



ICAO MID

Webinar on the provision of Terrain and Obstacle (TOD) and AIP Datasets

الهيئة العامة للطيران المدني
GENERAL CIVIL AVIATION AUTHORITY



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Hamed Ali Omar Al Zubaidi, Assistant Manager PANS OPS & AIM DATA
UAE GCAA

Provision of UAE AIP Digital Dataset



Background

- This presentation outlines UAE AIM high-level plan with the main activities to set up the stage for the operational and technical implementation of ICAO Digital Datasets as part of the strategic GCAA plan for enhancing AIM system capabilities
- From the perspective of transposing Annex 15 & Doc 10066 (PANS-AIM) requirements, the most demanding activity for a State AIS is the operational implementation of the digital datasets



Background

- Enhancing AIM system capabilities are improvement stages and the natural result of UAE AIM continuous services development process. These have created a solid platform of functionalities allowing better, quality-controlled and standardized interaction with other internal and external (third party) stakeholder systems
- The main driver for this approach employed by the UAE and described in this presentation, is the regulatory compliance and alignment of UAE AIM with ICAO SARPs (Annex 15/PANS-AIM) as well as with the revised MID Region AIM Implementation Roadmap



UAE AIP Dataset Implementation Plan

The implementation plan is in two phases:

➤ Setting the stage phase

Including detailed Implementation Plan, Operational and Technical Specifications, adapting data capture process for temporary information (AIP Supplements), SWIM Service definition, mapping AIP to PANS-AIM, test sample file and full file testing

➤ Operational Phase

Including a Transition Period i.e. co-existence of full AIP electronic format together with digital files



Setting the Stage Phase

UAE AIP Dataset
Specification and
Implementation Plan

UAE AIP Dataset Technical
Specifications

AIP Dataset Sample in
AIXM Format

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**Enhance AIM Plan
(Phase II)**

Digital Dataset Services

UAE AIP Dataset Implementation

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UAE AIP Data set

Technical Specifications
(Subject to Enhancement & updates)

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Business Unit AIM | Doc: Type Specification | Ver. No. 1.0
Issue Date: 30 June 2020

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Milestones

UAE AIM initiated project for implementing AIP Digital Dataset with below major milestones:

Activity	Description	Time
Implementation Plan	This document will cover all characteristics of UAE AIP Digital Dataset implementation from planning to distribution.	31-3-2021
Technical Specification	This document will cover mapping ICAO PANS-AIM to AIXM 5.1.1 for UAE AIP Digital Dataset	30-06-2021
UAE AIP Digital Data Set Sample	UAE AIP Digital Data set sample will be generated using in-house developed tools which will be integrated with AIM Database.	31-10-2021



UAE Plan for AIP Dataset Implementation

- Develop In-house/stand-alone application
- Prepare the Dataset as new AIM product
- Query AIM system (SWIM Service)
- Expose to SWIM interface
- Full UAE AIP dataset will be provided, not sub-set or data grouping
- Significant UAE AIP Supplements are encoded in AIM Database (TempDelta)



Technical Specifications Highlights

- Resolve PANS-AIM inconsistencies i.e. filling the gaps
- Mapping PANS-AIM to AIXM 5.1.1 database
- Separate Technical Specs for mapping, metadata and database AIXM 5.1.1 Business Rules
- “Upgrade/Enlarging” content list in two-way manner



Technical Specifications Highlights

- More than minimum list of properties/sub-properties based on Aeronautical Data Catalogue
- Content adapted to specific UAE AIP content
- Every data integrity class added in AIM Database
- Consistency assured between AIP dataset file vs. #AIP-DS#



Delivery mechanism (SWIM)

- Request/reply for accessing UAE AIP Dataset as complete “information package”
- Publish/Subscribe pattern for regular notification to consumers
- Advanced SWIM interface capability i.e. query/retrieve at feature level
- Service Overview
- Service Registry



Operational Phase (Transition Plan)

