

B2 DATA LINK COMMON SERVICES

EUROPEAN MANDATE

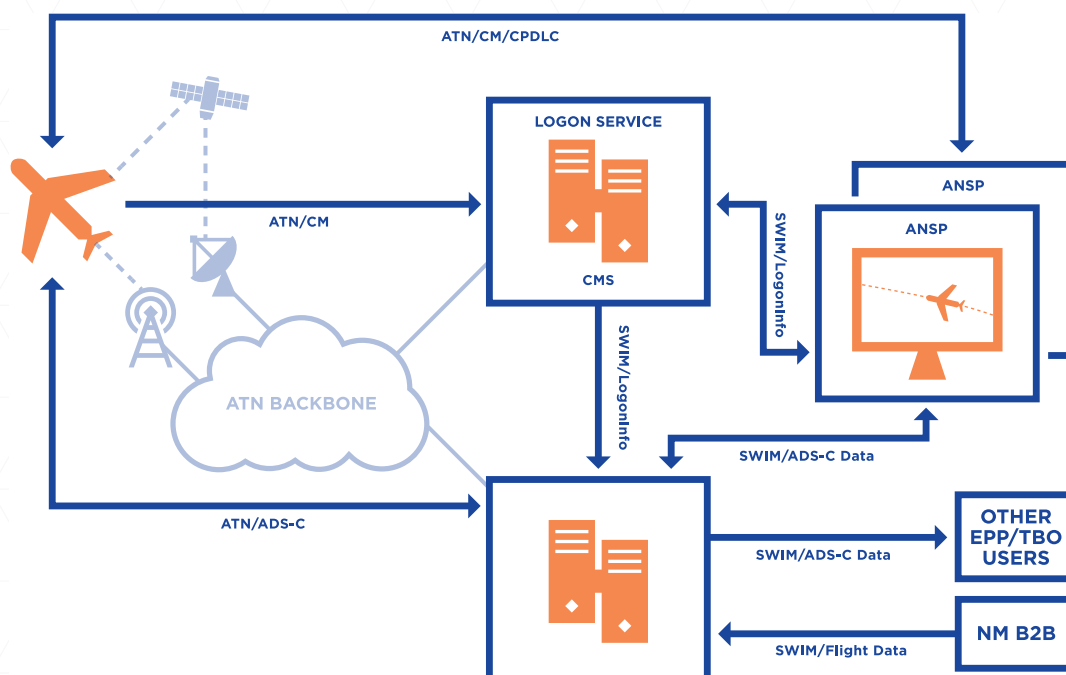
The European Commission has mandated that ANSP must support ATS-B2 applications by 31 December 2027 (European Commission Implementing Regulation no. 2021/116, Common Project 1. -CP1 Mandate). Designed for the modernization of the European ATM industry, its aim is to accelerate the digitalization of the European ATM towards greener aviation.

- ◆ Controller Pilot Link Data Link Communications (CPDLC) allows ATC data communications between controller and pilots.
- ◆ Automatic Dependent Surveillance-Contract, (ADS-C) are the means by which the terms of ADS-C agreement will be exchanged between a ground system and an aircraft, via a data link, specifying under what conditions ADS-C reports would be initiated, and what data would be contained in the reports. ADS-C enables reporting of 4D trajectories.

Together, the ATS-B2 applications enable the implementation of advanced ATM concepts such as Trajectory-Based Operations (TBO). This allows for more efficient route planning, minimizing fuel consumption, and reducing environmental impact.

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Airtel provides its CM Server product (CMS) and ADS-C Server product (ACS) to address our customers' needs for the European CP1 Mandate Data Link implementation. They are designed to provide common data link services within a specific region. Airtel CMS and ACS are built upon our well-established Airtel ATN software, which has been developed over the last 25 years. Our Airtel End Systems, compliant with B1 standards, have been operational across 12 European ANSPs since 2010. The CMS and ACS were used in SESAR PJ31/PJ38 to demonstrate the value of ADS-C common service to collect and distribute ADS-C data from flights.



CM SERVICE (CMS)

For the CM application, Airtel introduces a new ground facility called the Logon Service (CMS).

The CMS acts as a centralized system using DLIC datalink messages, such as CM-Logon, CM-Contract, and CM-Forward. It acts as a server for context management, as outlined in ICAO Doc 9880 and EUROCAE/RTCA ATS B2 standards. Its main job is to store and share logon information with the ACS (for setting up ADS-C contracts) and ANSPs (for setting up CPDLC connections).

Main features are:

- ◆ Scalable to cover the entire SES airspace
- ◆ Receives and processes CM-logon requests from aircraft
- ◆ Receives and processes CM-forward indications from LS users
- ◆ Maintains received B1 and B2 logon information
- ◆ Receives and processes logon information requests from LS users
- ◆ Publishes logon information to subscribed LS users
- ◆ Transmits CM-forward requests to LS users
- ◆ Transmits CM-contract requests to aircraft upon LS user request
- ◆ Receives and publishes CPDLC CDA/NDA status information provided by ACCs
- ◆ Detects 24-bit address discrepancies in CM-logon requests

ADS-C COMMON SERVICE (ACS)

The ACS manages the ADS-C contracts with aircraft while offering a SWIM service interface. This enables remote subscribed ACS users to access ADS-C/EPP data via ground infrastructure. Additionally, it leverages external flight status and positional data provided by the NW.

Main features are:

- ◆ Scalable, covering the entire SES airspace
- ◆ Receives and processes CM logon information published by the Logon Service
- ◆ Receives and processes flight data published by the NM B2B
- ◆ Initiates single-event and periodic ADS-C contracts with aircraft for which logon information has been received
- ◆ Receives and processes demand contract requests from ACS users
- ◆ Publishes ADS-C messages to subscribed ACS users
- ◆ Attempts recovery from failed ADS-C contracts
- ◆ Adjusts periodic contracts based on the phase of flight
- ◆ Supports secured SWIM data exchanges



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