

Experience Virtualization

How Virtualization helped us overcome three recent problems at MAK.

The MAK Suite Guide to Virtualization

MAK products in server, virtual machine, and cloud architectures.

Tech Tip: MAK RTI 4.5: Configuring RTI Settings

Use these parameters to tune the performance of your federates and federations

NewsMAKers

VR-Forces 4.6.1, VR-Vantage 2.3.1, the latest Tech Savvy Guide, and an upcoming VR-Forces class



Danny Williams presenting the Synthetic Training Environment demo at I/ITSEC 2017. This large demo is now hosted in the cloud, and can be turned on for customers on demand.

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How Virtualization helped us overcome three recent problems at MAK.

At MAK we test our software in the same types of IT configurations that our customers use. Increasingly those architectures involve some form of virtualization. Making the leap to servers, virtual machines, and clouds can provide benefits of flexibility, scalability and rapid deployment.

In this newsletter we share some exciting experiences we've had using virtualization to overcome problems we encountered in our business. Hopefully, our problems sound a lot like yours, and these experiences will help you find similar solutions.



Problem #1: We needed more computers for our classroom

Melinda Minear oversees MAK's online and on-site training classes that are designed to keep our customers up to speed on how to use the latest features in our software. At our most recent VR-Forces training class in July, we ran into a fairly common issue. Due to an overwhelming demand for the class, we discovered that we had more trainees than high-performance computers in our training center. We needed to get the extra students something to train on, and quick.

To accommodate the additional students, Melinda decided to train them on virtual machines hosted inside the Amazon cloud. The public cloud infrastructure allowed her to quickly spin up as many powerful virtual machines as she required and run them on thin clients in the classroom. Once she created an instance of the classroom software configuration, she could easily provision each new student and be assured that all the students would have the same versions of the software.

Elasticity – the ability to quickly add or remove additional computers to a training exercise – is an important factor in classroom settings where group sizes tend to vary. After the success we had in our last training class, we are now transitioning to use private and public clouds for our future training courses. The combination of elasticity, low cost, and wide range of configuration options makes it an ideal classroom solution.

Problem #2: We were waiting on hardware to be procured

Greg Dreyfuss-Kaufman has been working on VM architectures in an effort to better service our customers, as they are increasingly using VM and cloud solutions with MAK software. Some of the troubleshooting work he does involves building our own VM systems for testing and experimentation. Building a VM involves identifying and procuring the necessary hardware, including expensive servers with the power and graphics capabilities needed for modeling & simulation applications. Once the hardware was identified, we experienced a pain familiar to our customers – we had to wait, for what often seemed like a long time, to get the systems in-house to begin working with them.

Greg wanted to immediately start determining if MAK's graphics heavy software would run well in a VM architecture and provide users with a satisfactory experience. He didn't want



Click on the play button above to watch Greg and Dan discuss his VM/Cloud work in the latest episode of MAKradio!

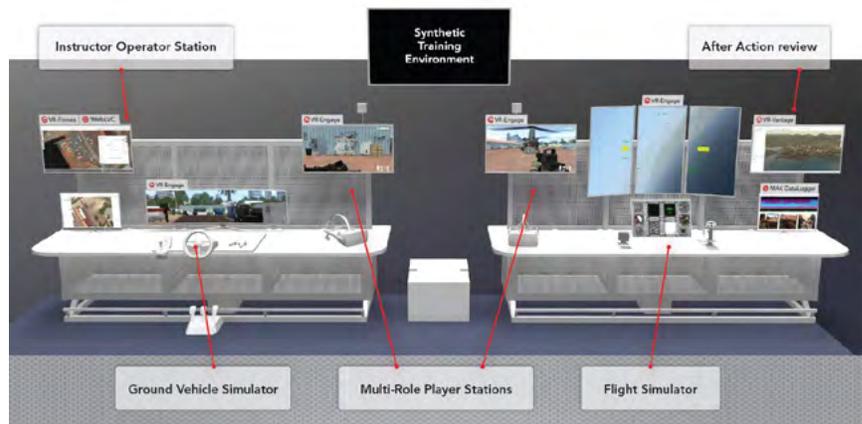
to wait for the VM hardware to show up, so he decided to start working on a virtual machine arrangement he spun up in the public cloud. With hardware he was able to specify in the cloud to match what he had on order, Greg learned how to create and deploy our software on VM instances. He also learned how important the virtual desktop software was to the frame rate and latency of the video delivery from the cloud to the client machine. Using the cloud, Greg remained productive testing and determining best practices before his hardware arrived, all for a low hourly cost.

