



International Civil Aviation Organization

MIDANPIRG/19 and RASG-MID/9 Meetings

(Riyadh, Saudi Arabia, 14-17 February 2022)

Agenda Item 5.4: AIM

NEW AIM SYSTEM IMPLEMENTATION

(Presented by Saudi Arabia)

SUMMARY

This Information Paper presents an overview on the new AIM automation system implementation.

1. INTRODUCTION

1.1 The current AIM system installed since 2008 will be replaced by a new AIM automation system to fully comply with GACA Regulation PART 175 requirements and ICAO Annex 15 SARPs, PANS-AIM (Doc 10066) requirements considering ICAO MID Roadmap AIS to AIM.

2. New AIM System Capabilities

2.1 The New AIM System will establish an integrated aeronautical information database based on AIXM 5.1 and the content of the Electronic AIP will be generated from the digital database.

2.2 The new AIM System has the capabilities to ensure the exchange of aeronautical data as required by ICAO Annex 15 and PANS-AIM (Doc 10066).

2.3 The main capabilities of the new AIM system can be summarized as follows:

2.3.1 AIM Portal

AIM portal which supports the Aeronautical Data Origination process in updating Aeronautical Data and Information using Data Change Requests. The Change Requests can be generic and/or can include structured change requests that cover:

- Aeronautical Structured Data;
- AIP textual section;
- NOTAM and SNOWTAM proposal.

2.3.2 Dynamic database

The dynamic database allows data management with fast and safe methods of importing and exporting electronic aeronautical data as well as methods for the maintenance/updates (extraction, updating, and deletion) of aeronautical feature data and their attributes. It is compatible with ICAO SARPs, EUROCONTROL's AICM/AIXM (Version 5.1), and ARINC 424. All data are digitally validated by a rule-based data set validation engine and files can be compared to identify and resolve any inconsistencies before generating fixed or merged output files.

2.3.3 Datasets management

The new AIM system will ensure the management of the following data sets:

- AIP data sets:
 - ✓ air traffic services (ATS) airspace
 - ✓ special activity airspace
 - ✓ ATS route and other Route
 - ✓ route segment
 - ✓ waypoint – en-route
 - ✓ aerodrome/heliport
 - ✓ runway
 - ✓ runway direction
 - ✓ final approach and take-off (FATO)
 - ✓ touchdown and lift-off (TLOF)
 - ✓ radio navigation aids
- Obstacle and terrain data sets.
- Instrument Flight Procedure data set.

2.3.4 Integrated Cartographic Environment or Automated Template Based Creation and Maintenance of Aeronautical Charts

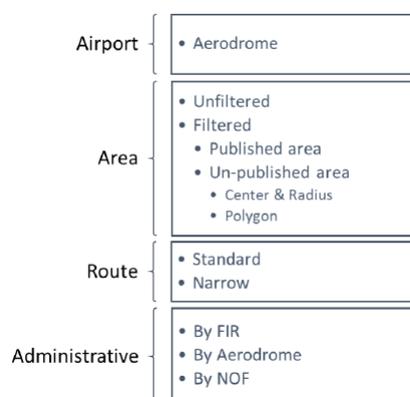
The Integrated Cartographic Environment is a GIS (Graphical Information System) based solution for the creation and maintenance of aeronautical charts as per the ICAO Annex 4 and the roadmap from AIS to AIM. It increases the efficiency of production and quality of ICAO Annex 4 aeronautical charts by establishing a live connection to data sources. A high level of rule-driven automation, such as object clashes and label de-confliction, significantly reduces production time and costs.

This tool includes a database and a predefined set of rules (chart templates) which allow the immediate production of ICAO-compliant charts. It also allows the rule sets to be edited to configure new chart templates. This flexibility enables AIS/AIM provider to meet the evolving requirements as ICAO continues to enhance the concept of a default aeronautical database.

