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WG21/N0897
Date: March 27 1996

# IOStreams Issues List
# Library Clause 27

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## Revision History

| | |
|---|---|
| Post-Santa-Cruz | X3J16/96-0079 WG21/N0897 |
| Pre-Santa Cruz | X3J16/96-0009 WG21/N0827 |
| Post-Tokyo | X3J16/95-0221 WG21/N0821 |
| Pre-Tokyo | X3J16/95-0194 WG21/N0794 |
| Pre-Monterey | X3J16/95-0089 WG21/N0689 |
| Pre-Austin | X3J16/95-0034 WG21/N0634 |

## Summary of Issues

## 27.4.4 basic_ios — P. 11

| | | |
|---|---|---|
| **Active** | 27-203 | operator bool( ) needs to be fixed |
| **Active** | 27-205 | imbue should not call rdbuf( )->pubimbue |
| | | |
| **Closed** | 27-201 | remove throw specifications for clear and setstate (Tokyo) |
| **Closed** | 27-202 | tie not required to be associated with an input sequence (Tokyo) |
| **Closed** | 27-204 | replace int_type by char_type in int_type fill( ) and int_type fill( int_type ) (Tokyo) |

## 27.5.2 basic_streambuf — P. 13

| | | |
|---|---|---|
| **Active** | 27-301 | imbuing on streambufs. When, how often, etc... |
| | | |
| **Closed** | 27-302 | sungetc has an incorrect return type (Tokyo) |
| **Closed** | 27-303 | not_eof needs to be used where appropriate (Santa-Cruz) |
| **Closed** | 27-304 | uflow needs editing (Santa-Cruz) |
| **Closed** | 27-305 | basic_streambuf::showmanyc Incorrect return clause (Santa-Cruz) |
| **Closed** | 27-306 | basic_streambuf::uflow has incorrect default behavior (Santa-Cruz) |
| **Closed** | 27-307 | basic_streambuf::uflow has nonsense returns clause (Santa-Cruz) |
| **Closed** | 27-308 | streambuf inlines (Santa-Cruz) |
| **Closed** | 27-309 | two return clauses for streambuf::underflow (Santa-Cruz) |
| **Closed** | 27-310 | streambuf::pbackfail has incorrect **Notes:** clause (Santa-Cruz) |
| **Closed** | 27-311 | caching results of calls to locale functions (Santa-Cruz) |

## 27.6.1 basic_istream — P. 14

| | | |
|---|---|---|
| **Active** | 27-404 | istream functions need to check for NULL streambuf |
| **Active** | 27-405 | confusing English in formatted requirements |
| **Active** | 27-406 | operator>>(char_type *) failure |
| **Active** | 27-407 | operator>>(char_type) failure |
| **Active** | 27-408 | ws manipulator |
| **Active** | 27-409 | unsigned short extractors cannot use unsigned long get function |
| **Active** | 27-410 | putback function has wrong description |
| **Active** | 27-411 | getline should not set failbit when reading no characters |
| **Active** | 27-412 | operator >>(basic_streambuf *sb), should not set badbit if sb is null |
| | | |
| **Closed** | 27-401 | isfx what does it do? (Santa-Cruz) |
| **Closed** | 27-402 | ipfx example is incorrect (Santa-Cruz) |
| **Closed** | 47-403 | Clarification of exceptions thrown (Santa-Cruz) |

## 27.6.2 basic_ostream — P. 19

| | | |
|---|---|---|
| **Active** | 27-501 | op<<(char) needs to be consistant with the other formatted inserters |
| **Active** | 27-502 | op<<(void *) should it be const volatile void * |
| **Active** | 27-503 | ostream functions need to check for NULL streambuf |
| **Active** | 27-505 | incorrect conversion specifier for operator<<(unsigned long) |
| **Active** | 27-506 | wrong default behavior for padding |
| | | |
| **Closed** | 27-504 | exceptions in ostream (Santa-Cruz) |

| | | |
|---|---|---|
| **Active** | 27-911 | stdio synchronization |
| **Active** | 27-912 | removing **Notes:** from the text |
| **Active** | 27-913 | Incorporating **Notes:** into the text |
| **Active** | 27-914 | rethrowing exceptions |
| **Active** | 27-915 | The use of specialization |
| **Active** | 27-916 | missing descriptions of specializations |
| **Active** | 27-917 | Editorial changes |
| **Active** | 27-918 | Validity of OFF_T to POS_T conversion |
| **Active** | 27-919 | Question on Table 2 assertions |
| **Active** | 27-920 | destination of clog and wclog |
| **Active** | 27-921 | default locale argument to constructor |

| | | |
|---|---|---|
| **Closed** | 27-902 | default locale (Santa-Cruz) |
| **Closed** | 27-903 | ipfx/opfx/isfx/osfx not compatible with exceptions (Santa-Cruz) |
| **Closed** | 27-905 | iostream type classes are missing (Santa-Cruz) |

**Annex D** **P. 53**

| | | |
|---|---|---|
| **Active** | 27-1001 | description of function setbuf is not sufficient |
| **Active** | 27-1002 | strstreambuf Editorial issues |
| **Active** | 27-1003 | istrstream Editorial issues |
| **Active** | 27-1004 | ostrstream Editorial issues |

## Total remaining active issues: 80

## Categorization of the issues

## Already solved by previous resolutions, they should just be closed:

27-002, 27-004, 27-005, 27-007, 27-008, 27-009, 27-011, 27-408, 27-409, 27-702.

## Editorial issues:

27-405, 27-406, 27-505, 27-801, 27-802, 27-808, 27-810, 27-812, 27-907, 27-908, 27-909, 27-912, 27-913, 27-915, 27-917, 27-1003, 27-1004.

# ios_traits issues

**Issue Number:** 27-001
**Title:** changing traits::newline to be locale aware
**Section:** 27.4.2.1 **ios_traits value functions [lib.ios.traits.values]**
**Status:** **active**
**Description:**

The problem with traits::newline is that it does not know about the currently imbued locale.

This proposal addresses the need for a locale-aware newline.

**Possible Resolution:**

Change traits::newline by adding a parameter for locale information:

```
static char_type newline(const ctype<char_type>& ct);
```

The default definition is as if it returns:

```
ct.widen('\n');
```

Some functions in basic_istream have a default parameter that is: traits::newline() (getline, get). These defaults will have to be changed to use the currently imbued locale. Changing the default value to: traits::newline(getloc()) won't work because getloc() is not static. Therefore the functions that have newline() as a default value must be split into two functions; one function that has three parameters, and one function that has two parameters and calls the three parameter function with a "default" value. For example:

```
istream_type& getline(char_type *, streamsize, char_type delim);

istream_type& getline(char_type *s, streamsize n)
    {
   return getline(s, n, newline(
     use_facet<ctype<char_type> >( getloc() )));
  }
```

The functions that need to change are:

```
istream_type& get(char_type *, streamsize, char_type);
istream_type& get(streambuf_type&, char_type);
istream_type& getline(char_type *, streamsize, char_type);
```

**Requestor:** Nathan Myers (ncm@cantrip.org),
John Hinke (hinke@roguewave.com)

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**Issue Number:** 27-002
**Title:** traits::is_whitespace() is inconsistent
**Section:** 27.4.2.2 **ios_traits test functions [lib.ios.traits.tests]**
**Status:** **active**
**Description:**

This function is inconsistent throughout the document. For example:

**27.4.2 Template struct ios_traits [lib.ios.traits]**
static bool is_whitespace(int_type, const ctype<char_type>&);

**27.4.2.2 ios_traits test functions [lib.ios.traits.tests]**
bool is_whitespace(int_type c, const ctype<char_type>& ct);

**Returns:** true if *c* represents a white space character. The default definition is as if it returns *ct*.isspace(*c*).

The returns paragraph calls a method of ctype that does not exist.
It should say:

**Returns:** true if *c* represents a white space character. The default definition is as if it returns *ct*.is(*ct*.space, *c*).

**27.6.1.1.2 basic_istream::ipfx [lib.istream.prefix]**
**Notes:** ...uses the function
bool traits::is_whitespace(charT, const ctype<charT>&)

The same paragraph goes on to use ctype<...> in the example.

**27.6.1.1.2 Paragraph 4: [lib.istream.prefix]**
static bool is_whitespace(char, const ctype<charT>&)

**Possible Resolution:**

The Santa Cruz meeting, deprecates the is_whitespace function, by accepting doc: 96-0036R1=N0854R1 (Unification of Traits Revision1). Therefore I propose closing the issue.

**Requestor:** John Hinke (hinke@roguewave.com)
Philippe Le Mouël (philippe@roguewave.com)

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**Issue Number:** 27-004
**Title:** example of changing the behavior of is_whitespace is incorrect.
**Section:** 27.6.1.1.2 Paragraph 4 **basic_istream prefix and suffix [lib.istream.prefix]**
**Status:** **active**
**Description:**

Change from:

struct my_char_traits : public ios_traits<char> {
static bool is_whitespace(char c, const ctype<charT>& ct)
{ *...my own implementation...* }
};

To:

struct my_char_traits : public ios_traits<char> {
static bool is_whitespace(char c, const ctype<char>& ct)
{ *...my own implementation...* }
};

**Possible Resolution:**

The Santa Cruz meeting, deprecates the is_whitespace function, by accepting doc: 96-0036R1=N0854R1 (Unification of Traits Revision1). Therefore I propose closing the issue.

**Requestor:** John Hinke (hinke@roguewave.com)

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**Issue Number:** 27-005
**Title:** not_eof specification
**Section:** 27.4.2.1 ios_traits value functions **[lib.ios.traits.values]**
**Status:** **active**
**Description:**

int_type not_eof(int_type c);

Editorial: "**Notes:**" should also mention it is used for sbumpc and sgetc.

Per Bothner writes:
"The **Returns:** is incompatible with the traditional masking function for zapeof. This is because int_type(-2) == -2 while zapeof(-2) == ((-2) & 0xFF). And nowhere else does it say anything that would allow the traditional implementation."

"I don't understand the presentation style well enough to suggest the proper fix. But somewhere it should say or imply that when charT is specialized with char, then not_eof(c) is int_type((unsigned char)(c))."

**Possible Resolution:**

The Santa Cruz meeting, fixes the problem, by accepting doc: 96-0036R1=N0854R1 (Unification of Traits Revision1) and doc: 96-0069=N0885 (Appropriate use of traits::to_int_type and traits::not_eof throughout the Iostreams chapter). Therefore I propose closing the issue.

**Requestor:** Per Bothner (bothner@cygnus.com)

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**Issue Number:** 27-007
**Title:** ios_traits typedefs are 'char' oriented.
**Section:** 27
**Status:** **active**
**Description:**

We cannot specify int_type, off_type, pos_type, and state_type corresponding to some specialized charT type.

For example, if in order to think about 'char' specialization, we might define

```
template <class charT> struct ios_traits {
    ....
    typedef charT char_type;
    typedef int int_type;
    ....
};
```

we would have to accept it as constant definition in all of the specialized traits, not only ios_traits<char>, but ios_traits<wchar_t>, ios_traits<ultrachar>. This would lead to the restriction upon implementations that all of the charT must be converted in 'int' range. The restriction is too heavy for future wide character types and user-defined character types.

