

March
2018

What's Up MAK

VR-Forces 4.6: The Evolution Continues

There's something
for everyone in
VR-Forces 4.6

A Deeper Dive: Electronic Warfare in Action

VR-Forces more
accurately depicts
radar and jamming
activity

Tech Tip: Tag - You're It!

We've found ways
to make the user
experience in
VR-Forces better
than ever

NewsMAKers

We announce
upcoming training
and seminars,
as well as trade
shows we're
attending



VR-Forces 4.6: The Evolution Continues

The latest evolution of VR-Forces, version 4.6, contains improvements that will be tangible to virtually every VR-Forces customer. Whether you're looking for custom outcomes for your missile simulations, modeling the electronic warfare battlespace, or engaging in low-light battle scenarios, there are new features that will improve your simulation accuracy. For those who use CDB databases, model close-up warfare, or want to make last-second changes to a scenario, this version of VR-Forces makes your job much easier.

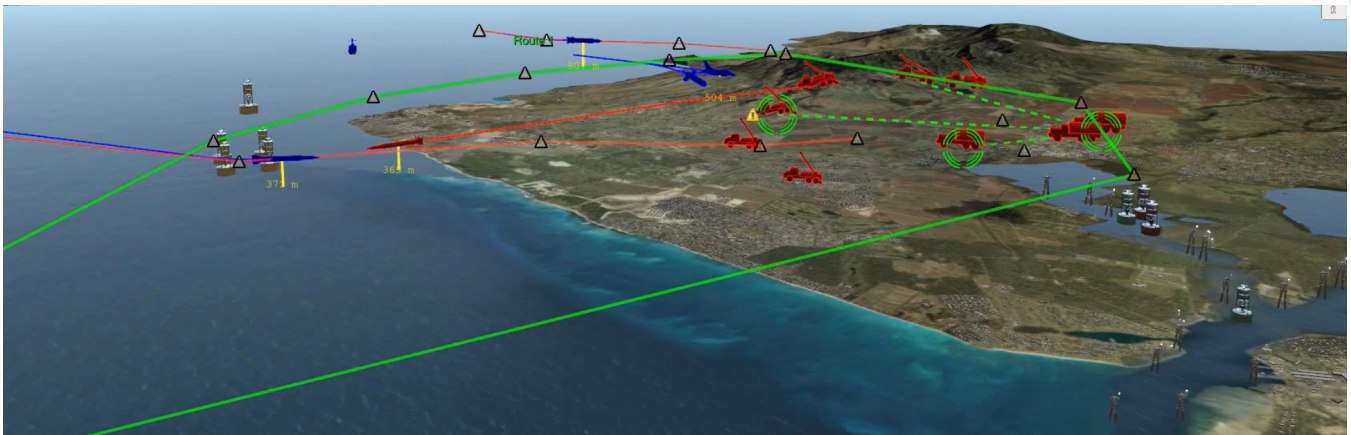


Missile Hit Tables

VR-Forces 4.6 features fully customizable missile hit tables. Users can now rely on default values for outcomes or enter their own outcome probabilities to create a simulation reflecting their own data.

VR-Forces uses a hit table to determine the outcome of a given interaction and then drives the model to visually replicate the event. This contrasts with previous versions of VR-Forces, in which a missile's movement model would determine a hit – assuming the missile model could accurately maneuver close enough to the target to attack it successfully.

Missile hit tables are more accurate and easier to customize to reflect new or proprietary information. This greatly improves modeling of Anti-Air and Anti-Missile interactions.



Electronic Warfare - Radar Systems and Jammers

Modeling the electronic battlespace is improved dramatically in VR-Forces 4.6, with particular attention given to radar systems and jammers.

Radar systems now publish electronic emissions data for all sensor contacts, making them available to everyone in the simulation.

Jammer systems can be added to entities and objects with jammer systems can also publish jamming information about beams in the electronic emissions network.

Users can configure whether to use 'deception jamming' (only jamming object is not seen) or 'noise jamming', in which all objects get blocked.

These can be set as reactive tasks to produce fairly complex results. One reactive task has been added out of the box to automatically 'deception jam' all entities that are tracking the aircraft.

For more information on Electronic Warfare (with visuals), check out our deeper dive later in this newsletter.

