Release Enhancements

SOCET GXP® v4.4

BAE SYSTEMS

Advanced geospatial exploitation and customized product creation combined into one comprehensive solution

The release of SOCET GXP® v4.4 delivers an exciting array of enhancements to our premier geospatial desktop solution, including significant advances in the visualization, integration, and publishing of geospatial intelligence. New capabilities designed to improve workflow efficiencies include:

- A new Band Preview window enabling more efficient exploitation of multispectral and hyperspectral imagery
- Visualization of Ground Moving Target Indicator (GMTI) files
- Integration with Esri®'s ArcGIS® Pro enabling simplified workflows
- Processing of imagery from drones and other Unmanned Aerial Vehicles (UAV)
- A Terrain Post Query tool for easy identification of elevation posts in terrain files

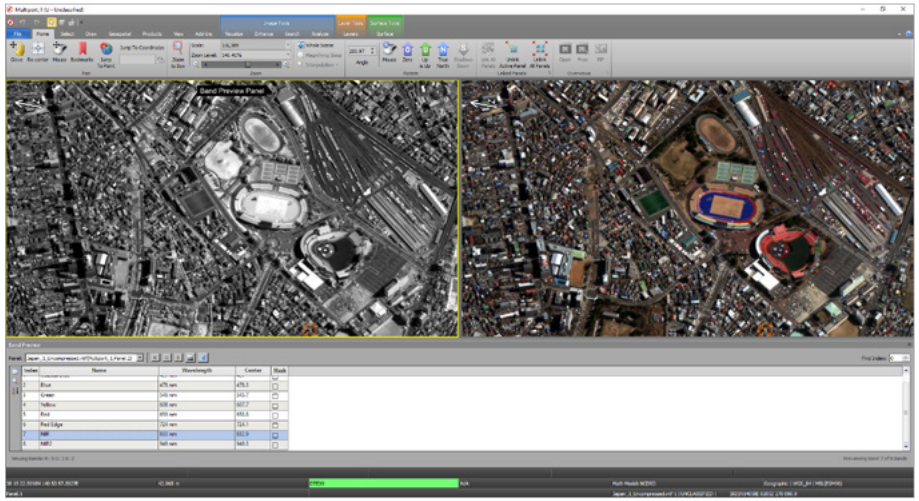
In addition, key improvements have been made to the Application Program Interface (API), the GXP InMotion™ Desktop solution, and a variety of additional features in SOCET GXP. Incorporating customer feedback collected through a range of real-world use case scenarios, the release of SOCET GXP v4.4 ensures an optimal user experience while continuing to expand upon synergies within the GXP® product suite.

Band Preview

Exploiting multispectral and hyperspectral imagery in SOCET GXP has never been easier with the introduction of our new Band Preview window. Users can quickly cycle through all available bands in an image and mask them out or assign them to a particular color channel for rapid analysis.

Key enhancements:

- Rapid viewing of all bands in an image
- Link the Band Preview window with the original image
- View metadata regarding individual bands
- Convenient buttons for masking bad or noisy bands
- Single button click to assign a particular band to a new color channel



