

ARINC Project Initiation/Modification (APIM)

1.0 Name of Proposed Project APIM 22-004

Aircraft Ground System Software Reception
(This APIM is a replacement for APIM 16-015A on eEnablement)

1.1 Name of Originator and/or Organization

Ted Patmore, Delta Air Lines

2.0 Subcommittee Assignment and Project Support

2.1 Suggested AEEC Group and Chairman

Software Distribution and Loading (SDL) Subcommittee

Co-Chairs:

Chris Kuske, Teledyne Controls

Ted Patmore, Delta Air Lines

2.2 Support for the Activity (as verified)

Airlines: FedEx, Delta Air Lines, Lufthansa, United Airlines, KLM

Airframe Manufacturers: Airbus, Boeing

Suppliers: Teledyne, Collins, Safran, Aero Instruments, TechSAT, AIT, GE Aviation

Others:

2.3 Commitment for Drafting and Meeting Participation (as verified)

Airlines: FedEx, Delta Air Lines, Lufthansa, United Airlines, KLM

Airframe Manufacturers: Airbus, Boeing

Suppliers: Teledyne, Collins, Safran, Aero Instruments, TechSAT, AIT, GE Aviation, MBS electronics

Others:

2.4 Recommended Coordination with other groups

AEEC NIS Subcommittee

AEEC SAI Subcommittee

RTCA SC-216

EASA WG-72

3.0 Project Scope (why and when standard is needed)

3.1 Description

There is currently a proliferation of formats and protocols used to distribute aircraft software to airlines.

Airlines that operate aircraft from more than one airframer are faced with building and maintaining more than one ground system to receive software.

Standardization of software delivery process and method is greatly needed to avoid the growing proliferation of multiple reception scenarios, requiring the airlines to purchase, learn and maintain multiple tools and processes.

The left side of Figure 1 shows the external and internal functions concerned with airline software receiving. There can be many external sources of software each of which must be received by the airline receiving process. It is becoming increasingly important to have one common airline software receiving process. This will save much time and expense associated with using diverse software receiving systems and methods.

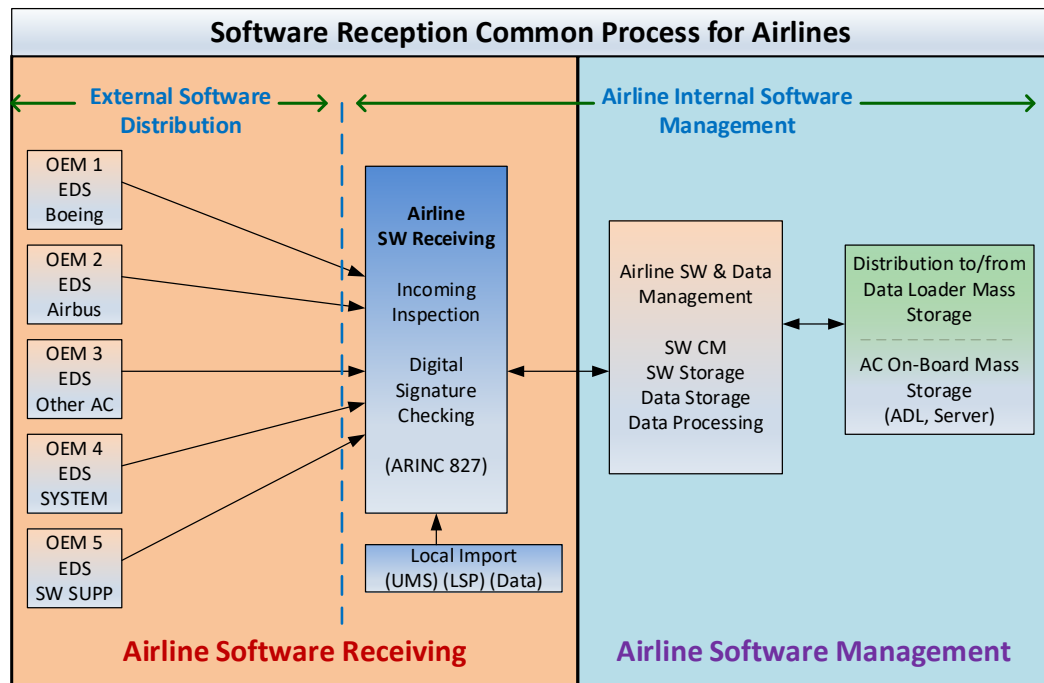


Figure 1 – Software Reception (Airline Perspective)

3.2 Planned usage of the ARINC Standard

Note: New airplane programs must be confirmed by the aircraft manufacturer prior to completing this section.

