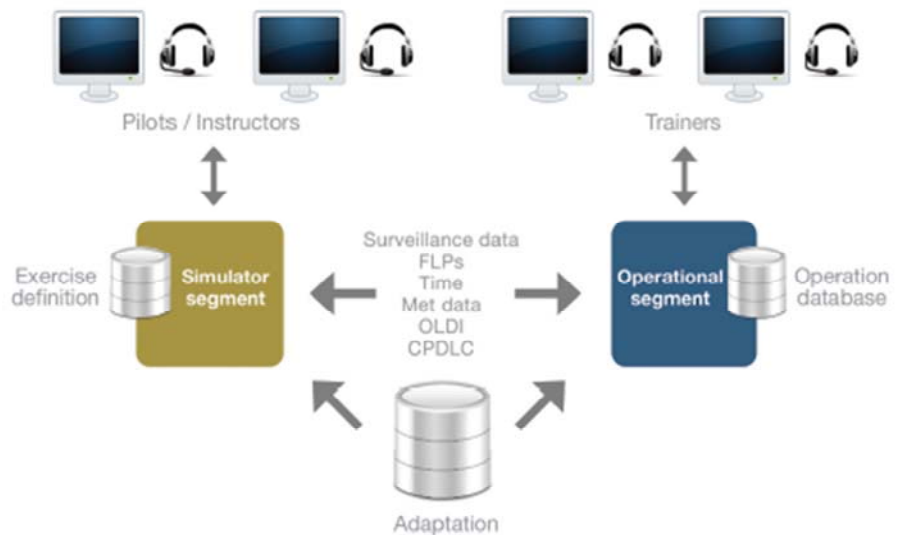


# Si ATM ATCSim

”An ATC simulator concept with a wide range of use”

Si ATCSim features two main segments, the simulator segment, which is the same for all implementations, and the operational segment, which provides the trainee environment as required by individual customers. The concept allows for independent execution of parallel exercises in the same or in different airspace.



## Simulator segment

The simulator segment drives the exercise, generating input to the operational segment and acting as surrounding systems for the output. The main interfaces are:

- Surveillance data in various forms
  - Plot and track data in ASTERIX formats as from radar stations.
  - System tracks as from a multi-radar tracker.
  - ADS-C and ADS-B data over simulated data link.
- Flight plan data in ICAO FPL or ADEXP format.
- Time is crucial for simulation. The simulator can command start, stop and rewind of exercise time.
- Meteorological systems such as ATIS and different airport sensors can be simulated. Upper winds and temperatures are provided, too.
- Coordination with adjacent FIRs can be performed verbally or with OLDI.
- Controller/pilot communication can be performed verbally or by means of CPDLC over simulated data link according to ICAO procedures.

The navigation function generates aircraft movements based on realistic manoeuvring characteristics. It handles a rich set of navigational commands to support procedures as SIDs, STARs, landing, holding and missed approach. Such commands are combined to form intuitive pseudopilot manoeuvres or automatic procedures.

Typical manoeuvres are those for immediate action, such as turn to direction or towards point, intercept line, accelerate/decelerate, climb/descend; those for restrictions in speed and level or assignment of runway; and those for monitoring of distance, level, position or time.

Aircraft can either be automatically simulated or navigated by pilot. Each pilot handles several aircraft and can, for each individual one, control equipment such as the transponder for set code, on/off, SPI or special condition code, the cockpit display for CPDLC and the radio. He can change the predefined route, rejoin the route, request reports on reached level, heading, point, distance, radial or time. He can also reposition a flight and perform take-off and landing.



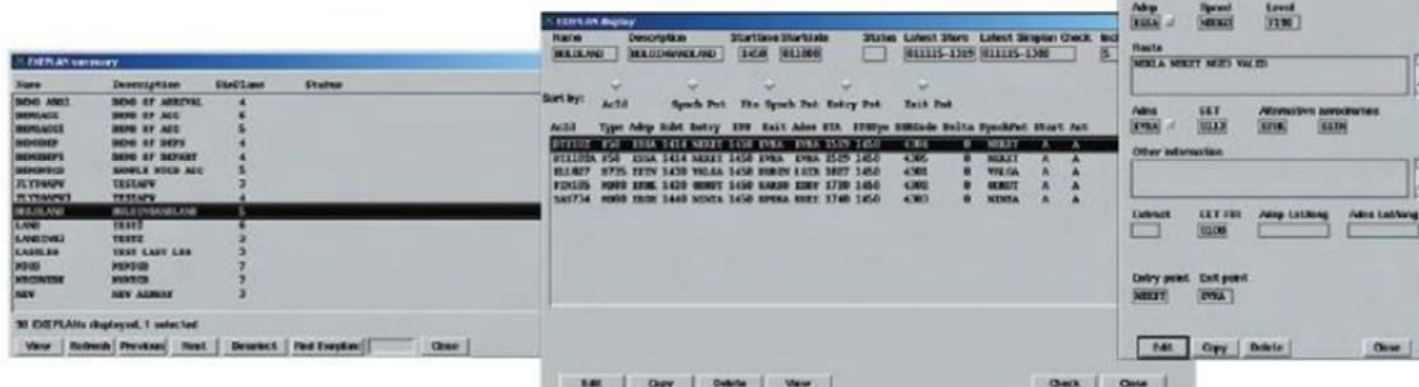
Example of a pilot menu in the Si ATM ATCSim simulator segment

## Operational segment

Si ATM can provide operational segments on various functional levels:

- For basic radar training.
- For training in an environment that truly emulates a specific very advanced ATC system. The advanced functionality is inherited from operational systems and is well proven.
- A fully automated CNS/ATM environment for training or prototyping.
- Anything between these levels, paperless or with paper strips.

The operational segment can also consist of customer provided equipment or equipment provided by other vendors. In this case, Si ATCSim connects to the physical interfaces of that equipment to simulate its environment.



## Integrated voice communication

Si ATCSim is equipped with voice communication facilities that automatically adapt to the running exercises. Each trainee and pseudo-pilot has access to radio frequencies and ground-to-ground communication within the exercise.

## Recording and playback

For each exercise, the system provides individual data and voice recording, which can be synchronously replayed.

## Quality in project and product

Systems delivered by Si ATM are adapted to the customer's specific requirements. Customer focus is paramount for our operation, and customer involvement in adapting functionality and designing HMI has been and is important for our success. In many cases, prototyping and phased delivery ensure that the customer gets a system, well adapted for his operation.

Our main quality principles are:

- The customer is the only judge of our quality.
- We must meet our commitments, not only fulfillment of functional requirements but also project management and delivery on time.



Landsvägen 39, SE-172 63 Sundbyberg, Sweden  
 Tel + 46 8 98 23 00 • Fax +46 8 98 31 98  
 si@siatm.com • www.siatm.com

*The Swedish ATM systems provider since 1981.*