**Possible Resolution:**

The Santa Cruz meeting, fixes the problem, by accepting doc: 96-0036R1=N0854R1 (Unification of Traits Revision1). Therefore I propose closing the issue.

**Requestor:** Norihiro Kumagai (kuma@slab.tnr.sharp.co.jp)

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**Issue Number:** 27-008
**Title:** `ios_traits::length` is missing **Returns:** clause
**Section:** 27.4.2.1 **ios_traits value functions [lib.ios.traits.values]**
**Status:** **active**
**Description:**

`ios_traits::length` has an **Effects:** clause but no **Returns:** clause. The **Effects:** clause should be reworded as a **Returns:** clause.

**Possible Resolution:**

The Santa Cruz meeting, fixes the problem, by accepting doc: 96-0036R1=N0854R1 (Unification of Traits Revision1). Therefore I propose closing the issue.

**Requestor:** Public Comment

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**Issue Number:** 27-009
**Title:** definition for `get_state`
**Section:** 27.4.2.3 **ios_traits conversion functions [lib.ios.traits.convert]**
**Status:** **active**
**Description:**

The definition of `ios_traits::get_state` is incomplete. Here is the complete description:

```
state_type get_state(pos_type pos);
```

**Returns:** A `state_type` value which represents the conversion state in the object *`pos`*.

**Possible Resolution:**

The Santa Cruz meeting, fixes the problem, by accepting doc: 96-0036R1=N0854R1 (Unification of Traits Revision1). Therefore I propose closing the issue.

**Requestor:** Norihiro Kumagai (kuma @ slab.tnr.sharp.co.jp)

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**Issue Number:** 27-010
**Title:** definition for `get_pos`
**Section:** 27.4.2.3 **ios_traits conversion functions [lib.ios.traits.convert]**
**Status:** **active**
**Description:**

The definition of `ios_traits::get_pos` is incomplete. Here is the complete description:

```
pos_type get_pos(streampos pos, state_type s);
```

**Effects:** Constructs a `pos_type` value which represents the stream position corresponding to the pair of *`pos`* and *`s`*.

**Returns:** A `pos_type` value which consists of the values of *`pos`* and *`s`*.

**Possible Resolution:**

The Santa Cruz meeting, accepts doc: 96-0036R1=N0854R1 (Unification of Traits Revision1), but the problem still remains open since the type streampos has been moved to Annex D.

I believe the signature of the function should be:

```
pos_type get_pos(off_type off, state_type s);
```

`and the description should says:`

**Effects:** Constructs a `pos_type` value which represents the stream position corresponding to the pair of *`off`* and *`s`*.

See issue 27-910.

**Requestor:** Norihiro Kumagai (kuma @ slab.tnr.sharp.co.jp)

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**Issue Number:** 27-011
**Title:** Return type for `ios_traits::copy` is incorrect
**Section:** 27.4.2.3 **`ios_traits` conversion functions [lib.ios.traits.convert]**
**Status:** **active**
**Description:**

The return type for `ios_traits::copy` says to return `dst`. It should return `dest`.

**Possible Resolution:**

The Santa Cruz meeting, fixes the problem, by accepting doc: 96-0036R1=N0854R1 (Unification of Traits Revision1). Therefore I propose closing the issue.

**Requestor:** John Hinke (hinke@roguewave.com)

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# `ios_base` issues

**Issue Number:** 27-106
**Title:** Init class should be an implementation detail
**Section:** 27.4.3.1.6 **Class ios_base::Init [lib.ios::Init]**
**Status:** **active**
**Description:**

I fail to see why the Init class is part of the normative Standard. It is an implementation detail and hence, belongs in the realm of the implementor, not in the Standard.

**Possible Resolution:**

**Requestor:** Public Comment

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**Issue Number:** 27-107
**Title:** ios::failure doesn't have the same functionality
**Section:** 27.4.3 **Class ios_base [lib.ios.base]**
**Status:** **active**
**Description:**

Long ago when I originally proposed *ios::failure* I put the stream into it (as a reference). It now doesn't have that functionality. I don't know if it was removed deliberately or just got dropped inadvertantly. I think it should be there.

**Possible Resolution:**

**Requestor:** Jerry Schwarz (jss@a.crl.com)

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# `basic_ios` issues

**Issue Number:** 27-203
**Title:** `operator bool()` needs to be fixed
**Section:** 27.4.4.3 **basic_ios iostate flags functions [lib.iostate.flags]**
**Status:** **active**
**Description:**

Defining ios_base (or, as it appears in my copy of the WP, basic_ios) with a member operator bool() seemed like a good idea at the time, but perhaps the change should be withdrawn.

The reason is: while a conversion to void* is mostly harmless because few functions accept a void* argument, and void* doesn't silently convert to anything else, with an operator bool, the following absurdities are well-defined:

```
1 + cin
sin(cin)
vector<int> v(cin);
```

and (worse) ambiguities like

```
void f(istreambuf_iterator<char>);
void f(double);

f(cin);  // ambiguous
```

have been introduced. In other words, this change broke reasonable code. The problem is that bool is an arithmetic type, and is ill-behaved.

**Possible Resolution:**

Replace the member `ios_base::operator bool()` with member `ios_base::operator const void*()`, specified to return 0 if fail( ) is true, and non 0 if it is false.

This restores the code we broke, and also prevents frustrating ambiguities in new code.

*[ED Note: This is assuming that these functions will be moved to* `ios_base` *as suggested in one of the editorial boxes]*

The Tokyo meeting add editorial box 25.

**Requestor:** Nathan Myers (ncm@cantrip.org)

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**Issue Number:** 27-205
**Title:** imbue should not call rdbuf( )->pubimbue
**Section:** 27.4.4.2 **Member functions [lib.basic.ios.members]**
**Status:** **active**
**Description:**

basic_ios::imbue(const locale&) should call rdbuf( )->pubimbue(loc) only if rdbuf( ) is not a null pointer. Even better, it should not call rdbuf( )->pubimbue(loc) at all. Changing the locale that controls stream conversions is best separated from changing the locale that affects numeric formatting, etc. Anyone who knows how to imbue a proper pair of codecvt facets in a streambuf won't mind having to make an explicit call.

**Possible Resolution:**

The first part of the issue has already been resolved, the description of function *locale imbue(const locale& loc)* says:

**Effects:** Calls ios_base::imbue(loc) (27.4.3.3) and if rdbuf( ) != 0 then rdbuf( )->pubimbue(loc) (27.5.2.2.1).

Concerning the second part you have two possibilities:

If we leave the basic_ios::imbue function unchanged, when users call the imbue function from basic_istream, basic_ostream or the classes derived from them, they are actually changing both the locale of the stream object, and the locale of the stream buffer object attached to the stream object. This is not a real problem, because the stream object is only affected by the ctype, num_get , num_put, and numpunct facets, while the stream buffer object is affected by the codecvt facet. Therefore, even if you want to have several stream pointing to the same stream buffer objects (with a different locale object for each of them), you can easily do it by having all the different stream locale objects having the same codecvt facet. You could also do it by imbuing the stream buffer at last. The advantage of this scheme is that in simple cases you need to imbue just once in the stream object without having to wonder about the stream buffer object attached to it. The drawback is that you need to be more careful when you imbue in a stream object, and make sure that the locale object you are imbuing contains the correct codecvt facet; otherwise, you need to imbue the stream buffer object attached to the stream with another locale.

The other possibility is to remove the call to rdbuf( )->pubimbue( loc ), in which case you just imbue the stream object itself. The problem is that in simple cases you need to imbue both the stream object and the stream buffer attached to it. The advantage is you only imbue the object that needs to have a change of locale.

**Requestor:** Public Comment

# `basic_streambuf` issues

**Issue Number:** 27-301
**Title:** imbuing on streambufs: when, how often, etc...
**Section:** 27.5.2.2.1 **Locales [lib.streambuf.locales]**
**Status:** **active**
**Description:**

There needs to be something said as to when a new locale can be imbued into a streambuf or stream. Which operations are considered "atomic" in regards to locale changes.

**Possible Resolution:**

The effect of calling `imbue` during activation of any member of a class derived from `basic_ios<>`, or of any operator << or >> in which the class is the left argument, is unspecified. In particular (e.g.) any `codeset` conversion occurring in the streambuf may become incompatible with the formats specified by the old locale and still used.

The effect of calling `streambuf::imbue` or `pub_imbue` during activation of any streambuf virtual member is also undefined.

**Requestor:** Nathan Myers (ncm@cantrip.org)

# basic_istream issues

**Issue Number:** 27-404
**Title:** istream functions need to check for NULL streambuf
**Section:** 27.6.1.1 **Template class basic_istream [lib.istream]**
**Status:** **active**
**Description:**

Functions in basic_istream that call members of rdbuf() need to check for a NULL streambuf before calling the function. There are some functions that make sure rdbuf() is not a NULL pointer before calling any functions on the buffer, but some functions don't check for the NULL pointer. This needs to be consistent.

**Discussion:**

P.J. Plauger wrote: "Any attempt to store a null stream buffer pointer causes badbit to be set in the stored status. Hence, no input or output is ever attempted, using such a pointer, by formatted functions."

**Possible Resolution:**

As pointed out by P.J. Plauger, we should add a footnote to explain why there is no need to check for a NULL streambuf.

We should also add, in section 27.4.4.2 **Member functions [lib.basic.ios.members],** the following to the description of basic_streambuf<charT,traits>* rdbuf(basic_streambuf<charT,traits>* sb); :

**Postcondition:** sb == rdbuf() and if sb is a NULL pointer rdstate() == badbit.

Note: This issue has to be discussed with issue 27-503.

**Requestor:** John Hinke (hinke@roguewave.com)

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**Issue Number:** 27-405
**Title:** confusing English in formatted requirements
**Section:** 27.6.1.2.1 **Common requirements [lib.istream.formatted.reqmts]**
**Status:** **active**
**Description:**

27.6.1.2.1 [lib.istream.formatted.reqmts]: Paragraph 5: "In case the converting result is a value of either an integral type ... or a float type ... performing to parse and convert the result depend on the imbued locale object." This is really French converted to English by translation software, right? :->}

**Possible Resolution:**

The imbued locale object is responsible for parsing and converting the result when extracting an integral type (short, unsigned short, int, unsigned int, long, unsigned long) or a float type (float, double, long double). So the behavior of the above type extractors are locale-dependent. The imbued locale object uses an istreambuf_iterator to access the input character sequence.

**Requestor:** Public Comment

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**Issue Number:** 27-406
**Title:** operator>>(char_type *) failure
**Section:** 27.6.1.2.2 **basic_istream::operator>> [lib.istream::extractors]**
**Status:** **active**
**Description:**

27.6.1.2.2 [lib.istream::extractors]: Paragraph 2: "If the function stores no characters, it calls setstate(failbit), which may throw ios_base::failure (27.4.4.3). In any case, it then stores a null character ...." How can it store anything if an exception is thrown? C++ does not use the resumption model for exception handling. Different language than "In any case" is needed here.

