



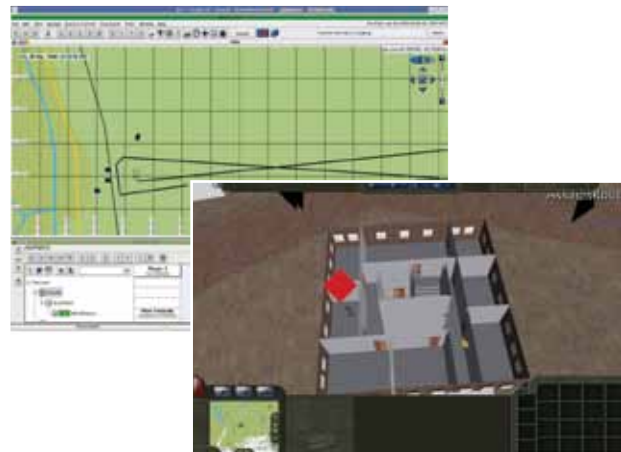
One Semi-Automated Forces (OneSAF®)

Powerful constructive simulation tools for an increasingly complex, dangerous world

OneSAF

Supporting Warfighters and Current Operational Theaters

Whether you are a combat unit on foreign ground, or border security in your own country, you know the world is becoming an increasingly dangerous place. Mission execution and survival depend on having the right tools, training, and talent in the right place, at the right time. This requires a solution and tools that go beyond old architectures, standards, and inflexible approaches. Today that solution is OneSAF.



OneSAF is the U.S. Army's open source, common constructive simulation platform that is built to meet the challenges of today and tomorrow for the Army, joint, and non-military communities. SAIC developed OneSAF as the first truly, composable full-spectrum system for managing the entire constructive simulation life cycle, from scenario development through after-action review. OneSAF is a powerful simulation toolkit designed to shorten development cycles, reduce development cost, and accelerate the delivery of training to warfighters. With OneSAF tools, users can compose new entities, units, groups, behaviors, and scenarios with little to no programming.

Providing the Foundation and Architecture for Complex Constructive Simulation

OneSAF can be effectively used in multiple domains, training situations, and experiments. Whether it's evaluating advanced soldier equipment by simulating a squad of dismounted infantry on patrol in Afghanistan; training a command and staff team by simulating their respective forces and units; or representing complex actors, features, and environments in a domestic setting open to potential attack, OneSAF provides:

- The constructive simulation framework for developing and advancing the tools needed by users anywhere in the field
- The simulation environment and tools required for complex training, and assessing individual actors in complex situations
- The capability that gives front-line troops and decision makers the experience and expertise critical to successfully meet challenges in the real world

OneSAF is the user-focused constructive simulation architecture that addresses your most complex entity-level simulation challenges – whether for warfighter training, requirements definition, concept exploration, or systems analysis.

Improvements and expansion of capabilities in OneSAF directly support training and analysis in current operational theaters, and respond to warfighter issues. Among OneSAF's new capabilities are advances in obstacle avoidance, incorporation of dynamic terrain effects, an enhanced communications framework, and various new models including combustion.

Users can replicate the real world that warfighters face with higher fidelity within OneSAF's larger, more complex terrain databases and urban areas. OneSAF also enables users to interoperate with detailed, high level simulators such as the Common Driver Trainer (CDT) Mine Resistant Ambush Protected (MRAP) vehicle driver trainer. Greater realism in simulated training through OneSAF can deliver stronger, enduring learning and results in exercises, training events, or experiments. These capabilities and others directly support the needs of today's warfighters and can ultimately save lives.

Improving Improvised Explosive Devices (IED) Training

OneSAF can improve the training of users in dealing with IEDs. Through OneSAF, soldiers and commanders react and interact with systems that can detect and defeat IEDs. And users can include behavioral support for military working dogs and explosive ordnance disposal units in IED situations.

Expanding Support for Complex Exercises

OneSAF supports complex events and exercises through the composable, flexible interoperations manager that supports Distributed Interactive Simulation (DIS) and High-Level Architecture (HLA). This enables the incorporation of many different applications in a complex environment, providing the user with best-in-class technology solutions.

Engaging Users with 3D Gaming Visualization in the Simulated Battlespace

SAIC played a key role incorporating the Ares tool into OneSAF. Ares is an innovative game-like, 3-D visualization user interface and control tool for the entire OneSAF simulated battlespace. OneSAF and Ares give users the ability to view and manage the execution of all units within their control, enhancing user involvement and interaction.

