

**NAME**

`strerror`, `strerror_r` – return string describing error number

**SYNOPSIS**

```
#include <string.h>

char *strerror(int errnum);

char *strerror_r(int errnum, char *buf, size_t buflen);
/* GNU-specific strerror_r() */

#define _XOPEN_SOURCE 600
#include <string.h>

int strerror_r(int errnum, char *buf, size_t buflen);
/* XSI-compliant strerror_r() */
```

**DESCRIPTION**

The **strerror()** function returns a string describing the error code passed in the argument *errnum*, possibly using the LC\_MESSAGES part of the current locale to select the appropriate language. This string must not be modified by the application, but may be modified by a subsequent call to **perror()** or **strerror()**. No library function will modify this string.

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, and a GNU-specific version (available since glibc 2.0). If **\_XOPEN\_SOURCE** is defined with the value 600, then the XSI-compliant version is provided, otherwise the GNU-specific version is provided.

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 the string always includes a terminating null byte.

**RETURN VALUE**

The **strerror()** and **strerror\_r()** functions return the appropriate error description string, or an "Unknown error nnn" message if the error number is unknown.

The XSI-compliant **strerror\_r()** function returns 0 on success; on error, -1 is returned and *errno* is set to indicate the error.

**ERRORS****EINVAL**

The value of *errnum* is not a valid error number.

**ERANGE**

Insufficient storage was supplied to contain the error description string.

**CONFORMING TO**

POSIX.1-2001.

The GNU-specific **strerror\_r()** function is a non-standard extension.

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.

**SEE ALSO**

**err(3), errno(3), error(3), perror(3), strsignal(3)**