**Possible Resolution:**

Change paragraph 2 to:

"If the function stores no characters, it calls setstate(failbit), which may throw ios_base::failure (27.4.4.3)."

Add paragraph 3:

"Before returning or throwing an exception the function stores a null character into the next successive location of the array and calls width(0)."

**Requestor:** Public Comment

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**Issue Number:** 27-407
**Title:** operator>>(char_type) failure
**Section:** 27.6.1.2.2 **basic_istream::operator>> [lib.istream::extractors]**
**Status:** **active**
**Description:**

27.6.1.2.2 [lib.istream::extractors]: Paragraph 2:

basic_istream<charT,traits>& operator>>(char_type& c);

**Effects:** Extracts a character, if one is available, and stores it in c. Otherwise, the function calls setstate(failbit).

Not eofbit?

**Possible Resolution:**

In 27.6.1.2.1 **Common requirements [lib.istream.formatted.reqmts]** paragraph 8 says:

"If the scan fails for any reason, the formatted input function calls setstate(failbit), which may throw ios_base::failure (27.4.4.3)."

This is one of the requirements for all the formatted input functions. Because of this the user can call the ios_base member function fail( ) or the operator bool ( ) to check if the extraction failed. The user can therefore write code like this:

```
if ( in >> s )
    { perform some action }
```

**Requestor:** Public Comment

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**Issue Number:** 27-408
**Title:** ws manipulator
**Section:** 27.6.1.4 **Standard basic_istream manipulators [lib.istream.manip]**
**Status:** **active**
**Description:**

27.6.1.4 [lib.istream.manip]: "... saves a copy of is.fmtflags ...."
Should this not read "... saves a copy of is.flags ...."?

**Possible Resolution:**

The **Effects:** clause should be changed to:

"**Effects:** Skips any white space in the input sequence. Saves a copy of the fmtflags by storing the result of the call to is.flags( ), calls is.setf(ios_base::skipws), then constructs a sentry object and restores the fmtflags to their saved values."

**Requestor:** Public Comment

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**Issue Number:** 27-409
**Title:** unsigned short extractors cannot use unsigned long get function
**Section:** 27.6.1.2.2 basic_istream ::operator>> **[lib.istream::extractors]**
**Status:** **active**
**Description:**

Unsigned short (and unsigned int) extractors cannot use unsigned long get function in num_get.
It cannot distinguish certain valid inputs from errors.

**Possible Resolution:**

P.J. Plauger wrote: "num_get should add a get function ( and underlying do get) for unsigned short and unsigned int extractions. Otherwise, input values in the range -1 through -USHRT_MAX (or -UINT_MAX) look erroneous, and cannot be distinguished from truly erroneous values."

These functions have been added to the WP, see 22.2.2.1 Template class num_get.
Therefore, I propose to close the issue.

**Requestor:** P.J. Plauger (plauger!pjp@uunet.uu.net)

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**Issue Number:** 27-410
**Title:** putback function has wrong description
**Section:** 27.6.1.3 Unformatted input functions **[lib.istream.unformatted]**
**Status:** **active**
**Description:**

The description of the putback function is incorrect.

**Possible Resolution:**

The complete description of the function should be:

basic_istream<charT,traits>& putback(char_type c);

**Effects:** If rdbuf( ) is not null, calls rdbuf( )->sputbackc( c ). If rdbuf( ) is null, or if sputbackc( c ) returns traits::eof( ), calls setstate(badbit) ( which may throw ios_base::failure (27.4.4.3)).
**Returns**: *this.

**Requestor:** Philippe Le Mouël (philippe@roguewave.com)

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**Issue Number:** 27-411
**Title:** getline should not set failbit when reading no characters
**Section:** 27.6.1.3 Unformatted input functions **[lib.istream.unformatted]**
**Status:** **active**
**Description:**

When the function getline is called and the stream has a line that contains no text, ios_base::failbit is set on the input stream (which may throw ios_base::failure). While consistent with the behavior of the similar function named get, the behavior is quite inconvenient. Furthermore, I tested this behavior on the AT&T Release 3.0 implementation of Iostreams and I did not encounter the problem described above. The same comment also apply to the string's getline function described in section 21.1.1.10.8 Inserters and extractors **[lib.string.io]**.

**Possible Resolution:**

The complete description of the function getline (**[lib.istream.unformatted])** should be:

basic_istream<charT,traits>& getline(char_type* s, streamsize n, char_type delim = traits::newline() );

**Effects:** Extracts characters and stores them into successive locations of an array whose first element is designed by s. Characters are extracted and stored until one of the following occurs:

1) end-of-file occurs on the input sequence (in which case the functions call *setstate(eofbit)* ).
2) *c == delim* for the next available input character *c* (in which case the input character is extracted but not stored).
3) *n - 1* characters are stored (in which case the function calls *setstate(failbit)*, which may throw *ios_base::failure* (27.4.4.3) ).

These conditions are tested in the order shown.

In any case, it then stores a null character (using *traits::eos()*) into the next successive location of the array.
**Returns**: *this.

In section 21.1.1.10.8 Inserters and extractors **[lib.string.io]** paragraph 3 "If the function extracts no characters, it calls *is.setstate(ios_base::failbit)* which may throw *ios_base::failure*(27.4.4.3)." should be removed.

**Requestor:** Public Comment

---

**Issue Number:** 27-412
**Title:** operator >>(basic_streambuf *sb), should not set badbit if sb is null
**Section:** 27.6.1.2.2 basic_istream::operator >> **[lib.istream::extractors]**
**Status:** **active**
**Description:**

basic_istream::operator>>(basic_streambuf *sb) now says, ``If sb is null, calls setstate(badbit).'' This requirement was added without committee approval. It is also inconsistent with the widespread convention that badbit should report loss of integrity of the stream proper (not some other stream). A null sb should set failbit.

**Possible Resolution:**

Change the first sentence of the **Effects:** clause to:

If *sb* is null, calls *setstate(failbit)*, which may throw *ios_base::failure.*

**Requestor:** Public Comment

---

# basic_ostream issues

**Issue Number:** 27-501
**Title:** ostream<<(char) : formatting, padding, width
**Section:** 27.6.2.4.2 **basic_ostream::operator<< [lib.ostream.inserters]**
**Status:** active
**Description:**

For historical reasons, this function has usually ignored padding and formatting. In the WP, it does not mention anything about ignoring padding or formatting. This needs to be clarified.

Reasons for ignoring padding on op<<(char):

1. Historical reasons/compatibility

Reasons for full formatting on op<<(char):

1. put(char) currently does no formatting. But there is no way to insert a char with formatting.
2. Some implementations do formatting.

Since put can insert a character without formatting, there needs to be a way to insert a character with formatting. Currently this does not exist. It would be nice not to introduce an inconsistency with the other formatted inserters, but it would also be nice to provide compatibility. I think that consistency would be much better in this case than compatibility.

**Possible Resolution:**

At the Tokyo meeting the straw vote gave the following result:

5 for past practice (no padding), 1 for consistency.

We should organize another straw vote at the next meeting and if the result matches the one above, close the issue.

**Requestor:** John Hinke (hinke@roguewave.com),
Bernd Eggink (admin@rrz.uni-hamburg.de)

---

**Issue Number:** 27-502
**Title:** ostream::operator<<(void *)
**Section:** 27.6.2.4.2 **basic_ostream::operator<< [lib.ostream.inserters]**
**Status:** **Active**
**Description:**

basic_ostream<charT,traits>& operator<<(void *)

should take ‘const volatile void *’ rather than void *.

**Resolution:**

The function now takes a const void *.

**Reopened:**

Does anyone know why the resolution was for it to take a const void * rather than a const volatile void *?

I can't think of any good reason why we should make the code:

```
#include <iostream>
volatile int x;
int main() {
    cout << & x;
    return 0;
}
```

ill-formed.

**Possible Resolution:**

We need to change basic_ostream<charT,traits>& operator<<(void *) to basic_ostream<charT,traits>& operator<<(const volatile void *) to avoid breaking the code above, but also because of issue 27-203. If we adopt issue 27-203 and we do not make the change described above we will end up with the following:

```
volatile int x;
cout << &x;
```

This will call operator const void*( ) which will return !fail( ) and then cout the result.

**Requestor:** Fergus Henderson (fjh@munta.cs.mu.oz.au)
Philippe Le Mouël (philippe@roguewave.com)

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**Issue Number:** 27-503
**Title:** ostream functions need to check for NULL streambuf
**Section:** 27.6.2.1 **Template class basic_ostream [lib.ostream]**
**Status:** **active**
**Description:**

Functions in basic_ostream that call members of rdbuf() need to check for a NULL streambuf before calling the function. There are some functions that make sure rdbuf() is not a NULL pointer before calling any functions on the buffer, but some functions don't check for the NULL pointer. This needs to be consistent.

**Discussion:**

P.J. Plauger wrote: "Any attempt to store a null stream buffer pointer causes badbit to be set in the stored status. Hence, no input or output is ever attempted, using such a pointer, by formatted functions."

**Possible Resolution:**

As pointed out by P.J. Plauger we should add a footnote to explain why there is no need to check for a NULL streambuf.

We should also add in section 27.4.4.2 **Member functions [lib.basic.ios.members]** the following to the description of basic_streambuf<charT,traits>* rdbuf(basic_streambuf<charT,traits>* sb); :

**Postcondition:** sb == rdbuf() and if sb is a NULL pointer rdstate() == badbit.

Note: This issue has to be discussed with issue 27-404.

**Requestor:** John Hinke (hinke@roguewave.com)

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**Issue Number:** 27-505
**Title:** incorrect conversion specifier for operator<<(unsigned long)
**Section:** 27.6.2.4.2 **basic_ostream::operator<< [lib.ostream.inserters]**
**Status:** **active**
**Description:**

basic_ostream<charT,traits>& operator<<(unsigned long n);

Effects: Converts the unsigned long integer n with the integral conversion specified preceded by l.

Should this be "... preceded by ul."?

**Possible Resolution:**

The **Effects:** clause says:

“**Effects:** Converts the unsigned long integer n with the integral conversion specifier preceded by l.”

To me this is correct, but it may be not precise enough. The integral conversion specifier can be “d” for a signed integral type and “u” for a unsigned integral type. If we decide to be precise about this fact in the Effects clause, we will have to do the same for all the other unsigned inserters.

**Requestor:** Public Comment

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**Issue Number:** 27-506
**Title:** wrong default behavior for padding
**Section:** 27.6.2.4.1 Common requirements Table 13 Fill padding **[lib.ostream.formatted.reqmts]**
**Status:** **active**
**Description:**

27.6.2.4.1 Table13 Fill padding changes the long-standing default behavior for padding output field. It has always been true that setting none of left, right, and internal called for left padding (pad after text). Now it calls for right padding (pad before text). Since this is the initial state of all ios objects, many simple C++ programs will change behavior.

**Possible Resolution:**

P.J. Plauger wrote: “Table 13 should describe the effect of right/internal/otherwise, as it has long been, rather than left/internal/otherwise. Change was originally unauthorized, then endorsed (I hope by accident) at the July ’95 meeting.”

