# IEEE 802.1 Working Group September 16-20, 2024 Interim Session Hamburg, Germany – Mixed Mode Session Minutes

The Working Group (WG) Chair, Glenn Parsons, presided and had requested that any subgroup Chair in remote attendance have on-site an individual acting on their behalf as needed to help conduct proceedings in "mixed mode", i.e. with local and remote participants. The Recording Secretary, Jessy Rouyer, wrote and/or edited the minutes in part based on input from subgroup Chairs and their Secretaries.

Note that, throughout this document, minuted/recorded inputs from any attendee can not/shall not be assumed to represent a position of their employer or affiliated organization. Discussion points captured do not necessarily reflect the views of the presenter, discussion leader or minute taker, and do not imply consensus unless that is explicitly minuted. The content of draft standards is determined by the ballot process; other formal decisions are the subject of Working Group motions.

## 1 Attendance and affiliation

The table in this section reflects the attendance (denoted by the • symbol) and affiliation of attendees in all 802.1 WG and subgroup meetings held in this session.

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(\*) Last and first names and affiliation possibly incorrect as based on Webex access information or otherwise,

and either outdated or not provided in IMAT.

### 2 802.1 Officers and Leadership

- Chair: Glenn Parsons
- Vice-Chair and Recording Secretary: Jessy Rouyer
  - Executive Secretary: Stephan Kehrer
  - $\circ$  Liaison Secretary: Karen Randall
- Maintenance TG Chair: Mark Hantel
- Security TG Chair: Mick Seaman
  - Security TG Vice-Chair: Karen Randall
- TSN TG Chair: János Farkas
  - TSN TG Vice-Chair: David McCall
  - o TSN TG Secretary: Johannes Specht
  - o IEC/IEEE 60802 Joint Project Chair: Ludwig Winkel
  - o IEC/IEEE 60802 Joint Project Secretary: Dieter Pröll
  - IEEE P802.1DP/SAE AS6675 joint project co-Chairs: Abdul Jabbar & János Farkas
  - o IEEE P802.1DP/SAE AS6675 joint project Secretary: Nader Zein
- Nendica Chair: Roger Marks
  - Nendica Vice-Chair: Johannes Specht
  - YANGsters Chair: Scott Mansfield
    - YANGsters Vice-Chair and Secretary: Stephan Kehrer
- Maintenance of Email exploder: Mark Hantel and Hal Keen
- Maintenance of website: Mark Hantel, Roger Marks, John Messenger

## 3 Maintenance Task Group

Between this session and the preceding session, the IEEE 802.1 Maintenance Task Group (TG) held electronic meetings whose minutes are incorporated to these session minutes by reference as follows:

- Minutes of the P802-REVc meeting held 2024-07-30 10:00 12:00 ET https://listserv.ieee.org/cgi-bin/wa?A2=STDS-802-1-MINUTES;e965923b.24&S=
- Minutes of the P802-REVc meeting held 2024-08-13 10:00 12:00 ET https://listserv.ieee.org/cgi-bin/wa?A2=STDS-802-1-MINUTES;8994bd45.24&S=
- Minutes of the Maintenance TG meeting held 2024-08-20 09:00 10:00 ET https://listserv.ieee.org/cgi-bin/wa?A2=STDS-802-1-MINUTES;e2fa66e8.24&S=
- Minutes of the P802-REVc meeting held 2024-08-20 10:00 12:00 ET https://listserv.ieee.org/cgi-bin/wa?A2=STDS-802-1-MINUTES;34fb157d.24&S=
- Minutes of the Maintenance TG meeting held 2024-09-10 09:30 11:00 ET https://listserv.ieee.org/cgi-bin/wa?A2=STDS-802-1-MINUTES;1976357c.24&S=

See section 1 for attendance and affiliation information.

**Call to order** Sep 17, 2024 at 8:00 CEST by Mark Hantel, IEEE 802.1 Maintenance TG Chair (Chair), who presided and wrote the minutes.

Agenda items and dispositions:

 Meeting introduction and other administrative items. The IEEE SA slides on IEEE Patent Policy and IEEE SA Copyright and Participation Policies were provided beforehand as part of "MEETING INTRODUCTION" <u>http://www.ieee802.org/1/files/public/templates/admin-TG-intro-0324-v01.pdf</u>.

The Chair showed this presentation advising that the following, provided beforehand, applies:

• Participant behavior shall comply with the outlined requirements;

- IEEE's Patent Policy is described in Clause 6 of the IEEE SA Standards Board Bylaws;
- Early identification of patent claims which may be essential for the use of standards under development is strongly encouraged;
- There may be Essential Patent Claims of which IEEE is not aware. Additionally, neither IEEE, the WG, nor the WG Chair can ensure the accuracy or completeness of any assurance or whether any such assurance is, in fact, of a Patent Claim that is essential for the use of the standard under development.
- IEEE SA's copyright policy is described in Clause 7 of the IEEE SA Standards Board Bylaws and Clause 6.1 of the IEEE SA Standards Board Operations Manual;
- Any material submitted during standards development, whether verbal, recorded, or in written form, is a Contribution and shall comply with the IEEE SA Copyright Policy.

The Chair made the Call for Potentially Essential Patents thereby providing an opportunity for participants to identify patent claim(s)/patent application claim(s) and/or the holder of patent claim(s)/patent application claim(s) of which the participant is personally aware and that may be essential for the use of that standard: there were no responses to this Call prior to the end of the meeting.

The Chair asked participants to record their attendance in IMAT and, if they are unable to do so, to promptly provide their affiliation to the minute taker.

