

RCA



Reference CCS Architecture

*An initiative facilitated by the ERTMS Users Group
and the EULYNX consortium*

A. Component Specification ATO-AV

This is a snapshot version. Please use it with caution.
There is ongoing work. The content of this document
may be unfinished, will likely contain errors and can be
changed without prior notice.

Document RCA.Doc.24

Version: Public Snapshot (v0.0.7)

Date: 6-12-2019

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REVISION HISTORY

Version	Date	Superseded documents/description/details	Change Request No
0.0.7	06-12-2019	Initial version of component specification	n/a

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Es konnten keine Einträge für ein Abbildungsverzeichnis gefunden werden.

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1. CONCEPT (PHASE 1)

Cenelec Phase 1 is not covered in this document

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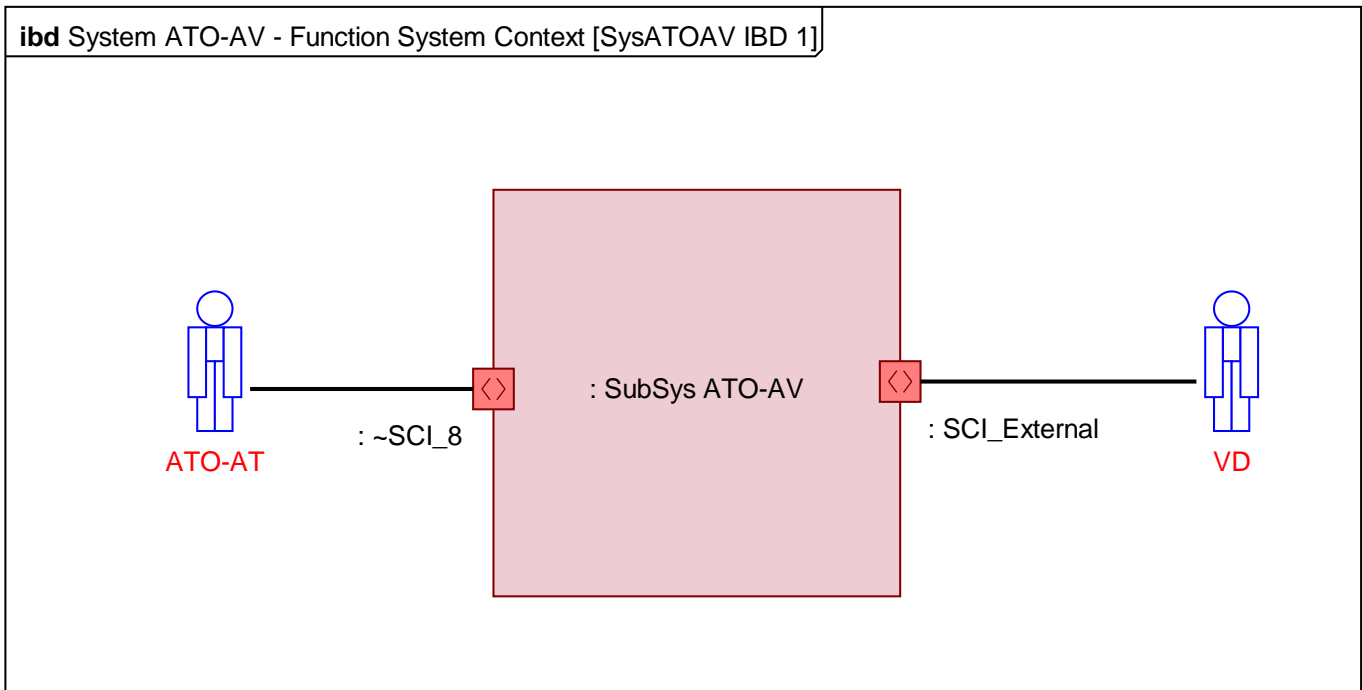
2. SYSTEM DEFINITION (PHASE 2)

2.1. System Context

Description: The [SubSys ATO-AV](#) operates the vehicle automatically and optimizes the speed such that it reaches given points at a given time as received from the [SubSys ATO-AT](#). [SubSys ATO-AV](#) has no safety function. To ensure safety it is supervised by [SubSys VS](#).

Source: RCA Alpha.1 (Description has been modified)

Design Rationales: In order to minimize bandwidth usage for transmitting data between [SubSys ATO-AT](#) and [SubSys ATO-AV](#), [SubSys ATO-AV](#) may cache [Segment Profiles \(Topology\)](#) data). It will request only [Segment Profiles](#) that are not known by [SubSys ATO-AV](#).



Description:

2.2. Descriptions of Actors

This section contains all actors interacting with [Sys RCA](#) and the Subsystems of [Sys RCA](#). The actors in this section are external to [Sys RCA](#) and therefore not part of the system.

