# ETOD
Electronic Terrain and Obstacle Database

» IDS Air Nav's eTOD suite of software tools is designed to manage airport, terrain and obstacle data ensuring compliance with international (ICAO and European ADQ) data quality requirements. The main functionalities include data administration, reporting and processing, making all elements available for modeling airport areas and ICAO obstacle chart construction and delivery.
Terrain and Obstacle Database (TOD) and the Airport Mapping Data Base (AMDB) are able to support all activities and provide a common basis either to perform aeronautical charting or to design airspace and flight procedures within the IDS Air Nav FPDAM interactive environment. e-TOD is composed of four products:

eTOD modules

eTOD Data Manager IDS Air Nav's e-TOD Data Manager provides all the necessary tools to import, integrate, manage and deliver aerodrome mapping information, obstacle data and terrain data in accordance with ICAO Docs 9881, 10066 and Annex 15. The system can assist the user in managing the lifecycle of data, validating and detecting ambiguous and conflicting data as well as supporting data export and reporting. e-TOD Data Manager is able to import and validate several different types of data:

- Digital terrain models (DTM, DSM, DEM);
- Orthophotos and raster files (tiff, Geotiff, ecw, etc);
- Three-dimensional vector maps (dgn, shp, dxf, dwg, etc);
- Raw data lists containing aerodrome and navaids information;
- Generic ASCII, csv;
- AIXM;
- Google Map export results.
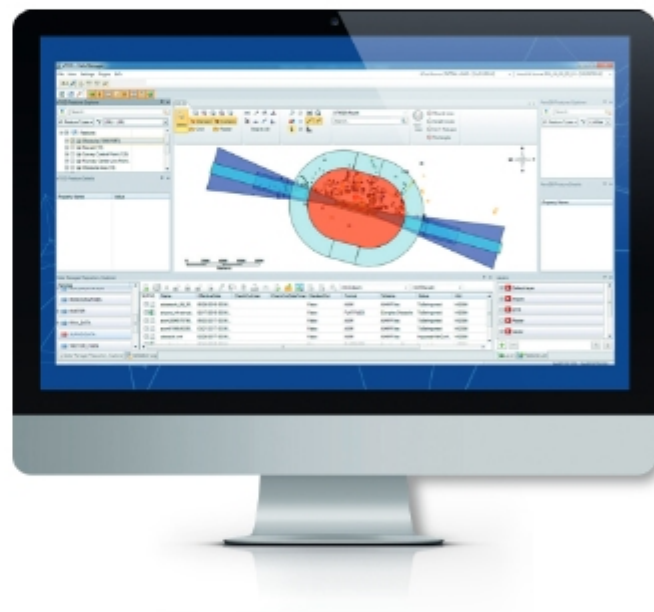
Data originating from input data lists will be mapped into the AIXM 5.1 data model using a very powerful mapping tool. The system has the capability to add default values to the file for any missing AIXM/ICAO attributes. All data will undergo several validation checks during importation with a Cyclic Redundancy Check (CRC) code is generated to ensure data integrity. The data is provided with meta-data as required by ICAO Annex 15 and is then presented to the user via a graphical front end.
All data and metadata are editable, and the system maintains data consistency in the case of concurrent revisioning. Data can be displayed in a 2D or 3D GIS environment or in Google Earth.

IDS Air Nav's eTOD Surface Designer (ASD) provides all the tools necessary to import the airport, obstacle and terrain data needed to reproduce the airport environment and perform natural or human made obstacle assessments. Based on a GIS/CAD platform, ASD allows the user to load: airport data including runways, helipads, taxiways, aprons, vertical structures, construction areas, survey controlpoints, navaids, obstacles and terrain data in order to support activities such as impact analysis of airport infrastructure changes, obstacle limiting surface (OLS) design or natural& artificial obstacle assessment.

ASD supports the design of Annex 4 &14 surfaces and the set of surfaces detailed in ICAO PANS AIM, dedicated to obstacle collection.

The Obstacle Chart Builder it is an additional modules of ASD which provides all the necessary tools to extract obstacle and terrain information and all data designed and stored (assessment outputs, surface parameters and so on) by ASD, needed to create obstacle and terrain charts (ICAO type A,B and PATC).

It allows the user to manage and define chart templates within a graphical environment and to modify the following parameters:
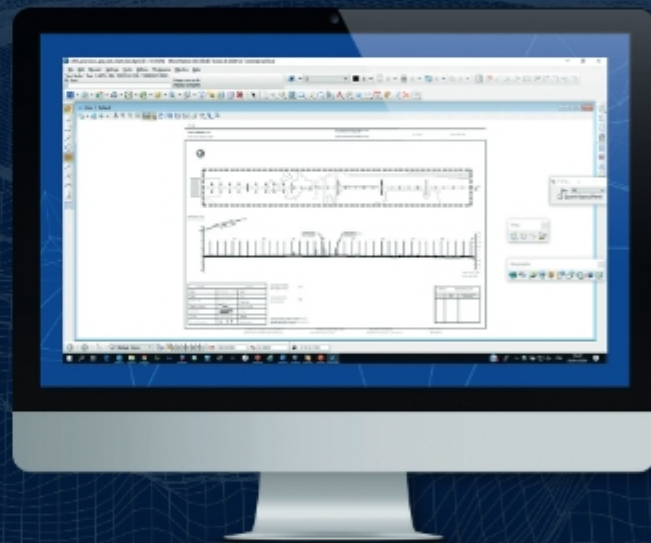
- Header, profile view and plan view size and position;
- Size and position of boxes;
- Text size, color and font for each box element;
- Elements to be represented.