



**Simulation Interoperability
Standards Organization**

"Simulation Interoperability & Reuse through Standards"

SISO-PN-016-2016

**Product Nomination
for**

High-Level Architecture

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SISO-PN-016-2016, Product Nomination for High Level Architecture

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SISO Product Nomination for High-Level Architecture

SISO-PN-016-2016

1. Product title *

Standard for Modeling and Simulation High-Level Architecture (HLA)

2. Proponent name(s) and contact information

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3. Type of product(s) (*Balloted Products)

IEEE	Standard*
	Guidance*
	Reference
	Administrative

4. Product description

This product will implement a set of changes to the original IEEE 1516™ series of Modeling and Simulation (M&S) High-Level Architecture (HLA) standards based upon the evolving needs and requirements of the current HLA user community. The documents to be updated via the work covered by this Product Nomination (PN) are:

IEEE Std 1516™-2010, IEEE Standard for M&S HLA - Framework and Rules
IEEE Std 1516.1™-2010, IEEE Standard for M&S HLA - Federate Interface Specification
IEEE Std 1516.2™-2010, IEEE Standard for M&S HLA - Object Model Template (OMT) Specification

Collectively, these existing documents will be called the IEEE 1516™ series.

5. Identification of the community to which product applies

These products represent the core specifications used by the entire HLA community. This community spans many different user domains (e.g., training, analysis, acquisition) and application areas (e.g., defense, entertainment, medical). It will also be useful to those existing users of distributed simulation who anticipate conversion to the HLA or developers whose simulation applications/products may participate in HLA federations.

6. Problem(s) and/or issue(s) that the proposed product addresses

Widespread, ongoing international use of HLA has identified improvements and extensions to the standards that can be standardized in the required IEEE timeframe.

a) State the specific need or requirement for this product in the community (1-2 sentences)

Many new requirements for the HLA have been identified since the time the IEEE 1516™ series of specifications were first approved. This effort will provide an opportunity to address these requirements within a formal standards development process, and to incorporate recommendations from the SISO HLA-Evolved Product Support Group that the community believes should be part of the core standard.

b) Provide a detailed discussion of the specific need or requirement for this product in the community.

The HLA has been in active use among many different classes of distributed simulation users since the mid-1990s. The IEEE 1516™ series represents the current commercial standard for the HLA. As experience with the use of the IEEE 1516™ series continues to grow, and as new technologies that affect HLA implementations are developed, it is vitally important that the IEEE 1516™ specifications be periodically evaluated and modified as necessary to meet the evolving needs of the user community. This is the purpose of this project.

c) Have you investigated similar products in the community to ensure no overlap exists?

There is no similar product in the community.

7. Indication of the maturity of the product

The IEEE Standards for HLA are mature, accepted products used across the breadth of the M&S community.

a) Detailed description on HOW the problem/issue will be solved (approach)

Recognition of the SISO Product Development Group (PDG) as an IEEE Working Group will be accomplished through the IEEE Standards Association process via a Project Authorization Request (PAR). The HLA user community will review the IEEE 1516™ documents via an open standards development process; PDG-approved comments will be incorporated into the appropriate IEEE 1516™ components; and eventually balloted by the IEEE.

b) Brief discussion on the maturity of the proposed product

The HLA is a very mature product, having undergone continuous product improvement since its introduction in 1996.

c) Brief discussion on alternative approaches to the proposed product

There is no other IEEE approved methods to evolve the HLA.

d) Provide examples of prototypes of the proposed product or reasons why this product will not be prototyped.

Prototypes of Runtime Infrastructures (RTIs) and OMT tools implementing the proposed standards would be welcomed, given enough community resources. The current HLA has many supporting tools available both as freeware and sold by commercial vendors (e.g., RTIs, Object

Model Development Tools, runtime federation management and data collection tools, HLA version adaptors).

e) What impact will the proposed product have on the M&S community?

This enhanced version of the HLA will address known deficiencies and incorporate certain supporting products into the core standard. This will have the effect of more robust M&S environments at lower cost.

f) What impact will this proposed product have on the SISO community?

