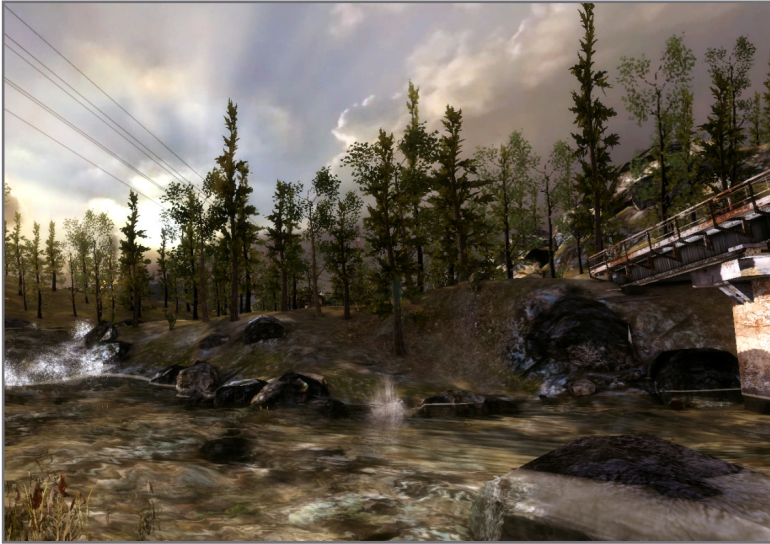


What's Up MÄK

APRIL 2013: VOL 15: NO. 4

Give Your CGF Some Game with *VR-Link for Unity*



Lush vegetation. Flowing water. Sunlight dancing through the trees. Sounds idyllic, right? Lets add particle systems, advanced character animation, and an embedded scripting environment - now we've got the beginnings of an enticing simulation world.

What if you want all those attractive visual components in your simulation, but you need role players from external simulations? Oh, and don't forget about DIS/HLA interoperability. And you want to connect to virtual simulators. And join local networks of game players. Suddenly, the list of "wants" grows longer and your ideal simulation seems out of reach.

MÄK believes you should have the simulation environment you want, while meeting the requirements you need. This is why we're bringing game engine technology into existing distribution simulation environments using standard Modeling & Simulation protocols.

On April 1st, we are releasing our new *VR-Link for Unity* product, which brings the flexibility and reliability of our flagship product, VR-Link, to the Unity game engine.

Unity provides a complete framework for creating immersive, cross-platform applications. Its advanced rendering engine supports all of the visualization features listed above, and its built in editor allows for rapid creation of games through its drag and drop editor.

MÄK's *VR-Link for Unity* is an easy-to-add asset package for Unity that integrates with new or existing projects to provide DIS, HLA 1.3, HLA-1516, and HLA Evolved distributed simulation connectivity. This gives you the power to build immersive applications, such as tactical trainers, that can interoperate with existing simulations. You can then bring validated models into your cutting-edge training system and let role players use the game to interact with those existing models. This level of simulation interoperability gives you the ability to join tactical systems together within the context of a larger operational training event, all at a high fidelity.

With MÄK, your ideal simulation is within reach.



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MÄK's Tech Tip by Fred Wersan

Checking for Task Completion in Lua Scripts

If you have used entity plans and global plans in VR-Forces, you know that in an entity plan, entities execute tasks in the order that they are listed in the plan. A new task is not started until the previous task is complete. In a global plan, tasks get sent without regard to the status of the prior task and the most recently sent task will override earlier ones unless you structure the plan to prevent that. Unfortunately, there is nothing in the plan language to help you know when a task is complete, so writing global plans can be tricky.

If you create a scripted task, the basic behavior is similar to a global plan. Suppose you send a series of tasks like this:

```
vrf:startSubtask("some-task")
vrf:startSubtask("another-task")
vrf:startSubtask("final-task")
```

It is likely that some-task and another-task will not run to completion, because final-task will override them. However, unlike global plans, the VR-Forces Lua API provides functions that let you test for task completion. So when you write a scripted task, you can do the following:

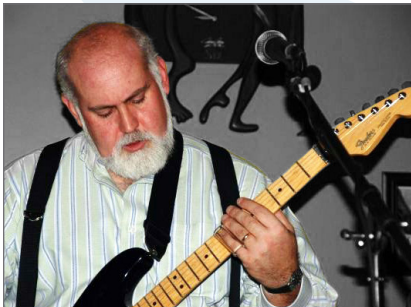
```
firstTaskID = -1
secondTaskID = -1
thirdTaskID = -1

function tick()
    -- always send the first task the first time through tick
    if firstTaskID == -1 then
        firstTaskID = vrf:startSubtask("send-text", {destination_name = "DtBroadcast", text="first task"})
    end
    -- when the first task is complete, send the second task
    if vrf:isSubtaskComplete(firstTaskID) then
        -- don't want this to be true the next tick and don't want firstTaskID == -1 to be true either.
        firstTaskID = 0
        secondTaskID = vrf:startSubtask("send-text", {destination_name = "DtBroadcast", text="second task"})
    end
    -- when the second task is complete, send the third
    if vrf:isSubtaskComplete(secondTaskID) then
        secondTaskID = -1
        thirdTaskID = vrf:startSubtask("send-text", {destination_name = "DtBroadcast", text="third task"})
    end
    -- when the third task is complete, exit
    if vrf:isSubtaskComplete(thirdTaskID) then
        vrf:endTask(true)
    end
end
```

This example is clumsier than necessary so as to demonstrate the point. Doug Reece, Principal Engineer at MÄK, has written a more elegant example of tracking task completion, as well as alternative ways to sequence tasks. You can get them [here](#).

