

# Ship C++26

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## Abstract

WG21 expended great energy producing a high-quality Draft International Standard (DIS) for approval by national bodies to be published as C++26. No new technical concerns with that draft have been raised, hence we propose submitting that draft for publication and allowing the community to reliably benefit from the results of everything the committee has worked hard to produce.

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# 1 Introduction

At the 2026-03 meeting of WG21 in Croydon the committee voted to produce a DIS and submit it to national bodies as C++26<sup>1</sup>:

## WG21, Croydon Plenary, 2026-03-28, Poll

Appoint a review committee composed of Daniel Krügler, Jonathan Wakely, Neelofer Banglawala, and Shafik Yaghmour to approve the correctness of the C++ working paper as modified by the polls approved at this meeting, and direct the Convener to transmit the approved updated working paper for DIS ballot.

|           |                              |
|-----------|------------------------------|
| In favour | 84 in room + 30 online = 114 |
| Opposed   | 7 in room + 5 online = 12    |
| Abstain   | 1 in room + 2 online = 3     |

These results met (and far exceeded) WG21's typical standard for consensus, and so the named review committee worked diligently to produce a draft and submit it to ISO.

That submission put the C++26 project at the enquiry stage as described in Section 2.6 of [iso2026]. With this draft in hand, national bodies were given a 12-week period to vote on the draft, and that period ends October 22nd, 2026. By the time this paper is being considered, the results of that vote should be available.

In Section 2.6.3 of [iso2026] the criteria for approval are described:

An enquiry draft is approved if

- a) a two-thirds majority of the votes cast by the P-members are in favour, and
- b) not more than one-quarter of the total number of votes cast are negative.

Based on the results of this vote, it is the responsibility of WG21 to advise the chair of SC22 as to what course of action to take next (from Section 2.6.4 of [iso2026]):

On receipt of the results of the voting and any comments, an appropriate group of the committee, which would typically be the working group to which the project is assigned, will, at a meeting, address any comments received and prepare, as needed, a revised version. The group will advise the Chair on the possible courses of action. The Chair of the committee, in consultation with the Secretary/Committee Manager and the Project Leader or working group Convenor, and the Office of the CEO, shall take one of the following courses of action:

- a) when the approval criteria of 2.6.3 are met, and no technical changes are to be included, to proceed directly to publication (see 2.8);
- b) when the approval criteria of 2.6.3 are met, but technical changes are to be included:
  - 1) to register the revised enquiry draft, as modified, as a final draft Inter-

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<sup>1</sup>[N5040]

- national Standard, or
- 2) to circulate the revised enquiry draft for voting (see 2.6.1). The revised enquiry draft will be circulated for a voting period of eight weeks. Committees are limited to only one revised enquiry draft where the approval criteria are met in this case;
- c) when the approval criteria of 2.6.3 are not met:
  - 1) to circulate the revised enquiry draft for eight weeks voting (see 2.6.1), or
  - 2) to circulate the revised committee draft for comments, or
  - 3) to circulate a revised draft as a draft Technical Specification, or
  - 4) to cancel the project, subject to a decision by the committee.In case 3), the project shall start at the approval stage (i.e. DTS: draft Technical Specification).

Historically, enquiry ballot votes for the C++ draft have always been unanimous (barring one instance that we understand to have been a clerical error). The first option above, to take the DIS and immediately publish it, has always been taken. Conveners have always indicated that this process would happen without needing further decisions from WG21 itself.

That DIS has had substantial technical work put into its quality, and WG21 has deliberated extensively to conclude that it is the Standard we collectively want C++26 to be. The committee has available to it the option to reconsider anything it wants to in the draft and then submit a new draft, either for the approval stage or a new enquiry stage.

After another ballot period, however, time to do anything else to realize a published C++26 becomes limited or nonexistent. Should C++26 not reach the approval stage in time, it will be subject to automatic cancellation as described in Section 2.1.6.1 of [iso2026]:

All work items (excluding PWIs) which have been in the work programme for more than 36 months (limit date) and have not reached the approval stage (see 2.7) shall be automatically cancelled by the Office of the CEO. If the project has not reached the enquiry stage six months prior to the limit date, the project shall be automatically cancelled by the Office of the CEO.

A single extension of up to 12 months can be given for an International Standard project on request by the Secretary/Committee Manager of the committee to the Office of the CEO.

The start of that clock is January 2nd, 2025<sup>2</sup>, when the project was registered. That gives us until the end of 2027 to have a draft in the approval stage, or we will need to get an extension. Given the ponderous speed with which each step moves, using the 12-month extension would leave too little time to start the C++29 project, produce a committee draft, process NB comments on that draft, and enter the next enquiry stage in the 2029 calendar year.

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<sup>2</sup>ISO makes the current state of the project and the various dates when certain transitions happen available here: <https://sd.iso.org/projects/project/91179/overview>.