I tested the default padding by compiling the following code:

“cout << setw(10) << setfill(‘@’) << “test” << endl; ”

With the following old iostream library:

- AT&T Release 3.0
- Borland C/C++ Run Time Library - Version 6.5

The result was right padding (pad before text) for all of them.

Therefore I think the current behavior is correct.

**Requestor:** P.J. Plauger (plauger!pjp@uunet.uu.net)

# basic_istream/basic_ostream issues

**Issue Number:** 27-601
**Title:** istream::operator>>(ios_base&), ostream::operator<<(ios_base&)
**Section:** 27.6.1.2.2 **basic_istream::operator>> [lib.istream::extractors],**
27.6.2.4.2 **basic_ostream::operator<< [lib.ostream.inserters]**
**Status:** active
**Description:**

The ios_base manipulators 27.4.5.1**[lib.std.ios.manip]** will not work as written. They won't work because there is no conversion from ios_base to basic_ios.

They are currently declared as:
ios_base& boolalpha(ios_base&);

I propose adding a new insertor/extractor for istream and ostream that does insertion/extraction for ios_base.

**Possible Resolution:**

John wrote:

"Add to basic_istream:

basic_istream<charT, traits>& operator>>(ios_base& (*pf)(ios_base&));

**Effects**: Calls (*pf)(*this)
**Returns:** *this.

Add to basic_ostream:

basic_ostream<charT, traits>& operator<<(ios_base& (*pf)(ios_base&));

**Effects**: Calls (*pf)(*this)
**Returns:** *this.

Also, several footnotes will need to be changed."

We need to change footnote 9 in 27.4.5.3 **basefield manipulators [lib.basefield.manip]** to:

"The function signature dec(ios_base& str) can be called by the function signature basic_ostream<charT,traits>& basic_ostream<charT,traits>::operator << ( ios_base& (*)(ios_base&) ) to permit expressions of the form cout << dec to change the format flags stored in cout."

**Requestor:** John Hinke (hinke@roguewave.com)

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**Issue Number:** 27-602
**Title:** positional typedefs in istream/ostream derived classes
**Section:** 27
**Status:** **active**

**Description:**

Remove the positional typedefs from the following classes. The positional typedefs are:

typedef traits::pos_type pos_type;
typedef traits::off_type off_type;

They are not used in the following classes:

basic_istringstream
basic_ostringstream
basic_ifstream
basic_ofstream

**Possible Resolution:**

John wrote:

"Remove them. They are still inherited from the base classes."

I do not think that they are inherited from the base classes (see typename discussions).

**Requestor:** John Hinke (hinke@roguewave.com)

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**Issue Number:** 27-603
**Title:** istream::read, ostream::write
**Section:** 27.6.1.3 **Unformatted input functions [lib.istream.unformatted]**, 27.6.2.5 **Unformatted output functions [lib.ostream.unformatted]**
**Status:** **active**
**Description:**

basic_istream<charT,traits>& basic_istream<charT,traits>::read(char_type *,streamsize);
basic_ostream<charT,traits>& basic_ostream<charT,traits>::write(const char_type *,streamsize);

These functions are typically used for binary data.

**Possible Resolution:**

John wrote:

"These functions should take a void * instead of char_type *. If these functions are changed, then perhaps we should add another function that replaces this behavior. basic_istream currently has a get function, which behaves like the read and write functions. It would make sense to add a corresponding put function in basic_ostream that parallels the behavior of get."

I think we should let these functions remain the way they are, because no other function performs the exact same task.The get function in basic_istream does not behave like the read function, it takes an extra parameter, and if this parameter is equal to the current read character, the function does not read any more characters. The question becomes, do we need to add functions taking a void* parameter ? They could be useful if you want to insert or extract binary data from a wide characters stream. In this case, the classic read and write functions are not sufficient, because the size of the data to be extracted or inserted has to be a multiple of the character size. The problem is that the underlying streambuf is using charT type and if you want to move inside the streambuf or perform read or write operations, they will have to be done by multiples of the charT size. The question therefore becomes, is the price to add these two functions too high ?

**Requestor:** John Hinke (hinke@roguewave.com)

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**Issue Number:** 27-604
**Title:** Opening an istream without ios::in set? or an ostream without ios::out set?
**Section:** 27.6.1.1 **Template class basic_istream [lib.input.streams],**
27.6.2.1 **Template class basic_ostream [lib.output.streams]**
**Status:** **active**
**Description:**

Benedikt asks,

"Why can I open an istream without ios::in being set or an ostream without ios::out? I mean, I just did that by mistake with an ofstream and searched for quite a while to find out, why there were no actual writes to the newly created file.

"Or, even worse, why can I open an istream with ios::out (and no ios::in) being set and vice versa?

"Shouldn't the iostreams check whether the given mode flags make any sense, and maybe even add ios::in if you missed to set this in an istream, or ios::out if you used an ostream?"

**Possible Resolution:**

The only way to create an istream or ostream object is by calling the constructor "explicit basic_istream( basic_streambuf<charT,traits>* sb);" for istream and "explicit basic_ostream( basic_streambuf<charT,traits>* sb);" for ostream. At this point an implementation should do something like:

In basic_istream constructor:

```
if ( sb->which_open_mode() & ios_base::in )
  init(sb);
else
  init(0);
```

In basic_ostream constructor:

```
if ( sb->which_open_mode() & ios_base::out )
  init(sb);
else
  init(0);
```

But the actual open mode is really set up in the buffer, which can be basic_stringbuf, basic_filebuf or strstreambuf according to the kind of object you are using.
In the draft, it is clear that whenever you create an object of type basic_ifstream, basic_istringstream or istrstream the buffer's open mode is set to "in" and when you create an object of type basic_ofstream, basic_ostringstream, or ostrstream, the buffer's open mode is set to "out" (see constructor description for all these objects). Therefore a correct implementation will not allow the behavior described above by Benedikt.

**Requestor:** Benedikt Erik Heinen (beh@tequila.oche.de)

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**Issue Number:** 27-605
**Title:** get/put type functions should be able to use iterators.
**Section:** 27.6.1.3 **Unformatted input functions [lib.istream.unformatted]**
27.6.2.5 **Unformatted output functions [lib.ostream.unformatted]**
**Status:** **active**
**Description:**

Several functions in istream and ostream take a pointer and a length and optionally a delimiter. It would be nice to add overloaded functions that take either InputIterators, or OutputIterators. These new functions would look like:

For basic_istream:

template<class OutputIterator>
istream& get(OutputIterator *begin*, OutputIterator *end*, char_type *delim*);

The *begin* and *end* iterators define where the characters will be written. Characters will be read from the sequence until the *end* iterator is reached, or the next character is *delim*.

For basic_ostream:

template<class InputIterator>
ostream& write(InputIterator *begin*, InputIterator *end*);

The *begin* and *end* iterators define the sequence of characters to be written.

These functions would be added to the current implementation. The current set of functions should not be removed. They are very commonly used. There are several functions which are candidates for these *begin* and *end* iterators. These functions are:

For basic_istream:

istream& get(char_type *, streamsize, char_type);
istream& getline(char_type *, streamsize, char_type);
istream& read(char_type *, streamsize);

For basic_ostream:

ostream& put(char_type *, streamsize);
ostream& write(void *, streamsize);

**Possible Resolution:**

I do not think it is really necessary. We should have a vote to decide if we want to adopt this change or not.

**Requestor:** Nathan Myers (ncm@cantrip.org)

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**Issue Number:** 27-606
**Title:** seekg and seekp should have their first parameter passed by value.
**Section:** 27.6.1.3 **Unformatted input functions [lib.istream.unformatted]**
27.6.2.3 **basic_ostream prefix and suffix functions [lib.ostream.prefix]**
**Status:** **active**

**Description:**

The following functions should have their first parameter passed by value as described in 27.6.1.1 **Template class basic_istream [lib.istream]** and 27.6.2.1 **Template class basic_ostream [lib.ostream].**

basic_istream<charT,traits>& seekg(off_type& off, ios_base::seekdir dir);
basic_ostream<charT,traits>& seekp(pos_type& pos);
basic_ostream<charT,traits>& seekp(off_type& off, ios_base::seekdir dir);

The seekp functions should also be moved in section 27.6.2.5 **Unformatted output functions [lib.ostream.unformatted].**

**Possible Resolution:**

Change them to:

basic_istream<charT,traits>& seekg(off_type off, ios_base::seekdir dir);
basic_ostream<charT,traits>& seekp(pos_type pos);
basic_ostream<charT,traits>& seekp(off_type off, ios_base::seekdir dir);

**Requestor:** Philippe Le Mouël (philippe@roguewave.com)

# Standard manipulators issues

**Issue Number:** 27-651
**Title:** setfill description is wrong
**Section:** 27.6.3 Standard manipulators **[lib.std.manip]**
**Status:** **active**
**Description:**

P.J. Plauger wrote: "Setfill description is nonsense, since a fill character is now a charT, which cannot necessarily be represented as type int. Nor can it be applied to ios_base, since the fill character now inhabits basic_ios."

**Possible Resolution:**

setfill should be changed to:

```
template <class charT>
smanip<charT> setfill ( charT c );
```

**Returns: smanip**<charT>(f,c) where f can be defined as:

```
template <class charT>
basic_ios<charT,ios_traits<charT>>& f ( basic_ios<charT,ios_traits<charT>>& str, charT c)
{  // set fill character
   str.fill ( c );
   return str;
}
```

**Requestor:** P.J. Plauger (plauger!pjp@uunet.uu.net)
Philippe Le Mouël (philippe@roguewave.com)

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**Issue Number:** 27-652
**Title:** smanip is not a single type
**Section:** 27.6.3 Standard manipulators **[lib.std.manip]**
**Status:** **active**
**Description:**

P.J. Plauger wrote: "Description of manipulators strongly suggests that smanip is a single type. It was supposed to make clear that each manipulator can return a different type, as needed. (And more than one type is certainly needed here.)"

**Possible Resolution:**

27.6.3 standard manipulators paragraph 2 says: "The type **smanip** is an implementation-defined type (_dcl.fct_) returned by the standard manipulators.". We need to rewrite this sentence to make it clear that smanip is not restrained to one physical type.

**Requestor:** P.J. Plauger (plauger!pjp@uunet.uu.net)
Philippe Le Mouël (philippe@roguewave.com)

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# string stream issues

**Issue Number:** 27-701
**Title:** basic_stringbuf::str() needs to clarify return value on else clause
**Section:** 27.7.1.2 **Member functions [lib.stringbuf.members]**
**Status:** **active**
**Description:**

"Table 15 in [lib.stringbuf.members] describes the return values of basic_stringbuf::str(). What does the "otherwise" mean?. Does it mean neither ios_base::in nor ios_base::out is set? What is the return value supposed to be if _both_ bits are set?"

**Possible Resolution:**

My understanding is that if both ios_base::in and ios_base::out are set, you should return basic_string<char_type>(eback(),egptr()-eback()). I propose to change the **Returns:** clause to clarify this fact.

**Returns:** The return values of this function are indicated in Table 15 and the test that determine these values are carried out in the order shown in Table 15.

