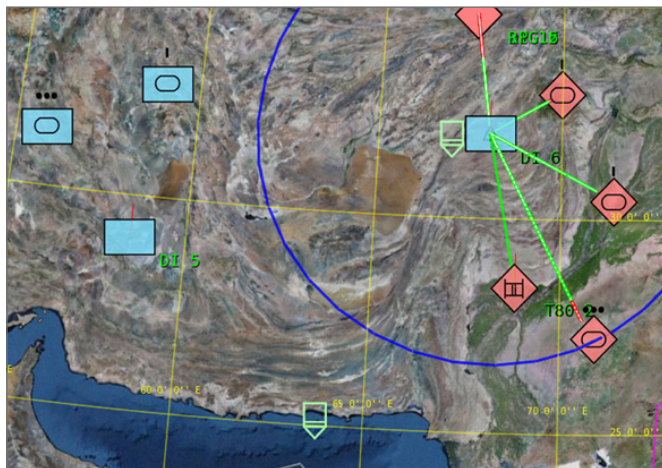


What's Up MÄK

HLA Evolved Supported in VR-Forces and VR-Vantage

Full Support for HLA Evolved Across MAK Product Line



A 2D view from VR-Forces, which is now HLA Evolved compatible

In addition to supporting DIS, HLA 1.3, and HLA 1516, MÄK now supports the latest protocol, HLA Evolved, in all of our products, furthering our quest to achieve industry-wide interoperability. The releases of VR-Forces and VR-Vantage, MÄK's simulation and visualization tools, are the latest to add support.

"HLA Evolved support for VR-Forces and VR-Vantage is just another arrow in our interoperability arsenal," explains Jim Kogler, MAK's Director of COTS Products. "With our entire product line now supporting this new standard, MÄK is furthering our goal to make interoperability easy and cost effective for all our customers in whichever protocol they choose."

HLA Evolved is the latest version of the HLA Standard (IEEE 1516-2010). This version offers a number of improvements; the most significant is the incorporation of the SISO Dynamic Link Compatible API that allows users to switch RTI's (Run-Time Infrastructure) without making any changes to their simulations (also known as federates).

Other important features include Modular Federation Object Models (FOM), Update Rate Reduction, improvements to Reliability and Connectivity, and other changes that make using HLA easier.

MÄK is known for our work in interoperability. From our first product, the VR-Link networking toolkit, MÄK has given customers a choice between using the industry standard High Level Architecture (HLA) or the Distributed Interactive Simulation (DIS) to network simulators and virtual reality applications. In May 2010, we announced support for HLA Evolved in VR-Link and the MÄK RTI. MÄK now supports the new HLA standard in all of its products as part of our pledge to make interoperability easy and accessible to all.

Feature: 1

MAK's Tech Tip - Speed up VR-Link
Performance: 2

Webinar - CST Development: 2

Customer Success Story: QuantaDyn
uses VR-Link: 3

MÄKer Spotlight - Felix Rodriguez: 4

Stealth Visualization Survey: 4

Want to learn more about Interoperability and HLA Evolved?

Check out these online resources:

White Paper - [HLA Evolved - The Latest Version of the High Level Architecture](#)

Webinar - [Interoperability: Choosing the Right Standards](#)

Speed Up VR-Link Performance for HLA 1516 and HLA Evolved

Each HLA object must have an object name that is unique throughout the federation execution. When an object is registered, the federate can provide a name or let the RTI supply an object name. In the HLA 1.3 specification, when the federate supplies the name, it is up to the federate to make sure that the name is unique. If it isn't, the RTI throws an exception. The HLA 1516 specification lets you reserve names to ensure that they are unique.

By default, the VR-Link publishers perform name reservation and object reservation at the same time - when the publisher is created. The name reservation process requires a round trip handshake between the local RTI component (LRC) and the rtiexec. Therefore, performing it just before an object is registered can delay the object registration process. If the federate is simulating a limited number of objects that are created at start up, this overhead is negligible. However, if the federate is creating many 100s of objects or if an object is being created in a time critical fashion (say a missile fly out), the delay caused by name reservation can become significant. One way to avoid the name reservation delay is to perform the name reservations ahead of time before the objects are registered. VR-Link can do this.

