



Simulation and Gaming Terrain Team (SGTT)

Simulation-ready, analysis-quality terrains & knowledgeable support for national security applications

INTERACTIVE SYSTEMS SIMULATION AND ANALYSIS (ISSA) DEPARTMENT

FACT SHEET

Introduction

Real and notional terrains are a vital backdrop and data set for national security projects during simulation, exploration, and visualization of security concepts. Without terrains, analysts and decision makers cannot grasp needed information, operate efficiently, and many simulations cannot operate.

Terrain development is a complex matter requiring a variety of expensive software, powerful hardware, and years of experience to master the domain. Sandia established the SGTT as a resource to create a reliable resource for terrain development and improve the process of obtaining terrains.

Capability

SGTT creates and modifies existing 3D terrains, both real and notional. Verification and validation of our terrains can be invaluable because terrain issues can cause problems for your simulations. Tools that seek out discontinuities, paths, and features are used to improve confidence in terrain accuracy and save time for your project.

Terrains may consist of elevation, imagery, and 3D models with textures. Geographic Information Systems (GIS) and 3D modeling tools are used on high-end computing platforms to produce real-time terrain updates. Housed in the SGTT lab, these resources allow interaction with customers to provide real-time terrain updates and ensure requirements are met. SGTT also has the capability to take these resources to customers for on-site collaboration and terrain development.

Focus of SGTT activity is on unique tasks that a national lab is capable of performing. As such, the SGTT utilizes third-party vendor solutions when appropriate to optimize cost and efficiency based upon customer requirements. The team stays abreast of the latest tool developments and vendor solutions in this area.

Our project management approach includes a wiki site that customers and team members can visit to check current status or review completed projects that might be leveraged. This wiki also contains SGTT related processes and documentation such as project status and priority; tools we use; SGTT team member points of contact, tool maintenance & renewal.

SGTT philosophy is to access knowledgeable staff from across Sandia to maintain a virtual team with broad knowledge and resources.



Example Applications:

- Mission planning & analysis
- Mission rehearsal
- Security system design
 - Sensor placement
 - Target movement, detection
 - Operational display
- Situational awareness
- Immersive environments
- Operational display-backdrop
- Theoretical exploration
- Interior close-quarter battle
- Training tools & systems
- Virtual Prototyping



Services

- 3-D terrain creation
- Real terrain (site specific, special ops, location not easily accessed)
- Data sources (DTED, Lidar, DEM, Arc ASCII Grid ...)
- Model building
- Virtual prototypes
- Workspace prototypes
- Buildings, people, vehicles, vegetation, water
- Notional terrain development
- Terrain repository & archiving
- Gaming environments
- Effects rendering



SGTT Value Proposition Impact to Your Project

SGTT Value Proposition		Impact to Your Project
Continuity of service	↔	Dependable, reliable resource
Maintain expensive tools (Ranging up to \$100K per tool or \$15K/yr. maintenance)	↔	Reduced tool and maintenance costs, leverage shared SGTT capability
SGTT Team Expertise	↔	No need to train your staff
Experience - Quality terrain projects, documented processes	↔	Efficient project management and risk reduction - you can lean on us
Reuse - Leverage existing terrains	↔	Reduce project costs

Tools We Use Include

- | | |
|--------------------|--------------------|
| • 3DS Max | • True View |
| • Umbra | • Polytrans |
| • ArcGIS | • GIMP |
| • nVerse | • Sketchup |
| • Creator Pro | • Google Earth Pro |
| • Open Scene Graph | • Terra Vista |
| • Dante | • Vue xStream |
| • Photoshop | • Blender |
| • Global Mapper | • Unreal Engine |
| • Deep Exploration | • VBS2 |
| • Picassa | • Oxygen |



Simulation-ready:

Terrain and models that have sufficient rigor and validation to operate with a computer simulation without introducing error or unintended effects.

Analysis-quality:

Terrain and models that are of sufficient verified detail to address specific analysis objectives.

Contacts:

Project Lead: Melissa Sisneros, 06134
505-845-8657, mjsisne@sandia.gov
General email: SGTT@sandia.gov
Website: <http://umbra.sandia.gov/>