
CALL FOR PAPERS AND PRESENTATIONS



2003 Spring Simulation Interoperability Workshop

Sponsored by the Simulation Interoperability Standards Organization

The Hyatt Orlando Hotel, Kissimmee, FL

30 March - 4 April 2003

You are invited to participate in the 2003 Spring Simulation Interoperability Workshop (SIW). The SIW is a semi-annual event encompassing a broad range of model and simulation issues, applications, and communities, with the overall goal of identifying and supporting the development of products to facilitate simulation interoperability standards and reuse. The SIW includes a significantly increased number of working sessions addressing interoperability and reuse requirements and issues (a total of 15 current and proposed working sessions are listed below); tutorials on state-of-the-art methodologies, tools, and techniques; and exhibits presenting the latest technological advances.

This year's Spring SIW is co-located with the Advanced Simulation Technologies Conference (ASTC 2003), sponsored by The Society for Modeling and Simulation International (SCS). We will conduct a shared Monday evening reception and refreshment breaks, as well as exhibit space. Anyone registered for either event will be free to attend any scheduled sessions.

Additional Workshop information is posted at the SISO web site (<http://www.sisostds.org>) and will be updated as further details become available. Information on ASTC 2003 will be posted at <http://www.scs.org>.

ABSTRACT SUBMISSION INFORMATION. The Workshop invites papers and presentations relating to distributed simulation standards, applications, and technologies, interoperability issues, and other topics identified in the Individual Forum CFP below and elaborated on in the SIW CFP web site. Abstracts are reviewed and selected by Planning and Review Panels (PRPs) and Leaders of the individual Forums and Groups. Papers are considered for presentation in one or more Forums and Groups or for publication only. Abstract and paper formats are described in detail in the "Author's Guide" posted on the SISO web site.

Individuals who wish to participate should complete and submit an abstract, using the submission form provided on the SISO web site. If you have any problems or are unable to submit to the web site, please contact Pat Burgess <pburgess@ist.ucf.edu>, phone: 407-882-1372, fax: 407-658-5059.

2003 SPRING SIW FOCUS: Modeling and Simulation in Support of Future Combat Systems

Plenary session speakers will include members of military and other organizations who are leading efforts to define operational concepts, organizations, and equipment requirements for Future Combat Systems and their equivalents in various military branches -- transformational approaches to military operations based on ubiquitous information connectivity, advanced sensors, and powerful computational capabilities that provide entire forces, down to the lowest levels, near-perfect ability to see through the fog of war, act swiftly and confidently, and win decisively. FCS and related developments presents unique challenges, as well as great opportunities, to the modeling and simulation community. The numerous sensors and unmanned vehicles need to be modeled in a correct and consistent manner. Advanced, highly automated, command and control systems need to be modeled in the early development stages, and then directly integrated into federations of simulations for operational testing and for exercises once the new systems are fielded. New C4ISR systems also need to embed training simulations into their on-board computers, and must be able to use simulations as decision aids and rehearsal environments. Many of the technical challenges addressed by distributed simulation over the past decade are resurfacing as network connectivity, capacity and management problems for these new systems. Join us as SISO explores these issues, and see what SISO has to offer in meeting these challenges.

KEY DATES.

In order to meet the Workshop schedule, the following dates are essential:

2003 Spring SIW Schedule

Abstracts due	25 Nov 2002
Papers due in electronic form	22 Jan 2003
Final revisions to papers due	27 Feb 2003
2003 Spring SIW opens	30 Mar 2003

INDIVIDUAL FORUM AND GROUP CALLS FOR PAPERS

M&S PROGRAM BRIEFINGS

To facilitate communication among SISO members and sponsors, we also invite briefings regarding M&S-related programs under development or in procurement, such as the USAF Distributed Mission Training (DMT), Distributed Mission Operations (DMO), and Joint Synthetic Battlespace (JSB) programs, the US Army's Joint Virtual Battlespace (JVB) program, and the US Navy's Naval Aviation Simulation Master Plan (NASMP).