To reserve names in advance, your VR-Link application needs to make name reservation calls. If the calls are performed through the exercise connection, the results are cached. When an object publisher is created, it first checks to see if the name is already reserved. If so, the name reservation call is skipped.

We have a code snippet that shows how to do this, but it is a bit too long for this newsletter. We have put it on the [MÄK Community Forum](#) in the Link-Interoperate section. If you want to see the code and a somewhat more detailed explanation of this issue, click [here](#)!

MÄK Webinar

Command and Staff Trainer Development: VR-Forces as an Application Development Platform

March 29, 2012; 9 am EDT & 4 pm EDT

You have a requirement for a complex Command and Staff Trainer. You have a deadline. And you have a busy staff and a tight budget.

A COTS application development platform can deliver what you need to meet your deadline and fulfill requirements, while keeping your budget numbers on track. Mark Schwartz, Principal Software Engineer, will discuss his experience using VR-Forces as a platform for Command and Staff Trainer development and customization, highlighting how the software's flexible approach and robust performance can give your program a strong starting point. Join us to hear how MÄK's simulation solution VR-Forces can provide the platform for your innovation.

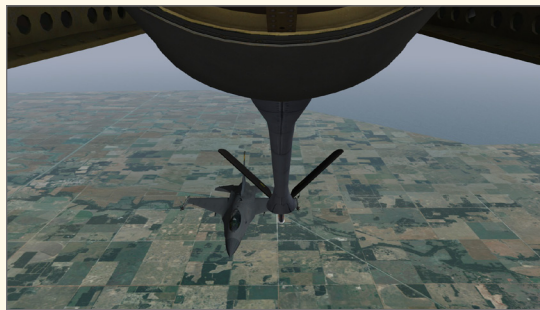
Can't make it to the webinar? Registrants receive access to the recording after the event, so register now!

Want to join us? To register for the 9:00 am webinar, click [here](#).
For the 4:00 pm webinar, click [here](#).

Customer Success!

QuantaDyn Corporation Chooses MÄK's VR-Link for DIS Protocol in Aerial Refueling Simulator

It is no small task for two aircraft to successfully connect mid-flight and transfer fuel. Simulating this maneuver in a networked environment is complex, dependent on frequent updates for several variables including position, velocity, and acceleration of the simulated aircraft. QuantaDyn Corporation, an engineering firm specializing in training simulations, has developed a technical solution for networked aerial refueling training, using MÄK's VR-Link for all DIS standard protocol.



These are screenshots from a QuantaDyn trainer, performing an Aerial Refueling Mission. The top graphic is from the receiver looking up at the tanker and the bottom one is from the tanker side looking down on the receiver.

The communication of calculated data to and from the DIS network complicates aerial refueling (AR) training. Position updates typically involve "dead reckoning," where the trainer guesses the location of the remote aircraft each frame until it receives the actual position update from the remote trainer. This approach avoids flooding the network with position updates every frame, but poses a dilemma for close proximity training. For example, at 275 knots an aircraft will move almost 8ft in 1/60th of a second, the typical frame rate. Standard dead reckoning only sends position updates when an aircraft goes outside of a certain threshold and can result in a jump of a foot or two when a new position update is received. When refueling mid-flight, those few feet can make a huge difference. Avoiding this dead reckoning gap is the main issue facing aerial refueling training.

MÄK's VR-Link allows QuantaDyn to modify the way they use standard DIS packets without having to update the DIS interface. They

are able to send relative position, velocity, and acceleration updates instead of standard position, velocity, and acceleration updates by altering the information given to the VR-Link software and selecting an alternative dead reckoning algorithm. VR-Link provides the necessary "gateway" to send and receive data to and from the DIS network.

