

Input/output manipulators

Manipulators are helper functions that make it possible to control input/output streams using `operator<<` or `operator>>`.

The manipulators that are invoked without arguments (e.g. `std::cout << std::boolalpha;` or `std::cin >> std::hex;`) are implemented as functions that take a reference to a stream as their only argument. The special overloads of basic `ostream::operator<<` and basic `istream::operator>>` accept pointers to these functions. These functions (or instantiations of function templates) are the only addressable functions in the standard library. (since C++20)

The manipulators that are invoked with arguments (e.g. `std::cout << std::setw(10);`) are implemented as functions returning objects of unspecified type. These manipulators define their own `operator<<` or `operator>>` which perform the requested manipulation.

Defined in header `<ios>`

boolalpha noboolalpha	switches between textual and numeric representation of booleans (function)
showbase noshowbase	controls whether prefix is used to indicate numeric base (function)
showpoint noshowpoint	controls whether decimal point is always included in floating-point representation (function)
showpos noshowpos	controls whether the + sign used with non-negative numbers (function)
skipws noskipws	controls whether leading whitespace is skipped on input (function)
uppercase lowercase	controls whether uppercase characters are used with some output formats (function)
unitbuf nounitbuf	controls whether output is flushed after each operation (function)
internal left right	sets the placement of fill characters (function)
dec hex oct	changes the base used for integer I/O (function)
fixed scientific hexfloat (C++11) defaultfloat (C++11)	changes formatting used for floating-point I/O (function)

Defined in header `<istream>`

ws	consumes whitespace (function template)
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Defined in header `<ostream>`

ends	outputs <code>'\0'</code> (function template)
flush	flushes the output stream (function template)
endl	outputs <code>'\n'</code> and flushes the output stream (function template)
emit_on_flush noemit_on_flush (C++20)	controls whether a stream's <code>basic_syncbuf</code> emits on flush (function template)
flush_emit (C++20)	flushes a stream and emits the content if it is using a <code>basic_syncbuf</code> (function template)

Defined in header `<iomanip>`

resetiosflags	clears the specified <code>ios_base</code> flags (function)
setiosflags	sets the specified <code>ios_base</code> flags (function)
setbase	changes the base used for integer I/O (function)
setfill	changes the fill character (function template)
	changes floating-point precision

setprecision	(function)
setw	changes the width of the next input/output field (function)
get_money (C++11)	parses a monetary value (function template)
put_money (C++11)	formats and outputs a monetary value (function template)
get_time (C++11)	parses a date/time value of specified format (function template)
put_time (C++11)	formats and outputs a date/time value according to the specified format (function template)
quoted (C++14)	inserts and extracts quoted strings with embedded spaces (function template)

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