Section	Elements	Timeframe	Description
Transition	Time	<u>2022-2024</u>	<ul style="list-style-type: none"> Transition period for provision of eAIP <u>in parallel</u> with AIP Datasets The removal of certain sections of AIP to be done in close coordination with the users which will be through survey & questionnaire Expected transition period estimated to be min. 1½ - 2 years
	AIC	<u>TBD</u>	<ul style="list-style-type: none"> UAE AIM alignment with ICAO SARPS Duration of the transition
	GEN 3.1.6	<u>TBD</u>	<ul style="list-style-type: none"> Brief description regarding Digital Dataset will be provided



Regulatory Approval

Documents	Deadline	Actions
Implementation Plan	Q2/2021	Final version shared with the UAE Regulator for endorsement
Technical Specifications	Q4/2021	Final version shared with the UAE Regulator for endorsement



Achievements

Key Areas	Strategic Achievements
Technical	<ul style="list-style-type: none"> ➤ In-house developed tool, no dependency on supplier ➤ All-inclusive mapping PANS-AIM to UAE AIP ➤ Resolving gaps/inconsistencies in PANS-AIM i.e. AIP sections versus minimum data subjects ➤ Metadata at dataset level
Inter-operability	<ul style="list-style-type: none"> ➤ AIXM 5.1.1 model ➤ SWIM Service: Overview and Registry ➤ SWIM Interface: Query/Reply and Publish/Subscribe, consumer notification
ICAO SARPS Compliance	<ul style="list-style-type: none"> ➤ Above and beyond ICAO SARPS compliance ➤ To be ahead of Global and Regional implementation date
Financial	<ul style="list-style-type: none"> ➤ Savings by not depending on external supplier
Strategic	<ul style="list-style-type: none"> ➤ Placing UAE GCAA as implementation “promoter” in MID Region ➤ Having the “solution”: SARPS implementation ➤ AIP Dataset “Proof of concept” pioneered by UAE

