

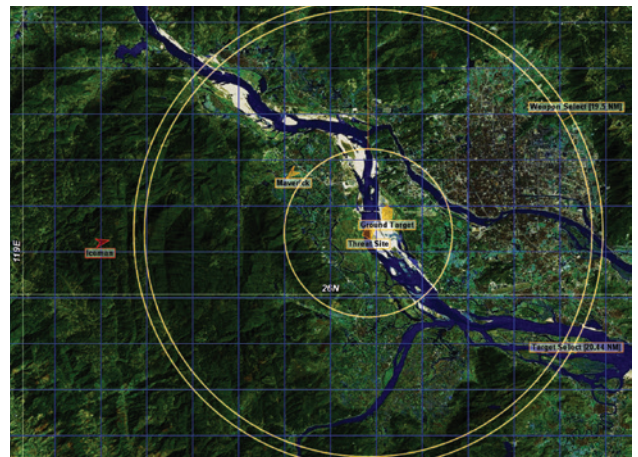
SIMBUILDER™
WEAPON SIMULATION
SOFTWARE



SIMBUILDER™

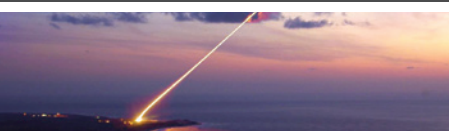
FAAC's SimBuilder software suite provides data-driven weapon system and countermeasure simulations for Live-Virtual-Constructive training environments: Live Air Combat Training Systems, Virtual Flight Simulators and Synthetic Battlespace. SimBuilder provides generic simulation modules for weapon subsystems included in air-to-air, surface-to-air, surface-to-surface and air-to-surface guided weapons. It also includes generic bomb, rocket, gun, chaff, flare, and jammer modules.

The unclassified data driven modules are used in combination to formulate unclassified versions of known weapons. The design provides the User with the flexibility to modify weapon parameters with their own intelligence/source information to produce simulations that can meet their performance expectations and training needs. Given high-fidelity information SimBuilder can produce high-fidelity simulation results.



SimBuilder™ Features:

- Users can create their own weapon systems or modify existing ones for training or testing
- SimBuilder™ simulations are compact and high-speed, suitable for in real-time systems and resource constrained computing environments
- All simulation libraries are unclassified
- Internal weapon simulation target pairings can be performed based on available aircraft or ground sensor data
- Effects of countermeasures on weapon performance can be added by the User
- Scoring algorithms are provided for all weapon types for a variety of warheads
- Reentrant simulations (up to a selective number of simultaneous weapons)
- Curved Earth effects model is provided for all weapon simulations
- Data entry of parameters in both English and Metric units
- Lock functionality to prevent unauthorized or inadvertent changes to the weapon database
- Aircraft trajectory files can be used as input to analyze specific engagements
- Users can test the performance and interface to the weapon simulation through the GUI
- Both single trajectories and Launch Zones (Launch Acceptability Regions and Air-to-Ground Envelopes) can be generated in the GUI for comparison and analysis
- Outputs of missile trajectory and engineering data are available in the GUI for analysis
- All data can be plotted



Smart Options for the Most Effective Training

Build Your Own Simulation

- SimBuilder can provide unclassified simulations based on commercially available weapon system information that can meet most training needs
- For greater fidelity the SimBuilder suite of software is designed to work with Graphical User Interface that allows for modification of all weapon parameters
- Using the GUI, weapon simulation performance can be enhanced by the Customer to match the customer's own data
- The GUI allows the customer to create new weapons for experimentation or to add to their existing baseline

Real Modeling of Weapon Performance

- SimBuilder uses FAAC's core simulation engine to produce weapon flyouts in real-time
- FAAC's core simulation engine is a 5-Degree of Freedom approach that is optimal for environments requiring multiple real-time simulations (typically 100+ simultaneous simulation flyouts at a training facility)
- SimBuilder uses the same core simulation engine concepts and designs that are used to develop high-fidelity validated simulations used on US training devices

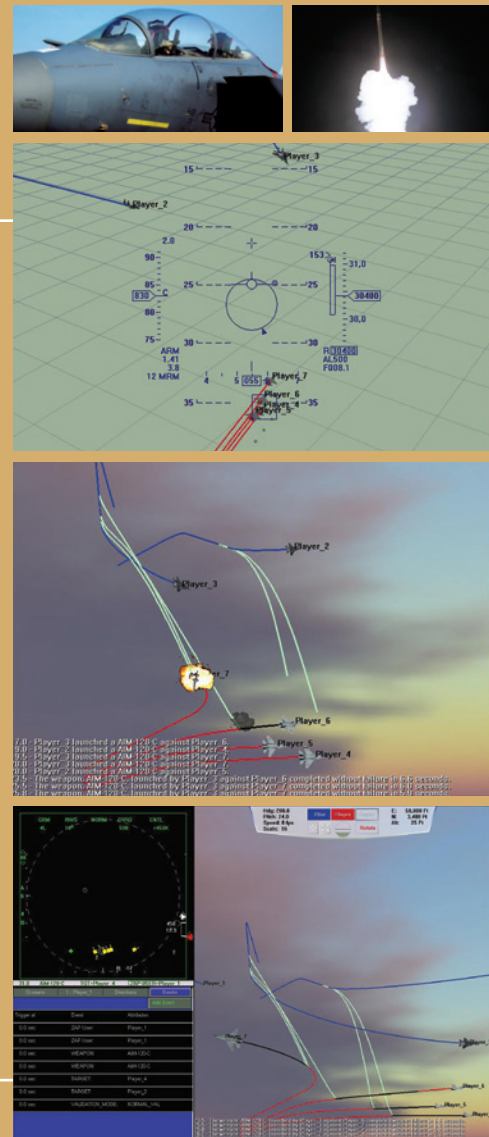
Enhanced Testing and Analysis

FAAC Air Combat Environment for Training & Testing (FACETT)

