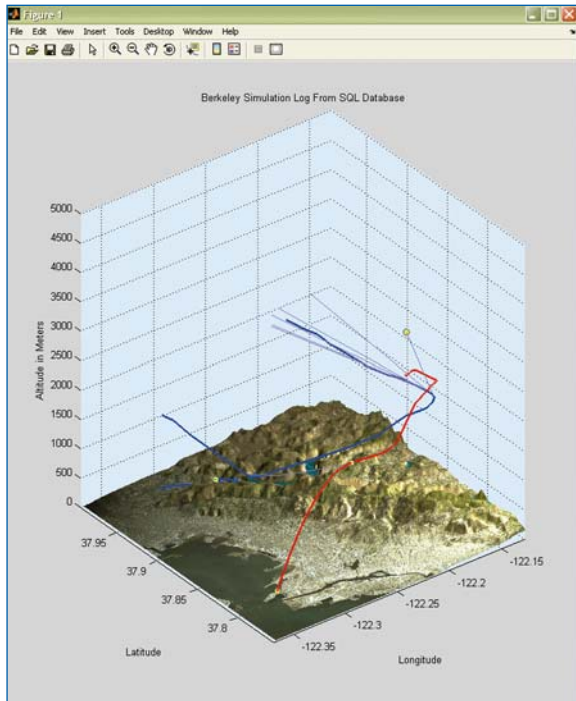


What's UP MÄK

PRODUCT NEWS :

MÄK Brings HLA and DIS to MATLAB and Simulink



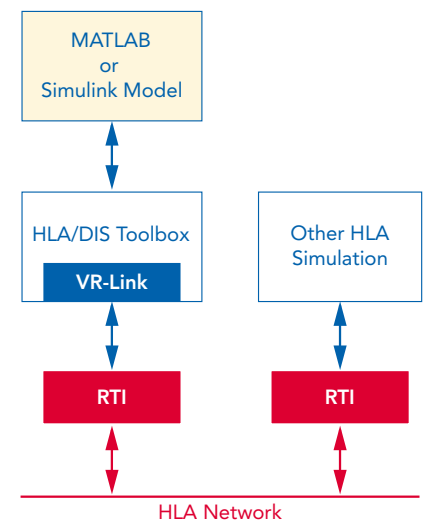
With the launch of the MÄK HLA/DIS Toolbox for MATLAB and Simulink, MÄK brings the power of DoD networking standards to Mathworks users. By building the HLA/DIS Toolbox on VR-Link, we've taken advantage of our industry leading networking expertise to provide you with the networking capabilities you need in MATLAB and Simulink.

The HLA/DIS Toolbox allows you to import live or recorded HLA/DIS data into MATLAB for analysis, to integrate MATLAB models into an HLA/DIS environment, and to link your Simulink models with other HLA/DIS applications.

VR-Link provides a high-level protocol-independent API to HLA and DIS so you can make your applications natively compliant without writing a lot of code. The HLA/DIS Toolbox for MATLAB and Simulink provides an m-code interface to the key VR-Link classes and functions to access all of the power of VR-Link directly from MATLAB. For simulation concepts that are not covered by the VR-Link API, the HLA/DIS Toolbox provides a generic m-code interface for sending and receiving arbitrary HLA updates and interactions.

Also included with the HLA/DIS Toolbox is an HLA/DIS Blockset for Simulink. This Blockset allows non-programmers to attach an HLA or DIS interface to Simulink models without writing any code. Through this interface, you can connect the outputs of your Simulink models (location, velocity, etc.) to new Simulink blocks that will publish your objects on the network. On the receiving side, new Simulink blocks will generate outputs based on updates received from the network and you can use these as inputs to other Simulink blocks.

For more information or pricing on the MÄK HLA/DIS Toolbox for MATLAB and Simulink, please contact our sales department at info@mak.com or **617.876.8085 x2**.



