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safe railway system without frontiers.

Procedure

Telematics TSI change control management (CCM) procedure for telematics documents

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1. Abbreviations, Reference documents, Reference legislation*Table 1 : table of abbreviations*

<i>Abbreviation</i>	<i>Definition</i>
CCM	Change Control Management
CR	Change Request
ERA	European Union Agency for Railways (also referred to as Agency)
ToR	Terms of Reference
TSI	Technical Specification for Interoperability
WP	Working Party organised by ERA

Table 2 : table of reference documents

Ref. N°	Document Reference	Title	Last Issue
(1)	Procedure PRO_CCM_002	Change control management PRO_CCM_002 Change Control Management	21/10/2021

Table 3 : table of reference legislation

Ref. N°	Document Reference	Title
[1]	Directive (EU) 2016/797	Interoperability Directive (EU) 2016/797 of the European Parliament and of the Council of 11 May 2016 on the interoperability of the rail system within the European Union (recast) (OJ L 138 26.5.2016, p. 44, ELI: http://data.europa.eu/eli/dir/2016/797/oj)
[2]	Regulation (EU) 2016/796	ERA Regulation (EU) 2016/796 of the European Parliament and of the Council of 11 May 2016 on the European Union Agency for Railways and repealing Regulation (EC) No 881/2004 (OJ L 138, 26.5.2016, p. 1, ELI: http://data.europa.eu/eli/reg/2016/796/oj)
[3]	Telematics TSI	Commission Implementing Regulation (EU) 2026/253 on a technical specification relating to the telematics subsystem of the rail system in the European Union for interoperability of data sharing in rail transport and repealing Regulations (EU) No 454/2011 and (EU) No 1305/2014: http://data.europa.eu/eli/reg_impl/2026/253/oj
[4]	List of representative bodies	https://www.era.europa.eu/agency-you/stakeholders/networks/network-representative-bodies_en
[5]	Regulation (EU) No 1025/2012	Regulation (EU) No 1025/2012 of the European Parliament and of the Council of 25 October 2012 on European standardisation, amending Council Directives 89/686/EEC and 93/15/EEC and Directives 94/9/EC, 94/25/EC, 95/16/EC, 97/23/EC, 98/34/EC, 2004/22/EC, 2007/23/EC, 2009/23/EC and 2009/105/EC of the European Parliament and of the Council and repealing Council Decision 87/95/EEC and Decision No 1673/2006/EC of the European Parliament and of the Council Text with EEA relevance.
[6]	Capacity Regulation	Regulation (EU) 2026/1184 of the European parliament and of the council of 20 may 2026 on the use of railway infrastructure capacity in the single European railway area, amending Directive 2012/34/EU and repealing Regulation (EU) No 913/2010

2. Summary

The Agency shall define pursuant to Article 23 of Regulation (EU) 2016/796 and article 12 of the Regulation (EU) 2026/253 the change control management procedures for changes to specifications for telematics applications and to develop the necessary technical tool to manage it.

This document defines the terms of reference for such an activity.

3. Background

The legal basis for the change control management of the TELEMATICS TSI [3] is based on the following documents:

- Regulation (EU) 2016/796 in particular article 23;
- the TELEMATICS TSI [3], and in particular Articles 11 and 12 and point 1.4 of its Annex

3.1. Purpose

The purpose of this procedure is the continuous improvement and further development of the technical documents referenced in Appendix C of the Annex to the Telematics TSI [3] to fulfil ERA's role as system authority for telematics pursuant to Article 23, paragraph (1), (2) and (3).

The ERA CCM process PRO_CCM_002 is also used to channel change requests to the Telematics TSI [3] legal text. This is treated by a separate working party.

3.2. Underpinning assumptions

The underpinning assumptions for this procedure are:

- The Telematics TSI is voted and in force, and its technical documents are properly referenced in Appendix C;
- For the parts of the technical documents referenced in Appendix C of the Annex to the Telematics TSI [3] that were submitted by third parties during the drafting of the Telematics TSI, the third parties concerned shall retain ownership of their copyright, but shall grant to ERA an irrevocable, worldwide, royalty-free licence — under the Creative Commons Attribution 4.0 International licence (CC BY 4.0) or terms of equivalent effect — covering the reproduction, distribution and adaptation of the contributed content. The grant of such licence shall constitute a condition of the submission of content during the drafting process, so that access and adaptation rights are secured at the point of engagement rather than negotiated after the content has been produced. All necessary artefacts (e.g. documents, schemas or other specification documents) shall be made available to ERA in editable form, so that the Agency retains a genuine capacity to modify, correct or further develop the referenced content, including where cooperation with the originating body is no longer available;
- The Change Management process is supported by a working IT solution to propose, analyse, implement / reject, baseline, supersede and archive change requests.