- Approval of agenda. The Chair presented the agenda in <u>https://1.ieee802.org/september-2024-interim-session-maintenance-tg-agenda/</u>.
   Disposition: The agenda was reviewed, discussed, and agreed (informally, none dissenting) as presented.
- The Chair provided a verbal update of liaison activity based on <u>https://1.ieee802.org/liaisons/liaisontable/</u>.
   Disposition: For information.
- Maintenance Project Status. The Chair provided a verbal update on the projects in progress including P802-REVc, P802.1AS-2020-Revision, P802.1ACea, P802.1Q-2022-Revision, P802.1CB-2017/Cor1, P802.1AB-2016-Revision, and P802.1AC-2016-Revision.
   Disposition: For Information.
- The Chair led the review of the P802.1CB-2017-Revision PAR in <u>https://www.ieee802.org/1/files/public/docs2024/cb-Hantel-draft-PAR-0724-v01.pdf</u>. Disposition: Further discussion needed.
- 6. The Chair led discussion on maintenance items 314, 363, 375, and 376. **Disposition:** Further discussion needed.
- Christophe Mangin, P802.1CB-2017/Cor1 Editor, reviewed <u>https://www.ieee802.org/1/files/public/docs2024/maint-mangin-CB-Cor1-0724-v01.pdf</u>. Disposition: Further discussion needed.
- 8. Any Other Business. No other business was discussed by the Maintenance TG in this meeting.

10:00 CEST recess

**Call to order** Sep 17, 2024 at 18:00 CEST by Mark Hantel, IEEE 802.1 Maintenance TG Chair (Chair), who presided and wrote the minutes.

9. Meeting introduction and other administrative items. The Chair announced that the meeting remains subject to the Policies mentioned in agenda item 1 and asked participants to record their attendance in IMAT and, if they are unable to do so, to promptly provide their affiliation to the minute taker.

- Approval of agenda. The Chair presented the agenda in <u>https://1.ieee802.org/september-2024-interim-session-maintenance-tg-p802-revc-comment-resolution/</u>.
   **Disposition:** The agenda was reviewed, discussed, and agreed (informally, none dissenting) as presented.
- P802-REVc D2.1 comment resolution. James Gilb, P802-REVc Editor, led the resolution of comments received on <u>https://www.ieee802.org/1/files/private/802-REVc-drafts/d2/P802-REVc-d2-1.pdf</u>.
   Disposition: Ballot comments R1-17, R1-16, R1-15, R1-14, R1-13, R1-12, R1-1, R1-11, and R1-10 were resolved. Final disposition: <u>https://www.ieee802.org/1/files/private/802-REVc-drafts/d2/P802-REVc-d2-1-final-comment-disposition.pdf</u>.
- 12. Next Sessions. The Maintenance TG intends to meet next electronically on Oct 9, 2024 11:00 - 12:00 ET after the next P802-REVc ballot recirculation closes.
- 13. Any Other Business. No other business was discussed by the Maintenance TG in this meeting.

19:15 CEST adjournment

## 4 Security Task Group

Between this session and the preceding session, the IEEE 802.1 Security Task Group (Security TG) held no electronic meetings.

See section 1 for attendance and affiliation information.

**Call to order** Sep 18, 2024 at 08:00 CEST by Mick Seaman, IEEE 802.1 Security TG Chair, who presided and wrote the minutes.

Agenda items and dispositions:

 Meeting introduction. The IEEE SA slides on IEEE Patent Policy and IEEE SA Copyright and Participation Policies were provided beforehand as part of "MEETING INTRODUCTION" <u>https://www.ieee802.org/1/files/public/templates/admin-TG-intro-0324v01.pdf</u>.

The Security TG Chair showed this presentation advising that the following, provided beforehand, applies:

- Participant behavior shall comply with the outlined requirements;
- IEEE's Patent Policy is described in Clause 6 of the IEEE SA Standards Board Bylaws;
- Early identification of patent claims which may be essential for the use of standards under development is strongly encouraged;
- There may be Essential Patent Claims of which IEEE is not aware. Additionally, neither IEEE, the WG, nor the WG Chair can ensure the accuracy or completeness of any assurance or whether any such assurance is, in fact, of a Patent Claim that is essential for the use of the standard under development.
- IEEE SAs copyright policy is described in Clause 7 of the IEEE SA Standards Board Bylaws and Clause 6.1 of the IEEE SA Standards Board Operations Manual;
- Any material submitted during standards development, whether verbal, recorded, or in written form, is a Contribution and shall comply with the IEEE SA Copyright Policy.

The Security TG Chair made the Call for Potentially Essential Patents thereby providing an opportunity for participants to identify patent claim(s)/patent application claim(s) and/or the holder of patent claim(s)/patent application claim(s) of which the participant is personally aware and that may be essential for the use of that standard: there were no responses to

this Call prior to the end of the session.

The Security TG Chair asked participants to record their attendance in IMAT and, if they are unable to do so, to promptly provide their affiliation to the minute taker.

- Approval of agenda. The Security TG Chair presented the agenda as previously made available in <u>https://1.ieee802.org/september-2024-interim-session-security-tg-agenda/</u>. Disposition: The agenda was reviewed, discussed, and agreed (informally, none dissenting) as presented.
- 3. P802.1Qdt Priority-based Flow Control Enhancements
  - 3.1. Draft development. Mick Seaman presented "PFC Management" https://www.ieee802.org/1/files/public/docs2024/dt-seaman-pfc-management-0924v02.pdf for discussion.

Discussion:

- Some (a significant number, though not all) PFC implementations use PFC without DCBX. This possibility is desirable.
- Some implementations (again a significant proportion) wait for a DCBX indication that a PFC will be acted upon before transmitting PFC to pause a given priority. This can be important to avoid PFC storms.
- Clarification/specification in areas noted in the presentation is important. **Disposition:** Discussion to be continued.
- A.O.B (Any other business). The Security TG Chair drew attention to "Impact of MACsec on Ethernet traffic latency and PTP timestamping accuracy" <u>https://www.ieee802.org/1/files/public/docs2024/new-parkholm-MACsec-impact-on-latency-and-PTP-timestamping-0924-v01.pdf</u>. This would be presented during the TSN TG meeting to be held Friday, September 20, 2024.
- 5. Future meetings. The Security TG intends to meet next during the November 2024 IEEE 802 plenary session.