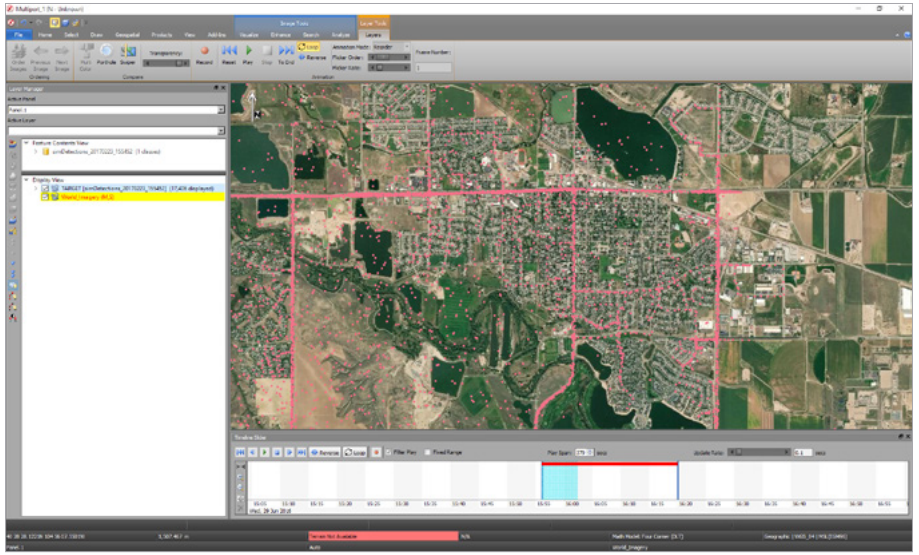
The Band Preview window in SOCET GXP is designed to streamline multispectral and hyperspectral analysis. Image courtesy of DigitalGlobe®.

Ground Moving Target Indicator (GMTI) visualization[1]

GMTI files can now be loaded and visualized in SOCET GXP. These files can then be animated based on timestamps for the signature. In addition, attributes for each signature can be interrogated and the results can be colorized based on these attributes.

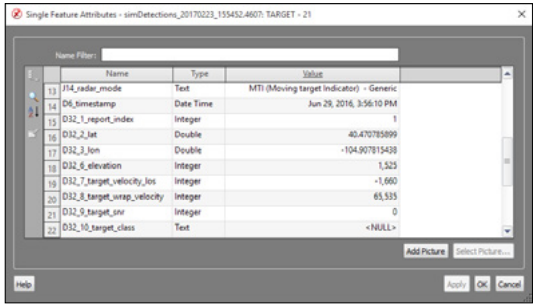
Key enhancements:

- Ingest and display of STANAG 4607 GMTI files
- Animate GMTI files based on timestamp
- Retrieve attributes for individual GMTI results
- Colorize GMTI hits based on attribution



Above: Display of STANAG 4607 GMTI detections in SOCET GXP.

Right: Individual attributes showing metadata associated with each GMTI detection.

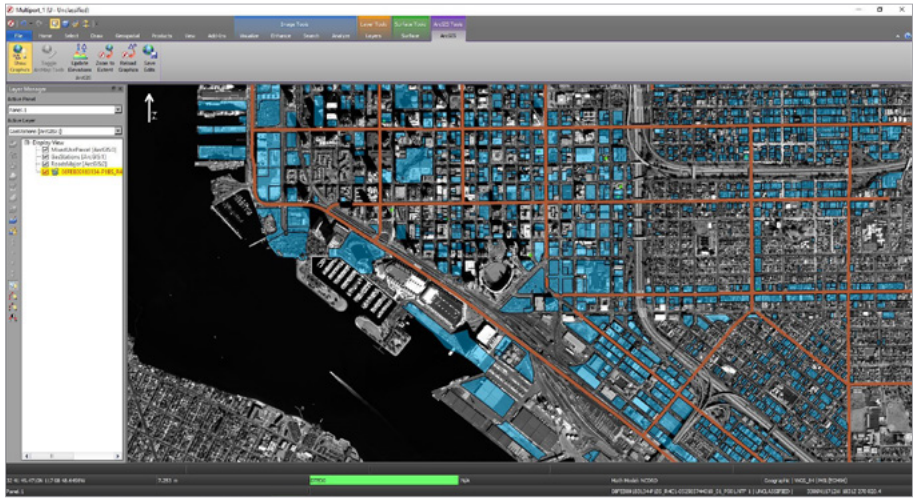


Integration with ArcGIS Pro

As GXP continues to ensure interoperability between SOCET GXP and other geospatial information systems from organizations such as Esri, we are pleased to introduce connectivity to ArcGIS Pro. Users can now link SOCET GXP to ArcGIS Pro and view features displayed in both solutions. This allows for extraction of features using best-in-class accuracy, sensor models, and stereo capabilities of SOCET GXP while still leveraging the full suite of Esri capabilities.

