

Doc. no.: N4823
Date: 2019-07-20
Reply to: Titus Winters (titus@google.com)
Audience: WG21

Cologne 2019 LEWG Summary

This paper is a summary of the activities of the Library Evolution Working Group during the recent WG21 meeting in Cologne.

In brief: we discussed 58 papers during the meeting (we did not meet after Saturday plenary). About half of our time was spent on papers that are considered C++20 design fixes. There are approximately 20 papers that are being tracked that have not been discussed by either LEWG or LEWGI..

Acknowledgements

Thank you to Jonathan Coe for note-taking almost the entirety of this meeting. Additional thanks to everyone else that was forced into service the rest of the time.

My most profound thanks to everyone that participated in the discussions during the week. I continue to be deeply pleased with the quality and professionalism of our design discussions.

Commitments/Homework

A number of people volunteered to write follow-up papers or otherwise help make progress on some in-flight proposals during the week. The following is a listing of those promises.

- Zach Laine - Follow up P1655R0 with proposed wording for a new SD describing LEWG design policy.
- Matthias Kretz, David Hollman, Nevin Lieber - Propose policy describing ranges x parallel algorithms - we'd like to focus on ranges algorithms going forward, but parallel algorithms only exist in the legacy versions at this time.

Papers Forwarded to LWG for C++20

- P1754 - Rename concepts to `standard_case` for C++20, while we still can

Text Formatting

- P1650 - Output `std::chrono::days` with 'd' suffix
- P1652 - Printf corner cases in `std::format`
- P1636 - Formatters for library types

Ranges and Algorithms

- P1522 - Iterator Difference Type and Integer Overflow
- P1739 - Type erasure for forwarding ranges in combination with "subrange-y" view adaptors
- P1716 - ranges compare algorithm are over-constrained
- P1638 - basic_istream_view's iterator should not be copyable
- P1523 - Views and Size Types
- P1207 - Movability of Single-pass Iterators
- P1474 - Helpful pointers for ContiguousIterator
-

New Types

- P1132 out_ptr - a scalable output pointer abstraction

Misc

- P1643 - Add wait/notify to atomic_ref
- P1644 - Add wait/notify to atomic
- P1690 - Refinement Proposal for P0919 Heterogeneous lookup for unordered containers
- P1661 - Remove dedicated precalculated hash lookup interface
- P1612 - Relocate Endian's Specification
- P1639 - Unifying source_location and contract_violation
- P1423 - char8_t backward compatibility remediation
- P0980 - Making std::string constexpr
- P0593 - (Just the naming of bless)
- P1152 - Deprecating volatile
- P1651 - bind_front should not unwrap reference_wrapper

Forwarded for C++Next

- P1048 - A proposal for a type trait to detect scoped enumerations
- P1682 - std::to_underlying
- P1317 - Remove return type deduction in std::apply
- P1251 - A more constexpr bitset
- P0943 - Support C atomics in C++
- P1072 - basic_string::resize_default_init
- P1659 - starts_with and ends_with
- P1348 - An Executor Property for Occupancy of Execution Agents
- P1147 - Printing `volatile` Pointers
- P1760 - snapshot_source - A Horse with a Better Name
- P1679 - String substring checking

Discussed but not Approved nor Forwarded

Executors (several competing design proposals)

- P1737 - unique_function vs. any_invokable - Bikeshedding Off the Rails
- P1764 - ssize() Should be Named count()
- P1610 - Rename await_resume() to await_result()
- P1727 - Issues with current flat_map proposal
- P1702 - Annex D Means Deprecated
- P1681 - Revisiting allocator model for coroutine lazy/task/generator
- P0401 - Providing size feedback in the Allocator interface
- P1655 - LEWG Omnibus Design Policy Paper
- P1684 - mduarray: An Owing Multidimensional Array Analog of mdspan
- P1408 - Abandon observer_ptr
- P0709 - Zero-overhead deterministic exceptions: Throwing values
- P1028 - SG14 status_code and standard error object for P0709 Zero-overhead deterministic exceptions
- P1030 - std::filesystem::path_view
- P1318 - Tuple application traits
- P1278 - offsetof For the Modern Era
- P0350 - Integrating simd with parallel algorithms
- P1280 - Integer Width Literals