3.3. Scope

The scope of this procedure is:

- The ERA's technical documents referenced in Appendix C of the Annex to the Telematics TSI [3].

Where a new technical document is produced, for instance to close and open point or to support the digitalisation of other TSIs, that technical document shall be drafted by the Telematics WP.

3.4. Deliverables

The outputs of this procedure are

- The publication of the applicable machine and human readable versions of the ERA's Technical Documents referred to in point 3.3 on the public website of ERA.

3.5. Interfaces

Interfaces of the Telematics subsystem with other subsystems are listed in Appendix A of the Annex to the Telematics TSI [3].

4. Rules of the Telematics change control management for the technical documents

The horizontal change control management applicable to ERA work pursuant to Article 5(9) of Regulation (EU) 2016/796 is defined in the document “Procedure PRO_CCM_002 Change control management” (1). It is used for the quality management of ERA’s working methods and is solely under the control of ERA quality management. This document defines the basic rules for the change control management at ERA and is applicable to all ERA documents subject change control management. This includes the technical documents as well for Telematics TSI [3], where this document must be applied.

The procedures for the handling of the change control management for the technical documents referenced in Appendix C of the Annex to the Telematics TSI [3] shall follow the rules defined in chapter “2 - Change control management process for non-IT related products and services” of the “Procedure PRO_CCM_002 Change control management” (1).

To cover all requirements of the change control management for the technical documents referenced in Appendix C of the Annex to the Telematics TSI [3] some additional rules must be applied to reflect specific requirements such as semantic versioning and the timeline of the change management. These additional rules are defined in this document.

A change request can be submitted by those entities referred to in chapter 4.2 and by “any other entity that is involved in the operation of telematics applications, in relation to the elements of the subsystem referred to in point 2.6 of Annex II to Directive (EU) 2016/797” as stipulated in Art 3, point 9(n) of the regulation (EU) 2026/253.

The working principles of the TEL Change Control group are based on openness, consensus and transparency according to REGULATION (EU) No 1025/2012 (Annex II (3)).

The TEL change control group is created to analyse CRs and approve them after analysis. The CRs related to the TEL data model are approved by the ERA Ontology CCM board.

The following chapters define the additional rules concerning the change control management for the technical documents referenced in Appendix C of the Annex to the Telematics TSI [3].

4.1. Interface with ERA Ontology

The **ERA Ontology** shall be maintained in accordance with the relevant **change control management procedure** to ensure it remains compatible with, and includes as subsets, the data catalogue elements defined in the technical specifications referenced in **Appendix C, index [105], [B.5], [B.10], and [B.14] of the Telematics TSI**.

Where a **Change Request (CR)** affects the technical specifications referenced in **Appendix C, index [105], [B.5], [B.10], and [B.14]**, i.e. data model or semantic structure of the different elements of the **Telematics TSI**:

- The TEL change control group shall accompany the CR with an opinion
- The impact on the **ERA Ontology** shall be assessed by the ERA Ontology CCM;
- The **Ontology CCM board** shall approve or reject the change request, considering the opinion provided by the TEL CC group and the impact of the change on the entire ontology;
- The **ERA Ontology** shall be updated accordingly to maintain compatibility and inclusion of the relevant data catalogue elements.

4.2. Composition of change control group

The composition of the TWG.3 — Change Control Management and their roles are defined in the ToR for the Telematics WP: The TWG acts as a Telematics TSI change control working group for the elaboration of the change requests and as Telematics TSI change control group (board), approving the change requests. The package of approved CRs (e.g. resulting in a revised set of TDs is approved by the Telematics WP).

The TWG.3 fulfils two different roles according to the CCM process (1):

- › TEL change control working group – elaborating the technical specifications for a change request
- › TEL change control group – approving the change requests

The group is chaired by ERA in their role as system authority.