Key enhancements:

- Dynamically link SOCET GXP and ArcGIS Pro geospatially
- Create features in either application that are automatically updated in the other
- Matching of basic symbology
- Automatic attribution based on image metadata



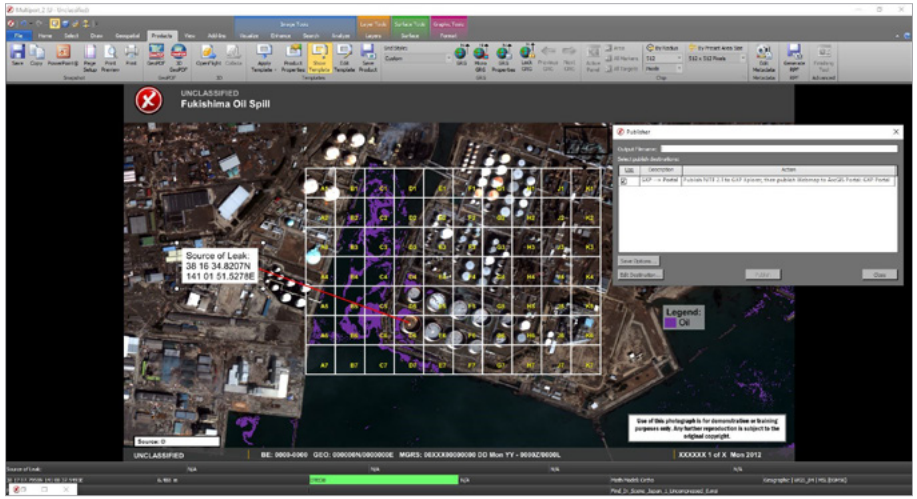
Connection of SOCET GXP with ArcGIS Pro to create and edit features in either application. Imagery courtesy of DigitalGlobe.

Publish to Portal for ArcGIS

SOCET GXP can now publish products and images directly to Portal for ArcGIS. The integration of SOCET GXP and Esri's Portal for ArcGIS provides users with a seamless and efficient workflow from exploitation and analysis to rapid delivery of mission critical information.

Key enhancements:

- Design and publish Web Maps to Portal for ArcGIS directly from SOCET GXP
- Share SOCET GXP products to Portal for ArcGIS
  - Use GXP Xplorer® to publish local images
- Basemap inclusion as a background to SOCET GXP products



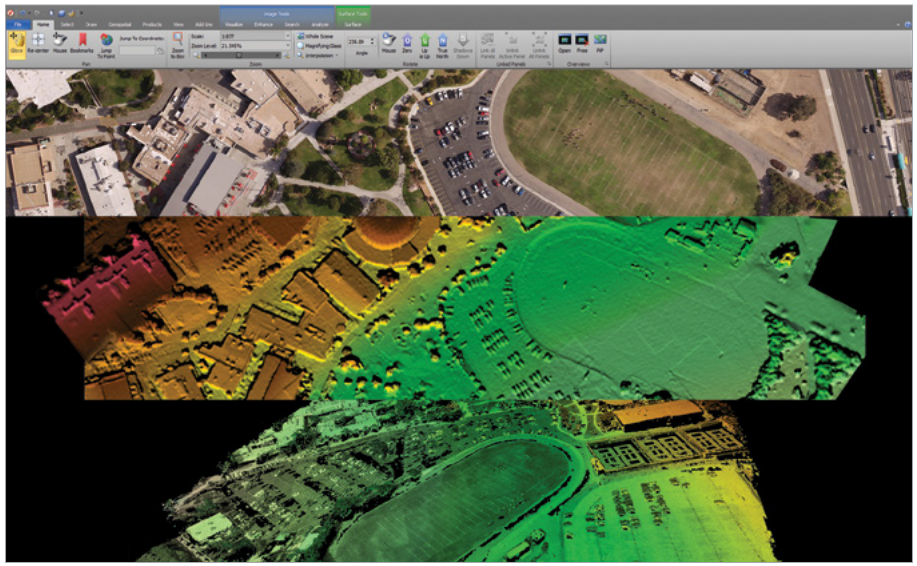
Upload and share SOCET GXP generated products to Portal for ArcGIS. Imagery courtesy of DigitalGlobe.

