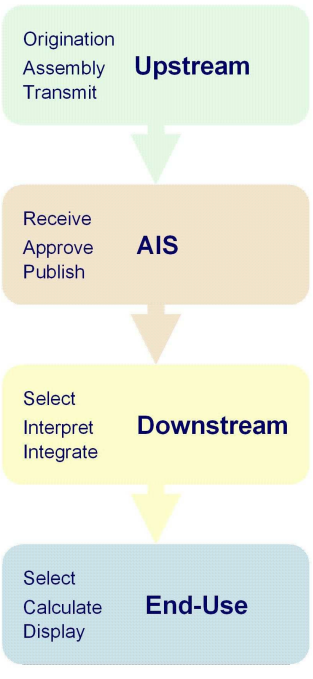
AIS Upstream Tools

For the eWiz@rd Portal

eADP.wiz@rd



ICAO Global Air Navigation Plan for CNS/ATM Systems

The role and importance of aeronautical data has changed significantly with the implementation of Area Navigation (RNAV), Required Navigation Performance (RNP), and airborne computer-based navigation systems, including Global Navigation Satellite Systems (GNSS). These systems are all data-dependent, and in that respect aeronautical data have become the necessary critical components of the system. Consequently corrupt or erroneous aeronautical data can potentially affect the safety of air navigation.

The advent of Precision RNAV (P-RNAV) for terminal operations will enhance the requirements again. Therefore ICAO has established standards and recommended practices which require all contracting states to introduce a properly organised quality system. This quality system must provide users with the assurance and confidence that distributed aeronautical data satisfy defined operational requirements for data quality (accuracy, resolution and integrity) and timeliness.

The required data integrity classification of 10^{-3}, 10^{-5}, and 10^{-8} is not achieved yet; re-entry or manual transfer of data is one of the major factors for data integrity loss and missing verification processes cause data corruptions.

Therefore ICAO is introducing new Standards and Recommended Practices for aeronautical data in Annex 15, Amendment 36, and Annex 4, Amendment 56 and the European Commission has published the Aeronautical Data Integrity Regulation 73/2010

AIS Upstream Tools

The AIS Upstream Tools for the Avitech eWiz@rd Suite assist this undertaking by its following main objectives:

- Electronic Interface
- Meta Data
- Electronic Transfer
- Secure Transmission

of aeronautical data at the data transfer point between Aeronautical Data Originators and AIS by means of an Web Portal. The Web Portal is part of eWiz@rd Suite.

The following Upstream Tools are available:

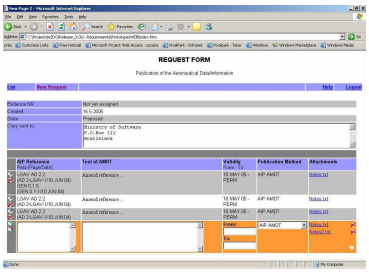
- eWiz@rd Suite Portal
  - Obstacle Survey
  - Change Request
  - Procedures Design,
  - GIS View
- Airspace Modeller
- SOCET SET® ClearFlite®

Additionally available is an Upstream Interoperability Interface, the Avitech Aeronautical Data Exchange Layer (AXL), which contains AIXM 4.5 extensions. AxL will be adapted to the Upstream Interoperability Standards when they become available.

Change Request Form

Request for publication of aeronautical data can be submitted using the eWiz@rd Suite Portal. Data originators

can than track the status of the requested processing. All further changes in in aeronautical database are back-traced to the request for change.



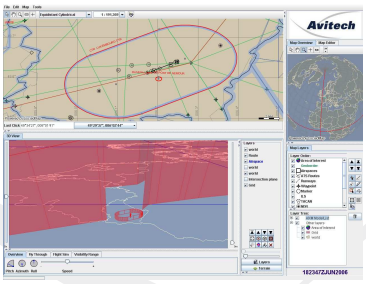
All requests for change undergo a standard process before the request is declared as aeronautical information.

The Change Request Form is mainly intended for the Upstream of the following aeronautical data to AIS:

- Regulation Data
- Organisational Data
- Airspace Data
- Navigational Aid Data
- Aerodrome Data
- Obstacle Data

Airspace Modeller

Modelling and defining of new airspaces or changing of existing ones require the ability of impact assessments and compare capabilities of possible different scenarios. The Airspace Modeller can access the aeronautical database through an AIXM 4.5+ compliant interface and view the data in 2D and 3D.

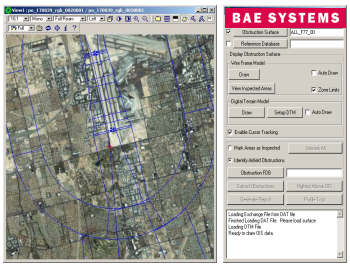


After finalisation of a modelling activity the new or changed airspace(s) will be made available in AIXM 4.5 format, including defined Meta Data.

SOCET SET® ClearFlite®

Identification and collection of sets of electronic terrain and obstacle data used in combination with aeronautical data are an important requirement of Amendment 33 and 36 to ICAO Annex 15.

ClearFlite® from BAE systems market leading SOCET SET® software for digital photogrammetry,

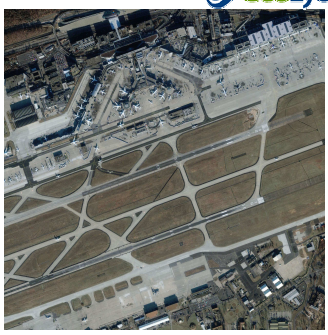


helps operators to identify and collect vertical obstructions in and around airfields. Historically, airfield vertical obstructions were identified using conventional land surveying methods, and documented on paper maps and charts. Although these procedures are accurate, they are also costly and time consuming. Moreover, traditional methods cannot distinguish between a vertical object and a vertical obstruction. ClearFlite® uses stereo images along with other SOCET GET® functionality to assist data originators in defining ICAO, FAA, and NGA obstacle zones and surfaces, digital terrain models, image maps, and AMDBs.

After finalisation of data capture the new or changed terrain and obstacle data, including defined Meta Data, will be uploaded to the AIS in electronic transfer through Avitech AxL.

Ikonos® Stereo Images

ClearFlite® uses Ikonos photogrammetry stereo images from Geoeye Inc.



Ikonos provides stereo imagery at one-meter resolution for the reference and precision accuracy levels. Geoeye provides the stereo imagery pairs with a rational polynomial coefficient (RPC) camera model file. The RPC file provides camera model data to popular software packages for photogrammetric extraction of 3D feature coordinates; digital elevation models (DEMs) and orthorectified imagery.

Avitech AxL

The AxL provides an AIXM 4.5++ interface for:

- Designed Procedures,
- Survey Data,
- Terrain Data,
- Topographical Data.

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