

Channel Operating Margin (COM) Code Pathway to Open Source – November 2024 Preview

Kent Lusted, Independent/Self

Background

- IEEE Std. 802.3 and amendments normatively specify Channel Operating Margin (COM) via equations and methods in Annex 93A and 178A
 - This proposal would not impact the continued normative specification of COM through equations and methods in Annex 93A and 178A
- There have been and continue to be contributions of software code implementations of these equations and methods for participants to use
 - The contributed COM software code implementation is being widely used by industry participants
- It is increasingly important to ensure that the “reference” code implementation is revision controlled, peer reviewed, cross checked, and bug free and maintained over time

Directional Support

- Much of the Q&A on the March 2024 Plenary presentation asked about the next level of details
- There was strong consensus within the P802.3dj Task Force to investigate an open source approach for the COM code

Channel Operating Margin (COM) Code as Open Source?

Kent Lusted, Intel Corporation, IEEE P802.3dj Task Force Electrical Track Chair

https://www.ieee802.org/3/dj/public/24_03/lusted_3dj_05_2403.pdf

Straw Poll #10

I would support investigating an open source approach (for example, the IEEE SA BOG Open Source Committee (IEEE OSCOM) framework) for the Channel Operating Margin (COM) code.

Results (all): Y: 68, N: 2, A: 17

https://www.ieee802.org/3/dj/public/24_03/motions_3cwdj_2403.pdf

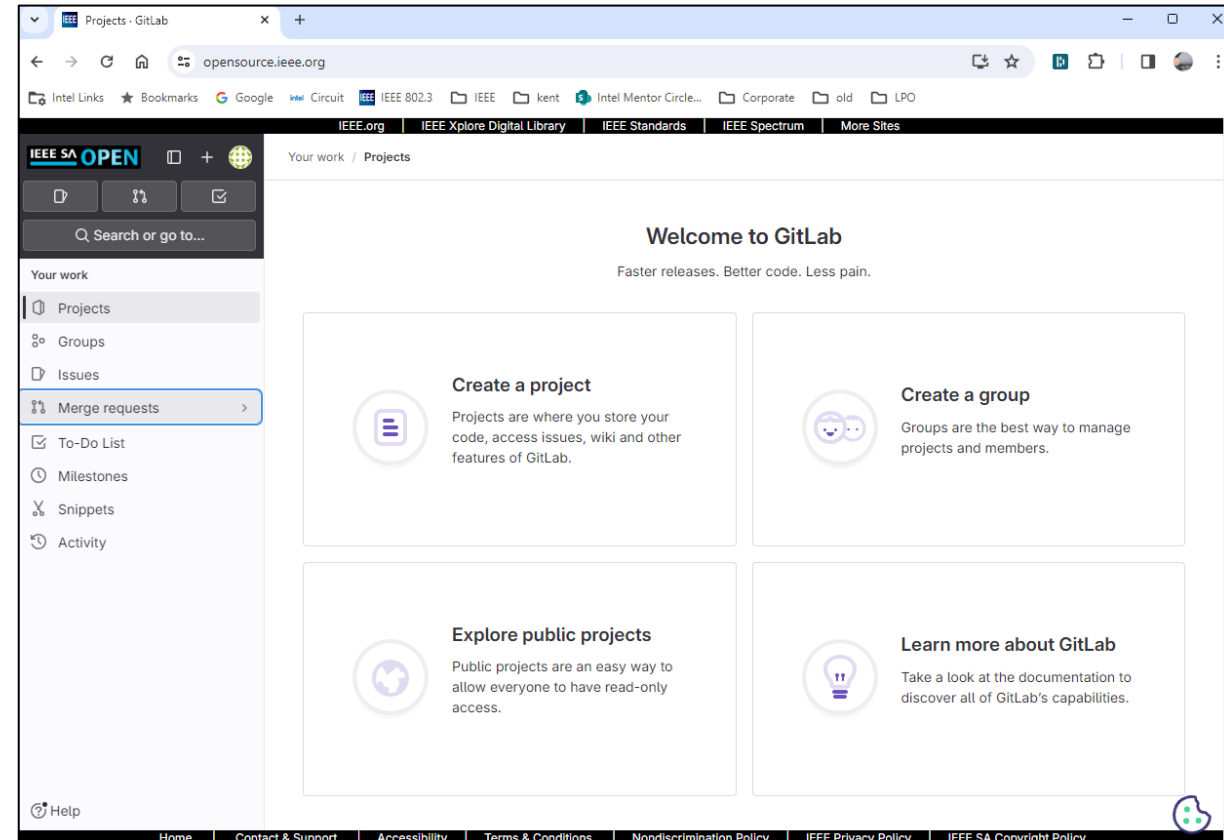
Detailed Proposal

A Path via IEEE SA Open Source

- Use the IEEE SA BOG Open Source Committee (IEEE OSCom) framework for the COM code
 - https://standards.ieee.org/wp-content/uploads/import/documents/other/OSCOM_Operations_Manual.pdf
 - The IEEE Open Source Platform consists of the code and document repositories, license repositories, communication forums, Project management systems, and related administrative and end-user tools maintained by IEEE for the purpose of hosting Open Source Projects together with the associated governance mechanisms, support mechanisms, and other services offered to participants, users, and consumers of Open Source Projects.

IEEE SA Open Source Repo Option

- Hosted by GitLab
 - <https://opensource.ieee.org/>
- Free IEEE web account to access
- Full suite of tools available to manage:
 - Access and responsibilities
 - Commit or merge requests
 - Forking, branching and merging
 - Issues and problems
 - Security



IEEE OSCom Project Tiers

There are five tiers of IEEE Open Source Projects:

Tier 1 — Individual Projects, which are maintained and managed by an individual who may accept contributions from others.

