

A6 Position on ADS-C Common Services standardisation

October 2021

- **Standardisation for ADS-C¹ Common Services (ACS) is needed** in a streamlined and efficient manner to secure timely operational implementation of initial trajectory management functionality of the CP1 IR².
- The A6 Alliance strongly supports that the necessary **ADS-C Common Services' standards should be developed by EUROCAE³**, given their interrelation with pre-existing EUROCAE standards. Hence, the A6 urges EUROCAE to set up an appropriate Working Group (WG), in strong coordination with WG-78 and WG-104, in order to kickstart the standard-making process at the start of Q2 2022.
- Consequently, the A6 Alliance calls for a **joint standardisation proposal to be developed by the SJU⁴, SDM⁵ and the PJ38 stakeholders** towards the European ATM Standards Coordination Group (EASCG). Such proposal must **identify the required new EUROCAE standards (EDs) and associated timelines for ACS for inclusion in the EASCG's Rolling Development Plan (RDP).**

Background – ADS-C Common Services (ACS) under S2020 PJ38

The definition and practical demonstration of the ADS-C Common Service concept is currently executed in the SESAR⁶ context, where it is driven by PJ38 ADSCENSIO Very Large-Scale Demonstration in work package 5. In this project, a strong group of ATM stakeholder, including nine members of the A6 Alliance, have in 2021 drafted and already agreed a specification and SWIM⁷ service description for an ADS-C Common Service.

In cooperation with participating industry partners, software development is now ongoing according to these specifications, targeting to deliver high-quality system demonstrators by the end of 2021. Developments will include both service-side and client-side systems, which will be trialled in the real world with airline revenue flights from 6 cooperating airlines during 2022.

The data provided by ADS-C Common Service in this project will be directly used to feed more than 10 different operational validation exercises by European partners, including many ANSP⁸s. Building on the strong results from the ADS-C demonstration already conducted in the predecessor project PJ31 DIGITS,

¹ **ADS-C**: Automatic Dependent Surveillance - Contract

² **CP1 IR**: Common Project 1 Implementing Regulation

³ **EUROCAE**: European Organisation for Civil Aviation Equipment

⁴ **SJU**: SESAR Joint Undertaking

⁵ **SDM**: SESAR Deployment Manager

⁶ **SESAR**: Single European Sky ATM Research

⁷ **SWIM**: System-Wide Information Management

⁸ **ANSP**: Air Navigation Service Provider

the PJ38 group is confident to deliver high quality demonstrators reaching up to V4 maturity and TRL⁹6-TRL7 level, as well as specification material ready to support the subsequent standardization and industrialization steps.

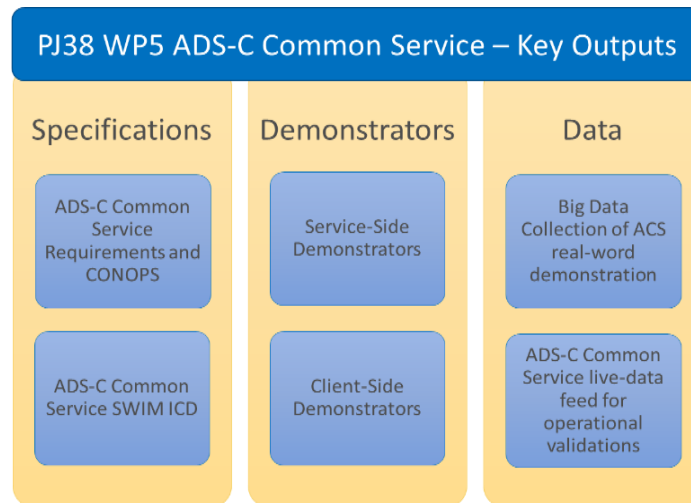


Figure 1 Key Outputs and Deliverables of SESAR PJ38 work on ADS-C Common Service

The scope of SESAR 2020 PJ38 on the use of ADS-C for the purpose of downlink and ground distribution of aircraft parameters, including Extended Projected Profile (EPP) data is part of the CP1 Implementing Regulation (IR) (EU No. 2021/116)¹⁰, in particular implementing CP1 sub-functionalities 6.1.1 (initial air-ground trajectory information sharing) and 6.3.1 (initial trajectory information sharing ground distribution), with target implementation by end of 2027. In addition, implementing ground distribution of EPP data collected through downlink ADS-C capabilities will require the implementation of appropriate standardised SWIM services as those covered in sub-functionality 5.6.1 (flight information exchange).