2.2.1. ATO-AT

Description: See [SubSys ATO-AT](#).

2.2.2. VD

Description: [VD](#) represents the vehicle-based actors and sensors.

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2.3. Interface definition

2.3.1. SCI_8

Description: This interface connects the [SubSys ATO-AT](#) to the [SubSys ATO-AV](#) function, that controls the vehicle [Device](#).

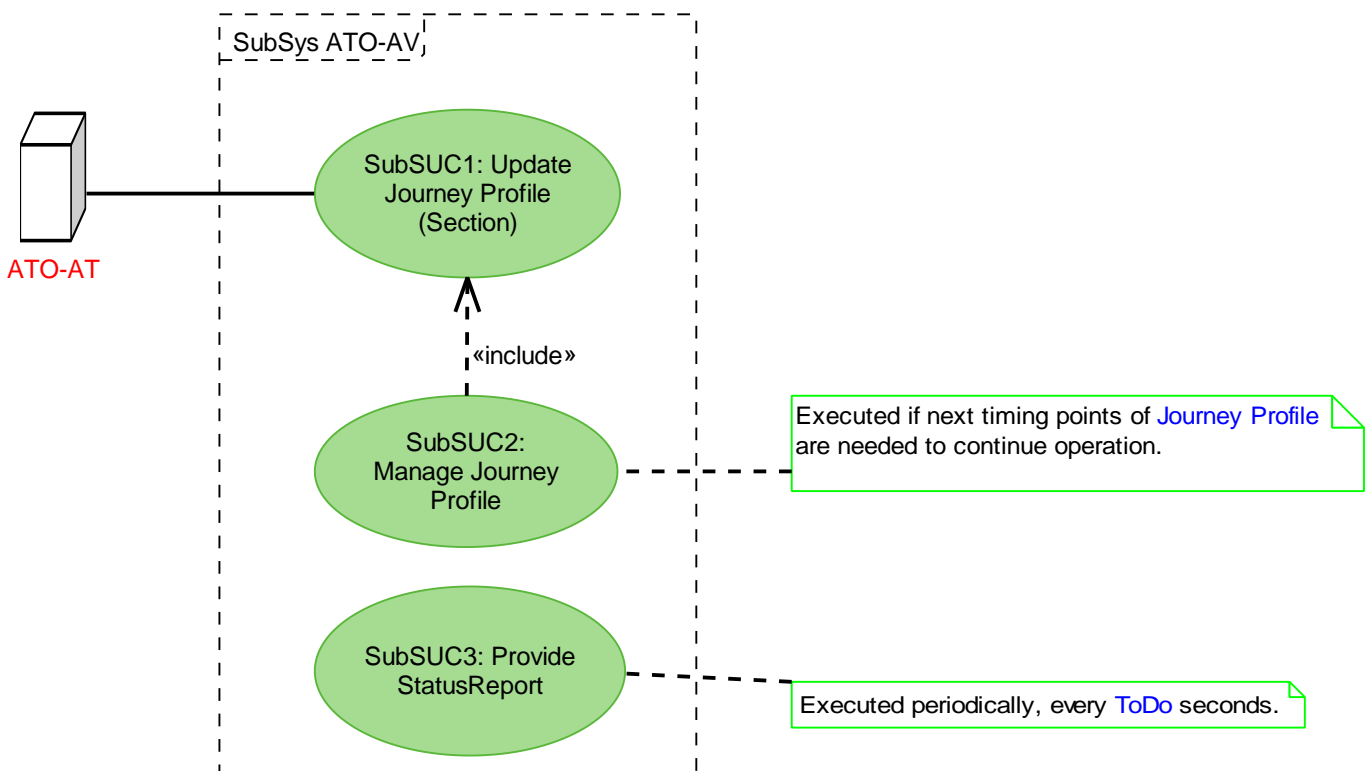
Candidate interface definition: [ATO](#) over [ETCS](#) SUBSET-126 ATO-OB / ATO-TS Interface Specification.

