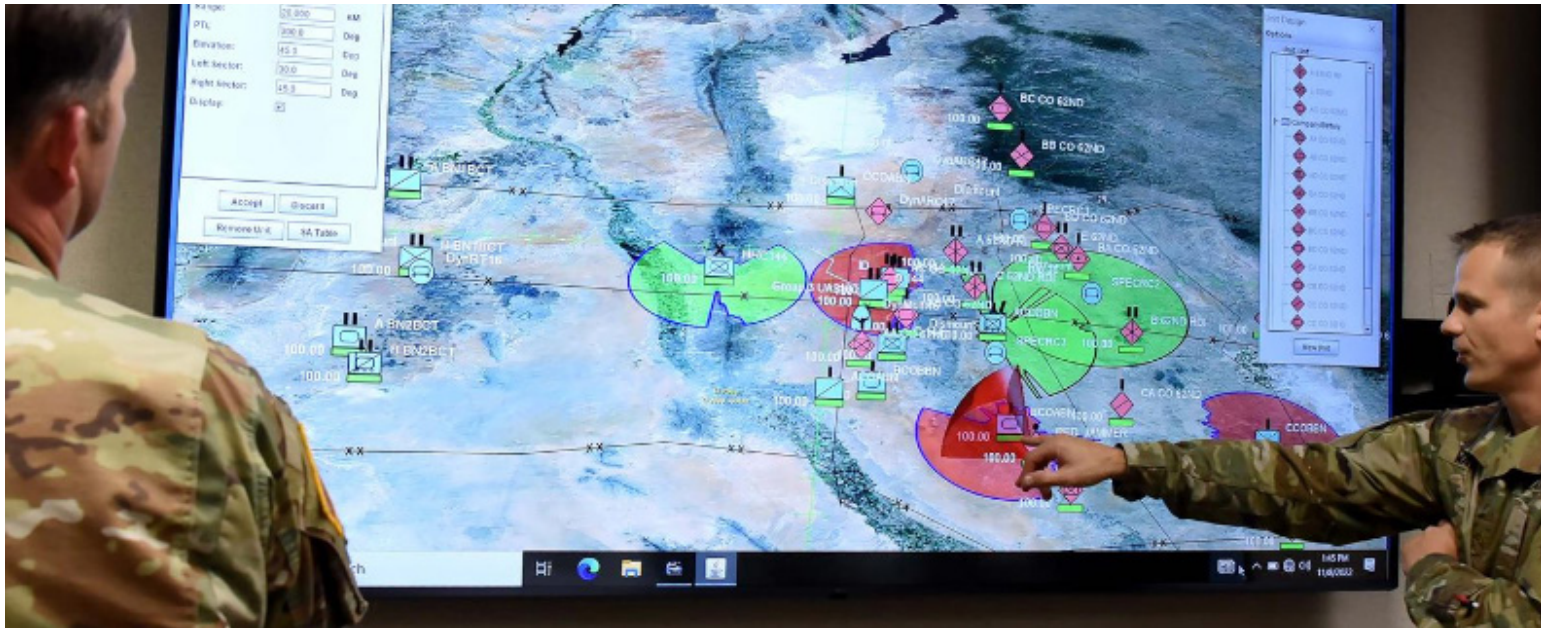


# SPACE WARGAMING ANALYSIS TOOL (SWAT)



*SWAT is a quick scenario generation and execution model to provide high-level analysis that includes space based concepts.*

**SWAT enables rapid and** dynamic creation and execution of multiple platforms for Wargaming Courses Of Action (COAs). SWAT generates critical data that can be used to inform commanders/ decision makers regarding space concepts, capabilities, Concept of Operations (CONOPs), and Tactics, Techniques, and Procedures (TTPs) in environments with and without space-based capabilities.

SWAT supports space, air, and ground maneuver (Red & Blue) forces in a wargaming environment, while providing data collection and reduction in real-time; allowing the user to get an understanding of the impacts of planned and injected events and platforms.

SWAT is not focused on system engineering of detailed operational analysis but for quick looks. SWAT trades off fidelity for ease of use. It is tailorable for future capabilities, without the need of full system definition to run. The three dimensional (3D) map gives commanders and leaders a unique understanding of the contributions, benefits, and limitations of space - both Red and Blue.



