

SOCET GXP® Feature analysis

Vector-supported image analysis and 3-D
feature collection integrated with ESRI®

BAE Systems' SOCET GXP® offers flexible options for working with existing feature databases, collecting, editing, and querying feature data, and copying features between databases. The application also supports the National Geospatial-Intelligence Agency's Spatially Enabled Exploitation (SEE) initiative to standardize data formats.

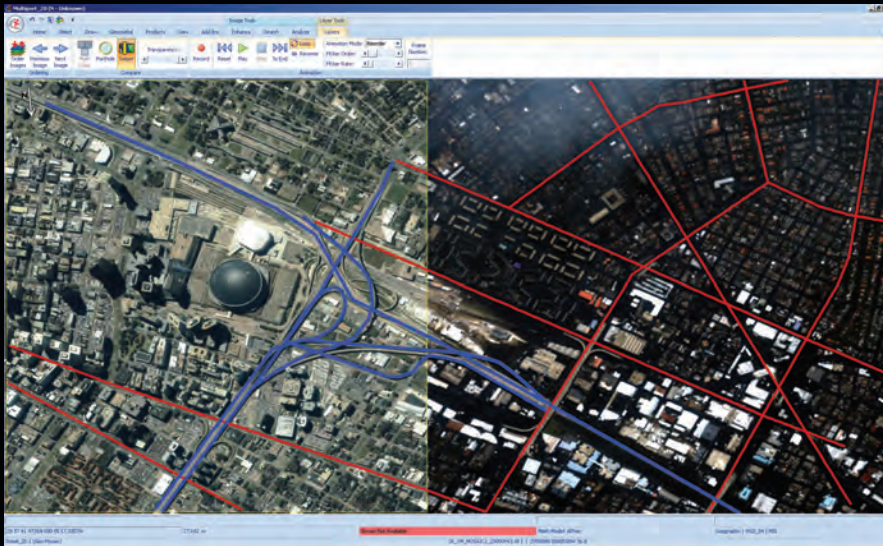
U.S. Air Force photo by Staff Sgt. Jacob N. Bailey.

IN THE FIELD: HURRICANE KATRINA

The Homeland Security Operations Center (HSOC) asked BAE Systems to assist with Hurricane Katrina disaster relief. Product specialists responded immediately, granting the HSOC temporary SOCET GXP licenses to analyze the affected areas.

The BAE Systems team secured current and archived imagery from New Orleans to Mobile, Alabama. The high-resolution satellite imagery was loaded into SOCET GXP, and projected on to HSOC's large screens to provide capabilities for in-depth analysis. SOCET GXP analysis and change detection tools pinpointed sources of flooding. Preliminary findings and data were extracted from the images and exported to PowerPoint as the basis for a situational awareness briefing for decision-makers and engineers repairing the levees.

The U.S. Navy contacted BAE Systems to gather and process hyperspectral high-resolution data of the Gulf region, which is a valuable resource for remediation and cleanup operations.



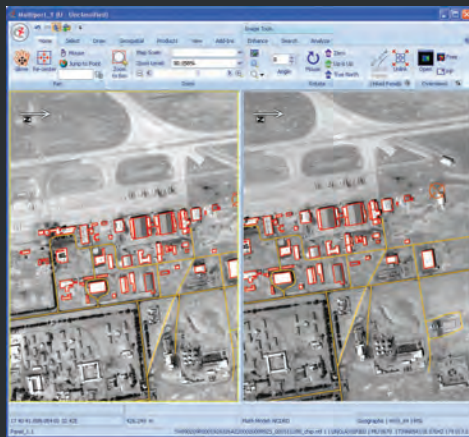
Images taken before and after Hurricane Katrina are stacked on top of each other. Analysts use the Swiper tool to peel back the before image and view the devastation to the transportation infrastructure. The graphic vector layer identifies the road network.

A large part of feature analysis for imagery requires comparing historical reports with new data to detect changes over time. Most geospatial features lose value rapidly unless they are updated and maintained. With SOCET GXP, analysts use familiar tools and universal file formats to create, collect, edit, store, and retrieve geospatial features and their associated attributes to provide accurate and timely situational awareness.