9:20 CEST adjournment

## 5 Time-Sensitive Networking Task Group

Between this session and the preceding session, the IEEE 802.1 Time-Sensitive Networking (TSN) Task Group (TG) held electronic meetings on generic TSN topics whose minutes are incorporated to these session minutes by reference as follows:

- Minutes of the TSN TG meeting held 2024-07-22, 11:00 13:00 ET https://listserv.ieee.org/cgi-bin/wa?A2=STDS-802-1-MINUTES;51322142.24&S=
- Minutes of the TSN TG meeting held 2024-08-12, 11:09 11:10 ET https://listserv.ieee.org/cgi-bin/wa?A2=STDS-802-1-MINUTES;b0abb415.24&S=
- Minutes of the TSN TG meeting held 2024-08-26, 11:00 13:00 ET https://listserv.ieee.org/cgi-bin/wa?A2=STDS-802-1-MINUTES;e1baed4a.24&S=
- Minutes of the TSN TG meeting held 2024-09-09, 11:00 11:52 ET <u>https://listserv.ieee.org/cgi-bin/wa?A2=STDS-802-1-MINUTES;c45164a9.24&S=</u>

Between this session and the preceding session, the IEEE 802.1 Time-Sensitive Networking (TSN) Task Group (TG) held no electronic meetings on P802.1DG.

See section 1 for attendance and affiliation information.

Minutes of the IEC/IEEE 60802 Joint Project meetings are in section 5.1.

Minutes of the IEEE P802.1DP/SAE AS 6675 joint project meeting are in section 5.2.

**Call to order** Sep 16, 2024 8:00 CEST by János Farkas, IEEE 802.1 TSN TG Chair (Chair), who presided. Johannes Specht, IEEE 802.1 TSN TG Secretary (Secretary), wrote the minutes.

Agenda items and dispositions:

1. Meeting introduction. The IEEE SA slides on IEEE Patent Policy and IEEE SA Copyright and Participation Policies were provided beforehand as part of "MEETING INTRODUCTION" <u>https://www.ieee802.org/1/files/public/templates/admin-TG-intro-0324-v01.pdf</u>.

The Chair showed this presentation advising that the following, provided beforehand, applies:

- Participant behavior shall comply with the outlined requirements;
- IEEE's Patent Policy is described in Clause 6 of the IEEE SA Standards Board Bylaws;
- Early identification of patent claims which may be essential for the use of standards under development is strongly encouraged;
- There may be Essential Patent Claims of which IEEE is not aware. Additionally, neither IEEE, the WG, nor the WG Chair can ensure the accuracy or completeness of any assurance or whether any such assurance is, in fact, of a Patent Claim that is essential for the use of the standard under development.
- IEEE SA's copyright policy is described in Clause 7 of the IEEE SA Standards Board Bylaws and Clause 6.1 of the IEEE SA Standards Board Operations Manual;
- Any material submitted during standards development, whether verbal, recorded, or in written form, is a Contribution and shall comply with the IEEE SA Copyright Policy.

The Chair made the Calls for Potentially Essential Patents at the beginning of each TG meeting during this session thereby providing an opportunity for participants to identify patent claim(s)/patent application claim(s) and/or the holder of patent claim(s)/patent application claim(s) of which the participant is personally aware and that may be essential for the use of that standard: there were no responses to these Calls prior to the end of the session.

The Chair asked participants to record their attendance in IMAT and, if they are unable to do so, to promptly provide their affiliation to the Secretary.

- 2. Session Host introduction. Hubert Lambers provided logistical information. **Disposition:** For Information.
- 3. Approval of agenda. The Chair presented the agenda in <a href="https://1.ieee802.org/2024-09-interim-tsn-agenda/">https://1.ieee802.org/2024-09-interim-tsn-agenda/</a>.

**Disposition:** The agenda was reviewed, and updated as recorded by these minutes. 4. Silvana Rodrigues, P802.1ASds editor, led the resolution of comments received on

- Silvana Rodrigues, P802.1ASds editor, led the resolution of comments received on <u>https://www.ieee802.org/1/files/private/asds-drafts/d1/802-1ASds-d1-0.pdf</u>.
   Disposition: Disposition per agenda item 23.
- Martin Mittelberger, P802.1Qdy editor, led the resolution of comments received on <u>https://www.ieee802.org/1/files/private/dy-drafts/d2/802-1Qdy-d2-0.pdf</u>. Disposition: Disposition per agenda item 16.
- Silvana Rodrigues, P802.1ASds editor, continued the resolution of comments received on <u>https://www.ieee802.org/1/files/private/asds-drafts/d1/802-1ASds-d1-0.pdf</u>.
   Disposition: Comments 1, 2, 7 - 20, 40 - 42, 57, 68, 76, 82 - 83 resolved. Disposition per agenda item 23.

12:00 CEST recess

**Call to order** Sep 16, 2024 16:00 CEST by János Farkas, IEEE 802.1 TSN TG Chair (Chair), who presided. Johannes Specht, IEEE 802.1 TSN TG Secretary (Secretary), wrote the minutes.

- 7. The Chair announced that this meeting remains subject to the Policies mentioned in agenda item 1 and asked participants to record their attendance in IMAT and, if they are unable to do so, to promptly provide their affiliation to the Secretary.
- 8. The 802.1 Chair led the discussion of NesCom/RevCom comments on previous submissions.

**Disposition:** Comments discussed. Further discussion needed.

- Feng Chen, P802.1DD editor, presented "Resolution of Comments from NesCom on Project Authorization Request (PAR)" <u>https://www.ieee802.org/1/files/public/docs2024/dd-PAR-NesCom-comments-and-responses-0924-v01.pdf</u>. Disposition: Presentation discussed.
- Max Turner, P802.1DG editor, led the resolution of comments received on <u>https://www.ieee802.org/1/files/private/dg-drafts/d4/802-1DG-d4-0.pdf</u>.

