

# fstrcmp

## Reference Manual

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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.

This document describes fstrcmp version 0.7

and was prepared 15 May 2023

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:

This document describing the fstrcmp package, and the fstrcmp package itself, are

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File: index.html # the fstrcmp page

File: fstrcmp.0.7.README # Description, from the tar file

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File: fstrcmp.0.7.html # Description, HTML 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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Read Me(fstrcmp)

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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- This change set updates the debian/control file to add autoreconf support, to cope with out-of-date ./configure scripts, etc.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 mileage 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 necessary 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. 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](mailto: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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fstcmp version 0.7

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**NAME**

**fstcmp** – fuzzy comparison of strings

**SYNOPSIS**

**fstcmp** [ -p ] first-string second-string

**fstcmp** -w first-string second-string

**fstcmp** -a first-file second-file

**fstcmp** -s needle haystack...

**fstcmp** --version

**DESCRIPTION**

The **fstcmp** 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 **fstcmp** 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 **fstcmp(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 **fstcmp(3)** for more information. See below for example.

-V

--version

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

-w

--wide-pair

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

**EXIT STATUS**

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

**EXAMPLE**

The **fstcmp** --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
    guessfstcmp --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

`fstcmp(3)`  
fuzzy comparison of strings

`fstcoll(3)`  
fuzzy comparison of two multi-byte character strings

`fstcmpi(3)`  
fuzzy comparison of strings, integer variation

#### COPYRIGHT

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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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## NAME

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## DESCRIPTION

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Version 3, 29 June 2007

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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**

fmemcmp(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 <fstrcmpi.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 `FSTRCMPI_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 FSTRCMP\_IDENTICAL. A value of 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 and FSTRCMP\_IDENTICAL) would be considered "similar" by most people.

A value of FSTRCMP\_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

fstrcmppi(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 FSTRCMP_I_IDENTICAL
#define FSTRCMP_I_THRESHOLD
#define FSTRCMP_I_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 `FSTRCMP_I_IDENTICAL`. A value of 0 means the strings are utterly un-alike. A value of `FSTRCMP_I_IDENTICAL` means the strings are identical. A value of more than `FSTRCMP_I_THRESHOLD` (it lies between 0 and `FSTRCMP_I_IDENTICAL`) would be considered "similar" by most people.

A value of `FSTRCMP_I_ERROR` (always negative) indicates a `malloc(3)` failure.

**SEE ALSO**

`fstrcasempi(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 `fstrcoll()` function compares the two strings `string1` 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 `fstrcolli()` function compares the two strings `string1` 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 `FSTRCMP_IDENTICAL`. A value of 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 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

`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**

fwscmp – fuzzy comparison of two wide-character strings

**SYNOPSIS**

```
#include <fstrcmp.h>
#define FSTRCMP_IDENTICAL
#define FSTRCMP_THRESHOLD
#define FSTRCMP_ERROR

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

**DESCRIPTION**

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

**RETURN VALUE**

The fwscmp 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

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

wscmp(3)  
compare two wide-character strings

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**NAME**

fwscmpi – fuzzy comparison of two wide-character strings

**SYNOPSIS**

```
#include <fstcmp.h>
#define FSTRCMPI_IDENTICAL
#define FSTRCMPI_THRESHOLD
#define FSTRCMPI_ERROR

int fwscmpi(const wchar_t *string1, const wchar_t *string2);
```

**DESCRIPTION**

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

**RETURN VALUE**

The fwscmpi 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**

fstcmp(3)  
fuzzy comparison of two strings

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

wscmp(3)  
compare two wide-character strings

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