### core::rb\_tree

template <class Key, class Value, class KeyOfValue, class KeyCompare = less<Key>, class Allocator = allocator<T> > class rb\_tree;

#### Member types

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| --- | --- | --- |
| **member type** | **definition** | **notes** |
| key\_type | The first template parameter (Key) |  |
| value\_type | The second template parameter (Value) |  |
| key\_compare | The fourth template parameter (KeyCompare) | defaults to: less<Key> |
| allocator\_type | The fifth template parameter (Allocator) | defaults to: allocator<Value> |
| reference | value\_type& |  |
| const\_reference | const value\_type& |  |
| pointer | value\_type\* |  |
| const\_pointer | const value\_type\* |  |
| iterator | a bidirectional iterator to value\_type | convertible to: const\_iterator |
| const\_iterator | a bidirectional iterator to const value\_type |  |
| reverse\_iterator | a bidirectional reverse iterator to value\_type |  |
| const\_reverse\_iterator | a bidirectional reverse iterator to const value\_type |  |
| primitive\_iterator | a bidirectional primitive iterator to value\_type | convertible to: const\_primitive\_iterator |
| const\_primitive\_iterator | a bidirectional primitive iterator to const value\_type |  |
| reverse\_primitive\_iterator | a bidirectional reverse primitive iterator to value\_type |  |
| const\_reverse\_primitive\_iterator | a bidirectional reverse primitive iterator to const value\_type |  |
| size\_type | an unsigned integral type that can represent any non-negative value of difference\_type | usually the same as size\_t |
| difference\_type | a signed integral type | usually the same as ptrdiff\_t |

#### Member functions

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| (constructor) | Construct red-black tree (public member function) |
| (destructor) | Red-black destructor (public member function) |
| operator= | Assign content (public member function) |

##### Iterators:

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| --- | --- |
| begin | Return iterator to beginning (public member function) |
| end | Return iterator to end (public member function) |
| rbegin | Return reverse\_iterator to reverse beginning (public member function) |
| rend | Return reverse\_iterator to reverse end (public member function) |
| cbegin | Return const\_iterator to beginning (public member function) |
| cend | Return const\_iterator to end (public member function) |
| crbegin | Return const\_reverse\_iterator to reverse beginning (public member function) |
| crend | Return const\_reverse\_iterator to reverse end (public member function) |
| pbegin | Return primitive\_iterator to beginning (public member function) |
| pend | Return primitive\_iterator to end (public member function) |
| rpbegin | Return reverse\_primitive\_iterator to reverse beginning (public member function) |
| rpend | Return reverse\_primitive\_iterator to reverse end (public member function) |
| cpbegin | Return const\_primitive\_iterator to beginning (public member function) |
| cpend | Return const\_primitive\_iterator to end (public member function) |
| crpbegin | Return const\_reverse\_primitive\_iterator to reverse beginning (public member function) |
| crpend | Return const\_reverse\_primitive\_iterator to reverse end (public member function) |

##### Capacity:

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| empty | Test whether container is empty (public member function) |
| size | Return size (public member function) |
| max\_size | Return maximum size (public member function) |

##### Modifiers:

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| --- | --- |
| emplace\_equal | Construct and insert a repeatable element (public member function) |
| insert\_equal | Insert repeatable elements (public member function) |
| emplace\_unique | Construct and insert a unique element (public member function) |
| insert\_unique | Insert unique elements (public member function) |
| erase | Erase elements (public member function) |
| swap | Swap content (public member function) |
| clear | Clear content (public member function) |

##### Operations:

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| find | Get iterator to element (public member function) |
| lower\_bound | Return iterator to lower bound (public member function) |
| upper\_bound | Return iterator to upper bound (public member function) |

##### Observers:

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| --- | --- |
| key\_comp | Return key comparison object (public member function) |
| get\_allocator | Get allocator (public member function) |