15.8. Internationalization

You can adapt I/O formats to national conventions. To do so, the class `ios_base` defines the member functions presented in Table 15.31.

Table 15.31. Member Functions for Internationalization

Member Function	Meaning
`imbue(`*loc*`)`	Sets the locale object
`getloc()`	Returns the current locale object

Each stream uses an associated locale object. The initial default locale object is a copy of the global locale object at the construction time of the stream. The locale object defines, for example, details about numeric formatting, such as the character used as the decimal point or the strings used for the textual representation of Boolean values.

In contrast to the C localization facilities, you can configure each stream individually with a specific locale object. This capability can be used, for example, to read floating-point values according to American format and to write them using German format (in German, a comma is used as the "decimal point"). Section 16.2.1, page 860, presents an example and discusses the details.

Several characters, mainly special characters, are often needed in the character set of the stream. For this reason, some conversion functions are provided by streams (Table 15.32).

Table 15.32. Stream Functions for the Internationalization of Characters

Member Function	Meaning
`widen(`*c*`)`	Converts the `char` character *c* to a character of the stream's character set
`narrow(`*c*`,`*def*`)`	Converts character *c* from the stream's character set to a `char`; if there is no such `char`, *def* is returned

For example, to get the newline character from the character set of the stream `strm`, you can use a statement like

```
strm.widen('\n')
```

For additional details on locales and on internationalization in general, see Chapter 16.