

# Our mission – peace and security



## Air Force Scenario Manager

### Background

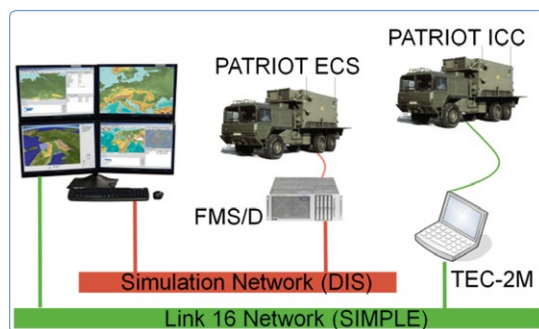
The distributed simulation of complex aerial warfare scenarios in real-time requires a tool for the creation, management and verification of these scenarios. Netted simulations and Hardware-in-the-Loop components need to be stimulated with simulated threats using standardised interfaces.

### Description

The Air Force Scenario Manager (German: Szenariomanager Luftwaffe/SzMLw) was developed as part of the AMD NetSPATE programme located at the German Air Force Air Defence Center. It allows the creation of complex scenarios with the realistic 3DOF simulation of various threats, including ABT, ARM/ASM, TBM, CM and helicopters.

The software allows the simulation of almost every aspect of complex air operations, including:

- Combat Air Patrol missions
- Suppression of enemy air defence missions, including firing of anti-radiation/anti-surface missiles
- Configurable IFF/SIF responses
- Configurable Jamming
- Computer aided definition of TBM trajectories by selecting TBM type, launch points, kind of trajectory (maxrange/lofted/depressed), range and impact point
- Entities participating in a SIMPLE-based tactical data link
- Cargo missions, including load-in and drop off
- ACM import and display via ADat-P3 messages
- The Scenario Manager incorporates agent-based cognitive behavior that allows simulation entities to react automatically on ground-based, sea-based or airborne threats triggered either by geographic reference, missile launch or by detection of electromagnetic emitters.
- The cognitive behavior is fully configurable for every aircraft entity or whole formations and can be switched on or off as required.



Stimulation of live hardware with simulated tracks

Depending on the platform used, the software is able to handle more than 1000 aerodynamic moving entities, and additionally more than 100 ballistic moving missiles. Beyond that the software is capable of defining attackable static ground, surface, and sub-surface entities.

Besides being an integral part of the AMD Net-SPATE, the Air Force Scenario Manager is used in the German Armed Forces Simulation and Test Environment and was successfully used during CD&E (Concept Development and Experimentation) experiments.

## Components

The Air Force Scenario Manager consists of the following components:

- Scenario Editor
- Scenario Generator
- Entity Observer

The **Scenario Editor** allows to create and manage the simulated entities used in the scenario. It utilises a graphical user interface based on the LuciadMap GIS framework.

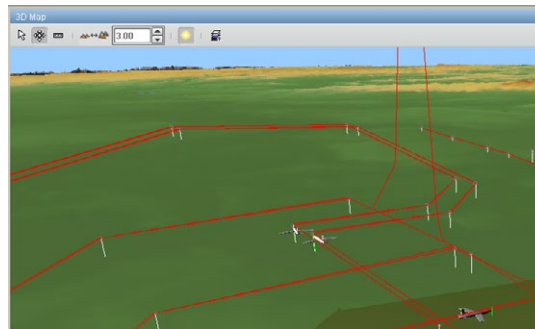
The completed scenario can be viewed in a freely configurable 2D or 3D view.

The **Scenario Generator** simulates the scenario entities and sends the entities to the DIS or HLA based simulation network. The Link 16 PPLI-Messages of airborne elements are sent to the SIMPLE network.

The **Entity Observer** receives all other DIS or HLA entities, e.g. simulated sensors and weapon systems and displays them in the same GUI as the generated entities.

## Technical Data

- **Possible Platforms**  
Standard Desktop or Laptop PC
- **Operating Systems**  
Windows 7 or later
- **Network Interface**  
1 x Ethernet 802.3, TCP/IP
- **Display**  
Standard Office Display, multi display setup (2 or 4 screens) recommended
- **SIMPLE** • STANAG 5602 / 5516
- **DIS** • IEEE 1278
- **HLA EVOLVED** • IEEE 2010
- **ADat-P3** • via XML
- **Development** • Java • C++ •  
MATLAB/Simulink • Import/Export of  
planned and/or simulated trajectories



3D visualization of simulated flight paths

For further information please contact:

Phone +49 89 6088-2482

Fax +49 89 6088-4015

defence@iabg.de



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IABG  
Einsteinstrasse 20  
85521 Ottobrunn  
Germany  
Phone +49 89 6088-2030  
Fax +49 89 6088-4000  
info@iabg.de  
www.iabg.de