SISO NEW INITIATIVE AREA: MEDICAL SIMULATION

Medical simulation systems have unique technical, operational, and regulatory requirements, and serve a broad array of users and customers. Medical simulation increasingly needs interoperability standards that build upon already extensive medical interface standards for application in areas such as

- operational systems for robot assisted surgery
- command & control systems for medical situational awareness
- medical models of varying resolutions for research and development
- training systems for instruction and rehearsal
- imaging systems for treatment planning and assessment
- logistic planning systems for security and disaster response

SISO will hold panel sessions and other discussions regarding the establishment of a continuing track in this important area.

INDIVIDUAL FORUM AND GROUP CALLS FOR PAPERS

Generally, papers and presentations are considered in three main categories:

- User Community Forums, which examine and promote topics of interest related to the use and adequacy of available simulation capabilities and new capabilities needed by M&S users.
- Specialty Area Forums, which examine and promote current and emerging simulation processes and technology.
- Study Groups, Product Development Groups, and Special Sessions, which deal with topics that merit timely solicitation of feedback from the SISO community.

Short synopses of the individual Forum and Group Calls for Papers are provided below. Additional details are provided in the web version of the CFP located at <http://www.sisostds.org/siw/03Spring/index.htm>.

We have made some changes in the Workshop structure and the names of some Forums. These changes reflect a streamlining effort and a clarification of SISO's areas of interest in simulation interoperability. SISO's "traditional" areas of emphasis, such as DIS and HLA, are vitally important to the success of simulation interoperability. However, these approaches address only part of the interoperability problem -- they are "necessary but not sufficient." Therefore, we have changed some names and descriptions to amplify and clarify the breadth of SISO's interests.

USER COMMUNITY FORUMS

Analysis (ANL)

ANL focuses on interoperability issues and uses of distributed models and simulations by the analysis community, including issues of experiment design and data analysis, analysis issues in ADS and SBA, requirements definition. Special focus: use cases that include both success and failure.

Research, Development, and Engineering (RDE)

RDE addresses issues and applications of distributed M&S within the RDE domain, including requirements for backward compatibility between simulation agents and runtime infrastructures, integration of advanced distributed simulation with Advanced Distributed Learning (ADL) technologies, and RDE community requirements and experiences with applications using HLA or other distributed computing technologies and standards. Additional focus areas include integration of legacy simulations.

System Acquisition and Product Development (SAPD)

SAPD focuses on M&S as part of a transformed, integrated enterprise responsible for the entire system/product life cycle, as well as the interoperability of systems of systems. Subjects include policy and process approaches, establishment of business cases for M&S and solutions to intellectual property issues, and the value of standards, information sharing, reuse, collaboration, and work force perspectives. SAPD is particularly interested in papers on actual experiences from both industry and government in applying M&S to the above, approaches to key issues, and lessons learned.

Test and Evaluation (TE)

TE addresses uses of distributed simulation in test and evaluation (T&E), including the integration of live entities with virtual and constructive simulations; the integration of hardware-in-the-loop (HWIL), Integrated System Test Facilities (ISTFs), and other T&E facilities with distributed simulations; the use of simulation to test and evaluate C4ISR, Systems of Systems (SoS), Federations of Systems (FoS), and interoperability; and performance issues in using distributed simulation in T&E applications.

Training (TRAIN)

The TRAIN forum focuses on issues associated with using simulations to support the acquisition of knowledge, skills, behaviors, and attitudes through education, training, and performance support. We solicit papers addressing simulation-based learning in industry, academia, and government (including the DOD), particularly those identifying interoperability or standards shortfalls or requirements. Special interest topics: (1) simulation support of all aspects of Advanced Distributed Learning (ADL) and Distributed Mission Training (DMT) Programs: education, training, and performance support (e.g. embedded training, automated performance assessment, mission rehearsal, Course of Action analysis, etc.); (2) simulation support to training events associated with Small Scale Contingencies (SSCs), Military Operations in Urban Terrain (MOUT), Support and Stability Operations (SASO), and other related combat and non-combat activities and (3) Multi-Resolution Modeling as it applies to M&S.

SPECIALTY AREA FORUMS

Command, Control, Communications, Computers, and Intelligence (C4I)

C4I addresses standards to ensure interoperability when coupling simulation systems and C4I systems, standards to ensure composability when integrating simulation components and C4I components into a common framework, and standards to represent C4I systems and the underlying infrastructure within simulation applications. C4I is looking for papers dealing with architecture and data/object model alignment, common frameworks, applicability of C4I standards and open standards, and lessons learned from applying these standards. In particular, C4I is interested in the development of enhanced operational functionality based on M&S, and especially on increasing the efficiency and abilities of the Warfighter by introducing simulation capabilities within operational systems.

