

SOCET GXP[®] Release Enhancements

Version 2.2

BAE Systems is pleased to announce the release of SOCET GXP v2.2, with a range of new capabilities that deliver more robust functionality and flexibility. Enhancements included in this release improve overall operating performance and stability. Moreover, new features reflect how Image Analysis (IA) and Geospatial Analysis (GA) tasks are merging into a single application with a single user interface. All of the updates in SOCET GXP v2.2 are a direct result of customer suggestions and requests. As we have done in the past with SOCET SET®, we will continue to tailor SOCET GXP with users' workflows in mind.

SOCET GXP is a comprehensive software solution with a single user interface and flexible licensing options. Functionality from our IA and GA products is now available in SOCET GXP. With each new release, key features are added to make the software more robust. Ultimately, SOCET GXP will offer a full range of photogrammetric capabilities, which will make it the tool of choice for creating highly accurate geospatial products.

By including into SOCET GXP technologies equivalent or superior to those provided in MATRIX (IA tools), VITec® ELT/PC (IA tools), SOCET SET (GA tools), and CGS (targeting tools), and configuring the result as a single application with individual areas of functionality controlled by licensing, BAE Systems delivers a consolidated solution for complex analysis requirements.

Highlights of this release include a new 3D flythrough capability with waypoint editing, AutoSOCET capabilities available via the Workspace Manager, Line of Sight analysis, updates to the Graphics Manager, and additional template options. In subsequent releases users can look forward to an enhanced look and feel, database connectivity that provides the ability to store and pull vector files, expanded HSI/MSI processing, and additional capabilities for GA and photogrammetry.

◆ New feature in SOCET GXP v2.2

● Enhancements to existing functionality or enhancements included in a SOCET GXP v2.1.2 patch

■ General product features

General

SOCET GXP v2.2 offers increased performance for Windows® and UNIX® operating systems, concentrating on zoom and graphics behaviors.

- ◆ New Launch Manager allows for more flexibility with licenses
- ◆ Ability to view multiple images as either Geo Mosaic or NITF Common Coordinate System (CCS) mosaic
- ◆ Support for HRTI and SRTM terrain data
- ◆ Support for ASRP 1.2 data format in the Visual Coverage Tool (VCT) for footprint display and export to SOCET GXP
- ◆ Visible layout ruler added to inside of Multiport to assist in product creation
- ◆ Capability to take Find-In-Scene spectral raster results and export as vector formatted files
- ◆ Custom Arrowhead and Auto-map graphics added to support a wider range of operational use
- ◆ New hot-key to place 3D cursor on the ground when viewing in stereo mode
- ◆ New compass graphic used for updating appears during smooth roam
- ◆ New preferences: graphics, including Auto-map, Directional Arrows and Arrowhead graphics, launch application preferences and AutoSOCET preferences
- New toolbars to support updated functionality
- Enhanced preferences: vector profile, porthole, flythrough display, virtual mosaicking options
- Expanded auto-population of SPIA tags and NITF header records using preferences
- Enhanced graphics capabilities
- Capability to create and edit new templates from the Graphics Manager while image is loaded
- Image thumbnails are now stored with the image and can be reused
- Performance improvements for handling large ESRI® shapefiles
- Continued API development to support both SOCET GXP and SOCET SET customers
- Changes to existing functionality to improve workflows and overall operating performance

Targeting

SOCET GXP v2.2 includes enhancements to all aspects of the CGS targeting component, a precision targeting solution that is efficient and easy to use, and gives users the capability to create professional looking finished products. Since it is fully integrated with the CGS targeting solution, users can access the CGS targeting workflow seamlessly without exiting SOCET GXP or launching a separate process.

- View image pairs in stereo and drop points that provide CE and LE based on accuracy
- Jump from one target to another to examine the target and make edits or text additions
- Keep track of every target dropped in SOCET GXP with the Target Table, regardless of which Multiport or panel contains the target
- Build briefing slides (kneeboard products) and finished products automatically from each target dropped; export to PowerPoint®, Joint Targeting Toolbox (JTT) or XML
- Use Gridlock's Smart Image for precise measuring and targeting
- Create advanced targeting products to satisfy a wide variety of applications

3D flythrough tools

The SOCET GXP 3D Flythrough module, introduced in SOCET GXP v2.1, has been redesigned and enhanced to provide a useful mission planning tool as well as a flythrough viewer. More sophisticated flythrough capabilities are planned for subsequent versions to enhance 3D visualization incorporating feature extraction.

- ◆ New Flythrough window has toolbars to control enhancements, standard functionality and different viewing modes; the window has additional menu items for access to related tools
- ◆ The Flythrough Controls window allows users to drive and control flight without the use of hot-keys
- ◆ An Overview window has been created for the Flythrough window that lets users view direction and tracking, and to create, control and view movement across waypoints and snail trails
- ◆ The WayPoint Editor allows users to change the dynamics of each waypoint to include location, speed, elevation, pitch and azimuth

- Users may point SOCET GXP to an Auto DTED directory so that images and terrain data needed for flythrough and other terrain related tools can be accessed automatically; HRTI and SRTM terrain support is included
- Option to save a flythrough as a graphic or record an .avi file to include in finished products

Terrain analysis

Terrain analysis is the first step towards full terrain modeling and editing, which will be a feature of the next generation of SOCET GXP. Users now have the capability to include terrain data in image analysis.

