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### ***Rocky Enterprise Linux 9.2 Manual Pages on command 'strerror\_r.3'***

**\$ man strerror\_r.3**

STRERROR(3)           Linux Programmer's Manual           STRERROR(3)

NAME

strerror, strerrorname\_np, strerrordesc\_np, strerror\_r, strerror\_l -  
return string describing error number

SYNOPSIS

```
#include <string.h>

char *strerror(int errnum);

const char *strerrorname_np(int errnum);

const char *strerrordesc_np(int errnum);

int strerror_r(int errnum, char *buf, size_t buflen);

/* XSI-compliant */

char *strerror_r(int errnum, char *buf, size_t buflen);

/* GNU-specific */

char *strerror_l(int errnum, locale_t locale);
```

Feature Test Macro Requirements for glibc (see feature\_test\_macros(7)):

strerrorname\_np(), strerrordesc\_np():

  \_GNU\_SOURCE

strerror\_r():

The XSI-compliant version is provided if:

```
(_POSIX_C_SOURCE >= 200112L) && ! _GNU_SOURCE
```

Otherwise, the GNU-specific version is provided.

## DESCRIPTION

The `strerror()` function returns a pointer to a string that describes the error code passed in the argument `errnum`, possibly using the `LC_MESSAGES` part of the current locale to select the appropriate language. (For example, if `errnum` is `EINVAL`, the returned description will be "Invalid argument".) This string must not be modified by the application, but may be modified by a subsequent call to `strerror()` or `strerror_l()`. No other library function, including `perror(3)`, will modify this string.

Like `strerror()`, the `strerrordesc_np()` function returns a pointer to a string that describes the error code passed in the argument `errnum`, with the difference that the returned string is not translated according to the current locale.

The `strerrorname_np()` function returns a pointer to a string containing the name of the error code passed in the argument `errnum`. For example, given `EPERM` as an argument, this function returns a pointer to the string "EPERM".

### `strerror_r()`

The `strerror_r()` function is similar to `strerror()`, but is thread safe.

This function is available in two versions: an XSI-compliant version specified in POSIX.1-2001 (available since glibc 2.3.4, but not POSIX-compliant until glibc 2.13), and a GNU-specific version (available since glibc 2.0). The XSI-compliant version is provided with the feature test macros settings shown in the SYNOPSIS; otherwise the GNU-specific version is provided. If no feature test macros are explicitly defined, then (since glibc 2.4) `_POSIX_C_SOURCE` is defined by default with the value `200112L`, so that the XSI-compliant version of `strerror_r()` is provided by default.

The XSI-compliant `strerror_r()` is preferred for portable applications.

It returns the error string in the user-supplied buffer `buf` of length

buflen.

The GNU-specific `strerror_r()` returns a pointer to a string containing the error message. This may be either a pointer to a string that the function stores in `buf`, or a pointer to some (immutable) static string (in which case `buf` is unused). If the function stores a string in `buf`, then at most `buflen` bytes are stored (the string may be truncated if `buflen` is too small and `errno` is unknown). The string always includes a terminating null byte (`'\0'`).

`strerror_l()`

`strerror_l()` is like `strerror()`, but maps `errno` to a locale-dependent error message in the locale specified by `locale`. The behavior of `strerror_l()` is undefined if `locale` is the special locale object `LC_GLOBAL_LOCALE` or is not a valid locale object handle.

## RETURN VALUE

The `strerror()`, `strerror_l()`, and the GNU-specific `strerror_r()` functions return the appropriate error description string, or an "Unknown error `nnn`" message if the error number is unknown.

On success, `strerrorname_np()` and `strerrordesc_np()` return the appropriate error description string. If `errno` is an invalid error number, these functions return `NULL`.

The XSI-compliant `strerror_r()` function returns 0 on success. On error, a (positive) error number is returned (since glibc 2.13), or -1 is returned and `errno` is set to indicate the error (glibc versions before 2.13).

POSIX.1-2001 and POSIX.1-2008 require that a successful call to `strerror()` or `strerror_l()` shall leave `errno` unchanged, and note that, since no function return value is reserved to indicate an error, an application that wishes to check for errors should initialize `errno` to zero before the call, and then check `errno` after the call.

## ERRORS

**EINVAL** The value of `errno` is not a valid error number.

**ERANGE** Insufficient storage was supplied to contain the error description string.

## VERSIONS

The `strerror_l()` function first appeared in glibc 2.6.

## ATTRIBUTES

For an explanation of the terms used in this section, see at?

tributes(7).

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?Interface ? Attribute ? Value ?

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?strerror() ? Thread safety ? MT-Unsafe race:strerror ?

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?strerrorname\_np(), ? Thread safety ? MT-Safe ?

?strerrordesc\_np() ? ? ?

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?strerror\_r(), ? Thread safety ? MT-Safe ?

?strerror\_l() ? ? ?

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## CONFORMING TO

`strerror()` is specified by POSIX.1-2001, POSIX.1-2008, C89, and C99.

`strerror_r()` is specified by POSIX.1-2001 and POSIX.1-2008.

`strerror_l()` is specified in POSIX.1-2008.

The GNU-specific functions `strerror_r()`, `strerrorname_np()`, and `strerrordesc_np()` are nonstandard extensions.

POSIX.1-2001 permits `strerror()` to set `errno` if the call encounters an error, but does not specify what value should be returned as the function result in the event of an error. On some systems, `strerror()` returns NULL if the error number is unknown. On other systems, `strerror()` returns a string something like "Error nnn occurred" and sets `errno` to `EINVAL` if the error number is unknown. C99 and POSIX.1-2008 require the return value to be non-NULL.

## NOTES

The GNU C Library uses a buffer of 1024 characters for `strerror()`.

This buffer size therefore should be sufficient to avoid an `ERANGE` error when calling `strerror_r()`.

strerrorname\_np() and strerrordesc\_np() are thread-safe and async-signal-safe.

#### SEE ALSO

err(3), errno(3), error(3), perror(3), strsignal(3), locale(7)

#### COLOPHON

This page is part of release 5.10 of the Linux man-pages project. A description of the project, information about reporting bugs, and the latest version of this page, can be found at <https://www.kernel.org/doc/man-pages/>.

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