- Fully integrates the SimBuilder libraries into a 3-D battlespace
- Complete 6-DOF aircraft flight model can be joystick controlled and can launch weapons
- Can replay recorded mission TSPI data to review weapon launches and analyze outcomes
- Can re-run SimBuilder GUI test cases for a better visual understanding of trajectory behavior
- Engagements can be recorded and replayed
- Multiple instances of MACE can be networked together in real-time

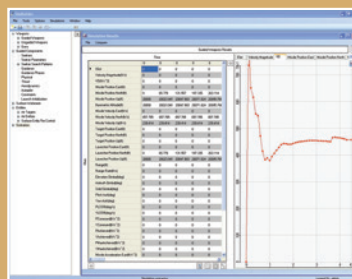
SimBuilder Components

- Graphical User Interface – Modify and Test Weapon Simulations
- Modular Air Combat Environment – Test and Replay Scenarios in 3-D environment
- SimBuilder Binary Datafile – Contains all weapon parameters, exported by the GUI to be loaded into the real-time library
- SimBuilder Real-Time Library – Integrated into the host application, loads the datafile and executes all simulations



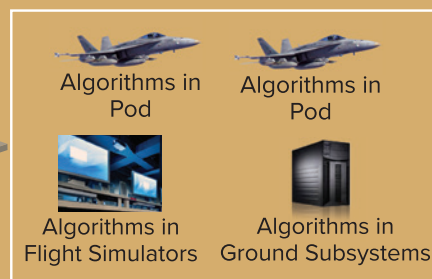
Modular Air Combat Environment (MACE)

SimBuilder™ Workflow:



Off-Line Processing
[Modify Simulation Parameters in GUI]

Export Data File
with Simulation
Parameters



Real Time Processing
[Run Weapon Simulations]

Available Weapon Models

Guided Air to Surface Weapons

| | | |
|--------|---------|---------|
| GBU-10 | GBU-38 | AGM-65D |
| GBU-12 | KAB-500 | AGM-65G |
| GBU-16 | AGM-84G | AGM-84L |
| GBU-22 | AGM-88D | KH-31 |
| GBU-24 | KH-29 | KH-59 |
| GBU-31 | | |

Aircraft Guns

| | |
|----------|-----------------|
| M61A1 | DEfA 554 (Giat) |
| GSH-30-1 | Aden 30mm |
| M39A2 | |

Unguided Air to Surface Weapons

| | | |
|------------------|-------------|------------|
| BDU-33B | EU2FR Slick | MK-20 |
| BDU-33D | MK-82 GP | MK-106 |
| EU2FR Retarded | MK-83 GP | MK-117 |
| EU2FR Unretarded | MK-84 GP | CRV-7 |
| OFAB 100-120 | BAP-100 | Multi-Dart |
| Hydra 70 Rocket | S-8 KOM | |

Guided Surface to Surface Missiles

| | |
|---------|---------|
| RGM-84G | RGM-84L |
| UGM-84G | UGM-84L |

Surface Guns

CIWS

Guided Air to Air Missiles

| | | |
|----------|-----------|-----------|
| AA-6D | PL-2 | Rapier |
| AA-7C | PL-3 | SKY Flash |
| AA-8C | PL-4 | AIM-9P4 |
| AA-9A | PL-5 | AIM-9M |
| AA-10A | PL-7 | AIM-7F |
| AA-10B | PL-8 | AIM-7M |
| AA-10C | PL-9 | AIM-7H |
| AA-10D | PL-11 | AIM-7P |
| AA-11 | Magic II | AIM-120A |
| AA-12 | MICA IR | AIM-120C |
| AIM-9X | MICA RF | AIM-132 |
| AIM-120B | AIM-120C7 | AIM-9L |
| AIM-9L | Meteor | PL-12 |

Guided Surface to Air Missiles

| | | |
|---------|-----------|--------|
| SA-2B | SA-10C | SA-15 |
| SM-1 | SM-2 | HQ-9 |
| SA-N-12 | SA-N-20 | SA-11 |
| SA-8B | SA-6 | SA-19 |
| I-HAWK | Chaparral | SA-20A |
| SA-20B | SA-21 | SA-N-7 |
| SA-N-8 | | |

*All SimBuilder models listed are based on commercially available unclassified information

MILITARY
SIMULATION TRAINING



FAAC.COM

1229 OAK VALLEY DRIVE • ANN ARBOR, MICHIGAN • 48108 • 877-322-2387

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