




ERJU SYSTEM PILLAR

Template - System Requirements Specification



Template - System Requirements Specification

Note to author: Please remove or replace all blue parts when applying the template.

Author(s)	Dennis Kunz , ANTOONS Gilles , Jorge Block , Renard, Marie Pierre (SMO RI MT FR ADC TGMTR3)
Abstract	This document provides the main template for system requirements specifications of the System Pillar.
Config Item	Document Template
Document ID	80 Templates/Template - System Requirements Specification#722341  Template - System Requirements Specification
Classification	Public
Status	Released
Version	1.0
Revision	722341
Last Change Date	02.10.2025
Copyright	Brussels: Europe's Rail Joint Undertaking, 2025

© Europe's Rail Joint Undertaking, 2025

This document is drafted by and belongs to EU Rail.

EU Rail encourages the distribution and re-use of this document, the technical specifications and the information it contains. EU Rail holds several intellectual property rights, such as copyright and trade mark rights, which need to be considered when this document is used.

EU Rail authorises you to re-publish, re-use, copy and store this document without changing it, provided that you indicate its source and include the following: EU Rail trade mark, title of the document, year of publication, version of document.

EU Rail makes no representation or warranty as to the accuracy or completeness of the information contained within these documents. EU Rail shall have no liability to any party as a result of the use of the information contained herein. EU Rail will have no liability whatsoever for any indirect or consequential loss or damage, and any such liability is expressly excluded.


You may study, research, implement, adapt, improve and otherwise use the information, the content and the models in the this document for your own purposes. If you decide to publish or disclose any adapted, modified or improved version of this document, any amended implementation or derivative work, then you must indicate that you have modified this document, with a reference to the document name and the terms of use of this document. You may not use EU Rail's trade marks or name in any way that may state or suggest, directly or indirectly, that EU Rail is the author of your adaptations.

EU Rail cannot be held responsible for your product, even if you have used this document and its content. It is your responsibility to verify the quality, completeness and the accuracy of the information you use, for your own purposes.

Document History

1.0 19.09.2025	Dennis Kunz	Approved version based on Review 1.1
1.1 19.09.2025	Dennis Kunz	Reviewed version including Change Request
1.0 19.09.2025	Dennis Kunz	Approved version based on Review 1.1

Approval by reviewers (captured at end of 'In Review by System Pillar')

Type of Approval	 Document Review
Approvals	ANTOONS Gilles : Approved , Jorge Block : Approved , Renard, Marie Pierre (SMO RI MT FR ADC TGMTR3) : Approved
Attachments	Template_-_System_Requirements_Specification-comments.xlsx

Approval by approvers (captured at end of 'In Approval by System Pillar')



Type of Approval	 Document Approval
Approvals	Schmidt Steffen (I-NAT-GST-ERTM) : Approved , SCHWAN Nico : Approved , SANGO Marc (SNCF / DIR TECHNOLOGIES INNOVATION ET PROJETS GROUPE / IR DIR RECHERCHE - PSF) : Waiting , KEFALAS, Georgios : Approved , Jorge Block : Approved , ANTOONS Gilles : Waiting , Renard, Marie Pierre (SMO RI MT FR ADC TGMTR3) : Approved






Table of contents

1 Preamble	5
1.1 Purpose	5
1.2 Intended Audience	5
1.3 Document Context	5
1.4 Glossary	5
2 Optional: Assumptions and dependencies	6
3 Optional: Constraints	6
4 Optional: System overview	6
4.1 Optional: System context	6
4.2 Optional: System interfaces	6
4.2.1	6
4.3 Optional: System states	7
5 System requirements	7
5.1 Non-functional requirements	7
5.1.1	7
5.2 Functional requirements	7
5.2.1 Optional: Functional overview	7
5.2.2	7
5.3 Optional: Lifecycle aspects	7
6 Appendix	8
6.1 Standards and references	8

1 Preamble

1.1 Purpose

This document is the output of system requirement specification activities (phase 4) as specified in  SPPRAMSS-349 - [EN 50126-1:2017] for the *<system of interest>*. The objective of this document is to specify a comprehensive and identified set of requirements for the *<system of interest>*.

Note to author: Add here references or links to the input documents of this system requirements specification. Depending on the case, these are the  SPPR-7906 - System Definition,  SPPR-7909 - System PRAMS Risk Assessment Report and  SPPR-7912 - System Security Risk Assessment Report (for System Level 3 or 4) or the  SPPR-7924 - System Architecture Description and  SPPR-7925 - System Interface Description (for System Level 5). The actual full references shall be placed in the appendix.

1.2 Intended Audience

*Note to author: This section shall **describe the intended audience** for this document.*

1.3 Document Context

*Note to author: This section shall **describe the context** for this document.*

1.4 Glossary



*Note to author: Please **add here references to existing applicable definition work items** in the System Pillar glossary or **insert a macro which lists** those work items. Please use the SPPROCESS/30 SP*

Metadata Management/Glossary Usage Guidelines : 722341 and avoid duplications of definition work items and the manual creation of new ones in this document.

No references



2 Optional: Assumptions and dependencies

Note to author: List any assumptions and dependencies applicable to the system requirements.

This chapter can be omitted if the content has been already defined elsewhere (e.g. existing  SPPR-7906 - System Definition or  SPPR-7924 - System Architecture Description). In this case, insert a reference to that document.

