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1 Background

ISO/IEC TS 30168 is an emerging standard for the integration of secure elements into the application software used on industrial IoT devices. After publication of the first edition in 2024 the technical specification is now in its early state of adaptation. First implementation projects are being started.

One example is the open source project started with the goal to lower the entry barrier to implement the standard for early adaptors (https://github.com/generic-trust-anchor-api).

It is expected that implementation projects will increase interest in IEC TS 30168 but will also reveal errors and/or omissions in the technical specification, which are referred to as technical issues (TISSUE) in the following.

In order to resolve these TISSUES in a coordinated way, it is recognized that a responsive process is needed to address said errors or omissions in the Standard which are likely to cause interoperability problems between implementations on the market.

The TISSUE process described in this document shall be a vital part of the future development of ISO/IEC TS 30168. To ensure successful cooperation a well-defined process would be of value to the market, industry, and community to reduce the number of interpretations required to understand tissue resolution.

At the time being the focus of the TISSUE process is on the maintenance of ISO/IEC TS 30168. Especially, conformance testing of different implementations against the technical specification has not yet been addressed. The TISSUE process may be enhanced in the future, especially as implementations for ISO/IEC TS 30168 get available from multiple vendors. Resolved TISSUES relating to missing or unclear or to be corrected parts of ISO/IEC TS 30168 are intended to be announced using the IEC INF document process and are considered when amending or revising ISO/IEC TS 30168.

This document aims to provide a comprehensive description of the TISSUE process for ISO/IEC TS 30168 and the responsibilities of each user.

The latest version of this process description is publicly available at https://github.com/generic-trust-anchor-api/TISSUE_DB/TISSUE_Guide_for_IEC_TS_30168.pdf.

2 Interactions

The TISSUE process interacts with the community effort to provide an open source implementation for ISO/IEC TS 30168.

The distinction between the two processes are as follows:

The TISSUE database is intended to support users who suspect interoperability problems in the standard, and the editors that are responsible for addressing these issues. An issue is considered interop relevant if different interpretations of the standard, as written, could lead to implementations that cannot interact with each other in a predictable manner.

The open source implementation is focused on providing a working (reference) implementation for ISO/IEC TS 30168. While working on this implementation bugs and issues may be detected, which turn out to be rooted in the specifications provided by ISO/IEC TS 30168.

There are some potential interactions between the two activities:

- An issue originally filed against the open source implementation may turn out to be relevant for ISO/IEC TS 30168. In this case the issue is either converted or duplicated as TISSUE. In the course of this process the type of the issue (see 5) is set to “TISSUE”.

- TISSUE reported during use of ISO/IEC TS 30168, e.g., implementation activities independent of the open source implementation on https://github.com/generic-trust-

anchor-api, discussions in ISO/IEC JTC 1 SC41 or organisations having a liaison towards ISO/IEC JTC 1 SC41, may be relevant for said open source project. The open source project may be used to do draft implementations to validate proposed solutions and needs to be enhanced once a TISSUE arrived at an accepted solution. The open source project may create a copy of TISSUEs to follow up with discussions relevant for the open source implementation but not affecting ISO/IEC TS 30168.

Once an issue has been identified as TISSUE, concerns only relevant to the open source implementation must no longer be discussed as part of that issue.

