MODULAR UNIVERSAL SIMULATION ENVIRONMENT (MUSE™ Suite)
MUSE CGF with AI Design – MUSE IG – Logic Builder – MFCD Builder

About the MUSE™ Suite

The Modular Universal Simulation Environment (MUSE™ Suite) solution package consists of a group of unique modular solutions and Real Time code development environment. The philosophy behind MUSE™ Suite addresses a critical industry need – a way to develop simulation and training devices where key components can be conveniently reused and adapted to meet new requirements.

MUSE™ Suite is one of the most dynamic, comprehensive and easy-to-use training software packages available for use by military and commercial companies. The environment provided by MUSE™ – from the visual database to the displayable instruments, controls, dashboards and/or indicators – is customized to meet your site-specific training requirements.

MUSE™ can be used to model weapon platforms or mission systems on aerial vehicles (fixed or rotary wing/UAV), land vehicles, and maritime vessels.

MUSE™ is a comprehensive software framework for creating a high-fidelity simulation environment for any vehicle or system. It provides multiplayer interactions (friends and foes) in a simulated real-world environment. MUSE™ is an interactive multi-entity environment and can simulate any aircraft, ship or ground vehicle, as well as a surface-to-air missile (SAM) or anti-aircraft battery site.

MUSE's ™ tactical mission environments expose the simulated weapon system to realistic threat stimuli during mission execution. Threat stimuli are generated by simulating the enemy's defense systems. These threats are in the form of surface-to-air, air-to-surface, and air-to-air combat, generated entirely in MUSE ™ or various Man-in-the-Loop (MITL) simulators.

MUSE ™ allows you to define the initial mission conditions (scenario parameters) for the environment and players and model the operation of sensors and countermeasures equipment, weapons and enemy defense systems.

MUSE™ Features:

- Significant reduction in development cost
- Shorter development schedule
- Realistic Dynamic Simulation
- Mission scenario development
- Real-world digital terrain database
- Visual scene outside the window (OTW)
- Realistic simulation of threat environment
- Reconfigurable monitors
- Customized to meet your requirements

Mission planning

MUSE™ has an easy-to-use graphical user interface (GUI) that allows you to set players and parameters for the mission scenario.

During mission planning, you can assign a battle dimension (air, land, and sea targets) and equipment type to each player. This allows MUSE™ threat software to deliver targets that include pre-programmed tactics and characteristics, such as air, sea, and land emitters; radar frequencies; electronic countermeasures; and combat patrol patterns.

Execution of the Mission

The MUSE™ software allows you to "freeze" the simulation at any time and enter new conditions, starting positions, storages and settings, etc.

Dynamic GUI

MUSE's dynamic Graphical User Interface, which has full 3D capability, offers the following features:

- GUI Flexibility – You can resize, move, and zoom in and out on windows, maps/images/database coordinates, instruments, and dashboards anywhere on the screen.
- Multi-window environment - you can have multiple windows open/layered.
- Simultaneous video - you can simultaneously play a soundtracked video (such as a training video that demonstrates a specific operation) while a mission is in progress.
- "Snapshot" feature – You can easily take snapshots of MUSETM windows for a subsequent after-action review.
- Web Access - You can access the Web during a mission (if Internet access is available) or a local server
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Optional

The following MUSE™ options and tools are currently available if you want to further enhance your site's training resources:

Night Vision Goggle (NVG) simulation

The NVG option includes an advanced real-time instructor-controlled observer model (MITL). Instrument Tool / Panel Builder

The Builder tool allows you to easily and quickly create and modify 2D and 3D simulated indicators and panels ("glass") with just a few mouse clicks. A special calibration tool is also included to allow you to quickly and accurately calibrate (as needed) any newly designed instrument/panel.

Electronic warfare (EW) training

The EW option provides additional protection for aircraft/vehicles/vessels by detecting radar emitters, displaying threat information, and enabling the release of dedicated active and passive countermeasures.

Specialized training databases

High-fidelity visual databases of specific countries or areas that can be used for specialized training, which may include areas to train specific tactics/maneuvers, bombing range tests, reconnaissance sites, war zone/hostile territory, etc.
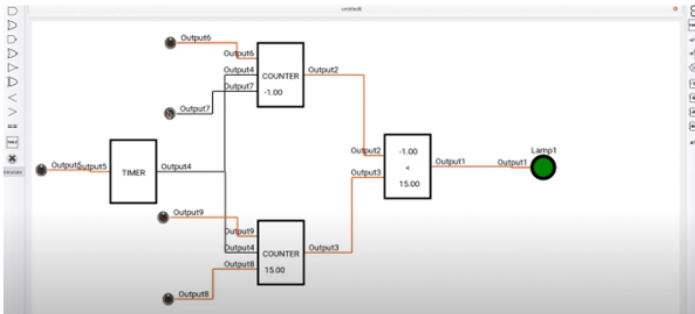
Flight Tuning Tool

The Flight Tuning Tool (FTT) is a specialized software tool that assists in the development and rapid adjustment of details for the flight model.