## 2 Proposal

Regardless of the final tally of votes, it is clear that there will be comments on the C++26 DIS asking for the removal of Contracts. That removal is, of course, counter to the consensus position we have within WG21, and the motivation for that removal is not based on any meaningful new information. Therefore, we propose responding to all such comments with no consensus for change.

In response to those comments, we can clearly communicate to the relevant national bodies the same inputs that led WG21 to make the choices it made. For that purpose, [P2899R1] already records the history of the discussion and design for Contracts, and [P3846R1] responds to all of the concerns that have been raised. If WG21 requests it, a new paper describing C++26 Contracts, the concerns, and the responses to those concerns can be produced instead<sup>3</sup>.

### Proposal: No Consensus to Remove Contracts

Respond to all comments requesting the removal of Contracts from the C++26 DIS with no consensus for change. Publish [P2899R1] and [P3846R1] as N-numbered ISO papers to clarify why the Contracts design in the DIS is the right feature for ISO C++.

There are two scenarios we might be in after the results of the enquiry stage are known (which will be immediately before the mailing that includes this paper).

- If the approval criteria are met (i.e., a two-thirds majority of P-member votes in favour and no more than one-quarter of all votes cast negative) then we can immediately publish the draft as C++26.

In this scenario, we propose to take this course of action:

### Proposal: Publish the Approved DIS

If the results of the enquiry ballot meet the criteria for approval, we ask the chair and the convener to submit the DIS for publication with no technical changes.

- If the approval criteria are not met, it will most likely be because of extensive efforts to circumvent the consensus WG21 has reached. These are efforts being undertaken by the same individuals who have already had their positions heard repeatedly within WG21. We do not believe those efforts have presented any technical concerns that have not already been extensively discussed. Given that, we are confident that presenting national bodies with a clearer picture of the history and content of the discussion about Contracts and C++26 will lead them to the same resolution WG21 has reliably arrived at.

The next step available to us in this situation is to submit a new draft for an eight-week voting period and have another DIS ballot. It is unclear if we can resubmit exactly the same draft, which would be the most appropriate response, so we propose the next best alternative —

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<sup>3</sup>Sending a new paper as the committee's response to the comments on the DIS would require seeing those comments — given the timing between those comments being available and the pre-Búzios mailing, we do not believe a targeted response can be prepared ahead of time. On the other hand, such a response is not going to rely on information and reasoning that has not already been discussed and presented to WG21 numerous times, so it can be produced in short order.

submit a new DIS with a change we have already, in effect, approved as part of C++26. That change would be the first change adopted for the C++29 draft as a defect report, the resolution of [CWG2228] that was included in [P4271R0] and adopted in Brno.

**Proposal: Resubmit the DIS with One DR Change**

If the results of the enquiry ballot do not meet the criteria for approval, we ask the convener to apply the resolution of [CWG2228] in [P4271R0] to the previous DIS (the first change to the draft that has already been approved by WG21 plenary as a defect report) and submit that to the chair as a new DIS.

WG21 has, for its entire history as far as we are aware, operated with the intent of performing all technical discussion in WG21 and then asking that those who participated respect the consensus that discussion produced. Repeating the same technical discussions with no new information subverts that process and wastes not only the time of everyone participating in this committee, but also the goodwill and faith of both our colleagues and our communities.

We do not lightly suggest setting aside the national body votes, but we believe that those who have been pushing national bodies to vote against the C++26 draft have been doing so by presenting technical and procedural complaints in a one-sided manner to any group that will listen to them. A future in which no decision made by WG21 can be relied upon to stand while any objection persists is one where the wider C++ community can no longer adopt and benefit from the results of any of our efforts.

### 3 Authorship of This Paper

I am submitting this paper on my own with no co-authors because I do not believe it is meaningful to get co-authors on a paper asking WG21 to do what it has always indicated that it will do, and I do not want to split our community into factions based on who chooses to co-author this proposal.

Those who want to continue to have faith in the work WG21 has done will support it. Those who want dissent to be a veto power will consider pushing for different courses of action.

I do not want to tie anyone's hands by asking them to co-author a group paper, though if this process does drag on and anyone does want to indicate such support, I will happily add their names to a future revision.

In addition, there are likely to be more papers asking for specific courses of action — even the same courses of action as this paper's proposals — which deserve similar levels of consideration. Those papers will better capture specific opinions on technical details and those who want to preemptively support such opinions.

### 4 Conclusion

Despite the incredible effort expended to find and build consensus for the contents of C++26, we find ourselves in trying times where objections continue to be re-raised without associated compelling technical reasons to support those objections. It is our sincere hope that we can find the consensus

to move forward, improve our processes to better communicate with one another, and build on the great work that has been done to make C++26 the step forward that it is.

In an ideal world, this paper will never need to be considered, and the C++26 draft will have been published without undue additional burden on the committee. Should that not be possible, we believe the proposals in this paper are the optimal way to move forward and continue building on the work that WG21 has always produced.

## Acknowledgments

I would like to thank everyone who has helped to make C++26 a reality, and all of those who work together to find solutions that make this language we all depend upon as good as it can be for the vast array of uses to which it applies.

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