

Hexadecimal floating point, lowercase

Hexadecimal floating point, uppercase

Character

feof

ferror

fflush

-0xc.90fep-2

-0XC.90FEP-2

1.	
fgetc	
···· fgetpos	
fgets	
fopen	
fprintf	
fputc	
fputs	
fread	
freopen	
fscanf	
fseek	
fsetpos	
m ftell	
fwrite	
getc	
getchar	
gets	
perror	
···· printf	
putc	
putchar	
puts	
remove	
rename	
rewind	
scanf	
setbuf	
setvbuf	
snprintf	C++II
sprintf	
sscanf	
tmpfile	
tmpnam	
ungetc	
- vfprintf	
viprinu	C++II
	<u> </u>
vprintf	C++II
···· vscanf	(++11
···· vsnprintf	6240
vsprintf	
objects:	
stderr	
stdin	
···· stdout	
types:	
FILE	
fpos_t	
size_t	
📮 macro constants:	
BUFSIZ	
EOF	
FILENAME_MAX	

s	String of characters	sample
р	Pointer address	0000008d
n	Nothing printed. The corresponding argument must be a pointer to a signed int. The number of characters written so far is stored in the pointed location.	
90	A % followed by another % character will write a single % to the stream.	96

The format specifier can also contain sub-specifiers: flags, width, .precision and modifiers (in that order), which are optional and follow these specifications:

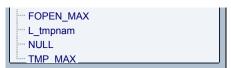
flags	description			
-	Left-justify within the given field width; Right justification is the default (see width sub-specifier).			
	Forces to preceed the result with a plus or minus sign (+ or -) even for positive numbers. By default, only negative numbers are preceded with a - sign.			
(space)	If no sign is going to be written, a blank space is inserted before the value.			
#	Used with $\circ$ , $\times$ or $X$ specifiers the value is preceded with $0$ , $0\times$ or $0X$ respectively for values different than zero. Used with a, A, e, E, f, F, g or G it forces the written output to contain a decimal point even if no more digits follow. By default, if no digits follow, no decimal point is written.			
U	Left-pads the number with zeroes (0) instead of spaces when padding is specified (see <i>width</i> subspecifier).			

widtl	description
(numbe	(r) Minimum number of characters to be printed. If the value to be printed is shorter than this number, the result is padded with blank spaces. The value is not truncated even if the result is larger.
*	The <i>width</i> is not specified in the <i>format</i> string, but as an additional integer value argument preceding the argument that has to be formatted.

.precision	description		
.number	For integer specifiers (d, i, o, u, x, X): precision specifies the minimum number of digits to be written. If the value to be written is shorter than this number, the result is padded with leading zeros. The value is not truncated even if the result is longer. A precision of 0 means that no character is written for the value 0.  For a, A, e, E, f and F specifiers: this is the number of digits to be printed <b>after</b> the decimal point (by default, this is 6).  For g and G specifiers: This is the maximum number of significant digits to be printed.  For s: this is the maximum number of characters to be printed. By default all characters are printed until the ending null character is encountered.  If the period is specified without an explicit value for precision, 0 is assumed.		
*	The <i>precision</i> is not specified in the <i>format</i> string, but as an additional integer value argument preceding the argument that has to be formatted.		

The *length* sub-specifier modifies the length of the data type. This is a chart showing the types used to interpret the corresponding arguments with and without *length* specifier (if a different type is used, the proper type promotion or conversion is performed, if allowed):

		specifiers					
length	di	иохХ	fFeEgGaA	С	s	р	n
(none)	int	unsigned int	double	int	char*	void*	int*
hh	signed char	unsigned char					signed char*
h	short int	unsigned short int					short int*



1	long int	unsigned long int		wint_t	wchar_t*	long int*
11	long long int	unsigned long long int				long long int*
j	intmax_t	uintmax_t				intmax_t*
Z	size_t	size_t				size_t*
t	ptrdiff_t	ptrdiff_t				ptrdiff_t*
L			long double			

Note regarding the c specifier: it takes an int (or wint\_t) as argument, but performs the proper conversion to a char value (or a wchar t) before formatting it for output.

**Note:** Yellow rows indicate specifiers and sub-specifiers introduced by C99. See <cinttypes> for the specifiers for extended types.

```
... (additional arguments)
```

Depending on the *format* string, the function may expect a sequence of additional arguments, each containing a value to be used to replace a *format specifier* in the *format* string (or a pointer to a storage location, for n). There should be at least as many of these arguments as the number of values specified in the *format specifiers*. Additional arguments are ignored by the function.

### Return Value

On success, the total number of characters written is returned.

If a writing error occurs, the *error indicator* (ferror) is set and a negative number is returned.

If a multibyte character encoding error occurs while writing wide characters, errno is set to <code>EILSEQ</code> and a negative number is returned.

# 🦞 Example

```
1  /* printf example */
2  #include <stdio.h>
3
4  int main()
5  {
6     printf ("Characters: %c %c \n", 'a', 65);
7     printf ("Decimals: %d %ld\n", 1977, 650000L);
8     printf ("Preceding with blanks: %10d \n", 1977);
9     printf ("Preceding with zeros: %010d \n", 1977);
10     printf ("Some different radices: %d %x %o %#x %#o \n", 100, 100, 100, 100, 100);
11     printf ("floats: %4.2f %+.0e %E \n", 3.1416, 3.1416, 3.1416);
12     printf ("Width trick: %*d \n", 5, 10);
13     printf ("%s \n", "A string");
14     return 0;
15 }
```

#### Output:

```
Characters: a A
Decimals: 1977 650000
Preceding with blanks: 1977
Preceding with zeros: 0000001977
Some different radices: 100 64 144 0x64 0144
```

floats: 3.14 +3e+000 3.141600E+000
Width trick: 10
A string

### Compatibility

Particular library implementations may support additional specifiers and sub-specifiers.

Those listed here are supported by the latest C and C++ standards (both published in 2011), but those in yellow were introduced in C99 (only required for C++ implementations since C++11), and may not be supported by libraries that comply with older standards.

## **∳** See also

puts	Write string to stdout (function )	
scanf	Read formatted data from stdin (function )	
fprintf	Write formatted data to stream (function )	
fwrite	Write block of data to stream (function )	

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