IEEE 802.3 YANG Model Open-Source Proposal

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Background

- IEEE Std. 802.3 (“802.3”) specifies a protocol independent management interface (Clause 30).
- At one time, the IEEE 802.3 Working Group (“the WG”) relied on the IETF to create and update SNMP MIBs based on the Clause 30 definitions.
- The IETF stopped performing that task, and the current MIB text was used to create 802.3.1-2008.
- 802.3 and YANG
  - Starting in 2016, 802.3 developed IEEE Std 802.3.2-2019.
  - The current 802.3.2 revision project is expected to complete this year.
- 802.3.2 YANG participants work with the 802 YANG editors’ coordination group.
- 802.3 publishes 802.3.2 YANG models on GitHub at:
  - https://github.com/YangModels/yang/tree/master/standard/ieee/published/802.3
- 802.3 struggles to keep 802.3.1 and 802.3.2 up to date with 802.3.
- This proposal attempts to reduce friction in creating and maintaining YANG models and make it easier to get more people involved.

802.3.1 SNMP & YANG

- SNMP: IETF standard management tool suite for many years.
  - Key terms:
    - MIB – Management Information Base – definition for a set of objects (e.g., 802.3 PoE)
    - SMI – Structure of Management Information – syntax rules for MIBs, V2 is current
    - SNMP – Simple Network Management Protocol – protocol operations and encoding for using MIBs, V3 is current.
  - 802.3.1 defines a set of MIBs derived from Clause 30 definitions

- YANG: current IETF standard management tool suite
  - Key terms:
    - YANG – Yet Another Next Generation – syntax rules for models
    - YANG Model - definition for a set of objects (e.g., 802.3 PoE)
    - NetConf/RestConf – protocol operations and encoding for using models.
  - 802.3.2 defines a set of YANG Models derived from Clause 30 definitions

Proposal Overview

- Create a Tier 3 IEEE Open-Source project to create and maintain IEEE 802.3 YANG models based on 802.3.2-2025
- The project will be run by the IEEE 802.3 YANG Open-Source Project Ad Hoc (aka, the YANG Ad Hoc)

The YANG Ad Hoc will:

- Leverage the work of the COM Ad Hoc on how to run an IEEE OS project within 802.3
- Use the BSD 3-Clause License
- Commit the 802.3.2-2025 Models to the OS project
- Take responsibility for:
  - creating and maintaining models
  - releasing models (OSCom Ops Manual 5.2.3 “IEEE Open Source Release”)
  - periodically (e.g., every three years) running a project to update 802.3.2 to the latest stable “IEEE Open Source Release”*
    - This enables other standards that are unable to directly reference the OS project to continue to reference 802.3.2
    - When the YANG files are incorporated into 802.3.2, open source licensing and copyright info is retained.
      - The files to be initially balloted will be unchanged from the chosen release.

* This may not be needed depending on what we find when we interact with other SDOs that normatively reference 802.3.2. Does having an 802.3.2 standard add weight to models? Do other SDOs require a “standard” to reference the material.

Seeding the OS project from 802.3.2-2025

- IEEE holds copyright for 802.3.2 (including machine-readable extracts)
- There are no LOAs for 802.3.2
- Advice from OSCom staff is to get CLA agreements from all “significant contributors” (i.e., people who authored a significant amount of the YANG models)
  - I am compiling a list of significant contributors

IEEE SA Open-Source project

- Use the IEEE SA Open-Source Committee (IEEE OSCom) framework for the YANG model source and associated files
- Use the Tier 3* project framework:
  - The OSCom Ops Manual says “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 Std 802.3 will not include any material from the YANG project
  - OSCom staff support this approach
  - Don’t preclude transitioning to a Tier 4 project if circumstances require
- I anticipate the YANG project first release will be equivalent to 802.3.2-2025

*See backup slides for definition of OS project Tiers.

Yang Ad Hoc and 802 YANGsters

- The Ad Hoc will work closely with the 802 YANGsters group (https://1.ieee802.org/yangsters/) on cross 802 issues (e.g. tools, syntax/formatting guidelines, etc)
- The Ad Hoc will send any major updates (e.g. approved project documents) to the YANGsters mailing list and will invite YANGsters to participate in the work of the Ad Hoc

Yang Ad Hoc and 802.3

- The Ad Hoc will provide regular updates to 802.3 like any other Ad Hoc
- When the Ad Hoc determines that a set of models is ready to release, it will request permission from the WG to proceed
- The request will include a summary and a detailed report of what was changed since the last release
- The IEEE Open Source Release process also requires approval from the IEEE Open Source Community Manager or their designee

Project Request Documents

- Details in:
  - OSCom 802.3 YANG Tier 3 deck - jones_8023_yang_2_may_2025.pdf
  - OSCom 802.3 YANG Tier 3 request.pdf - jones_8023_yang_3_may_2025.pdf

Next Steps

- Use the 802.3 YANG Ad Hoc to
  - continue investigation of the proposed project
  - complete development of the project documents
  - write any required procedures and policies for the Ad Hoc going forward
  - report progress in the July plenary
  - depending on progress, request permission from 802.3 to start the project

Supporting Material

Useful References from OSCom

- Operations Manual
- Maintenance Manual
- IEEE Entity CLA BSD-3

IEEE OSCom Project Tiers

Select Tier 3 for COM

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 Std 802.3 will NOT normatively or informatively reference or include material from the YANG OS Project.

IEEE Open-Source Definitions

2 IEEE Open Source Definitions

Open Source is a digital work for which the human-readable source code is available—in the preferred form for making modifications—for use, study, re-use, modification, enhancement, and re-distribution by the users. Open Source applies to software, hardware, and other artifacts, which may include computer code, hardware designs, data, documentation, documents, and other digital objects.

Open Source Community refers to the community of individuals who are actively involved in the development, governance, or application of Open Source, whether or not they are IEEE members.

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.

An **IEEE Open Source Project** is a Project that is authorized to use the IEEE Open Source Platform in accordance with this Operations Manual.

Per IEEE SA OSCom Operations Manual December 2022

802.3.1 history

- The history of 802.3.1 has some similarities to the YANG OS project proposal.
- 802.3.1-2011 was based on 802.3-2008 for GDMOs (Annex 30A and 30B,) and several IETF RFCs which were obsoleted, e.g., RFC 2108.
  - The 802.3.1 PAR, includes a note discussing copyright release from original authors of MIB source files.
  - IETF IPR and copyright rules are at RFC5378, RFC 8179 ,RFC Editor IPR and the IETF TLP.
  - The IETF holds copyright in all published RFCs and has the right to produce derivative works.
  - 802.3.1-2011 includes several “reprinted with permission” notices