Parachuting

Easily the most visually impressive of our improvements is the addition of parachuting to VR-Forces. Paratroopers can be selected from the list of entities, and are fully equipped to parachute to a position. For those seeking additional customization, any soldier can be configured with a parachute, allowing them to be dropped from an aircraft at altitude in the same way.

Entities with parachutes can be assigned a designated drop zone, and a specific elevation to open their chute. The parachutist will steer their chute towards the drop zone, even spiraling down to their destination if they are at an excessive altitude for the distance. They will also attempt to compensate for wind effects, which will affect their movement as they fall.



Battlefield Illumination

One of the more challenging aspects to low-light battle simulation is dealing with the intentional and unintentional aspects of battlefield illumination. This can come from artillery flashes or flares, and makes a big difference as far as detection goes in the real world.

To compensate for this, VR-Forces simulates and visualizes illumination from artillery fire, and allows entities to detect objects when lit up by illumination from that fire. This allows for low-light simulations that should more realistically represent true combat results.

Path Data Regeneration for Dynamic Terrain

Buildings in VR-Forces can be set to multiple states, including different levels of destruction. When this occurs, paths through them change - which is obvious in reality, but an additional complication for simulation, especially when it comes to automatic path generation. In VR-Forces 4.6, when a dynamic terrain event occurs, the path data, which is used for human character navigation, will automatically be regenerated to reflect the new landscape. Characters will now be able to find (or be blocked from finding) paths through destroyed buildings.

CDB Support

For customers who have CDB requirements, VR-Forces 4.6 features increased database support. This includes geo-typical and geo-specific model support, updated OpenFlight support for model textures, and correct LODs and processing of models.

Light points and airport markers, as well as SpeedTree model replacement and land use data for procedural imagery are all supported in this latest version.

This has been just a quick description of some of the major new features of VR-Forces 4.6. There are many more, far too many to list here, so please feel free to ask your sales representative for more details. We're confident that just about every user is going to find a new feature that calls out to them.

For more information on VR-Forces, check out the [product page](#).

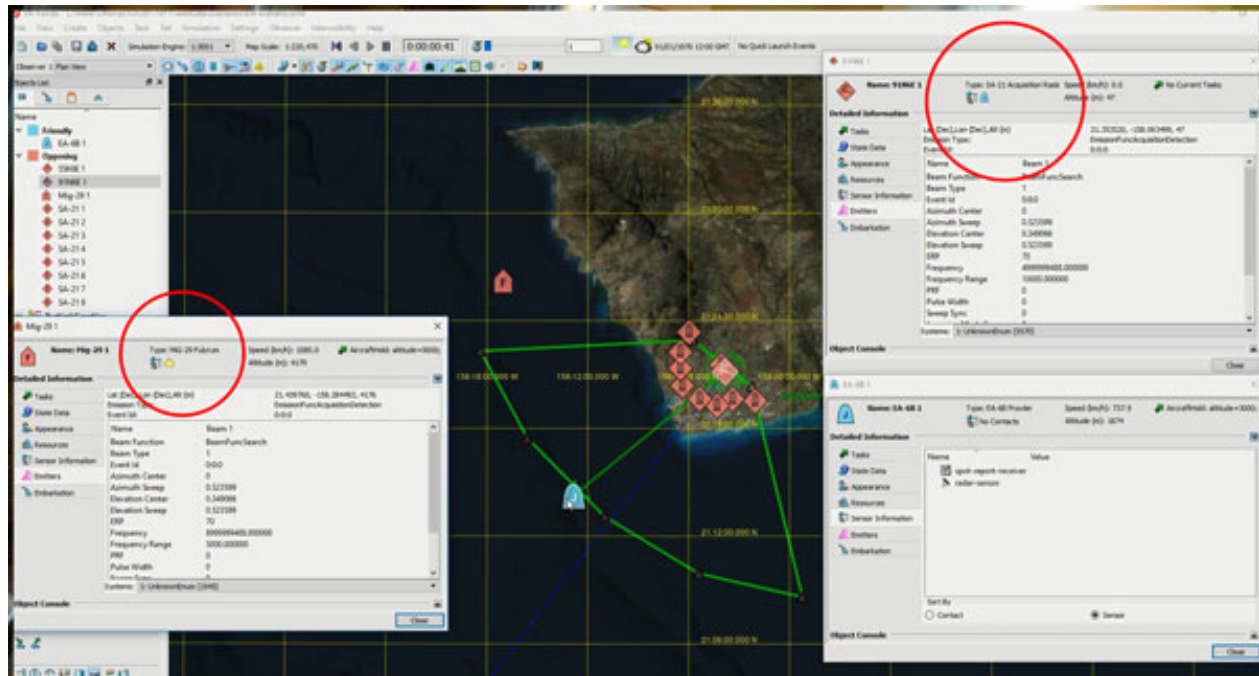
A Deeper Dive: Electronic Warfare in Action