Waiting for hardware isn't just a MAK problem- many of our clients have long wait times, especially when those machines have to be processed and certified for use in secure environments. We use the public cloud on an everyday basis now to mitigate procurement issues by accomplishing as much of the development as possible in replica public cloud systems. As a result, we can get started on our work immediately and more efficiently meet important deadlines for our customers. Greg is continuing to find new efficiencies and techniques to maximize the use of VMs and public/private clouds. Watch our website for updates and tips on how to setup MAK software in these architectures.

Problem #3: Some of our customers couldn't make it to I/ITSEC, and missed out on our Synthetic Training Environment

Every year, Dan Brockway's team works to develop awesome new demos for the I/ITSEC show in Orlando, where the M&S community gets a chance see our software in action. This

past year, we developed the Synthetic Training Environment, a complex 25-foot wide demo consisting of 6 workstations, 9 displays, and a dozen computers. The system was designed to be similar to our customers' systems, in order to familiarize them with the comprehensive MAK suite, and demonstrate how our products fit together. It was very effective



at the show, but it's not feasible to bring a 25-foot system to every meeting we have around the world. Dan wanted to be able to deliver the system closer to the point of need.

To bring the demo to our customers more easily, Dan decided to replicate our huge I/ITSEC demo system in the public cloud and call it the 'MAK Suite Demo'. We set up a system of equivalent virtual machines online and developed a page on our website to control the entire simulation exercise. Customers can visit anytime and learn about how the MAK suite

of products are used to develop a complex training system. Authorized users can fire up the system instantly and access the workstations no matter where they are in the world, all with the press of a few buttons. Now, if you can't make it to I/ITSEC, our demo can make it to you — just [visit the page](#) and [tell someone at MAK to turn it on!](#)

As a result of Melinda's, Greg's and Dan's successes, training, testing VMs, and deploying systems in the cloud, we have gained experience and confidence that is helping our customers choose the right alternatives for them. Many of our customers choose VM and Private Cloud over Public Cloud deployments due to security concerns.

Whichever architecture makes sense for your organization, MAK is ready to help you build out a modeling and simulation system that fits.



Making the leap to servers, virtual machines, and clouds can provide benefits of flexibility, scalability and rapid deployment. However, there are costs, limitations and obstacles that can impact each system differently.

This story builds from local implementations using desktop computers, through servers that make resources and applications available to multiple users, to virtualization as a way to maximize the use of computer resources, to private clouds that provide the services needed to manage

and operate the servers, and finally to public clouds that provide access to vast scalability on demand.

[Download this document](#) and you'll learn:

- The benefits of each type of IT architecture
- The costs, or obstacles, that each presents
- Impacts on the User Interaction Feedback Loop
- How MAK products are specifically designed to fit at each level.

...and so much more.

[Click Here to download The MAK Suite Guide to Virtualization.](#)

Tech Tip: MAK RTI 4.5: Configuring RTI Settings

By Fred Wersan

The MAK RTI has many configuration parameters that control how it connects federates to federations and how it implements the various RTI services. You can use these parameters to tune the performance of your federates and federations. In MAK RTI 4.4.2 and previous releases, these parameters were set in the following ways:

- Using default values.

- By configuring connections in the RTI Preferences dialog box.

- By submitting parameters through RTI Ambassador (HLA Evolved only).

- By command line arguments to RTI components (for example, rtiForwarder or rtiexec)

- By setting values in the RTI Initialization Data (RID) file (rid.mtl).