Conducting Large-Scale Exercises with Detail at the Commander Level

SAIC has extended OneSAF to include integration with the Joint Forces Command's Joint Multi Resolution Model (JMRM) federation object model (FOM) and expanded the level of detail on results, training areas, and models in theater level simulations. The innovative integration of OneSAF with Joint Theater Level Simulation (JTLS) provides the capability to conduct detailed, realistic training and analysis within high interest areas of large theater operations with extended boundaries. Integrating OneSAF expands the number of federates available to end users within the JMRM FOM, and provides the flexibility and composability of OneSAF for examining and representing single actors to higher degrees of realism.

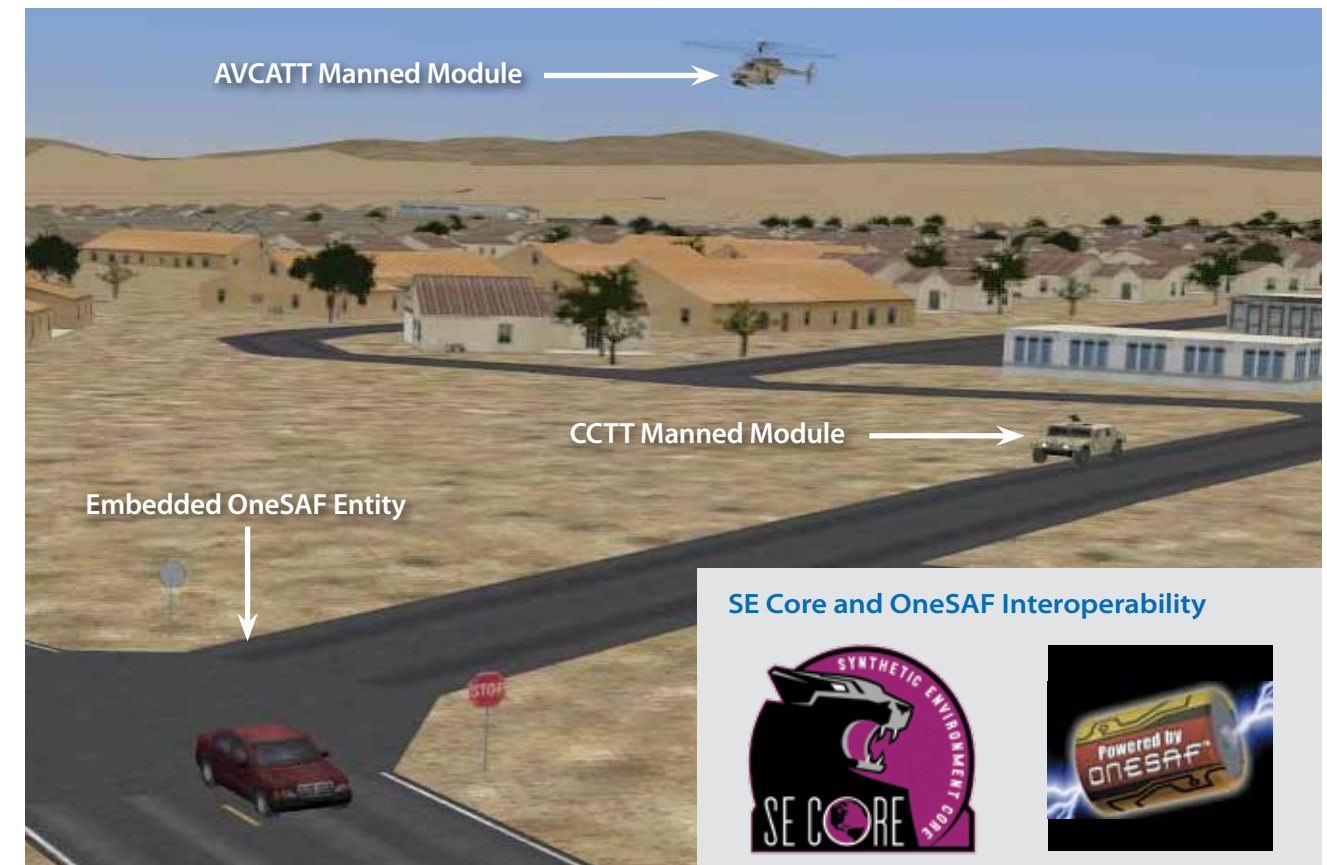
With the OneSAF-JTLS integration, users can also make ad hoc changes at aggregate and entity-based units to accomplish training objectives. And users can see the effects of the individual in selected areas, the impact on the overall operational theater, and manage the computer-driven simulation in a flexible way that mirrors real life events.