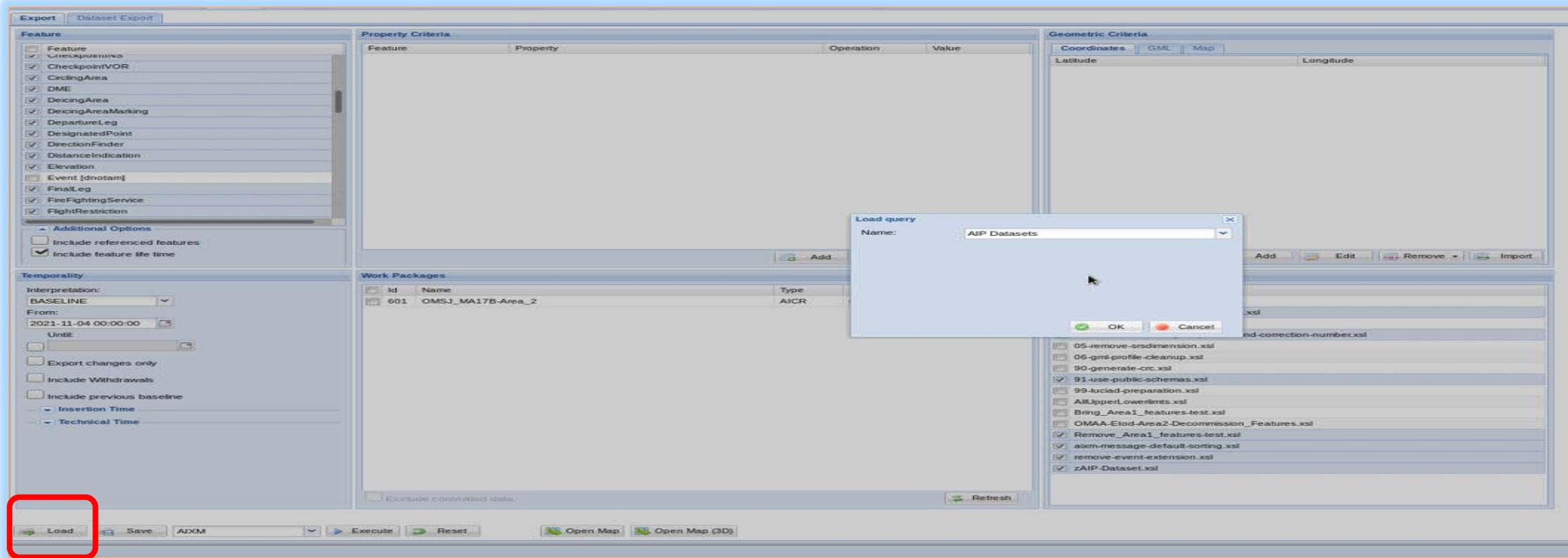


Challenges

- PANS-AIM inconsistencies
- Mapping PANS-AIM to AIXM 5.1.1 database
- Lack of clear guidance from ICAO for this activity on AIXM 5.1 Mapping
- Development of the in-house tool
- Encoding of AIP Supplements in AIM Database as TempDelta
- SWIM Integration



GCAA AIM SWIM Service AIP Datasets

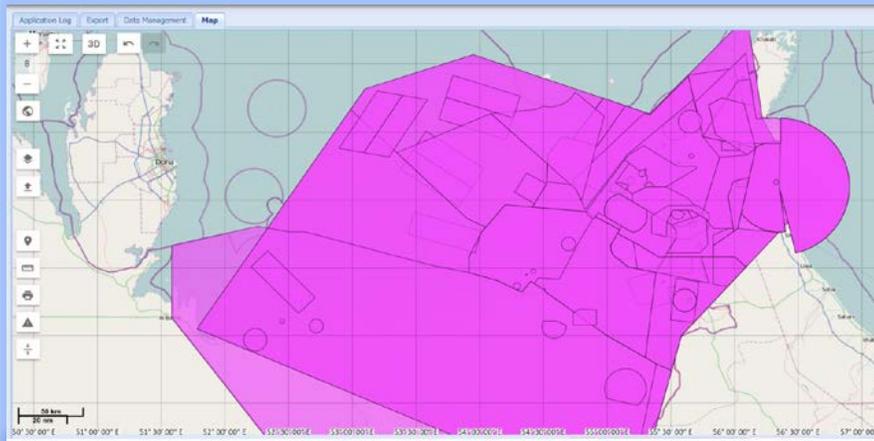


The screenshot displays a software interface for exporting AIP datasets. The interface is divided into several panels:

- Feature:** A list of features with checkboxes, including Feature, CheckpointVOR, CheckpointVOR, CirclingArea, DME, DeicingArea, DeicingAreaMarking, DepartureLeg, DesignatedPoint, DirectionFinder, DistanceIndication, Elevation, Event (dnotam), FinalLeg, FireFightingService, and FlightRestriction. There are also checkboxes for 'Include referenced features' and 'Include feature life time'.
- Property Criteria:** A table with columns for Feature, Property, Operation, and Value.
- Geometric Criteria:** A section for defining coordinates, with tabs for GML and MAD, and fields for Latitude and Longitude.
- Work Packages:** A table with columns for Id, Name, and Type. One entry is visible: 601 OMSJ_MA17B-Area_2 of type AICR.
- Load query dialog:** A small dialog box with the title 'Load query' and a field for 'Name' containing 'AIP Datasets'. It has 'OK' and 'Cancel' buttons.
- Bottom Panel:** A row of buttons including 'Load' (highlighted with a red box), 'Save', 'AXM', 'Execute', 'Reset', 'Open Map', and 'Open Map (3D)'.



