

ARINC Project Initiation/Modification (APIM)

1.0 Name of Proposed Project **APIM 17-014**

New ARINC Standard Aircraft Data Interface Function (ADIF) for EFB Software Applications or Supplement 8 to ARINC Specification 834: Aircraft Data Interface Function (ADIF).

Revision per AEEC 2018: *This interface is intended to reside within the EFB device.*

Software specification only yes no

2.0 Subcommittee Assignment and Project Support

2.1 Suggested AEEC Group

Electronic Flight Bag (EFB) Subcommittee.

2.2 Support for the activity (as verified)

Organizations: Alaska Airlines, American Airlines, El Al, FedEx, Lufthansa Airlines, Qantas, Southwest Airlines, United Airlines, Airbus, Boeing, Astronautics, Astronics Ballard Technology, Avionica, CMC Electronics, Gulfstream Aerospace, Lextech, Lufthansa Systems, Rockwell Collins, Sabre, SITA, Teledyne, Ultramain, UTC Aerospace Systems, Viasat, Thales, Jeppesen [others, TBI]

2.3 Commitment for Resources (directly from participant)

Organizations: American Airlines, FedEx, Lufthansa, Southwest, Airbus, Boeing, Astronics Ballard Technology, Astronautics, Avionica, CMC Electronics, Gulfstream Aerospace, Rockwell Collins, Sabre, SITA, Teledyne, UTC Aerospace Systems [others, TBI]

2.4 Recommended Coordination with other groups

The EFB Subcommittee will coordinate other subcommittees as needed.

The following activities might be relevant to this topic:

- ARINC Specification 429
- ARINC Characteristic 717
- ARINC Specification 619: ACARS Protocols for Avionic End Systems
- ARINC Characteristic 759: Aircraft Interface Device (AID)
- ARINC Specification 840: Electronic Flight Bag (EFB) Application Control Interface (ACI) Standard

3.0 Project Scope

3.1 Description

The goal is to eliminate the need for end-system application developers to write separate data interfaces for different AIDs (as is currently the case), depicted in Figure 1, and to also not be required to provide conversion from raw input data (e.g., ARINC 429 labels) to Engineering units.

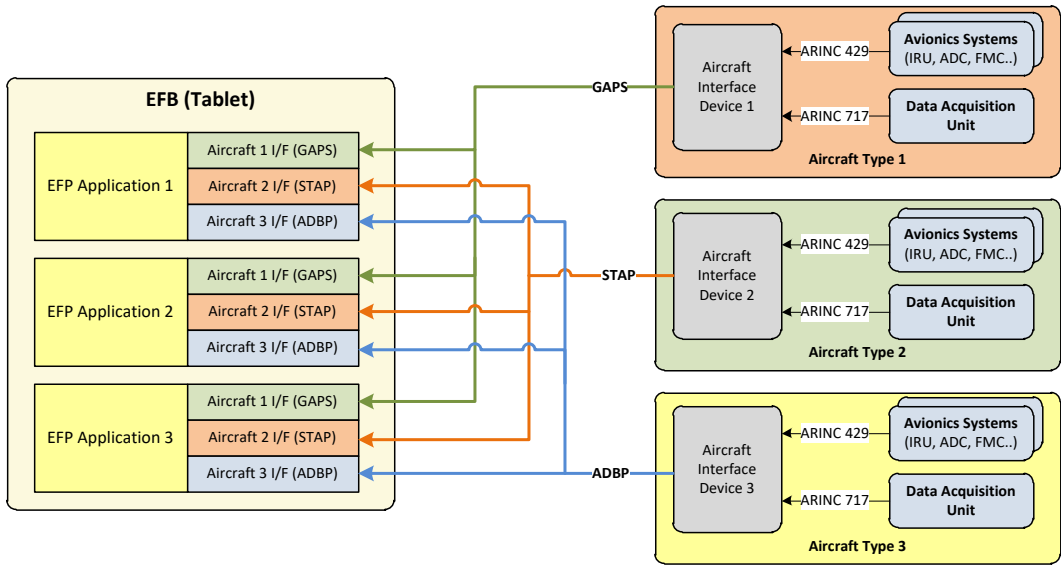


Figure 1: Too many interfaces between EFB applications and aircraft systems.

The primary intent of this APIM is to resolve of this problem of three standardized protocols for Aircraft Data Interface Function (GAPS, STAP and ADBP defined in ARINC 834). This requires evaluation of possible solution approaches to identify the operationally most suitable solution for the airlines.

In the event it is determined that the best solution is the definition of a new standard, then the goal of this standard is to define an API that is simple in nature, through which EFB applications access data provided by aircraft systems. In the future this new aircraft data API may need to be extended to also include interface definitions to other aircraft services such application hosting or IP-based communication services based on evolving operational needs.

A new such standard may be defined independently from the current ARINC 834 ADIF standard and is meant to focus on the EFB software interface level only. As such the envisaged standard may NOT intend to define any details on how this new interface will functionally relate to existing standards such as ARINC 834.

Figure 2 illustrates this API concept for current and envisioned future operational needs.

