





VR-TheWorld Server Capabilities

MAK's VR-TheWorld Server is a powerful web-based streaming terrain server. It is delivered with a global base map, but you can also easily populate it with your own custom source data through a web-based interface. The server can be deployed on private networks to provide streaming terrain data to a variety of simulation and visualization applications behind your firewall. VR-TheWorld stores and streams feature data including roads, buildings, and trees to multiple applications simultaneously. We have continued to expand the amount and quality of imagery and elevation data included with the server while also allowing you to add your own geospatial data to distribute in real-time.

VR-TheWorld Online - A Taste of VR-TheWorld Server

In order to allow our customers to try out VR-TheWorld, we host a VR-TheWorld server on the internet that anyone can connect to if they have an application that supports WMS-C (including web applications), such as VR-Vantage or VR-Forces. This server shares some common maps and allows you to get the feel for what it is like using a streaming terrain server. It does not allow you to upload your own content. Please contact your MAK salesperson for details.

VR-TheWorld Server Is Ready Out-of-the-Box

A VR-TheWorld server is a fully standalone version of VR-TheWorld and can be deployed behind firewalls and security barriers.

VR-TheWorld has over three terabytes of global elevation, imagery, and feature data — pre-tiled for high performance access. The VR-TheWorld Basemap has:

- Global elevation. 30 m (DTED Level 2) for the entire globe.
- Sentinel-2 (10 m resolution for the entire globe) cloudless dataset, developed by EOX IT Services GmbH. The dataset modified Copernicus Sentinel data 2020. Available for LOD 0–13. For more details about the EOX Viewing Ready product, visit the EOX IT Services GmbH website (<https://eox.at>).
- High-resolution inset areas. The insets range from 1 m to 15 cm per pixel – including southern California, Boston, Guam, Switzerland, Washington, D.C., and two airport areas in Afghanistan.
- Maxar Precision 3D samples. 0.5 m imagery and land cover for Schwyz, Switzerland. 0.5 m 3DTiles Digital Surface Model (DSM) for Jalalabad, Afghanistan. <https://www.maxar.com/products/precision3d-data-suite>.
- Samples of 1:250,000 and 1:100,000 topographic maps in Southern California.
- Global OpenStreetMap features in MBTiles format.
- High detail coverage for southern CA, with 10 m to 1 m elevation, 10 m bathymetry, 1 m to 15 cm imagery, and 15 m land cover.

VR-TheWorld Server Capabilities

- A highly detailed map of Hawaii, which includes:
 - 15 m Harris Terracolor imagery, added to make the area surrounding the Hawaiian Islands look more like deep blue water. This product has a very nice view of the shallow water boundaries between the ocean and the islands.
 - 1 ft USGS Mosaicked Digital Orthophoto Quadrangles (MDOQs) produced through the National Digital Orthophoto Program (NDOP) for the island of Oahu.
 - 1 ft water replacement imagery custom built by Harris, including Digital Globe WV2 Imagery blended into Oahu Imagery and Harris Terracolor Imagery to ease the transition between the 15 m and 1 ft imagery.
 - 10 m Digital Elevation Model from USGS.
 - 10 m bathymetry from the National Oceanic and Atmospheric Administration (NOAA).
 - 2.5 m NOAA C-CAP Regional Land Cover.
 - Feature data for Oahu, including building footprints for 230,000 buildings.

Add Your Own Data

VR-TheWorld Server comes with an intuitive web interface that makes uploading and organizing your data simple. The web interface will walk you through uploading your data and creating new layers from the data. Everything you need to do to have your own data serving from VR-TheWorld can be done right from the web interface.