   Disposition: Partial disposition: <u>https://www.ieee802.org/1/files/private/dg-drafts/d4/802-1DG-d4-0.pdf</u>.

#### 18:00 CEST recess

**Call to order** Sep 17, 2024 10:30 CEST by János Farkas, IEEE 802.1 TSN TG Chair (Chair), who presided. Johannes Specht, IEEE 802.1 TSN TG Secretary (Secretary), wrote the minutes.

- 11. The Chair announced that this meeting remains subject to the Policies mentioned in agenda item 1 and asked participants to record their attendance in IMAT and, if they are unable to do so, to promptly provide their affiliation to the Secretary.
- Silvana Rodrigues, P802.1ASds editor, continued the resolution of comments received on <u>https://www.ieee802.org/1/files/private/asds-drafts/d1/802-1ASds-d1-0.pdf</u>.
   Disposition: Comments 3, 43 - 46, 63, 84 resolved. Disposition per agenda item 23.
- Max Turner, P802.1DG editor, continued the resolution of comments received on <u>https://www.ieee802.org/1/files/private/dg-drafts/d4/802-1DG-d4-0.pdf</u>. **Disposition:** Disposition per agenda item 29.

#### 12:30 CEST recess

**Call to order** Sep 19, 2024 8:00 CEST by János Farkas, IEEE 802.1 TSN TG Chair (Chair), who presided. Johannes Specht, IEEE 802.1 TSN TG Secretary (Secretary), wrote the minutes.

- 14. The Chair announced that this meeting remains subject to the Policies mentioned in agenda item 1 and asked participants to record their attendance in IMAT and, if they are unable to do so, to promptly provide their affiliation to the Secretary.
- Steve Haddock, P802.1AXdz editor, led the resolution of comments received on <u>https://www.ieee802.org/1/files/private/axdz-drafts/d0/802-1AXdz-d0-1.pdf</u>. **Disposition:** Final disposition: <u>https://www.ieee802.org/1/files/private/axdz-drafts/d0/802-1AXdz-d0-1.pdf</u>.
- Martin Mittelberger, P802.1Qdy editor, continued the resolution of comments received on <u>https://www.ieee802.org/1/files/private/dy-drafts/d2/802-1Qdy-d2-0.pdf</u>.
   Disposition: Final disposition: <u>https://www.ieee802.org/1/files/private/dy-drafts/d2/802-1Qdy-d2-0.pdf</u>.

10:00 – 10:30 CEST recess

- 17. The Chair announced that this meeting remains subject to the Policies mentioned in agenda item 1 and asked participants to record their attendance in IMAT and, if they are unable to do so, to promptly provide their affiliation to the Secretary.
- 18. Lisa Maile led the development of draft PAR <u>https://www.ieee802.org/1/files/public/docs2024/ec-draft-PAR-0924-v01.pdf</u> and CSD <u>https://www.ieee802.org/1/files/public/docs2024/ec-draft-CSD-0924-v01.pdf</u> for an IEEE 802.1CB amendment providing an informative annex on Sequence Recovery Function parameter configuration. **Disposition:** For information.
- 19. János Farkas presented "Some Thoughts on Multiple Configuration Domains" <u>https://www.ieee802.org/1/files/public/docs2024/new-farkas-multiple-configuration-domains-0924-v00.pdf</u>.

**Disposition:** Presentation discussed. Further discussion needed.

#### 12:30 - 13:30 CEST recess

- 20. Hiroki Nakano, P802.1Qdq editor, led the resolution of comments received on <u>https://www.ieee802.org/1/files/private/dq-drafts/d1/802-1Qdq-d1-0.pdf</u> and presented "P802.1Qdq/D1.0 WG Ballot Editor's Report" <u>https://www.ieee802.org/1/files/public/docs2024/dq-cas-d1-0-editors-report.pdf</u>. **Disposition:** Partial disposition: <u>https://www.ieee802.org/1/files/private/dq-drafts/d1/802-1Qdq-d1-0-pdis-v03.pdf</u>.
- Johannes Specht, P802.1DU editor, led the resolution of comments received on <u>https://www.ieee802.org/1/files/private/du-drafts/d0/802-1-DU-d0-3.pdf</u> and presented "Proposed changes for addressing comments #12, #19, #20, #25 and #26 against P802.1DU/D0.3" <u>https://www.ieee802.org/1/files/public/docs2024/du-specht-d03-last-comments-0924-v01.pdf</u>.

**Disposition:** Comments 12, 19, 20, 25 – 26 resolved. Partial disposition: <u>https://www.ieee802.org/1/files/private/du-drafts/d0/802-1DU-d0-3-pdis-v04.pdf</u>.

- 22. Lihao Chen presented "P802.1Qdw text contribution v01 overview" <u>https://www.ieee802.org/1/files/public/docs2024/dw-chen-text-contribution-overview-0924-v01.pdf</u> and an individual contribution <u>https://www.ieee802.org/1/files/public/docs2024/dw-chen-individual-text-0924-v01.pdf</u> to P802.1Qdw. **Disposition:** Presentation discussed. Further discussion needed.
- 23. Silvana Rodrigues, P802.1ASds editor, continued the resolution of comments received on <a href="https://www.ieee802.org/1/files/private/asds-drafts/d1/802-1ASds-d1-0.pdf">https://www.ieee802.org/1/files/private/asds-drafts/d1/802-1ASds-d1-0.pdf</a>.
  Disposition: Comments 4, 22, 23, 27, 48, 58, 59, 61, 64, 69, 77, 88 89 resolved. Partial disposition: <a href="https://www.ieee802.org/1/files/private/asds-drafts/d1/802-1ASds-d1-0.pdf">https://www.ieee802.org/1/files/private/asds-drafts/d1/802-1ASds-d1-0.pdf</a>.
  Disposition: Comments 4, 22, 23, 27, 48, 58, 59, 61, 64, 69, 77, 88 89 resolved. Partial disposition: <a href="https://www.ieee802.org/1/files/private/asds-drafts/d1/802-1ASds-d1-0.pdis-v01.pdf">https://www.ieee802.org/1/files/private/asds-drafts/d1/802-1ASds-d1-0.pdis-v01.pdf</a>.