Tier 2 — Group Projects—Projects maintained and managed by a group of individuals or organizations. Such Projects will typically have multiple maintainer(s), committers, etc.

Tier 3 — Open Source Projects reviewed and approved for use of the IEEE Open Source Platform by OSCom to create IEEE Open Source Releases or products.

Tier 4 — IEEE Open Source Projects incorporated into IEEE standards—IEEE Open Source Projects operating in conjunction with an SASB authorized standards Project.

Tier 5 — Joint IEEE Open Source Projects—IEEE Open Source Projects that are operating in conjunction with another IEEE Board or Organizational Unit and are also subject to the policies and procedures of that Board or Organizational Unit.

https://standards.ieee.org/wp-content/uploads/import/documents/other/OSCOM_Operations_Manual.pdf

Per IEEE SA OSCom Operations Manual Clause 2, “Open Source is **incorporated** into an IEEE standard if it is normatively or informatively included as part of the text of the standard or cited in the standard.”

IEEE SA OSCom Tier 4

- IEEE Volunteer roles:
 - IEEE Open Source Project Lead
 - Responsible for the vitality, organization, development, evaluation, operation, security, and maintenance of an IEEE Open Source Project.
 - Shall be an Officer of the Standards Committee or Working Group responsible for the Project
 - The IEEE Open Source Project Lead may delegate specific responsibilities to an alternate IEEE Open Source Project Representative
 - Contributor
 - Any person who submits any material to an IEEE Open Source Project
 - Shall be a member of the Standards Committee or Working Group
 - All Contributors to IEEE Open Source Projects shall submit appropriate IEEE Contributor License Agreement
 - Every Contributor is required to obtain an IEEE account that requires agreeing to the IEEE Code of Ethics and the IEEE Code of Conduct
 - IEEE membership is not required to be a Contributor
 - Maintainer
 - Authority to commit (save changes) to the IEEE code and document repository
 - Shall also be IEEE members of any grade and a member of IEEE SA

Tier 4 Project Form (1/6)



IEEE SA Open Source Committee (OSCom)

Open Source Project Request

Title: IEEE 802.3 Channel Operating Margin (COM) Tool

OS Project Lead/POC: Adam Healey

OS Project Representative: Kent Lusted

Last updated January 2023



(2/6)

PROJECT TITLE AND RELATED STANDARDS

Open source project title: IEEE Std. 802.3 Channel Operating Margin (COM) Code

Related standards project (if applicable):

- PAR number or standard number: IEEE Std. 802.3 and Amendments
- Scope statement:

- Explanation of what the standard does:

Defines Ethernet local area network operation for selected speeds of operation from 1 Mb/s to 800 Gb/s using a common media access control (MAC) specification and management information base (MIB).

