

FUTURE FORCE EXPERIMENTATION AIR DEFENSE SIMULATION (FFEADS)



FFEADS is designed to enable Commanders to participate in exercises and experiments, where current and/or conceptual or future IAMD platforms are used, to gain knowledge and experience in fighting a new and emerging threat.

The Future Force Experimentation Air Defense Simulation (FFEADS) is a government owned tool by the U.S. Army Space and Missile Defense Command (SMDC) that provides an effects-based classified and unclassified data

driven software build of current and conceptual integrated air and missile defense weapons, sensors and command & control nodes. The simulation provides the operator with a Common Warfighter Machine Interface (CWMI) of the Integrated Air and Missile Defense Battle Command System (IBCS) to allow users to test and modify or establish Tactics Technics and Procedures (TTP), Concept of Operations (CONOPS) and kill chain procedures.



- Supports commanders, combat developers, testers, experimentation and analysts in a single package.
- Supports faster than real-time and operator in the loop
- Supported with ongoing maintenance, documentation and user group meetings



FFEADS is comprised of two simulations called the Integrated Air & Missile Defense (IAMD) and Integrated Fires Command & Control Element (IFC2E).

IAMD

Integrated Air & Missile Defense (IAMD) allows the ability to model data driven sensors, launchers and munitions with current and/or conceptual platforms and capabilities.

IAMD supports the following:

- *Sensors* – Patriot Config-3, Patriot RDP (Radar Digital Processor), Patriot AESA 360 Near-Term, Sentinel, Sentinel A-4, ANTPY-2 (THAAD), LCMR along with the ability to support any generic data driven sensor like the LTAMDS, Iron Dome MMR, Sentinel, ALPS, and other conceptual sensors.
- *Munitions* - Patriot PAC2, PAC3, PAC3-MSE, HEL, AIM-9X, HVP, LTFI and THAAD Interceptor along with the ability to support other generic data driven munitions like LRPF and other conceptual munitions.
- *Tactical Planning Viewer (TPV)* – Provides a visual analysis of the scripted scenario’s weapons and sensors laydown built into IAMD to provide the user a visual aid that displays the layered defense from the current scenario against different threats in real-time or faster. This tool is used prior to execution of exercises or experiments so that users can gain insights into how laydowns will defend against a given threat. TPV can be used to identify final

laydown adjustments required prior to actual execution.

- *Data Collection (Real-Time and Post Run/Execution)* – multiple data collections and processing of Events formats to support analysis and evaluation for each user (Event Files, Server Fed Data, and Monte Carlo statistics). Collected data includes:
 - All TADIL-J messages sent and received by the model
 - All internal prom communication traffic between IAMD and IFC2E
 - Damage events for units (radars and launchers) within IAMD
 - Track engagement eligibility data
 - Engagement events, radar jamming events, launcher related events, radar-related events, and track detection/drop by radar events

IFC2E

The Integrated Fires Command & Control Element model represents the tactical console of an “IBCS-Like” capability while maintaining the flexibility of being able to support current and/or conceptual C2 capabilities. IFC2E provides an “IFCN-like” interface between IFC2E nodes replicating any or all echelons of the network, communicating to external units or systems via the TADIL-J message set, link to Joint Track Management Capability (JTMC) Bridge. This provides a replica of the IAMD concept and allows Warfighters to interact with the accepting and executing of digital messages and orders.

FFEADS supports Distributed Interactive Simulation (DIS)

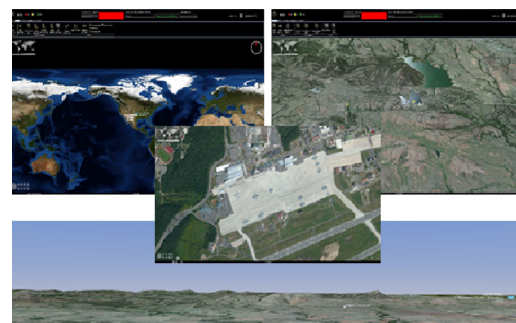
Version 6 via Broadcast or Multi-Cast & Battle Lab Collaborative Simulation Environment BLCSE HLA.

FFEADS Control Center (FCC) provides a user interface, without having to access Linux Terminal Windows, to allow setup and modifications to configuration files used to execute the simulations and simplifies the user experience in Human-in-the-Loop mode or Analytical/Monte Carlo mode.

FFEADS Scenario Laydown Optimizer provides a quick visual tool for the user to view current equipment laydown and optimized equipment laydown.

FFEADS supports both soldier-in-the-loop and constructive operations in a multiple console or standalone role. FFEADS uses multiple IFF modes and supports DTED Level 0-2 terrain along with NASA Worldwind Terrain and Shape Files.

FFEADS has partnerships between the Fires Battel Lab, JIAMD and Program Executive Office Missiles & Space (PEO M&S) helping the Warfighter of today battle the enemy of tomorrow. This simulation provides layered IAMD future systems and capabilities to the Warfighter now. This allows them to work on TTP’s, CONOP’s and Kill Chain procedures at both the Army level and the Joint Level.



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