3 States

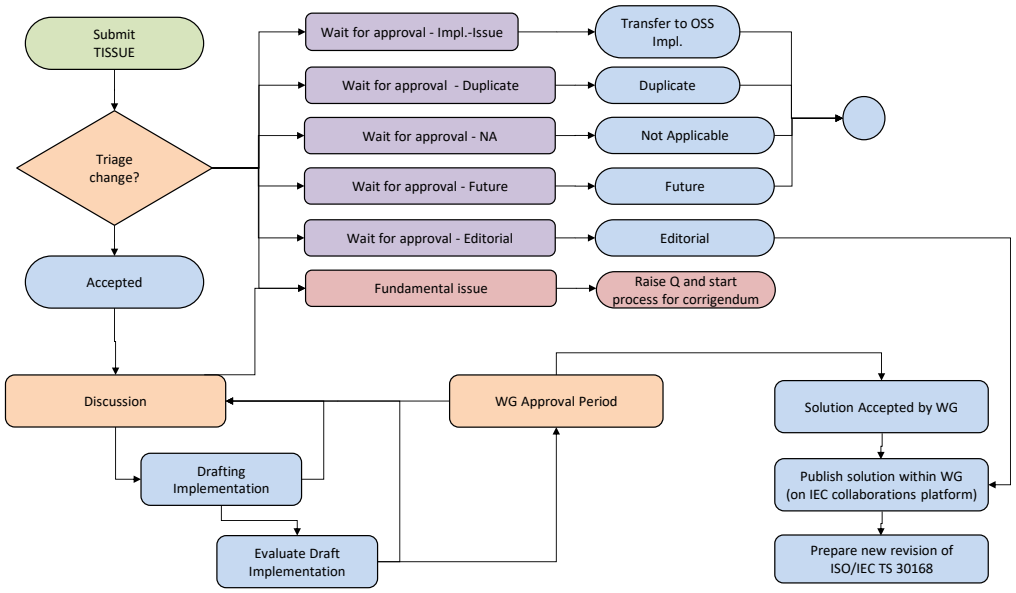

Figure 1 – ISO/IEC TS 30168 TISSUE state machine

At each state change a comment shall be entered explaining the choice of next state.

- **Triage** When a TISSUE is first reported, the **Document editor** for the relevant part determine whether the issue raised is a valid interoperability problem. At this stage, the **Document editor** and the **TISSUE Reporter** are permitted to add comments as needed to progress the decision. From here, the **Document editor** transition to one of the following five states. The Document editor is expected to transition the TISSUE within four weeks. Note that four of these states transition through a state where a second document editor must confirm the transition to final.
- **Not Applicable** When a TISSUE is determined to be a question, misunderstanding, or otherwise not a valid problem in the standard, the **Document editor** shall set the TISSUE to **Not Applicable.** To make this transition, the TISSUE shall be commented with explanation of the choice.
- **Transfer to OSS Impl.** The issue is found to be irrelevant for the ISO/IEC TS 30168 document but describes a specific implementation bug (cf. 2). This issue can be made available to the respective maintainer(s) of the OSS implementation.
- **Duplicate** When a TISSUE is determined to be a duplicate of another TISSUE, the **Document editor** shall set the TISSUE to **Duplicate** and add a Link to the TISSUE which addresses the issue

- **Editorial** When a TISSUE is determined to be an obvious typographical error in the standard, the **Document editor** shall enter a comment explicitly stating the change to the text of the TS, and set the TISSUE to **Editorial**.
- **Future Improvement** When a TISSUE is determined to be a problem in the standard which does not cause immediate interoperability problems, the **Document editor** may transition the TISSUE to **Future Improvement.** No resolution of the TISSUE will be considered at this time; it will be addressed for the next revision of ISO/IEC TS 30168.
- **Accepted** When a TISSUE is determined to be a valid interoperability issue or to be a worthwhile improvement, the **Document editor** shall set the TISSUE to **Accepted** and begin work on a proposed solution. **Document editors** may comment the TISSUE at this state. Document editors are requested to prepare a proposed solution and transition the TISSUE to Discussion within eight weeks.
- **Discussion** When the **Document editors** have a proposed solution, the TISSUE shall be transitioned to **Discussion** state. Any registered user may comment the TISSUE.
- **Drafting Implementation** When the discussion results in a solution that has not been opposed, the **Document editors** transition the TISSUE to **Drafting Implementation.** There should be at least one draft implementation before a transfer of the TISSUE to **Evaluate Draft Implementation** is requested from the **Document editor**.
- **Evaluate Draft Implementation** When at least one draft implementation is available it is evaluated by one **Document editor**. This includes analysis for potential backward and forward compatibility impacts associated with the proposed solution. Potential compatibility issues are to be included in the INF document.
- **WG Approval Period** The TISSUE will remain in this state for up to 30 days for WG review after notification via the IEC collaboration platform. If a negative comment is entered which cannot be resolved, the **Document editor** shall transition the TISSUE to **Discussion.** Otherwise, at 30 days the Tissue shall transition to **Solution Accepted.**
- **Solution Accepted** Allows for batching of TISSUEs such that changes to implementations do not occur more than once a quarter. When the deadline is reached or there is a decision to expedite the current batch, all TISSUEs in this state shall be transitioned to **Publish solution within WG**.
- **Publish solution within WG** The approved solution shall be published on the IEC collaboration platform. This adds the TISSUE to a backlog of issues to be considered for the next revision of ISO/IEC TS 30168 (see 7).
- **Prepare new revision** The WG decides on when a new revision of ISO/IEC TS 30168 is to be issued. The decision should consider the amount and impact of TISSUEs backlogged on the IEC collaboration platform (see 7). The next edition of ISO/IEC TS 30168 shall consider all TISSUEs backlogged on the IEC collaboration platform since the last version of ISO/IEC TS 30168 has been published.
- **Fundamental issue** If during triage or discussion a TISSUE turns out to be a fundamental issue the process for a corrigendum for ISO/IEC TS 30168 shall be started. Fundamental issues are errors or defects of ISO/IEC TS 30168 which could lead to the incorrect or unsafe application of ISO/IEC TS 30168. Corrigendum process will typically include the circulation of a Q document.
- **Waiting for approval** A second **Document editor** must approve a TISSUE transition to Not Applicable, Duplicate, Editorial, or Future state

