



System Overview

General

- Open and extensible system architecture
- Commercial X86 processors - COTS hardware
- Linux operating system
- Standard communication protocols (TCP/IP, UDP/IP)
- Developed in compliance with ISO 9001:2008 procedures

Support for various levels of ATC training

- Ab Initio
- Oceanic Control
- Area Control
 - Procedural and surveillance
- Approach Control
- Aerodrome Control
- Advanced (Refresher)

Full “Gate to Gate” training

- Include multiple controllers in a single training session
- Multiple controller roles: aerodrome, approach and area, in a single training session

Controller environment, based on customer requirement

- Specific situation- and flight-data-displays can be emulated, or
- Operational situation- and flight-data- displays can be stimulated through the use of industry standard protocols, including:
 - Issuing and transmission of AFTN messages
 - Inter-center coordination through OLDI or AIDC
 - Radar data formats: CD-2, ASTERIX, CRC16 and FAA
 - ADS data processing and tracking (ADS-B and ADS-C)

Roles in the training facility include

- Exercise creator
- Localization and maintenance
- Instructor / Supervisor
- Controller / Student
- Pseudo-Pilot





System Components

Simulation Engine

- HIFI capabilities
 - Full stimulation capabilities of external operational systems
- Surveillance equipment simulation
 - ADS-B
 - Radar simulation
 - Beam rotation
 - Mode A/C
 - Multiple formats
 - ASTERIX
 - CD-2
 - FAA
 - CRC16
- NAVaid equipment simulation
 - ILS, DME, VOR, NDB
- Data-link communication simulation
 - CPDLC, ADS-C
- Flight Data communication support
 - AFTN, OLDI, AICD
- Coordination simulation
 - Adjacent sector simulation
 - Flexible ICD configuration
- Weather simulation
 - Weather transitions
 - Wind, temperature, pressure, dew point, clouds and precipitation
 - Weather affects aerodynamics
- Vehicle dynamics simulation
 - Performance database
 - Aerodynamics simulation
 - Weight
 - Wing area
 - Weather

Pseudo-Pilot Interface

- Intuitive interface suiting inexperienced up to experienced users
- Graphical situation display
- Aircraft strip display
- Exercise action list providing reminders in due time
- All aircraft operations available through situation display or strip display
- All exercise attributes modifiable at run-time
- Command line interface for experienced users
- Customizable user interface
- Point and click trajectory editing
- Advanced ground behavior
 - Shortest path navigation supporting via arguments
 - Fixed stop-bar adherence
 - Dynamic stop-bars created on the fly by pseudo pilots



System Components

Training Session Control

- Intuitive overview of on-going training sessions
- Manage multiple training sessions from the same control interface
- Add new or terminate on-going training sessions
- Add or remove participants to/from an on-going training session
- Control simulation time with start, stop, pause, resume and fast-forward operations
- Participate in an active training session, with full pseudo-pilot functionality
- Create incidents and emergency conditions
- Control recording of training session
- Review previous training session through playback of recordings
- Monitor system health

Controller Training

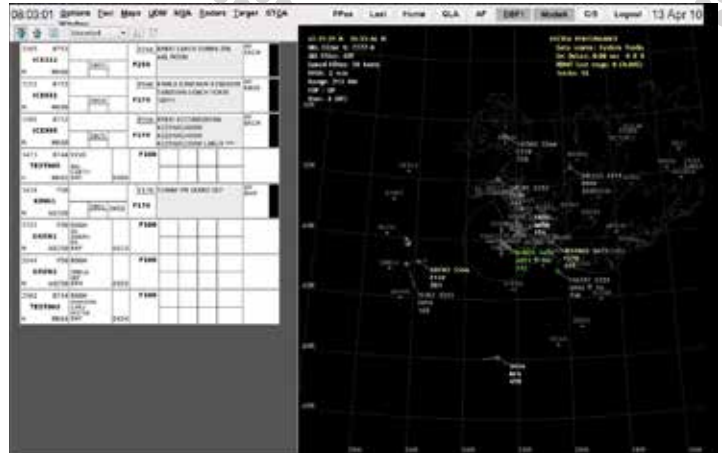
- 3D Tower Display
 - Realistic aerodrome simulation that includes the actual aerodrome environment containing landscape with high-resolution images, buildings, runways, taxiways, aprons, ramps and aerodrome lighting
 - Configurable weather conditions including rain, snow, multiple types of clouds, thunderstorms, sandstorms and fog
 - Daylight conditions based on exercise time and date, as well as the options to offset time
 - High quality aircraft models with multiple airline liveries
 - Ground handling vehicle models, specific to each aerodrome
 - Incidents and emergency conditions, such as engine fire, ground fire, flock of birds and runway excursion
- Fight Data and Electronic Strip Display
 - Display of AFTN messages associated with flight
 - Intuitive editor for creation of AFTN messages
 - Customizable layout of electronic strip
 - Input cleared values such as flight-level, speed, SID and STAR
 - Printout of flight strips, manual or automatic
- Situation Display
 - Display of system tracks (radar/ADS) and radar plots
 - Display and graphical modifications of flight plan route
 - Display of aeronautical maps and restricted areas
 - Tools for creating localized maps
 - Display of additional information such as time, QNH and controlled sectors
 - Display filters such as for flight-level and Mode A
 - Display of safety net warnings and alerts, such as STCA, MSAW and APW
 - User defined preferences for HMI settings





System Components

- Safety nets
 - Short Term Conflict Alert (STCA)
 - Minimum Safe Altitude Warning (MSAW)
 - Danger Area Infringement Warning (DAIW)
 - Approach Path Monitoring (APM)
 - Cleared Level Adherence Monitoring (CLAM)
 - Route Adherence Monitoring (RAM)
 - Missed Position Report (MPR)
 - Actual Time Over Monitoring (ATOM)
- Airport Information and Control Display
 - Weather information that include:
 - QNH
 - Atmosphere temperature
 - Atmosphere dew-point
 - Visibility
 - Wind dial
 - Status of navigational aids in the training session
 - Displays runway in use for arrival and departure
 - Control of aerodrome lights, various levels of intensity
- Voice Communication System



Exercise Creator

- Full pre-simulation capabilities
 - Pseudo-pilot commands can be issued during pre-simulation
- Capable of importing ICAO flight-plans to create new aircraft
- Re-usability of existing flight plans
 - Import and export of aircraft and vehicles to be reused in exercise creation
- Copy/paste existing vehicles to speed up exercise creation
- Offline exercise creation
 - Exercises can be prepared and pre-simulated on a laptop

Environmental Data Editors

- Aeronautical data configuration
 - Boundaries
 - Waypoints
 - ATS Routes
 - Aerodromes
- Importing from external data sources
- Visual representation of all data
- Configurable aircraft procedures
 - Holding patterns
 - SID / STAR, Approaches
 - VFR Routes
 - Noise abatement procedures