(3/6)

PROJECT DESCRIPTION

What open source will be developed:

Reference software code implementations of the Channel Operating Margin (COM) equations and methods in IEEE Std. 802.3 and Amendments (e.g. Annex 93A and 178A). It will also provide branch support to enable participants to development new features and new capabilities for use by industry.

Why this is valuable:

The contributed COM software code implementation is being widely used by IEEE 802.3 participants as well as participants in other industry SDOs/SIGs (e.g. OIF)

(4/6)

RELATION TO EXISTING OPEN SOURCE

Relation to known open source:

none

Description of pre-existing open source that will be used (if any):

Not applicable

(5/6)

GOVERNANCE

Requested license (and reason):

BSD 3-clause. Requested by the contributor of the initial code commit

How will the project be governed?

By the IEEE 802.3 Working Group and will follow all applicable IEEE governance requirements including having an Open Source Lead and Maintainer per SASB and OSCom Operations Manuals

(6/6)

SUMMARY

Summary of the project and your questions for OSCom:

The contributed COM software code implementation is being widely used by industry participants for the development of IEEE Std. 802.3 specifications and amendments. The IEEE SA Open Source platform provides a viable platform for the development of the code in an open source manner that benefits broad industry.

Review of the formal project request: (To be completed by the OSCom Administrator.)

Governance Related Questions

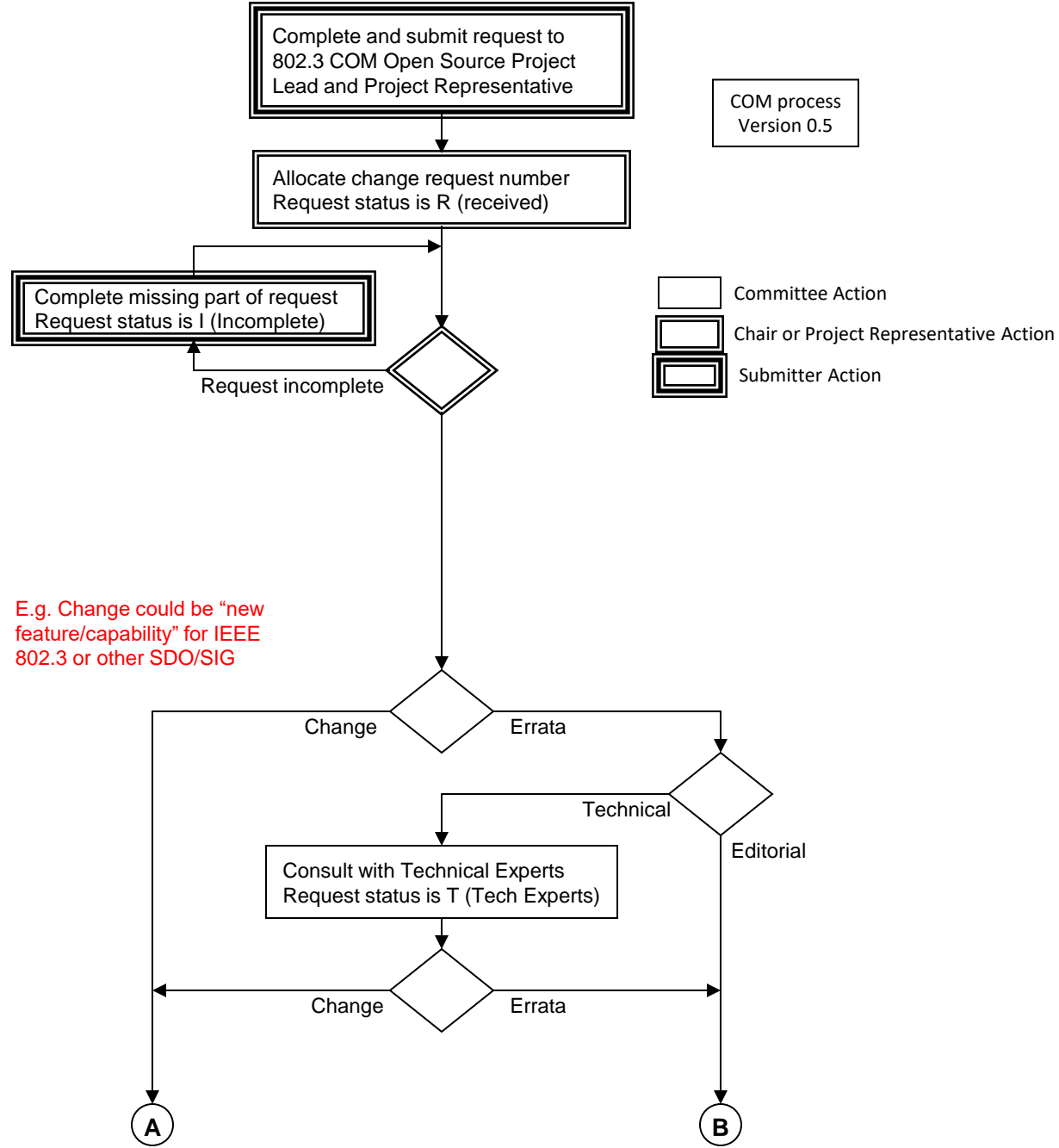
- Who is the Project Lead
- How Maintainers and Committers are determined, added, removed, and authorized
- Who may contribute to the project
- How merge requests are handled
- How and when releases are evaluated or reviewed
- Who decides when a release can be made.