Ever since the IEEE Computer Society Standards Activities Board granted Sponsor Committee status to the SISO Standards Activity Committee (SAC), improving the HLA specifications has been key to the SISO/IEEE relationship.

g) What is the impact to the community on the LACK of this proposed product?

Without a periodically reviewing and updating the IEEE 1516™ specifications, users will re-encounter known deficiencies and develop localized solutions (i.e., workarounds) for issues that could be better addressed via simple modifications to the core IEEE 1516™ documents. This wastes time and effort, and defeats the purpose of having a standard.

h) What are the domain implications for this proposed product?

The products are applicable to all simulation domains that currently or will in the future use the HLA.

i) State which SIW conference track takes an active interest in the development of this proposed product.

The Services, Processes, Tools, and Data (SVCS) track routinely discusses HLA improvement proposals.

8. Planned compliance testing

The PDG will define how to verify that the RTIs and OMT tools are compliant with this new HLA product. The product will include the requirements for testing RTIs and OMT tools to ensure they are compliant with the standard. Additionally the PDG will work with other organizations wishing to establish a compliance testing program for RTIs and OMT tools.

9. Schedule of product development milestones including reviews and reports

Date	Event	Location
2015		
Sep 2015	Vote to submit PN / PAR to SAC / IEEE (i.e., IEEE SASB New Standards Committee (NesCom))	SIW Orlando
22 Oct 2015	Submit PN to SAC and request C/SI concurrence for parallel processing of three PARs	
22 Oct 2015	Request IST establish comment tracking system	
3 Nov 2015	SAC approves PN ready for 30 day review, C/SI approves concurrent processing of three PARs	
Week of 9 Nov 2015	IST establish comment tracking system and SAC issues invitation for 30-day SISO Community review	
Week of 9 Dec 2015	30-day SISO Community review period completed	
9 Dec 2015	IEEE SASB NesCom submittal deadline – submit PARs	
15 Dec 2015	SAC approves PN / Recommends EXCOM approves	
Dec 2015	PSG Meeting – New Task Proposals	I/ITSEC Orlando
2016		
11 Jan 2016	EXCOM approves PN	
Feb 2016	New Task Proposals part 2	Host TBD
01-03 Mar 2016	IEEE SASB series (NesCom recommends approval, SASB approves)	
Mar 2016	SAC TAD facilitates virtual/electronic PDG elections	Online
May 2016	PDG Kick-Off Meeting – Drafting Assignments	ITEC London
Sep 2016	PDG Meeting – working session	SIW Orlando
Nov 2016	Vote to IEEE Ballot First Draft	Online
2017		
Jan 2017	Comments Collected	
Mar 2017	Comment Adjudication	Host TBD
May 2017	Vote to IEEE Ballot Second Draft	ITEC
Jul 2017	Comments Collected	
Sep 2017	Comment Adjudication	SIW Orlando
Oct 2017	IEEE Recirculation (possible that multiple recirculation ballots could be required)	Online
Dec 2017	Comments Collected	
2018		
Feb 2018	Comment Adjudication	Host TBD
Spring 2018	Submit to IEEE RevCom	
Spring-Winter 2018	RevCom processes, recommends approval, SASB approves, IEEE SA editor coordinates, IEEE publishes	
2019		
Jan 2019	PDG is dissolved	

10. Candidate volunteers for the product development effort

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11. Product review cycle

An active IEEE standard gives an authoritative reference that is kept up to date through review at least every ten years (clause 2.2 of the IEEE-SA Standards Board Bylaws).

All IEEE standards should be reviewed as often as new information is available (clause 5.3 of the IEEE-SA Standards Board Bylaws).

All active IEEE standards are subject to periodic review for revision within ten years of IEEE-SA Standards Board approval or transfer to inactive status (clause 6.3.3 of the IEEE-SA Standards Board Operations Manual).

IEEE Standards are reviewed in accordance with IEEE policy and procedures. In our experience with HLA, 5-7 years between revisions has proven appropriate.