In order to achieve widespread deployment of ACS in compliance with CP1 timelines, the regulation foresees industrialisation material (e.g. availability of standards/specifications and demonstrators) to be ready by end of 2023. In this context, standards currently identified in the SESAR Deployment Programme of the SDM and the Rolling Development Plan (RDP) of the EASCG will not be sufficient as to secure maturity for deployment of ACS.

⁹ TRL: Technology Readiness Level

¹⁰ COMMISSION IMPLEMENTING REGULATION (EU) 2021/116 of 1 February 2021 n the establishment of the Common Project One supporting the implementation of the European Air Traffic Management Master Plan provided for in Regulation (EC) No 550/2004 of the European Parliament and of the Council, amending Commission Implementing Regulation (EU) No 409/2013 and repealing Commission Implementing Regulation (EU) No 716/2014.
https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv%3AOJ.L_.2021.036.01.0010.01.ENG&toc=OJ%3AL%3A2021%3A036%3ATOC

Therefore, **standardisation for ADS-C Common Services is needed in a streamlined and efficient manner to secure timely operational implementation of initial trajectory management**, involving operational stakeholders (including as well airspace users) and in synergy with existing standards and the ongoing efforts at PJ38 level.

A6 view on making industrialisation better integrated and user-driven

The A6 Alliance has been and continues to be in support of reforming the SESAR Industrialisation phase by proposing a better structured and a more fluid coordination amongst standardisation and industrialisation activities.

In this context, the A6 solution to address the V4-Gap industrialisation resides in a balanced redefinition of processes, streamlined interfaces amongst the actors, as well as the enhancement of coordination processes, detailed in a dedicated A6 paper calling for a reform of the SESAR Industrialisation phase in the framework of the SESII+ Recast¹¹.

Consequently, the A6 supports a comprehensive ACS industrialisation process ensuring shorter time to operations and, efficiency and effectiveness:

- **V4-demonstrator on PJ38 results**, with close-to-industrial reference implementations and involving multiple stakeholders, tested in as closely operational environments as possible. In this regard, the A6 Alliance will assess the opportunity of the upcoming open call on SESAR demonstrators under the CEF¹² programme.
- **Pre-deployment activities on ACS implementation** with increased involvement of the deployment management function in early coordinating implementation strategies amongst concerned stakeholders, synchronising standardisation efforts and resolving local implementation constraints. Early engagement with the SDM into the PJ38 outcome has already started with active support from the A6.

The missing piece to realise the improved SESAR Industrialisation process proposed by the A6 for ADS-C Common Services is related to **the standardisation activities in a customer-focused way while fully exploiting synergies with already existing specifications**.

Streamlining standardisation of ADS-C Common Services in support of CP1

The standardisation of ACS, in line with the PJ38 work in the framework of SESAR 2020, requires on one hand further specifying the data collection, processing policies and performance requirements for the air-ground downlink of EPP data, including error handling cases and non-functional requirements. On the other hand, harmonised standards concerning the ground-ground distribution of EPP data through SWIM services are required.

¹¹ Reference: „**A6 short thematic Paper on SESAR Standardisation and V4-Gap**” from February 2021

¹² CEF: Connecting Europe Facility

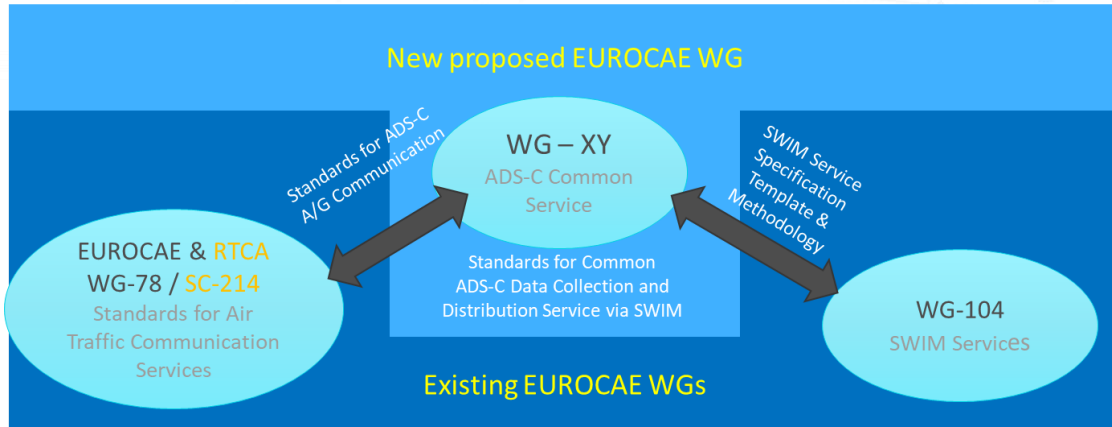


Figure 2 Interfacing and Interrelation of ADS-C Common Service with existing EUROCAE WGs and Standards

Although these aspects currently lack proper standards, the interrelation of ADS-C Common Services with already existing standards are clear in practice. For the collection of EPP data from the cockpit, the EUROCAE ED-228 standard series on datalink ATS Data Communication Baseline 2 specifies the downlink implementation. On the side of the ground-ground EPP data distribution, the EUROCAE ED-294 on SWIM Service Specification Template and Methodology provides the essential building blocks for properly standardising harmonised implementation of the necessary SWIM services.