Communication, Frameworks, and Infrastructure (CFI)

CFI focuses on technologies that support interoperation and run-time execution of distributed simulations. Historical examples include the HLA Run-Time Infrastructure (RTI), DIS, ALSP, and SPEEDES. The Forum will also consider new and alternate infrastructure concepts, such as web-based technologies. Topics include performance data, implementation and design details, usage strategies, networking techniques, fault tolerance, security considerations, and middleware or other frameworks for constructing, utilizing, or extending simulation infrastructure. NOTE: The CFI forum replaces and incorporates the former RTI&C forum.

Distributed Simulation Development Process (PROC)

PROC focuses on developing a generalized system engineering process for constructing and executing distributed simulations (e.g., FEDEP for HLA federations). This includes "lessons learned" solutions from creating real-world, useful M&S applications, including problems of integration, scalability, reuse, robustness, and the effectiveness of HLA.

Exercise Management and Feedback (EMF)

EMF focuses on tools and standards for automating aspects of the distributed simulation lifecycle, from concept development, exercise planning, scenario development, initialization, monitoring, runtime control, and visualization through data collection, repositories and analysis, and after-action review.

Topics of special interest for this SIW include: (1) applications of new technologies and techniques to the distributed simulation lifecycle, (2) interoperability and data interchange mechanisms among tool standards, and (3) tools and standards for information representation in concert with browser-based repository search and retrieval.

Information Operations - Intelligence, Surveillance and Reconnaissance (IO-ISR)

IO-ISR seeks papers that deal with all aspects of Information Operations (IO), including computer network attack and defense, modeling of IO in exercise and training, and threats to the Internet and other communications infrastructures. IO-ISR seeks papers addressing Intelligence, Surveillance, and Reconnaissance (ISR) issues including representation of the different intelligence disciplines (e.g., SIGINT, IMINT, HUMINT, etc.) and the associated Tasking, Processing, Exploitation, and Dissemination (TPED) systems and processes associated with the delivery of intelligence products to the warfighter. In addition, we are interested in activities related to modeling IO-ISR, including Effects-Based Operations, Network Centric Warfare, Predictive Battlespace Awareness and crisis response.

Logistics and Enterprise Models (LOG)

LOG focuses on simulations and simulation challenges associated with modeling supply chains, logistics management process-

es, logistics policies and business practices, as well as the portrayal of logistics in military simulations at all levels. Topics of interest include innovative approaches to supporting network centric operations, rapid deployment forces, Operations Other Than War (OOTW), global commercial operations, and enterprise process simulations. The latter include but are not limited to executable models of work flow, manufacturing, distribution, transportation and customer, patient, crowd, or traffic flow.

Sensor Modeling and Simulation (SENS)

SENS is an interdisciplinary forum that bridges the environmental and mission/system-related areas, including simulation of sensor effects, issues pertaining to the stimulation and simulation of sensor systems, incorporation of sensor system simulations into other simulations, and environmental effects on sensor systems. Authors are encouraged to address SENS focus areas: accreditation discriminators for sensor simulation applications; sensor domain specific sources of noise, error, and bias; and sensor data fusion.

Simulated Natural Environment (SNE)

SNE addresses multi-domain use and reuse of digital representations and models of the natural environment, including land, oceanic, atmospheric, and space data. SNE also focuses on standards for, and application of, SNE data, effects and data models for M&S; interoperability issues and lessons learned in large-scale integrated simulations that include multiple real-time and non-real-time SNE representations; and issues and use cases relating to SEDRIS, environmental data classification systems, and coordinate transformation systems. Special focus areas for this SIW are terrain and 3D model processes and standards, source data sufficiency and exploitation, database reuse, product validation, verification, and quality assurance.