User-Friendly, Sophisticated Simulation Tools to Model the Real World that Warfighters Face

Integrating OneSAF with Synthetic Environment Core (SE Core)

Features and Benefits for Users and Trainers

- **Represents the real world environment in which soldiers fight.** OneSAF provides the Contemporary Operating Environment (COE) and theaters of operation including complex sides, weather, doctrines and tactics, and operational system capabilities.
- **Provides the required components to seamlessly build and manage exercises, training events, scenarios, and situations.** OneSAF and Ares deliver tools that streamline: scenario generation, control of multiple workstations during active exercises, use of integrated, comprehensive 2D and 3D user interfaces, and data collection and analysis.
- **Fully adapts to units and individual actors.** Users can adapt the OneSAF system for many purposes using flexible, composable actors and environments, based on modern, open architecture standards including Java™, JavaBeans™, XML, and UML.
- **Supports the use and integration of other tools and models.** OneSAF provides trainers, users and scientists with the capability to interact and interoperate with a wide variety of external systems through a live (C4I) interface and various simulation architectures (DIS, HLA with multiple FOM support).



SAIC integrated SE Core's virtual simulation capabilities into the OneSAF baseline to enhance the realism and application of the OneSAF system for all users. The integration of SE Core and OneSAF provides a common architecture framework for shared applications and services across both the virtual and constructive domains. This integration overcomes the challenge of combining human reactions and intervention in a computer-based environment, and demonstrates how users can fully interoperate using OneSAF.

Creating Interoperability Between Close Combat Tactical Trainer (CCTT) and the Aviation Combined Arms Tactical Trainer (AVCATT)

SE Core provides the common virtual components to support new functionality, composability and flexibility between the two major U.S. Army fielded virtual training systems: CCTT and AVCATT. In CCTT and AVCATT, users experience improved interoperability and the ability to fully utilize the OneSAF dynamic capabilities in this first roll-out of a OneSAF solution.

Powering Cyber Modeling and Simulation (M&S) with OneSAF

Continuing OneSAF Innovation



With today's threats today expanding from physical confrontations into technological areas, SAIC is pursuing advanced M&S solutions to replicate extremely complex cyberspace and electronic warfare (EW) environments.

SAIC is extending OneSAF to prepare users to face the real-world effects that occur with the loss or degradation of computer and communications networks in a cyber attack. Today, through integration of external products, OneSAF users can portray computer networks with high-fidelity simulation—from the emulation of network devices, protocols, users and attackers, to the physics of indoor and outdoor wireless network transmission and signal propagation in urban areas. OneSAF enables users to see the effects of threats and actions based on simulated, complex physical and behavioral environments. The reactions of actors in the real world can also be represented in the realistic organizational and physical entities provided by the OneSAF system.



Images to the left: created using high-fidelity radio frequency propagation simulation within the simulated geospecific complex urban environment of Los Angeles, correlated and overlaid on Google Earth™.

Users can employ OneSAF's capability in conjunction with other threat assessment tools, training regimes, and planning systems to develop a comprehensive view into the exotic, complex, and hard to visualize world of the cyber domain to help understand, predict, and solve the cyber threats and problems before they occur.

SAIC understands that user needs are constantly changing in response to rapidly evolving challenges in the world and theater of operations. So SAIC is continuously working to expand OneSAF's capabilities with new functionality including joint capabilities to support multi-domain operations—land, air and sea—as well as international capabilities to support the increasingly complex operational environment facing U.S. and allied forces.

Today, OneSAF is essential to representing complex multi-domain operations, in preventing fratricide, and bringing combined arms to bear on the objective. OneSAF's enhanced realism becomes increasingly important in arenas where the traditional conflict between large armed forces is superseded by asymmetrical threats.

The use of OneSAF is extending beyond the Army and becoming a critical component of the U.S. Marine Corps combined arms training. And OneSAF tools can also be expanded beyond current forces to encompass future forces that do not yet exist in the real world.

SAIC has a long term program of innovation and demonstrated commitment to developing advanced capabilities for OneSAF and its associated programs. The goal—to prepare the solutions today that will be needed by warfighters tomorrow to successfully fight new threats, not the last war.

20 Year Commitment to Composable, Reusable Systems

SAIC is committed to building composable systems. OneSAF, SE Core and new simulation systems like cyberspace M&S are all interoperable, reusable, adaptable, and extensible. This reduces lifecycle, maintenance and development costs, saves time, and accelerates new technologies' integration for warfighters, the joint, and non-military communities. OneSAF, like all SAIC systems, is simple to use and reflects the complexity of the real world today and tomorrow.

40 Years in Live, Virtual, and Constructive M&S and Convergence

With 40 years behind us, SAIC knows complex M&S and training inside out and is ready with the right experience, expertise and technology to build and expand next generation simulation systems like OneSAF, and gaming technology to prepare warfighters to respond to the threats of tomorrow, today.

SAIC is Expanding OneSAF Capabilities

- Enhanced Cultural Modeling
- Dynamic Terrain Capabilities
- Improved Communications Infrastructure
- Integration with External Complex Models
- New Complex Models Including Combustion
- Virtual Simulation Framework (SE Core)

OneSAF capabilities can be expanded to encompass future forces as well as current forces.

For More Information

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