

TBA3D

Advanced 3D Test Bed for Tower & Airport Operations Simulation



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The air transport sector is experiencing continuous traffic growth, increasing pressure on airports to manage operations efficiently while meeting higher expectations for service quality.

It is of utmost importance to assess the current aeronautical environment in order to elaborate a plan of intervention aimed at meeting the desired strategic objectives. In addition, operational simulation is a key enabler for ATCO training, allowing realistic, scenario-based exercises and procedure familiarization in a controlled environment.

IDS AirNav believes in the extensive use of simulation for pre-operational concept validation as well as for realistic, scenario-based ATCO training.



» Figure 2 TBA3D Installation for ATCO Training

The Solution: TBA3D

TBA3D is an open, multi-purpose simulation platform that supports airport layout design, traffic generation for pseudo-pilots and ground vehicles, and flexible configuration of CWP and PWP interfaces, including electronic flight-strips. It offers full recording, logging and playback, customizable 3D scenarios, and MET-based weather simulation.

- **Training**

The system also functions as a comprehensive ATC training platform, enabling realistic controller–pseudo-pilot interactions, emergency scenarios, evolving weather, and customizable HMIs. Its modular OTW visualisation and distributed architecture support Remote/Digital Tower concepts, multi-view OTW setups, remote PWPs and instructor-supervised training.

- **Integration**

Built around a multi-channel OTW visual system with adaptable field of view and display technologies, TBA3D scales to different configurations of CWPs, PWPs, supervision consoles and scenario-editing stations. It also integrates with ARINC 424-based procedure-design tools, ASTERIX-compatible systems and DIS-compliant environments, ensuring seamless interoperability within complex operational simulation and validation ecosystems.

Benefits

TBA3D combines airport engineering, ATC operations and modern simulation technologies into a single, adaptable platform: delivering an environment

for safe experimentation, effective training and future-ready operational analysis.

- **Airport Design:** validates airport layouts and procedures to ensure safe and efficient operations.
- **Capacity Enhancement:** identifies constraints and improves airport throughput and operational performance.
- **ATCO Operational Readiness:** strengthens controller preparedness through realistic, flexible and scenario-based simulations.
- **Real-Time Emergency Insight:** evaluates critical and emergency situations dynamically to support safer decision-making.



» Figure 3 Training Radar Area and Approach

Functionalities

- **Controller-Driven Design:** developed with operational ATCOs, instructors and pseudo-pilots to mirror real working conditions and support diverse training needs.
- **Intuitive ICAO-Aligned Interface:** simplified, “less-is-more” HMI with modern configurable layouts and light/dark display modes.
- **Realistic CWP Replication:** accurate reproduction of operational Controller Working Positions for immediate usability across ATC environments.
- **Scalable & Flexible Architecture:** deployable from compact desktop setups to multi-position training rooms, leveraging virtual machines and thin clients for efficient maintenance and high availability.
- **Rapid ATC Profile Reconfiguration:** quickly adaptable to TWR, APP, FISO and RAD training scenarios.
- **Remote & Integrated Simulation:** supports distributed sessions, remote PWP’s and instructor stations, and multi-specialization exercises with realistic handover dynamics.



» 3D Model and Unusual Situation Simulation