The following stakeholders shall take part in the TWG.3:

- Sector representative bodies [4] including organisations representing Ticket Vendors
- Technical document “owners” (sector groups responsible for referenced documents)
- Network coordinator, pursuant Art. 61 of the Capacity Regulation [6]
- National Contact Points
- Passengers’ representatives

4.3. Schedule

The Telematics TSI change control management of the technical documents shall follow a strict publication schedule for the changed technical documents. This should guarantee, that the rail sector can adapt the affected procedures and internal procedures to transfer the changed technical documents into the railway operation. In order to achieve that the following schedule shall be applied for the Telematics TSI change control management of the technical documents:

Table 4 : Schedule for the Telematics TSI change control management of the technical documents

Step	Time
Invitation to the ERA TEL CC working group Members for both of the following content: ▪ Invitation Telematics change control working group ▪ Last date of submission of the change requests	Latest on: T - 12 weeks
Submission of the change requests	At the latest 3 weeks before date of the ERA TEL change control working group meeting
ERA TEL CC working group	Between: (T - 7 weeks) and (T - 6 weeks)
Approval of a release by the change control group	Latest on: T - 2 weeks
Publication of the approved release on the ERA website and in a version-controlled environment	T = both of the following dates: ▪ 15 June if falls on working day, otherwise first following working day, and ▪ 15 December if falls on working day, otherwise first following working day,

The ERA TEL change control working group shall be organised and managed in such a way, that the following CRs can be put on the agenda and will be treated:

- all new CRs with the status ‘valid’;
- the existing CRs with the status ‘postponed’.

CRs submitted by ERA are considered as "Valid"

4.4. Versioning

The versioning of the technical documents is described in chapter 2.1.3. Change Control Management of the Change control management Procedure PRO_CCM_002 of ERA (1).

The numbering scheme referred to in Appendix C of the Annex to the Telematics TSI is adapted to the needs of Telematics TSI [3].

4.4.1. Numbering scheme

The numbering scheme referred to as “semantic versioning” in the Appendix C of the Annex to the Telematics TSI is adapted to the needs of Telematics TSI [3].

The releases of the technical documents will be numbered with a numbering scheme of three different numbers. These numbers provide the necessary information about the baseline version of the technical documents referenced in the Telematics TSI [3], the minor release and the related maintenance release. The numbering shall be formatted as follows:

<base line>.<minor release>.<maintenance release>.

Numbers from 4 – 99 are allowed for the baseline, numbers from 0 – 99 for the minor release and maintenance release.

Base line	Two digits – version of the baseline starting with the version referenced in the Telematics TSI [3].
Minor release	Two digits – number of the minor release within the core text version, starting with the minor release number 0 for the first legal release of the Telematics TSI [3].
Maintenance release	Two digits – number of the maintenance release

4.4.2. Use cases for renumbering

The following use cases describe the changes of the version numbers for the base line releases.

Table 5 : use cases for renumbering

#	Use case	Description	Changes in version numbers
1	Code list update	At least one of the code lists has been changed (new values, changed values, deleted values)	<base line>.<minor release>.<maintenance release + 1>
2	Change, backward compatible	At least one change has been incorporated, and the change is compatible with the previous minor releases of the baseline version in force	<base line>.<minor release>.<maintenance release + 1>
3	Change, not backward compatible	At least one change has been incorporated, and the change is not compatible with the previous minor release of the baseline version in force	<base line>.<minor release + 1>.0
4	New baseline version with a new set of functionalities subject to new, changed or removed basic parameters in the TSI Telematics	A new baseline version with a new set of functionalities subject to amendments of the TSI Telematics text in force	<base line + 1>.0.0

The following rules will be applied for the numbering changes:

- The version numbers will be incorporated in the documents and supporting technical files (e.g. XSD-schemes, ASN.1, JSON).

- Only the version numbers of the technical documents affected by the changes will be modified.
- The version numbers of unchanged documents remain.
- The decision on which schema version shall be used, including associated transition period where relevant, for the next release will be proposed by ERA to the ERA TEL change control group for approval.