"MÄK was chosen because it is an industry leader in HLA and DIS simulation networking and has many years of experience providing solutions and services in this area. With VR-Link, we were able to focus our full development effort towards a technical solution for Networked Aerial Refueling Training," explained Michael Parker, Project Engineer for QuantaDyn. "MÄK took care of packaging and formatting the data to send across the network and receiving and unpacking the data from the network. We could then use this data and focus our efforts in our area of expertise and develop a solid solution for AR training over the DIS network."

In addition to using VR-Link to network aerial refueling simulations, QuantaDyn also used the MÄK product to install a Distributed Missions Operations (DMO) upgrade to their low-cost desktop Boom Operator Simulation System, the MicroBOSS. The MicroBOSS brings the high fidelity simulation of a full size trainer to small form application.

VR-Link is a very straight forward package to use. The QuantaDyn software engineers were able to install the software and use it almost immediately. "This allowed us to hit the ground running in all of our development efforts," said Parker.

When asked if and why QuantaDyn would recommend MÄK products and services, to other organizations, Parker stated that, "[MÄK products] work just like MÄK says they will. They are easily modified for unique applications and all areas of the MÄK team are top notch from sales to technical support."



QuantaDyn's MicroBOSS

MÄKer Spotlight: Felix Rodriguez

Solutions Engineer



Born in Puerto Rico, Felix overlooked the climate differences and attended Cornell University for both a Bachelors (1999) and a Masters (2000) degree in Computer Science. In 2000, he joined MÄK's services group and worked on a customized RTI. Since then, Felix has worked on VR-Exchange, VR-Link, the MÄK Data Logger, the MÄK PVD, VR-Forces, and B-HAVE, as well as a countless number of contracts and services. In short, he's had his hands on practically all of MÄK's products.

Thanks to the diverse line of products that MÄK offers, Felix finds no shortage of new opportunities that present him with the unique challenges he craves. Most recently in charge of the B-HAVE module for VR-Forces, Felix is now transitioning to become MÄK's newest Solutions Engineer. Let's go ahead and add that to his lengthy list of MÄK related skills.

Before MÄK, Felix worked at a biometric company where he developed security systems for smart cards and fingerprints. It's rumored that the Mission Impossible soundtrack was overplayed during demos.

On a less technical note, Felix is an avid board game collector and owns almost 400. You name it, he's got it. You could say that Felix has a "monopoly" on board games...except for the fact that Monopoly is the one game he doesn't have.

When Felix was 13, his grandmother enrolled him in a dance class; she never expected that more than 20 years later, he would still be dancing. He is a member of a [local dance group](#) that travels around the country performing for clubs, universities, non-profits, and other events. Felix is known to salsa his way around the office, in the hallways, and even while talking to his coworkers about software design.

We hope we've piqued your interest in getting to know our MÄK team. Stay tuned to our [website](#) to learn more about what's going on at MÄK!

Product Updates:

VR-Link 4.04 – Support for the SUSE Linux platform (version 11), including both 32-bit and 64-bit libraries

MÄK RTI – Support for IPv6 and the SUSE Linux platform (version 11) and new features such as node-configurable compression and bundling, the ability to run multiple load balancing RTI Forwarders on a single computer, and new example Java federates for use with the MÄK RTI Java bindings

VR-Forces 4.0.3 & B-HAVE 2.0.3 – VC10, HLA Evolved

VR-theWorld Server 2.0 – Support for streaming vector features (WFS) and a completely overhauled GUI allowing for easier management of content, and improved hardware configuration



Stealth Visualization Survey

1. Does your DIS/HLA simulation have a 3D visualization component used for any of the following purposes: training, planning, analysis, experimentation, prototyping, or demonstration?
2. Does your simulation use the MÄK Stealth or VR-Vantage Stealth for any of the following purposes: training, planning, analysis, experimentation, prototyping, or demonstration?
3. If not a Stealth, what visualization tools do you use?

Click [here](#) to answer our quick three-question survey!