

# Riverside Research Builds Automated Collection Planning Tool on STK Engine

## Design, Optimization, and Operations Benefit from AGI Software

**PLANNING:** Satellite collection planning is a difficult task, one that is made even harder when you are taking various complex and often poorly understood constraints into account. Riverside Research needed to develop a planning and analysis environment based on a user-defined collection strategy to perform hyper-realistic satellite/sensor modeling, target modeling, collection visualization, strategic collection forecasting, and daily collection planning for complex satellites with numerous constraints.

**APPLICATION:** To ease the burden for government, commercial, civil, and education customers; AGI business partner Riverside Research has created the Automated Collection Planning Tool (ACPT). They applied AGI software capabilities—using STK Engine—to the ACPT in order to model and display sensors, analyze terrain impact and field of view, perform intervisibility calculations, determine vehicle position, and compute acquisition times. Utilizing AGI’s trusted STK physics engine; ACPT models real sensor parameters down to the pixel and employs typical collection requirement factors—including viewing geometry, illumination geometry, prioritization, periodicity, and temporal constraints. It accounts for system constraints such as host power limitations, exclusion zones, data link accesses, transfers, sensor cycle time, and on-board storage.

Riverside Research embedded AGI’s analysis and 3D visualization capabilities into the ACPT via AGI’s STK Engine software for a low-cost, low-risk, customizable solution that develops dynamic collection plans in less than 15 minutes.



Riverside’s ACPT supports space-based, sensor mission planning throughout the life cycle. It can be tailored to customer specifications and requirements to enhance user confidence, productivity, and satisfaction through automation, ease-of-use, and 3D visual confirmation. Users benefit from minimized redundancy, maximized satellite capability, and full accountability.

**SUCCESS:** ACPT builds dynamic collection planning schedules in 15 minutes or less. It incorporates NGA GIS data—including terrain data for calculating obscuration, five-meter imagery, maps, and various overlays for user situational awareness—and is currently used in TACSAT-3 and Multispectral Thermal Imager operations. ACPT is currently automating TACSAT-3 collection planning for the Air Force Space Command—providing historic global cloudfreeness data and accepting live weather feeds that are especially important for electro-optical system assessment. The system also assists the National Geospatial-Intelligence Agency (NGA) with both daily and weekly collection plans for the Multispectral Thermal Imager.