NEWS : 2

PRODUCT UPDATES : 2

CUSTOMER PROFILE : 3

TECHNICAL TIP : 3

WHERE WE'LL BE : 4

A PUBLICATION OF



10 Fawcett Street, Cambridge, MA 02138

PHN 617.876.8085

FAX 617.876.9208

EMAIL info@mak.com

WEB www.mak.com

EDITOR Michélene St. Amand, MarCom Manager

MÄK's Tactical Trainer Chosen for Uzbekistan & Ukraine

MÄK's *Battle Command* trainer has been purchased for training at six sites in Uzbekistan and Ukraine. The trainer, a derivative of that used by the U.S. Army, helps ground combat commanders develop warfighting skills by allowing them to plan, fight, and review the battle. The trainer was chosen in part because it is easily reconfigurable for any country, language, force structure, doctrine, tactics, battle-field and scenario. The contract was awarded by Alion Science and Technology as a project of the Modeling and Simulation Information and Analysis Center (MSIAC) International Programs under a Foreign Military Sale (FMS) case managed by PEO STRI.

Battle Command is deployed on PCs or laptops in a Windows environment. With many nations having limited resources to support large simulation systems, an affordable, easily managed, desktop training simulation is vital. The cost-effectiveness of *Battle Command* makes it a viable training solution, filling the niche between learning in the classroom and live, labor and cost intensive wargames.

To learn more about *Battle Command*, please contact Garry Morissette at gm@mak.com or via phone at 617.876.8085 x111. ■

MÄK RTI Now Offers Distributed TCP Forwarding

Distributed simulations are quickly becoming larger and more complex with exercises likely to include a variety of federates from different organizations distributed over multiple sites connected over a WAN. Since the amount of network bandwidth available over a WAN link is often significantly less than the bandwidth available within a LAN, an RTI must minimize the amount of network traffic sent from site to site over the WAN.

The MÄK RTI already has a UDP Forwarder to help ease this problem for best effort traffic. Now we've added a new feature, which we call Distributed TCP Forwarding which allows the same savings to be achieved for reliable traffic. The TCP Forwarder allows the federation to send the absolute minimum amount of data between LANs by doing two things. First, distributed forwarders ensure that no more than one copy of each message is ever sent across a particular WAN link. Second, they perform sender side filtering, so data is never sent to a LAN or federate that doesn't need it. This new feature is available in the RTIplus version of the MÄK RTI. ■

MÄK Wins Contract to Develop JFACC Trainer for Air Force

MÄK has won a Phase II SBIR contract to develop a prototype web based training simulation environment for the Joint Force Air Component Command (JFACC) and Air Operations Center's (AOC) senior leaders. The trainer, "JFACC ACE", will improve cognitive readiness by teaching trainees how to better think, visualize, and make decisions.

JFACC ACE will be unique because it will employ a non-traditional simulation approach. The trainer will focus on the JFACC's specific responsibilities including the personal involvement and interactions of the JFACC with his staff subordinate commanders, other component commanders, the JFC and coalition partners. Although the primary focus will be how the JFACC personally contributes to the success of the air campaign, a variety of related cognitive tasks and prioritization challenges will be exposed to trainees using JFACC Ace. ■

MÄK RTI 2.4

This is a major release with significant new functionality:

- Optimized support for large-scale federations over WANs, through distributed TCP Forwarders with sender-side filtering
- Improved interoperability between HLA 1.3 and 1516, including DDM.
- Multicast discovery of rtiexec and TCP and UDP Forwarders

MÄK Stealth 5.4

This is a major release with significant new functionality:

- Visualize tactical graphics in 3D (routes, waypoints, air corridors, etc.)
- Screen capture
- Automatic decluttering, by using a single icon to represent several overlapping objects (StealthXR only)
- Paging of MetaFlight terrain databases
- Improved support for geocentric mode

MÄK Data Logger 3.11.2

This is a minor maintenance release, but it contains an important bug fix: A memory leak in Logger 3.11.1 could cause the Logger to crash when recording large files. If you are currently using MÄK Data Logger version 3.11.1, we strongly recommend that you upgrade to version 3.11.2.

