

What's Up MÄK

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MÄK's Vision of Persistent Online Simulation Becomes a Reality



A web-based 2D/3D viewer running in a browser, receiving simulation data through MÄK's WebLVC Server.

MÄK's vision empowers anyone with access to a computer or mobile device to easily experiment in a virtual version of the real world. Change the conditions at an intersection and see if traffic in your neighborhood improves. Model an accident or fire to ensure that the first responders are trained to respond and react effectively. Conduct a military training exercise in a hostile land with challenging weather and make sure your leaders act and communicate as they should.

These environments can be run securely and privately or through a collaborative team-learning approach, either on the public internet or behind a firewall. We envision users gaining access to different roles and abilities depending on their positions; a fire captain, for example, would manage his/her own team, while an instructor would lead and control a wide range of assets.

Our vision includes people, cars, planes, and ships all interacting in virtual representations of real locations. We see people learning in an entirely new way through web-based simulations. MÄK has taken concrete steps to make this vision a reality, starting with WebLVC.

WebLVC: Connecting web technologies with traditional Modeling & Simulation federation architectures.

The time is right for the Modeling & Simulation community to take advantage of the web. Even if we can't get to the public internet, we can take advantage of web technologies and use lightweight client applications made to run in our browsers. The M&S community can use web technologies to take control of our distributed simulation exercises, get a view of what's going on in a sim lab, and even participate with client-side role-player simulations.

MÄK is building on our twenty year pedigree of open standards and interoperability to bring live, virtual, and constructive simulation to the web. We started by initiating WebLVC protocol standards activity within the Simulation Interoperability Standards Organization (SISO); to make adoption easier and more cost effective, MÄK has developed, and made commercially available, the **MÄK WebLVC Server**. To jumpstart your live, virtual, or constructive simulations, we offer the **MÄK WebLVC Suite** of web-based applications.

Keep reading to learn how MÄK used WebLVC to deliver **TurboTraffic**, a commercial simulation-as-a-service product that lets non-experts plan out traffic scenarios - anywhere in the world - right from their web browser. You'll also read how web-technology is extending the reach of established and proven training tools, like the **US Air Force's modeling and simulation training toolkit (AFMSTT) project** on page 2.

MÄK is working to connect our customers and our industry to the web wherever they are, on whatever technology they have. If you want to get connected, contact info@mak.com for more information.

Need to see it to
believe it?

Experience WebLVC at
www.mak.com/webmvc.

TurboTraffic Delivers Web-based Traffic Simulation

MÄK's traffic simulation-as-a-service for non-experts uses WebLVC to connect to hosted simulations



The WebLVC technology gave us the tools we needed to create an easy-to-use, web-based traffic simulation application. TurboTraffic lets traffic planners, engineers, and those interested in city planning quickly and easily create traffic simulations and visualize traffic flows anywhere in the world. Through TurboTraffic's intuitive web-based interface, users simply log into their account, connect to a hosted simulation, download the road geometry, and begin their simulation.

While other traffic sims are hard to configure and time consuming to set up, TurboTraffic allows users to interactively enter traffic study results and immediately see the simulated traffic - all in a web browser. TurboTraffic takes advantage of cloud-based road networks to relieve the users of the chore of building a base map, the first step in any traffic simulation. This innovative approach lets planners zoom on a map to anywhere on the planet, specify traffic volume, and instantly model traffic conditions. And since it's web-based, users can share the results with others simply by sharing a web link to the simulation.

We invite you to try out TurboTraffic for yourself at <http://turbottraffic.mak.com>.

US Air Force Uses VT MÄK Interoperability Tools for Air Force Modeling and Simulation Training Toolkit (AFMSTT)

MÄK's web technologies enable migration to a service-oriented architecture

The US Air Force chose several MÄK interoperability products for the Air Force Modeling and Simulation Training Toolkit (AFMSTT) program, including the new MÄK WebLVC Server, VR-Exchange, and MÄK Data Logger.

Based on the Air Force's Air Warfare Simulation (AWSIM) model, the AFMSTT system enables training of senior commanders and staff for joint air warfare and operations. MÄK's tools will be used to help migrate the AFMSTT system to a service-oriented architecture based on High Level Architecture (HLA) interoperability and web technologies. The program uses MÄK's WebLVC Server to help monitor, control, and interact with core AWSIM and AFMSTT components through lightweight, thin clients running in a browser.

The MÄK WebLVC Server enables web-based applications to interoperate with traditional modeling and simulation exercises known as federations. "Many M&S programs are starting to see the benefits of new web technologies such as WebSockets and WebGL in developing thin clients that are powerful, yet lightweight and accessible anywhere," said Len Granowetter, Vice President of Engineering at VT MÄK.