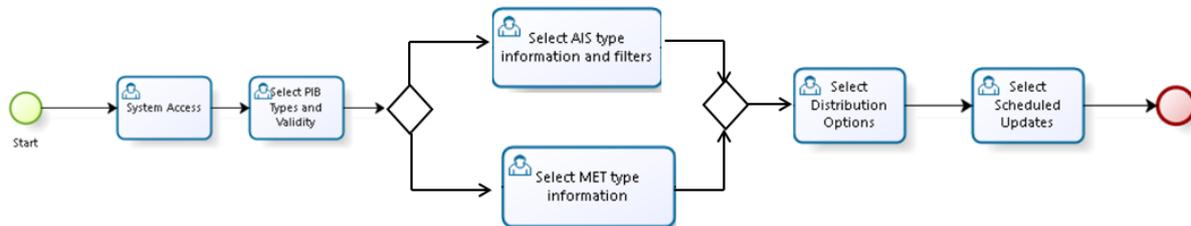
2.3.5 Web-based Pilot Briefing Functions

2.3.5.1 Pre-flight Information Bulletin

This application generates a Pre-flight Information Bulletin for the following types:



The access to the pre-flight information bulletin (PIB) for Pilots, or more generically “Airspace Users”, through registration with the inclusion of meteorological into a unique integrated and automated briefing document. The overall business process for setting up a PIB is as follow:



Pre-Flight Information Briefing process

2.3.5.2 Post-flight information

The Online Post-flight information service can be accessed through registration to allow pilots to timely report issues or events observed during the flight. The reporting may cover:

- inadequacies of facilities, and information essential to the safety of flight operations, and
- the presence of birds on or around the airport that constitutes a potential hazard to aircraft operations, observed by a pilot during the flight.

2.3.6 Terrain and Obstacle database

The Terrain and Obstacle Database (e-TOD) Suite allows the import, validate and disseminate terrain and obstacle data, and to aid in the creation and maintenance of aerodrome surfaces (for safe operations) and obstacle charts, ensuring that data quality and integrity is of the highest level and in compliance with international data quality requirements (ICAO Annex 15). The e-TOD Suite allows the management of the Obstacle Limitation Surface (OLS) in accordance with ICAO Annex 14.

2.3.7 Aerodrome mapping database (AIMDB) capability

The Aerodrome mapping database includes geospatial data and metadata for the following features:

- | | |
|---------------------------------|-------------------------------|
| - Threshold | - Runway Intersection |
| - Runway end | - Runway marking |
| - Stand Guidance line | - Centreline |
| - Parking stand location | - Runway gear arrest location |
| - Parking stand Area | - Runway shoulder |
| - Service Roads | - Stopway |
| - Vertical Polygonal Structures | - Runway displaced Area |
| - Vertical line Structures | - Runway exit line |
| - Vertical point structure | - Runway element |

- Construction Area
- Aerodrome Surface Light
- Taxiway elements
- Runway displaced Area
- Taxiway intersection mapping
- Apron element
- Hot spot
- Helipad thresholds
- Taxiway shoulder
- Taxiway Guidance/centrelines
- Taxiway Holding Positions

2.3.8 Exchange of aeronautical messaging

The new AIM system will ensure the management of the dynamic-aeronautical data which responds to the ICAO requirements for the transition from AIS to AIM and ASBU DAIM elements. The DAIM provides an exchange of traditional aeronautical messaging but also the digital package exchange. Traditional messaging is performed via AFTN or AMHS COM Channels, while the same content information can be published or consumed via the SWIM web service interface.

The aeronautical messaging are as follow:

- NOTAM (create, query, translate query, rejected query, missing NOTAMs)
- NOTAM Checklist (create standard, create custom, query)
- NOTAM Proposal (create, query)
- SNOWTAM Proposal (create, query)
- SNOWTAM (create, query)
- ASHTAM (create, query)
- BIRDTAM (create, query)
- ATS messages
- Digital NOTAM (create, query)

2.3.9 Interoperability within a networked environment and/or other information domains

The New AIM system has the capabilities to support SWIM compliant systems and operational concepts for the future digital AIM & ATM using merging and disseminating data to all the possible stakeholders, and applications in various formats.

3. TIMESCALES

3.1 The New AIM system is expected to be operational by the third quarter of 2022.

4. ACTION BY THE MEETING

4.1 The Meeting is invited to note the information provided in this Paper.