Highlights of UAE AIP Dataset on SWIM



Application Log | Export | Data Management | Map

Show Features At: 2021-09-19 00:00:00

Display Route B415 (OB - OM) state as of 2021-09-19 00:00:00 UTC

Features Types

- B415 (OB - OM)
- Route B415 (OB - OM)
- ChapQuadrant
- OrganisationAuthority
- RouteCNE
- RouteSegment

Search Features

Designator Prefix	Designator Second Letter	Designator Number	Multiple Identifier	Location Designator	Name	Type	Flight Rule	International Use	Military Use	Military Training Type	User Organisation
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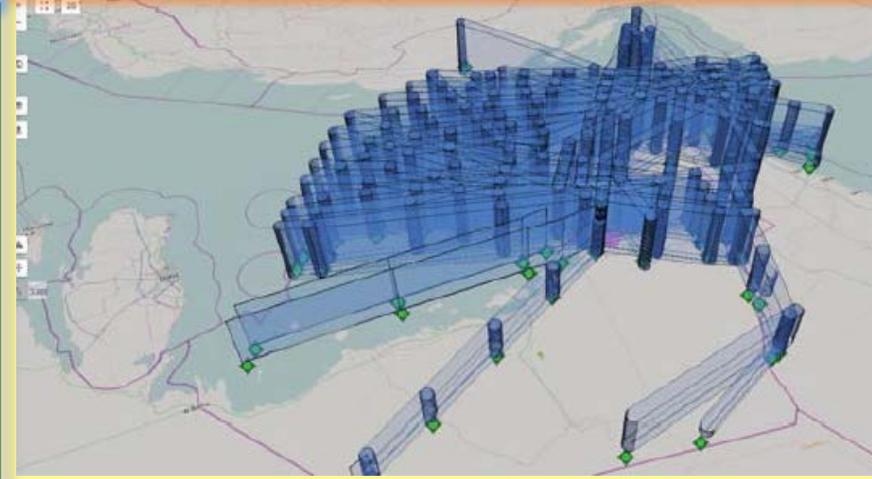
Features

W. Feature Type	Feature Code
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Route	8540 (OB - OM)
Route	6462 (OB - OM)
Route	6666 (OB - OM)
Route	6783 (OB - OM)
Route	1223 (OB - OM - OO)
Route	L 303

Changes - Route: B415 (OB - OM)