The VR-Exchange interoperability portal will be used to bridge the AFMSTT suite, and external federations such as the Joint Land Component Constructive Training Capability - Multi-resolution Federation (JLCCTC MRF), and the Joint Live Virtual and Constructive (JLVC) federation. VR-Exchange can perform many-to-many translations among various Run Time Infrastructure (RTI) implementations, HLA Object models, and interoperability architectures - and can be extended through the development of custom "brokers" to support additional protocols. It has been used on numerous programs to achieve Live, Virtual, and Constructive (LVC) integration and Simulation-to-Command, Control, Communications, Computers and Intelligence (C4I) interoperability. Under the AFMSTT program, MÄK is adding support for the JLCCTC MRF Federation Object Model (FOM) and support for time management across HLA federations.

"We are proud to have the AFMSTT program as 'launch customers' for our new WebLVC Server product. MÄK has been working hard to leverage these technologies in a way that is consistent with the needs of the M&S community," said Granowetter.

MÄK's Tech Tip by Matt Figueroa

VR-Link Adds New Feature to Prevent Mismatched RTI Versions

When working in an environment with multiple compiler versions of our MAK RTI installed, it can sometimes be tricky to remember which RTI you have your environment variable pointing to. With the release of VR-Link 4.0.7, we introduced a new "DtVRtiMismatchException." An exception in C++ is a way to handle certain outlying situations, like runtime errors, which can lead to program crashes. This new DtVRtiMismatchException is an exception that VR-Link throws if it finds that the RTI is an incompatible compiler version. When the exception is thrown, a catch is needed to handle it. A catch statement is some C++ code that triggers when a certain exception is caught. This DtVRtiMismatchException is thrown when making an exercise connection, so adding a catch after creating a connection is a great way to avoid, what are often, vague issues caused by a mismatched RTI compiler version.

To see this in action, look at the f18 example below that we ship with VR-Link. This is a basic example that prints out an error on the command line, but can easily be modified!

```
DtExerciseConn::InitializationStatus status = DtExerciseConn::DtINIT_SUCCESS;
DtExerciseConn* exConn = NULL;
try
{
    exConn = new DtExerciseConn(initializer, &status);
}
catch( DtVRtiMismatchException )
{
    std::cerr << "Mismatching RTI compiler Version. Please reconfigure your environment" << std::endl;
    return -1;
}
if (status != 0)
{
    std::cout << "Error creating exercise connection." << std::endl;
    return -1;
}
```

Want more tips? Stay tuned to the [MÄK blog](#) and check out Felix Rodriguez' latest post "[My HLA federates aren't talking to each other!](#)"

MÄKer Spotlight: Morgan Moretz

Marketing Communications Specialist

Morgan is an artistically inclined Marketing Communication Specialist at MÄK who's been with the company for just over two years. Morgan is responsible for content creation and serves as a liaison between engineering and sales - to produce MÄK-worthy content that everyone can understand. She specializes in taking complicated words and descriptions that engineers commonly use and reworking them until she's got something that is easily digestible for the folks interested in modeling and simulation. A few of her projects include this monthly newsletter, along with press releases, brochures, and website content. Morgan is also responsible for developing and rolling out MÄK's fresh new look! As a Marketing Communication Specialist, Morgan makes sure that all graphic design content is kept up-to-date and current with the MÄK branding - which will come full circle for all to see at I/ITSEC 2013!

Before her role at MÄK, Morgan was a Marketing Communications Intern at the German American Chamber of Commerce in Atlanta and a Program Assistant with the Boston University Study Abroad Engineering Program in Dresden, Germany. Morgan holds her B.S. in Communication from Boston University, with a Minor in German.

Morgan spent a year living abroad in Dresden, Germany right after graduating from BU. She claims she's a bit rusty with her Deutsch skills, but she's a pro! While living in Germany, she managed the living aspects of a travel abroad program for BU, which included being on call 24/7 for all 40 non-german speaking engineering students. This lead her on all kinds of trips - from hospital visits (ohh college kids...) to excursions to neighboring countries. She was able to travel to Barcelona, Sevilla, Istanbul, Prague, Berlin, and Munich, to name a few!

Something else you may not know about her, Morgan is from the south y'all! She was born and raised in Augusta, Georgia and has the twang to prove it, though she denies it. Morgan enjoys reading, practicing yoga, baking, painting, watching HGTV religiously, and challenging the MÄK engineers at foosball. (Sometimes she does win.)

Our MÄK team is made up of extremely talented individuals! We hope you've enjoyed getting to know us. Check out our [website](#) for the latest and greatest on MÄK!