Unmanned Aerial Vehicle (UAV) processing

The increasingly ubiquitous use of UAVs and drones has led to a vital need to provide geospatial processing that works on cameras with limited metadata. SOCET GXP v4.4 introduces a new capability to automatically process imagery from drones into many useful output formats including an orthomosaic, 3-D point cloud, surface and bare earth terrain models, and registered output images. An easy-to-use wizard guides users through importing the imagery, reviewing tie points, and product generation.

Key enhancements:

- Intuitive wizard walks users through every step of the process
- Wide variety of cameras supported while new cameras can be supported with minimal user input
- Automatically generate a wide variety of output products
  - Orthomosaic
  - Surface terrain model
  - Bare earth terrain model
  - 3-D point cloud



Output orthomosaic generated from UAV imagery; Terrain Shaded Relief of a surface model created from UAV imagery; Displayed point cloud of a 3-D scene processed from UAV imagery. Imagery courtesy of Palomar College.

Customize Ribbon[2]

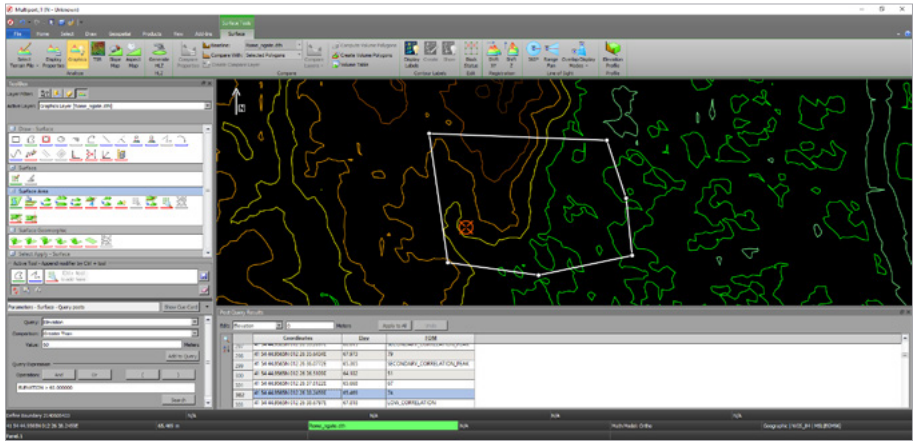
In order to allow for even greater flexibility in support of user workflows, the Ribbon user interface has been significantly enhanced in this release. Users can now create custom tabs through the user interface and add in groups of functionality from other tabs to allow for simple viewing of only those capabilities relevant to the analyst. Users can also hide groups of functionality to streamline the Ribbon and allow for increased efficiency during production.

Terrain Post Query tool

A Post Query tool has been added to provide easy identification of elevation posts in terrain files that meet certain criteria. This helps users identify points that are above or below certain elevations, have particular Figure of Merit (FOM) values, or have significant elevation changes from neighboring points. This can increase workflow efficiencies when editing grid terrain files.

