NAME

luit − Locale and ISO 2022 support for Unicode terminals

SYNOPSIS

luit [*options*] [**−−**] [*program* [*args*]]

DESCRIPTION

Luit is a filter that can be run between an arbitrary application and a UTF-8 terminal emulator. It will convert application output from the locale's encoding into UTF-8, and convert terminal input from UTF-8 into the locale's encoding.

Luit reads its input from the child process, i.e., an application running in the terminal. **Luit** writes its output to the terminal. The two (input and output) can have different encodings.

An application may also request switching to a different output encoding using ISO 2022 and ISO 6429 escape sequences. Use of this feature is discouraged: multilingual applications should be modified to directly generate UTF-8 instead.

Luit is usually invoked transparently by the terminal emulator. For information about running **luit** from the command line, see EXAMPLES below.

OPTIONS

−V Print **luit**'s version and quit.

−alias *filename*
the locale alias file
(default:).

−argv0 *name*
Set the child's name (as passed in argv[0]).

−c Function as a simple converter from standard input to standard output.

−encoding *encoding*
Set up **luit** to use *encoding* rather than the current locale's encoding.

−g0 *charset*
Set the output charset initially selected in G0. The default depends on the locale, but is usually **ASCII**.

−g1 *charset*
Set the output charset initially selected in G1. The default depends on the locale.

−g2 *charset*
Set the output charset initially selected in G2. The default depends on the locale.

−g3 *charset*
Set the output charset initially selected in G3. The default depends on the locale.

−gl *gn* Set the initial assignment of GL in the output. The argument should be one of **g0**, **g1**, **g2** or **g3**. The default depends on the locale, but is usually **g0**.

−gr *gk* Set the initial assignment of GR in the output. The default depends on the locale, and is usually **g2** except for EUC locales, where it is **g1**.

−h Display a usage and options message on the standard output and quit.

−ilog *filename*
Log into *filename* all the bytes received from the child.

−k7 Generate seven-bit characters for keyboard input.

−kg0 *charset*
Set the input charset initially selected in G0. The default depends on the locale, but is usually **ASCII**.

−kg1 *charset*
: Set the input charset initially selected in G1. The default depends on the locale.

−kg2 *charset*
: Set the input charset initially selected in G2. The default depends on the locale.

−kg3 *charset*
: Set the input charset initially selected in G3. The default depends on the locale.

−kgl *gn*
: Set the initial assignment of GL in the input. The argument should be one of **g0**, **g1**, **g2** or **g3**. The default depends on the locale, but is usually **g0**.

−kgr *gk*
: Set the initial assignment of GR in the input. The default depends on the locale, and is usually **g2** except for EUC locales, where it is **g1**.

−kls Generate locking shifts (SO/SI) for keyboard input.

+kss Disable generation of single-shifts for keyboard input.

+kssgr Use GL codes after a single shift for keyboard input. By default, GR codes are generated after a single shift when generating eight-bit keyboard input.

−list List the supported charsets and encodings, then quit. **Luit** uses its internal tables for this, which are based on the *fontenc* library.

−list−builtin
: List the built-in encodings used as a fallback when data from *iconv* or *fontenc* is missing.

  This option relies on **luit** being configured to use *iconv*, since the *fontenc* library does not supply a list of built-in encodings.

−list−fontenc
: List the encodings provided by “.enc” files originally distributed with the *fontenc* library.

−list−iconv
: List the encodings and locales supported by the *iconv* library. **Luit** adapts its internal tables of *fontenc* names to *iconv* encodings.

  To make scripting simpler, **luit** ignores spaces, underscores and ASCII minus-signs (dash) embedded in the names. **Luit** also ignores case when matching charset and encoding names.

  This option lists only the encodings which are associated with the locales supported on the current operating system. The portable *iconv* application provides a list of its supported encodings with the **−l** option. Other implementations may provide similar functionality. There is no portable library call by which an application can obtain the same information.

−olog *filename*
: Log into *filename* all the bytes sent to the terminal emulator.

+ols Disable interpretation of locking shifts in application output.

+osl Disable interpretation of character set selection sequences in application output.

+oss Disable interpretation of single shifts in application output.

+ot Disable interpretation of all sequences and pass all sequences in application output to the terminal unchanged. This may lead to interesting results.

−p In startup, establish a handshake between parent and child processes. This is needed for some older systems, e.g., to successfully copy the terminal settings to the pseudo-terminal.

−prefer *list*
: Set the lookup-order preference for character set information. The parameter is a comma-separated list of keywords. The default order (listing all keywords) is

fontenc,builtin,iconv,posix

The default order uses **fontenc** first because this allows **luit** to start more rapidly (about 0.1 seconds) than using **iconv** for complex encodings such as eucJP. However, you may find that the iconv implementation is more accurate or complete. In that case, you can use the **−show-iconv** option to obtain a text file which can be used as an encoding with the **fontenc** configuration.