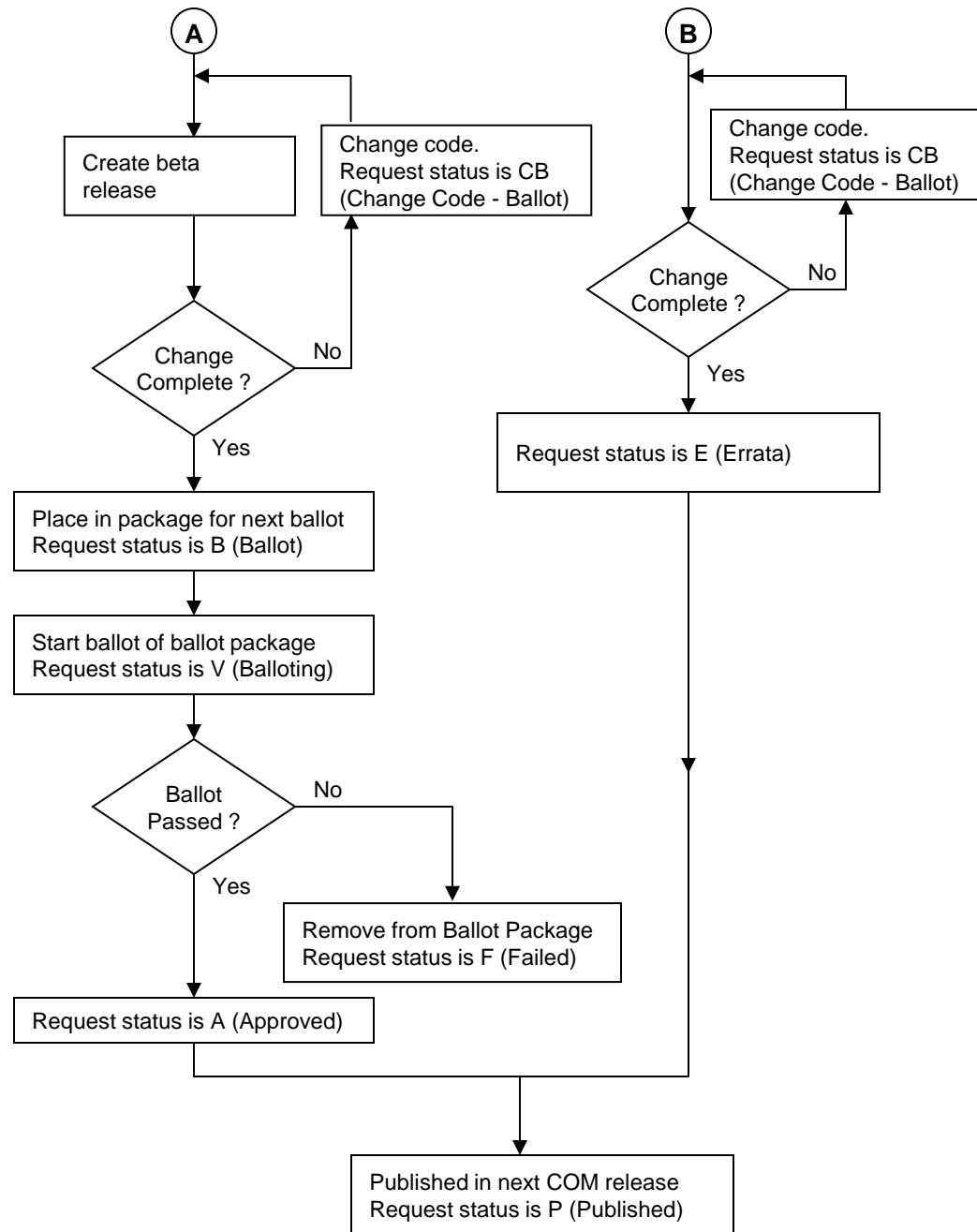
Governance Related Questions

- How are Maintainers and Committers are determined, added, removed, and authorized?
 - Maintainers are appointed by the OS Project lead or the designated OS project representative

COM Code Work Flows

- There are three predominant workflows of COM that need to be considered
 - Maintenance - Structured
 - Corrections to existing functions or code related to IEEE 802.3 Std and amendments.
 - Stable and “proven” releases
 - Development - Fast and flexible
 - New features and new capabilities for IEEE 802.3 TF/SG use
 - Align with changes to draft specification, as the spec changes
 - Adjacencies
 - Requests for features and capabilities beyond the IEEE 802.3 Std and amendments.
 - Workflow for this is TBD





Symbol	Status
A	Approved in ballot
B	Awaiting Ballot
CB	Awaiting additional change text – Ballot
CE	Awaiting additional change text – Errata
E	Errata, ballot not required
F	Failed in ballot
I	Incomplete
J	Rejected
P	Published in COM repository
R	Request received
S	Published in Errata Sheet
T	Awaiting Technical experts
V	Balloting
W	Withdrawn

Status Information Index

Summary

- The normative COM specification remains the equations and methods in Annex 93A and 178A
 - This proposal would not impact the continued normative specification of COM through equations and methods in Annex 93A and 178A
- Detailed proposal of IEEE SA Open Source, Tier 4 was provided
- Seeking IEEE 802.3 WG approval at November 2024 Plenary

Thanks!

Proposed *Short-term* COM Code Commit Request Dispositions (WIP)

- Managed at the Task Force level via COM ad hoc for the short-term
- Proposed short-term disposition designations for COM code commit requests were leveraged from the IEEE SA Balloting and Comment Resolution Process Guidelines