**Requestor:** Angelika Langer (langer@roguewave.com)
Bernd Eggink (admin@rrz.uni-hamburg.de)

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**Issue Number:** 27-702
**Title:** string streams need allocator and string_char_traits parameters
**Section:** 27.7.1 **Template class basic_stringbuf [lib_stringbuf]**
**Status:** **active**
**Description:**

The string streams are currently templatized on the character type (charT) and the traits type (ios_traits). String template parameters need to be added.

**Possible Resolution:**

The Santa Cruz meeting, fixes the problem, by accepting doc: 96-0036R1=N0854R1 (Unification of Traits Revision1). Therefore I propose closing the issue.

**Requestor:** John Hinke (hinke@roguewave.com)

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**Issue Number:** 27-703
**Title:** stringbuf postconditions
**Section:** 27.7.1.2 **Member functions [lib.stringbuf.members]**
**Status:** **active**
**Description:**

basic_stringbuf::str(basic_string s) Postconditions requires that str() == s. This is true only if which had in set at construction time. Condition should be restated.

**Possible Resolution:**

I think the real problem is in "Table 16 - str get/set areas". Its second line says:

( which & ios_base::out) != 0 setp(str(),str(),str()+str.size())

First, the function setp takes only two parameters. Furthermore it should say:

( which & ios_base::out )!= 0 setp(str(),str()+s.size())
then if: ( which & (ios_base::app | ios_base::ate) )!=0 pbump(s.size())

Then the postcondition requiring that str() == s in the function void str( const basic_string<char_type>& s) will be valid if “in” or “out” and “app” or “ate” are set at construction time.

Table 16 should be changed to:

**Table 16—str get/set areas**

| Condition | Setting |
|---|---|
| (which & ios_base::in)!=0 | setg(str(), str(), str()+s.size()) |
| (which & ios_base::out)!=0 | setp(str(),str()+s.size()) |
| (which & (ios_base::app \| ios_base::ate) )!=0 | pbump(s.size()) |

The postcondition should be changed to:

**Postcondition:** if ios_base::in, or ios_base::out and ios_base::app or ios_base::ate are set at construction time, then str()==s. Otherwise str() == basic_string<char_type>(). If s.size() >0, set the get and/or put pointers as indicated in Table 16.

**Requestor:** Public Comment

**Issue Number:** 27-704
**Title:** stringbuf::stringbuf constructor
**Section:** 27.7.1.1 **basic_stringbuf constructors [lib.stringbuf.cons]**
**Status:** **active**
**Description:**

basic_stringbuf::basic_stringbuf(basic_string str, openmode which) Postconditions requires that str() == str. This is true only if which has in set. Condition should be restated.

**Possible Resolution:**

This is the same problem described in issue 27-703.

The real problem is in “Table 14 - str get/set areas”. The second line says:

( which & ios_base::out) != 0 setp(str(),str(),str()+str.size())

First, the function setp takes only two parameters. Furthermore it should say:

( which & ios_base::out )!= 0 setp(str(),str()+str.size())
then if: ( which & (ios_base::app | ios_base::ate) )!=0 pbump(str.size())

Then the postcondition requiring that str() == str in the function basic_stringbuf:: basic_stringbuf(basic_string str, openmode which) will be valid if “in” or “out” and “app” or “ate” are set.

Table 14 should be changed to:

**Table 14—str get/set areas**

| Condition | Setting |
|---|---|
| (which & ios_base::in)!=0 | setg(str(), str(), str()+str.size()) |
| (which & ios_base::out)!=0<br>(which & (ios_base::app \| ios_base::ate) )!=0 | setp(str(),str()+str.size())<br>pbump(str.size()) |

The postcondition should be changed to:

**Postcondition:** if ios_base::in, or ios_base::out and ios_base::app or ios_base::ate are set at construction time, then str()==str. Otherwise str() == basic_string<char_type>(). If str.size() >0, set the get and/or put pointers as indicated in Table 14.

**Requestor:** Public Comment

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**Issue Number:** 27-705
**Title:** Incorrect calls to setg and setp in Table 14
**Section:** 27.7.1.1 **basic_stringbuf constructors [lib.stringbuf.cons]**
**Status:** **active**
**Description:**

Table 14 describes calls to setg and setp with string arguments, for which no signature exists. Needs to be recast.

**Possible Resolution:**

Possible Resolution of issue 27-704 solves this problem.

**Requestor:** Public Comment

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**Issue Number:** 27-706
**Title:** Incorrect calls to setg and setp in table 16
**Section:** 27.7.1.2 **Member functions [lib.stringbuf.members]**
**Status:** **active**
**Description:**

Table 16 describes calls to setg and setp with string arguments, for which no signature exists. Needs to be recast.

**Possible Resolution:**

Possible Resolution of issue 27-703 solves this problem

**Requestor:** Public Comment

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**Issue Number:** 27-707
**Title:** setbuf function is missing

**Section:** 27.7.1 **Template class basic_stringbuf [lib.stringbuf]**
**Status:** **active**
**Description:**

Steve Clamage wrote: “Section 27.7.1.3 should have a basic_stringbuf override of the base class setbuf() function, but it is missing.”

**Possible Resolution:**

Add the following description in 27.7.1 **Template class basic_stringbuf [lib.stringbuf]** and 27.7.1.3 **Overridden virtual functions [lib.stringbuf.virtuals]**:

basic_streambuf<charT,traits>* setbuf( char_type* s, int n);

**Effects:** If *( mode & ios_base::out )* is true, proceed as follows:
If *s* is not a null pointer, and n > pptr() - pbase(), replace the current buffer (copy its contents and deallocate it) by the buffer of size *n* pointed at by *s*.
In the case where *s* is a null pointer, and n > pptr() - pbase() resize the current buffer to size *n*.
If the function fails, it returns a null pointer.
**Returns:** (basic_streambuf<charT,traits>*)(this)

I am not qualified enough to decide if the return type should be changed to basic_stringbuf<charT,traits>* as proposed by Steve Clamage in issue 27-809. I tried it with several compilers, and the results were just error messages. Basically, the compilers were complaining about the fact that the base class virtual function and the overridden virtual function should have the same return type.

**Requestor:** Steve Clamage (stephen.clamage@eng.sun.com)

# file stream issues

**Issue Number:** 27-801
**Title:** filebuf::underflow example
**Section:** 27.8.1.4 **Overridden virtual functions [lib.filebuf.virtuals]**
**Status:** **active**
**Description:**

The "as if" example for basic_filebuf::underflow has several "typos". It should say:

```
char    from_buf[FSIZE};
char*   from_end;
char    to_buf[TSIZE};
char*   to_end;
typename traits::state_type st;

codecvt_base::result r =
      getloc().template use<codecvt<char, charT,
      typename traits::state_type> >().convert
      (st, from_buf, from_buf+FSIZE, from_end,
      to_buf, to_buf+TSIZE, to_end);
```

**Possible Resolution:**

We should correct the example as follows, and not as described above:

```
char    from_buf[FSIZE};
char*   from_end;
charT   to_buf[TSIZE};
charT*  to_end;
typename traits::state_type st;

codecvt_base::result r=
   use_facet<codecvt<char,charT,typename traits::state_type> >(getloc()).
      convert(st,from_buf,from_buf+FSIZE,from_end,to_buf,to_buf+TSIZE,to_end);
```

Should be treated with issue 27-812.

**Requestor:** John Hinke (hinke@roguewave.com)

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**Issue Number:** 27-802
**Title:** filebuf::is_open is a bit confusing
**Section:** 27.8.1.3 **Member functions [lib.filebuf.members]**
**Status:** **active**
**Description:**

It says, "**Returns:** true if the associated file is available and open." What is the meaning of available? This seems a bit confusing.

**Possible Resolution:**

Change the **Returns:** statement to:

**Returns:** true after a successful call to the member function open, and before a successful call to member function close, otherwise false.

**Requestor:** John Hinke (hinke@roguewave.com),
Bob Kline (bkline@cortex.nlm.nih.gov)

---

**Issue Number:** 27-803
**Title:** ofstream constructor missing trunc as openmode
**Section:** 27.8.1.9 **basic_ofstream constructors [lib.ofstream.cons]**
**Status:** **active**
**Description:**

basic_ofstream::basic_ofstream(const char *s, openmode mode = out) has wrong default second argument. It should be `out | trunc', the same as for basic_ofstream::open (in the definition at least).

**Possible Resolution:**

In 27.8.1.9 **basic_ofstream constructors [lib.ofstream.cons]** change:

explicit basic_ofstream(const char* s, openmode mode = out);

to:

explicit basic_ofstream(const char* s, ios_base::openmode mode = ios_base::out | ios_base::trunc);

In 27.8.1.10 **Member functions [lib.ofstream.members]** change:

void open(const char* s, openmode mode = out);

to:

void open(const char* s, ios_base::openmode mode = ios_base::out | ios_base::trunc);

**Requestor:** Public Comment

---

**Issue Number:** 27-804
**Title:** ofstream::open missing trunc in openmode
**Section:** 27.8.1.10 **Member functions [lib.ofstream.members]**
**Status:** **active**
**Description:**

basic_ofstream::open(const char *s, openmode mode = out) has wrong default second argument. It should be `out | trunc', the same as for basic_ofstream::open in the definition.

**Possible Resolution:**

See issue 27-803.

**Requestor:** Public Comment

---

**Issue Number:** 27-805
**Title:** filebuf::imbue semantics
**Section:** 27.8.1.4 **Overridden virtual functions [lib.filebuf.virtuals]**
**Status:** **active**
**Description:**

basic_filebuf::imbue has silly semantics. Whether or not sync() succeeds has little bearing on whether you can safely change the working codecvt facet. The most sensible thing is to establish this facet at construction. (Then pubimbue and imbue can be scrubbed completely.) Next best is while is_open() is false. (Then imbue can be scrubbed, since it has nothing to do.) Next best is to permit any imbue that doesn't change the facet or is at beginning of file. Next best is to permit change of facet any time provided either the current or new facet does not mandate state-dependent conversions. (See comments under seekoff.)

**Possible Resolution:**

In my current version of the WP, I do not have any description for the virtual filebuf imbue function. See issue 27-814.

**Requestor:** Public Comment

---

**Issue Number:** 27-806
**Title:** filebuf::seekoff **Effects:** clause needs work
**Section:** 27.8.1.4 **Overridden virtual functions [lib.filebuf.virtuals]**
**Status:** **active**
**Description:**

basic_filebuf::seekoff Effects is an interesting exercise in creative writing. It should simply state that if the stream is opened as a text file or has state-dependent conversions, the only permissible seeks are with zero offset relative to the beginning or current position of the file. (How to determine that predicate is another matter -- should state for codecvt that even a request to convert zero characters will return noconv.) Otherwise, behavior is largely the same as for basic_stringstream, from whence the words should be cribbed. The problem of saving the stream state in a traits::pos_type object remains unsolved. The primitives described for ios_traits are inadequate.

