

# RCA



Reference CCS Architecture

*An initiative of the ERTMS users group and  
the EULYNX consortium*

## RCA Documentation Plan

Document id: RCA.Doc.6  
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## Change history

Gamma.1	31.01.2020	B. Rytz	Ready for publication after review RCA core group
0.1 (0.A)	11.09.2020	M. Blazic	Updated document list for BL0 R1, sync introduction section setup
0.2 (0.A)	04.02.2021	M. Blazic	Updated document list for BL0 R1 update

## **1. Introduction**

### **1.1. Release information**

#### **Basic document information:**

RCA.Doc.6

RCA Documentation Plan

Cenelec Phase: -

Version: 0.2 (0.A)

RCA Baseline set: 0

Approval date: 04.02.2021

### **1.2. Imprint**

#### **Publisher:**

RCA (an initiative of the ERTMS Users Group and EULYNX Consortium)

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### **1.3. Purpose of the document**

This document lists, identifies and defines all documents of the RCA (reference CCS architecture).

The document contains:

- An overview of the document categories used in RCA
- A list of all documents developed by RCA, i.e. the documentation plan

A graphical depiction of the documentation plan can be found in RCA.Doc.36.

### **1.4. Related documents**

- The “RCA Documentation Plan Visualisation” [RCA.Doc.36] provides a visualisation of the current and planned documents.
- The “RCA Release notes” [RCA.Doc.5] describe the relevant documents (according to this documentation plan) for a given release.
- The “RCA Change Management Control Process” [RCA.Doc.39, planned] describes how the documents / deliverables are managed (baselines, etc.).

## 2. Structure of the documentation plan

### 2.1. Document attributes

The documentation plan uses the following attributes for every document:

<b>Id</b>	A unique identifier for the document of the form RCA. Doc. XXX where XXX is a decimal number without special meaning.
<b>Category</b>	See description below
<b>Type</b>	Distinguish between <ul style="list-style-type: none"><li>▪ Doc = Document</li><li>▪ MB = Model-based</li><li>▪ Dia = Diagram</li></ul>
<b>Name</b>	Name of the document
<b>CENELEC</b>	CENELEC phase(s) (if applicable)
<b>First published</b>	Release in which document was first published. May be “Planned”, when document is not yet published.
<b>Comment</b>	Important information, e.g., that the document is obsolete or has been superseded by other document.

As soon as formal change control is in effect (to be defined in Change Control Management process [RCA.Doc.39], the handling of versions / releases / baselines will be specified in more detail.

### 2.2. Documentation categories

The documentation plan for RCA includes different categories of documents with differing needs of formality and change control. The following table describes the defined categories:

<b>Category</b>	<b>Purpose</b>	<b>Content (examples)</b>	<b>Degree of formality</b>
<b>A. RCA system specification</b>	The (future) core RCA specification with CENELEC-compatible structure	formalised system, function, component, interface specification	High: formalized, modelled, formal QA, formal change-control (CC) in CCB
<b>B. Concept development</b>	Concepts not (yet) suitable for system specification (maturity, formality)	RCA effects, migration paths for RCA users, principles of the safety logic, capability-based protocols	Low-to-medium: free-form, QA and CC by RCA core group

<b>C. Mission and Process description</b>	Description of how the RCA process is organized	Process overview, modelling guidelines	Medium: free-form, QA and CC by RCA core & strategy group
<b>D. Communication support</b>	Material to explain RC and to create awareness	FAQ, presentations, films	Low: free-form, informal QA
<b>E. Demonstrators</b>	Support development by concrete experiments Showcase RCA	RCA demonstrator planned for InnoTrans	(for InnoTrans) Low: free-form, informal QA
<b>X. eXternal documents</b>	Documents provided / prepared by other working groups, but which (on mutual agreement) are included in an RCA release.	Documents on localisation from the LWG (Localisation Working Group).	See B. Concept development

Each document / artefact of the documentation plan is classified according to these categories.

