MetaVR™ Virtual Reality Scene Generator™ (VRSG™) is a Microsoft DirectX 11-based render engine that provides geospecific simulation as an image generator (IG) with game quality graphics. MetaVR’s IG enables users to visualize geographically expansive and detailed virtual worlds on commercially available 64-bit Windows PCs. Since 1997, VRSG has provided real-time, single- or multiple-channel visualization of virtual environments, dynamic moving models, and special effects. You can use VRSG as a:

- **Dedicated computer image generator** coupled to an external simulation host in single or synchronized multi-channel mode. VRSG supports features often required for flight training, driving simulations, and other applications.
- **DIS stealth visualization tool** for real-time or after-action analysis of distributed simulation exercises.
- **Self-contained first person shooter** to simulate individual combatants, JTACs, or forward air controllers.
- **Self-contained UAV camera payload operator** to render HD simulated UAV payload video and to stimulate video players such as a ROVER.

Using advanced terrain and texture paging algorithms VRSG renders geospecific imagery over expansive round-earth 3D terrain while providing full-scene anti-aliasing and continuous level-of-detail morphing. VRSG is delivered with robust libraries of 3D models and high-resolution terrain of the USA and most of the world.

As an executable-ready render engine, VRSG supports but does not require programming. Configuration files and interface protocols provide users the ability to control basic components of the render engine. Developers can use the plugin interface to augment VRSG’s functionality with their own low-level features.

VRSG is a component of MetaVR’s rapid virtual world terrain creation and visualization technologies. When you choose VRSG for your IG, your program benefits from the security of a large installed base of diverse types of fielded systems.

**Image generator features**

Asynchronous texture paging technology for visualizing high-resolution, photo-realistic databases at 60 Hz.

Database geometry paging, level-of-detail blending, decoupled terrain and texture level-of-detail.

Ephemeris model for sun and moon position, and moon phase.

Dynamic lighting and time-of-day conditions, light-point based star fields, horizon glow, and multiple sky models.

Multi-texture techniques such as normal maps, shadow maps, light maps, and decals.

Object-on-object dynamic shadowing for applications such as tanker refueling.

Screen space ambient occlusion.

Volumetric clouds and storm cells with optional volumetric precipitation effects.

Multiple atmospheric layers including ground fog and haze with sun-angle dependent density and color.

Light points that respond realistically to visibility conditions.

Up to 20 independent, concurrent, steerable light lobes.

Simulation of ocean sea states: realistic 3D wave motion and wake waves, accurate environment reflections, and bathymetry.

User-extensible particle effects that respond to wind: dust trails, contrails, tactical smoke, volumetric flames, and blown sand or snow. Other effects include dynamic craters, wakes, track and wheel impressions, and solid particle ballistic effects.

Utilities to convert FBX models and OpenFlight databases and models to MetaVR’s model and round-earth terrain formats.

Full mission function support to include height above terrain, laser range, line-of-sight (intervisibility), and collision detection.

Significant Common Image Generator Interface (CIGI) support.

Native high-performance 3D human character render engine; no third-party software required. Capable of managing thousands of character entities and displaying hundreds in the field-of-view.

Support for synchronized multiple channels and multiple viewports per channel.

Edge blending and distortion correction support of third-party solutions from Scalable Display Technologies and VIOSO.

**VRSG real-time scene of 3D ocean sea states featuring a DDG-112 destroyer and other vessels from MetaVR’s 3D content libraries.**
For more information, contact sales@metavr.com or scan the QR code to your mobile device.

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