Key enhancements:

- Query grid terrain files by a variety of attributes
  - Elevation
  - FOM
  - Elevation change
  - Average delta elevation
- View query results in an output table
- Dynamically jump to any individual post result
- Sort and edit posts directly in the results table

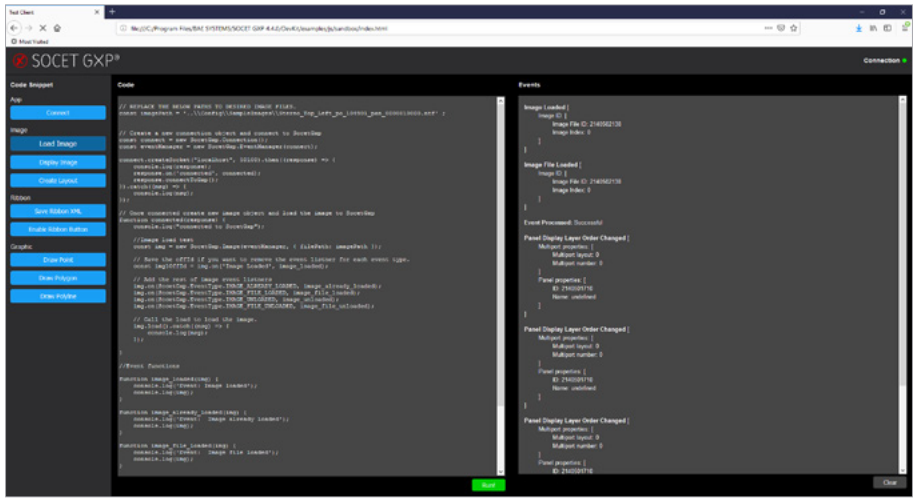


Post Query Tool in SOCET GXP.

Application Program Interface (API)

The API has been significantly improved with several new functions available for enhancing applications that interact with SOCET GXP. In addition, a new JavaScript API has been included that allows web-based applications to work with SOCET GXP. A Python API is also being generated to enable those with scripting experience to generate third party applications for use with SOCET GXP.

- New function calls
- JavaScript API (limited subset of the full API) for generating web-based applications[1]
- Python API to allow for scripting applications to interact with SOCET GXP[2]



JavaScript API program interacting with SOCET GXP.

GXP InMotion

Enhancements to GXP InMotion enable improved situational awareness and format interoperability by allowing users to:

- Import static Keyhole Markup Language (KML) / Keyhole Markup Language Zipped (KMZ) files into the Map Window, allowing analysts to utilize a Common Operating Picture (COP) format during real-time mission exploitation[1]
- Export the Activity Log with event time in the KML's attributes

New formats supported:

- Matroska, Windows Media Video (WMV), Advanced Systems Format (ASF), Audio Video Interleave (AVI), and Flash Video (FLV) for video clipping
- MPEG2 data without KLV metadata for video clipping
- .OGG and .M2T (MPEG) as supported video format / extensions
- 903.4 MISB (Video Moving Target Indicator and Track Metadata)[2]
- MPEG-DASH (Dynamic Adaptive Streaming over HTTP)[2]

Additional enhancements

In addition to those previously mentioned, the release of SOCET GXP v4.4 brings a wide variety of additional capabilities to your organization. New sensor models ensure that as new imagery and geospatial collection platforms become available they can be easily exploited using SOCET GXP. New drawing tools and streamlined workflows make product creation simpler than ever. In addition, SOCET GXP continues to be enhanced to work seamlessly with other GXP products including GXP Xplorer and GXP Xplorer Disconnected.

- New sensor models
  - Formosat-5
  - PeruSat-1[1]
  - TeLEOS-1[1]
  - WorldView-4[1]
  - Sensor Independent Complex Data (SICD)[2]
- Export to TERCOM terrain format
- Support Local Space Rectangular (LSR) with Curvature coordinate system
- Update Mensuration Services Program (MSP) to v1.5.4[1]
- Synthetic Aperture Radar (SAR) Overlay graphic to show relevant collection angles for SAR images[1]
- Text with Line drawing tool for quick annotations[1]
- Blur redaction effects available for all drawn polygons in SOCET GXP[2]

Note 1) *Items were patched into SOCET GXP v4.3*

Note 2) *Items will be integrated into a future patch of SOCET GXP v4.4*

GXP® Geospatial solutions to ensure a safer world.

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