

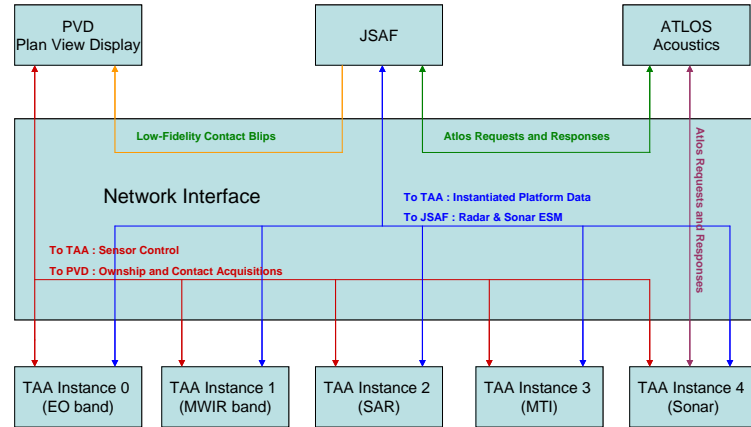
The Target Acquisition Agent (TAA) combines JRM's high-fidelity signature physics libraries and statistical image metrics, encapsulated in an HLA-ready Federate for the purpose of supplying high-fidelity target acquisition predictions in a Command-And-Control simulation involving multiple sensor assets and entities playing within a user-defined geospecific scenario.

In normal usage, the TAA is run simultaneously with other federates, each controlling, calculating, and/or displaying a different aspect of the scenario simulation. *For instance* :

- **JSAF**: Defines and coordinates sensor and target platform trajectories upon the geospecific playing field, and displays entity information (mission, location, velocity, etc.) as well as low-fidelity sensor contacts or bearings, on a 2D top-down map of the playing field.
- **ATLOS**: Serves acoustic propagation loss factors in response to specific path geometry and frequency specification requests.
- **PVD**: Controls high-fidelity sensor asset orientation, FOV, and enabled/disabled state, and displays sensor acquisitions (detected, classified, recognized, or identified entities), on a 2D top-down map of the playing field.
- **TAA**: Computes high-fidelity signatures for each sensor-target combination and processes them into acquisition states, then publishes this info back to the PVD and JSAF.

JRM TAA : Relation to Other Federates

For a given ownership, multiple TAAs may be run, each serving a different sensor asset. Each is assigned a distinct "Instance ID" so that the PVD can control them and publish their contacts simultaneously.



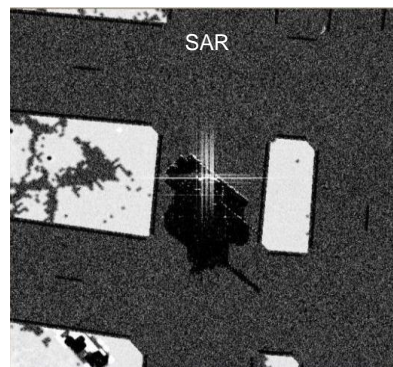
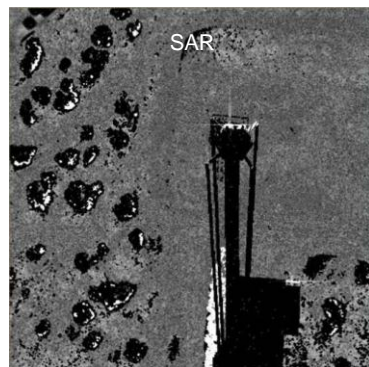
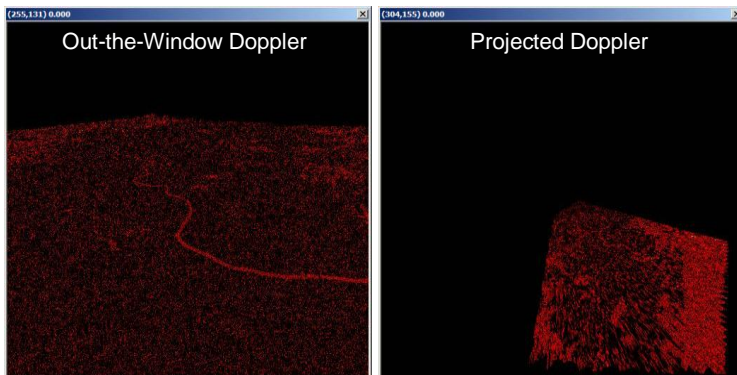
Complex Scenes

Easily load a complex 3D terrain database, completely specify any number of arbitrary sensors, atmospheric and weather conditions, and place 3D vehicle or human models in the scene, then display in real-time.

