Indra has an extensive experience in the provision of turnkey ATC training solutions, providing integrated A/FIS/ACC and Tower simulation systems, either standing alone or with a real ATC replica system in back-up and contingency modes.

Indra has designed, developed and installed EN-Route/Approach and Tower Simulation Systems in Europe, Latin America, Africa, Middle East and Asia. Our experience includes all phases from design to commissioning in addition to performing all developments and required integrations when necessary.

Focused on its exhaustive didactical purposes, Indra’s En-Route/Approach and TWR simulation system provides simultaneously multi-exercises and multi-levels of difficulty environment, in which the students/controllers receive their evaluation reports automatically, including infringements and workload. Voice, data and 2D/3D-images are recorded, synchronized with given instructions, that will be analyzed during exercise evaluation.

Air Traffic & Aerodrome Control Simulation System

Provides student controllers with the whole training solution for enroute, approach, and tower.
Indra’s En-Route/Approach & TWR Simulator provides a total training for 2D/3D-TWR/APP/ACC controllers in a multi-session and multi-exercise system. Its mission is to enhance basic and advanced training of TWR/APP/ACC controllers. By providing the capability to simulate an unlimited range of high complexity operational situations, information from surveillance sensor, flight plans, air-ground data link capabilities, external centres coordination, meteorological and aeronautical formation along with 3D images of air-ground movements on the aerodrome visual scene.

The Enroute/Approach/Tower is an exact reproduction of the environment found in an ATM control center, with configurable student positions, totally equipped with all elements and devices used in real operations, and complete reproduction of a real Airport Control Tower, displaying both 2D and 3D visual environments.

Aircraft and ground vehicles are managed automatically or by pilot positions. Easy management of large target loads and abnormal situations (fire, engine/smoke effects, landing gear malfunctions, turning on/off aircraft position lights...). On-line adaptation of external tower environment, modifying student’s “point of view” and weather conditions, simulating clouds, rain, snow, wind...

HMI contains area/terminal and surface surveillance sensor data display, alert electronic flight strip, airport lightning control, Nav AIDS, status information, signal light gun, binoculars, and all relevant information and instruments in a real airport tower, and ATC center.

**System components**

- Air/ground traffic generator (ATG)
- Pilot support (PP)
- Session manager (SM)
- Exercise preparation (EPP)
- 3D 180/360° aerodrome scene
- Tower, APP/ACC working positions, with voice recognition.
- Voice communication control system (VCS)

**Main characteristics**

- Up to 12 training exercises simultaneously and independently performed
- Tailored design of aerodrome and air space procedures
- Automatic input generation
- Student/controller infringements and workload evaluation
- Voice recognition and text-to-speech features
- Multichannel visual system and cylindrical screen with 180/360° of panoramic view
- Digital geometry correction and soft edge blending between channels for cylindrical projection
- Latest generation projectors and latests COTS technologies for the image generators
- New functionality can be added cost effectively

Indra is positioned as the market’s leading supplier of air traffic management and communications, navigation and surveillance (ATM-CNS) systems. In the field of R&D, we are one of the leading companies in the SESAR program, the key technology behind the Single European Sky initiative. We are also the technology partner of many major European and International Air Navigation Service Providers.

Air Traffic and Aerodrome Control Simulation System is built on the base of a legacy of successfully delivered systems around the world, with an open system architecture complying with open system standards (UNIX/LINUX, Ethernet). It is designed to allow evolutionary upgrades and future enhancements, with modular SW and HW design, using the COTS technology from industry leaders.

**Indra’s Air Traffic and Aerodrome Simulation System** is the most advanced integrated solution in terms of integrated TWR, APP and ACC training.