Note on the relationship between categories «A. System specification» and «B. Concept development»:

- A given topic (e.g., modular safety or platform independence) is expected to start in «concept development» and to transition to «system specification» if and only if it is
  - needed for the formal specification and
  - mature enough (shared understanding achieved, efficient work process in formal environment)
- Such topics will typically end up in the «domain knowledge» or in the «generic ... requirements» part of the «system specification»
- In some cases, the treatment of a topic may remain distributed over documents both in «concept development» and in «system specification» if they differ in the need for formality (an example might be some architectural design principles).

### 3. List of documents

Id	Cat	Type	Name	Short description	CENELEC phases	Valid	First Published	Latest Update
RCA.Doc.1	C	Doc	<b>RCA White Paper</b>	The rationale for starting RCA. Foundation for MoU between EUG and EU-LYNX.	-	Y	Alpha	-
RCA.Doc.2	B	Doc	<b>RCA Architecture Overview</b>		-	N	Alpha	Beta
RCA.Doc.3	C	Doc	<b>RCA Process Overview</b>	How the RCA group works to prepare, maintain and bring the RCA specification to the sector.	-	Y	Alpha	Gamma
RCA.Doc.5	C	Doc	<b>RCA Release Notes</b>	Description of current release of RCA deliverables.	-	Y	Alpha	BL0 R1
RCA.Doc.6	A	Doc	<b>RCA Documentation Plan</b>	Overview of the documentation set of RCA	-	Y	Gamma	BL0 R1
RCA.Doc.7	D	Doc	<b>RCA FAQ</b>	Frequently asked questions and answers regarding RCA. Useful for a quick overview.	-	Y	Alpha	Gamma
RCA.Doc.8	B	Doc	<b>Concept: Modular Safety</b>	A modular architecture requires and enables concepts to reduce the safety workload.	-	Y	Beta	Beta
RCA.Doc.9	B	Doc	<b>Concept: Sourcing scenarios</b>		-	N	-	-
RCA.Doc.10	B	Doc	<b>Concept: RCA Effects - Business Case</b>	The economic effects (savings) of an RCA-based implementation, based on smartrail 4.0 and extrapolated to other IMs.	-	Y	Gamma	Gamma
RCA.Doc.11	B	Doc	<b>Concept: Platform Independence</b>	The need to achieve more modularity between applications and the platforms.	-	N <sup>1</sup>	Beta	-
RCA.Doc.12	B	Doc	<b>Concept: RCA Effects - Capacity</b>	The effects on traffic capacity for an RCA-based system.	-	Y	Beta	Beta
RCA.Doc.13	B	Doc	<b>Concept: Architectural approach / System-of-systems perspective</b>	Architectural principles for the RCA.	-	Y	Beta	Gamma
RCA.Doc.14	A	MB	<b>RCA Glossary</b>	Definition of used terms.	-	Y	Gamma	BL0 R1
RCA.Doc.15	A	Doc	<b>RCA System Concept</b>	A high-level description of the goals and fundamental concepts of RCA:	1	Y	Gamma	
RCA.Doc.18	A	MB	<b>RCA Domain Knowledge</b>	Defines important domain concepts used in the specification.	-	Y	BL0 R1	BL0 R1
RCA.Doc.28	B	Doc	<b>Migration</b>	Illustrates how migration towards an RCA-based system can be planned, including examples of different IMs.	-	Y	Gamma	Gamma
RCA.Doc.29	B	Doc	<b>Concept: LSL - Enhanced L3, Supervision, Localisation</b>	Evolution of ETCS, rationale for submitted TSI CRs.	-	Y	Gamma	Gamma
RCA.Doc.30	B	Doc	<b>Concept: Principles of the safety logic</b>	Geometric-based interlocking for more capacity and flexibility.	-	Y	Gamma	Gamma
RCA.Doc.31	B	Doc	<b>Concept: Operational plan</b>	Concept for the standardized interface between RCA and a TMS.	-	Y	Gamma	Gamma
RCA.Doc.32	B	Doc	<b>Concept: Degraded modes</b>	The role of degraded modes in specifying RCA.	-	Y	Gamma	Gamma
RCA.Doc.33	C	Doc	<b>Methods and Tooling</b>	Describes the methods and tools used for developing the RCA specification.	-	N	-	-
RCA.Doc.34	C	Doc	<b>RCA Roadmap</b>	Overview planned development for RCA.	-	Y	Gamma	Gamma
RCA.Doc.35	A	MB	<b>RCA System Architecture (merged): System Def, System Reqs, Sys Arch</b>		2,4,5	Y	BL0 R1	BL0 R1

