

VR Library / VR Publisher

Virtools Solution for Totally Immersive PC Cluster Based Virtual Reality

VR Library

VR Publisher



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The VR Library is an add-on for Virtools 4 that allows developers to create totally immersive, full-life experiences using industry standard VR peripherals and/or PC based distributed computing (clusters). The VR Publisher enables the deployment of compositions created with the VR Library. It features remote controlling and logging facilities as well as appropriate configuration and management tools for the administrator and the end user.

"Virtools' technologies have proven to be the ideal platform for creating virtual reality applications for our CAVE. Programming is done in an extremely high-level environment which nonetheless remains open. The complexity inherent in CAVE cluster development is no longer an obstacle. With technical issues revolved, we are free to concentrate on building effective applications."

David Routier
DSIN CAD & Visualization Manager
PSA Peugeot Citroën

Full Immersion

Taking advantage of VRPN, an open source standard (more info at <http://www.vrpn.org>), the VR Publisher provides an easy out-of-the-box solution to manage and get the most out of industry standard VR devices. A VRPN server is installed on the PC managing the input devices. Device-state information is specified in a configuration file (that includes required axis modifications and tracker/antenna offsets) and is retrieved in a Virtools scene via Virtools Behavior Building Blocks, familiar to all Virtools 4 users. With head-tracking, correct user-centered perspective is setup, and full immersion is achieved through stereoscopy, whether using active or passive equipment (shutter glasses, shutter screens, polarizing filters or glasses).

Key Features

- Greater flexibility and reduced costs with standard PC hardware clusters
- VR peripheral device drivers ready to use out of the box
- More realistic experiences with advanced display synchronization
- Rapid, low cost content development using simulation mode
- Faster, more effective development using Virtools 4 intuitive interface (GUI)
- True support for multi-GPU / multi-CPU PC architectures
- Application templates and VR specific behaviour libraries to drastically reduce development time
- Ready to use set of VR demos to showcase your VR hardware and software capacities

Distributed Computing On PC Clusters

The VR Library/Publisher enables distributed computing for PC clusters, which can radically lower the cost of VR projects while offering very high performance. Scenes are synchronized by reading parameters in the master scene and passing them to client scenes. Relevant parameters for synchronization are determined by the developer authoring the application, and are easily accessible in the Schematic editor of Dev. PC cluster distributed computing enables rendering from different viewpoints, a requirement for high-performance passive stereoscopy or multi-screen displays. Note that PCs with two graphics cards or a dual-head graphics card can render two viewpoints simultaneously.

The VR Library/Publisher can also take advantage of scalable cluster platforms such as Orad DVG: add more rendering nodes per screen to increase polygon or pixel performance and/or antialiasing quality.

Comprehensive Deployment for the Administrator and the End-User

The VR Publisher gives the system administrators configuration tools to define the actual display, device and cluster parameters such as screen dimensions, stereo types, PC names. This is only to be done once and guarantees the end user that his VR experience will be compliant with the actual hardware being used. This hardware configuration facility also enables transparent interchange of VR experiences between different VR centers and displays.

Scalable Offer for Buyers

The VR Library Stand-alone offers all the development features necessary for authoring a VR experience to be deployed on stand-alone workstations, whereas the "VR Library Complete" also includes the ability to author for PC clusters.

The VR Publisher comes in 3 Levels with a scalable pricing, depending on the hardware class (see table). When deploying over a cluster, the pricing is dependant on the number of PCs in the cluster, enabling you to budget your VR software together with your VR hardware.

General Features

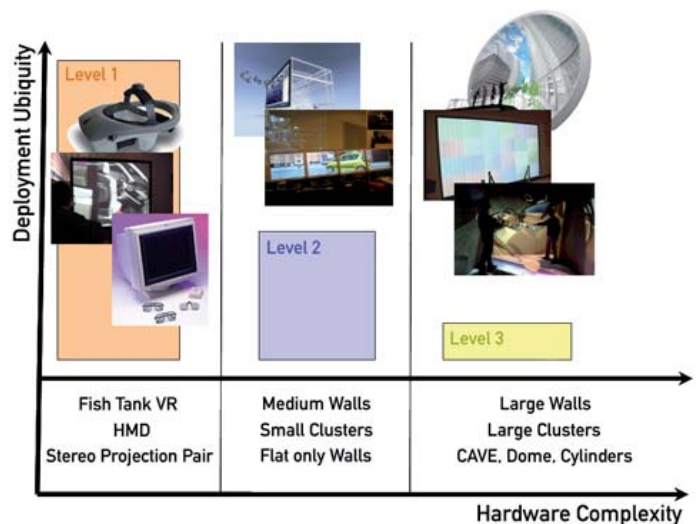
- Designed for PC clusters
- Support for many industry standard VR peripherals
- Multi-Display synchronization with FrameLock & Genlock capabilities
- Simulation mode in the absence specific hardware
- Active or passive stereoscopy
- Hardware portability with external configuration

Supported Displays (partial list)

- Virtual reality cubic rooms (e.g. SAS Cube®, Cave®, VR Cube®, I-Space®)
- Panoramic rooms (e.g. Reality Center®)
- Immersive tables/desks (e.g. Baron®, ImmersaDesk®, Workbench®)
- High-resolution image walls (e.g CAD wall)
- Desktop multi-monitors
- Any head mounted displays or VR goggles
- Any custom shaped set of fixed or reconfigurable screens

Technical Requirements

- Virtools 4 for the VR Library
- DirectX/OpenGL compatible 3D graphics accelerator card
- Windows 2000/XP 32 or 64 bits



Supported Input Devices (partial list)

- Polhemus Fastrak
- Ascension Technology Flock of Birds
- InterSense IS600, IS900, Inertiacube, Intertrax
- ARTtracking optical trackers and flysticks
- Murray Consulting Inc Wanda
- Logitech/Magellan SpaceBall and SpaceMouse
- All Windows compatible game controller

Supported Image Generators

- Any DirectX/OpenGL-compatible 3D graphics accelerator card
- Genlockable graphics card for multi-screen active stereoscopy such as Wildcat® 7210 or Nvidia® Quadro fx 3000, 4500 or 5500 with G-option board
- Scalable cluster hardware for optimized performance (e.g. Orad DVG)

