fstrcmp

Reference Manual

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This document describes fstrcmp version 0.7
and was prepared 13 August 2015.

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NAME

fstrcmp − fuzzy string compare library

DESCRIPTION

The *fstrcmp* package provides a library which may be used to make fuzzy comparisons of strings and byte arrays. It also provides simple commands for use in shell scripts.

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The library is licensed under the GNU GPL. The code is derived from the fuzzy comparisons functions in GNU Gettext, which is GNU GPL licensed. The GNU Gettext fuzzy comparisons functions were, in turn, derived from GNU Diff, which is also GNU GPL licensed.

These license details are important, because only GPL licensed programs, or compatibly licensed programs, may link against this library.

HOME PAGE

The latest version of *fstrcmp* is available on the Web from:

URL:	http://fstrcmp.sourceforge.net/	
File:	index.html	# the fstrcmp page
File:	fstrcmp.0.7.README	# Description, from the tar file
File:	fstrcmp.0.7.lsm	# Description, LSM format
File:	fstrcmp.0.7.tar.gz	# the complete source
File:	fstrcmp.0.7.pdf	# Reference Manual

BUILDING FSTRCMP

Full instructions for building *fstrcmp* may be found in the *BUILDING* file included in the source distribution.

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The comparison code is derived from the fuzzy comparison functions in GNU Gettext 0.17. The GNU Gettext comparison functions were, in turn, derived from GNU Diff 2.7.

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RELEASE NOTES

This section details the various features and bug fixes of the various releases. For excruciating and complete detail, and also credits for those of you who have generously sent me suggestions and bug reports, see the *etc/CHANGES.** files.

Version 0.7 (2014-Mar-05)

- This change set updates the deian/control file to add autoreconf support, to cope with out-of-date ./configure scripts, etc. Debian: Closes: #737341

Version 0.6 (2012-Dec-05)

- Several Debian packaging improvements, and fewer Lintian warnings.

Version 0.5 (2012-Nov-25)

- Several Debian packaging errors have been fixed.

Version 0.4 (2011-Oct-06)

- Several macro warnings issued by *lintian*(1) have been fixed.
- The Debian build farm discovered several new warnings issued for recent gcc versions.
  Debian Bug#625080
  Debian Bug#625331

Version 0.3 (2009-Jul-14)

• The debian/copyright file now explicitly states the provenance of the fuzzy comparison code. The debian/control file now uses the correct sections for the runtime library and debug symbols.

Version 0.2 (2009-Jun-17)

• The include file now has C++ insulation.

Version 0.1 (2009-Jun-08)

First public release.

NAME

How to build fstrcmp

SPACE REQUIREMENTS

You will need about 3MB to unpack and build the *fstrcmp* package. Your milage may vary.

BEFORE YOU START

There are a few pieces of software you may want to fetch and install before you proceed with your installation of fstrcmp

GNU libtool
: The libtool program is used to build shared libraries. It understands neccesary weird and wonderful compiler and linker tricks on many weird and wonderful systems. http://www.gnu.org/software/libtool/

GNU Groff
: The documentation for the *fstrcmp* package was prepared using the GNU Groff package (version 1.14 or later). This distribution includes full documentation, which may be processed into PostScript or DVI files at install time − if GNU Groff has been installed.

GCC
: You may also want to consider fetching and installing the GNU C Compiler if you have not done so already. This is not essential. The fstrcmp program was developed using the GNU C compiler.

The GNU FTP archives may be found at `ftp.gnu.org`, and are mirrored around the world.

SITE CONFIGURATION

The **fstrcmp** package is configured using the *configure* program included in the source distribution.

The *configure* shell script attempts to guess correct values for various system-dependent variables used during compilation, and creates the *Makefile* and *lib/config.h* files. It also creates a shell script *config.status* that you can run in the future to recreate the current configuration.

Normally, you just *cd* to the directory containing *fstrcmp*'s source code and then type

```
% ./configure
...lots of output...
%
```

If you're using *csh* on an old version of System V, you might need to type

```
% sh configure
...lots of output...
%
```

instead, to prevent *csh* from trying to execute *configure* itself.

Running *configure* takes a minute or two. While it is running, it prints some messages that tell what it is doing. If you don't want to see the messages, run *configure* using the quiet option; for example,

```
% ./configure --quiet
%
```

To compile the **fstrcmp** package in a different directory from the one containing the source code, you must use a version of *make* that supports the *VPATH* variable, such as *GNU make*. Then *cd* to the directory where you want the object files and executables to go and run the *configure* script. The *configure* script automatically checks for the source code in the directory that *configure* is in and in .. (the parent directory). If for some reason *configure* is not in the source code directory that you are configuring, then it will report that it can't find the source code. In that case, run *configure* with the option `--srcdir=`*DIR*, where *DIR* is the directory that contains the source code.

