Advancing Aeronautical Data Validation

FAIVA − the **F**ABEC **A**eronautical **I**nformation **V**alidator − redefines aeronautical data validation by offering easy access to AIXM schema profiles and business rules through a user-friendly Web application. This article explores the details of FAIVA's offerings, highlighting its role in simplifying validation processes and in ensuring adherence to ICAO SARPs.

FAIVA's foundational capability lies in its ability to serve as a comprehensive AIXM data validator. Users can choose from an array of schema profiles, each tailored to meet the specific requirements of distinct datasets.

FAIVA users can validate their dataset against the standard AIXM 5.1 or 5.1.1 schemas, where all features and attributes are optional, or with either of four distinct schema profiles, each designed to align with PANS AIM datasets: AIP, Obstacles, Aerodrome Mapping, and Instrument Flight Procedures datasets. The four profiles impose specific mandatory features and attributes, ensuring compliance with the respective dataset specification outlined in ICAO Document 10066 (PANS AIM) and Commission IR (EU) 2017/373.
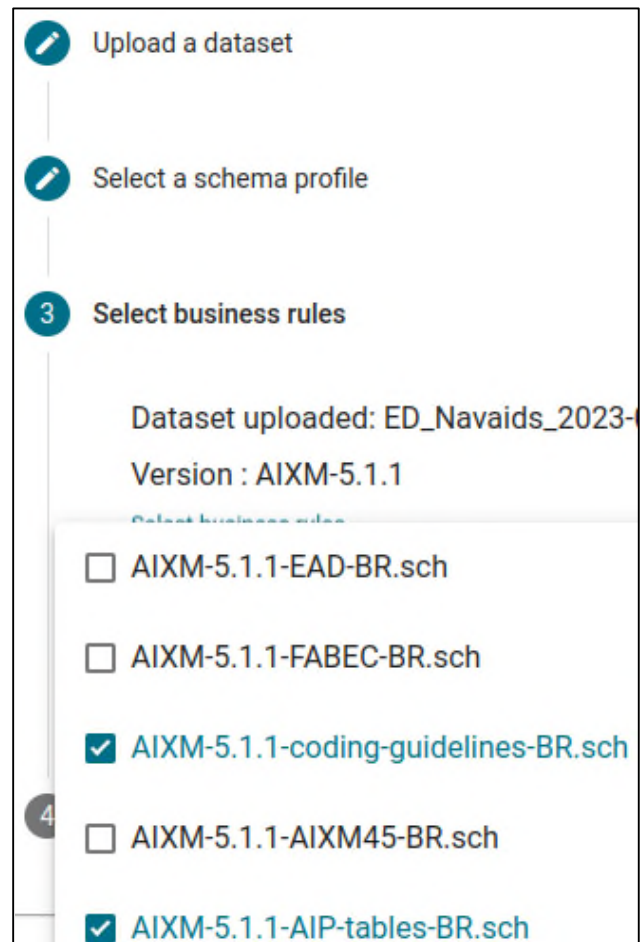
Introducing FAIVA Rulesets

In addition to advanced schema profiling, FAIVA introduces six rulesets, each crafted to enhance the precision and relevance of dataset validation:

Coding Guidelines Ruleset: These rules are relevant for datasets intended for operational use, ensuring a standardised approach across the aviation industry.

AIP Tables Ruleset: This ruleset checks if datasets contain the data required for AIS offices to omit specific AIP tables.

FABEC Ruleset: FABEC's airspace designators conventions not yet covered by the EAD DHOs.

Upload a dataset

Select a schema profile

3 Select business rules

Dataset uploaded: ED_Navaids_2023-
Version : AIXM-5.1.1

☐ AIXM-5.1.1-EAD-BR.sch

☐ AIXM-5.1.1-FABEC-BR.sch

☑ AIXM-5.1.1-coding-guidelines-BR.sch

☐ AIXM-5.1.1-AIXM45-BR.sch

☑ AIXM-5.1.1-AIP-tables-BR.sch

EAD Ruleset: specific to the European AIS DB.

AIXM 4.5 Compatibility Ruleset: To ensure compatibility with the outdated AIXM 4.5 version.

dNOTAM Ruleset: A set of rules for the future dNOTAM specification, an evolving standard.

FAIVA offers users the flexibility to configure the validation process according to their specific needs. With the expanded array of schema pro-

files and rulesets, AIS departments and Data Users can now select the most relevant validation mode for their dataset.

Facilitating Pre-publication Validation

FAIVA's emphasis on pre-publication validation becomes even more significant with these enhanced schema profiles. Users can now identify and rectify issues specific to their dataset type early in the process, minimising the risk of non-compliance and ensuring that only accurate, complete, and ICAO SARPs-compliant data reaches end-users.

FAIVA as Open-Source Software in the SWIM Ecosystem

Crucially, FAIVA is not only a powerful tool but also embraces the principles of openness and collaboration. It is an open-source software, aligning with the philosophy of transparency and community-driven development. Moreover, FAIVA is more than a standalone application; it is a web service with both a user interface and a system-to-system interface featuring an open API. This integration places FAIVA at the heart of System-Wide Information Management (SWIM), exemplifying a harmonised approach to information exchange and interoperability within the aviation sector.

FAIVA's commitment to ICAO SARPs is fortified through these enhanced schema profiles and rulesets. By aligning with Annex 15, Document 10066 (PANS-AIM), and Document 8126 (AIS Manual), FAIVA ensures that datasets validated using its diverse schema profiles and rulesets

meet the stringent requirements set by regulatory bodies.

FABEC awarded the FAIVA development project to Nilacandi after a call for tenders in 2022. FAIVA is hosted on Nilacandi's Facilis.aero Cloud-based AIM software suite. FABEC offers the service to the worldwide AIM community free of charge: all users need is a computer with a Web browser and Internet access.

Verification & Validation

In conclusion, FAIVA embodies a pioneering force in aeronautical data validation. The combination of enhanced schema profiles and meticulously crafted rulesets, coupled with its status as open-source software and integration into the SWIM ecosystem, underscores FAIVA's commitment to precision, flexibility, and compliance with ICAO SARPs. Validating a dataset with FAIVA essentially performs the verification and validation steps of the ICAO Document 8126 AIS data process.

As AIS departments navigate the complexities of data validation, FAIVA empowers AIXM stakeholders to meet the expectations of the next intended users – airlines, pilots, air traffic controllers, and other data consumers – with unparalleled quality and compliance.

How to use FAIVA

1. Point a Web browser to faiva.aero.
2. Sign up or sign in.
3. Upload a dataset.
4. Choose an AIXM schema profile.
5. Optionally select business rules.
6. Consult the detailed validation report.

About FABEC
The Functional Airspace Block Europe Central – FABEC – is a cooperation platform covering the lower and upper airspaces of the six States Belgium, France, Germany, Luxembourg, the Netherlands and Switzerland. Its airspace is one of the busiest and most complex in the world.

About Nilacandi
Nilacandi is a company based in Brussels, Lilongwe, Yangon and Bali, specialized in AIM consulting, training and software. Facilis.aero is a Cloud-first service and software for collecting and managing aeronautical information.