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TISSUE PROCESS

1   Background

From the origins of IEC 61850 it was recognized that a responsive process was needed to address errors or omissions in the Standard which are likely to cause interoperability problems between devices on the market which have been validated against the appropriate conformance test procedures.

The TISSUE process has been a vital part of the development of IEC 61850. However, it has been recognized that a more formal process would be of value to the market, industry, and community in order to reduce the number of interpretations required to understand tissue resolution. At the same time, the IEC is recognizing that additional standards need a faster revision process, and the TISSUE process of IEC 61850 is seen as a likely model.

This document aims to provide a comprehensive description of the process and the responsibilities of each user.

2   Interactions

The TISSUE process interacts with the process of the User Feedback Task Force which is charged with collecting and analyzing 61850 user experiences from the industry. 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 if different interpretations of the standard, as written, could lead to implementations that cannot interact with each other in a predictable manner.

The User Feedback Task Force is responsible for performing triage of any input from users of the standard. The TF shall determine which, if any, Working Group or Task Force needs to further analyze the information provided. One component of this is tracking suggestions for future improvements of the standards. As these improvements are not causing interoperability problems, they will be addressed in the normal maintenance cycle of the standard rather than as a TISSUE. Once a document is in revision any changes are in the scope of the NC commenting process and neither TISSUE nor TF UF issue.

In any case, an issue that is resolved (TFUF issue or TISSUE) should not be reopened without new information (Per IEC code of conduct).

There are some interactions between the two processes and systems.

   *If a TISSUE is entered and the editors determine it to be a valid issue but not an

interop problem, the TISSUE is resolved as "Future", and transferred to the TFUF database.

   * If TFUF considers user issue and determines that there is an interop problem, it is transferred to the TISSUE db.

In determining in which database to enter an issue, the deciding factor here is whether there is an interop issue. Note that in some cases there is not a technical problem in the standard, but clarification can be added. This is an "editorial" TISSUE that, for example, adds a note or example to help with understanding of the standard.

3   States

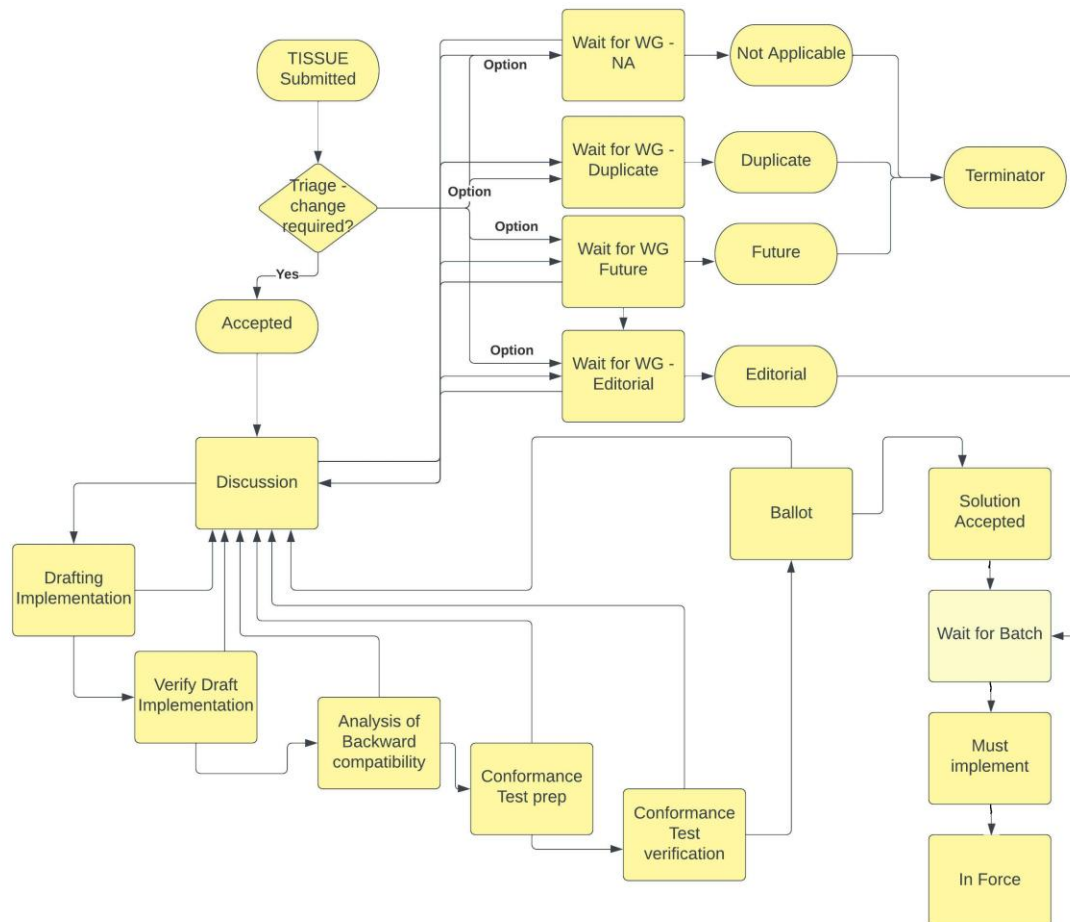The basis of the TISSUE process is the following state machine:

Figure 1 TISSUE process 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 **Namespace delegates** for the relevant part determine whether the issue raised is a valid interoperability problem.   At this stage, the **Namespace delegates** and the **TISSUE Reporter** are permitted to add comments as needed to progress the decision. From here, the **Namespace delegates** transition to one of the following five states. The Namespace delegates may need to consider if an abstract test case is required. Namespace delegates are expected to transition the TISSUE within two weeks. Note that four of these states transition through a state where the **WGdelegate** must confirm the transition to final. The **Namespace delegates** may need to consider if an abstract test case is required.

- **Not Applicable**
  When a TISSUE is determined to be a question, misunderstanding, or otherwise not a valid problem in the standard, the **Namespace delegates** shall set the TISSUE to **Not Applicable.** To make this transition, the TISSUE shall be commented with explanation of the choice. If the **Namespace delegates** realize that the test procedures need improvement, they shall submit a problem report to the appropriate testing committee.

- **Duplicate**
  When a TISSUE is determined to be a duplicate of another TISSUE, the **Namespace delegates** 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 **Namespace delegates** shall enter a comment explicitly stating the change to the text of the Standard, 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 **Namespace delegates** may transition the TISSUE to **Future Improvement.** No resolution of the TISSUE will be considered at this time, it will be addressed when the next revision of the Standard is considered. At this point, the issue should be entered in the TF UF redmine database, and a link to the redmine issue entered in the TISSUE.

- **Accepted**
  When a TISSUE is determined to be a valid interoperability issue or to be a worthwhile improvement, the **Namespace delegates** shall set the TISSUE to **Accepted** and begin work on a proposed solution. **Namespace delegates** may comment the TISSUE at this state. Namespace delegates are requested to prepare a proposed solution and transition the TISSUE to Discussion within two weeks.

- **Discussion**
  When the **Namespace delegates** 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 **Namespace delegates** transition the TISSUE to **Drafting Implementation.**

- **Verify draft implementation,**
  When the **Namespace delegates** have submitted a comment with the explicit changes to the standard, they will transition the TISSUE to **Verify draft implementation.** At this state, any registered user can comment the TISSUE. Any objection to the draft implementation will cause the **Namespace delegates** to transition the TISSUE back to **Discussion.**

- **Analysis of compatibility issues**
  During this state, the **Namespace delegates** indicate the backward, forward compatibility impacts associated with the proposed solution.

- **Conformance Test Preparation**
  During this state, the **Conformance test body actors** draft changes to the applicable test procedures for tissues against standard that has associated conformance test procedures. Priority is given to interoperability tissues. When the **Conformance test body actors** are satisfied with the draft the Tissue is transitioned to **Conformance Test Verification.** If, during the drafting of test changes, some problem with the testability of the proposed solution, the **Conformance test body actors** shall transition the Tissue to **Discussion.**

- **Conformance Test Verification**
  In this state, the draft changes to the test procedures are circulated for all interested parties to comment. When the test procedure draft is accepted, the **Namespace delegates** shall transition the Tissue to Ballot Period. If a problem is found with the test procedures, the **Namespace delegates** shall transition the Tissue to **Discussion.**

- **Ballot Period**
  The TISSUE will remain in this state for up to 30 days. If a negative comment is entered which cannot be resolved, the **Namespace delegates** 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 **Must Implement.** At this time, the test procedures and UML model drafts must be processed to generate a release of each with all

the resultant changes. The WG will at this time produce an INF document for circulation to inform the NCs of the TISSUEs and the date they will become In Force. Editorial TISSUEs are also recorded in the INF document.

- **Must Implement**
Provides a waiting period to warn vendors that changes to the conformance test procedures are approaching. At this point, a device can be tested with or without the changes required by the TISSUE. Once a quarter, any Tissue that has been in this state for six months shall be transitioned to **In Force**.

- **In Force**
Tissue process is complete. All devices tested must conform to this behavior.

- **Final**
Once a TISSUE has reached a Final state the only change that can be made is to add links so that future TISSUE that affect the resolution can be noted.

- **Waiting for WG approval**
The **WGdelegate** 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. Note that there are independent roles for independent domains. For example, the role **Namespace Delegate** applies to each part of a Standard, and **WGdelegate** applies to each Working Group responsible for a family of Standards (61850, 62351, etc.). An individual can have multiple roles.

