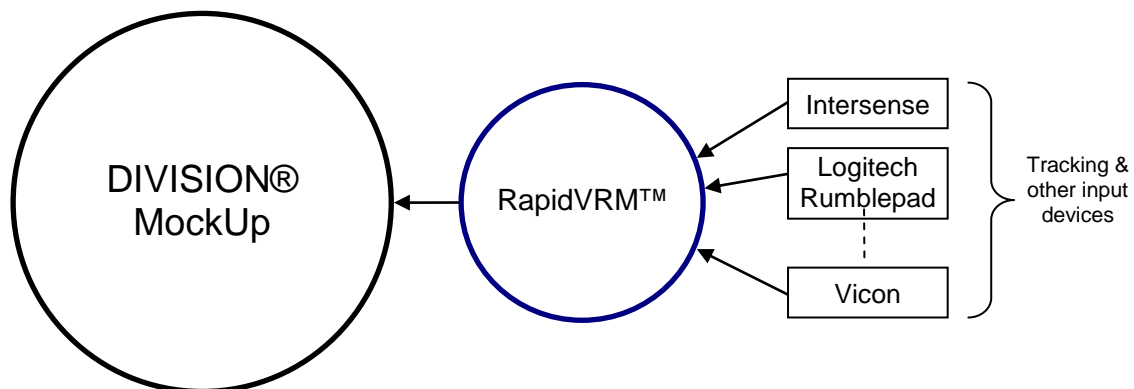


RapidVRM™ R3.0

providing immersive support for MockUp

RapidVRM™ provides an up-to-date and enhanced interface between MockUp and VRCO's Trackd® product for integrating motion tracking, and input and controller devices to MockUp. This solution supports up to 255 sensors, 31 buttons and 32 valuator to fully support new devices, and is available for Windows, Irix, HP-UX, and Solaris workstations. For Windows users, there is an additional direct Vicon API module.

RapidVRM™ can be used with large and small immersive displays to allow applications to take advantage of six degree of freedom tracking and immersive interactive tools. Trackd® supports a large number of modern tracking and interaction devices from A.R.T., Intersense, Vicon, Fakespace, Polhemus, Ascension, and others. For the latest set of supported interfaces please see [Trackd](#).



Part Tracking

Usually, when operating in an immersive environment, sensors are only attached to body parts belonging to an immersed user. However, there are situations in which it is useful to attach sensors to objects in the scene as well. For example, this may be used to track and record the sequence of movement for a hand held tool along with the precise hand movements, to track the movement of an independently controlled object, or for use in any augmented reality application or CAVE.

Assembly parts can be dynamically attached and unattached to sensors. Being assembly objects their paths can then be recorded using the MockUp Sequencer for later replay and analysis. For instance, to record an immersed user, the body parts could be created as objects rather than in the form of a MockUp 'body'. RapidVRM 3.0 provides Action Functions to permit dynamically attaching / detaching any tracked sensors onto any objects in the virtual world.

Immersive Level of Detail Control

An immersed user may now control the levels of detail in the view to trade off graphics performance with visual accuracy. In this way, if a model becomes too complex for rapid frame updates at any moment, your Wand can be used to dynamically control the rendering quality to regain interactive frame-rates!

From an immersive interaction device, user-definable buttons can be assigned to switch the level of detail for selected parts or the whole assembly, or to control the far clipping plane. These same immersive controls may also be assigned to keyboard hotkeys.

Immersive Landmark Control

By default, MockUp Landmarks store the complete six degree of freedom position for a user. This is exactly what is required for use on the desktop, but is not ideal for immersive user. When engaged in the 3D immersive environment, the orientation of the immersed user becomes tilted to match the Landmark. To overcome this, RapidVRM 3.0 provides the functionality to reset the tracker orientations to straight and level. This may be controlled from the keyboard or using an assigned button on an immersive device.

A Single Configuration for Multiple Devices

With a single instance of RapidVRM, your entire peripheral collection can be interfaced to MockUp! With support for a large number of sensors and buttons, it is quite feasible to configure several immersive and interactive devices to operate with MockUp in one configuration. Each can then be switched on or off or simply left unused while others are used.

When Trackd is used to interface to several tracking and controller devices, the total number of sensors and MockUp BUTTONS required accumulates. In these situations, with modern controllers in particular, the standard MockUp set up of 16 BUTTONS is not sufficient. For this reason, RapidVRM 3.0 extends this support to up to 255 MockUp sensors and up to 31 MockUp BUTTONS (BUTTON_0 to BUTTON_30).

The Logitech Cordless Rumblepad II

The Logitech Cordless Rumblepad II provides an ideal controller for flying through MockUp scenarios and controlling the scene with its valuators and buttons. This device can now be used with MockUp (through RapidVRM), and being a cordless device the MockUp user may sit away from the keyboard, at the front of an audience for instance.



Direct Vicon Interface

RapidVRM 3.0 introduces an optimized interface to the Vicon Data Stream, as used by Vicon Nexus and Tracker systems from 2009 and beyond. The Vicon systems provide low-latency real-time multi-camera reflective marker tracking within a volume. This Vicon Data Stream client has been created as a flexible MockUp Input Actor module, allowing any Vicon "segments" defined in the stream to be used as standard Mockup sensors, for the purposes of body tracking the virtual hands or viewpoint, and for attaching onto physical objects in the scene in conjunction with the Sensor Attach plug-in.

When used in conjunction with the Visual Advantage RapidManikin product, real-time full articulated manikins can be created at will and used within a virtual environment for a variety of tasks, including ergonomics studies, and the creation of sophisticated "how-to" instructions for "human operator in the loop" tasks.

Valuator Support

Valuators provide analogue values from a peripheral device, typically used for "proportional control". These have been unusable with MockUp until now. In RapidVRM 3.0, valuators are encoded as event streams on MockUp's virtual buttons on the first virtual keyboard. It is also possible to extract the instantaneous floating-point valuator quantities into VDI variables, for use in custom behaviours authored using the MockUp GUI.

About Visual Advantage

Visual Advantage has had extensive experience with DIVISION and PTC products over the past 15 years, working at every level from development through to supporting the end-user. We offer extensive and custom developments to extend the useful life, functionality, and performance of the MockUp product for clients who have made significant investments and aim to realise its full potential.

Please contact us for further information >>

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