- ◆ The new Line of Sight tool analyzes terrain either by default or by user-defined parameters; analysts can use a predetermined boundary, or enter a custom height by placing a marker on the image and letting SOCET GXP color the visible areas across the entire image—clicking on other areas of the image updates the image automatically
- The Terrain Visualization toolbar allows users to auto load terrain, draw the terrain graphically via contours, dots, or mesh, create TSRs, and access the terrain properties to edit terrain visualization attributes
- Terrain profiling allows for detailed elevation analysis along a specific line; the result is displayed in a graph where users may click along any point and see where that point lies in the image; the graph may be saved as a picture, or a snapshot of the result can be used in a finished product
- Terrain tracking gives users the capability to view elevation data continuously using the location of the mouse; the tool uses elevation data, which is loaded automatically with the image via the Auto DTED preference file; elevations are displayed at the bottom of the Multiport

AutoSOCET

AutoSOCET gives users with little or no photogrammetry experience the tools to perform triangulation automatically and to create terrain files, orthophotos and orthomosaics. Access to this functionality is available through VCT or directly from the Workspace Manager. AutoSOCET windows are easy to use and increase efficiency, allowing users to select jobs and options associated with a particular job. In future versions, users will be able to select areas of interest across data sets and launch photogrammetric processes directly from imagery.

- ◆ Select files from data view and launch the new AutoSOCET window using the right mouse button
- Users may enter the location of the DTED file needed for triangulation or have AutoSOCET create its own elevation file

Comparison

Analyzing and comparing images is vital to the image analysis workflow. SOCET GXP v2.2 increases the capability to recognize and identify changes.

- ◆ The Multi-Color comparison views option allows users to analyze more than two layers in a panel
- ◆ With the click of a button, users can automatically link panels that exist within the same Multiport; the link properties are driven via preferences and users may choose to link images by zoom, roam, graphics or cursor
- ◆ The porthole tool has been enhanced to include a swiper mode; this allows users to put images together within one panel and “swipe” across the images to see changes; the porthole tool also allows users to define up to four Autolabels to update dynamically while paging through layers within a panel
- ◆ Users may now annotate per image via the Graphics Manager; one click puts users in a mode that allows them to annotate items of interest on the ground on a per-image basis
- Autolabels have been enhanced to update values dynamically according to which image is on top; users now receive vital information during flicker mode based on which image is being viewed

Product creation

SOCET GXP offers the most efficient tools in the industry for creating and distributing finished products. The product creation toolset offers enhancements that give users the capability to deliver accurate information to decision makers quickly and easily.

- ◆ New drawer added to the Graphics Manager for the Directional Arrow; used on an image to display rotation values graphically within the image metadata
- ◆ Rotation values have been added to the Autolabel drawer to display the text value with the Directional Arrow
- ◆ The Other Image Metadata button gives users access to the image metadata of the primary image; when the user selects a tag from the window and clicks on the image, the value of that tag appears; any tag may be selected from the metadata to use on a template during analysis or product creation
- ◆ Edit or create new templates directly from the Multiport without having to be in Create Template mode

Platforms and sensors

SOCET GXP v2.2 supports new sensors and image formats, and includes mathematical models for the sensors listed below. These models are essential for accurate geolocation and measurement as well as fatigue-free stereoscopic viewing.

- IKONOS®-2 - Panchromatic (Pan), MSS, Pan/MSS blend
- IRS-1C – LISS III, Pan
- IRS-1D – LISS III, Pan
- QuickBird – Pan, MSS
- SPOT 5 – HRG
- Landsat 3 & 4 – MSS
- Landsat 7 – ETM+
- U2 – SYERS-2 Pan, ASARS-2, ASARS-2a
- F-14 – TARPS-CD EO Frame
- F/A-18D – ATARS MAEO, LAEO
- F/A-18E/F – SHARP EO/IR Frame

- Global Hawk UAV – EO, IR, SAR
- Predator UAV – EO, IR
- Space Shuttle Endeavour – C-band radar
- NTM

Data formats

SOCET GXP v2.2 can read and write data in the formats listed below. Additional formats are added often, in response to customer requests.

- NITF 2.1, NITF 2.0, NITF CGM (JITC certification in progress)
- Multi Image NITF support for saving virtual mosaics
- NITF MITOCA TRE data ingest
- JPO2 IOC1 and IOC2
- NSIF (NATO Secondary Image Format) 1.0
- ESRI shapefiles
- GeoTIFF 6.0 w/ArcWorld (*.tiff) file
- VITec image (.vit) and annotation(.anno) files
- JPEG
- JPEG 2000
- Gridlock Smart Images
- Sun Raster
- TFRD 1.3, 2.3, 4.3
- CompuServe GIF
- Windows bitmap (bmp)
- Tactical Image ID
- Tactical Sensors (Global Hawk, Predator, ASARS-2, ASARS-2a, SYERS, ATARS, SHARP, TARPS CD)
- CADRG
- ADRG
- Controlled Image Base (CIB®)
- ASRP
- SRTM DTED level 2
- HRTI
- IKONOS
- QuickBird
- Landsat 7 ETM+ sensor in GeoTIFF, NDF, Fast L7, Fast L7a and ACRES
- Landsat 3 & 4 NLAPS
- SPOT CAP and SPOT 5 DIMAP
- IRS LISS Super Structure format in BSQ

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