Basic types [edit]

The C language provides the four basic arithmetic type specifiers *char*, *int*, *float* and *double*, and the modifiers *signed*, *unsigned*, *short* and *long*. The following table lists the permissible combinations to specify a large set of storage size-specific declarations.

Type	Explanation	Format specifier
char	Smallest addressable unit of the machine that can contain basic character set. It is an integer type. Actual type can be either signed or unsigned. It contains `CHAR_BIT` bits.[3]	%c
signed char	Of the same size as `char`, but guaranteed to be signed. Capable of containing **at least** the [−127, +127] range;[3][4]	%c (or %hhi for numerical output)
unsigned char	Of the same size as `char`, but guaranteed to be unsigned. Contains **at least** the [0, 255] range.[5]	%c (or %hhu for numerical output)
short short int signed short signed short int	*Short* signed integer type. Capable of containing **at least** the [−32,767, +32,767] range;[3][4] thus, it is at least 16 bits in size. The negative value is −32767 (not −32768) due to the one's-complement and sign-magnitude representations allowed by the standard, though the two's-complement representation is much more common.[6]	%hi
unsigned short unsigned short int	*Short* unsigned integer type. Contains **at least** the [0, 65,535] range;[3][4]	%hu
int signed signed int	Basic signed integer type. Capable of containing **at least** the [−32,767, +32,767] range;[3][4] thus, it is at least 16 bits in size.	%i or %d
unsigned unsigned int	Basic unsigned integer type. Contains **at least** the [0, 65,535] range;[3][4]	%u
long long int signed long signed long int	*Long* signed integer type. Capable of containing **at least** the [−2,147,483,647, +2,147,483,647] range;[3][4] thus, it is at least 32 bits in size.	%li
unsigned long unsigned long int	*Long* unsigned integer type. Capable of containing **at least** the [0, 4,294,967,295] range;[3][4]	%lu
long long long long int signed long long signed long long int	*Long long* signed integer type. Capable of containing **at least** the [−9,223,372,036,854,775,807, +9,223,372,036,854,775,807] range;[3][4] thus, it is at least 64 bits in size. Specified since the C99 version of the standard.	%lli
unsigned long long unsigned long long int	*Long long* unsigned integer type. Contains **at least** the [0, +18,446,744,073,709,551,615] range;[3][4] Specified since the C99 version of the standard.	%llu
float	Real floating-point type, usually referred to as a single-precision floating-point type. Actual properties unspecified (except minimum limits), however on most systems this is the IEEE 754 single-precision binary floating-point format(32 bits). This format is required by the optional Annex F "IEC 60559 floating-point arithmetic".	for formatted input: %f %F for digital notation, or %g %G, or %e %E %a %A for scientific notation[7]
double	Real floating-point type, usually referred to as a double-precision floating-point type. Actual properties unspecified (except minimum limits), however on most systems this is the IEEE 754 double-precision binary floating-point format(64 bits). This format is required by the optional Annex F "IEC 60559 floating-point arithmetic".	%lf %lF %lg %lG %le %lE %la %lA;[7] for formatted output, the length modifier l is optional.
long double	Real floating-point type, usually mapped to an extended precision floating-point number format. Actual properties unspecified. It can be either x86 extended-precision floating-point format (80 bits, but typically 96 bits or 128 bits in memory with padding bytes), the non-IEEE "double-double" (128 bits), IEEE 754 quadruple-precision floating-point format (128 bits), or the same as double. See the article on long double for details.	%Lf %LF %Lg %LG %Le %LE %La %LA[7]