With VR-Forces, we're always looking for ways to create scenarios that more accurately represent the experience of battle and give instructors as many real-world features for training as possible. In VR-Forces 4.6, we take a step forward in our capacity to simulate electronic warfare, with improved radar system and jammer functions:

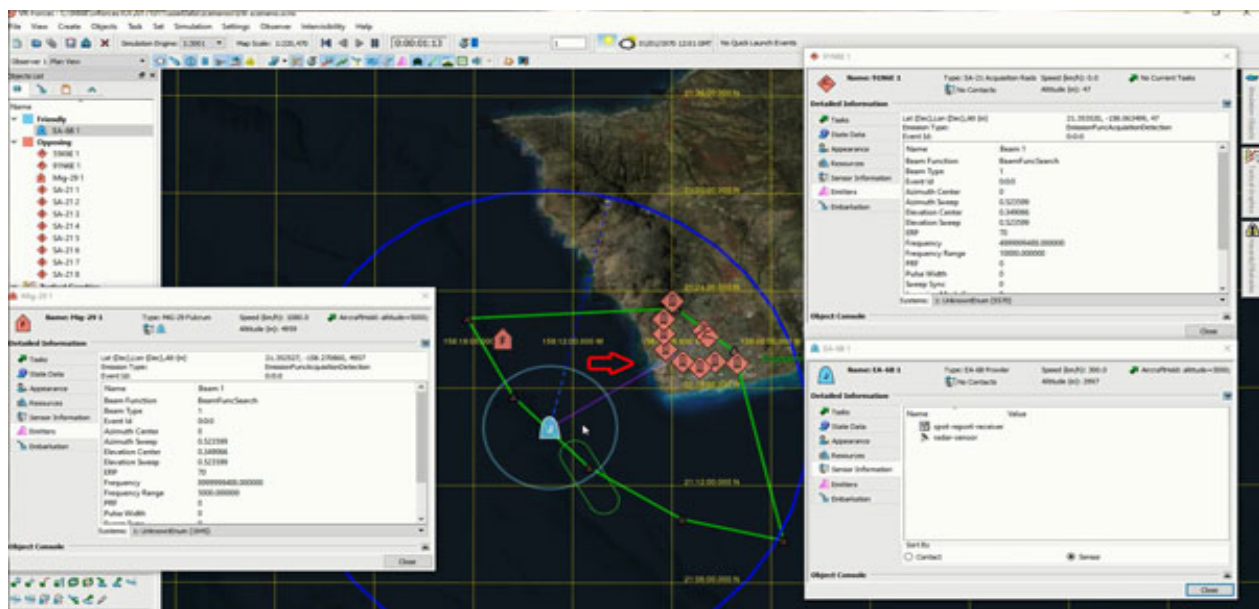
- Radar systems now publish Electronic Emissions data for all sensor contacts.
- Jammer systems can be added to entities.
- Objects with jammer systems can publish jamming information about beams in the electronic emissions network objects for maximum interoperability.
- Entities that are jammed will not detect the jammer entity or any entity based on radar receiver configuration.
- You can configure how much power a receiver needs to be deception jammed (only jamming object is not seen) or noise jamming where all objects get blocked.
- All of this can be used in reactive tasks to produce fairly complex results. One reactive task has been added out of the box to automatically deception jam all entities that are tracking the aircraft.

