

May
2018

What's Up MAK

The Power of the Suite

The releases of VR-Forces, VR-Vantage, and VR-Engage unleash a slew of exciting new features and capabilities.

A Superior Video Experience: MAKtv

We've refined the best way to experience MAK videos.

Tech Tip: Order of Battle

VR-Forces now supports the creation of orders of battle.

NewsMAKers

We announce upcoming training, several new product releases, and MAK partners with RTI.



The Power of the Suite

*Exploring the air capabilities of VT MAK's 2018 suite of simulation software.
Come see us at ITEC in Stuttgart, Germany! [By Rob Hamilton](#)*

Springtime marks the season for updates to the MAK suite. The releases of [VR-Forces 4.6](#), [VR-Vantage 2.3](#), and [VR-Engage 1.2](#) unleash a slew of exciting new features and capabilities for all of MAK's customers, across domains and system architectures.

VR-Forces, VR-Vantage, and VR-Engage share software technology that creates unique advantages for customers. The rich visual quality of VR-Vantage permeates VR-Forces' 3-D views, bringing IG-worthy visuals and better visual correlation to your CGF. The simulation engine that powers VR-Forces, to simulate everything from low-tickrate theaters of war to high-tickrate missile interactions, is tailored to support immersive first-person experiences in VR-Engage. When one of our products makes an advancement – for example the addition of CDB support for terrains – the benefit is passed along to the other products in the MAK suite.

This tight integration of capabilities gives MAK products the power and flexibility to model real-world environments at any scale. Let's explore a few of these new benefits as we take a virtual walk around several systems that model different aspects of our world.

Our first stop is an analysis system, where analysts study a large theater of war, replete with many hundreds of land, maritime, and air units, as well as missile and missile defense simulation. Video walls are filled with 2-D situational awareness displays, 3-D God's-eye views, and data readouts of all kinds. The core of the behavior is simulated by VR-Forces. The MAK networking tools distribute the status to command and control systems of all types, each focusing on a particular aspect within the simulation. These systems take advantage of MAK's ability to model complex entity behavior over long periods of time. Some benefit from the ability to accurately simulate engagements to ensure that the simulation is calibrated to match analytical test results.

A short walk down our virtual hallway brings us to a room full of VR-Engage flight sims, where

training is being led by an instructor. The students are learning battle strategies and how to use their electronic systems as well as their eyes to maximize situational awareness. The flight sims incorporate VR-Vantage technology to render stunning, realistic out-the-window scenes of the environment.

The pilots begin with visual flight rules (VFR), using natural features and landmarks modeled within

the VR-The World Terrain to navigate without emitting signals that might give away their position. When they come upon integrated air defence systems, modeled by VR-Forces, they use noise and deception jamming to confuse the opposing missile systems. Alarms scream from the VR-Engage radar warning receivers as pilots deploy countermeasures and try to evade the incoming missiles.



VR-Vantage technology is shared with VR-Engage to render beautiful out-the-window views, with improved lighting for low-light scenes.

The instructor switches back and forth from his 2-D tactical view to a 3-D stealth view of the scene, which he knows correlates perfectly with the scene the pilot sees. He adds surface and airborne threats based on his pre-defined order of battle (ORBAT), then fine-tunes the threat behaviors to stimulate just the right amount of stress on the trainees.

