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Rocky Enterprise Linux 9.2 Manual Pages on command 'glob.3'

\$ man glob.3

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

NAME

glob, globfree - find pathnames matching a pattern, free memory from
glob()

SYNOPSIS

```
#include <glob.h>

int glob(const char *pattern, int flags,
         int (*errfunc) (const char *epath, int eerrno),
         glob_t *pglob);

void globfree(glob_t *pglob);
```

DESCRIPTION

The glob() function searches for all the pathnames matching pattern according to the rules used by the shell (see glob(7)). No tilde expansion or parameter substitution is done; if you want these, use wordexp(3).

The globfree() function frees the dynamically allocated storage from an earlier call to glob().

The results of a glob() call are stored in the structure pointed to by

pglob. This structure is of type glob_t (declared in <glob.h>) and includes the following elements defined by POSIX.2 (more may be present as an extension):

```
typedef struct {
    size_t  gl_pathc; /* Count of paths matched so far */
    char  **gl_pathv; /* List of matched pathnames. */
    size_t  gl_offs; /* Slots to reserve in gl_pathv. */
} glob_t;
```

Results are stored in dynamically allocated storage.

The argument flags is made up of the bitwise OR of zero or more the following symbolic constants, which modify the behavior of glob():

GLOB_ERR

Return upon a read error (because a directory does not have read permission, for example). By default, glob() attempts carry on despite errors, reading all of the directories that it can.

GLOB_MARK

Append a slash to each path which corresponds to a directory.

GLOB_NOSORT

Don't sort the returned pathnames. The only reason to do this is to save processing time. By default, the returned pathnames are sorted.

GLOB_DOOFFS

Reserve pglob->gl_offs slots at the beginning of the list of strings in pglob->pathv. The reserved slots contain null pointers.

GLOB_NOCHECK

If no pattern matches, return the original pattern. By default, glob() returns GLOB_NOMATCH if there are no matches.

GLOB_APPEND

Append the results of this call to the vector of results returned by a previous call to glob(). Do not set this flag on the first invocation of glob().

GLOB_NOESCAPE

Don't allow backslash ('\') to be used as an escape character.

Normally, a backslash can be used to quote the following character, providing a mechanism to turn off the special meaning of metacharacters.

flags may also include any of the following, which are GNU extensions and not defined by POSIX.2:

GLOB_PERIOD

Allow a leading period to be matched by metacharacters. By default, metacharacters can't match a leading period.

GLOB_ALTDIRFUNC

Use alternative functions `pglob->gl_closedir`, `pglob->gl_readdir`, `pglob->gl_opendir`, `pglob->gl_lstat`, and `pglob->gl_stat` for filesystem access instead of the normal library functions.

GLOB_BRACE

Expand `cs(1)` style brace expressions of the form `{a,b}`. Brace expressions can be nested. Thus, for example, specifying the pattern `"{foo/{,cat,dog},bar}"` would return the same results as four separate `glob()` calls using the strings: `"foo/"`, `"foo/cat"`, `"foo/dog"`, and `"bar"`.

GLOB_NOMAGIC

If the pattern contains no metacharacters, then it should be returned as the sole matching word, even if there is no file with that name.

GLOB_TILDE

Carry out tilde expansion. If a tilde ('~') is the only character in the pattern, or an initial tilde is followed immediately by a slash ('/'), then the home directory of the caller is substituted for the tilde. If an initial tilde is followed by a username (e.g., `"~andrea/bin"`), then the tilde and username are substituted by the home directory of that user. If the username is invalid, or the home directory cannot be determined, then no substitution is performed.

GLOB_TILDE_CHECK

This provides behavior similar to that of GLOB_TILDE. The difference is that if the username is invalid, or the home directory cannot be determined, then instead of using the pattern itself as the name, glob() returns GLOB_NOMATCH to indicate an error.

GLOB_ONLYDIR

This is a hint to glob() that the caller is interested only in directories that match the pattern. If the implementation can easily determine file-type information, then nondirectory files are not returned to the caller. However, the caller must still check that returned files are directories. (The purpose of this flag is merely to optimize performance when the caller is interested only in directories.)

If `errfunc` is not NULL, it will be called in case of an error with the arguments `epath`, a pointer to the path which failed, and `errno`, the value of `errno` as returned from one of the calls to `opendir(3)`, `read(3)`, or `stat(2)`. If `errfunc` returns nonzero, or if GLOB_ERR is set, glob() will terminate after the call to `errfunc`.

Upon successful return, `pglob->gl_pathc` contains the number of matched pathnames and `pglob->gl_pathv` contains a pointer to the list of pointers to matched pathnames. The list of pointers is terminated by a null pointer.

It is possible to call glob() several times. In that case, the GLOB_APPEND flag has to be set in `flags` on the second and later invocations.

As a GNU extension, `pglob->gl_flags` is set to the flags specified, or with GLOB_MAGCHAR if any metacharacters were found.

RETURN VALUE

On successful completion, glob() returns zero. Other possible returns are:

GLOB_NOSPACE

for running out of memory,

GLOB_ABORTED

for a read error, and

GLOB_NOMATCH

for no found matches.

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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?glob() ? Thread safety ? MT-Unsafe race:utent env ?

? ? ? sig:ALRM timer locale ?

??

?globfree() ? Thread safety ? MT-Safe ?

??

In the above table, utent in race:utent signifies that if any of the functions setutent(3), getutent(3), or endutent(3) are used in parallel in different threads of a program, then data races could occur. glob() calls those functions, so we use race:utent to remind users.

CONFORMING TO

POSIX.1-2001, POSIX.1-2008, POSIX.2.

NOTES

The structure elements gl_pathc and gl_offs are declared as size_t in glibc 2.1, as they should be according to POSIX.2, but are declared as int in glibc 2.0.

BUGS

The glob() function may fail due to failure of underlying function calls, such as malloc(3) or opendir(3). These will store their error code in errno.

EXAMPLES

One example of use is the following code, which simulates typing

```
ls -l *.c ../*.c
```

in the shell:

```
glob_t globbuf;
```

```
globbuf.gl_offs = 2;
glob("*.c", GLOB_DOOFFS, NULL, &globbuf);
glob("../*.c", GLOB_DOOFFS | GLOB_APPEND, NULL, &globbuf);
globbuf.gl_pathv[0] = "ls";
globbuf.gl_pathv[1] = "-l";
execvp("ls", &globbuf.gl_pathv[0]);
```

SEE ALSO

ls(1), sh(1), stat(2), exec(3), fnmatch(3), malloc(3), opendir(3),
readdir(3), wordexp(3), glob(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/>.

GNU

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GLOB(3)