



Linux Ubuntu 26.04 Manual Pages on command 'tolower.3'

\$ man tolower.3

toupper(3) Library Functions Manual toupper(3)

NAME

toupper, tolower, toupper_l, tolower_l - convert uppercase or lowercase

LIBRARY

Standard C library (libc, -lc)

SYNOPSIS

```
#include <ctype.h>

int toupper(int c);

int tolower(int c);

int toupper_l(int c, locale_t locale);

int tolower_l(int c, locale_t locale);
```

Feature Test Macro Requirements for glibc (see feature_test_macros(7)):

toupper_l(), tolower_l():

Since glibc 2.10:

 _XOPEN_SOURCE >= 700

Before glibc 2.10:

 _GNU_SOURCE

DESCRIPTION

These functions convert lowercase letters to uppercase, and vice versa.

If c is a lowercase letter, toupper() returns its uppercase equivalent, if an uppercase rep?

resentation exists in the current locale. Otherwise, it returns c. The toupper_l() func?

tion performs the same task, but uses the locale referred to by the locale handle locale.

If c is an uppercase letter, tolower() returns its lowercase equivalent, if a lowercase rep?

resentation exists in the current locale. Otherwise, it returns c. The `tolower_l()` function performs the same task, but uses the locale referred to by the locale handle `locale`. If `c` is neither an unsigned char value nor EOF, the behavior of these functions is undefined.

The behavior of `toupper_l()` and `tolower_l()` is undefined if `locale` is the special locale object `LC_GLOBAL_LOCALE` (see `duplocale(3)`) or is not a valid locale object handle.

RETURN VALUE

The value returned is that of the converted letter, or `c` if the conversion was not possible.

ATTRIBUTES

For an explanation of the terms used in this section, see `attributes(7)`.

??

? Interface	? Attribute	? Value	?
-------------	-------------	---------	---

??

? <code>toupper()</code> , <code>tolower()</code> , <code>toupper_l()</code> , <code>tolower_l()</code>	? Thread safety	? MT-Safe	?
---	-----------------	-----------	---

??

STANDARDS

`toupper()`

`tolower()`

C11, POSIX.1-2008.

`toupper_l()`

`tolower_l()`

POSIX.1-2008.

HISTORY

`toupper()`

`tolower()`

C89, 4.3BSD, POSIX.1-2001.

`toupper_l()`

`tolower_l()`

POSIX.1-2008.

NOTES

The standards require that the argument `c` for these functions is either EOF or a value that is representable in the type unsigned char. If the argument `c` is of type `char`, it must be cast to unsigned char, as in the following example:

```
char c;
```

```
...
```

```
res = toupper((unsigned char) c);
```

This is necessary because `char` may be the equivalent signed `char`, in which case a byte where the top bit is set would be sign extended when converting to `int`, yielding a value that is outside the range of unsigned `char`.

The details of what constitutes an uppercase or lowercase letter depend on the locale. For example, the default "C" locale does not know about umlauts, so no conversion is done for them.

In some non-English locales, there are lowercase letters with no corresponding uppercase equivalent; the German sharp `s` is one example.

SEE ALSO

`isalpha(3)`, `newlocale(3)`, `setlocale(3)`, `tolower(3)`, `toupper(3)`, `uselocale(3)`, `locale(7)`

Linux man-pages 6.17

2026-02-08

`toupper(3)`