



## Overview

EWAWS is a standalone real-time C++ library for radar, electronic warfare and weapon dynamics simulation. It provides ready to use and reconfigurable models for various weapons and EW equipment.

Available models include:

- Weapons
  - Guided missiles
  - Bombs
- EW Equipment
  - Airborne, surface based and naval radars
  - IR seeker
  - Laser designator and seeker
  - Countermeasures (Jammers, chaff, flare etc. )

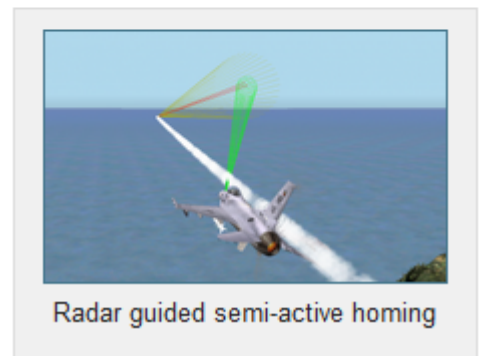
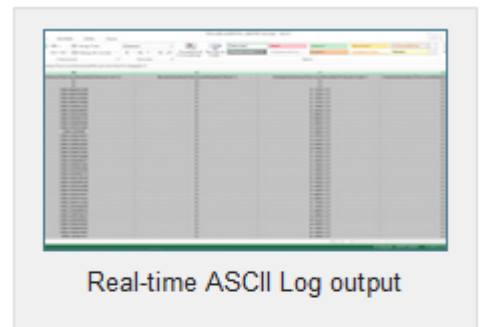
## Applications

- Radar training
  - Air traffic control
  - Surface (land/sea) radars
  - Airborne surveillance (AWACS)
- Pilot training (e.g. mission rehearsal simulators)
  - Weapon systems training
  - Defensive maneuvering and electronic warfare
  - Fighter jet radar operation
- Engineering & research applications
  - Weapon systems development
  - Analysis of defensive measures in air combat
  - EW equipment development

## Features

### Type support

- Guided missiles
  - Air-to-air
  - Air-to-ground
  - Surface-to-air
  - Cruise (with terrain following flight capability)
- Bombs
  - Smart bombs
  - Free fall bombs
- Artillery shells (ballistic flight)
  - Spin stabilized
  - Aerodynamically stabilized



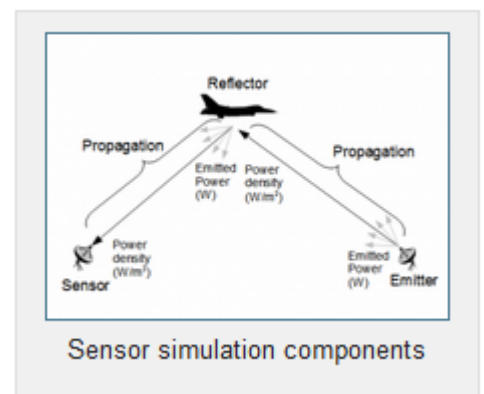


### Real time data logging

- Human readable and easy to import tabular text format
- Compact binary format

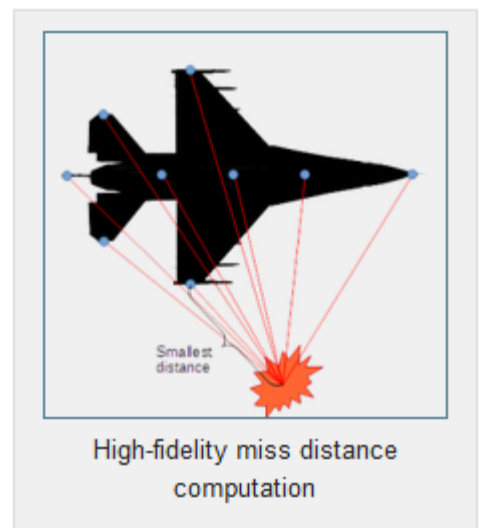
### Physics based 6DOF weapon simulation models

- Dynamics
  - Lift, drag, side force, supersonic drag
  - Control surface model
  - Atmosphere model
  - Turbine engine and rocket engine models
  - Stability augmentation
- Missile guidance models
  - Active homing
  - Semi-active homing
  - Multi-mode guidance
    - Midcourse semi-active, terminal active
    - Midcourse data link, terminal active
- Fuse and warhead models
  - Accurate miss distance calculation
  - Geometry of the targets taken into account, i.e. targets are not simple point objects.
  - Multiple targets in close vicinity (e.g. aircrafts in formation) supported



### Physics based sensor and countermeasure models

- Radar and radar countermeasure models
  - Signal-to-noise computation with radar equation
    - 3D antenna gain pattern
    - Transmitter power output and waveband taken into account
    - Table based 3D radar cross section
    - Terrain line-of-sight
  - Support for search and tracking modes
  - Model outputs can drive different types of radar scopes such as A-scope, B-scope, PPI and RHI
  - Towed decoy
  - Jammer and chaff
  - IR seeker and IR countermeasure models
    - Signal-to-noise computation based on radiometry principles
      - Physical characteristics of sensors (e.g. optical transmittance, field-of-view) taken into account





- Table based IR signature model
  - Terrain line-of-sight
- Flare and Directed Infrared Countermeasure models
- Laser sensor model
  - Signal-to-noise computation based on radiometry principles
    - Physical characteristics of sensors (e.g. optical transmittance, field-of-view) taken into account
    - Laser designator power output and waveband taken into account
    - Table based 3D laser cross section
    - Terrain line-of-sight
- Missile Approach Warning Sensor model

## SDK Simulation Features

All RTDynamics models are part of a single C++ library, this allows developers to use the same SDK to integrate the products into their simulations. Models can also run in the same simulation world, for example all helicopter and aircraft models can carry EWAWS radar models, or can be targets of a EWAWS missiles.

## API

- C++ API
- XML Configuration File Format
- Multi-Platform: 32/64 Bit Windows and Linux.
- Binaries available for all common Visual Studio version and Linux distros.

## Simulation Execution and Fidelity

- Real-time, faster than real-time (batch mode) and slower than real-time simulation
- Unlimited number of entities can be simulated with a single license
- Deterministic simulation
- State save and load (a.k.a. state snapshot/restore)
- Real-time simulation data recording

## Integration & Visualization

- Easy Integration with
  - Image Generators and 3d Visualization Tools
  - Control Loading Systems
  - Virtual and real cockpit instruments
- 3D Visualization
- Headache-free licensing