Let's take a look at what those new features look like in action, when an SA-21 SAM System and a MiG-29 jet fighter detect an incoming EA-6B Prowler electronic warfare aircraft:

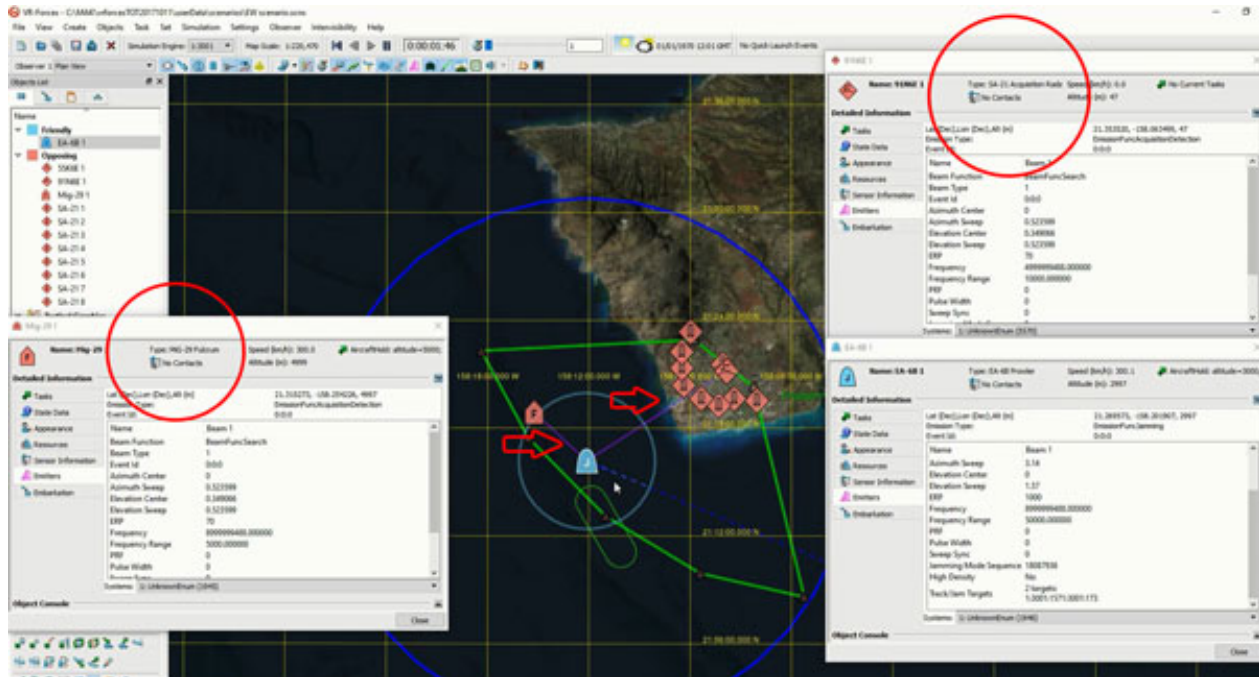
As the scenario begins, we see that the Prowler has been detected by the SA-21 and the MiG, and they begin classification.



The Prowler recognizes that it has been detected, and enables jamming. In this case, the Prowler chooses to jam the SA-21 specifically - this is published on the network and indicated here by the purple line.



The Prowler adds the MiG to its jamming list. Note the two purple lines as indicators, also that the MiG and SA-21 detect "no contacts".



VR-Forges supports individual track jamming (as seen above), complete jamming (which jams all nearby tracking entities), as well as effective angles (jams all tracking entities in a particular direction).

For more information on VR-Forges, [check out the product page](#), or [request a demo](#).

Tech Tip: Tag - You're It!

During the time between VR-Forges releases, as we work with development versions that have all the new features, we get used to the usability improvements that we've added. When we have to go back and use a prior release, the usual reaction to the old version of whatever function has been updated is, "Darn, the old way of doing things is so annoying (by comparison)!"