<sup>1</sup> Superseded by the white paper: An Approach for a Generic Safe Computing Platform for Railway Applications.

<b>Id</b>	<b>Cat</b>	<b>Type</b>	<b>Name</b>	<b>Short description</b>	<b>CENELEC phases</b>	<b>Valid</b>	<b>First Published</b>	<b>Latest Update</b>
RCA.Doc.36	A	Dia	<b>RCA Documentation Plan - Annex</b>	Visualisation of the documentation plan.	-	Y	Gamma	Gamma
RCA.Doc.37	B	Doc	<b>Concept: RCA effects overview</b>	Overview of potential the effects / benefits of an RCA-based system.	-	Y	Gamma	Gamma
RCA.Doc.39	C	Doc	<b>RCA Change Control Management Process</b>		-	N	-	-
RCA.Doc.40	D	Doc	<b>RCA Architecture Poster</b>	Diagram of the interface architecture of RCA.	-	Y	Alpha	BLO R1
18E112	X	Doc	<b>LWG: Railways Localisation System HL Users' Requirements</b>	Provided by the Localisation Working Group of the EUG.	-	Y	Gamma	Gamma
19E100	X	Doc	<b>LWG: Railways Localisation System Performance Requirements from Use Cases</b>	Provided by the Localisation Working Group of the EUG.	-	N	-	-
RCA.Doc.41	C	Doc	<b>Declaration of Intent by DB, NR and SBB</b>	Public statement on contribution to RCA.	-	Y	Beta	-
RCA.Doc.42	A	Doc	<b>RCA Reference document list</b>	List of important referenced documents (documents outside RCA).	all	N	-	-
RCA.Doc.43	B	Doc	<b>Concept: Informal Architecture Overview</b>	Provides an informal overview, until the MBSE-generated documents are officially published.	all	Y	Gamma	Gamma
	X	Doc	<b>LWG: Railways Localisation System Performance Requirements from Use Cases</b>	Provided by the Localisation Working Group of the EUG.	-	N	-	-
	X	Doc	<b>LWG: Railways Localisation System Performance Requirements from Use Cases</b>	Provided by the Localisation Working Group of the EUG.	-	N	-	-
	X	Doc	<b>White paper: An Approach for a Generic Safe Computing Platform for Railway Applications</b>	Concept for generic safe computing platform for onboard and trackside CCS applications, prepared by RCA and OCORA	-	N	-	-
RCA.Doc.44	C	Doc	<b>RCA-OCORA Liaison</b>	Statement on collaboration between RCA and OCORA	-	N	-	-
RCA.Doc.45	B	Doc	<b>(Cyber) Security Guideline</b>	A guideline to and definition of a harmonized Security Risk Assessment for System Design process	-	Y	BLO R1	BLO R1

#### Notes:

- This list will be extended over the course of RCA development.
- The column “Valid” indicates if this document is valid in the current release (i.e. available and not deprecated).
- “DS = Development snapshot” in the column “Latest Update” indicates, that the MBSE specifications will be made available as frequently updated snapshot, without being part of a specific release, until the first official baseline is achieved.