In addition, we have added pop-up warning messages to provide feedback when you have attempted to load a DIS Logger file into an HLA Logger (or vice-versa), or when the Logger could not successfully connect to an exercise.

Contact Us

If you are a current **product customer with up-to-date maintenance, please contact Jean Giglio at keys@mak.com** for the latest product versions. You must have your MÄK invoice number available when requesting updated versions. **For additional information or pricing, please contact the MAK sales department at info@mak.com or 617.876.8085 x2.** ■

DSTO Uses VR-Link and VR-Forces To Build RAAF Training Solution



Partial view of ADGESIM Simulation Manager event monitoring display.

Synthetic aircraft, automatically generated from real-world flight plans, are seen following air routes derived automatically from industry standard DAFIFT databases. 3D radar volumes are exported from the ADGESIM Sensor Manager Application to All ADGESIM tactical display components.

The Air Defence Ground Environment Simulator (ADGESIM) was developed by the Defence, Science and Technology Organization (DSTO) to evolve Royal Australian Air Force (RAAF) training systems and prepare personnel for network-centric operations. In some situations, the Australian Defence Force (ADF) had previously had no option but to use live assets to support training. Live training can be expensive in the short-term and can impact on the life cycle cost of military platforms. To address this, the RAAF is adopting distributed simulation technologies, like DIS and HLA. ADGESIM, a network centric aerospace battle management application, is part of this strategy.

“When we went to defense contractors and explained what we wanted, we received responses to our RFI that were up to fourteen times the available budget, with a time frame of three to five years, and offering only an eighty five to ninety percent solution,” explained Jon Blacklock, Head, Air Projects Analysis, Air Operations Research Branch of DSTO. “Things were changing rapidly in the world. The RAAF had an immediate need for advanced training systems and there was insufficient time to go back to industry with a revised RFI; so DSTO was asked to provide a fix. We had conducted a survey on COTS simulation products as part of our research program, and had identified VR Forces and VR-Link as the only products with a sufficiently open architecture and useable programming interface to support rapid prototyping and development. Using a mixture of MAK’s COTS tools and custom-built “thin client” applications, we were able to create ADGESIM in less than six months, for around \$400,000 which is half the original budget. That figure included not only software and development, but hardware and installation too.”

ADGESIM comprises three applications developed by DSTO and YTEK (DSTO engineering contractor) in C++ and closely integrated with VR-Forces and VR-Link. The ADGESIM Pilot Interface is used to create and fly simulated aircraft entities. It presents all the information required for each non-aircrew operator to competently maneuver up to twelve aircraft (or any other entity type) either singly or in formation. Entities can be dropped or resumed for control at any time. All high-resolution entity modeling is done in the background by VR-Forces and ADGESIM entities have been proven compatible with both Australian and US Navy distributed simulation environments. The RAAF routinely runs scenarios with eight Pilot Interface workstations simultaneously without taxing the PC-based ADGESIM system.

The Simulation Manager application populates the virtual environment with large numbers of lower-resolution “background” entities, which it models internally, and is able to schedule or dynamically start high-resolution entities through its interface to VR-Forces. It is a stand-alone application that uses VR-Link to generate Entity State and other mission essential Protocol Data Units. Air routes and navigation environment data is integrated directly from Australian and International En-Route documentation sources used by commercial and military pilots. Flight plan information can be read directly from civil air traffic control management systems and converted into scenario events. In this way, it is not unusual to have several thousand civil aircraft operating as part of a C4I network operation.

ADGESIM’s third component is the Sensor Manager application. Sensor Manager ONIONS (Orthographic Network Input/Output Nodes) simulate real world sensors and systems and acts as a gateway between the ADGESIM DIS synthetic environment and operational aerospace tracking systems. Sensor performance mimics real world complications, including software hiccups, radar and detection problems, weather, and clutter. Sensors include civil and military

TECH TIP

[CONTINUED PG. 4]

: Tech.Tip - Adding New Entities to VR-Forces Using OPD Editor TIP 2005.7.2

The VR-Forces OPD Editor, introduced in VR-Forces 3.8, greatly simplifies the task of editing the object parameters database. In particular, it is now much easier to add new entities using an existing entity as a template.