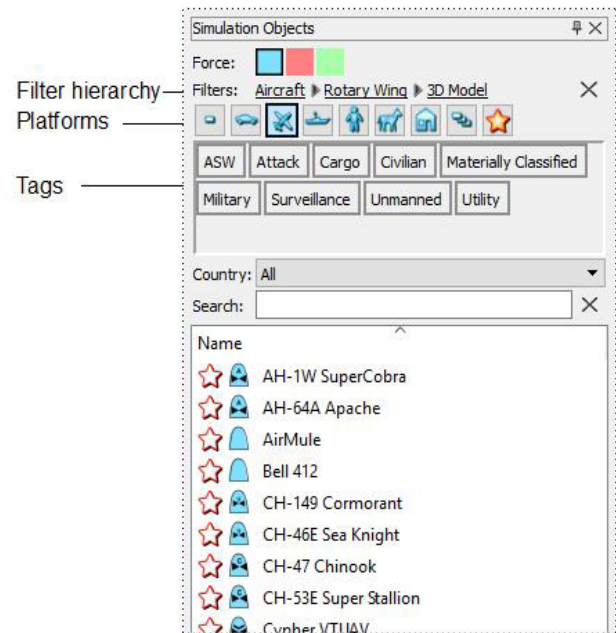
One of the new usability features in VR-Forges 4.6 is a revision to filtering the object creation palettes. In VR-Forges 4.5 and prior releases, you could filter the object list by selecting the force and category in drop-down lists. Lists are OK if there aren't too many options, but if you have to scroll, they can be annoying. And even short lists take longer to use than icon bars. In VR-Forges 4.6 we have replaced the drop-down lists with quickly accessible icons.

Selecting the force is now just a matter of clicking a colored button for the force you want.

Categories have been replaced with tags. At the top level, the major platforms are now chosen from a toolbar. That alone would make things quicker than previous releases. However the beauty of the new system is the ability to assign multiple tags to simulation objects. These tags allow you to successively narrow the filtering of the list.

For example, suppose you want to create a utility helicopter that has a 3D model. Previously, the best you could do was to select the Rotary Wing category. Then you would have to know which helicopter to select. Now, you do the following:

1. Click the Aircraft filter icon. The objects list redisplay to show only aircraft. And the tags list redisplay to show the tags that apply to rotary wing aircraft.
2. Click the Rotary Wing tag. Now only helicopters are shown. The object list redisplay and the tags redisplay.
3. Click the 3D Model tag. Again, the list redisplay and the tags redisplay.
4. Click the Utility tag. The four helicopters that match all four criteria are listed.
5. A final feature of the new filtering scheme is that the filters you have chosen are all listed.



You can back out of the filter hierarchy by clicking the filter at the level you want to view.

Just as with categories in previous releases, you assign tags to simulation objects in the Simulation Object Editor. You can give tags priorities to make sure that the tags that are most important to you always get displayed in the Tag window. You can also configure how large the tag window is. And, because there are so many simulation objects and so many tags, you can manage the tags in a CSV file instead of assigning them individually through the Simulation Object Editor.

We think that once you get used to using tags to filter the object creation palettes, you will agree with us that it's a great improvement in usability.

NewsMAKers

We have a set of upcoming training classes scheduled for March:

What's New in VR-Forces 4.6 (Webinar)

Date: MAR 7, 0800 - 0900 EST

Webinar will demonstrate the new features available in the latest VR-Forces release.

What's New in VR-Vantage 2.3 (Webinar)

Date: MAR 8, 0900 - 1000 EST

Webinar will demonstrate the new features available in the latest VR-Vantage release.

VR-Vantage 202 - Intro to Configuring Terrain Files for VR-Vantage & VR-Forces (Webinar)

Date: MAR 9, 1000 - 1100 EST

Webinar will focus on the specifics for configuring terrain files for VR-Vantage and VR-Forces. The course will cover the details of .mtf and .earth files and how they can be used to load, manage, and render Elevation, Imagery, and Feature data.

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

Steve Peart and Ivan Diaz will be conducting a **modeling and simulation seminar** in Bogota, Colombia on Tuesday, March 13th. Attendees will see the latest applications and developments within MAK software, including the Synthetic Training Environment, STE product summary, critical infrastructure protection, visual sensors (EO/IR, NVG), and joint training applications. If you're interested in attending, [sign up here](#) for more information.

Due to popular demand, Steve and Ivan are bringing the **modeling and simulation seminar** to São José dos Campos, Brazil on March 20th! [Sign up here!](#)

We just released VR-Engage 1.2, and it's loaded with updates and improvements! To get the full rundown on the release, check out our MAK Announcement [here](#)!

From March 26th-28th, Pete Swan will be attending the AUSA Global Force Symposium in Huntsville Alabama. You will be able to find Pete in the VT Miltope booth, #329, where he will be demonstrating MAK's latest toolkits for simulation interoperability, scenario generation and visualization. More info on the show [here](#).

We've re-launched our presence 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!