**Possible Resolution:**

**Requestor:** Public Comment

---

**Issue Number:** 27-807
**Title:** filebuf::underflow performance questions
**Section:** 27.8.1.4 **Overridden virtual functions [lib.filebuf.virtuals]**
**Status:** **active**
**Description:**

basic_filebuf::underflow is defined unequivocally as the function that calls codecvt, but there are performance advantages to having this conversion actually performed in uflow. If the specification cannot be broadened sufficiently to allow either function to do the translation, then uflow loses its last rationale for being added in the first place. Either the extra latitude should be granted implementors or uflow should be removed from basic_streambuf and all its derivatives.

**Possible Resolution:**

To me underflow is also called by uflow, so it is simple to make the actual call to the codecvt facet in underflow.

**Requestor:** Public Comment

---

**Issue Number:** 27-808
**Title:** Editorial fixes in wording for fstreams
**Section:** 27.8.1 **File streams [lib.fstreams]**
**Status:** **active**
**Description:**

27.8.1 [lib.fstreams], paragraph 2: "... the type name FILE is a synonym for the type FILE." This seems like an odd sort of synonym, doesn't it? Also, the last sentence of this subsection, "Because of necessity of the conversion between the external source/sink streams and wide character sequences." is incomplete.

**Possible Resolution:**

**Requestor:** Public Comment

---

**Issue Number:** 27-809
**Title:** Description of function setbuf is missing
**Section:** 27.8.1.4 **Overridden virtual functions [lib.filebuf.virtuals]**
**Status:** **active**
**Description:**

Steve Clamage wrote: “basic_filebuf version of setbuf( ) needs a description, and the return type shown in the draft is basic_streambuf*, which is probably wrong. It was correct before covariant return types were added to the draft. Now it should probably return basic_filebuf*.”

**Possible Resolution:**

Add the following description in 27.8.1.4 **Overridden virtual functions [lib.filebuf.virtuals]**:

basic_streambuf<charT,traits>* setbuf( char_type* s, streamsize n);

**Effects:** If *s* is not a null pointer, flush the buffer by calling *overflow( traits::eof() )* and if the return value is not *traits::eof()*, deallocate the current buffer and replace it by the buffer of size *n* pointed at by *s*.
In the case where *s* is a null pointer, resize the current buffer to size *n* (this can result in flushing the buffer).
If the function fails, it returns a null pointer.
**Returns:** (basic_streambuf<charT,traits>*)(this)

I am not qualified enough to decide if the return type should be changed or not as proposed by Steve Clamage. I tried it with several compilers, and the results were just error messages. Basically, the compilers were complaining about the fact that the base class virtual function and the overridden virtual function should have the same return type.

**Requestor:** Steve Clamage (stephen.clamage@eng.sun.com)

---

**Issue Number:** 27-810
**Title:** Openmode notation is not consistent in basic_ifstream and basic_ofstream
**Section:** 27.8.1.5 **Template class basic_ifstream [lib.ifstream]**
27.8.1.8 **Template class basic_ofstream [lib.ofstream]**
**Status:** **active**
**Description:**

basic_ifstream, basic_ofstream *constructors* and member functions *open* describe the type ios_base::openmode as openmode and its values as *in* and *out* rather than *ios_base::in* and *ios_base::out* as everywhere else in the library.

**Possible Resolution:**

In 27.8.1.5 **Template class basic_ifstream [lib.ifstream]** , 27.8.1.6 **basic_ifstream constructors [lib.ifstream.cons]** and 27.8.1.7 **member functions [lib.ifstream.members]** change the following functions:

explicit basic_ifstream(const char* s, openmode mode = in);

to:

explicit basic_ifstream(const char* s, ios_base::openmode mode = ios_base::in);

void open(const char* s, openmode mode = in);

to:

void open(const char* s, ios_base::openmode mode = ios_base::in);

In 27.8.1.8 **Template class basic_ofstream [lib.ofstream]** , 27.8.1.9 **basic_ofstream constructors [lib.ofstream.cons]** and 27.8.1.10 **member functions [lib.ofstream.members]** change the following functions:

explicit basic_ofstream(const char* s, openmode mode = out | trunc);

to:

explicit basic_ofstream(const char* s, ios_base::openmode mode = ios_base::out | ios_base::trunc);

void open(const char* s, openmode mode = out | trunc);

to:

void open(const char* s, ios_base::openmode mode = ios_base::out | ios_base::trunc);

**Requestor:** Philippe Le Mouël (philippe@roguewave.com)

---

**Issue Number:** 27-811
**Title:** Description of function sync is missing
**Section:** 27.8.1.4 **Overridden virtual functions [lib.filebuf.virtuals]**
**Status:** **active**
**Description:**

Description of the overridden sync( ) function in class basic_filebuf is missing.

**Possible Resolution:**

Add the following description in 27.8.1.4 **Overridden virtual functions [lib.filebuf.virtuals]**:

int sync( );

**Effects:** If *pbase( )* is non-null calls *overflow( traits::eof() )*, which outputs the content of the buffer to the associated file.
**Returns:** If the call to *overflow* returns *traits::eof()*, returns -1 to indicate failure, otherwise returns 0.

**Requestor:** Philippe Le Mouël (philippe@roguewave.com)

---

**Issue Number:** 27-812
**Title:** filebuf::overflow example is incorrect
**Section:** 27.8.1.4 **Overridden virtual functions [lib.filebuf.virtuals]**
**Status:** **active**
**Description:**

The "as if" example for basic_filebuf::overflow has several "typos". It should say:

```
charT* b = pbase();
charT* p = pptr();
charT* end;
char      buf[BSIZE];
char*   ebuf;
typename traits::state_type st;

codecvt_base::result r=
  use_facet<codecvt<charT,char,typename traits::state_type> >(getloc()).
    convert(st,b,p,end,buf,buf+BSIZE,ebuf);
```

**Possible Resolution:**

Should be treated with issue 27-801.

**Requestor:** Public Comment

---

**Issue Number:** 27-813
**Title:** basic_filebuf::overflow does not specifies its return value on success
**Section:** 27.8.1.4 **Overridden virtual functions [lib.filebuf.virtuals]**
**Status:** **active**
**Description:**

The function basic_filebuf::overflow does not specifies its return value on success.

**Possible Resolution:**

The **Returns:** clause should be changed to:

**Returns:** If *traits::eq_int_type(c, traits::eof())* returns false, the function signals success by returning *c*. Otherwise If *traits::eq_int_type(c, traits::eof())* returns true, the function signals success by returning *traits::not_eof( c )*. The function returns *traits::eof()* to indicate failure.

**Requestor:** Public Comment

---

**Issue Number:** 27-814
**Title:** basic_filebuf::imbue has no description
**Section:** 27.8.1.4 **Overridden virtual functions [lib.filebuf.virtuals]**

**Status:** **active**
**Description:**

The virtual function basic_filebuf::imbue has no description.

**Possible Resolution:**

**Requestor:** Philippe Le Mouël (philippe@roguewave.com)

---

**Issue Number:** 27-815
**Title:** description of function seekpos is missing
**Section:** 27.8.1.4 **Overridden virtual functions [lib.filebuf.virtuals]**
**Status:** **active**
**Description:**

basic_filebuf::seekpos has no sementics. Needs to be supplied.

**Possible Resolution:**

**Requestor:** Public Comment

---

# Miscellaneous issues

**Issue Number:** 27-901
**Title:** input/output of unsigned charT
**Section:** 27
**Status:** **active**
**Description:**

NOTE: istream here means basic_istream.
ostream here means basic_ostream.

This issue details all of the issues with inserting or extracting characters.

Currently, IOStreams does not allow the insertion/extraction of unsigned charT or signed charT. There are two types of functions that could insert or extract these character types: formatted IO, and unformatted IO. Formatted IO use overloaded operators. Example:

```
istream& istream::operator>>(charT&);
ostream& ostream::operator<<(charT);
```

Examples of unformatted IO are:

```
istream& istream::get(charT *, streamsize, charT);
int_type ostream::put(charT);
```

This does not allow us to overload on unsigned charT. We can make the formatted operators global, and then overload ("specialize") on char, and wchar_t, but that doesn't solve the unformatted problem.

There is also a problem of inserting or extracting wide-characters from a skinny stream or skinny characters from a wide-stream:

```
char    c;
wchar_t wc;

cout << wc;
wcout << c;
```

**Possible Resolution:**

I have to write a proposal for that.

**Requestor:** John Hinke (hinke@roguewave.com)

---

**Issue Number:** 27-904
**Title:** iosfwd declarations: incomplete
**Section:** 27.2 **Forward declarations [lib.iostream.forward]**
**Status:** **active**
**Description:**

The list of forward declarations is incomplete. Should it contain all of the forward declarations available? Forward declarations for template classes basic_ios, basic_istream, and basic_ostream should have two class parameters, not one. It is equally dicey to define ios, istream, etc. by writing just one parameter for the defining classes. All should have the second parameter supplied, which suggests the need for a forward reference to template class ios_char_traits as well, or at least the two usual specializations of that class.

**Possible Resolution:**

Replace “**Header <iosfwd> synopsis”** by:

```
namespace std {
    template<class charT> struct ios_traits;
    template<class charT, class traits = ios_traits<charT> > class basic_ios;
    template<class charT, class traits = ios_traits<charT> > class basic_streambuf;
    template<class charT, class traits = ios_traits<charT> > class basic_istream;
    template<class charT, class traits = ios_traits<charT> > class basic_ostream;
    template<class charT, class traits = ios_traits<charT> > class basic_stringbuf;
    template<class charT, class traits = ios_traits<charT> > class basic_istringstream;
    template<class charT, class traits = ios_traits<charT> > class basic_ostringstream;
    template<class charT, class traits = ios_traits<charT> > class basic_filebuf;
    template<class charT, class traits = ios_traits<charT> > class basic_ifstream;
    template<class charT, class traits = ios_traits<charT> > class basic_ofstream;
    template<class charT, class traits=ios_traits<charT> >   class ostreambuf_iterator;
    template<class charT, class traits=ios_traits<charT> >   class istreambuf_iterator;

    typedef basic_ios<char>                      ios;
    typedef basic_streambuf<char>                streambuf;
    typedef basic_istream<char>                  istream;
    typedef basic_ostream<char>                  ostream;
    typedef basic_stringbuf<char>                stringbuf;
    typedef basic_istringstream<char>            istringstream;
    typedef basic_ostringstream<char>            ostringstream;
    typedef basic_filebuf<char>                  filebuf;
    typedef basic_ifstream<char>                 ifstream;
    typedef basic_ofstream<char>                 ofstream;
    typedef basic_ios<wchar_t>                   wios;
    typedef basic_streambuf<wchar_t>             wstreambuf;
    typedef basic_istream<wchar_t>               wistream;
    typedef basic_ostream<wchar_t>               wostream;
    typedef basic_stringbuf<wchar_t>             wstringbuf;
    typedef basic_istringstream<wchar_t>                 wistringstream;
    typedef basic_ostringstream<wchar_t>                 wostringstream;
    typedef basic_filebuf<wchar_t>               wfilebuf;
    typedef basic_ifstream<wchar_t>              wifstream;
    typedef basic_ofstream<wchar_t>              wofstream;
}
```

**Requestor:** John Hinke (hinke@roguewave.com)

---

**Issue Number:** 27-906
**Title:** add a typedef to access the traits parameter for a class.
**Section:** 27

**Status:** **active**
**Description:**

Some classes; such as istream don't have access to the traits template parameter. Perhaps each class should provide a typedef for the traits parameter.

