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Red Hat Enterprise Linux Release 9.2 Manual Pages on 'versionsort.3' command

\$ man versionsort.3

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

NAME

scandir, scandirat, alphasort, versionsort - scan a directory for matching entries

SYNOPSIS

```
#include <dirent.h>

int scandir(const char *dirp, struct dirent ***namelist,
            int (*filter)(const struct dirent *),
            int (*compar)(const struct dirent **, const struct dirent **));

int alphasort(const struct dirent **a, const struct dirent **b);
int versionsort(const struct dirent **a, const struct dirent **b);

#include <fcntl.h>       /* Definition of AT_* constants */

#include <dirent.h>

int scandirat(int dirfd, const char *dirp,
              struct dirent ***namelist,
              int (*filter)(const struct dirent *),
              int (*compar)(const struct dirent **, const struct dirent **));
```

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

scandir(), alphasort():

```
/* Since glibc 2.10: */ _POSIX_C_SOURCE >= 200809L
```

```
|| /* Glibc versions <= 2.19: */ _BSD_SOURCE || _SVID_SOURCE
```

versionsort(): _GNU_SOURCE

scandirat(): _GNU_SOURCE

DESCRIPTION

The `scandir()` function scans the directory `dirp`, calling `filter()` on each directory entry. Entries for which `filter()` returns nonzero are stored in strings allocated via `malloc(3)`, sorted using `qsort(3)` with the comparison function `compar()`, and collected in array `namelist` which is allocated via `malloc(3)`. If `filter` is `NULL`, all entries are selected.

The `alphasort()` and `versionsort()` functions can be used as the comparison function `compar()`. The former sorts directory entries using `strcoll(3)`, the latter using `strverscmp(3)` on the strings `(*a)->d_name` and `(*b)->d_name`.

`scandirat()`

The `scandirat()` function operates in exactly the same way as `scandir()`, except for the differences described here.

If the pathname given in `dirp` is relative, then it is interpreted relative to the directory referred to by the file descriptor `dirfd` (rather than relative to the current working directory of the calling process, as is done by `scandir()` for a relative pathname).

If `dirp` is relative and `dirfd` is the special value `AT_FDCWD`, then `dirp` is interpreted relative to the current working directory of the calling process (like `scandir()`).

If `dirp` is absolute, then `dirfd` is ignored.

See `openat(2)` for an explanation of the need for `scandirat()`.

RETURN VALUE

The `scandir()` function returns the number of directory entries selected. On error, `-1` is returned, with `errno` set to indicate the cause of the error.

The `alphasort()` and `versionsort()` functions return an integer less than, equal to, or greater than zero if the first argument is considered to be respectively less than, equal to, or greater than the second.

ERRORS

`ENOENT` The path in `dirp` does not exist.

ENOMEM Insufficient memory to complete the operation.

ENOTDIR

The path in dirp is not a directory.

The following additional errors can occur for scandirat():

EBADF dirfd is not a valid file descriptor.

ENOTDIR

dirp is a relative path and dirfd is a file descriptor referring to a file other than a directory.

VERSIONS

versionsort() was added to glibc in version 2.1.

scandirat() was added to glibc in version 2.15.

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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?scandir(), scandirat() ? Thread safety ? MT-Safe ?

??

?alphasort(), versionsort() ? Thread safety ? MT-Safe locale ?

??

CONFORMING TO

alphasort(), scandir(): 4.3BSD, POSIX.1-2008.

versionsort() and scandirat() are GNU extensions.

NOTES

Since glibc 2.1, alphasort() calls strcoll(3); earlier it used strcmp(3).

Before glibc 2.10, the two arguments of alphasort() and versionsort() were typed as const void *. When alphasort() was standardized in POSIX.1-2008, the argument type was specified as the type-safe const struct dirent **, and glibc 2.10 changed the definition of alphasort() (and the nonstandard versionsort()) to match the standard.

EXAMPLES

The program below prints a list of the files in the current directory in reverse order.

Program source

```
#define _DEFAULT_SOURCE
#include <dirent.h>
#include <stdio.h>
#include <stdlib.h>

int
main(void)
{
    struct dirent **namelist;
    int n;
    n = scandir(".", &namelist, NULL, alphasort);
    if (n == -1) {
        perror("scandir");
        exit(EXIT_FAILURE);
    }
    while (n--) {
        printf("%s\n", namelist[n]->d_name);
        free(namelist[n]);
    }
    free(namelist);
    exit(EXIT_SUCCESS);
}
```

SEE ALSO

closedir(3), fnmatch(3), opendir(3), readdir(3), rewinddir(3),
seekdir(3), strcmp(3), strcoll(3), strverscmp(3), telldir(3)

COLOPHON

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