core::matrix

```
template <class T, class Allocator = allocator<T> > class matrix;
```

Member types

member type	definition	notes
value_type	The first template parameter (T)	
allocator_type	The second template parameter (Allocator)	defaults to: allocator<T>
scalar_type	scalar<T, Allocator>	
const_scalar_type	const scalar_type	
vector_type	vector<T, Allocator>	
const_vector_type	const vector_type	
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	
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

(constructor)	Construct matrix (public member function)
(destructor)	Matrix destructor (public member function)
operator=	Assign content (public member function)

Iterators:

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)
vbegin	Return iterator to begin row (public member function)
vend	Return iterator to end row (public member function)
rvbegin	Return reverse_iterator to reverse begin row (public member function)
rvend	Return reverse_iterator to reverse end row (public member function)
cvbegin	Return const_iterator to begin row (public member function)
cvend	Return const_iterator to end row (public member function)
crvbegin	Return const_reverse_iterator to reverse begin row (public member function)
crvend	Return const_reverse_iterator to reverse end row (public member function)

Capacity:

empty	Test whether container is empty (public member function)
dimension	Return dimension (public member function)
columns	Return columns (public member function)
rows	Return rows (public member function)
area	Return area (public member function)

row_size	Return row size (public member function)
size	Return size (public member function)
max_size	Return maximum size (public member function)

Element access:

operator[]	Access element (public member function)
at	Access element (public member function)
data	Access data (public member function)
scalar	Return the specified scalar (public member function)
vector	Return the specified vector (public member function)

Modifiers:

assign	Assign a new matrix (public member function)
create	Create a matrix without copying the data (public member function)
fill	Fill matrix with specified value (public member function)
linear_fill	Fill matrix with linear gradient values (public member function)
value	Set matrix elements with specified value (public member function)
linear_value	Set matrix elements with linear gradient values (public member function)
generate	Generate values for matrix with function (public member function)
remap	Map source data to a matrix (public member function)
reshape	Changes the shape of the matrix without copying the data (public member function)
swap	Swap content (public member function)
clear	Clear content (public member function)

Operations:

operator+=	Add a value or matrix (public member function)
operator-=	Subtract a value or matrix (public member function)

operator*=	Multiply a value or matrix (public member function)
operator/=	Divided by a value or matrix (public member function)
operator&=	And a value or matrix (public member function)
operator^=	Xor a value or matrix (public member function)
operator|=	Or a value or matrix (public member function)

Observers:

get_allocator	Get allocator (public member function)

Non-member function overloads:

operator+	Matrix addition (public member function)
operator-	Matrix subtraction (public member function)
operator*	Matrix multiplication (public member function)
operator/	Matrix division (public member function)
operator&	Matrix and (public member function)
operator^	Matrix xor (public member function)
operator|	Matrix or (public member function)
operator<	Matrix less than (public member function)
operator>	Matrix greater than (public member function)
operator<=	Matrix less than or equal to (public member function)
operator>=	Matrix greater than or equal to (public member function)
operator==	Matrix equal to (public member function)
operator!=	Matrix not equal to (public member function)