By default, *configure* will arrange for the *make install* command to install the **fstrcmp** package's files in */usr/local/bin*, */usr/local/lib*, */usr/local/include*, and */usr/local/man*. There are options which allow you to control the placement of these files.

`--prefix=`*PATH*
: This specifies the path prefix to be used in the installation. Defaults to */usr/local* unless otherwise specified.

`--exec-prefix=`*PATH*
: You can specify separate installation prefixes for architecture-specific files files. Defaults to *${prefix}* unless otherwise specified.

`--bindir=`*PATH*
: This directory contains executable programs. On a network, this directory may be shared between machines with identical hardware and operating systems; it may be mounted read-only. Defaults to *${exec_prefix}/bin* unless otherwise specified.

`--mandir=`*PATH*
: This directory contains the on-line manual entries. On a network, this directory may be shared between all machines; it may be mounted read-only. Defaults to *${prefix}/man* unless otherwise specified.

The *configure* script ignores most other arguments that you give it; use the `--help` option for a complete list.

On systems that require unusual options for compilation or linking that the *fstrcmp* package's *configure* script does not know about, you can give *configure* initial values for variables by setting them in the environment. In Bourne-compatible shells, you can do that on the command line like this:

```
$ CXX='gcc -traditional' LIBS=-lposix ./configure
...lots of output...
$
```

Here are the *make* variables that you might want to override with environment variables when running the *configure* script:

Variable: CC
: C compiler program. The default is *cc*.

Variable: CPPFLAGS
: Preprocessor flags, commonly defines and include search paths. Defaults to empty. It is common to use `CPPFLAGS=-I/usr/local/include` to access other installed packages.

Variable: INSTALL
: Program to use to install files. The default is *install* if you have it, *cp* otherwise.

Variable: LIBS
: Libraries to link with, in the form `-l`*foo* `-l`*bar*. The *configure* script will append to this, rather than replace it. It is common to use `LIBS=-L/usr/local/lib` to access other installed packages.

If you need to do unusual things to compile the package, the author encourages you to figure out how the *configure* script could check whether to do them, and mail diffs or instructions to the author so that they can be included in the next release.

BUILDING FSTRCMP

All you should need to do is use the

```
% make
...lots of output...
%
```

command and wait.

You can remove the program binaries and object files from the source directory by using the

```
% make clean
...lots of output...
%
```

command. To remove all of the above files, and also remove the *Makefile* and *lib/config.h* and *config.status* files, use the

```
% make distclean
...lots of output...
%
```

command.

The file *etc/configure.ac* is used to create *configure* by a GNU program called *autoconf*. You only need to know this if you want to regenerate *configure* using a newer version of *autoconf*.

TESTING FSTRCMP

The *fstrcmp* package comes with a test suite. To run this test suite, use the command

```
% make sure
...lots of output...
Passed All Tests
%
```

The tests take a fraction of a second each, with most very fast, and a couple very slow, but it varies greatly depending on your CPU.

If all went well, the message

```
Passed All Tests
```

should appear at the end of the make.

INSTALLING FSTRCMP

As explained in the *SITE CONFIGURATION* section, above, the *fstrcmp* package is installed under the */usr/local* tree by default. Use the `--prefix=`*PATH* option to *configure* if you want some other path. More specific installation locations are assignable, use the `--help` option to the *configure* script for details.

All that is required to install the *fstrcmp* package is to use the

```
% make install
...lots of output...
%
```

command. Control of the directories used may be found in the first few lines of the *Makefile* file and the other files written by the *configure* script; it is best to reconfigure using the *configure* script, rather than attempting to do this by hand.

GETTING HELP

If you need assistance with the *fstrcmp* package, please do not hesitate to contact the author at

```
Peter Miller <pmiller@opensource.org.au>
```

Any and all feedback is welcome.

When reporting problems, please include the version number given by the

```
% explain -version
explain version 0.7.D001
...warranty disclaimer...
%
```

command. Please do not send this example; run the program for the exact version number.

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NAME

fstrcmp − fuzzy comparison of strings

SYNOPSIS

fstrcmp [**−p**] *first-string second-string*

fstrcmp −w *first-string second-string*

fstrcmp −a *first-file second-file*

fstrcmp −s *needle haystack*...

fstrcmp −−version

DESCRIPTION

The fstrcmp command is used to make fuzzy comparisons between strings. The “edit distance” between the strings is printed, with 0.0 meaning the strings are utterly un-alike, and 1.0 meaning the strings are identical.

