

Title: Demonstrating an HLA Capability for JMASS Using SPEEDES

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The Joint Modeling And Simulation System (JMASS) is a Tri-Service simulation environment that supports engineering and engagement-level. As JMASS is expanded to support other Tri-Service domains, the current set of modeling services must be expanded for High Performance Computing (HPC) applications by adding support for advanced time-management algorithms, parallel and distributed topologies, and high speed communications. By providing support for these services, JMASS can better address modeling domains requiring parallel computationally intense calculations such clutter, vulnerability and lethality calculations, and underwater-based scenarios.

A risk reduction effort implementing some HPC services for JMASS using the SPEEDES (Synchronous Parallel Environment for Emulation and Discrete Event Simulation) Simulation Framework has recently concluded. As an artifact of the JMASS-SPEEDES integration, not only can HPC functionality be brought to the JMASS program through SPEEDES, but an additional HLA-based capability can be demonstrated that further addresses interoperability issues. The JMASS-SPEEDES integration provided a means of adding HLA capability to preexisting JMASS scenarios. An implementation of the standard JMASS port communication mechanism that allows players to communicate. This implementation uses SPEEDES and its HLA Gateway to allow for communication across the HLA NG 1.3 RTI. A simple example is presented in which four players, distributed as two federates across two computers, can communicate by sending HLA compliant interactions.

In addition to the JMASS program, SPEEDES is also being used to provide a simulation engine capability for a number of programs including the Joint Simulation System (JSIMS), the Extended Air Defense Test Bed (EADTB), the Defense Modeling and Simulation Office (DMSO) Knowledge Framework (KF) Test Bed, and Joint National Test Facility's Wargame 2000.