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Big ideas.  
Real training  
solutions.

# JOINT SEMI-AUTOMATED FORCES SIMULATION

## KEY FACTS



Simulates  
1,000s of  
platforms  
with realistic,  
authoritative  
training data to stimulate  
real-world systems



Scales to  
250,000 entities  
per training event



Supports LVC  
training for  
all branches  
and Coalition  
forces

## AT A GLANCE

To ensure readiness in today's operational landscape, warfighters must train using the same scenarios, obstacles, and teamwork that they'll use on the field of battle. Basic, stand-alone classroom training is not enough, but training at scale has traditionally been expensive and involved extensive manual tuning. Fortunately, today's technologies can help service members learn and reinforce their skills in real-world environments created through advanced simulation, reducing costs while enhancing the overall value of training.

The Joint Semi-Automated Forces (JSAF) tool is an entity-level simulation that generates military forces, opposition forces, and civilian platforms to operate within an LVC training environment. This scalable tool serves as the core simulation for exercises of all sizes—creating and uniting thousands of humans, munitions, unique platforms, and more for large Service, Joint, and Coalition events. JSAF's models use authoritative data sources for both parametric and kinematic data, ensuring the realistic movement and characteristics of vehicles, entities, and their respective systems. It also uses sensor models to produce realistic C4I data to stimulate tactical displays as part of training events.

## JSAF SIMULATION WARFARE AREAS:

SURFACE WARFARE (SUW)

ELECTRONIC WARFARE (EW)

AIR WARFARE

INTEGRATED AIR AND MISSILE DEFENSE (IAMD)

GROUND WARFARE

COMMAND, CONTROL, COMMUNICATIONS, COMPUTERS,  
COMBAT SYSTEMS &

BALLISTIC MISSILE DEFENSE (BMD)

INTELLIGENCE (C5I)

# PRODUCT OVERVIEW

Developed for and maintained as a component of the Navy Training Baseline (NTB) for use in all training environments including on the Navy Continuous Training Environment (NCTE) program, JSAF has become the standard constructive simulation for Navy Fleet training. This powerful simulation tool is not limited to U.S. Navy applications. It is applied and adapted to support training events across branches and around the world, simulating all warfare areas. And it comes backed by more than 20 years of experience partnering with the Navy and DoD.

## HIGHLIGHTS

- Tactical, operational, Link16 user controls and views
- End to end Ballistic Missile Defense, including TBM threats, detection/tracking/engagements via AEGIS, and land-based weapon/radar systems
- Contact detection, tracking, and engagements using sensor and weapons models
- Satellite generation
- Global, curved-earth terrain playbox
- Provides subsurface Order-of-Battle and appropriate weapon capabilities in training environment
- Bathymetric details of currents, temperatures, thermal layers, eddies as well as bottom contour, ship wrecks, and sea life — integral for realistic ASW operations
- Environmental Data Ingestion

## PHYSICS

- Physics-based sensor models, entity movements, and reactions
- Magnetics, inter-visibility, obscuration / line of site obscuration
- Kinematics-enabled simulation allows entities in training to move as they do in real life

## SCALE

- Scales to the point of need, adding or removing federates to accommodate large or small environments
- Vertical Scaling: Processing and memory, CPU, GPU, RAM
- Scale with additional physical, virtual or containers

## BEHAVIOR

- Realistic, automated behaviors derived from doctrine and TACMEMOs and using authoritative data by SMEs
- Behavior models backed by Artificial intelligence (Ai), Artificial General intelligence (AGi), and Machine Learning (ML)
- Supports realistic training aligned to strategic goals as defined by operational leaders
- Reduces manpower while increasing tactical fidelity

## AUTHORITATIVE

- Accreditation to operate on DoD networks
- Verified and validated (V&V)
- Reference implementation of SISO and NCTE Interoperability Standards
- Cybersecurity Authority to Operate (ATO)

### CONTACT:

**Brian Teer**

Vice President Operations

brian.teer@hii-td.com

757.793.4435

### About Huntington Ingalls Industries, Technical Solutions:

Building on a legacy of more than a century of naval shipbuilding, Huntington Ingalls Industries' Technical Solutions division provides mission-critical national security solutions to a wide variety of government and commercial customers worldwide. Comprising more than 7,000 professionals worldwide, our unique national security services portfolio includes unmanned systems, nuclear and environmental services, intelligence, surveillance and reconnaissance (ISR), cyber and electronic warfare, live, virtual and constructive (LVC) training solutions, and fleet sustainment and logistics. For more information, visit [tsd.huntingtoningalls.com](http://tsd.huntingtoningalls.com).