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format of directory entries

Prolog

This manual page is part of the POSIX Programmer's Manual. The Linux implementation of this interface may differ (consult the corresponding Linux manual page for details of Linux behavior), or the interface may not be implemented on Linux.

Synopsis

```
#include <dirent.h>
```

Description

The internal format of directories is unspecified.

The *<dirent.h>* header shall define the following type:

DIR A type representing a directory stream. The **DIR** type may be an incomplete type.

It shall also define the structure **dirent** which shall include the following members:

```
ino_t  d_ino       File serial number.
char   d_name[]    Filename string of entry.
```

The *<dirent.h>* header shall define the **ino_t** type as described in *<sys/types.h>*.

The array *d_name* is of unspecified size, but shall contain a filename of at most {NAME_MAX} bytes followed by a terminating null byte.

The following shall be declared as functions and may also be defined as macros. Function prototypes shall be provided.

```
int            alphasort(const struct dirent **, const struct dirent *
int            closedir(DIR *);
int            dirfd(DIR *);
DIR           *fdopendir(int);
DIR           *opendir(const char *);
struct dirent *readdir(DIR *);
int            readdir_r(DIR *restrict, struct dirent *restrict,
                   struct dirent **restrict);
void           rewinddir(DIR *);
int            scandir(const char *, struct dirent ***,
                   int (*)(const struct dirent *),
                   int (*)(const struct dirent **,
```

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The following sections are informative.

Application Usage

None.

Rationale

Information similar to that in the *<dirent.h>* header is contained in a file *<sys/dir.h>* in 4.2 BSD and 4.3 BSD. The equivalent in these implementations of **struct dirent** from this volume of POSIX.1-2017 is **struct direct**. The filename was changed because the name *<sys/dir.h>* was also used in earlier implementations to refer to definitions related to the older access method; this produced name conflicts. The name of the structure was changed because this volume of POSIX.1-2017 does not completely define what is in the structure, so it could be different on some implementations from **struct direct**.

The name of an array of **char** of an unspecified size should not be used as an lvalue. Use of:

```
sizeof(d_name)
```

is incorrect; use:

```
strlen(d_name)
```

instead.

The array of **char** *d_name* is not a fixed size. Implementations may need to declare **struct dirent** with an array size for *d_name* of 1, but the actual number of bytes provided matches (or only slightly exceeds) the length of the filename string.

Future Directions

None.

See Also

<sys_types.h>

The System Interfaces volume of POSIX.1-2017, alphasort(), closedir(), dirfd(), fdopendir(), readdir(), rewinddir(), seekdir(), telldir()

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Referenced By

alphasort(3p), closedir(3p), dirfd(3p), fdopendir(3p), readdir(3p), rewinddir(3p), seekdir(3p), telldir(3p).

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