New aircraft developments planned to use this specification yes no

Airbus: (aircraft & date)

Boeing: (aircraft & date)

Other: (manufacturer, aircraft & date) _____
Modification/retrofit requirement yes no
Specify: (aircraft & date) _____
Needed for airframe manufacturer or airline project yes no
Specify: (aircraft & date) _____
Mandate/regulatory requirement yes no
Program and date: (program & date) _____
Is the activity defining/changing an infrastructure standard? yes no
Specify (e.g., ARINC 429) _____
When is the ARINC standard required? _____(month/year)_____
What is driving this date? _____(state reason)_____
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

Need to assess all current software receiving requirements currently in use by operators to determine the best common software reception protocol solution. Determine methods for secure transfer and distribution of software must be included to comply with current security requirements. Determine if there are any enhancements required to ARINC 827, "*Electronic Distribution of Software*".

3.4 Security Scope

Is Cyber Security Impacted (if yes, check box(es) below) yes no
Aircraft Control Domain yes no
Airline Information Services Domain yes no
PAX Information and Entertainment Systems yes no
Other _____ yes no

This project will define a process for receiving software from multiple sources (i.e., airframers, component suppliers, software updates, etc.).

RTCA DO-355A was recently updated with airborne software protection guidance, but the airlines would like the AEEC to prepare a project paper that provides standardized processes to receive software in a safe, secure, and authenticated manner.

4.0 Benefits

4.1 Basic Benefits

Operational enhancements yes no
For equipment standards:
(a) Is this a hardware characteristic? yes no
(b) Is this a software characteristic? yes no

(c) Interchangeable interface definition? yes no

(d) Interchangeable function definition? yes no

If not fully interchangeable, please explain: _____

Is this a software interface and protocol standard? yes no

Specify: _____

Product offered by more than one supplier yes no

Identify: (company name)

4.2 Specific Project Benefits

This standard will provide one common aircraft software distribution method that can be easily controlled and understood by multiple stakeholders.

4.2.1 Benefits for Airlines

The airlines will realize a savings in the cost, time and personnel required to maintain multiple reception methods from multiple vendors. The current confusion associated with maintaining multiple processes for software reception can be avoided.

4.2.2 Benefits for Airframe Manufacturers

Provide the airframe manufacturer with one method of sending software to recipients, avoiding the need to define multiple tools and processes for securely receiving software. There will be no need to provide multiple tools for operators to learn and use.

4.2.3 Benefits for Avionics Equipment Suppliers

Provide equipment suppliers with one method of sending software to recipients, avoiding the need to define multiple tools and processes for securely receiving software. There will be no need to provide multiple tools for operators to learn and use.

5.0 Documents to be Produced and Date of Expected Result

Identify Project Papers expected to be completed per the table in the following section.

ARINC Project Paper 851: *Aircraft Ground System Software Reception*

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.

Activity	Mtgs	Mtg-Days (Total)	Expected Start Date	Expected Completion Date
<i>ARINC Project Paper 851</i>	<i>3 mtgs</i>	<i>3 mtg days</i>	<i>04/2022</i>	<i>04/2023</i>

Please note the number of in-person meetings and the number of meeting days to be supported by the ARINC IA Staff.

Please add a statement describing the frequency of web conferences.

6.0 Comments

(Insert any other information deemed useful to the AEEC Executive Committee for managing this work.)

6.1 Expiration Date for the APIM

April 2024

***Completed forms should be submitted to Paul Prisaznuk (pjp@sae-itc.org)
AEEC Executive Secretary & Program Director***