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

$ man strtod.3

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

NAME

strtod, strtof, strtold - convert ASCII string to floating-point number

SYNOPSIS

```
#include <stdlib.h>

double strtod(const char *nptr, char **endptr);

float strtof(const char *nptr, char **endptr);

long double strtold(const char *nptr, char **endptr);
```

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

strtof(), strtold():

_ISOC99_SOURCE || _POSIX_C_SOURCE >= 200112L

DESCRIPTION

The strtod(), strtof(), and strtold() functions convert the initial portion of the string pointed to by nptr to double, float, and long double representation, respectively.

The expected form of the (initial portion of the) string is optional leading white space as recognized by isspace(3), an optional plus ('+') or minus sign ('-') and then either (i) a decimal number, or (ii) a hexadecimal number, or (iii) an infinity, or (iv) a NAN (not-a-number).

A decimal number consists of a nonempty sequence of decimal digits pos? sibly containing a radix character (decimal point, locale-dependent, usually '.'), optionally followed by a decimal exponent. A decimal ex? ponent consists of an 'E' or 'e', followed by an optional plus or minus

sign, followed by a nonempty sequence of decimal digits, and indicates multiplication by a power of 10.

A hexadecimal number consists of a "0x" or "0X" followed by a nonempty sequence of hexadecimal digits possibly containing a radix character, optionally followed by a binary exponent. A binary exponent consists of a 'P' or 'p', followed by an optional plus or minus sign, followed by a nonempty sequence of decimal digits, and indicates multiplication by a power of 2. At least one of radix character and binary exponent must be present.

An infinity is either "INF" or "INFINITY", disregarding case.

A NAN is "NAN" (disregarding case) optionally followed by a string, (n-char-sequence), where n-char-sequence specifies in an implementation-dependent way the type of NAN (see NOTES).

RETURN VALUE

These functions return the converted value, if any.

If endptr is not NULL, a pointer to the character after the last char? acter used in the conversion is stored in the location referenced by endptr.

If no conversion is performed, zero is returned and (unless endptr is null) the value of nptr is stored in the location referenced by endptr.

If the correct value would cause overflow, plus or minus HUGE_VAL, HUGE_VALF, or HUGE_VALL is returned (according to the return type and sign of the value), and ERANGE is stored in errno.

If the correct value would cause underflow, a value with magnitude no larger than DBL_MIN, FLT_MIN, or LDBL_MIN is returned and ERANGE is stored in errno.

ERRORS

ERANGE Overflow or underflow occurred.

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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?strtod(), strtof(), strtold() ? Thread safety ? MT-Safe locale ?

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CONFORMING TO

POSIX.1-2001, POSIX.1-2008, C99.

strtod() was also described in C89.

NOTES

Since 0 can legitimately be returned on both success and failure, the calling program should set errno to 0 before the call, and then deter? mine if an error occurred by checking whether errno has a nonzero value after the call.

In the glibc implementation, the n-char-sequence that optionally fol? lows "NAN" is interpreted as an integer number (with an optional '0' or '0x' prefix to select base 8 or 16) that is to be placed in the man? tissa component of the returned value.

EXAMPLES

See the example on the strtol(3) manual page; the use of the functions described in this manual page is similar.

SEE ALSO

atof(3), atoi(3), atol(3), nan(3), nanf(3), nanl(3), strfromd(3), str? tol(3), strtoul(3)

COLOPHON

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