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Red Hat Enterprise Linux Release 9.2 Manual Pages on 'cmp.1p' command

\$ man cmp.1p

CMP(1P) POSIX Programmer's Manual CMP(1P)

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.

NAME

cmp ? compare two files

SYNOPSIS

cmp [-l|-s] file1 file2

DESCRIPTION

The cmp utility shall compare two files. The cmp utility shall write no output if the files are the same. Under default options, if they differ, it shall write to standard output the byte and line number at which the first difference occurred. Bytes and lines shall be numbered beginning with 1.

OPTIONS

The cmp utility shall conform to the Base Definitions volume of POSIX.1?2017, Section 12.2, Utility Syntax Guidelines.

The following options shall be supported:

- l (Lowercase ell.) Write the byte number (decimal) and the differing bytes (octal) for each difference.
- s Write nothing to standard output or standard error when files

differ; indicate differing files through exit status only.

It is unspecified whether a diagnostic message is written to standard error when an error is encountered; if a message is not written, the error is indicated through exit status only.

OPERANDS

The following operands shall be supported:

file1 A pathname of the first file to be compared. If file1 is '-', the standard input shall be used.

file2 A pathname of the second file to be compared. If file2 is '-', the standard input shall be used.

If both file1 and file2 refer to standard input or refer to the same FIFO special, block special, or character special file, the results are undefined.

STDIN

The standard input shall be used only if the file1 or file2 operand refers to standard input. See the INPUT FILES section.

INPUT FILES

The input files can be any file type.

ENVIRONMENT VARIABLES

The following environment variables shall affect the execution of cmp:

LANG Provide a default value for the internationalization variables that are unset or null. (See the Base Definitions volume of POSIX.1?2017, Section 8.2, Internationalization Variables for the precedence of internationalization variables used to determine the values of locale categories.)

LC_ALL If set to a non-empty string value, override the values of all the other internationalization variables.

LC_CTYPE Determine the locale for the interpretation of sequences of bytes of text data as characters (for example, single-byte as opposed to multi-byte characters in arguments).

LC_MESSAGES

Determine the locale that should be used to affect the format and contents of diagnostic messages written to standard error

and informative messages written to standard output.

NLSPATH Determine the location of message catalogs for the processing of LC_MESSAGES.

ASYNCHRONOUS EVENTS

Default.

STDOUT

In the POSIX locale, results of the comparison shall be written to standard output. When no options are used, the format shall be:

```
"%s %s differ: char %d, line %d\n", file1, file2,  
<byte number>, <line number>
```

When the -l option is used, the format shall be:

```
"%d %o %o\n", <byte number>, <differing byte>,  
<differing byte>
```

for each byte that differs. The first <differing byte> number is from file1 while the second is from file2. In both cases, <byte number> shall be relative to the beginning of the file, beginning with 1.

No output shall be written to standard output when the -s option is used.

STDERR

The standard error shall be used only for diagnostic messages. If the -l option is used and file1 and file2 differ in length, or if the -s option is not used and file1 and file2 are identical for the entire length of the shorter file, in the POSIX locale the following diagnostic message shall be written:

```
"cmp: EOF on %s%s\n", <name of shorter file>, <additional info>
```

The <additional info> field shall either be null or a string that starts with a <blank> and contains no <newline> characters. Some implementations report on the number of lines in this case.

If the -s option is used and an error occurs, it is unspecified whether a diagnostic message is written to standard error.

OUTPUT FILES

None.

EXTENDED DESCRIPTION

None.

EXIT STATUS

The following exit values shall be returned:

- 0 The files are identical.
- 1 The files are different; this includes the case where one file is identical to the first part of the other.
- >1 An error occurred.

CONSEQUENCES OF ERRORS

Default.

The following sections are informative.

APPLICATION USAGE

Although input files to `cmp` can be any type, the results might not be what would be expected on character special device files or on file types not described by the System Interfaces volume of POSIX.1?2017. Since this volume of POSIX.1?2017 does not specify the block size used when doing input, comparisons of character special files need not compare all of the data in those files.

For files which are not text files, line numbers simply reflect the presence of a <newline>, without any implication that the file is organized into lines.

Since the behavior of `-s` differs between implementations as to whether error messages are written, the only way to ensure consistent behavior of `cmp` when `-s` is used is to redirect standard error to `/dev/null`.

If error messages are wanted, instead of using `-s` standard output should be redirected to `/dev/null`, and anything written to standard error should be discarded if the exit status is 1. For example:

```
silent_cmp() {
    # compare files with no output except error messages
    message=$(cmp "$@" 2>&1 >/dev/null)
    status=$?
    case $status in
        (0|1) ;;
        (*) printf '%s\n' "$message" ;;
    esac
}
```

```
    esac
    return $status
}
```

EXAMPLES

None.

RATIONALE

The global language in Section 1.4, Utility Description Defaults indicates that using two mutually-exclusive options together produces unspecified results. Some System V implementations consider the option usage:

```
cmp -l -s ...
```

to be an error. They also treat:

```
cmp -s -l ...
```

as if no options were specified. Both of these behaviors are considered bugs, but are allowed.

The word `char` in the standard output format comes from historical usage, even though it is actually a byte number. When `cmp` is supported in other locales, implementations are encouraged to use the word `byte` or its equivalent in another language. Users should not interpret this difference to indicate that the functionality of the utility changed between locales.

Some implementations report on the number of lines in the identical-but-shorter file case. This is allowed by the inclusion of the `<additional info>` fields in the output format. The restriction on having a leading `<blank>` and no `<newline>` characters is to make parsing for the filename easier. It is recognized that some filenames containing whitespace characters make parsing difficult anyway, but the restriction does aid programs used on systems where the names are predominantly well behaved.

FUTURE DIRECTIONS

Future versions of this standard may require that diagnostic messages are written to standard error when the `-s` option is specified.

SEE ALSO

comm, diff

The Base Definitions volume of POSIX.1-2017, Chapter 8, Environment Variables, Section 12.2, Utility Syntax Guidelines

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