Verification, Validation & Accreditation (VV&A)

VV&A focuses on methodologies, procedures, and associated techniques used to establish credibility of models, simulations, and federations. VV&A goals emphasize quality (e.g., building in authoritative representations and behaviors) and risk management, and support development and evolution of VV&A guidance to enhance the federation lifecycle process. Current objectives include establishing clear and unambiguous scales to categorize V&V evidence (e.g., levels of V&V) and formalizing the conceptual model via the Conceptual Model Study Group. Special focus areas include levels of V&V, conceptual model validation, and substantive interoperability.

Vehicle/Weapon System Modeling (VWS)

VWS focuses on lessons learned in development of vehicle or weapon system simulations (including Computer Generated Forces (CGF) and Semi-Automated Forces (SAF) simulations) and Simulation Based Acquisition (SBA) of actual vehicle and weapon systems (DD 21, Joint Strike Fighter, Future Combat System, etc.).

PRODUCT DEVELOPMENT GROUPS

Product Development Groups (PDGs) are approved to generate a specific SISO Product (Standards, Guides, and Reference Products) after approval of a formal Product Nomination. Current Product Development Groups include

Real-time Platform Reference FOM (RPR FOM PDG)

Version 1.0 of this Reference Federation Object Model was the first SISO standard, capturing the functionality of IEEE 1278.1-1995. RPR FOM 2.0, currently under development, will add the functionality of IEEE 1278.1a-1998.

Environment Data Coding Specification (EDCS PDG)

EDCS is a component of the Synthetic Environment Data Representation Interchange Specification (SEDRIS) that provides a data dictionary and coding standard for environmental data used in simulations of terrain, atmosphere, ocean, and space.

Spatial Reference Model (SRM PDG)

SRM is another key component of SEDRIS, with a well-organized and documented framework that encompasses the primary spatial reference frames in use in the DoD today, a set of extremely accurate and efficient algorithms for coordinate conversions and transformations, and a standard portable implementation of those algorithms.

Link-16 Simulation Standard

Product Development Group (Link-16 PDG)

The Link-16 PDG is developing a SISO standard to define the methods to simulate a Link-16 Network within a Distributed Interactive Simulation (DIS) or High Level Architecture (HLA) framework. This standard is made up of two parts: one that describes the DIS standard and one that describes a Base Object Model (BOM) to extend the Federation Object Model (FOM) operating in an HLA framework.

PROPOSED PRODUCT DEVELOPMENT GROUPS

Several new Product Development Groups (PDGs) have been proposed and are planning meetings for the upcoming Workshop to discuss Product Nominations. These include

- Discrete-Event Systems Specification Product Development Group
- Base Object Model
- Dynamic Link Compatible RTI API

Subscribe to the SAC-COM and SAC-DISCUSS reflectors to keep up with the status of these groups. See <http://www.sisostds.org/SISOconf.htm>.

IEEE WORKING GROUPS

Federation Development and Execution Process (FEDEP WG)

The FEDEP defines a "best practices" guide for the tasks and activities necessary to build and execute HLA federations. The PROC Forum is sponsoring the activities of the FEDEP WG.

STUDY GROUPS

Study Groups are chartered by the SISO Executive Committee to meet, usually over two workshops, to address specific issues and report recommendations. These recommendations may include the formation of a new Product Development Group. Current Study Groups include

Navy Aviation Simulation Master Plan Study Group (NASMP SG)

The Naval Air Systems Command, in support of OPNAV N789, developed the Navy Aviation Simulation Master Plan (NASMP) to launch future Navy distributed mission training (DMT) programs as well as to improve current Navy DMT programs. NASMP is in the process of developing an Interoperability Standard that will provide requirements and a set of guidelines to be used by commercial vendors, organizations, and persons involved in the development of simulators, simulator infrastructure, and other enabling technologies used to inter-connect system components in the Navy distributed simulation training environment. The NASMP Team determined that the best way to attain feedback from commercial vendors was to form a SISO Study Group. The SISO NASMP SG is responsible for reviewing the NASMP requirements and determining if the requirements are feasible.

Tactical Data Link Modeling Study Group (TDL SG)

The TDL SG is creating a reference product for simulation of tactical data links within the current DIS framework, with an eye towards implementation in HLA. The SG arose from the multiple

incompatible methods for exchange of TADIL-J/Link-16 data and the lack of ability to simulate the JTIDS/Link-16 RF network. The study group will recommend methods for the exchange of TADIL-J/Link-16 data as well as methods to simulate the JTIDS/Link-16 RF network. The last task for the study group will be to recommend additional tactical datalinks for review.