You need the traits parameter when you want to say stuff like:

```
cin.ignore(100, traits::newline(use_facet<ctype<cin.char_type> >(cin.getloc()) )
```

There is no way to get the traits type without saying something like: ios_traits<cin.char_type> which is almost reasonable, but it would be nicer to say something like: cin::traits_type. There are some cases where ios_traits is not the traits used to instantiate the stream.

**Possible Resolution:**

The Tokyo meeting recommends acceptance of the following:

Add "typedef traits traits_type;" to basic_ios and basic_streambuf.

Where traits is the template parameter

**Requestor:** John Hinke (hinke@roguewave.com)

---

**Issue Number:** 27-907
**Title:** Use of "instance of" vs. "version of" in descriptions of class ios
**Section:** 27.2 **Forward declarations [lib.iostream.forward]**
**Status:** **active**
**Description:**

Paragraph 2 and 3 describe the class ios and the class wios. One is described as "an instance of the template..." the other is described as "a version of the template...".

**Possible Resolution:**

Change paragraph 3 to:

"The class wios is an instance of the template class basic_ios, specialized by the type wchar_t"

**Requestor:** John Hinke (hinke@roguewave.com)

---

**Issue Number:** 27-908
**Title:** unnecessary ';' (semicolons) in tables
**Section:** 27
**Status:** **active**
**Description:**

There are unnecessary semicolons in tables in chapter 27. These probably should be removed.

**Possible Resolution:**

The only semicolons I can find are in section 27.1.2.6 **Type POS_T [lib.iostreams.pos.t]** "Table 2-Position type requirements".

**Requestor:** John Hinke (hinke@roguewave.com)

---

**Issue Number:** 27-909
**Title:** Editorial issues (typo's)
**Section:** 27
**Status:** **active**
**Description:**

Here are a list of "typo's" and other possible editorial issues.

**Editorial Issue #1**
**Description:**
**27.4.4.3 basic_ios iostate flags functions [lib.iostate.flags]**
The description of ios_base::exceptions is listed under the basic_ios clause.

**Possible Resolution:**
This needs to be moved back to the ios_base clause.

**Editorial Issue #2**
**Description:**
27.1.2.4 **Type POS_T [lib.iostreams.pos.t]**
Description of type POS_T contains many awkward phrases. Needs rewriting for clarity.

**Editorial Issue #3**
**Description:**
27.1.2.3 **Type OFF_T [lib.iostreams.off.t]**
Footnote 1 should say ``for one of" instead of ``for one if." Also, it should``whose representation has at least" instead of ``whose representation at least."

**Requestor:** John Hinke (hinke@roguewave.com)

---

**Issue Number:** 27-910
**Title:** remove streampos in favor of pos_type
**Section:** 27
**Status:** **active**
**Description:**

There are editorial boxes in Chapter 27 that say that streampos was deprecated but no resolution on what to do with functions that use it as an argument type has been offered.

**Possible Resolution:**

John wrote: "Change all references to streampos as an argument type to pos_type. Each class in Chapter 27 has a typedef for, or access to, pos_type."

My understanding is that we should add back streampos, has being the pos_type used on streams instantiated on tiny characters. We also need to replace all the references to streampos by references to pos_type throughout the iostreams chapter ( when streams are instantiated on char, pos_type == streampos ).

**Requestor:** John Hinke (hinke@roguewave.com)

---

**Issue Number:** 27-911
**Title:** stdio synchronization
**Section:** 27.3.1 Narrow stream objects [**lib.narrow.stream.objects]**
**Status:** **active**
**Description:**

Doing measurements on the performance of streambufs attached to stdin on a variety of systems, I found that the performance of a simple loop:

```
while ((c = cin.get()) != EOF) ...
```

was from 5 to 20 times slower than the equivalent

```
while ((c = getc(stdin)) != EOF) ...
```

To my horror, I found that this is a result of a mandate in the WP, that stdin and cin (and also stdout and cout) must be synchronized. As a goal this seems laudable, but if the consequence in many (most) environments is either:

1. an order of magnitude slower input, or
2. breaking link compatibility with C,

maybe we should reconsider this choice, and instead allow-but-not-require that the two be synchronized.

**Possible Resolution:**

Nathan wrote:

“One possibility would be to reintroduce "sync_with_stdio" but give it a boolean argument. sync_with_stdio(true) would cause syncronization, while sync_with_stdio(false) would cause unsyncronization.

This would be agreeable to me. I take it this would be a static member of ios_base? How would it default? I assume that the call with false could be a no-op.”

**Requestor:** Nathan Myers (ncm@cantrip.org)

---

**Issue Number:** 27-912
**Title:** removing **Notes:** from the text
**Section:** 27
**Status:** **active**
**Description:**

This issue is in response to Mats Meta list. It is an attempt to remove normative text from the WP. This issue removes **Notes:** from the text. Some **Notes:** clauses that need to be incorporated into the text will be handled in another issue.

Remove all **Notes:** clauses from the following:

**27.4.2.1 ios_traits value functions [lib.ios.traits.values]**
int_type not_eof(char_type c)

**27.4.2.1 ios_traits value functions [lib.ios.traits.values]**
char_type newline()

**27.4.3.4 ios_base storage functions [lib.ios.base.storage]**
void * & pword(int idx)

**27.5.2.2.3 Get area [lib.streambuf.pub.get]**
int_type snextc()

**27.5.2.4.3 Get area [lib.streambuf.virt.get]**
int showmanyc()

**27.5.2.4.3 Get area [lib.streambuf.virt.get]**
streamsize xsgetn(char_type **s*, streamsize *n*)

**27.6.1.2.2 basic_istream::operator>> [lib.istream::extractors]**
basic_istream<charT, traits>& operator>>(char_type **s*)

**27.7.1.3 Overridden virtual functions [lib.stringbuf.virtuals]**
int_type pbackfail(int_type *c*)

**27.7.1.3 Overridden virtual functions [lib.stringbuf.virtuals]**
int_type overflow(int_type *c*)

**27.8.1.4 Overridden virtual functions [lib.filebuf.virtuals]**
int showmanyc()

**Possible Resolution:**

**Requestor:** John Hinke (hinke@roguewave.com)

---

**Issue Number:** 27-913
**Title:** Incorporating **Notes:** into the text
**Section:** 27
**Status:** **active**
**Description:**

The following **Notes:** clauses need to be incorporated into the WP text:

**27.5.2.1 basic_streambuf constructors [lib.streambuf.cons]**
basic_streambuf()

**27.5.2.4.1 Locales [lib.streambuf.virt.locales]**
void imbue(const locale&)

**27.5.2.4.3 Get area [lib.streambuf.virt.get]**
int_type underflow()

**27.5.2.4.4 Putback [lib.streambuf.virt.pback]**
int_type pbackfail(int *c*)

**27.5.2.4.5 Put area [lib.streambuf.virt.put]**
int_type overflow(int_type *c*)

**27.6.1.1.1 basic_istream constructors [lib.basic.istream.cons]**
virtual ~basic_istream()

**27.6.1.1.2 basic_istream prefix and suffix [lib.istream.prefix]**
bool ipfx(bool *noskipws*)

**27.6.1.2.2 basic_istream::operator>> [lib.istream::extractors]**
basic_istream<charT, traits>& operator>>(bool& *n*)

**27.6.1.3 Unformatted input functions [lib.istream.unformatted]**
basic_istream<charT, traits>& ignore(int *n*, int_type *delim*)

**27.6.2.2 basic_ostream constructors [lib.ostream.cons]**
virtual ~basic_ostream()

**27.6.2.4.2 basic_ostream::operator<< [lib.ostream.inserters]**
basic_ostream<charT, traits>& operator<<(char_type c)
Change this **Notes:** clause to a **Requires:** clause.

**27.7.1.1 basic_stringbuf constructors [lib.stringbuf.cons]**
explicit basic_stringbuf(ios_base::openmode)

**27.8.1.4 Overridden virtual functions [lib.filebuf.virtuals]**
int_type pbackfail(int_type *c*)

**Possible Resolution:**

**Requestor:** John Hinke (hinke@roguewave.com)

---

**Issue Number:** 27-914
**Title:** rethrowing exceptions
**Section:** 27.6.2.4.1 Common requirements **[lib.ostream.formatted.reqmts]**
**Status:** **active**
**Description:**

*[NOTE: This follows directly with 27-903 --John Hinke]*

The typical operator<< looks like this, given current semantics for exceptions:

```
{
  sentry cerberos(*this); if (!cerberos) return;
  iostate save = exceptions(); exceptions(0);

  try {
    if (use_facet< num_put<charT,ostreambuf_iterator<charT,traits> >(
          getloc()).put(*this,*this,fill(),getloc(),val).failed())
      setstate(failbit); // won't throw
  }
  catch (...) { exceptions(save); setstate(badbit); throw; }
  exceptions(save); setstate(rdstate());
}
```

If we change exception semantics so that ios_base::failure just gets rethrown, without setting badbit, we have instead:

```
{
  sentry cerberos(*this);
  if (!cerberos) return;
  try {
    if (use_facet< num_put<charT,ostreambuf_iterator<charT,traits> >(
          getloc()).put(*this,*this,fill(),getloc(),val).failed())
      setstate(failbit);  // might throw
  }
  catch (const ios_base::failure&) { throw; }
  catch (...)                      { setstate(badbit); throw; }
}
```

The examples don't constitute an argument for or against the change, but rather are suggestions for the example code that should appear in **[lib.ostream.formatted.reqmts]** according to what is decided.

For the record, I am in favor of the change.

**Possible Resolution:**

We do not have any example code in 27.6.2.4.1 **Common requirements [lib.ostream.formatted.reqmts],** but if we want to add one, the ones described above are not correct.

**Requestor:** Nathan Myers (ncm@cantrip.org)

---

**Issue Number:** 27-915
**Title:** The use of specialization
**Section:** 27
**Status:** **active**
**Description:**

There is wording in Clause 27 such as:

> "...iostream classes are the instantiations of the..."
> "...class ios is an instance of the..."
> "...class wios is a version of the..."

This wording needs to be consistent with the rest of the document.

**Possible Resolution:**

Make the following changes to be consistent:

**27.1.1 Definitions [lib.iostreams.definitions]**
Replace: "**-- narrow-oriented iostream classes** ...iostream classes are the instantiations of the..."
With: "**--narrow-oriented iostream classes** ...iostream classes are specializations of the..."

**27.1.1 Definitions [lib.iostreams.definitions]**

Replace: "**-- wide-oriented iostream classes** ...iostream classes are the instantiations of the..."
With: "**-- wide-oriented iostream classes** ...iostream classes are specializations of the..."

**27.2 Forward declarations [lib.iostream.forward] paragraph 2**
Replace: "The class ios is an instance of the template..."
With: "The class ios is a specialization of the template..."

**27.2 Forward declarations [lib.iostream.forward] paragraph 3**
Replace: "The class wios is a version of the template..."
With: "The class wios is a specialization of the template..."