MÄKer Spotlight: Tim Langevin

Senior Consulting Engineer



Meet Tim Langevin, a Senior Consulting Engineer at MÄK who focuses on our visualization suite, VR-Vantage. Tim has been a MÄKer for quite a while and has successfully filled a number of roles including Lead Engineer for VR-Forces, Stealth 6.x, and VR-Vantage, as well as the Director of Engineering from 1996-1998, Group and AI Lead for MÄK's Spearhead game (anyone remember that?!), and MÄK's lead for DARPA's DARWARS program.

Before joining the MÄK team, Tim was part of the SIMNET team at BBN, where he helped develop vehicle simulators and displays for real-time distributed combat simulations in virtual battlefields.

He graduated from Virginia Commonwealth University (Go Rams!) with a degree in Mathematics. But Tim is not a one-dimensional engineer – he also attended Berklee College of Music before becoming a faculty member focusing on electronic music and acoustics. As you've probably guessed,

Tim has a great interest in music and occasionally finds himself playing guitar gigs around Boston. (Insider tip: if you head to Orlando around I/ITSEC, you will probably catch him doing a bit of karaoke too!) He's also an avid PC gamer, interested mainly in RPGs and adventure.

We hope we've piqued your interest in getting to know our MÄK team. Stay tuned to our [website](#) for the latest on MÄK!

Jump right in – the water's fine!

Coming Soon to a VR-Vantage and VR-Forces Near You: Naval Capabilities

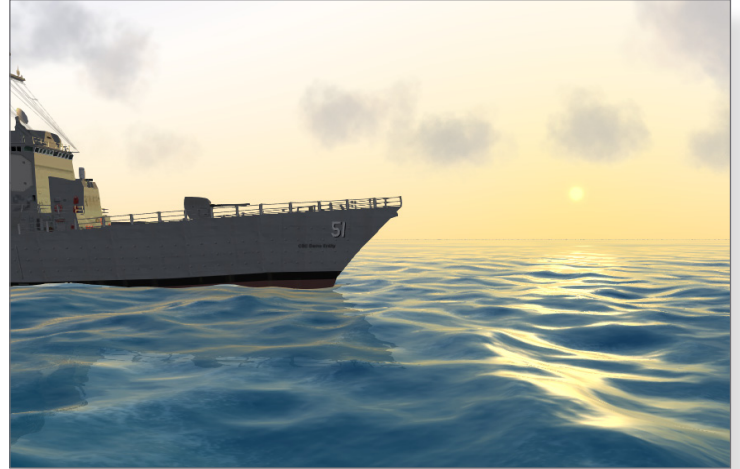
MÄK has recently embarked on a major naval campaign. We are overhauling VR-Vantage and VR-Forces to add some serious marine environments.

We're making waves building a beautiful and realistic dynamic ocean layer in VR-Vantage. The marine model will be released in VR-Vantage 1.6 in summer 2013 and will include complex wave/sea state models, such as the Pierson-Moskowitz and JONSWAP sea spectrum. These models allow you to visualize sea swells, wind waves, and capillary waves both above and below water. We will be supporting boat rocking models, realistic kelvin wakes, and propeller-wash. If you're not on the water but hovering over it, you will experience rotor-wash; if you want to just hang out at the beach, you can experience rolling surf and water transparencies at shallow depth – everything you need to see a beautiful ocean from coast to shining coast. Oh, and if it's nighttime, no worries. We've added a new lighting model that allows you to add spotlights, streetlights, landing lights, and strobe lights to any model.

If you're using VR-Forces, there are quite a few surprises in store with version 4.2, in addition to the improvements listed above. Besides completely overhauling our surface and subsurface models to move more realistically, we have added support for naval gunfire, sonobouys, and naval mines. We still plan to add support for a greatly improved torpedo model and littoral navigation using S-57 coastline and bathymetry data.

If you've already dived into the marine environment and would like us to join you, let us know. We are actively looking for customers to help us craft our requirements. Let's make a splash together.

For more information, please contact info@mak.com.



Want to experience VR-Link for Unity?

You're in luck. From now until May 31st, we're offering an introductory price of \$3500.

For more information, please contact sales@mak.com.
If you have technical questions, send them to unity@mak.com.