- **Namespace delegate (NOw) :** considering that IEC 61850 is divided into namespaces (ref part IEC 61850-7-1), each namespace is under the responsibility of one **Namespace delegate**, by delegation of the TC secretary or *Owning WG* convenor/project leader. Each delegate is in charge of building-up and validating the content of the namespace, in co-ordination with the other delegates of namespace interacting with his own one. **Namespace delegates** are members of TC57 WGs but can also be members of other TC of the IEC. Namespace content management is fully compliant with IEC directives. Because of the wideness of some namespaces, it can be envisaged to breakdown the namespace per sub-domains and to have one expert leader per sub-domain, in charge of managing the maintenance of the considered sub-domains (typically, but not exclusively based on LN Groups breakdown). Each document should have at minimum two **Namespace delegates. UML Model Managers** will typically be **Namespace delegates. IEC 61850-1-2** provides additional information on these roles.

- **WGdelegate –** typically convener of the WG which is responsible for maintaining this specific document, and at least one alternate.

- **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

- **Conformance test body actors:** review changes for testability, and updates test procedures according to the process of the test organization

- **Group of Experts:** works out a proposal for a solution of the TISSUE under the lead of the *Namespace delegates* of the concerned part. If many parts are concerned, then a key namespace delegate is animating the resolution process, usually the one whose part is the most concerned by the Tissue. The Group of Experts is composed of WG experts nominated by the *Owning WG*, including all *Namespace delegates* and their substitute if any, as well as their associated *UML Model Managers*.

5   TISSUE record

Figure 2: Create Tissue form

The screen above is used to create a new Tissue with the fields:

1   Short Subject – a concise description of the problem

2   Part – which document the problem occurs in

3   Page, Clause, Paragraph – the location in the document

4   Detailed description – complete description of the problem and any relevant affects

5   Proposed solution – it is expected the reporter will suggest an appropriate resolution to be considered by the editors.

From that point, the Tissue can be updated:

Figure 3: Title ?

6   Rights

- **Namespace delegate:**
  The **Namespace delegate** has the responsibility for a particular part. This role transitions the TISSUE from all states except **Conformance Test Preparation** and **Waiting for WG approval**

- **WGdelegate**
  The **WGdelegate**, typically the convenor and an alternate, has the responsibility to verify any TISSUEs transitioned to a Final state, other than "In Force"

- **TISSUE reporter:**
  This is any user that is logged in. Is able to open a new TISSUE.

- **Tissue process viewer**
  This is a user that is not logged in or identified. Only right is to view existing TISSUEs and public comments.

- **Conformance test body actors**
  Delegates of the conformance test procedures working group. This role has the right to transition the TISSUE from **Conformance Test Preparation State**

- **Group of Experts**
  This is all the **Namespace delegates** for a specific Working Group. This role can comment TISSUEs at states as described below.

7 Making comments publicly visible

The Namespace delegate has the responsibility to make public comments that help users understand the issue and the resolution.   Comments that do not contribute to the understanding of the final resolution should not be public.

8 Attachments

Attachments can be submitted according to commenting rights. The Namespace delegate may make them public, along with the comment.   Only logged in users can see attachments.

9 Search

The TISSUE database has several search features. In addition to text search, all TISSUEs in a state many be found.

10 Notifications

Users can select to get a weekly update by using the "bell" icon on the parts page. This can be selected for each part individually, or for all parts at once.

The following table indicates rights to comment at each State:

	technical expert	extended expert	TISSUE proposer	other users	anonymous
Tissue visible	TADIBFW	TADIBFW	TADIBFW	TADIBFW	TADIBFW
Publble	TADIBFW	TADIBFW	TADIBFW	TADIBFW	TADIBFW
Nonpublic comment visible	TADIBFW	TADIBFW	T------	-------	-------
Can submit comment without approval	TADIB-W	TADIB--	T------	-------	-------
Can submit comment but requires approval	-------	-------	--D-B--	--D-B--	-------
Can approve a comment	T-D-B--	-------	-------	-------	-------
Can change visibility of comment	TADIBFW	-------	-------	-------	-------

Legend	
technical expert	NameSpace delegate, WGDelegate, UMLModelManager of the part the TISSUE is against.
Extended expert	Additional experts with a role: Group of Editors, ConformanceTestBodyActor
TISSUE proposer	the user that proposed the TISSUE
other users	other users logged in
anonymous	anybody not logged in

T	State Triage
A	State Accepted
D	State Discussion
I	State Drafting Implementation until Conformance test Verification
B	Ballot Period
F	State Solution Accepted, Must Implement, In Force, Not applicable, Duplicate, Editorial, Future Improvement
W	States Wait for WG approval

Table 1: Tissue Notification Table