Examples of changes in the telematics domain or in an existing data catalogue subject to the TSI Telematics:

- backward compatibility:
 - an optional element is introduced in an existing XML scheme;
 - corrections of mandatory and optional elements where:
 - no element is removed from the interface specification;
 - the meaning of an element is not changed;
 - the data format of an element is not changed.
- Examples of non-backward compatibility:
 - a new mandatory element is introduced in the XML scheme;
 - An existing element has been renamed;
 - The cardinality of an element has been changed;
 - a mandatory change (new element, naming, cardinality, ...) is introduced to align with the TSI in force

When changes are not backward compatible, the additional aspects shall be covered in the CR by its submitter:

- analysis of the implementation costs and benefits associated to the implementation of the changes;
- proposal for a transition period associated to the implementation of the changes.

The coordinated update of the ERA Ontology and associated data catalogue shall be in line with the approved CRs and a quality process shall be in place.

Backward compatible changes approved by the change control group shall be subject to an ERA Technical Opinion providing for acceptable means to comply with the baseline version referenced in the TSI, including where relevant a transition period for its application (otherwise directly applicable).

Not backward compatible changes approved by the change control group shall be subject to a recommendation of ERA to the EC, including a transition period for its application, otherwise directly applicable at entry into force.

When a TD is amended to align with the TSI text in force, even when triggering a non-backwards-compatible change, shall be considered an error-correction and therefore not triggering a new baseline.

4.5. Decision making principles

The Agency, as Telematics system authority, is entitled to make decisions concerning the acceptance and refusal of changes to TDs.

The Agency commits to keep an open approach, meaning involving all the interested stakeholders potentially affected by the decision.

Agency's decisions are based on consensus, meaning that decisions shall be taken through a collaborative and consensus-based process that does not favour any particular stakeholder. The process shall seek and consider the views of all concerned parties and shall endeavour to reconcile conflicting positions. Consensus shall be demonstrated by the absence of sustained opposition on substantial issues from any significant stakeholder group. Consensus does not require unanimity.

The Agency commits to ensure transparency by recording the results of the technical discussions, in particular the contribution by the stakeholders and relevant positions on the subjects.

5. Economic Evaluation

For each CR an impact assessment has to be performed.

Where a CR relate to an error correction in the specification, an editorial change, a backward compatible change including in case of alignment with the requirements of the Telematics TSI [3] in force, a simplified impact assessment in the form of a qualitative statement is sufficient.

Where a CR is related to an enhancement, a deeper impact assessment including a quantitative CBA may be relevant and the status of the impact assessment associated to that CR should be described by using the following categories:

- › A complete CBA is performed
- › The cost impact is low, no complete CBA is performed.
- › The CR solves an error where no better solution could be found. A complete CBA is not performed.
- › The expected benefits outweigh by far the expected costs. Where this is demonstrated, no further complete CBA is needed.

If a complete CBA is performed, the following information should be provided:

- › The report containing the complete CBA should be attached to the CR;
- › The main assumptions and the results should be summarized as well:
 - › The assumed reference scenario (i.e. the scenario where the CR is not applied). This should be in line with the operational scope of the problem. The assumed project scenario (i.e. the scenario where the CR is applied);
 - › The considered application scope of the CR – describing which part of the technical document is subject to the CR submitted. This information should be in line with the scope described in the problem definition;
- › The cost impact in qualitative terms, and where relevant quantitative terms based on standard costs for telematics, in total and separate for the different impacted telematics stakeholders;
- › Where relevant, the cost impact in quantitative terms for the impacted system elements based on standard costs for telematics aggregated as generic costs as well as project specific costs;
- › The benefits in qualitative, and where relevant quantitative terms based on standard costs for telematics, in total and separate for the different impacted stakeholders

In addition, a recommendation based on the results of the impact assessment should be provided.

TEL change control group members shall contribute to the economic evaluation with justified figures of cost estimations.

6. Adoption of and changes to this procedure

The first version of this procedure is published by the Agency in line with Art. 12(1) of the TEL TSI.

Changes to this procedure can be proposed by the ERA TEL change control group, with final decision making by ERA.

If the underpinning document “ERA Changes control management procedure PRO_CCM_002 V 1.0” (1), that is not subject to the ERA TEL WP, is changed, those changes must be presented by the Agency to the ERA TEL change control group.