

# e-ATOMS™ Air Traffic Operations & Management Simulator

A multi-purpose solution for training, validation and testing.

## » Mission:

**e-ATOMS** is the new air traffic simulator designed and developed by Techno Sky used by air navigation service providers to validate new operational scenarios, train personnel and support the testing phase of new ATM systems.



## Operational Scenario:

e-ATOMS can be used both to train ATCOs and to validate new operational scenarios as well as to support the testing phase of new ATM systems. It provides a full set of tools that enable self-training and role-based training, but it can be also used to test external systems since it is able to generate Surveillance Data associated to the aircraft according to assigned routes. All simulated targets can perform standard maneuvers following ILS, including simulation of missed approach procedures, according to:

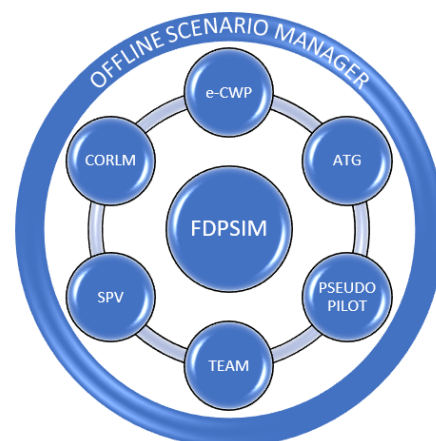
- **Automatic Navigation Mode:** target is navigated within the scenario according to its programmed route;
- **Manual Mode:** target performs pseudo-pilot navigation orders given in accordance to controller clearances.

## Key benefits:

- Target navigation is based on a very realistic navigation model of the aircraft
- Wide set of commands to simulate all types of the maneuvers performed by the pilot.
- En-route, TMA, Approach Control according to a very advanced 4D trajectory prediction
- Flight path monitoring
- Ground-to-Ground Coordination “OLDI full-based”;
- Safety Nets;
- Advanced Human Machine Interface to accomplish radar and planner tasks;

## Main technical features and overview:

e-ATOMS system is available in the Standard version for Server and e-CWP and in the Light version for Laptop. All the features of e-ATOMS are available on both versions. A VOIP based communication simulator (TEAM)



allows the frequency communications between the e-CWP and the Pseudo Pilot.

e-ATOMS system can be configured to run several different and independent simulation sessions at the same time.

The Laptop configuration is suitable for Individual ATC training or for training at the customer's

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premises. The Autopilot function allows users to perform self-training with no need of a pseudo pilot. In all its versions, the system can be configured easily and securely to be used for Training, Validation or Testing.

Scenario definition and generation for surveillance and flight plan management is implemented with an easy-to-use human machine interface, allowing also the acquisition of real traffic data flow.

**e-ATOMS** can provide a very realistic navigation model with the following functions:

- Generation of Surveillance Data associated to aircrafts according to assigned routes
- Standard maneuvers following ILS
- Simulation of missed approach procedures
- Two ways of Navigation Modes: Automatic and Manual
- Pilot maneuvers simulation
- 4D trajectory prediction and progress update (En-route, TMA, Approach Control)
- Flight path monitoring
- Ground-to-Ground Coordination “OLDI full-based”
- Safety Nets
- Planner/Executive and Supervisor ATC roles available
- ATCO/Pilot communication

### e-ATOMS-VAL

High flexibility in configuration, according to specific airspace requirements. Each air traffic scenario can be validated in airspace configuration, sectors' workload and operational procedures.

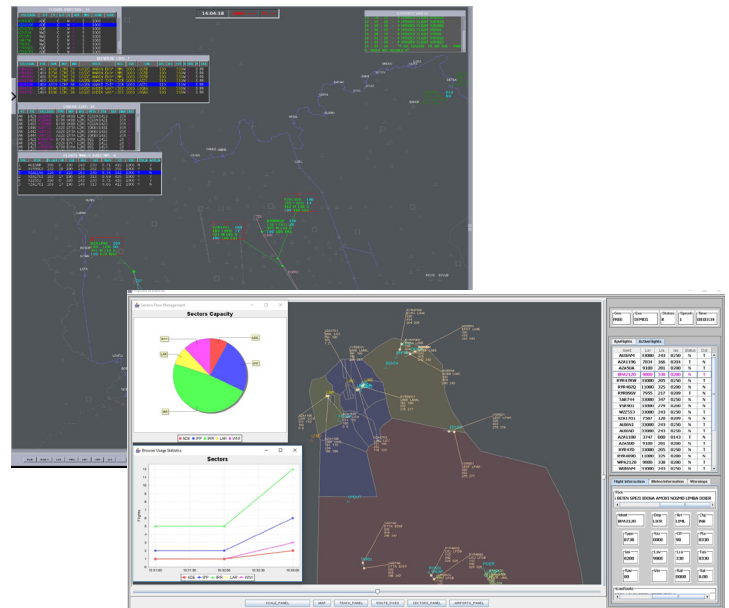
### e-ATOMS-Training

Different configurations can be loaded according to desired ATC training scope:

- Demonstrator – predefined scenarios are proposed to air traffic controller students in a classroom, connecting a simple projector to a laptop
- ACC/Approach – a complete simulation room by connecting the required number of controllers working positions and tools
- Individual/Self-training – scenarios for individual student on single laptop

### e-ATOMS-Testing

Thanks to its capability of using pre-defined air traffic scenarios, e-ATOMS provides a platform for software testing and validation activities.



### Interfaces:

- ASTERIX STANDARD
- ADEXP Flight Plan Data
- OLDI Coordination messages

### Technical specifications:

- At least 1000 tracks and 1000 Flight Plans proven
- Open-Source Database (PostgreSQL) and Oracle interfaced
- Linux OS based workstations for clients and servers
- Available in Full Configuration on server or Light Version on laptop
- A VOIP based communication between ATCO and Pilot

### Regulations and certifications:

- Developed according to ENAV Safety Management System and Security Policy
- CMMI Compliant Development Cycle
- Developed according to the Software Assurance Level (SWAL) identified during the safety assessment process
- EATMN Constituents certified by DSU (Reg. (EU) 2018/1139)

### Support:

- Skilled Train-the-Trainers human resources for maintenance scope