4 Roles

The following roles have been identified in the TISSUE process. It is expected that at least two individuals will be assigned to each role. An individual can have multiple roles.

- **Document editor:** Editors of ISO/IEC TS 30168.
- **WG:** ISO/IEC working group in charge of TS 30168 (ISO/IEC JTC1 SC41 WG3)

- **TISSUE reporter:** express feedback to the standard editorial team of one part (or possibly many) of the standard about a technical issue in the published content – may be anybody who has logged into the TISSUE database
- **TISSUE process viewer:** monitor the list of raised TISSUES and their resolution. Public information on each TISSUE is available without registration

5 TISSUE record

TISSUES are tracked at https://github.com/generic-trust-anchor-api/TISSUE_DB/issues.

Figure 2 shows the screen used to create a new TISSUE.

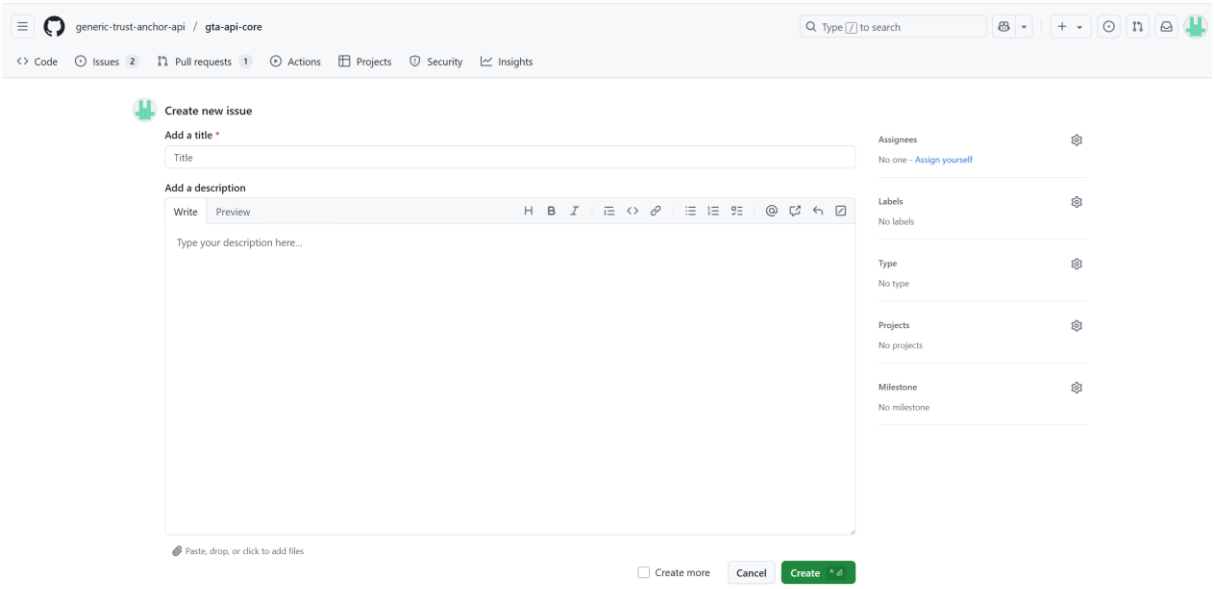

Figure 2 – TISSUE record

The following fields should be provided on submission of a TISSUE or in case an existing issue is converted into a TISSUE relevant for ISO/IEC TS 30168:

1. Title – a concise description of the issue

2. Description – detailed description of the issue and any relevant affects.
   The initial description shall not contain proposed solutions (see below on how to provide the proposed solution).

3. Assignee – One of the ISO/IEC TS 30168 document editors

4. Label – There should be one label indicating the current state according to 3. The label name is created by concatenating the string “TISSUE” with the respective state name. I.e., when the TISSUE is initially filed the state is set to “TISSUE Submit TISSUE”.