C4ISR/Simulation Interoperability Technical Reference Model II Study Group (C4I TRM II SG)

The C4ISR/Sim TRM II SG is continuing the work started by the original C4ISR/Sim TRM Study Group and creating a technical model that can be used as a frame of reference for interoperability between C4ISR Systems and M&S Systems. By design, the TRM will facilitate analysis of requirements, architecture, design, implementation, and testing of heterogeneous systems. In addition, the TRM will support improved dialogue among users, developers, and technicians in the C4ISR community.

PROPOSED STUDY GROUPS

The following Study Groups have been proposed and are planning to hold organizational meetings at the 2003 Spring SIW:

Simulation Conceptual Modeling SG

This SG will conduct a preliminary investigation on the practice of simulation conceptual modeling and to establish recommendations for pursuit of the topic within the scope of SISO, if appropriate.

Simulation Reference Markup Language (SRML) SG

This SG will investigate the potential for standardizing a Simulation Reference Markup Language (SRML) and a universal simulator within the SISO community. SRML is an XML schema that adds simulation behavior to any XML document, and has been identified by the Base Object Model (BOM) group as enabling "encapsulated BOMs". Topics of interest to the SRML Study group include

- Terms, needs and goals for SRML.
- Characteristics, business case, and benefits for a standard simulation markup language.
- Level of interest in the SISO community for SRML, and issues related to timing.
- Relationship of SRML with HLA, BOMs, XMSF, MDA, and other emerging trends.
- Technical opportunities, challenges, areas for growth.
- A means for achieving wide standards support from organizations such as SISO, WWW, IEEE, and ECMA.
- Providing HLA connectivity and backward compatibility.

INTERNATIONAL PROGRAM BRIEFINGS. International and multi-national programs are invited to present brief reports on their current activities and plans.

TECHNICAL EXHIBIT INFORMATION. SISO is holding a combined technical exhibit in conjunction with The Society for Modeling and Simulation International (SCS). Standard technical/product displays will include 8x10 booths. For further information, contact Steve Branch <sbranch@scs.org>
Society for Modeling and Simulation International (SCS)
858-277-3888

SPONSORSHIP OPPORTUNITIES: SISO Sponsorship provides a means for organizations to gain representation and benefits in partnership with the activities and operation of SISO. Sponsors enjoy the following privileges:

- Printing of Sponsor's corporate logos on SISO flyers and printed material

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- Display of logos and links from the SISO web site to the Sponsor's web site
- 10% Discount on all SISO fees (workshop registration fees, booth rental, etc.)
- Invitation to Speaker's lunch at SIWs (with the EXCOM and VIPs). Organizations may also help sponsor the "All-SISO Social" held on the opening day of the SIW. This event enables SIW attendees to meet and talk with the other attendees in a casual atmosphere of food and drink.

For information on becoming a SISO Sponsor or sponsorship of the All-SISO Social, contact

Harry Thompson <hthompson@sisostds.org>
 Phone: 912-538-8558 fax: 912-538-1403

QUARTERLY WEBLETTER. Simulation Technology Magazine, SISO's quarterly electronic magazine, is available on-line at

<http://www.sisostds.org/webletter> or
<http://www.simulationtechnology.org>.

DOD PARTICIPATION. The Office of the Secretary of Defense has reviewed the plans for this Workshop and issued the following determination: "The Department of Defense finds this event meets the minimum regulatory standards for attendance by DoD employees. This finding does not constitute a blanket approval or endorsement for attendance. Individual DoD Component commands or organizations are responsible for approving attendance of its DoD employees based on mission requirements and DoD regulations."

SITE AND ACCOMMODATIONS. The Workshop will be held at the Hyatt Orlando, 6375 West Irlo Bronson Memorial Highway, Kissimmee, FL 34747. The special conference rate is \$129/night. A government rate is also available for a limited number of rooms, with proof of status required upon check-in. Hotel and Workshop reservation forms will be posted on the SISO website.

REGISTRATION. Registration information is available at the SISO web site at <http://www.sisostds.org/siw>.

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