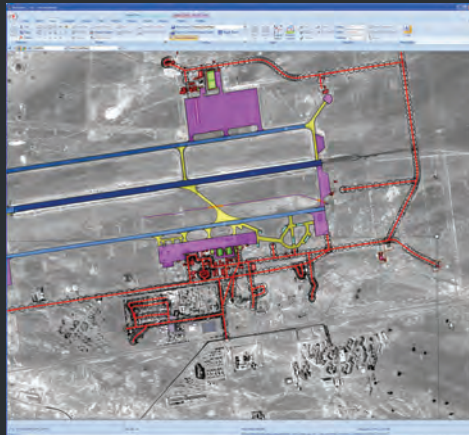
The SEE module for SOCET GXP interacts with ESRI® geodatabases. Analysts with little or no photogrammetry experience can connect to and populate the ESRI geodatabase directly from the SOCET GXP Workspace Manager and associated Multiport™. SOCET GXP manages the complexities of sensor models and terrain,

In SOCET GXP®, the SEE license launches SEE or SOCET for ArcGIS®

SEE has a direct connection to the ESRI® database or SOCET SET® feature database. SOCET for ArcGIS uses the ArcMap® canvas as an external application that interacts with SOCET GXP through an ESRI API. To install and run ArcMap, users obtain a license from ESRI.



SEE module. With a Z-enabled geodatabase, feature collection can be executed in stereo or split-screen stereo to capture vertical data.



SOCET GXP can display SEE and SOCET for ArcGIS databases simultaneously

allowing analysts to concentrate on image exploitation. Users draw, extract, update, and query features and image graphics — such as roads, buildings, and targets — using a ground coordinate system that records latitude, longitude, and elevation. Regardless of sensor type, images and graphics are aligned properly on subsequent images captured over time because the data is referenced in ground space. Analysts can anticipate conditions such as rough terrain or collapsed bridges and pinpoint operational routes more accurately.

Geospatial analysts and users who are more familiar with ESRI tools can access the ArcMap® canvas directly from SOCET GXP with the added benefit of using SOCET for ArcGIS® with optional extraction in a SOCET GXP stereo Multiport. The ArcMap application stores and retrieves feature data while SOCET GXP displays vectors on the imagery with the associated sensor model. Analysts have the option to use SOCET GXP's SEE drawing and editing tools or those provided in ArcMap.

Organizations select the method best suited to their workflows and customize user preferences for maximum flexibility.

Features and benefits

SEE

- Direct connection to ESRI geodatabase.
- Extract vector data from imagery for future analysis.
- Collect and store data using ground coordinates.
- Ensure graphic consistency over time and accurate alignment.
- Compare features across multiple images for change detection.
- Apply stereoscopic imagery to ensure precise 3-D measurement.
- Use imagery and associated sensor model with or without terrain.
- Answer critical questions using spatial, attribute, and temporal queries.
- Eliminate time-consuming searches for hard copy or archived reports.
- Create feature style sheets, animate feature layers, export shapefiles, and display volumetric features in Flythrough mode.
- Quick data retrieval and information sharing using common file formats.
- Read MIL STD 2525 graphics, common graphic symbols widely recognized throughout the armed forces.
- Connect to Open Geospatial Consortium-compliant Web mapping, feature, and coverage services to locate and download critical information, or upload Web graphics and images into feature attributes, which can be exported and viewed in Google Earth™.
- Built to support Geospatial Knowledge Base and Pallet Driven Exploitation initiatives.

SOCET for ArcGIS

- SOCET GXP stereo Multiport™ in ArcGIS environment.
- Interface between SOCET GXP and ArcMap applications.
- Use ESRI or SOCET GXP 3-D tools for feature collection and editing in ArcMap.
- Define advanced style sheets and feature queries.
- Auto-attribute features from image source metadata: date, time, CE, LE, and sensor.
- Create highly accurate 3-D-enabled GIS databases for viewing and editing.

FOR MORE INFORMATION, CONTACT:

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