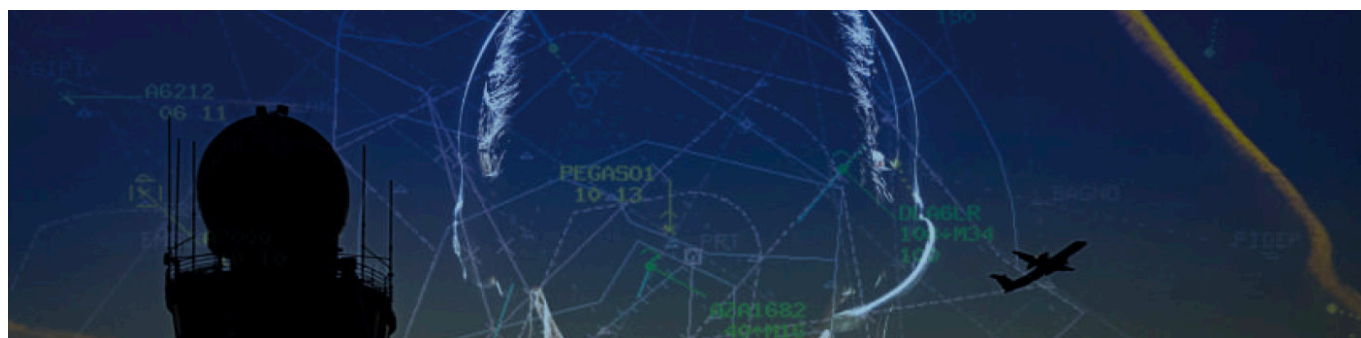


e-ATOMS® Air Traffic Operations & Management Simulator

A multi-purpose simulation solution for ATM systems training, validation and testing

» Mission:

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



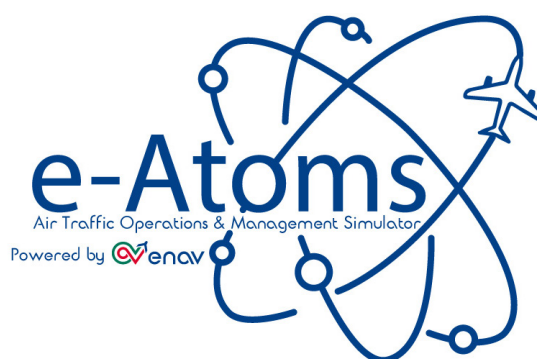
Operational Scenario:

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, performing 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
- ATCO HMI's identical to Operational ones
- ATCO/Pseudo-Pilot communication



Main technical features and overview:

e-ATOMS system is available in the Standard version (deployed on Servers and Workstations) and in the Light version (deployed on a single laptop). While all the features of e-ATOMS are available on both versions, the light version is useful for self-training.

A VOIP based communication system (TEAM) allows the communications between ATCOs operating on CWP's and Pseudo Pilots.

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

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.

ATCOs HMIs are identical to the operational ones for TWR and APP/ACC.

e-ATOMS-Training

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

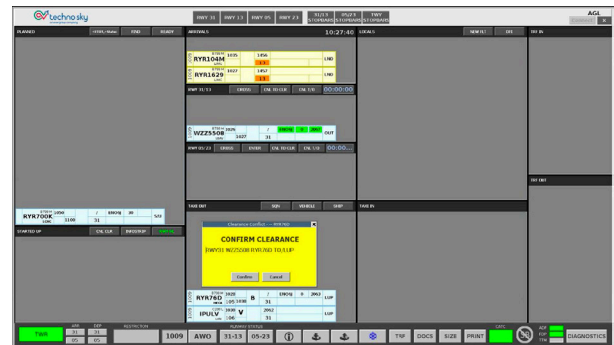
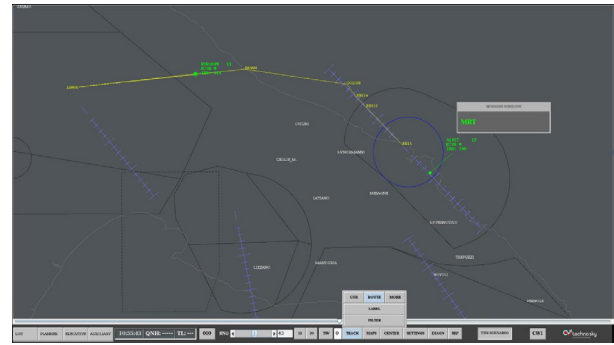
- Demonstrator – predefined scenarios are proposed to air traffic controller students in a classroom, connecting a simple projector to a laptop
- Individual/Self-training – scenarios for individual student on single laptop

e-ATOMS-Validation

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-Testing

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



Technical specifications:

- 1000 tracks and 1000 Flight Plans proven
- Open-Source Database
- Enterprise Linux OS based servers and workstations
- Full configuration deployed on servers and workstations for training rooms
- Light configurations deployable on a single laptop for self-training
- Includes VOIP based communications facilities between ATCOs and Pseudo-pilots

Regulations and certifications:

- EATMN Equipment compliant with Reg.(EU) 2018/1139
- Supporting ANSPs for SoC emission in compliance with Reg.(EU) 2017/373
- CMMI-DEV Level 2 (V.3.0) compliant development cycle
- Software Assurance Level (SWAL) according to EUROCAE ED-153
- Secure Development process compliant with EUROCAE ED-205A

Support:

- Train-the-Trainers service for user and technical topics