



VRSG Iraq Databases Used in Training at Combat Studies Institute



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The Combat Studies Institute (CSI), an academic department within the Combined Arms Center at Ft. Leavenworth, KS, has received 3D terrain of areas in and around Baghdad, Iraq, from MetaVR. The Baghdad databases, or “virtual views” as CSI refers to them, are used to create enhanced warfighter training experiences and opportunities prior to deployment.

MetaVR developed the 270 km x 200 km 3D terrain from colorized 1 meter black-and-white imagery and 30-meter elevation data using our terrain generation software and internal tools. Within the overall terrain databases, nine built-up regions were developed, each with an average of approximately 885,000 polygons per scene, including six of areas in Baghdad, two of the town of An Nasiriyah, and one of Al Aziziyah, a town about 60 km east of Baghdad. Each 6 km x 6 km area consisted of built up microterrain with geospecific cultural content and colorized imagery.

About the delivery

The initial delivery contained high-resolution, geo-specific terrain and cultural content representing nine areas of interest in Iraq, including the cities of Baghdad, An Nasiriyah, and Al Aziziyah. These nine areas are located within an area of approximately 270 km x 200 km, ranging from 3431520N to 3698956N and from 427050E to 622213E.

CSI is using the 3D terrain to conduct virtual staff rides of selected Baghdad case studies as part of professional development training for U.S. Army officers.

About the models

To create realistic feature content, MetaVR’s model designers created 157 photo-realistic models of several types of buildings and other cultural features, such as bridges, volumetric trees, sewer pipes, street lights, power lines, curbs, fences, culverts, and public monuments. Many of the cultural features were built with photo-realistic textures based on public domain photographs of the Baghdad area. Content from MetaVR’s 3D model libraries is also used in the databases.



Images on the cover: Real-time scenes of MetaVR’s virtual Baghdad rendered in VRSG.



About the databases

Since the initial release, MetaVR has compiled two large terrain databases to combine all of the area and cultural content of the databases described above. One database is 207 km x 190 km and contains the greater Baghdad area; the other covers an area of 117 km x 111 km and is centered on An Nasiriyah.

Terrain database statistics

Terrain post: 32 mpp
 Patch size: 2048 m
 Source imagery: 2 GB
 Elevation coverage: 30 meter elevation data
 Imagery coverage: 1 meter black and white imagery, colored by MetaVR

Greater Baghdad database

Imagery build time: 26 hrs 20 mins
 Geometry build time: 1 hr 40 mins
 Database size: 207 km x 190 km
 Size on disk: 34.5 GB
 Extents:
 N33 54' 51.41"
 E45 40' 58.09" E43 39' 3.82"
 N32 3' 1.06"
 Database size: 117 km x 111 km

An Nasiriyah database

Imagery build time: 10 hours
 Geometry build time: 27 mins
 Database size: 117 km x 111 km
 Size on disk: 11.3 GB
 Extents:
 N31 33' 42"
 E46 51' 49.63" E45 41' 27.72"
 N30 31' 12"

Cultural features (both databases):

26,062 photo-realistic buildings
 92,033 volumetric trees of varying types
 Cultural elements also include: residential, office, and commercial buildings, mosques, bridges, overpasses, signs, sewer pipes, powerlines, street lights, curbs, fences, culverts, a control tower, monuments, runways, and a water tower.

About the training environment

CSI's training for military officers includes conducting virtual staff rides of selected Baghdad campaigns using MetaVR's terrain databases. The initial use of the databases is for training Command and General Staff College students. Instead of traveling to a site to execute a normal staff ride, students use VRSG to visualize the terrain. They use the same procedures as in a normal staff ride except that they do not physically "walk" the terrain.

Actual and simulated views of the Baghdad area

Below is a series of images of the Baghdad area. You can compare photographs of the actual Baghdad area on the left side with the VRSG screen captures on the right of the simulated view of the database. The models of buildings and other structures are photorealistic; the models were created from public domain photographs of the Baghdad area.



MetaVR's Baghdad databases are available free of charge to all US Government agencies and contractors (for official use only) and requires version 5 of VRSG.

For more product information, pricing, and ordering, see MetaVR's web site at www.metavr.com or send email to sales@metavr.com.

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