1. Open the OPD Editor.
2. Expand the tree view and select the entity on which you want to base the new entity.
3. Choose Data → Create From Existing. The Create Entry dialog box opens. It lists the object enumeration for the base entity in the Base Entry box.
4. In the Entry to Create box, enter the enumeration for the entity you want to create. You can type the enumeration directly, or build it by selecting options from the lists for each value.
5. Click OK. The new entity is added to the tree view.
6. Edit the parameters for the new entity to give it the proper behaviors.
7. Save the object parameters database.

ground-based 2D and 3D radars, Over-The-Horizon Radar, Automated Dependent Surveillance Broadcast, and a range of airborne and (soon) space-based sensors.

"We were looking for the best bang for our buck," said Blacklock. "That and our short time scale necessitated looking at available COTS products to use as a framework for ADGESIM. Our research led us to choose VR-Forces and VR-Link."

VR-Forces is a computer generated forces toolkit for generating and executing battlefield scenarios. A fully distributed architecture means that you can divide simulation responsibilities among multiple simulation engines, and control them from one or more remote front end GUIs.

"VR-Forces' flexibility secured its place in our development," said Blacklock. "The ease of customization and the API were among the biggest reasons we chose it. At the start it lacked a few features on our wish list, but MÄK's outstanding tech support helped us fill in the gaps. During the six-month development, MÄK redeveloped their applications and added features in parallel with our development. It is a testament to MÄK's professional approach that when we got the release version of VR Forces, we needed just two weeks prior to installation in the first Regional Operations center. We plugged in our applications and everything just worked."

VR-Link is a simulation networking toolkit for linking simulations via DIS and HLA. VR-Link simulations can be fully HLA compliant and maintain the DIS compatibility. VR-Link provides a single documented API that abstracts away the details of DIS or HLA networking.

"Network centric warfare has changed the paradigm of doing business," explained Blacklock. "Training is no longer just a domestic concern. Programs need to be able to connect globally, and to train as part of an international coalition. ADGESIM is part of this solution."

"Our approach, COTS applications combined with customized thin client applications, will reduce life-cycle costs and increase the likelihood that projects are delivered on time, on budget, and according to specifications. It's a risk reduction strategy. A standards-based, distributed simulation architecture, coupled with COTS and thin client applications, as used in ADGESIM, has resulted in a flexible, scalable and highly interoperable application suite."

DSTO has now negotiated commercial release of ADGESIM through YTEK. The combination of MÄK's outstanding core products and the flexible ADGESIM suite makes for a powerful niche training capability for networked aerospace and combined arms warfare. ■

RESELLERS

For a full list of MÄK's international resellers, please visit www.mak.com/s1ss14pl.php

- Australia
- China
- Czech Republic
- Cyprus
- Egypt
- Ecuador
- Finland
- France
- Germany
- Greece
- India
- Indonesia
- Israel
- Italy
- Japan
- Korea
- Malaysia
- The Netherlands
- Norway
- Poland
- Portugal
- Russia
- Singapore
- Spain
- Sweden
- Taiwan
- Turkey
- United Kingdom

WHERE WE'LL BE :

Euro SIW

June 27 – 29, 2005 : BOOTH TBD

Toulouse, France

FOR INFORMATION & ATTENDANCE VISIT:

www.sisostds.org

Opnetwork Partner Pavilion

August 24, 2005 : BOOTH TBD

Ronald Regan Building
Washington, DC

FOR INFORMATION & ATTENDANCE VISIT:

www.opnet.com

Joint ADL Co-Lab Implementation Fest

Aug. 22 – 25, 2005 : BOOTH TBD

Airport Marriott
Orlando, FL

FOR INFORMATION & ATTENDANCE VISIT:

www.jointadlcolab.org

Link – Simulate – Visualize