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library

C library

C Language Library

The C++ library includes the same definitions as the C language library organized in the same structure of header files, with the following differences:

- Each header file has the same name as the C language version but with a "c" prefix and no extension. For example, the C++ equivalent for the C language header file <stdlib.h> is <cstdlib>.
- Every element of the library is defined within the std namespace.

Nevertheless, for compatibility with C, the traditional header names name.h (like stdlib.h) are also provided with the same definitions within the global namespace. In the examples provided in this reference, this version is used so that the examples are fully C-compatible, although its use is deprecated in C++.

There are also certain specific changes in the C++ implementation:

- wchar_t, char16_t, char32_t and bool are fundamental types in C++ and therefore are not defined in the corresponding header where they appear in C. The same applies to several macros in the header <iso646.h>, which are keywords in C++.
- The following functions have changes in their declarations related to the constness of their parameters: `strchr`, `strpbrk`, `strrchr`, `strstr`, `memchr`.
- The functions `atexit`, `exit` and `abort`, defined in <cstdlib> have additions to their behavior in C++.
- Overloaded versions of some functions are provided with additional types as parameters and the same semantics, like float and long double versions of the functions in the `cmath` header file, or long versions for `abs` and `div`.

Note on versions

C++98 includes the C library as described by the 1990 ISO C standard and its amendment #1 (ISO/IEC 9899:1990 and ISO/IEC 9899:1990/DAM 1).

C++11 includes the C library as described by the 1999 ISO C standard and its Technical Corrigenda 1, 2 and 3 (ISO/IEC 9899:1999 and ISO/IEC 9899:1999/Cor.1,2,3), plus <cuchar> (as by ISO/IEC 19769:2004).

Other introductions by the 2011 ISO C standard are not compatible with C++.

Headers

| C90 (C++98) | C99 (C++11) |
|---|---|
| <cassert> (assert.h) | C Diagnostics Library (header) |
| <cctype> (ctype.h) | Character handling functions (header) |
| <cerrno> (errno.h) | C Errors (header) |
| <cfloat> (float.h) | Characteristics of floating-point types (header) |
| <iso646> (iso646.h) | ISO 646 Alternative operator spellings (header) |
| <climits> (limits.h) | Sizes of integral types (header) |
| <locale> (locale.h) | C localization library (header) |
| <cmath> (math.h) | C numerics library (header) |
| <setjmp> (setjmp.h) | Non local jumps (header) |
| <signal> (signal.h) | C library to handle signals (header) |
| <stdarg> (stdarg.h) | Variable arguments handling (header) |
| <stddef> (stddef.h) | C Standard definitions (header) |
| <stdio> (stdio.h) | C library to perform Input/Output operations (header) |
| <stdlib> (stdlib.h) | C Standard General Utilities Library (header) |
| <string> (string.h) | C Strings (header) |
| <time> (time.h) | C Time Library (header) |
| Amendment 1 to ISO-C 90 added two additional headers: <wchar> and <wctype>. | |