 - <https://standards.ieee.org/wp-content/uploads/import/governance/revcom/guidelines.pdf>
- Disposition Designations:
 - **Accepted:** The group agreed exactly with the commit request and change proposed by the submitter.
 - **Revised:** The group agrees with the commit request (at least in part) and implements a change that is not exactly what the submitter proposed.
 - **Rejected:** The group does not agree to make the change, or cannot come to a consensus to make changes necessary to address the commit request
 - **Deferred:** The group is unable to review or implement the commit request within the specified timeline for the next release
 - **Incomplete:** The commit request is missing details.

Proposed *Short-term* COM Code Change Management Guidelines (WIP)

- Managed at the Task Force level via COM ad hoc for the short-term
- Steps
 1. Requests for changes to the COM code are sent to Kent and Rich as a “Commit Request”
 - Brief title, submitter, description of desired change, suggested remedy
 2. Commit Requests are assigned a number associated with the COM version
 - For tracking purposes
 3. Commit Requests are introduced in the COM ad hoc
 - Details are discussed, if time allows
 - Specific code changes are provided to participants by website or reflector (TBD)
 4. Participants review the Commit Request(s) offline between the COM ad hoc meetings
 - Use of the 3dj electrical track reflector is encouraged for discussion and debate on Commit Requests
 5. A straw poll on a Commit Request is taken at a future COM ad hoc meeting to gauge support
 - If there was support, then a Commit Request becomes part of the next formal COM code release