**27.4.2 Template struct ios_traits [lib.ios.traits] paragraph 2**
Replace: "An implementation shall provide the following two instantiations of ios_traits:"
With: "An implementation shall provide the following two specializations of ios_traits:"

**27.5.2 Templates class basic_streambuf<charT, traits> [lib.streambuf] paragraph 2**
Replace: "The class streambuf is an instantiation of the template..."
With: "The class streambuf is a specialization of the template..."

**27.5.2 Templates class basic_streambuf<charT, traits> [lib.streambuf] paragraph 3**
Replace: "The class wstreambuf is an instantiation of the template..."
With: "The class wstreambuf is a specialization of the template..."

**Requestor:** John Hinke (hinke@roguewave.com)

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**Issue Number:** 27-916
**Title:** missing descriptions of specializations
**Section:** 27
**Status:** **active**
**Description:**

For compatibility, each templatized class has two specializations. One for skinny characters and one for wide characters. For example:

```
template<class charT, class traits>
class basic_ios : public ios_base {
  //...
};
```

Class ios is a specialization of...
Class wios is a specialization of...

These descriptions are missing for some of the classes. This proposal adds these missing descriptions.

**Possible Resolution:**

Add the following descriptions to the appropriate sections:

For class basic_ios:
**27.4.4 Template class basic_ios [lib.ios]**
The class ios is a specialization of the template class basic_ios specialized by the type char.

The class wios is a specialization of the template class basic_ios specialized by the type wchar_t.

For class basic_istream:

**27.6.1.1 Template class basic_istream [lib.istream]**

The class istream is a specialization of the template class basic_istream specialized by the type char.

The class wistream is a specialization of the template class basic_istream specialized by the type wchar_t.

For class basic_ostream:

**27.6.2.1 Template class basic_ostream [lib.ostream]**

The class ostream is a specialization of the template class basic_ostream specialized by the type char.

The class wostream is a specialization of the template class basic_ostream specialized by the type wchar_t.

For class basic_stringbuf:

**27.7.1 Template class basic_stringbuf [lib.stringbuf]**

The class stringbuf is a specialization of the template class basic_stringbuf specialized by the type char.

The class wstringbuf is a specialization of the template class basic_stringbuf specialized by the type wchar_t.

For class basic_istringstream:

**27.7.2 Template class basic_istringstream [lib.istringstream]**

The class istringstream is a specialization of the template class basic_istringstream specialized by the type char.

The class wistringstream is a specialization of the template class basic_istringstream specialized by the type wchar_t.

For class basic_ostringstream:

**27.7.2.3 Template class basic_ostringstream [lib.ostringstream]**

The class ostringstream is a specialization of the template class basic_ostringstream specialized by the type char.

The class wostringstream is a specialization of the template class basic_ostringstream specialized by the type wchar_t.

For class basic_filebuf:

**27.8.1.1 Template class basic_filebuf [lib.filebuf]**

The class filebuf is a specialization of the template class basic_filebuf specialized by the type char.

The class wfilebuf is a specialization of the template class basic_filebuf specialized by the type wchar_t.

For class basic_ifstream:

**27.8.1.5 Template class basic_ifstream [lib.ifstream]**

The class ifstream is a specialization of the template class basic_ifstream specialized by the type char.

The class wifstream is a specialization of the template class basic_ifstream specialized by the type wchar_t.

For class basic_ofstream:

**27.8.1.8 Template class basic_ofstream [lib.ofstream]**
The class ofstream is a specialization of the template class basic_ofstream specialized by the type char.

The class wofstream is a specialization of the template class basic_ofstream specialized by the type wchar_t.

**Requestor:** John Hinke (hinke@roguewave.com)

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**Issue Number:** 27-917
**Title:** Editorial changes
**Section:** 27.1.2 Type requirements **[lib.iostreams.type.reqmts]**
**Status:** **active**
**Description:**

27.1.2 **[lib.iostreams.type.reqmts]**: Last sentence: "... expects to the character container class." should read "... expects of the character container class."

**Possible Resolution:**

**Requestor:** Public Comment

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**Issue Number:** 27-918
**Title:** Validity of OFF_T to POS_T conversion
**Section:** 27.1.2.3 Type OFF_T **[lib.iostreams.off.t]**
**Status:** **active**
**Description:**

27.1.2.3 **[lib.iostreams.off.t]**: Paragraph 4: "Type OFF_T is convertible to type POS_T. But no validity of the resulting POS_T value is ensured, whether or not the OFF_T value is valid." Of what use is the conversion, then?

**Possible Resolution:**

**Requestor:** Public Comment

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**Issue Number:** 27-919
**Title:** Question on Table 2 assertions
**Section:** 27.1.2.4 Table2 Position type requirements **[lib.iostreams.pos.t]**
**Status:** **active**
**Description:**

27.1.2.4 **[lib.iostreams.pos.t]**: table 2: first row has assertion "p == P(i)" but p does not appear in the expression for that row; also, that row has the note "a destructor is assumed" -- what does this mean?

**Possible Resolution:**

The first row of table 2 should be deleted. The second row already specifies the construction and assignment from an integer value.

**Requestor:** Public Comment

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**Issue Number:** 27-920
**Title:** destination of clog and wclog
**Section:** 27.3.1 Narrow stream objects **[lib.narrow.stream.objects]**, 27.3.2 Wide stream objects **[lib.wide.stream.objects]**
**Status:** **active**
**Description:**

There is currently an editorial box concerning the destination of clog and wclog. I would like to propose the following resolution:

**Possible Resolution:**

Change **27.3.1 Narrow stream objects [lib.narrow.stream.objects]** paragraph 6 to:
The object clog controls output to an implementation defined stream buffer.

Change **27.3.2 Wide stream objects [lib.wide.stream.objects]** paragraph 6 to:
The object wclog controls output to an implementation defined stream buffer.

**Requestor:** John Hinke (hinke@roguewave.com)

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**Issue Number:** 27-921
**Title:** default locale argument to constructor
**Section:** 27
**Status:** **active**
**Description:**

Default locale arguments for stream constructors.

istream and ostream constructors (and all derivations) should have a default locale argument, in the manner of

```
obogusstream(const char *name,const locale& l = locale());
```

**Possible Resolution:**

Add a new argument to the standard stream constructors:

```
const locale& l = locale::global()
```

Add this new argument to the following classes' constructors:

basic_istream,
basic_ostream,
basic_istringstream,
basic_ostringstream,
basic_ifstream,

basic_ofstream
istrstrem
ostrstream

**Requestor:** Nathan Myers (ncm@cantrip.org)
Norihiro Kumagai (kuma@slab.tnr.sharp.co.jp)

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# Annex D issues

**Issue Number:** 27-1001
**Title:** description of function setbuf is not sufficient
**Section:** D.6.1.3 **strstreambuf overridden virtual functions [depr.strstreambuf.virtuals]**
**Status:** **active**
**Description:**

Description of the overridden setbuf(char* s,streamsize n) function in class strstreambuf is not sufficient.

**Possible Resolution:**

Change the current description of function setbuf(char* s, streamsize n) in D.6.1.3 **strstreambuf overridden virtual functions [depr.strstreambuf.virtuals]** to:

streambuf* setbuf( char* s, streamsize n);

and not:

streambuf<char>* setbuf(char* s, streamsize n);

**Effects:** If *s* is not a null pointer, and n > pptr() - pbase(), replace the current buffer (copy its contents and deallocate it) by the buffer of size *n* pointed at by *s*.
In the case where *s* is a null pointer, and n > pptr() - pbase() resize the current buffer to size *n*.
If the function fails, it returns a null pointer.
**Returns:** (streambuf*)(this)

I am not qualified enough to decide if the return type should be changed to strstreambuf* as proposed by Steve Clamage in issue 27-809. I tried it with several compilers, and the results were just error messages. Basically, the compilers were complaining about the fact that the base class virtual function and the overridden virtual function should have the same return type.

**Requestor:** philippe Le Mouël (philippe@roguewave.com)

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**Issue Number:** 27-1002
**Title:** strstreambuf Editorial issues
**Section:** D.6.1 **Class strstreambuf [depr.strstreambuf]**
**Status:** **active**
**Description:**

Class strstreambuf contains several typos and is also missing some typedefs.

**Possible Resolution:**

The following typedefs need to be added to class strstreambuf (D.6.1 **Class strstreambuf [depr.strstreambuf]**) :

- typedef ios_traits<char>::int_type int_type;

This typedef is used in the strstreambuf overridden virtual functions *overflow , pbackfail* and *underflow*.

- typedef ios_traits<char>::pos_type pos_type;

This typedef is used in the strstreambuf overridden virtual functions *seekoff* and *seekpos.*

- typedef ios_traits<char>::off_type off_type;

This typedef is used in the strstreambuf overridden virtual function *seekoff.*

In D.6.1 **Class strstreambuf [depr.strstreambuf]** the notation of the strstreambuf base class is wrong it should say:

*class strstreambuf : public basic_streambuf<char>*

and not:

*class strstreambuf : public streambuf<char> // does not exist*

In D.6.1 **Class strstreambuf [depr.strstreambuf]** the declaration of function freeze is missing the argument name. It should say:

*void freeze(bool freezefl =1 );*

and not:

*void freeze(bool = 1);*

**Requestor:** Philippe Le Mouël (philippe@roguewave.com)

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**Issue Number:** 27-1003
**Title:** istrstream Editorial issues (typos)
**Section:** D.6.2 **Template class istrstream [depr.istrstream]**
**Status:** **active**
**Description:**

Class istrstream contents several typos.

**Possible Resolution:**

In D.6.2 **Template Class istrstream [depr.istrstream]** the previous title should be changed to "D.6.2 Class istrstream", because the class is not a template class.

In D.6.2 **Template Class istrstream [depr.istrstream]** the notation of the istrstream base class is wrong. It should say:

*class istrstream : public basic_istream<char>*

and not:

*class istrstream : public istream<char> // does not exist*

**Requestor:** Philippe Le Mouël (philippe@roguewave.com)

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**Issue Number:** 27-1004

**Title:** ostrstream Editorial issues (typos)
**Section:** D.6.3 **Template class ostrstream [depr.ostrstream]**
**Status:** **active**
**Description:**

Class ostrstream contents several typos.

**Possible Resolution:**

In D.6.3 **Template Class ostrstream [depr.ostrstream]** the previous title should be changed to "D.6.3 Class ostrstream", because the class is not a template class.

In D.6.3 **Template Class ostrstream [depr.ostrstream]** the notation of the ostrstream base class is wrong. It should say:

*class ostrstream : public basic_ostream<char>*

and not:

*class ostrstream : public ostream<char>   // does not exist*

In D.6.3 **Template Class ostrstream [depr.ostrstream]** and D.6.3.2 **Member functions[depr.ostrstream.members]** the declaration of function *void freeze( int freezefl = 1)* is not consistent with the declaration in D.6.1 **Class strstreambuf [depr.strstreambuf],** which is *void freeze(bool freezefl =1 ).* The argument should be *bool* or *int*, but not *bool* in one and *int* in the other.

**Requestor:** Philippe Le Mouël (philippe@roguewave.com)