3 Optional: Constraints


Note to author: List any constraints applicable to the system requirements.

This chapter can be omitted if the content has been already defined elsewhere (e.g. existing  SPPR-7906 - System Definition or  SPPR-7924 - System Architecture Description). In this case, insert a reference to that document.

4 Optional: System overview



4.1 Optional: System context

Note to author: Provide an overview of the system environment using a system context diagram.

This chapter can be omitted if the content has been already defined elsewhere (e.g. existing  SPPR-7906 - System Definition). In this case, insert a reference to that document.

4.2 Optional: System interfaces

Note to author: Provide a list of the external interfaces of the system.

This chapter can be omitted if the content has been already defined elsewhere (e.g. existing  SPPR-7906 - System Definition or  SPPR-7924 - System Architecture Description). In this case, insert a reference to that document.

<Automatically generated overview of all external interfaces>

- <optional list or table created by a macro>
- <show a collection of C2P Interface work items, if applicable>

4.2.1 <external interface X>

Note to author: Create a separate subchapter for each identified external interface.

<Diagram work item of the external interface X>



- <diagram following applicable view definitions and rules>

<C2P Interface work item item which represents the external interface X>

- <show title and description>

4.3 Optional: System states


Note to author: Provide definitions or descriptions of system states, which are to be used in the requirements, if applicable. The intention is to describe possible system states to understand requirements which related to them (e.g. through state-driven requirements using states in the precondition).

This chapter can be omitted if the content has been already defined elsewhere (e.g. existing  SPPR-7906 - System Definition or  SPPR-7924 - System Architecture Description). In this case, insert a reference to that document.

5 System requirements

Note to author: Write functional and non-functional requirements applicable to the system following SPPROCESS/SEMP Annex R Requirements/SEMP Annex R3 - Rules for writing textual requirements : 722341.

5.1 Non-functional requirements


Note to author: Specify  SPPR-4174 - Non-functional requirements derived from dedicated specifications or inputs of the system architecture that are applicable to the whole system. Create separate chapters for each requirement category through tailoring.

5.1.1 <Non-functional requirements category X>

Note to author: Create a separate chapter for each non-functional requirement category which contains all requirements of that specific category. The following non-exhaustive list provides usual categories as an example.

- *reliability, availability, maintainability, safety, security, performance*
- *solution, implementation*
- *standards and regulations*
- *quality characteristics ("-ilities")*
- *physical characteristics*
- *ergonomics*
- *human factors*

5.2 Functional requirements

Note to author: Specify  SPPR-4173 - Functional requirements for the system structured by each system function derived from dedicated inputs. Functional requirements that are valid for multiple functions can listed together here instead of keeping them multiple times in the different subchapters. Consider to create a new chapter for these requirements if necessary.

5.2.1 Optional: Functional overview

*Note to author: Provide a **high-level functional overview diagram** visualising the considered system functions. If there is no functional overview diagram provided for all system functions, then it is possible to place specific overview diagrams for each considered function including the surrounding functions.*

5.2.2 <System function X>

*Note to author: Define the **full set of function-specific requirements necessary to perform system function X**. Therefore, specify  SPPR-4173 - Functional requirements applicable to this considered system function.*

5.3 Optional: Lifecycle aspects

*Note to author: If applicable, specify requirements for **lifecycle aspects of the system**. Consider to create separate chapters for these requirements if necessary.*

- **Policy and regulation:** *Derive requirements from organisational policies, business practices and relevant external regulations that will affect the operation or performance of the system. Examples*

of requirements include multilingual support, labour policies and protection of personnel information.

- **Development, certification and validation:** Define the requirements that are relevant to the system development process (also including standardisation initiatives) and further ones that must be met to obtain the certification according to the applicable standards, e.g. tests to be performed, organisation that will be responsible for certification.
- **Manufacturing and assembly:** Derive requirements for health and safety criteria, including those basic to the design of the system, with respect to equipment characteristics, methods of operation and environmental influences such as toxic systems and electromagnetic radiation.
- **Commissioning:** Define the system requirements that are necessary to perform a safe and reliable commissioning.
- **System life cycle sustainment:** Outline quality activities, such as review and measurement collection and analysis, to help realise a quality system. Life cycle sustainment also includes provision of facilities needed to provide operational and depot-level support, spares, sourcing and supply, provisioning, technical documentation and data, support-personnel training, initial cadre training and initial contractor-logistics support.
- **Packaging, handling, shipping and transportation:** Define requirements imposed on the system to make certain that it can be packaged, handled, shipped, transported and stored within its intended operational context.
- **Adaptability:** Define requirements that demand flexibility for future adjustments. For example, if the system will require future network bandwidth, the applicable hardware should be specified with extra card slots to accommodate new network cards as demand increases.
- **Longevity:** Define requirements regarding minimum total life expectancy, required operational session duration or planned utilisation rate. This is as opposed to the topic availability which would mean requirements for uptime within the expected service life and probability of failure.
- **Decommissioning and disposal:** Define requirements for the system of interest that are necessary to perform a safe and reliable decommissioning and disposal.

6 Appendix

Note to author: Put here references to applicable input documents.

6.1 Standards and references

Note to author: Put here references to applicable standards or regulations.