

Contents

Foreword	6
1 General	7
1.1 Scope	7
1.2 Normative references	7
1.3 Namespaces, headers, and modifications to standard classes	7
1.4 Terms and definitions	8
1.5 Future plans (Informative)	8
1.6 Feature-testing recommendations (Informative)	8
2 Modifications to the C++ Standard Library	10
2.1 Uses-allocator construction	10
3 General utilities library	11
3.1 Utility components	11
3.1.1 Header <experimental/utility> synopsis	11
3.1.2 Class erased_type	11
3.2 Tuples	11
3.2.1 Header <experimental/tuple> synopsis	11
3.2.2 Calling a function with a tuple of arguments	12
3.3 Metaprogramming and type traits	12
3.3.1 Header <experimental/type_traits> synopsis	12
3.3.2 Other type transformations	15
3.4 Compile-time rational arithmetic	16
3.4.1 Header <experimental/ratio> synopsis	16
3.5 Time utilities	17
3.5.1 Header <experimental/chrono> synopsis	17
3.6 System error support	17
3.6.1 Header <experimental/system_error> synopsis	17
4 Function objects	18
4.1 Header <experimental/functional> synopsis	18
4.2 Class template function	19
4.2.1 function construct/copy/destroy	21
4.2.2 function modifiers	21
4.3 Searchers	22
4.3.1 Class template default_searcher	22
4.3.1.1 default_searcher creation functions	23
4.3.2 Class template boyer_moore_searcher	23
4.3.2.1 boyer_moore_searcher creation functions	24
4.3.3 Class template boyer_moore_horspool_searcher	24
4.3.3.1 boyer_moore_horspool_searcher creation functions	25
5 Optional objects	26
5.1 In general	26
5.2 Header <experimental/optional> synopsis	26
5.3 optional for object types	27
5.3.1 Constructors	29
5.3.2 Destructor	30
5.3.3 Assignment	31
5.3.4 Swap	33
5.3.5 Observers	33
5.4 In-place construction	34

5.5	No-value state indicator	34
5.6	Class <code>bad_optional_access</code>	35
5.7	Relational operators	35
5.8	Comparison with <code>nullopt</code>	35
5.9	Comparison with <code>T</code>	36
5.10	Specialized algorithms	37
5.11	Hash support	37
6	Class <code>any</code>	38
6.1	Header <code><experimental/any></code> synopsis	38
6.2	Class <code>bad_any_cast</code>	39
6.3	Class <code>any</code>	39
6.3.1	<code>any</code> construct/destroy	39
6.3.2	<code>any</code> assignments	40
6.3.3	<code>any</code> modifiers	41
6.3.4	<code>any</code> observers	41
6.4	Non-member functions	41
7	<code>string_view</code>	43
7.1	Header <code><experimental/string_view></code> synopsis	43
7.2	Class template <code>basic_string_view</code>	44
7.3	<code>basic_string_view</code> constructors and assignment operators	46
7.4	<code>basic_string_view</code> iterator support	47
7.5	<code>basic_string_view</code> capacity	47
7.6	<code>basic_string_view</code> element access	48
7.7	<code>basic_string_view</code> modifiers	48
7.8	<code>basic_string_view</code> string operations	49
7.8.1	Searching <code>basic_string_view</code>	50
7.9	<code>basic_string_view</code> non-member comparison functions	52
7.10	Inserters and extractors	53
7.11	Hash support	53
8	Memory	54
8.1	Header <code><experimental/memory></code> synopsis	54
8.2	Shared-ownership pointers	56
8.2.1	Class template <code>shared_ptr</code>	56
8.2.1.1	<code>shared_ptr</code> constructors	60
8.2.1.2	<code>shared_ptr</code> observers	61
8.2.1.3	<code>shared_ptr</code> casts	62
8.2.2	Class template <code>weak_ptr</code>	63
8.2.2.1	<code>weak_ptr</code> constructors	64
8.3	Type-erased allocator	64
8.4	Header <code><experimental/memory_resource></code> synopsis	64
8.5	Class <code>memory_resource</code>	65
8.5.1	Class <code>memory_resource</code> overview	65
8.5.2	<code>memory_resource</code> public member functions	66
8.5.3	<code>memory_resource</code> protected virtual member functions	66
8.5.4	<code>memory_resource</code> equality	67
8.6	Class template <code>polymorphic_allocator</code>	67
8.6.1	Class template <code>polymorphic_allocator</code> overview	67
8.6.2	<code>polymorphic_allocator</code> constructors	68
8.6.3	<code>polymorphic_allocator</code> member functions	68
8.6.4	<code>polymorphic_allocator</code> equality	70
8.7	template alias <code>resource_adaptor</code>	70
8.7.1	<code>resource_adaptor</code>	70

8.7.2	resource_adaptor_imp constructors	71
8.7.3	resource_adaptor_imp member functions	71
8.8	Access to program-wide memory_resource objects	72
8.9	Pool resource classes	72
8.9.1	Classes synchronized_pool_resource and unsynchronized_pool_resource	72
8.9.2	pool_options data members	74
8.9.3	pool resource constructors and destructors	75
8.9.4	pool resource members	75
8.10	Class monotonic_buffer_resource	76
8.10.1	Class monotonic_buffer_resource overview	76
8.10.2	monotonic_buffer_resource constructor and destructor	77
8.10.3	monotonic_buffer_resource members	78
8.11	Alias templates using polymorphic memory resources	78
8.11.1	Header <experimental/string> synopsis	78
8.11.2	Header <experimental/deque> synopsis	79
8.11.3	Header <experimental/forward_list> synopsis	79
8.11.4	Header <experimental/list> synopsis	79
8.11.5	Header <experimental/vector> synopsis	80
8.11.6	Header <experimental/map> synopsis	80
8.11.7	Header <experimental/set> synopsis	81
8.11.8	Header <experimental/unordered_map> synopsis	81
8.11.9	Header <experimental/unordered_set> synopsis	82
8.11.10	Header <experimental/regex> synopsis	82
9	Futures	83
9.1	Header <experimental/future> synopsis	83
9.2	Class template promise	83
9.3	Class template packaged_task	84
10	Algorithms library	86
10.1	Header <experimental/algorithm> synopsis	86
10.2	Search	86
10.3	Shuffling and sampling	87