- Quick scenario generation/ editing/execution
- ISR collection planning and coverage visualization and effectiveness testing
- Defense laydown effectiveness insights (sensor/launcher emplacement)
- Insight on organizational designs' and systems' battlefield effectiveness
- Communication architecture planning/visualization (Sensor to Shooter)
- Chemical, Biological, Radiological and Nuclear Defense (CBRND)/ Obstacles/Terrain effects

## SIMULATING THE BATTLEFIELD

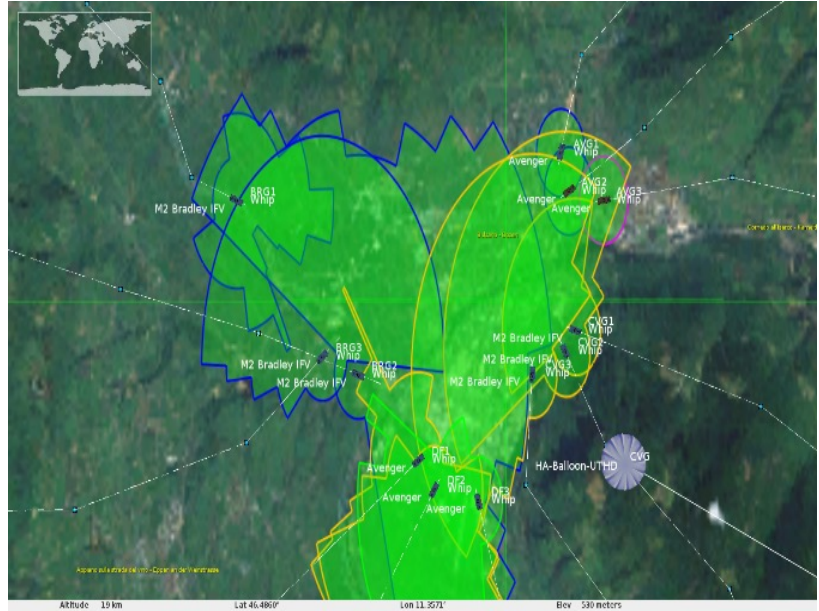
SWAT is easy to use, generates quick scenarios, and enables high level analysis of single or multiple platforms supporting space, air, and ground maneuver (red & blue) forces in a wargaming environment, while facilitating quick looks of COAs.

Warfighters make and revise strategies on a continual basis resulting in the need for a tool that develops multi-domain scenarios to provide situational understanding of the potential impacts of strategic and tactical decisions.

SWAT simulates the battlefield in a rapidly deployable quick-scenario generation and execution tool that enables high-level analysis of single or multiple platforms supporting the armed forces in a wargaming environment. SWAT is used to gain a real-time understanding of the effects of actions and reactions against an adversary. This Government Off the Shelf (GOTS) tool is available to all DoD organizations wanting to visualize a space enabled wargaming environment.

SWAT's primary function is to generate red-team versus blue-team war games, where two sides battle each other virtually with planned or dynamically injected interactions and the effects of those actions play out against each other. SWAT can enable the dynamic deployment of battle assets — divisions, brigades, battalions, companies, platoons, and fire teams — in real time and can run faster than real time, providing further insight into potential scenarios. These scenarios can include uncommon events, such as degradation or jamming of communications, which force users to adjust strategies on the fly.

SWAT imports satellite flight paths and satellite constellations so that all domains, including space, are included in the wargaming analysis. A comprehensive understanding of outcomes requires an input of all domains to include Space into the scenarios, and SWAT achieves just that. The program provides a 3D game view on a laptop or tablet on a Windows platform.



## HIGHLIGHTS

- Develop “base case” scenarios consisting of space, air and ground entities with planned paths, obstacles, terrain, and CBRND effects, jamming/sensor, and communication network framework
- Currently utilizes Satellite Orbit Analysis Program (SOAP) file data and Two Line Element (TLE) file data for satellite constellation paths
- Scenarios include planned events that are entered into the base case scenario and can be developed into different COAs
- WorldWind 3D Terrain Elevation Engine, Digital Terrain Elevation Data (DTED) Levels 0-2 and Compressed ARC Digitized Raster Graphics (CADRG)
- Red vs. Blue with multiple user views of the battle
- Interactive mode that allows for dynamic injection of entities and event in real-time. Events would include (but not be limited to) degradation of Communications, Jamming, Spoofing and Damage
- SWAT supports a Faster-than-Real-Time function but can be paused, saved and edited at any point in the scenario
- Detailed events describing space, air and ground force states at different points of the scenario
- Top level analytical data is provided in “csv” files for investigation of events in or results of the scenario



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