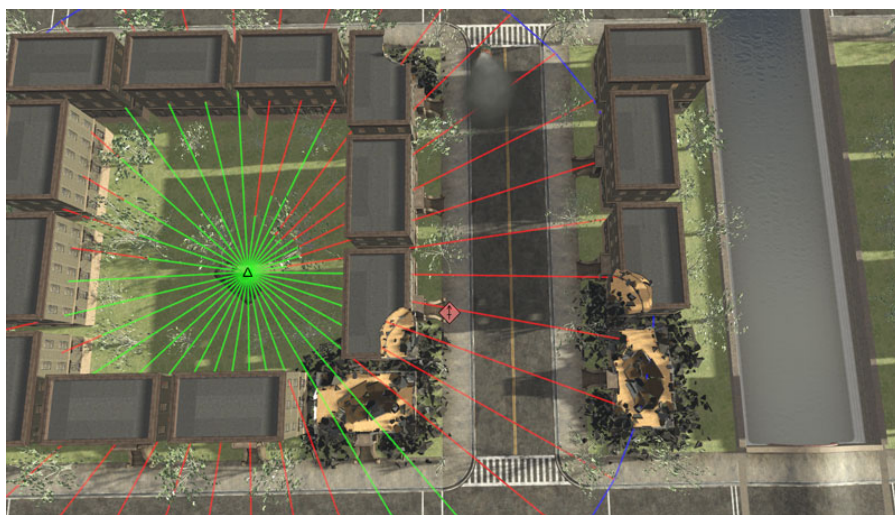
Across the hall, another room is outfitted with a Joint Terminal Air Controller (JTAC) training system, where trainees learn to call in airstrikes from an advanced position at nightfall. The JTAC is immersed within a multi-channel dome display where VR-Vantage IG renders scenes

of the surrounding area and the target site – his thermal imager is fed a scene from VR-Vantage IG & SensorFx to present a close-up view of the target. When simulated artillery units launch illumination flares, not only can the JTAC see the enemy's position visually, but the detection models within VR-Forces also react to the improved visibility and adjust the behavior of the CGF entities accordingly.



The JTAC is responsible for calling in airstrikes on enemy targets.

The JTAC trainee recognizes his target in the light of the flares and radios in his 9-line command for a strike. An instructor responds by either tasking a CGF aircraft to fly the bombing mission or, if he has an instance of VR-Engage, he can choose to fly the mission in



As buildings are destroyed, new sightlines and pathways are created.

first person. To complete the mission, the JTAC observes the strike, and calls in his battle damage assessment over the network radio system included in both VR-Forces and VR-Engage. He describes the units hit, as well as to what extent surrounding buildings have been destroyed. Those crumbling remains yield more sightlines for him to explore and now he, and the CGF, can view the enemy's movement patterns in the newly-altered scene.

MAK's products are designed to be used stand-alone or to be integrated within our customers' solutions, but the most advanced capabilities and the best value come when customers take advantage of the whole suite. Effective systems are built on the right combination of products that are tuned to match the needed fidelity. Our products are built to scale and to target specific performance requirements. We're excited to share this technology with you - if you're interested in a free evaluation of VR-Forces 4.6, VR-Vantage 2.3, or VR-Engage 1.2, [click here](#). If you want more information and wish to speak to a salesperson, [click here](#).

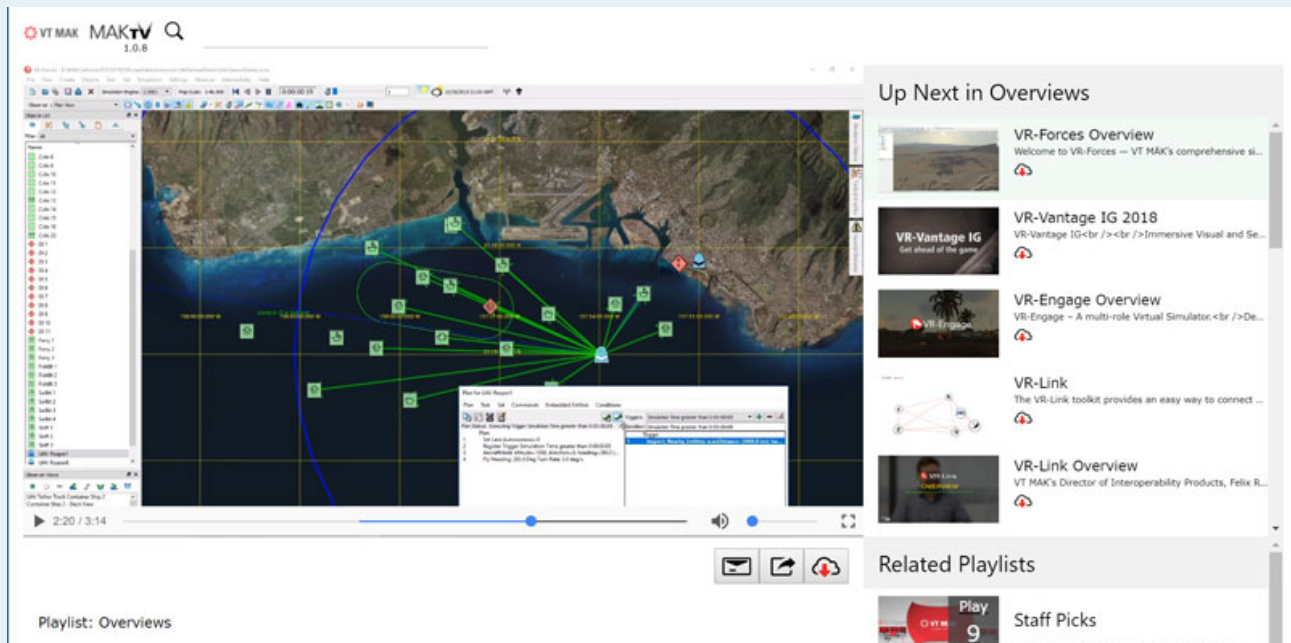
A Superior Video Experience:



We introduced the concept of MAKtv to the public last year, with the goal of developing a superior video experience for you when you visit our website. While it's been very successful and more people are viewing more MAK videos than ever before, we're always looking for ways to make the experience better. With that mindset, we've developed an updated MAKtv that we think fits the bill.

When you [visit mak.com/maktv](http://mak.com/maktv) today, you'll find a brand new, clean, and updated interface that supports search functionality, includes detailed descriptions of our videos, and provides easy links for you to share or download the video you're watching. In addition, we've added more playlists with all of our latest content, and suggest related playlists that share commonalities, so you can explore and easily find new and relevant videos.

Give it a look and see what you think – we have big plans to keep expanding its functionality to bring you the best experience possible. If you have specific questions, suggestions or comments, [contact Rob Hamilton](#) in the marketing department. We're always happy to hear what you think!



Tech Tip: Order of Battle By Fred Wersan

When you are creating a scenario in VR-Forces, you usually have complete access to all of the simulation objects in a simulation model set (SMS) and can create as many as you want. However, in the real world, commanders do not have unlimited resources. They are constrained by their Order of Battle (OOB), which specifies the men and material available in a hierarchical structure. VR-Forces now supports the creation of OOBs. You create an Order of Battle in the context of a scenario. However, once you create an OOB, you can export it and then import it into other scenarios. This lets you quickly create new scenarios that use the same OOB for training or scenario development.

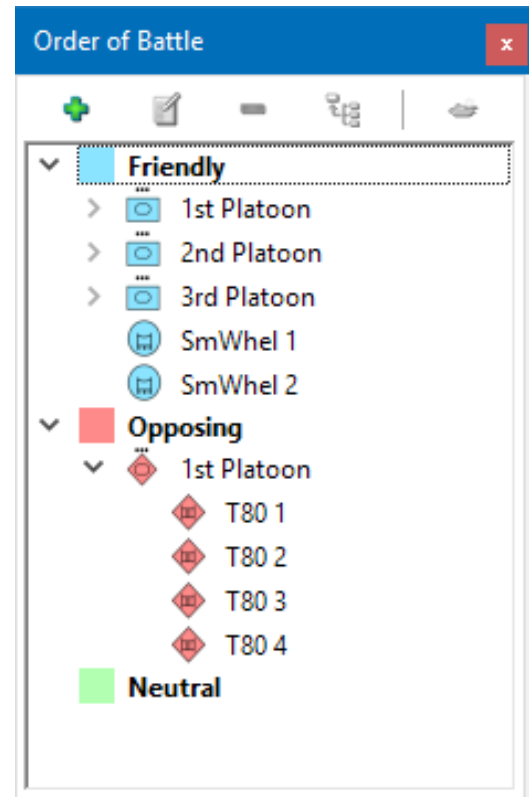
Here's a quick look at OOBs. (As always, full details are in VR-Forces Users Guide.)