Source: RCA Beta.1

2.3.2. SCI_External

Description: [ToDo](#): Temporary solution

2.4. UseCases



Description: Use Cases of [SubSys ATO-AV](#)

2.4.1. SubSUC1: Update Journey Profile (Section)

Description: Use Case for updating a [Journey Profile](#)

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2.4.1.1. *Alternative Scenario: Update Journey Profile, Segment Profile is current [SubS ATOAV SD 1.1.3]*

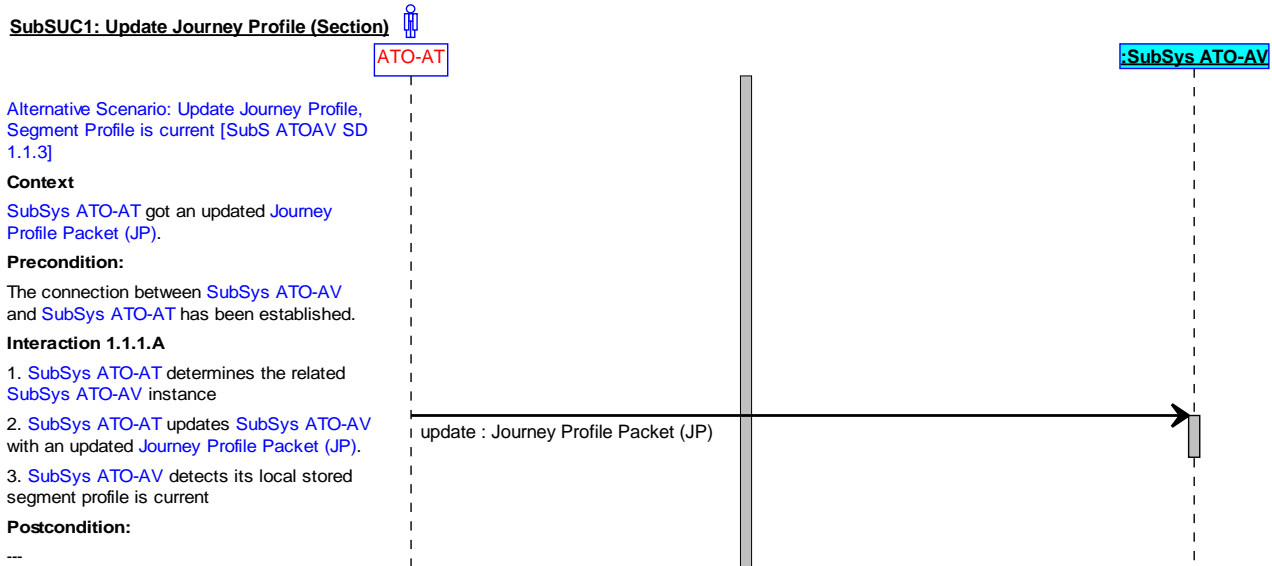
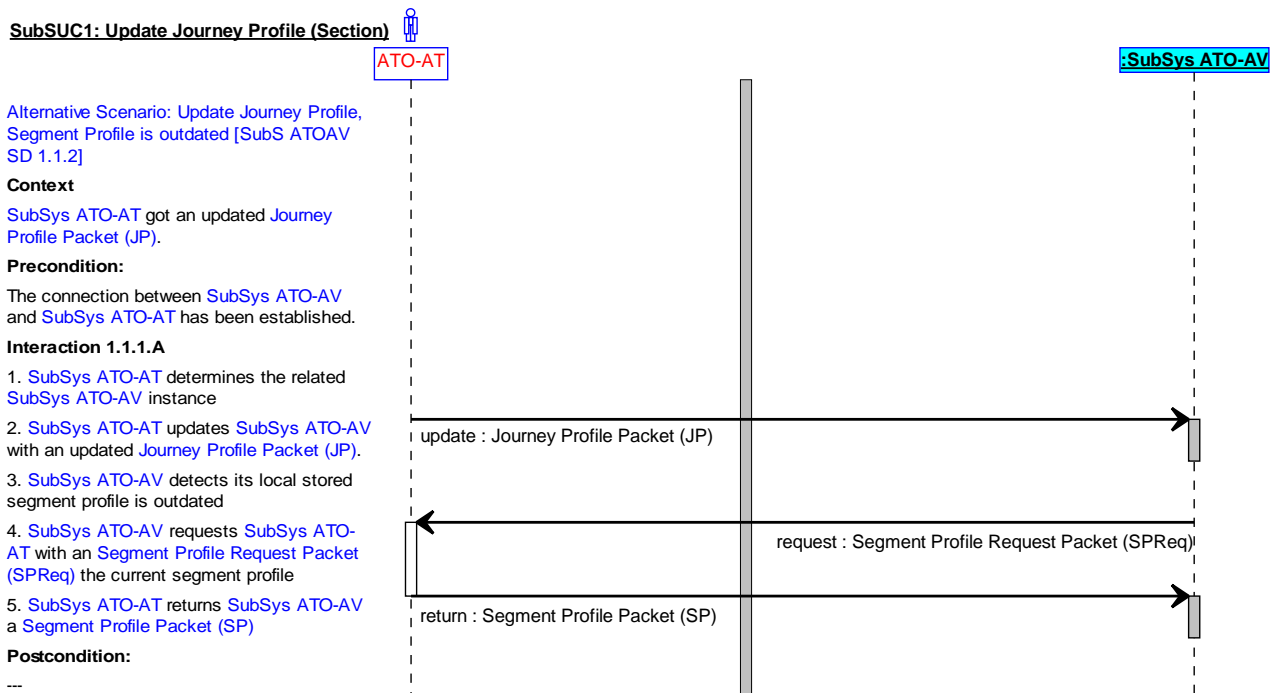