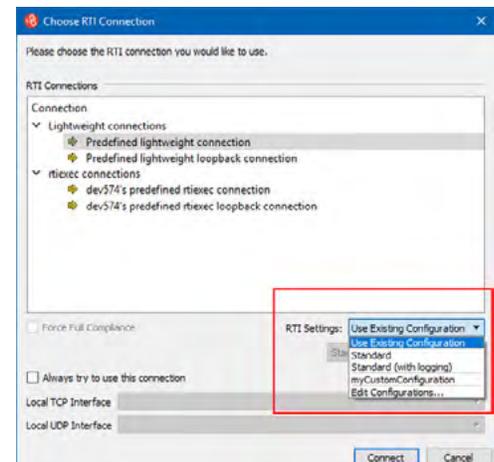
While you could easily configure and reuse basic connection parameter configurations in the RTI Assistant GUI, the process was more cumbersome if you wanted to set up reusable configurations of other more advanced parameters. Creating reusable configurations for advanced parameters required creating variations of the RID file that you could specify using an environment variable or writing batch files for command-line arguments used to start up RTI components. For example, the MAK RTI includes the standard rid.mtl file and ddm-rid.mtl, which is customized for DDM. One way to configure federates to use the ddm-rid.mtl file would be to set the RTI_RID_FILE environment variable. (Making your own specific changes would require you to also copy and edit the rid.mtl file.)

In MAK RTI 4.5, we have made it easier for you to set up different configurations by adding the notion of RTI Settings to the connection configurations and letting you edit RTI Settings in the RTI Assistant. The settings that you can edit are the most frequently modified parameters in rid.mtl. (If you need to change the less frequently modified settings, you will still need to edit rid.mtl.)

MAK RTI 4.5 includes two RTI Settings configurations, "Standard" and "Standard (with logging)". The "Standard" configuration essentially matches the default parameter settings in rid.mtl. "Standard (with logging)" adds debug-level diagnostic logging.

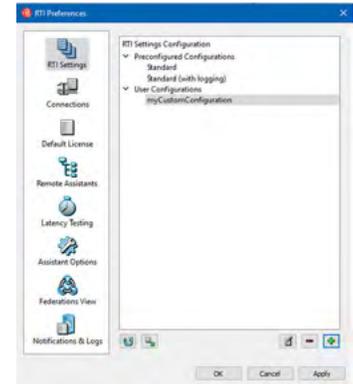
Choosing an RTI Settings Configuration

When you start a federate and you select an RTI connection, you can select the RTI Settings configuration that you want to use, as illustrated.

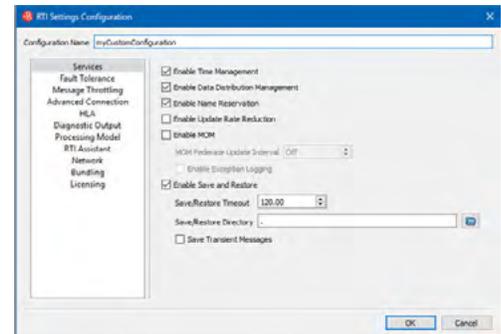


Creating and Editing RTI Settings Configurations

You can create new RTI Settings configurations and edit existing configurations in the RTI Preferences dialog box. The RTI Settings page lists the available configurations:



You edit settings in the RTI Settings Configuration dialog box. This dialog box has pages on which you can set the most commonly modified parameters.



The next time you connect to a federation, you can use your edited RTI Settings. For most RTI users, there will be no need to edit a RID file any more.

NewsMAKers

Get the latest updates and features with the new maintenance releases of **VR-Vantage 2.3.1** and **VR-Forces 4.6.1**!

We've released the latest version of our super-popular Tech Savvy Guide to Virtual Simulation! Download it for free [here](#)!

We've announced a new upcoming on-site training class for VR-Forces! The class is one week long - please contact your sales rep to sign up. You can view the syllabus [here](#).

Follow us on [Facebook](#), [Twitter](#), and [LinkedIn](#)! We bring frequent updates, show news, videos, and sneak peeks of MAK products.