

ForwardSim HLA Toolbox™

Technical information

This document provides some technical information about the HLA Toolbox compatible with the HLA 1.3 and IEEE 1516 standards for distributed simulation.

Content

The HLA Toolbox is like any other MATLAB toolbox and consists of a set of functions designed to implement HLA federates within the MATLAB environment. The function set consist of the entire HLA standard library and some additional functionality useful to simplify the implementation of the HLA federates (see the complete function list on ForwardSim Web site under Products - HLA Toolbox).

Callbacks

The HLA Toolbox also includes a complete set of callback templates ready to be used and customized by the user. These m-files will be called by the RTI in response of a *Tick* or *EvokeCallback* call as specified in the federate implementation.

How does it works

ForwardSim has developed an RTI Ambassador running in the MATLAB environment and allowing the creation of m-files using the HLA functionalities as described in the HLA standards. All the code required to create and execute an HLA federate is written in m-code (MATLAB programming language) by the user and is fully compatible with any existing MATLAB program or toolbox. Like any other MATLAB program, C/C++ code can be called from the m-files. MATLAB connects directly with the RTI without any other tool when the HLA Toolbox is installed.

The HLA toolbox functions have the same prototypes as the C++ HLA standard interface (API) in order to minimize the learning process and to be fully compliant with the HLA standards.

The HLA Toolbox is capable of encoding and decoding information from/to the RTI allowing information exchange with any HLA compliant federate on the same federation (independent of the OS or language used by the other federate).

It is possible to run more than one federate on one computer. Each federate requires one MATLAB instance.

MATLAB Toolboxes

The HLA Toolbox allows the use of any other MATLAB Toolboxes to create your federate. The code can even be compiled with the *MATLAB Compiler* in order to generate

a stand alone application running on a computer without a MATLAB license.

HLA GUI

The HLA Toolbox also provide a Graphical User Interface (GUI) used to quickly generate the m-code required to create an HLA federate simply by filling a form and selecting the information to be publish/subscribed from a tree view. This tool allows the user to create its first HLA federate in just a few minutes. The generated code will be customized by the user to define the behavior of its federate. Consult the user guide for more information on the hlaGUI.

SIMULINK

Even if the HLA Toolbox has been designed for MATLAB, it is possible to use it in SIMULINK by calling its functions through the SIMULINK *MATLAB function* block. The user guide provides the necessary information about how to use the HLA Toolbox in SIMULINK. The HLA Toolbox is distributed with a sample federate running in SIMULINK. See HLA Blockset on ForwardSim Web site.

Evaluation license

The best way to understand and start appreciate the HLA Toolbox is by a software evaluation. Once properly configured, you will be able to run the sample federations provided with the HLA Toolbox and realize the power and efficiency offered by the hlaGUI to rapidly create and deploy HLA federations.

ForwardSim can provide you with a free access to the software for 20 days including full technical support.

More information

We update regularly our Web site with the latest available information on our products. We encourage you to visit frequently www.forwardsim.com

The Mathworks

The Mathworks are the creators of MATLAB and SIMULINK and provide an excellent support for there products. For any information you request on the Mathworks, please visit their Web site at www.mathworks.com.