Figure 1 Alternative Scenario: Update Journey Profile, Segment Profile is current [SubS ATOAV SD 1.1.3]

2.4.1.2. *Alternative Scenario: Update Journey Profile, Segment Profile is outdated [SubS ATOAV SD 1.1.2]*



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Figure 2 Alternative Scenario: Update Journey Profile, Segment Profile is outdated [SubS ATOAV SD 1.1.2]

2.4.2. SubSUC2: Manage Journey Profile

Description: Use case for managing [Journey Profiles](#).

2.4.2.1. Alternative Scenario: Request next timing points [SubS ATOAV SD 2.1.1]

SubSUC2: Manage Journey Profile

Alternative Scenario: Request next timing points [SubS ATOAV SD 2.1.1]

Context

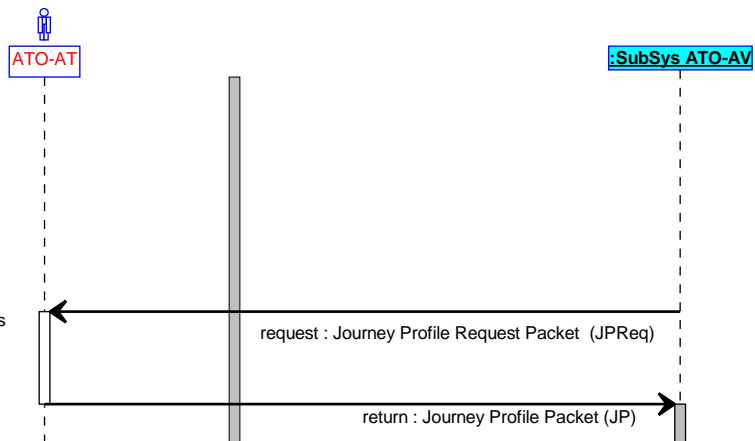
Due to memory limitations SubSys ATO-AV gets few Timing Points of a Journey Profile per request.

Precondition:

SubSys ATO-AV is executing a Journey Profile.

Interaction 1.1.1.A

1. As SubSys ATO-AV detects that only **ToDo** number of Timing Points of the Journey Profile are available, SubSys ATO-AV requests SubSys ATO-AT with a Journey Profile Request Packet (JPReq) the next Timing Points
2. SubSys ATO-AT returns SubSys ATO-AV with a Journey Profile Packet (JP) the next timing points.



ToDo: Check if reloading timing points may cause requests for Segment Profiles

Figure 3 Alternative Scenario: Request next timing points [SubS ATOAV SD 2.1.1]

2.4.3. SubSUC3: Provide StatusReport

Description: Use case for providing status report.

2.4.3.1. Alternative Scenario: Provide StatusReport [SubSATOAV SD 3.1.1]

SubSUC3: Provide StatusReport

Alternative Scenario: Provide StatusReport [SubSATOAV SD 3.1.1]

Context

Precondition

Interaction 1.1.1.A

1. SubSys ATO-AV reports ATO-AT the current status

Postcondition

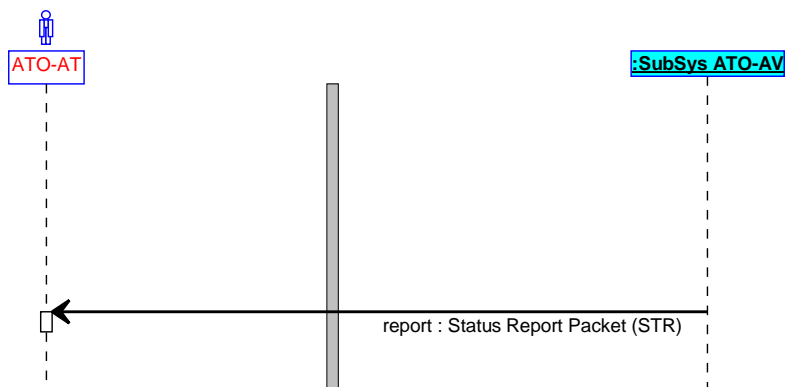


Figure 4 Alternative Scenario: Provide StatusReport [SubSATOAV SD 3.1.1]

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3. RISK ANALYSIS AND EVALUATION (PHASE 3)

Cenelec Phase 3 is not covered in this document

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4. SYSTEM REQUIREMENTS (PHASE 4)

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