**String class**

Strings are objects that represent sequences of characters.  
  
The standard string class provides support for such objects with an interface similar to that of a [standard container](http://www.cplusplus.com/stl) of bytes, but adding features specifically designed to operate with strings of single-byte characters.  
  
The string class is an instantiation of the [basic\_string](http://www.cplusplus.com/basic_string) class template that uses char (i.e., bytes) as its *character type*, with its default [char\_traits](http://www.cplusplus.com/char_traits) and [allocator](http://www.cplusplus.com/allocator) types (see [basic\_string](http://www.cplusplus.com/basic_string) for more info on the template).  
  
Note that this class handles bytes independently of the encoding used: If used to handle sequences of multi-byte or variable-length characters (such as UTF-8), all members of this class (such as [length](http://www.cplusplus.com/string::length) or [size](http://www.cplusplus.com/string::size)), as well as its iterators, will still operate in terms of bytes (not actual encoded characters).

Member types

|  |  |
| --- | --- |
| member type | definition |
| value\_type | char |
| traits\_type | [char\_traits](http://www.cplusplus.com/char_traits)<char> |
| allocator\_type | [allocator](http://www.cplusplus.com/allocator)<char> |
| reference | char& |
| const\_reference | const char& |
| pointer | char\* |
| const\_pointer | const char\* |
| iterator | a [random access iterator](http://www.cplusplus.com/RandomAccessIterator) to char (convertible to const\_iterator) |
| const\_iterator | a [random access iterator](http://www.cplusplus.com/RandomAccessIterator) to const char |
| reverse\_iterator | [reverse\_iterator](http://www.cplusplus.com/reverse_iterator)<iterator> |
| const\_reverse\_iterator | [reverse\_iterator](http://www.cplusplus.com/reverse_iterator)<const\_iterator> |
| difference\_type | [ptrdiff\_t](http://www.cplusplus.com/ptrdiff_t) |
| size\_type | [size\_t](http://www.cplusplus.com/size_t) |

***Member functions***

[(constructor)](http://www.cplusplus.com/reference/string/string/string/)

Construct string object (public member function )

[(destructor)](http://www.cplusplus.com/reference/string/string/~string/)

String destructor (public member function )

[operator=](http://www.cplusplus.com/reference/string/string/operator=/) String assignment (public member function )

***Iterators:***

[begin](http://www.cplusplus.com/reference/string/string/begin/) - Return iterator to beginning (public member function )

[end](http://www.cplusplus.com/reference/string/string/end/) - Return iterator to end (public member function )

[rbegin](http://www.cplusplus.com/reference/string/string/rbegin/) - Return reverse iterator to reverse beginning (public member function )

[rend](http://www.cplusplus.com/reference/string/string/rend/) - Return reverse iterator to reverse end (public member function )

[cbegin -](http://www.cplusplus.com/reference/string/string/cbegin/) Return const\_iterator to beginning (public member function )

[cend](http://www.cplusplus.com/reference/string/string/cend/)- Return const\_iterator to end (public member function )

[crbegin -](http://www.cplusplus.com/reference/string/string/crbegin/) Return const\_reverse\_iterator to reverse beginning (public member function )

[crend](http://www.cplusplus.com/reference/string/string/crend/) - Return const\_reverse\_iterator to reverse end (public member function )

***Capacity:***

[size](http://www.cplusplus.com/reference/string/string/size/) - Return length of string (public member function )

[length](http://www.cplusplus.com/reference/string/string/length/) - Return length of string (public member function )

[max\_size](http://www.cplusplus.com/reference/string/string/max_size/) - Return maximum size of string (public member function )

[resize](http://www.cplusplus.com/reference/string/string/resize/) - Resize string (public member function )

[capacity](http://www.cplusplus.com/reference/string/string/capacity/) - Return size of allocated storage (public member function )

[reserve](http://www.cplusplus.com/reference/string/string/reserve/) -Request a change in capacity (public member function )