You may need to quote the string to insulate them from the shell.

OPTIONS

The fstrcmp command understands the following options:

−a

−−files−as−bytes
This option is used to compare two files as arrays of bytes. See *fmemcmp*(3) for more information.

−p

−−pair This option is used to compare two strings as arrays of bytes. This is the default. See *fstrcmp*(3) for more information.

−s

−−select This option is used to select the closest *needle* from the provided *haystack* alternatives. The most similar (single) choice is printed. If none are particularly similar, nothing is printed. See *fstrcmp*(3) for more information. See below for example.

−V

−−version
This option may be used to print the version of the fstrcmp command, and then exit.

−w

−−wide−pair
This option is used to compare two multi-byte character strings. See *fstrcoll*(3) for more information.

EXIT STATUS

The fstrcmp command exits with status 1 on any error. The fstrcmp command only exits with status 0 if there are no errors.

EXAMPLE

The *fstrcmp −−select* option may be used in a shell script to improve error messages.

```
case "$action" in
start)
    start
    ;;
stop)
    stop
    ;;
restart)
```

```
            stop
            start
            ;;
        *)
            echo "$0: action \"$action\" unknown" 1>&2
            guess=‘fstrcmp --select "$action" stop start restart‘
            if [ "$guess" ]
            then
                echo "$0: did you mean \"$guess\" instead?" 1>&2
            fi
            exit 1
            ;;
    esac
```

Thus, the error message frequently suggests the correct action in the face of simple finger problems on the command line.

SEE ALSO

fstrcmp(3)
: fuzzy comparison of strings

fstrcoll(3)
: fuzzy comparison of two multi-byte character strings

fstrcmpi(3)
: fuzzy comparison of strings, integer variation

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NAME

GPL - GNU General Public License

DESCRIPTION

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NAME

fmemcmp − fuzzy comparison of two memory areas

SYNOPSIS

```
#include <fstrcmp.h>

#define FSTRCMP_IDENTICAL
#define FSTRCMP_THRESHOLD
#define FSTRCMP_ERROR

double fmemcmp(const void *data1, size_t size1, const void *data2, size_t size2);
```

DESCRIPTION

The **fmemcmp**() function compares the two memory areas, the *size1* bytes pointed to by *data1* and the *size2* bytes pointed to by *data2*.

RETURN VALUE

The **fmemcmp** function returns a floating point value between 0.0 and FSTRCMP_IDENTICAL. A value of 0.0 means the memory areas are utterly un-alike. A value of FSTRCMP_IDENTICAL means the memory areas are identical. A value of more than FSTRCMP_THRESHOLD (it lies between 0.0 and FSTRCMP_IDENTICAL) would be considered "similar" by most people.

A value of FSTRCMP_ERROR (always negative) indicates a *malloc*(3) failure.

SEE ALSO

fmemcmpi(3)
: fuzzy comparison of two memory areas

fstrcmp(3)
: fuzzy comparison of two strings

memcmp(3)
: compare memory areas

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NAME

fmemcmpi − fuzzy comparison of two memory areas

SYNOPSIS

```
#include <fstrcmp.h>

#define FSTRCMPI_IDENTICAL
#define FSTRCMPI_THRESHOLD
#define FSTRCMPI_ERROR

int fmemcmpi(const void *data1, size_t size1, const void *data2, size_t size2);
```

DESCRIPTION

The **fmemcmpi**() function compares the two memory areas, the *size1* bytes pointed to by *data1* and the *size2* bytes pointed to by *data2*.

RETURN VALUE

The **fmemcmpi** function returns an **int** value between 0 and FSTRCMPI_IDENTICAL. A value of 0 means the memory areas are utterly un-alike. A value of FSTRCMPI_IDENTICAL means the memory areas are identical. A value of more than FSTRCMPI_THRESHOLD (it lies between 0.0 and FSTRCMP_IDENTICAL) would be considered "similar" by most people.

A value of FSTRCMPI_ERROR (always negative) indicates a *malloc*(3) failure.

SEE ALSO

fmemcmp(3)
: fuzzy comparison of two memory areas

fstrcmpi(3)
: fuzzy comparison of two strings

memcmp(3)
: compare memory areas

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NAME

fstrcasecmp − fuzzy comparison of two strings ignoring case

SYNOPSIS

#include <fstrcmp.h>

#define FSTRCMP_IDENTICAL
#define FSTRCMP_THRESHOLD
#define FSTRCMP_ERROR

double fstrcasecmp(const char *string1, const char *string2);

DESCRIPTION

The **fstrcmp**() function compares the two strings, *string1* and *string2*, ignoring case.