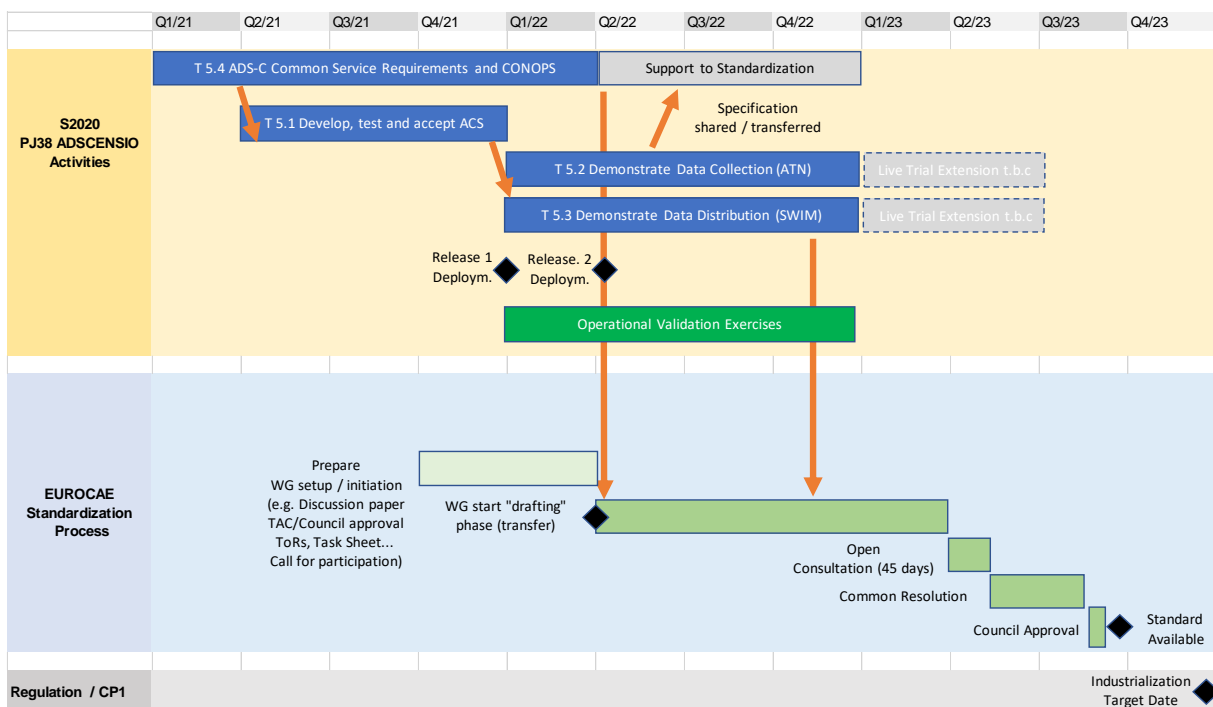


Figure 3 Streamlining standardisation of ADS-C Common Services in support of CP1 - Timeline of SESAR2020 PJ38 Activities, EUROCAE Standardization Process and CP1 Regulation



The A6 Alliance
Avenue Cortenbergh 100
B-1000, Brussels
Belgium

<http://www.a6alliance.net/>

Bearing in mind the interdependencies of the ACS solution with existing EUROCAE standards, **the A6 Alliance strongly supports that the necessary ADS-C Common Services' standards should be developed by EUROCAE**, as the natural Standards Developing Organisation (SDO), in strong coordination with WG-78 and WG-104. To this end, **the A6 urges EUROCAE to set up now an appropriate Working Group (WG) in order to kickstart the standard-making process in Q2 2022**, date at which PJ38 will have delivered all necessary baseline material.

With a view to consistently address and streamline the ACS industrialisation in relation to the CP1 IR implementation, **the A6 Alliance calls for a joint standardisation proposal to be developed by the SJU, SDM and the PJ38 stakeholders towards the European ATM Standards Coordination Group (EASCG)**. Such proposal must **identify the required new EUROCAE standards (EDs) and associated timelines for ACS for inclusion in the EASCG's Rolling Development Plan (RDP)**.