired by the **10x20** font that is distributed as part of X11 in the file *10x20.pcf.gz*; this font has the X11 XFLD `-misc-fixed-medium-r-normal--20-*-*-*-c-*-iso10646-1`. Once again, however, most glyphs have been modified; all lowercase letters, for example, are one pixel taller, many symbols have been redesigned and the position of many accents has been tweaked.

The **zap-light24** and **zap-ext-light24** fonts were derived from **zap-light20** and **zap-ext-light20**: these include an extra two pixels above and two pixels below each glyph, giving it an extra 20% leading between rows of text. Descenders on lowercase letters have been lengthened to use this additional space; capital letters with accents are now full-size, with one more pixel between the letter and the accent.

Finally, the **zap-light32** and **zap-ext-light32** fonts were based on those in **zap-light16** and **zap-ext-light16** respectively (by doubling each pixel horizontally and vertically); each glyph was then extensively revised for greater clarity and smoothness.

Feedback

Your comments, suggestions, corrections and enhancements are always warmly welcomed! Please send these to:

Postal:

John Zaitseff,
The ZAP Group Australia,
Unit 6, 116 Woodburn Road,
Berala, NSW, 2141,
Australia

Email: J.Zaitseff@zap.org.au

Web: https://www.zap.org.au/projects/console-fonts-zap/

FTP:

https://ftp.zap.org.au/pub/fonts/console-fonts-zap/
ftp://ftp.zap.org.au/pub/fonts/console-fonts-zap/

Git:

https://www.zap.org.au/git-browser/console-fonts-zap.git
https://git.zap.org.au/git/console-fonts-zap.git
git://git.zap.org.au/data/git/console-fonts-zap.git

Copyright