RETURN VALUE

The **fstrcasecmp** function returns a floating point value between 0.0 and FSTRCMP_IDENTICAL. A value of 0.0 means the strings are utterly un-alike. A value of FSTRCMP_IDENTICAL means the strings are identical. A value of more than FSTRCMP_THRESHOLD (it lies between 0.0 and FSTRCMP_IDENTICAL) would be considered "similar" by most people.

A value of FSTRCMP_ERROR (always negative) indicates a *malloc*(3) failure.

SEE ALSO

fmemcmp(3)
fuzzy comparison of two memory areas

fstrcasecmpi(3)
fuzzy comparison of two strings ignoring case

fstrcmp(3)
fuzzy comparison of two strings

strcasecmp(3)
compare two strings ignoring case

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NAME

fstrcasecmpi − fuzzy comparison of two strings ignoring case

SYNOPSIS

#include <fstrcmp.h>

#define FSTRCMP_IDENTICAL
#define FSTRCMP_THRESHOLD
#define FSTRCMP_ERROR

int fstrcasecmpi(const char *string1, const char *string2);

DESCRIPTION

The **fstrcmp**() function compares the two strings, *string1* and *string2*, ignoring case.

RETURN VALUE

The **fstrcasecmpi** function returns an **int** value between 0 and FSTRCMPI_IDENTICAL. A value of 0 means the strings are utterly un-alike. A value of FSTRCMPI_IDENTICAL means the strings are identical. A value of more than FSTRCMPI_THRESHOLD (it lies between 0 and FSTRCMPI_IDENTICAL) would be considered "similar" by most people.

A value of FSTRCMPI_ERROR (always negative) indicates a *malloc*(3) failure.

SEE ALSO

fstrcasecmp(3)
fuzzy comparison of two strings ignoring case

fstrcmpi(3)
fuzzy comparison of two strings

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NAME

fstrcmp − fuzzy comparison of two strings

SYNOPSIS

```
#include <fstrcmp.h>

#define FSTRCMP_IDENTICAL
#define FSTRCMP_THRESHOLD
#define FSTRCMP_ERROR

double fstrcmp(const char *string1, const char *string2);
```

DESCRIPTION

The **fstrcmp**() function compares the two strings, *string1* and *string2*.

RETURN VALUE

The **fstrcmp** function returns a floating point value between 0.0 and FSTRCMP_IDENTICAL. A value of 0.0 means the strings are utterly un-alike. A value of FSTRCMP_IDENTICAL means the strings are identical. A value of more than FSTRCMP_THRESHOLD (it lies between 0.0 and FSTRCMP_IDENTICAL) would be considered "similar" by most people.

A value of FSTRCMP_ERROR (always negative) indicates a *malloc*(3) failure.

SEE ALSO

fmemcmp(3)
: fuzzy comparison of two memory areas

fstrcasecmp(3)
: fuzzy comparison of two strings ignoring case

fstrcmpi(3)
: fuzzy comparison of two strings

strcmp(3)
: compare two strings

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NAME

fstrcmpi − fuzzy comparison of two strings

SYNOPSIS

```
#include <fstrcmp.h>

#define FSTRCMPI_IDENTICAL
#define FSTRCMPI_THRESHOLD
#define FSTRCMPI_ERROR

int fstrcmpi(const char *string1, const char *string2);
```

DESCRIPTION

The **fstrcmpi**() function compares the two strings, *string1* and *string2*.

RETURN VALUE

The **fstrcmpi** function returns an **int** value between 0 and FSTRCMPI_IDENTICAL. A value of 0 means the strings are utterly un-alike. A value of FSTRCMPI_IDENTICAL means the strings are identical. A value of more than FSTRCMPI_THRESHOLD (it lies between 0 and FSTRCMPI_IDENTICAL) would be considered "similar" by most people.

A value of FSTRCMPI_ERROR (always negative) indicates a *malloc*(3) failure.

SEE ALSO

fstrcasecmpi(3)
: compare two strings ignoring case

fstrcmp(3)
: fuzzy comparison of two strings

fmemcmp(3)
: fuzzy comparison of two memory areas

strcmp(3)
: compare two strings

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NAME

fstrcoll − fuzzy comparison of two strings using the current locale

SYNOPSIS

#include <fstrcmp.h>

#define FSTRCMP_IDENTICAL
#define FSTRCMP_THRESHOLD
#define FSTRCMP_ERROR

double fstrcoll(const char *string1, const char *string2);

DESCRIPTION

The **strcoll**() function compares the two strings *sting1* and *string2*. The comparison is based on strings interpreted as appropriate for the program's current locale for category LC_CTYPE.