Supported Data Formats

VR-TheWorld supports the following raster file formats:

- MRSID
- GDAL virtual
- Geotiff
- JPEG 2000
- DEM
- DTED 0 - 5
- Arcinfo Binary Grid
- Magellan BLX Topo
- Bathymetry Attributed Grid
- VTP Binary terrain format
- USGS DOQ
- ESRI *.hdr*
- Envisat Image Product
- ERMapper

VR-TheWorld Server Capabilities

- FITS
- Erdas Imagine
- National Imagery Transport Files (CIB, CADRG, and so on)
- BSB Nautical chart format
- NetCDF

VR-TheWorld supports the following vector file formats:

- Shape
- KML
- GPX
- VMAP
- S-57

For performance reasons, VR-TheWorld Server serves out PNG, TIFF, and JPEG. PNG provides loss-less compression of image data and transparency. JPEG provides high level of compression but no transparency. JPEG is recommended for large base layers where transparency is not required. TIFF does not provide compression but supports transparency. TIFF's are recommended for elevation data layers.

VR-TheWorld Serves Feature Data

Features are served using the industry standard WFS protocol.

Integrate Local Data with Served Data

VR-TheWorld customers may want to integrate locally stored data with data served from VR-TheWorld. You could, of course, upload the local data to the server. However, this might not be practical due to the amount of data, for security considerations, or other reasons.

You can integrate local and remote data if your application supports the osgEarth earth file format. Create an earth file for the local data and merge it with the earth file for the served data. When you load the earth file in your application, it will grab the data from all the locations specified in the file.

Browser Support

VR-TheWorld supports Mozilla FireFox, Microsoft Internet Explorer, Google Chrome, and Apple Safari. No other browsers have been tested.

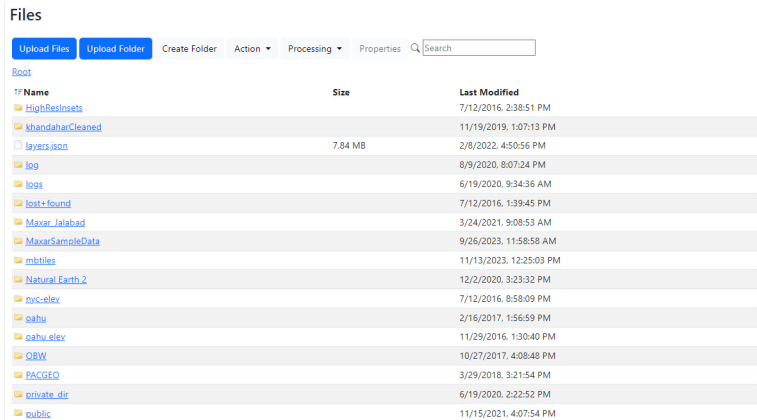
VR-TheWorld Server Supports WMS-C

The server supports the industry standard WMS-C for streaming imagery and elevation data. This means that clients are not limited to MAK's visualization or simulation tools. Any customer or third party application that supports WMS-C (including web applications) can access VR-TheWorld Server immediately. (Of course, VR-Forces and VR-Vantage support VR-TheWorld.)

VR-TheWorld Server Capabilities

VR-TheWorld Server Provides Management Tools

The VR-TheWorld Server administration interface provides the tools you need to upload and organize your data.

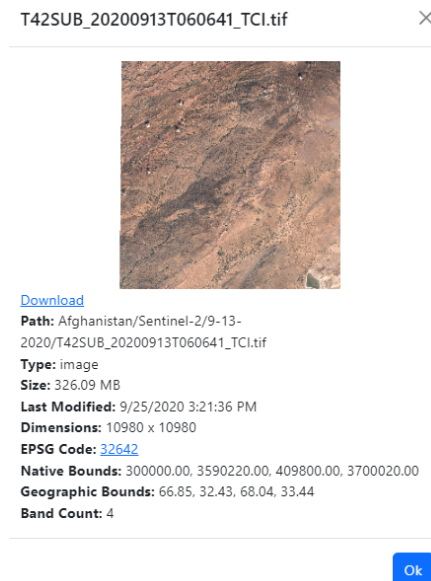


The screenshot shows a file management interface with a table of files and folders. The table has columns for Name, Size, and Last Modified. The files are listed in a tree view starting from the Root directory.