High Fidelity Simulation

The TAA provides high-fidelity simulation of arbitrary imaging sensors in the UV through far IR (0.20-25.0 um) spectrum with highly-optimized, physics-based models for:

- Ephemeris and Natural and man-made Irradiances
- Full transient, angle-dependent thermal modeling based on material properties & user-defined boundary conditions
- Spectral, specular BRDF reflection
- Signature synthesis and Modtran-based atmospheric propagation modeling
- Physics-based sensor modeling, including all major optical, detector, and electronics effects such as diffraction and design blur, Motion blur, Gaussian, Poisson, 1/f noise, NVG Haloing, Scanning effects, Gain, level, AGC
- Active RF transducer operation, including WAS, SAR, ISAR, MTI.
- Speed & angle-dependent entity SPF levels based on ATAS Database.
- Active & Passive sonobuoys & dipping sonar.



HLA-Based Federate for High Fidelity, High Dynamic Range Target Acquisition Assessment

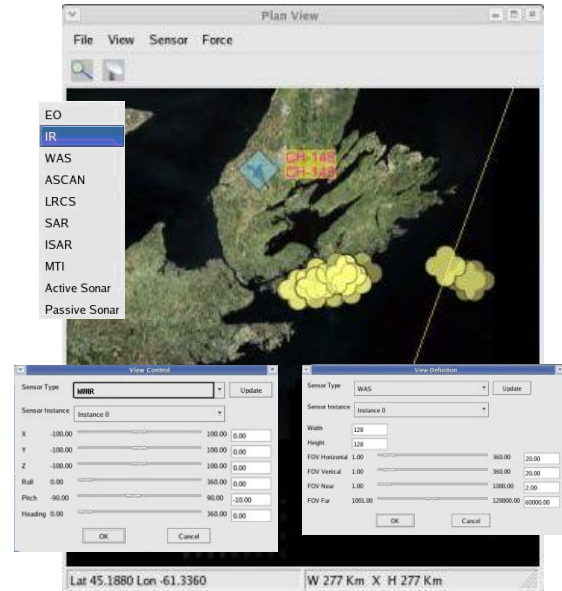
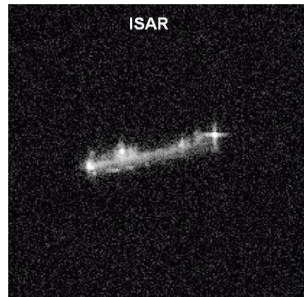
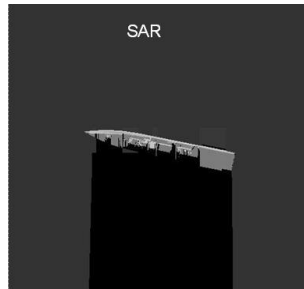
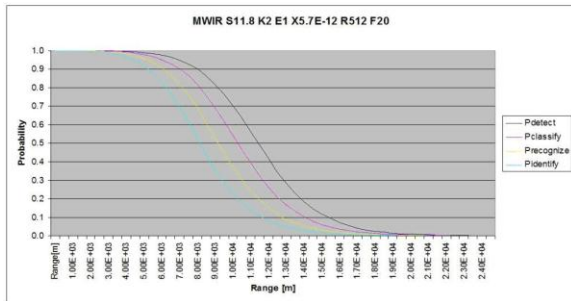
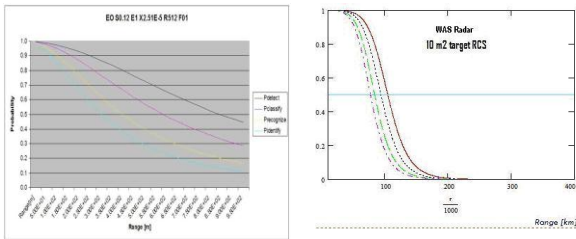
The Target Acquisition Agent (TAA) combines high-fidelity signature physics libraries and statistical image metrics, encapsulated in an HLA-ready Federate for the purpose of supplying high-fidelity target acquisition predictions in a Command-And-Control simulation involving multiple sensor assets and entities.

Complex Missions

Use JSAF or other MALO FOM - compliant mission control federate to place forces, define tank & troop missions, aircraft platform flight patterns, and submarine threats. Drop active & passive sonobuoys or use onboard sonar dippers. Then define the sensor assets for each ownship platform, and the corresponding TAA federate will predict appropriate target & background signature imagery on-the-fly.

Image-based Acquisition Metrics

For EO, NIR, IR, and RF sensors, well-known state-of-the-art image-based acquisition metrics are employed to process the high-fidelity point-of-view-dependent sensor snapshots into corresponding detection, classification, recognition, and identification states for each sensor-target combination.



The Plan View Display (PVD) federate allows on-the-fly control of each sensor asset's mode, positional platform offset, field-of-view, 3D orientation, and resolution. It then receives and displays TAA contacts as they occur, with acquisition-level-dependent detail.



For More Information Contact:

Karl Leodler
karl.leodler@jrmtech.com
 540-498-7770