5. Type – Shall be set to TISSUE

6. Projects – Shall be set to “ISO/IEC TS 30168”. This field is reserved for future use. It may be used to distinguish between different parts of the ISO/IEC 30168 series in the future.

7. Milestone – This field can be used to schedule TISSUES for the next state transition, e.g., to indicate the end of a review phase.

Once the TISSUE has been filed the submitter should add a proposed solution to the TISSUE as the first comment (cf. Figure 3).

From that point the TISSUE can be updated with further comments. The initial description may be edited to

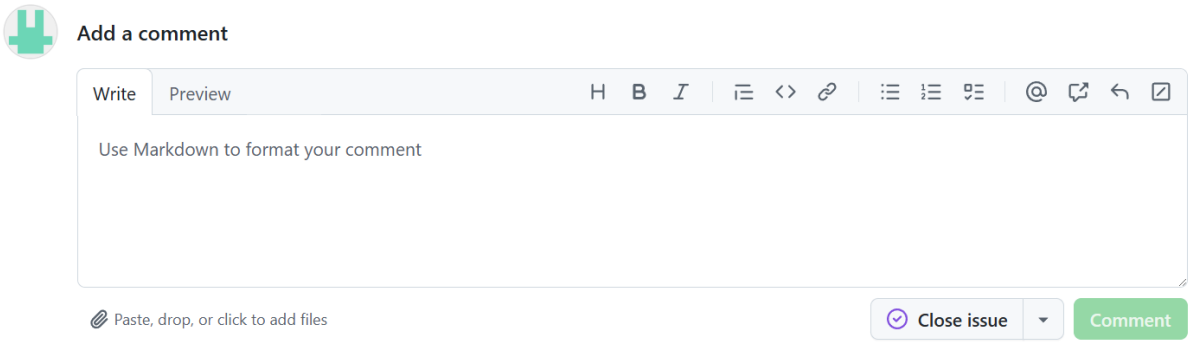

Figure 3 – TISSUE proposed solution

6 Rights

All roles defined in 4 are assigned Read and Triage permissions on https://github.com/generic-trust-anchor-api/TISSUE_DB.

7 IEC collaboration tool backlog

After completion of the process steps described in 3 the TISSUE is backlogged on the IEC collaborations platform for ISO/IEC JTC1 SC41 WG3 (https://collaborate.iec.ch/#/pages/workspaces/32977/dashboard). Access to the IEC collaboration platform is only possible for experts registered with ISO/IEC JTC1 SC41 WG3

The TISSUE backlog uses the following folder structure:

```
Workspace / IEC / ISO/IEC JTC 1 / ISO/IEC JTC1/SC 41 / WG 3          top level
      / Documents
             / 30168 TISSUE DB
             / 30168 TISSUE DB / TISSUE Guide for TS 30168.docx     latest version of
                                                                    this document
             / 30168 TISSUE DB / ED2 backlog                        TISSUEs scheduled
                                                                    for edition 2 of
                                                                    ISO/IEC TS 30168
```

The naming convention for the documents is as follows:

ISO-IEC_30168_TISSUE_*#number_yyyymmdd*.docx

where

- *#number* is the reference automatically assigned to the TISSUE record when the TISSUE has been originally filed (cf. 5) and
- *yyyymmdd* gives the date when the TISSUE was transferred to the TISSUE backlog.

The document shall give a full link to the corresponding issue on https://github.com/generic-trust-anchor-api/TISSUE_DB/issues.

The issue on https://github.com/generic-trust-anchor-api/TISSUE_DB/issues shall be closed giving a reference to the respective document on the IEC collaboration platform.

8 Visibility of comments

All TISSUES filed into https://github.com/generic-trust-anchor-api/TISSUE_DB/issues are publicly visible.

In compliance with ISO/IEC IPR and copyright regulations,

- the description and discussion shall not contain extensive citations from ISO/IEC documents. The description may contain short citations and/or references to ISO/IEC TS 30168 to facilitate the identification of the relevant section of the technical specification and explain the issue.

- Submitters of TISSUES agree that any information disclosed as part of their contribution to the discussion can be used to enhance ISO/IEC TS 30168 and may be used in implementations of the specification free of charge.

9 Attachments

Attachments can be submitted according to commenting rights.

10 Search

Search can be done using the default search function of GitHub. The fields as described in 5 can be used to compile lists of TISSUES in a specific state.