[clear](http://www.cplusplus.com/reference/string/string/clear/) - Clear string (public member function )

[empty](http://www.cplusplus.com/reference/string/string/empty/) - Test if string is empty (public member function )

[shrink\_to\_fit](http://www.cplusplus.com/reference/string/string/shrink_to_fit/)- Shrink to fit (public member function )

***Element access:***

[operator[]](http://www.cplusplus.com/reference/string/string/operator%5b%5d/) - Get character of string (public member function )

[at](http://www.cplusplus.com/reference/string/string/at/) - Get character in string (public member function )

[back](http://www.cplusplus.com/reference/string/string/back/) - Access last character (public member function )

[front](http://www.cplusplus.com/reference/string/string/front/) - Access first character (public member function )

***Modifiers:***

[operator+=](http://www.cplusplus.com/reference/string/string/operator+=/) - Append to string (public member function )

[append](http://www.cplusplus.com/reference/string/string/append/) - Append to string (public member function )

[push\_back](http://www.cplusplus.com/reference/string/string/push_back/) - Append character to string (public member function )

[assign](http://www.cplusplus.com/reference/string/string/assign/) - Assign content to string (public member function )

[insert](http://www.cplusplus.com/reference/string/string/insert/) - Insert into string (public member function )

[erase](http://www.cplusplus.com/reference/string/string/erase/) - Erase characters from string (public member function )

[replace](http://www.cplusplus.com/reference/string/string/replace/) - Replace portion of string (public member function )

[swap](http://www.cplusplus.com/reference/string/string/swap/) - Swap string values (public member function )

[pop\_back](http://www.cplusplus.com/reference/string/string/pop_back/)- Delete last character (public member function )

***String operations:***

[c\_str](http://www.cplusplus.com/reference/string/string/c_str/) - Get C string equivalent (public member function )

[data](http://www.cplusplus.com/reference/string/string/data/) - Get string data (public member function )

[get\_allocator](http://www.cplusplus.com/reference/string/string/get_allocator/) - Get allocator (public member function )

[copy](http://www.cplusplus.com/reference/string/string/copy/) - Copy sequence of characters from string (public member function )

[find](http://www.cplusplus.com/reference/string/string/find/) - Find content in string (public member function )

[rfind](http://www.cplusplus.com/reference/string/string/rfind/) - Find last occurrence of content in string (public member function )

[find\_first\_of](http://www.cplusplus.com/reference/string/string/find_first_of/) - Find character in string (public member function )

[find\_last\_of](http://www.cplusplus.com/reference/string/string/find_last_of/) - Find character in string from the end (public member function )

[find\_first\_not\_of](http://www.cplusplus.com/reference/string/string/find_first_not_of/) - Find absence of character in string (public member function )

[find\_last\_not\_of](http://www.cplusplus.com/reference/string/string/find_last_not_of/) - Find non-matching character in string from the end (public member function )

[substr](http://www.cplusplus.com/reference/string/string/substr/) - Generate substring (public member function )

[compare](http://www.cplusplus.com/reference/string/string/compare/) - Compare strings (public member function )

***Member constants***

[npos](http://www.cplusplus.com/reference/string/string/npos/) - Maximum value for size\_t (public static member constant )

***Non-member function overloads***

[operator+](http://www.cplusplus.com/reference/string/string/operator+/) - Concatenate strings (function )

[relational operators](http://www.cplusplus.com/reference/string/string/operators/) - Relational operators for string (function )

[swap](http://www.cplusplus.com/reference/string/string/swap-free/) - Exchanges the values of two strings (function )

[operator>>](http://www.cplusplus.com/reference/string/string/operator%3E%3E/) - Extract string from stream (function )

[operator<<](http://www.cplusplus.com/reference/string/string/operator%3C%3C/) - Insert string into stream (function )

[getline](http://www.cplusplus.com/reference/string/string/getline/) - Get line from stream into string (function )