



Why is there an ATM Information Reference Model (AIRM)?

The members of the Air Traffic Management (ATM) community must share and exchange information in order to perform their function. The exchanged information needs to be *defined* in order to be correctly understood by and *encoded* in such a way as to be correctly used by consumers. This is especially relevant in System Wide Information Management (SWIM) that uses services to exchange information and promotes the re-use and composition of services.

ACCESS

Access the AIRM at
www.airm.aero

What is the AIRM?

The AIRM is the ATM system-wide reference vocabulary for *defining* ATM information. It constitutes the knowledge on information and data that is exchanged within the ATM community.

What is the role of the AIRM?

Using the AIRM promotes semantic interoperability - the ability to exchange information with unambiguous, shared *meaning*. The AIRM therefore serves a role in the overall interoperability improvements achieved by SWIM.

How does the AIRM related to information exchange models?

The AIRM and information exchange models play complementary but clearly delineated roles.

The AIRM is not an information exchange model – it says nothing about how to *encode* information. This need is met by the community driven information exchange models that support the implementation of solutions, including specific technology choices, for that community.

However, to facilitate semantic interoperability, the definitions used in information exchange models are aligned to those in the AIRM.

Who uses the AIRM?

The AIRM can be used in many contexts and by different users. Some example users are information architects, service architects, operational experts and standard developing organisations.

Information architects use the AIRM as a reference for the definitions used in information exchange models, and in aligning the definitions collaboratively across multiple communities.

Service architects use the AIRM during service design and development activities to define the information service payload.

Operational experts use the AIRM in support of operational concept development and in defining collaborative workflows enabled by for instance SWIM. They also use the AIRM when defining information exchange requirements (IERs) as part of service identification activities.

Standard developing organisation may use the AIRM as a reference in creating a data catalogue, a data dictionary, or a standard information service payload.

What are the benefits of using the AIRM?

Using the vocabulary given in the AIRM facilitates the unambiguous understanding of information in different contexts. The AIRM:

- supports interoperability by facilitating semantic alignment;
- facilitates consistency of information exchange models with ICAO provisions;
- provides a common and harmonised reference of the operational language;
- provides an integrated and formalized reference across ICAO documents (annexes, manuals, etc.); and
- complements and supports the information exchange models in a consistent manner.

What does the AIRM look like?

The AIRM is modelled using the Unified Modeling Language (UML) but is available in other formats: a searchable online tool and in HTML format.

It captures terms and definitions from an agreed set of ICAO Annexes and documents, and global information exchange models such as the Aeronautical Information Exchange Model (AIXM), Flight Information Exchange Model (FIXM), ICAO Meteorological Information Exchange Model (IWXXM). It divides these into a set of subject areas to make the understanding of the terms clear. The subjects are: Air Traffic Operations, Aircraft, Airspace Infrastructure, Base Infrastructure, Common, Flight, Meteorology, Stakeholders and Surveillance.

It contains a conceptual model that builds the reference vocabulary for use by operational experts and a detailed logical model in support of information and service architects.

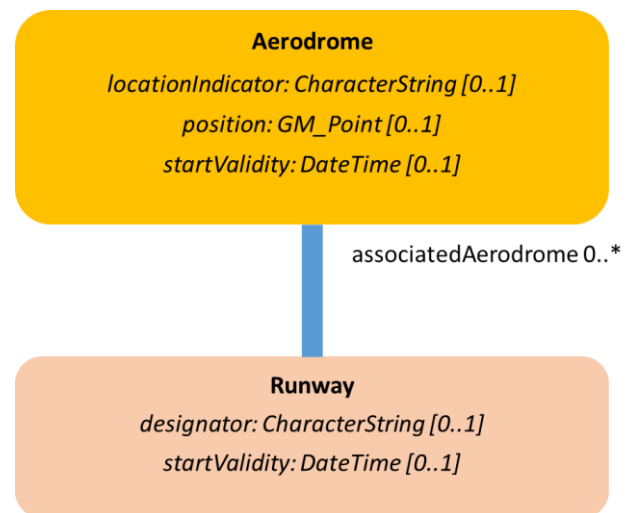


Figure 1. (simplified) Logical Model

How was the AIRM developed?

The AIRM was developed by an international team of experts in coordination with the ICAO Information Management Panel (IMP), in accordance with the related IMP information architecture and management job-card, and is satisfying the need articulated in the ICAO Global Air Navigation Plan to have the AIRM established as a supporting artefact for global information exchange interoperability. The inputs to the final development came from across the globe including Europe's SESAR programme and the USA's NEXTGEN. These inputs had been subject to many years of development within their individual programmes and a cross-programme harmonisation effort.

JOIN THE AIRM CCB

To join the AIRM CCB email
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Is the AIRM managed in an inclusive way?

The AIRM is managed on behalf of the AIRM community by a change control board (CCB) that is open to members of the ATM community. The AIRM CCB coordinates its activities with ICAO through the IMP. The AIRM CCB is expected to become active during the first quarter of 2020.