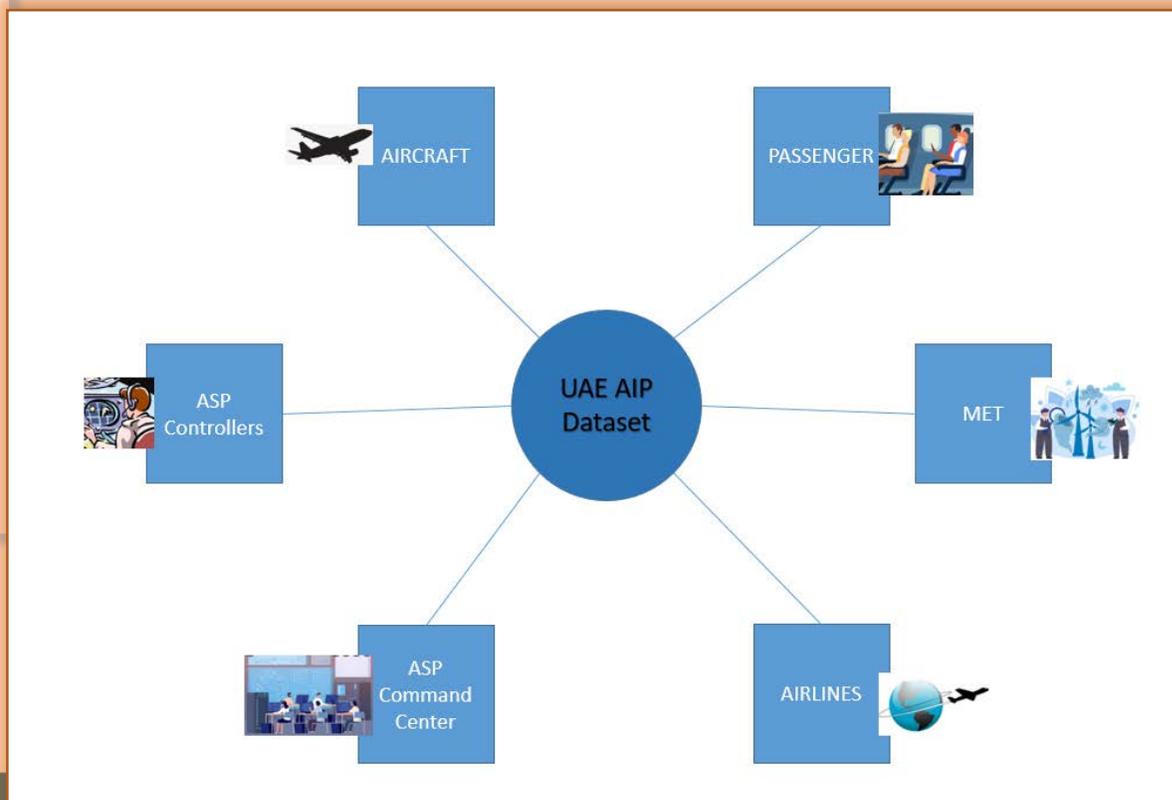
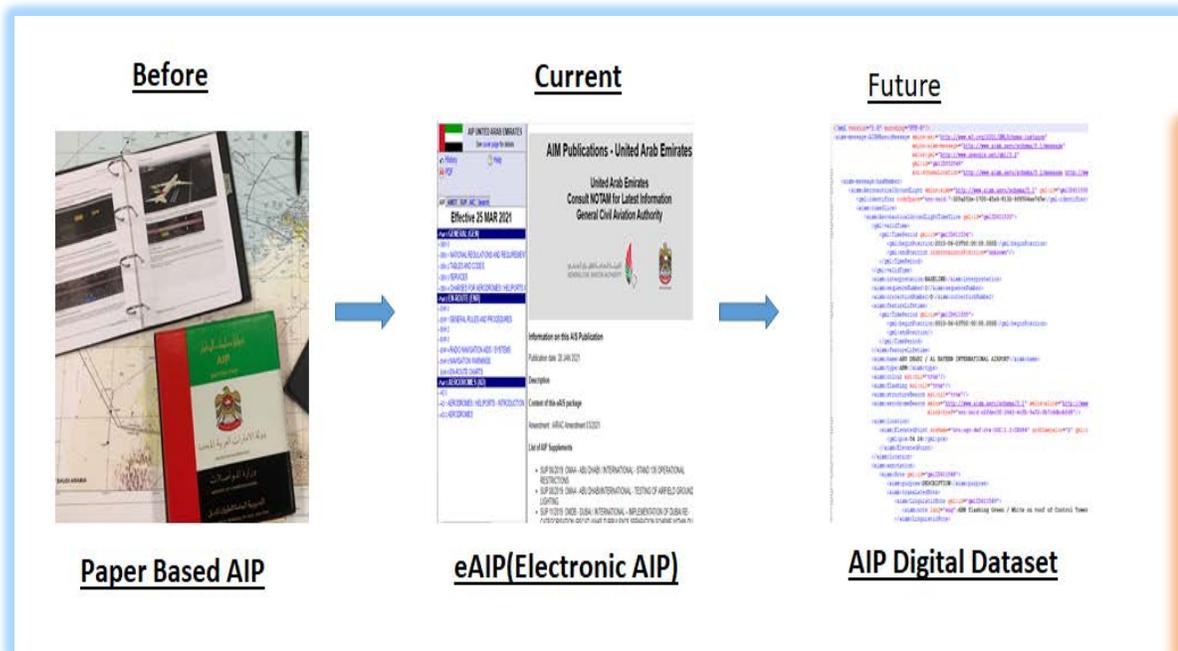
Displaying 1 - 60 of 66

Map





Time for Change





THANK YOU