#### 18:00 CEST recess

**Call to order** Sep 20, 2024 8:00 CEST by János Farkas, IEEE 802.1 TSN TG Chair (Chair), who presided. Johannes Specht, IEEE 802.1 TSN TG Secretary (Secretary), wrote the minutes.

24. The Chair announced that this meeting remains subject to the Policies mentioned in agenda item 1 and asked participants to record their attendance in IMAT and, if they are unable to do so, to promptly provide their affiliation to the Secretary.

- 25. Ulf Parkholm presented "Impact of MACsec on Ethernet Traffic Latency and PTP Timestamping Accuracy" <u>https://www.ieee802.org/1/files/public/docs2024/new-parkholm-MACsec-impact-on-latency-and-PTP-timestamping-0924-v01.pdf</u>. **Disposition:** Presentation discussed. Further discussion needed.
- 26. Lucas Haug presented "Simulation Framework for Wireless 5G/6G TSN Bridges with OMNeT++/INET" <u>https://www.ieee802.org/1/files/public/docs2024/new-haug-6g-tsn-simulation-framework-0924-v01.pdf</u>.
   Disposition: Presentation discussed. Further discussion needed.
- 27. Frank Dürr presented "Control Plane Extensions for Wireless-Aware Traffic Engineering with Corresponding YANG Data Models" <u>https://www.ieee802.org/1/files/public/docs2024/new-duerr-control-plane-extensions-and-YANG-for-wireless-aware-TE-0924-v01.pdf</u>.

**Disposition:** Presentation discussed. Further discussion needed.

- 28. János Farkas, Ferenc Fejes, and Balázs Varga presented "CFM for FRER" <u>https://www.ieee802.org/1/files/public/docs2024/new-farkas-cfm-for-frer-0924-v01.pdf</u>. **Disposition:** Presentation discussed. Further discussion needed.
- 29. Max Turner, P802.1DG editor, continued the resolution of comments received on <a href="https://www.ieee802.org/1/files/private/dg-drafts/d4/802-1DG-d4-0.pdf">https://www.ieee802.org/1/files/private/dg-drafts/d4/802-1DG-d4-0.pdf</a>.
   Disposition: Partial disposition: <a href="https://www.ieee802.org/1/files/private/dg-drafts/d4/802-1DG-d4-0.pdf">https://www.ieee802.org/1/files/private/dg-drafts/d4/802-1DG-d4-0.pdf</a>.
   Disposition: Partial disposition: <a href="https://www.ieee802.org/1/files/private/dg-drafts/d4/802-1DG-d4-0.pdf">https://www.ieee802.org/1/files/private/dg-drafts/d4/802-1DG-d4-0.pdf</a>.

12:30 CEST adjournment

### 5.1 IEC/IEEE 60802 Joint Project

Between this session and the preceding session, the IEC/IEEE 60802 Joint Project held electronic meetings whose minutes are incorporated to these session minutes by reference as follows:

- Minutes of the IEC/IEEE 60802 Joint Project meeting held 2024-06-17 9:00 11:00 ET <u>https://listserv.ieee.org/cgi-bin/wa?A2=STDS-802-1-MINUTES;f13e0c74.24</u>
- Minutes of the IEC/IEEE 60802 Joint Project meeting held 2024-07-08 9:00 11:00 ET https://listserv.ieee.org/cgi-bin/wa?A2=STDS-802-1-MINUTES;b202447e.24

**Call to order** Sep 17, 2024 at 13:30 CEST by Ludwig Winkel, IEC 65C/WG18 Convenor and IEC/IEEE 60802 Joint Project Chair (60802 Chair), who presided together with János Farkas, IEEE 802.1 TSN TG Chair (TSN TG Chair). Dieter Proell, IEC/IEEE 60802 Joint Project Secretary (60802 Secretary), wrote the minutes.

Agenda items and dispositions:

 Meeting introduction and other administrative items. The IEEE SA slides on IEEE Patent Policy, IEEE SA Copyright Policy, and Participant Behavior ("Policies") were provided beforehand as part of "MEETING INTRODUCTION" <u>https://www.ieee802.org/1/files/public/templates/admin-TG-intro-0324-v01.pdf</u>. The 60802 Chair announced that the meeting is subject to these Policies as read and displayed at the opening TSN TG meeting. The 60802 Chair made the Calls for Potentially Essential Patents at the beginning of the session thereby providing an opportunity for participants to identify patent claim(s)/patent application claim(s) and/or the holder of patent claim(s)/patent application claim(s) of which the participant is personally aware and that may be essential for the use of that standard: there were no responses to this Call prior to the end of the session. The 60802 Chair explained that the IEC/IEEE 60802 Joint Project also follows the IEC patent and copyright policies, <u>https://www.iec.ch/news-resources/reference-</u> material#policy. The 60802 Chair asked participants to record their attendance in IMAT and, if they are unable to do so, to promptly provide their affiliation to the minute taker.