Name	Size	Last Modified
HighResInsets		7/12/2016, 2:38:51 PM
khandaharCleared		11/19/2019, 1:07:13 PM
layers.json	7.84 MB	2/8/2022, 4:50:56 PM
log		8/9/2020, 8:07:24 PM
logs		6/19/2020, 9:34:36 AM
lost+found		7/12/2016, 1:39:45 PM
Mavar_Jalabad		3/24/2021, 9:08:53 AM
MavarSampleData		9/26/2023, 11:58:58 AM
mbtiles		11/13/2023, 12:25:03 PM
Natural Earth 2		12/2/2020, 3:23:32 PM
nyc-elev		7/12/2016, 8:58:09 PM
oahu		2/16/2017, 1:56:59 PM
oahu.elev		11/29/2016, 1:30:40 PM
OBW		10/27/2017, 4:08:48 PM
PACGeo		3/29/2018, 3:21:54 PM
private_dir		6/19/2020, 2:22:52 PM
public		11/15/2021, 4:07:54 PM

Figure 1. File management

VR-TheWorld can display information about the files in the database, such as the filename, pathname, type, size, and so on.



The screenshot shows a file properties dialog for a TIFF file. It includes a thumbnail of the file, a download link, and detailed metadata.

T42SUB_20200913T060641_TCI.tif

[Download](#)

Path: Afghanistan/Sentinel-2/9-13-2020/T42SUB_20200913T060641_TCI.tif

Type: image

Size: 326.09 MB

Last Modified: 9/25/2020 3:21:36 PM

Dimensions: 10980 x 10980

EPSG Code: [32642](#)

Native Bounds: 300000.00, 3590220.00, 409800.00, 3700020.00

Geographic Bounds: 66.85, 32.43, 68.04, 33.44

Band Count: 4

Ok

Figure 2. File properties

VR-TheWorld Server Capabilities

Data is Organized in Layers

In VR-TheWorldServer, data is organized in raster layers and feature layers. You can add and remove layers and specify the files that they contain.

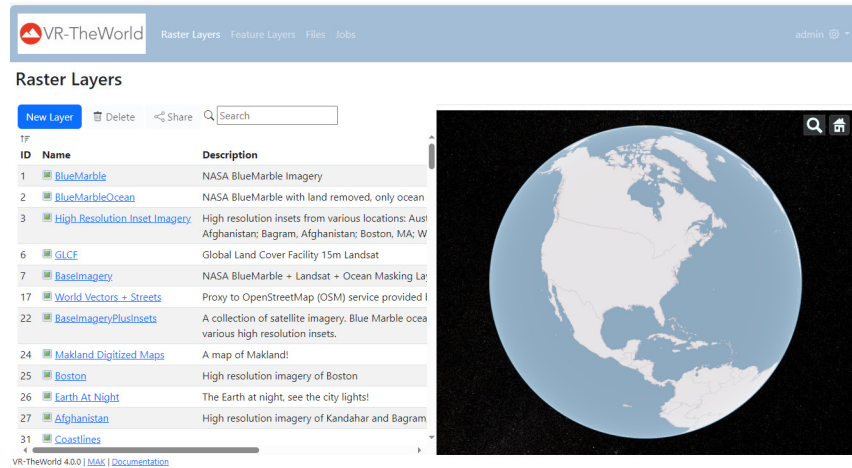


Figure 3. Raster layers

Superior Technical Support

At MAK, technical support is not just an afterthought. Our reputation for supporting our customers is one of the key reasons that people choose our products. When you call or email us with questions, you speak directly to our product developers who know the software inside and out. When you buy MAK's products, you can be sure that MAK will be in your corner as you work towards successful completion of your HLA/DIS project. We've even been known to be on the phone with customers during their HLA certification process, or during key events.

When someone reports a bug, our engineers are quick to provide a patch or workaround, meaning you will not have to wait for the next release to have your problem addressed.

With maintenance, you are entitled to upgrades when they are released.

VR-TheWorld Server Capabilities



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