RETURN VALUE

The **fstrcoll** function returns a floating point value between 0.0 and FSTRCMP_IDENTICAL. A value of 0.0 means the strings are utterly un-alike. A value of FSTRCMP_IDENTICAL means the strings are identical. A value of more than FSTRCMP_THRESHOLD (it lies between 0.0 and FSTRCMP_IDENTICAL) would be considered "similar" by most people.

A value of FSTRCMP_ERROR (always negative) indicates a *malloc*(3) or *mbstowcs*(3) failure.

SEE ALSO

fstrcmp(3)
fuzzy comparison of two strings

fstrcolli(3)
fuzzy comparison of two strings using the current locale

strcoll(3)
compare two strings using the current locale

mbstowcs(3)
convert a multibyte string to a wide-character string

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NAME

fstrcolli − fuzzy comparison of two strings using the current locale

SYNOPSIS

#include <fstrcmp.h>

#define FSTRCMP_IDENTICAL
#define FSTRCMP_THRESHOLD
#define FSTRCMP_ERROR

int fstrcolli(const char *string1, const char *string2);

DESCRIPTION

The **strcolli**() function compares the two strings *sting1* and *string2*. The comparison is based on strings interpreted as appropriate for the program's current locale for category LC_CTYPE.

RETURN VALUE

The **fstrcolli** function returns an **int** value between 0 and FSTRCMPI_IDENTICAL. A value of 0 means the strings are utterly un-alike. A value of FSTRCMPI_IDENTICAL means the strings are identical. A value of more than FSTRCMPI_THRESHOLD (it lies between 0 and FSTRCMPI_IDENTICAL) would be considered "similar" by most people.

A value of FSTRCMPI_ERROR (always negative) indicates a *malloc*(3) or *mbstowcs*(3) failure.

SEE ALSO

fstrcmpi(3)
fuzzy comparison of two strings

fstrcoll(3)
fuzzy comparison of two strings using the current locale

strcoll(3)
compare two strings using the current locale

mbstowcs(3)
convert a multibyte string to a wide-character string

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NAME

fwcscmp − fuzzy comparison of two wide-character strings

SYNOPSIS

```
#include <fstrcmp.h>

#define FSTRCMP_IDENTICAL
#define FSTRCMP_THRESHOLD
#define FSTRCMP_ERROR

double fwcscmp(const wchar_t *string1, const wchar_t *string2);
```

DESCRIPTION

The **fwcscmp**() function compares the two wide-character strings, *string1* and *string2*.

RETURN VALUE

The **fwcscmp** function returns a floating point value between 0.0 and FSTRCMP_IDENTICAL. A value of 0.0 means the two wide-character strings are utterly un-alike. A value of FSTRCMP_IDENTICAL means the two wide-character strings are identical. A value of more than FSTRCMP_THRESHOLD (it lies between 0.0 and FSTRCMP_IDENTICAL) would be considered "similar" by most people.

A value of FSTRCMP_ERROR (always negative) indicates a *malloc*(3) failure.

SEE ALSO

fstrcmp(3)
: fuzzy comparison of two strings

fwcscmpi(3)
: fuzzy comparison of two wide-character strings

wcscmp(3)
: compare two wide-character strings

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NAME

fwcscmpi − fuzzy comparison of two wide-character strings

SYNOPSIS

#include <fstrcmp.h>

#define FSTRCMPI_IDENTICAL
#define FSTRCMPI_THRESHOLD
#define FSTRCMPI_ERROR

int fwcscmpi(const wchar_t *string1, const wchar_t *string2);

DESCRIPTION

The **fwcscmpi**() function compares the two wide-character strings, *string1* and *string2*.

RETURN VALUE

The **fwcscmpi** function returns an **int** value between 0 and FSTRCMPI_IDENTICAL. A value of 0 means the two wide-character strings are utterly un-alike. A value of FSTRCMPI_IDENTICAL means the two wide-character strings are identical. A value of more than FSTRCMPI_THRESHOLD (it lies between 0 and FSTRCMPI_IDENTICAL) would be considered "similar" by most people.

A value of FSTRCMPI_ERROR (always negative) indicates a *malloc*(3) failure.

SEE ALSO

fstrcmp(3)
fuzzy comparison of two strings

fwcscmp(3)
fuzzy comparison of two wide-character strings

wcscmp(3)
compare two wide-character strings

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