This option relies on **luit** being configured to use *iconv*, since the *fontenc* library does not provide this choice.

−show−builtin *encoding*
Show a built-in encoding, e.g., from a ".enc" file using the ".enc" format.

This option relies on **luit** being configured to use *iconv*, since the *fontenc* library does not supply a list of built-in encodings.

−show−fontenc *encoding*
Show a given encoding, e.g., from a ".enc" file using the ".enc" format. If **luit** is configured to use the *fontenc* library, it obtains the information using that library. Otherwise **luit** reads the file directly.

Some of *fontenc*'s encodings are built into the library. The *fontenc* library uses those in preference to an external file. Use the **−show−builtin** option to provide similar information when **luit** is configured to use *iconv*.

−show−iconv *encoding*
Show a given encoding, using the ".enc" format. If **luit** is configured to use *iconv*, it obtains the information using that interface. If *iconv* cannot supply the information, **luit** may use a built-in table.

−t Initialize **luit** using the locale and command-line options, but do not open a pty connection. This option is used for testing **luit**'s configuration. It will exit with success if no errors were detected. Repeat the **−t** option to cause warning messages to be treated as errors.

−v Be verbose. Repeating the option, e.g., "**−v −v**" makes it more verbose. **Luit** does not use *getopt*, so "**−vv**" does not work.

−x Exit as soon as the child dies. This may cause **luit** to lose data at the end of the child's output.

−− End of options.

ENVIRONMENT

Luit uses these environment variables:

FONT_ENCODINGS_DIRECTORY
overrides the location of the "encodings.dir" file, which lists encodings in external ".enc" files.

LC_ALL

LC_CTYPE

LANG During initialization, **luit** calls **setlocale** to check if the user's locale is supported by the operating system. If **setlocale** returns a failure, **luit** looks instead at these variables in succession to obtain any clues from the user's environment for locale preference.

NCURSES_NO_UTF8_ACS
Luit sets this to tell ncurses to not rely upon VT100 SI/SO controls for line-drawing.

SHELL
This is normally set by shells other than the Bourne shell, as a convention. **Luit** will use this value (rather than the user's entry in /etc/passwd) to decide which shell to execute. If SHELL is not set, **luit** executes /bin/sh.

EXAMPLES

The most typical use of **luit** is to adapt an instance of **XTerm** to the locale's encoding. Current versions of **XTerm** invoke **luit** automatically when it is needed. If you are using an older release of **XTerm**, or a different terminal emulator, you may invoke **luit** manually:

```
$ xterm −u8 −e luit
```

If you are running in a UTF-8 locale but need to access a remote machine that doesn’t support UTF-8, **luit** can adapt the remote output to your terminal:

```
$ LC_ALL=fr_FR luit ssh legacy-machine
```

Luit is also useful with applications that hard-wire an encoding that is different from the one normally used on the system or want to use legacy escape sequences for multilingual output. In particular, versions of **Emacs** that do not speak UTF-8 well can use **luit** for multilingual output:

```
$ luit −encoding ’ISO 8859−1’ emacs −nw
```

And then, in **Emacs**,

```
M−x set−terminal−coding−system RET iso−2022−8bit−ss2 RET
```

FILES

The file mapping locales to locale encodings.

SECURITY

On systems with SVR4 (“Unix-98”) ptys (Linux version 2.2 and later, SVR4), **luit** should be run as the invoking user.

On systems without SVR4 (“Unix-98”) ptys (notably BSD variants), running **luit** as an ordinary user will leave the tty world-writable; this is a security hole, and **luit** will generate a warning (but still accept to run). A possible solution is to make **luit** suid root; **luit** should drop privileges sufficiently early to make this safe. However, the startup code has not been exhaustively audited, and the author takes no responsibility for any resulting security issues.

Luit will refuse to run if it is installed setuid and cannot safely drop privileges.

BUGS

None of this complexity should be necessary. Stateless UTF-8 throughout the system is the way to go.

Charsets with a non-trivial intermediary byte are not yet supported.

Selecting alternate sets of control characters is not supported and will never be.

SEE ALSO

These are portable:

- xterm(1),
- ncurses(1).

These are Linux-specific:

- unicode(7),
- utf-8(7),
- charsets(7).

These are particularly useful:

- *Character Code Structure and Extension Techniques (ISO 2022, ECMA-35)*
- *Control Functions for Coded Character Sets (ISO 6429, ECMA-48)*
- http://czyborra.com/charsets/

AUTHOR

Luit was written by Juliusz Chroboczek <jch@pps.jussieu.fr> for the XFree86 project.

Thomas E. Dickey has maintained **luit** for use by **xterm** since 2006.