2. Approval of agenda. The 60802 Chair presented the agenda in <u>https://1.ieee802.org/2024-09-interim-tsn-agenda/</u>.

**Disposition:** The agenda was reviewed, discussed, and updated as recorded by these minutes.

- IEC/IEEE 60802 D3.0 ballot status. Jordon Woods, IEC/IEEE 60802 Joint Project Editor (60802 Editor), presented <u>https://www.ieee802.org/1/files/private/60802-drafts/d3/60802woods-d3-0-ballot-status-0924-v01.pdf</u>. Disposition: For information.
- 4. Traffic Class Mapping and Stream Admission. Stephan Kehrer presented "IEC/IEEE 60802 Traffic Class mapping and Stream Admission" <u>https://www.ieee802.org/1/files/public/docs2024/60802-kehrer-traffic-class-mapping-yang-0924-v01.pdf</u>.

**Disposition:** Presentation discussed.

 Taking a look at initial SA ballot comments. Jordon Woods, 60802 Editor, asked for clarification regarding some comments received in the SA ballot on <u>https://www.ieee802.org/1/files/private/60802-drafts/d3/60802-d3-0.pdf</u>. Disposition: For information.

#### 15:10 CEST recess

**Call to order** Sep 18, 2024 at 13:30 CEST by Ludwig Winkel, IEC 65C/WG18 Convenor and IEC/IEEE 60802 Joint Project Chair (60802 Chair). Dieter Proell, IEC/IEEE 60802 Joint Project Secretary (60802 Secretary), wrote the minutes.

In the absence of agenda topics, the 60802 Chair encouraged contributions and asked for any clarification request on the ongoing IEEE SA ballot and IEC CDV. No such request was made.

#### 13:45 CEST recess

**Call to order** Sep 19, 2024 at 13:30 CEST by Ludwig Winkel, IEC 65C/WG18 Convenor and IEC/IEEE 60802 Joint Project Chair (60802 Chair). Dieter Proell, IEC/IEEE 60802 Joint Project Secretary (60802 Secretary), wrote the minutes.

6. IEC/IEEE Constrained Devices. Christophe Mangin presented "IEC/IEEE 60802 constrained devices" <u>https://www.ieee802.org/1/files/public/docs2024/60802-stanica-constrained-devices-0924-v01.pdf</u>.

**Disposition:** More discussion needed; request to 60802 Chair needed to obtain IEC/IEEE 60802 Joint Project meeting time in an upcoming electronic meeting (seven days in advance).

- 15:15 16:00 CEST recess
- 7. Review of minutes. The draft minutes were reviewed under the lead of the 60802 Secretary.

16:15 CEST adjournment

### 5.2 IEEE P802.1DP/SAE AS6675 joint project

Between this session and the preceding session, the IEEE 802.1 Time-Sensitive Networking (TSN) Task Group (TG) held electronic meetings on P802.1DP/SAE AS 6675 whose minutes are incorporated to these session minutes by reference as follows:

- Minutes of the IEEE P802.1DP/SAE AS6675 meeting held 2024-07-31, 10:00 11:39 ET <u>https://listserv.ieee.org/cgi-bin/wa?A2=STDS-802-1-MINUTES;32b0041f.24&S=</u>
- Minutes of the IEEE P802.1DP/SAE AS6675 meeting held 2024-08-07, 10:00 11:43 ET https://listserv.ieee.org/cgi-bin/wa?A2=STDS-802-1-MINUTES;b82d07ed.24&S=

See section 1 for attendance and affiliation information.

**Call to order** Sep 17, 2024 at 08:03 CEST by János Farkas, IEEE 802.1 TSN TG Chair. Abdul Jabbar and János Farkas, IEEE P802.1DP/SAE AS6675 joint project co-Chairs, presided. Nader Zein, IEEE P802.1DP/SAE AS6675 Secretary, wrote the minutes.

Agenda items and dispositions:

 Meeting introduction. The IEEE SA slides on IEEE Patent Policy, IEEE SA Copyright Policy, and Participation Behavior were provided beforehand as part of "MEETING INTRODUCTION" <u>https://www.ieee802.org/1/files/public/templates/admin-TG-intro-0324-</u>v01.pdf.

János Farkas, IEEE P802.1DP/SAE AS6675 co-Chair, announced that the meeting is subject to these Policies as read and displayed at the opening TSN TG meeting. János Farkas, IEEE P802.1DP/SAE AS6675 co-Chair, made the Call for Potentially Essential Patents thereby providing an opportunity for participants to identify patent claim(s)/patent application claim(s) and/or the holder of patent claim(s)/patent application claim(s) and/or the holder of patent claim(s)/patent application claim(s) of which the participant is personally aware and that may be essential for the use of that standard: there were no responses to this Call prior to the end of the session. János Farkas, IEEE P802.1DP/SAE AS6675 co-Chair, explained that the IEEE P802.1DP/SAE AS6675 Joint Project also follows the SAE International code of conduct https://www.sae.org/about/legal-policies/content\_policy and policy on intellectual property and copyright https://www.sae.org/about/legal-policies/intellectual-property. János Farkas, IEEE P802.1DP/SAE AS6675 co-Chair, asked participants to record their of the set of t

- attendance in IMAT and, if they are unable to do so, to promptly provide their affiliation to the minute taker.
- Approval of agenda. János Farkas, IEEE P802.1DP/SAE AS6675 co-Chair, presented the agenda in <u>https://1.ieee802.org/2024-09-interim-tsnagenda/#TSN\_8211\_P8021DPAS6675</u>.

**Disposition:** The agenda was reviewed, discussed and updated as recorded by these minutes.

 Abdul Jabbar, P802.1DP/SAE AS6675 editor, presented "IEEE P802.1DP | SAE AS6675 | TSN Profile for Aerospace Overview" <u>https://www.ieee802.org/1/files/public/docs2024/dp-jabbar-profile-overview-0924-v01.pdf</u>.

**Discussion:** Discussed open questions related to identifying the PTP instance that is connected to a specific input interface of the FTTM and that could be modelled in the YANG data model.

**Disposition:** For information.

 Abdul Jabbar, P802.1DP/SAE AS6675 editor, presented "IEEE P802.1DP / SAE | TSN Profile for Aerospace Editor's Report" <u>https://www.ieee802.org/1/files/public/docs2024/dp-jabbar-editors-report-0924-v01.pdf</u>.