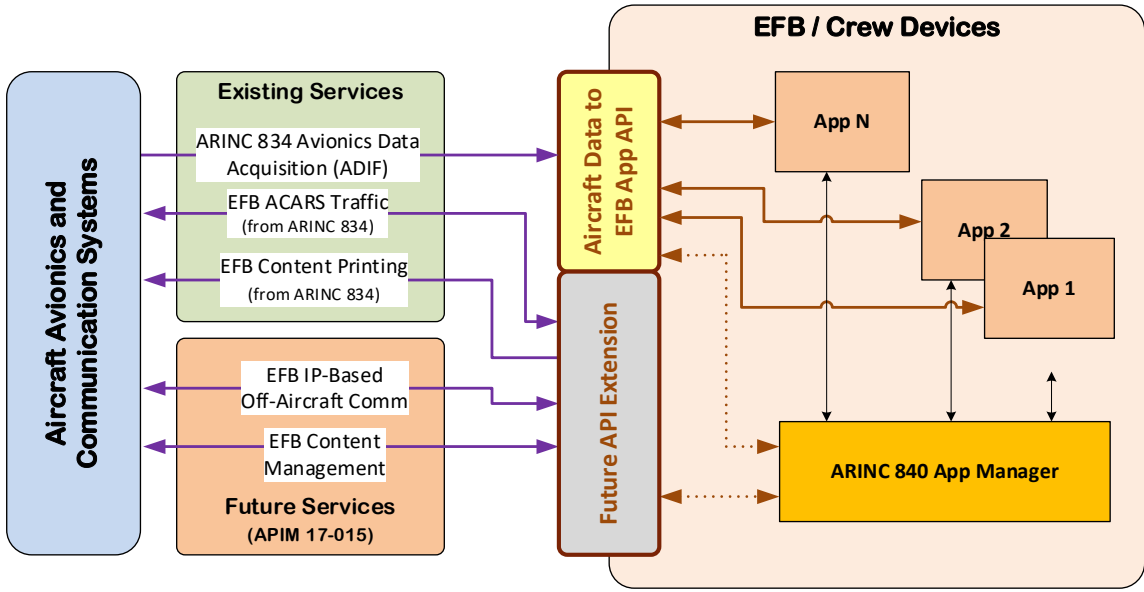


Figure 2: EFB Application Aircraft Data API Concept with possible future extension

3.2 A key consideration during the proposed work is to arrive at a cost-effective solution which does not result in unwanted duplication of existing standards. Planned usage of the envisioned specification

- New aircraft developments planned to use this specification yes no
- New avionics equipment for major retrofit programs yes no
- Mandate/regulatory requirement yes no
 - Program and date: (program & date) Not Applicable
- Modification/retrofit requirement yes no
 - Specify: Not Applicable
- Airframer and/or airline projects to use this specification yes no
- Once established, it is expected to be used by airframer and/or airline projects using avionics data parameters.
- Is the infrastructure standard for the aircraft defined? yes no
- Are 18 months (min) available for standardization work? yes no
 - If NO please specify solution: _____
- Are Patent(s) involved? yes no
 - If YES please describe, identify patent holder: _____

3.3 Issues to be worked

EFB application suppliers are finding the need to develop multiple interface for connectivity with various AID solutions. This need is likely due to three different protocol choices being defined in ARINC 834 plus data may be presented in Engineering units or in raw ARINC 429/717 representation requiring the application to perform respective conversions. This represents an extra burden onto application developers in terms of development and software maintenance effort. This APIM aims at addressing this situation to allow applications developers to focus on a single interface implementation and thus to achieve true interoperability.

4.0 Benefits

4.1 Basic benefits

The main benefit of a new ARINC Standard 8xx or Supplement 8 to ARINC 834 is to define a single EFB end-system application to aircraft data interface to be developed and maintained by application developers, which reduces development time and software maintenance overhead while at the same time represents a significant step towards achieving interoperability.

- Operational enhancements (reduction in DOC?) yes no
- Form, Fit, Function, (FFF) standard (HW and/or SW):
 - (a) ARINC 600 form (only HW) yes no
 - (b) Interchangeable fit (plug, mount, SW loading interface, etc.) yes no
 - (c) Interchangeable function yes no
 - If not fully interchangeable, please explain:
 - (d) API standard only, since H/W will not be addressed yes no
 - (e) Product offered by more than one supplier yes no

The purpose of this proposed project is to establish an open standard that can be implemented by any supplier.

4.2 Specific project benefits

- Minimize the overall cost of implementing EFB applications by defining a single API that is simple to implement.
- Enable the use of software applications developed by third parties.

4.2.1 Benefits for Airlines

This new ARINC Standard 8xx or Supplement 8 to ARINC 834 will provide several benefits to Airlines:

- Airlines would benefit from lower integration costs, times, and risks.
- Better and more consistent integration of applications leads to better user acceptance.

4.2.2 Benefits for Airframe Manufacturers

- Provide guidance to implement EFB to aircraft systems interface.

4.2.3 Benefits for EFB Equipment and Application Suppliers

- Facilitate communication from EFB and aircraft systems

5.0 Documents to be Produced and Date of Expected Result

New ARINC Project Paper 8xx or Supplement 8 to ARINC Specification 834: Aircraft Data Interface Function (ADIF) by no later than AEEC General Session 2020.

5.1 Meetings and Expected Document Completion

The following table identifies the number of meetings and proposed meeting days needed to produce the documents described above. This activity will be undertaken by the EFB Subcommittee. Monthly teleconferences will be held between face to face meetings to maintain progress.

Activity	Mtgs	Mtg-Days (Total)	Expected Start Date	Expected Completion Date
<i>Develop new ARINC Standard 8xx or Supplement 8 to ARINC Specification 834</i>	6	<i>2x1 (w/EFBUF) 4x3 (dedicated EFB SC) 14 total days</i>	<i>July 2018</i>	<i>April 2020</i>

Please note the number of meetings, the number of meeting days, and the frequency of web conferences to be supported by the ARINC IA staff.

6.0 Comments

None.

6.1 Expiration Date for the APIM

May 2020

Completed forms should be submitted to the AEEC Executive Secretary.