F-35 Hypoxia Trainer Simulator

multiSIM developed unclassified F-35A simulation for part-task training, multi-ship multi-type training and human performance research. The F-35A simulation is based on available data and allows the creation of realistic fifth generation fighter simulation in an unclassified environment. A representative flight model has been developed with performance characteristics consistent with the available data.

The Panoramic Cockpit Display (PCD) is accurately simulated and the most commonly used PCD portals are available. Capabilities such as radar performance, radar cross-section and sensor properties are representative and can be adjusted by the customer.

The Helmet Mounted Display System (HMDS) is also simulated and provides both the HUD when looking forward and the off-boresight symbology. FLIR and I^2 (NVG) images are incorporated in the HMD.

## Distinguished Visitor Mixed-Reality Experience — F-35 Sensor Fusion & SA (Unclassified)

...Visitors into an immersive, pi-...mirrors the real aircraft's look, ...remaining strictly unclassified. ...t HMD, guests see helmet sym-...o head movement over a real-...the-window scene; DAS-style ...wareness and an HMD night-vi-...era provide video underlays for ...ough-airframe" cues. A simplified ...al presents fused tracks/threat ...and datalink approximations, ...onized with the OTW view for ...erent, aircraft-like situational ...awareness. Instructors trigger ...safe, high-impact vignettes—...pop-up threats, formation

traffic, weather/lighting changes—so visitors experience the F-35's hallmark sensor fusion in minutes. An optional air-to-air refueling vignette places visitors in a realistic tanker rejoin and contact, with accurate closure cues, director lights, wake/turbulence effects, and variant-appropriate boom or probe-and-drogue alignment—fully synchronized with helmet symbology. Instructors can vary tanker type, lighting, and weather to show how fusion and HMD overlays support stable formation, contact/transfer, and safe break-away—our most immersive AAR experience in an unclassified package. Visitors can also experience takeoff and landing sequences—taxi, lineup, rotation, approach, flare, and rollout—configured with runway lighting, winds, and visibility to highlight how fused cues and helmet symbology support precise, stabilized flight. To round out the story, an engine start and pre-flight checks vignette walks guests through a sanitized approximation of cockpit flows—power-up, basic system/status checks, and checklist pacing—so they feel what it's like to bring the jet to life before taxi, all while keeping content unclassified.

F-35 DAS & HMD Night Vision Camera

Our training environment models the F-35's Distributed Aperture System (DAS) as a 360° infrared awareness layer that streams sensor video to the pilot's helmet, enabling look-through-airframe cues, threat/missile alerts, and day/night situational awareness. The HMD Night Vision Camera provides a complementary low-light video feed directly to the helmet display, enhancing natural-scene detail during reduced-illumination operations. Together, these underlays are fused with helmet symbology and cockpit portals so aircrew experience seamless transitions between out-the-window vision and sensor-aided perception—delivering a credible, unclassified approximation of F-35 sensor fusion for a first of its kind Human Factors training and demonstrations.
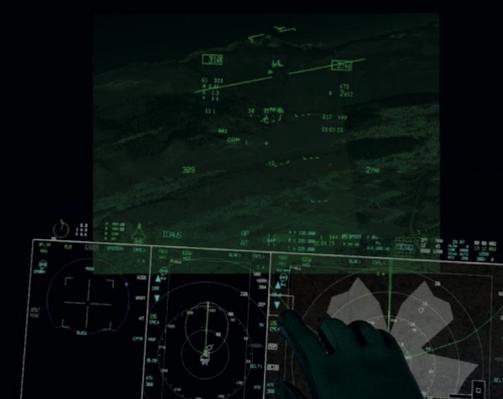
multiSIM
real simulation solutions

Next Generation Training and Simulation

multiSIM

multiSIM is an engineering firm from the Netherlands that builds high-tech training and research simulations for customers all over the world. We develop D-SIM, D-WORLD and D-NAMICS as the core of our and your solutions, providing accessible, open simulation for rapid development and easy integration into existing simulators and hardware.

D-SIM
Your solution for rapid development in an open simulation framework.

D-WORLD
Your virtual reality render engine for realistic simulations in one distributed world.

D-NAMICS
Your high-fidelity physics solution for aircraft and vehicle simulations.

Simulation
multiSIM develops open simulation that lets you access all the simulator data and processes. This enables fast development of simulator solutions for research, development and training, and easy integration into existing simulators and hardware.

Training
multiSIM builds highly effective training applications with the D-SIM, D-WORLD and D-NAMICS software. We deliver distributed simulation for different platforms such as helicopters, fifth generation fighters and vehicles.

Research & Development
The open simulation framework of multiSIM provides an efficient solution for Research & Development in simulated environments. It allows for quick and easy adaptation of simulation solutions to your specific research needs.
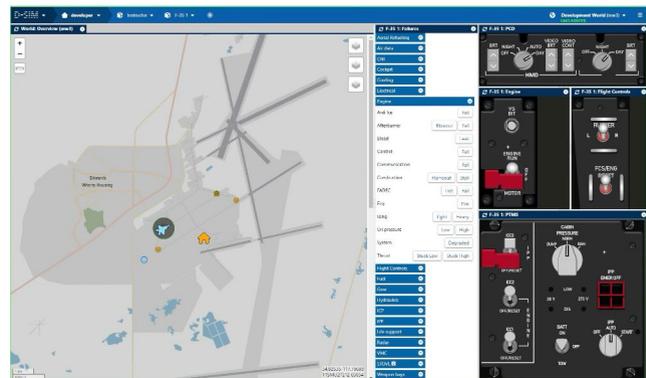
Training (ERT)

Prepare crews to execute safe, repeatable ground runs with confidence. The ERT module walks maintainers through pre-start, light-off, spool-up, stabilization, contingency handling, and shutdown inside a controlled, high-fidelity environment. Instructors manage scenarios from the browser-based IOS, while cockpit portals present the right engine-focused data and capture time-stamped events for debrief—driving standardization, faster qualifications, and lower ramp risk before getting into the real aircraft. Training in this synthetic environment increases proficiency while reducing aircraft wear, fuel consumption, and overall cost.

Modeled aircraft systems (training approximations):
- Propulsion & engine control: start logic, spool/transient behavior, throttle response, limit protection.
- Power and Thermal Management System (PTMS): electrical power generation/distribution, thermal control loops, engine bleed/extraction effects, load sharing and load-shedding under abnormal conditions.
- Fuel system: tank quantities/transfer, pump/pressure states, fuel-temperature effects, Joker/Bingo, aerial refuel (AR) controls and fuel-dump logic.
- Hydraulics & brakes/steering: pressure sources, cautions, and ground-handling effects.
- Environmental control & cooling (ECS): avionics/cabin cooling interactions relevant to ground operations.
- Cautions/Warnings (ICAWS): annunciations, inhibit logic, and instructor-driven fault injection (e.g., hot-start, over-temp/over-speed trends).
- Health Monitoring (PHM): displays Health Reporting Codes (HRC) to identify which faults are present.
- Fire detection/emergency shutdown: indications and checklist-driven responses.

Displays in training: PCD pages (ENG, FUEL, ICAWS, PHM) with optional HMD Repeater for instructor/observer sync; single-panel OTW view for ramp context.