Discussion: None.

**Disposition:** For information.

5. Abdul Jabbar, P802.1DP/SAE AS6675 editor, presented "Per Stream Queues and Shaping for the Aerospace Profile P802.1DP"

https://www.ieee802.org/1/files/public/docs2024/dp-jabbar-per-stream-shaping-0924v01.pdf.

**Discussion:** Discussed open questions related to the stage at which a technical feature can be added, the requirement for mapping streams across different queues per stream shaping, and the need for conformant components to support a minimum number of perstream shapers

Discussed new non-ballot comment #163.

**Disposition:** Proposed comment resolution for non-ballot comment #163 updated.

 Abdul Jabbar, P802.1DP/SAE AS6675 editor, presented "FRER Member Stream Identification for Aerospace Profile" <u>https://www.ieee802.org/1/files/public/docs2024/dp-jabbar-FRER-member-stream-tags-0924-v01.pdf</u>.

**Discussion:** Clarified that VLAN IDs can be configured as needed in the network. To avoid incompatible implementation, P8021DP/SAE AS6675 can give recommendations. Also discussed the issue of multicast streams separated and remerged across different paths.

Discussed new non-ballot comment #164.

Disposition: Proposed comment resolution for non-ballot comment #164 updated.

- 7. Richard Tse presented "Individual Contirbution: Fault-Tolerant Timing with Time Integrity" <u>https://www.ieee802.org/1/files/public/docs2024/ed-tse-draft-text-contribution-0924-v01.pdf</u> Discussion: Discussed open questions related to end stations shown in Figure 1 as it could be one receiver or more, the definition of the FTTM and its implementation since FTTM represents a function and not a specific implementation, the procedure for detecting a loss of synchronization on one of the clock sources, the local oscillator independency from the lock clocks of the PTP instances, and the mixing of the physical stations with FFTM function that could be implemented across different physical elements. Disposition: For information.
- Daniel Finnegan presented "Fault-Tolerant Grandmaster Clock Synchronization Needs for Highly-Reliable Systems" <u>https://www.ieee802.org/1/files/public/docs2024/ed-finnegan-FT-</u> GM-Sync-0924-v01.pdf.

**Discussion:** Discussed open questions related to submitting a contribution on the topic. **Disposition:** More discussion needed.

- Hubert Lambers presented "TSN Applications in the Aircraft Cabin" <u>https://www.ieee802.org/1/files/public/docs2024/dp-lambers-aircraft-cabin-0924-v07.pdf</u>. Discussion: Discussed open questions on changes in the P802.1DP draft such as flexibility in configuration and reconfiguration during service. Disposition: More discussion needed.
- 10. Jorge Sánchez Garrido presented "TSN Use case for MUIRA Microlaunchers" <u>https://www.ieee802.org/1/files/public/docs2024/dp-sanches-use-case-for-miura-microlanchers-0924-v01.pdf</u>.

**Discussion:** Discussed open questions on certification for MIURA 1 (TSN enabled), the analysis of P802.1DP vs Miura deterministic (e.g. bandwidth, latency and number of hops), synchronisation and network resilience for communication requirements, FTTM use in place of BTCA for robustness but not for integrity. Suggestion to specify topology templates for different types of vehicles. OEM (Monitoring) in TSN (and consequently for P802.1DP) is in its early stage of standardization. Discussed the purpose and consideration of MACsec in Miura and its implication on added maintenance complications (suggestion to share use case for MACsec for Miura). Comment that P802.1DP does not require authentication or MACsec, but it is transparent for these features. The need (or not) for specifying standardized interfaces for synchronization applications to the network and its corresponding GCL schedule. Question on the need for stream isolation and

additional frame preemption. Suggestion to propose required changes (by submitting ballot comments) to facilitate certifications. **Disposition:** More discussion needed.

15:33 CEST adjournment

### 6 Nendica

Between this session and the preceding session, the IEEE 802 "Network Enhancements for the Next Decade" Industry Connections Activity (Nendica) held electronic meetings whose minutes are incorporated to these session minutes by reference as follows:

- Minutes of the Nendica meeting held 2024-07-25 09:00-11:00 ET https://listserv.ieee.org/cgi-bin/wa?A2=STDS-802-1-MINUTES;d04cd580.24
- Minutes of the Nendica meeting held 2024-08-22 09:00-11:00 ET (revised) https://listserv.ieee.org/cgi-bin/wa?A2=STDS-802-1-MINUTES;eb384067.24
- Minutes of the Nendica meeting held 2024-09-05 09:00-11:00 ET https://listserv.ieee.org/cgi-bin/wa?A2=STDS-802-1-MINUTES;1d1a8eb7.24

**Call to order** Sep 19, 2024 08:30 CEST by Johannes Specht, Nendica Vice Chair ("Chair"), who presided. Dieter Proell wrote the minutes.

Agenda items and dispositions:

- Meeting introduction and other administrative items. The IEEE SA slides on IEEE Patent Policy and IEEE SA Copyright and Participation Policies were provided beforehand as part of "MEETING INTRODUCTION" <u>https://www.ieee802.org/1/files/public/templates/adminprePAR-intro-0324-v01.pdf</u>. The Chair showed this presentation advising that the following applies:
  - Participant behavior shall comply with the outlined requirements;
  - IEEE SA's copyright policy is described in Clause 7 of the IEEE SA Standards Board Bylaws and Clause 6.1 of the IEEE SA Standards Board Operations Manual;
  - Any material submitted during the Nendica meeting, whether verbal, recorded, or in written form, is a Contribution and shall comply with the IEEE SA Copyright Policy.

The Chair asked participants to record their attendance in IMAT and, if they are unable to do so, to promptly provide their affiliation to the minute taker.