HLA (High Level Architecture) Simulation

For distributed computer simulation systems, COMPRO can provide HLA functionality (in accordance with the IEEE 1516 standard) to facilitate the use of joint training tasks in physical locations and computer platforms. With this option, you can inject or change the scenario or mission information and immediately redistribute the changes to all locations.

The Modular Universal Simulation Environment (MUSE)™ Logic Builder™ provides the ability to create electronic logic schemas that can be used for application program development, debugging, and troubleshooting. The schematics you create with Logic Builder™ will be fully interactive with your real simulation hardware. – You can turn on the power, switches and lamps and observe the execution of the circuit logic right within your diagram! You can perform diagnostics in real time, while the hardware is functionally operational, or when running in standalone desktop simulation mode.

Logic Builder™ allows you to logically connect software variables, signals, and electronic inputs/outputs to graphical components and store the information in an XML data file that can be used by your application program.

Features

- It features an easy-to-use graphical user interface that includes built-in WYSIWYG editing tools
- Indicates the logical path in stand-alone desktop mode or during real-time flight simulation
- Writes schematic data to a file in XML format
- It runs on the Linux® environment; Uses Qt™ and OpenSceneGraph libraries

Benefits

- Reduces program debugging time
- Minimizes the learning curve for creating logical schematics
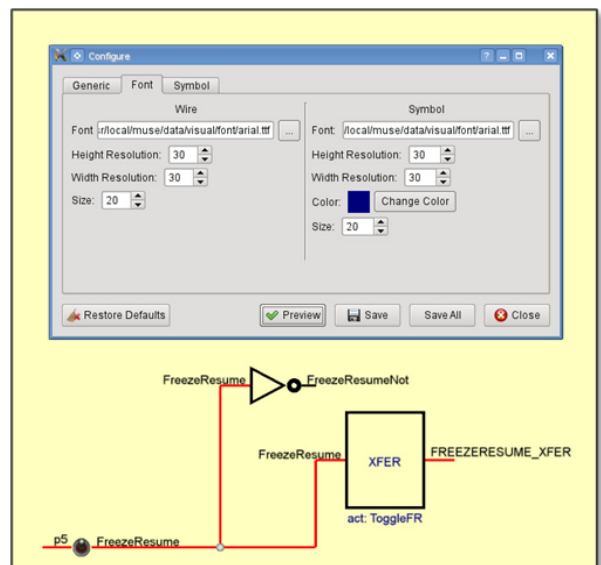
Schematic design features

The functions and features of Logic Builder™ are specifically designed to aid in the rapid development of usable logical schemas:

- Easy cration of symbols
- Automatic Line Connection
- Automatic character matches
- Automatic links to matching schemas
- Integrated validation verification
- Easy visual adjustment
- Global and local search capabilities
- Variable definition capabilities
- Export capacities

Interactive diagnostic/testing features

You can debug the logical software-hardware communication as you create the schema and/or use the schema as a diagnostic tool for maintenance and support personnel.

The schema logic can be exercised and the results viewed in Real Time mode (while the simulator is running) or in simulation mode (while the simulator is offline). In addition, you can modify a schema and observe the logical effect of the update within seconds of making any change(s).

MUSE™ MFCD Builder provides an easy-to-use graphical user interface (GUI) that allows you to create and edit 2D and 3D models. With this drawing tool, you can quickly prototype or create final versions of instruments and meters on screen, used in simulation environments. MFCD Builder not only creates the graphical model but also generates the corresponding source code in the OpenSceneGraph (.osg) format. The resulting model can be used by any number of programming applications.

Benefits

It drastically reduces model development time - you can create multi-layered instruments in minutes.

Minimized learning curve for instrument creation.

Features

- It has an easy-to-use graphical user interface that includes built-in WYSIWYG editing tools.
- Automatically generates OSG code as you define the model.
- Writes calibration data to an XML file.
- Works on Linux® environment

MFCD Builder™ allows you to control the following graphical features:

- Shapes
- Color, texture, and other features
- Size
- Layering (camadas)
- Text formatting and positioning
- Grouping

In addition, MFCD Builder™ includes a calibration function that allows you to logically connect a variable to a graphical component (such as an indicator needle), generate the corresponding calibration data, and store the information in an XML file.

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As easy as 1-2-3...

1. Using the GUI, specify a base object, such as a circle. Then specify tick marks and add lines of text:

2. Create other objects, such as an indicator needle. Calibrate the needle and automatically update the data in the XML file.

3. RESULTS: A usable model, thousands of lines of automatically generated OSG code, and an XML file with positional information, variables, and calibration data for your out-the-window IOS program!