To create a new OOB:

1. Choose View -> Order of Battle Panel. The Order of Battle Panel gets added to the panels on the left side of the VR-Forces window.
2. Click the Add button. A window similar to an object creation palette opens.
3. Select the simulation object that you want to add to the OOB. Use the filtering options, force selection, and so on to help select the object.
4. Click Add. The simulation object gets added to the Order of Battle panel.

Continue adding objects to build the OOB.

If you are working from an existing scenario, you can add the objects in the scenario to the OOB individually or all at once. You can edit the OOB by adding, removing, renaming, and organizing into units.



Once you have an OOB, you can populate a scenario by adding objects from the OOB to the scenario. You can use an OOB along with the Simulation Objects Palette (the honor system) or you can constrain scenario creators to only use the OOB for their exercise.

There is a key difference between creating objects from an OOB and from the Simulation

Objects Palette. When you select an object in the Simulation Objects Palette, you can create as many instances of that object as you want. When you create an object from an OOB, you can create only one object for each object on the palette. If your order of battle needs 25 HMMWVs, then you add 25 HMMWVs to the OOB. When you create a scenario, you can add one HMMWV to the scenario for each one in the OOB, but no more than that.

Suppose you want scenario creators to use the Order of Battle to create simulation objects instead of the Simulation Objects Palette. The simple way to do this is to choose View -> Window Layouts -> ORBAT Scenario Creation. This window layout adds the OOB Palette to the window and removes the Simulation Objects Palette. This is the honor system approach, since anyone who understands how to hide and view GUI components can just open the Simulation Objects Palette.

If you really want to hide the Simulation Objects Palette, do the following:

In the GUI, open the Window Layout Manager, delete the Scenario Creation layout (you can always restore it from the factory GUI layout file), and close VR-Forces. Then in ./appData/settings/vrfGui/default_guiSimpleScenarioPlayer.gui comment out the line that configures the Simulation Objects Palette:

```
<menu menuname="DtPaletteViewMenu">  
  
  <!-- <menuitem itemname="EntityCreationPalette"/> -->  
  
  <menuitem itemname="ORBATCreationPalette"/>  
  
  <menuitem itemname="PropCreationPalette"/>  
  
  <menuitem itemname="TacticalGraphicCreationPalette"/>  
  
</menu>
```

Restart VR-Forces. Use the ORBAT Scenario Creation window layout. Users will not be able to open the Simulation Objects Palette.

NewsMAKers

SensorFX - Introduction & Overview (Webinar)

Date: MAY 23, 3:00 - 4:00 EDT

This webinar will provide an introduction to and overview of the features of SensorFX. SensorFX is a plug-in module for VR-Vantage to generate EO, IR, and NVG scenes. It models the physics of light energy as it is reflected and emitted from surfaces in the scene and transmitted through the atmosphere and into a sensing device.

VR-Forces Training (On-site)

Date: JUNE 11-15

To sign up, please contact your salesperson. If you would like to experience an on-site course designed around your needs, including in-depth programming, please email us at info@mak.com.

Missed a class? Online courses are available to watch and download at your leisure [here](#).

Follow us on Facebook, where we bring frequent updates, show news, videos, and sneak peeks of MAK products. Visit us [here](#) and follow to always get the latest from MAK!

VR-Link 5.4, VR-Forces 4.6 and VR-Vantage 2.3 were released in April! All three products received a long list of upgrades and improvements. Check out the release announcements for VR-Link 5.4 [here](#), VR-Forces [here](#), and VR-Vantage [here](#).

Real-Time Innovations announced a partnership with VT MAK to demonstrate interoperability between HLA federations, and DDS-based systems and components for the training and simulation market. Read the press release [here](#).

We want to make sure you can always see the latest news from MAK, not just at the beginning of the month - so we created a new version of our news page on our website! [Take a look there](#) to find the latest press releases, product releases, timely blogs, and newsletters from the world of MAK.