- Approval of agenda. The Chair presented the agenda in <u>https://1.ieee802.org/802-nendica-agenda-2024-09-19/</u> and the Mentor server document list was noted.
   **Disposition:** The agenda was reviewed and agreed (informally, none dissenting).
- 3. Minutes. The Chair reviewed the draft "Minutes of the Nendica meeting held 2024-09-05 09:00-11:00 ET" <u>https://listserv.ieee.org/cgi-bin/wa?A2=STDS-802-1-</u> <u>MINUTES;1d1a8eb7.24</u>. It was suggested that the use of individual names in the minutes should be reviewed.

**Disposition:** No action was taken to approve the minutes.

- 4. Study Item AI Computing Networks (AICN)
  - 4.1. Lily Lyu presented "AI Traffic Analysis" (R1) <u>https://mentor.ieee.org/802.1/documents?is\_group=ICne&is\_year=2024&is\_dcn=0050</u>.
     Disposition: Presentation discussed; future update is anticipated.
  - 4.2. Lily Lyu presented "AICN work item discussion" (R1) <u>https://mentor.ieee.org/802.1/documents?is\_group=ICne&is\_year=2024&is\_dcn=0038</u>.
     Disposition: Presentation discussed.
  - 4.3. Jieyu Li presented "The challenges of per-packet Load Balancing in AICN" (R2) <u>https://mentor.ieee.org/802.1/documents?is\_group=ICne&is\_year=2024&is\_dcn=0051</u>. **Disposition:** Presentation discussed.

- 4.4. "Consideration on a new solution of Network Link Security" <u>https://mentor.ieee.org/802.1/documents?is\_group=ICne&is\_year=2024&is\_dcn=0053</u> was not presented by lack of time. **Disposition:** Presentation to be scheduled for the next meeting
  - **Disposition:** Presentation to be scheduled for the next meeting.
- 5. Vetting and New Topics. No activity.
- Next Meeting. Nendica intends to meet next electronically on October 17, 2024 9:00 -11:00 ET. Announcement of the draft agenda <u>https://1.ieee802.org/802-nendica-agenda-2024-10-17/</u> is anticipated by five days beforehand.
- 7. Other Business. No other business was discussed by Nendica in this meeting.

10:16 CEST adjournment

### 7 YANGsters

Between this session and the preceding session, YANGsters held electronic meetings whose minutes are incorporated to these session minutes by reference as follows:

- Minutes of the YANGsters meeting held 2024-07-30 10:00 –10:53 ET https://listserv.ieee.org/cgi-bin/wa?A2=STDS-802-1-MINUTES;1bd7e3b5.24&S=
- Minutes of the YANGsters meeting held 2024-09-10 10:05 –10:26 ET https://listserv.ieee.org/cgi-bin/wa?A2=STDS-802-1-MINUTES;45a2f05d.24&S=

See section 1 for attendance and affiliation information.

**Call to order** Sep 17, 2024 at 16:00 CEST by Scott Mansfield, YANGsters Chair, who presided. Stephan Kehrer, YANGsters Secretary, wrote the minutes.

Agenda items and dispositions:

 Meeting introduction. The IEEE SA slides on IEEE Patent Policy, IEEE SA Copyright Policy, and Participant Behavior ("Policies") were provided beforehand as part of "MEETING INTRODUCTION" <u>http://www.ieee802.org/1/files/public/templates/adminprePAR-intro-0324-v01.pdf</u>.

The YANGsters Chair showed this presentation advising that the following, provided beforehand, applies:

- Participant behavior shall comply with the outlined requirements;
- IEEE SA's copyright policy is described in Clause 7 of the IEEE SA Standards Board Bylaws and Clause 6.1 of the IEEE SA Standards Board Operations Manual;
- Any material submitted during standards development, whether verbal, recorded, or in written form, is a Contribution and shall comply with the IEEE SA Copyright Policy.

The YANGsters Chair asked participants to record their attendance in IMAT and, if they are unable to do so, to promptly provide their affiliation to the minute taker.

- Approval of agenda. The YANGsters Chair presented the agenda in <u>https://1.ieee802.org/september-2024-interim-session-yangsters-agenda/</u>.
   Disposition: The agenda was reviewed, discussed, and updated as recorded by these minutes.
- 3. Introduction to YANGsters. The YANGsters Chair presented the "Introduction" slide of "YANGsters" <u>https://www.ieee802.org/1/files/public/docs2024/yangsters-smansfield-hamburg-status-0924-v01.pdf</u> to introduce the following:
  - https://1.ieee802.org/yangsters/, and
  - https://1.ieee802.org/yangsters/yangsters-guidelines/yangsters-fag/.

Disposition: For information.

- 4. Status. The YANGsters Chair presented slide 3 of the presentation in agenda item 3.
  - The table on the "YANG Status" slide provides an overview of all currently open IEEE 802.1 projects that contain or are expected to contain YANG.

**Disposition:** For information.

- 5. P802.1Qdy YANG status. The YANGsters Chair presented the topic and led the discussion.
  - P802.1Qdy is currently in SA ballot comment resolution.
  - No YANG topics are currently open in P802.1Qdy.

**Disposition:** For information.

- 6. P802.1AXdz YANG status. Stephen Haddock, P802.1AXdz editor, presented the topic and led the discussion.
  - The TG ballot on P802.1AXdz/D0.1 recently closed.
  - Several YANG related comments have been submitted.
  - YANGsters discussed recommendations for these comments. The recommendations were planned to be discussed by the ballot resolution committee in an upcoming IEEE 802.1 TSN TG electronic meeting.

**Disposition:** For information.

- 7. Next meeting. YANGsters intend to meet next electronically on Sep 24, 2024.
- 8. Any Other Business. No other business was discussed during the meeting.

17:59 CEST adjournment

### 8 Next Session

Nov 11-15, 2024 mixed mode plenary session in Vancouver, BC, Canada.