

Search:

Reference <ios> ios_base precision

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C++
Information
Tutorials
Reference
Articles
Forum

Reference
C library:
Containers:
Input/Output:
<fstream>
<iomanip>
<ios>
<iosfwd>
<iostream>
<istream>
<ostream>
<sstream>
<streambuf>
Multi-threading:
Other:

<ios>
types:
basic_ios
fpos
ios
ios_base
io_errc
streamoff
streampos
streamsize
wios
wstreampos
manipulators:
boolalpha
dec
defaultfloat
fixed
hex
hexfloat
internal
left
noboolalpha
noshowbase
noshowpoint
noshowpos
noskipws
nounitbuf
nouppercase
oct
right
scientific
showbase
showpoint
showpos
skipws
unitbuf
uppercase
other functions:
ostream_category

ios_base
ios_base::ios_base
ios_base::~ios_base
member functions:
ios_base::flags
ios_base::getloc
ios_base::imbue
ios_base::iword
ios_base::precision
ios_base::pword
ios_base::register_callback
ios_base::setf
ios_base::sync_with_stdio
ios_base::unsetf

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public member function

std::ios_base::precision

<ios> <iostream>

```
get(1) streamsize precision() const;  
set(2) streamsize precision (streamsize prec);
```

Get/Set floating-point decimal precision

The first form (1) returns the value of the current floating-point precision field for the stream.
The second form (2) also sets it to a new value.

The *floating-point precision* determines the maximum number of digits to be written on insertion operations to express floating-point values. How this is interpreted depends on whether the floatfield **format flag** is set to a specific notation (either *fixed* or *scientific*) or it is unset (using the *default notation*, which is not necessarily equivalent to either *fixed* nor *scientific*).

For the default locale:

- Using the default floating-point notation, the precision field specifies the maximum number of meaningful digits to display in total counting both those before and those after the decimal point. Notice that it is not a minimum, and therefore it does not pad the displayed number with trailing zeros if the number can be displayed with less digits than the *precision*.
- In both the *fixed* and *scientific* notations, the precision field specifies exactly how many digits to display after the decimal point, even if this includes trailing decimal zeros. The digits before the decimal point are not relevant for the *precision* in this case.

This *decimal precision* can also be modified using the parameterized manipulator `setprecision`.

Parameters

prec
New value for the floating-point precision.
`streamsize` is a signed integral value.

Return Value

The *precision* selected in the stream before the call.

Example

```
1 // modify precision  
2 #include <iostream> // std::cout, std::ios  
3  
4 int main () {  
5     double f = 3.14159;  
6     std::cout.unsetf ( std::ios::floatfield ); // floatfield not set  
7     std::cout.precision(5);  
8     std::cout << f << '\n';  
  
9     std::cout.precision(10);  
10    std::cout << f << '\n';  
11    std::cout.setf( std::ios::fixed, std:: ios::floatfield ); // floatfield set to fixed  
12    std::cout << f << '\n';  
13    return 0;  
14 }
```

Possible output:

3.1416
3.14159
3.1415900000

Notice how the first number written is just 5 digits long, while the second is 6, but not more, even though the stream's precision is now 10. That is because *precision* with the default floatfield only specifies the *maximum* number of digits to be displayed, but not the minimum.
The third number printed displays 10 digits after the decimal point because the floatfield format flag is in this case set to *fixed*.


Data races

Accesses (1) or modifies (2) the stream object.
Concurrent access to the same stream object may cause data races.

http://www.cplusplus.com/reference/ios/ios_base/precision/

1/2

ios_base::width
ios_base::xalloc
member types:
ios_base::event
ios_base::event_callback
ios_base::failure
ios_base::fmtflags
ios_base::Init
ios_base::iostate
ios_base::openmode
ios_base::seekdir

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Exception safety

Basic guarantee: if an exception is thrown, the stream is in a valid state.

See also

setprecision	Set decimal precision (function)
ios_base::width	Get/set field width (public member function)
ios_base::setf	Set specific format flags (public member function)

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