

SOCET for ArcGIS®

SOCET for ArcGIS® combines the stereo photogrammetric capabilities of BAE Systems' SOCET SET® software with the cartographic and feature-editing tools of the ESRI® ArcGIS® application. Built for geospatial analysis, SOCET for ArcGIS provides functionality for extracting features and elevations in ground space to create precise 3-D geodatabases. No photogrammetric expertise is required.

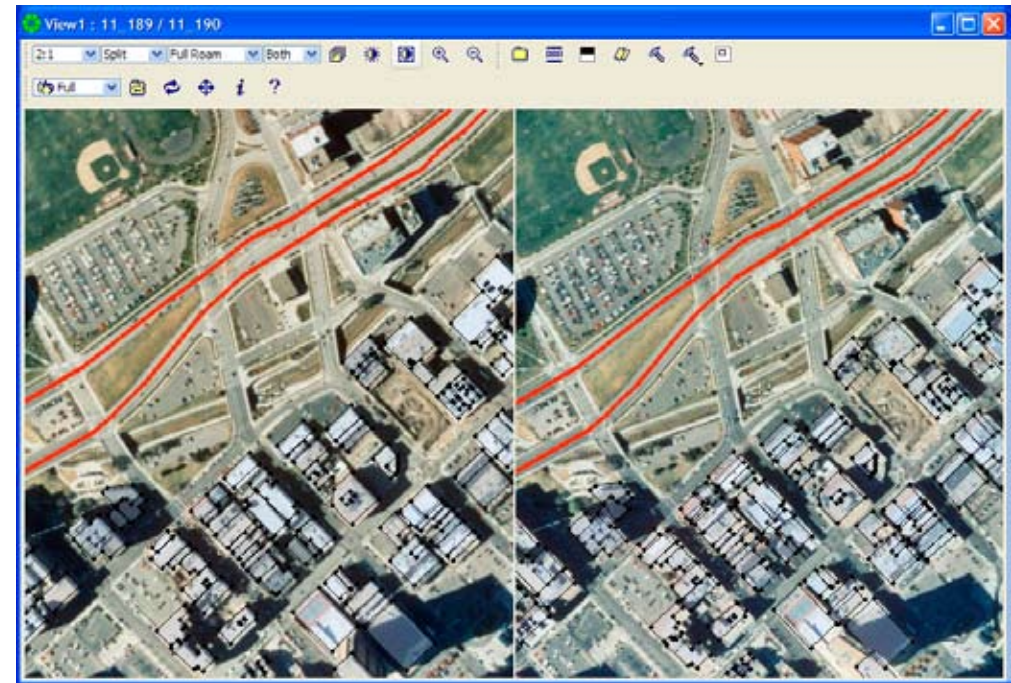
SOCET for ArcGIS is a SOCET SET module that gives analysts the capability to collect 3-D feature data from the SOCET SET stereo viewport while simultaneously updating the data inside the ArcMap® canvas. This allows the ESRI community to use stereo imagery to collect and edit features and assign attributes from within the familiar ArcMap environment. Users connect directly to the ESRI geodatabase, whether personal, file, or multiuser.

Working with SOCET for ArcGIS allows users to benefit from SOCET SET's core capability to exploit rigorous sensor models — it embeds the photogrammetry into ArcMap and controls versioning and topology. A key advantage of SOCET for ArcGIS is the capability to extract and update features from a wide range of satellite and airborne imagery. As new imagery is collected, map updates and edits can be compiled by loading the appropriate geodatabase and using either SOCET SET sketch or ArcMap drawing tools to add, modify, or edit features. As each feature is collected, basic attribute information can be tagged, assigned, and managed using ArcGIS feature attribute editing tools. The combined SOCET for ArcGIS and ArcMap toolkit makes it possible for analysts to work in a seamless photogrammetric and GIS environment to compile and maintain GEOINT geodatabases efficiently.

Embedding photogrammetry in GIS

The use of photogrammetric methods to populate and update GIS databases has always been essential, but not easy. Typically, feature collection and editing is achieved by specialists using software designed for

photogrammetrists. Features are moved to and from the GIS database by translators. This step adds inconvenience to the process, and increases the potential for loss of data and quality. SOCET for ArcGIS is an advanced, rigorous approach that alleviates these issues.



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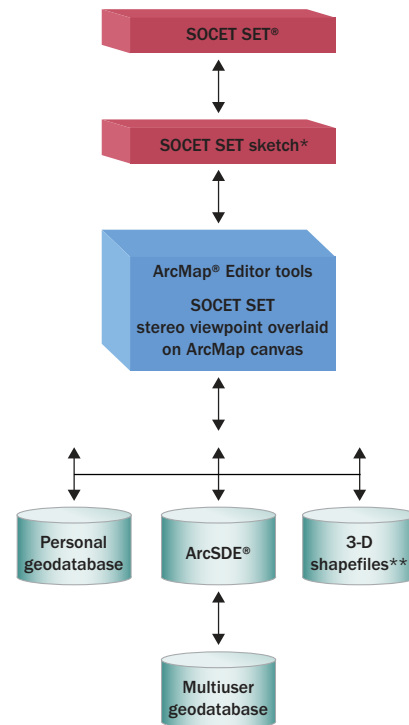
Most geographic information loses value rapidly unless it is up-to-date. Data can be maintained easily and cost-effectively using SOCET for ArcGIS. The SOCET for ArcGIS user does not need to be a photogrammetrist — the important thing is to understand the features needed for the project. A new database can be populated rapidly from imagery. Because features are superimposed on the stereoscopic view of the imagery, it is easy to check or update an existing database.

SOCET for ArcGIS architecture

To collect and edit features from imagery for populating and updating GIS databases, it is necessary to use a rigorous approach, with mathematically correct sensor models linked to the display and measurements in a window with stereoscopic viewing. This is accomplished through SOCET SET, which includes formats and sensor models for an unequalled range of airborne and satellite imagery, plus end-to-end capabilities for orientation, triangulation, and image display. The GIS user loads the imagery into a SOCET SET stereoscopic window where precise positional movement of the cursor is linked to the ArcMap environment. Next, the user selects the familiar Editor tools in ArcMap, including 3-D tools. There also is

an option to switch on SOCET SET sketch tools, which include many functions for 3-D collection and editing. For example, sketch functionality includes a tool for inputting attributes, and an automated option for attributes such as circular error (CE) and linear error (LE) estimates, as required by NGA and NATO specifications. The features, whether collected with ArcMap or sketch tools, are directly written to a personal, file, or multi-user geodatabase. Because the user sees cursor movement in the stereo viewport synchronized with cursor movement in the ArcMap environment and overlaid on top of the ArcMap canvas, the display is very simple and easy to learn and use. Sophisticated functionality such as versioning and topology takes place behind the scenes.

A powerful production line can be organized through the use of a single SOCET SET workstation to manage projects, import imagery, and perform triangulation. Imagery that has been oriented can be distributed to a large group of economical SOCET for ArcGIS workstations for feature collection and editing. One photogrammetrist serves an entire team of GIS data collectors and editors.



*Use of sketch functions optional
**Other formats possible

KEY CAPABILITIES

User sees SOCET SET stereo viewport in the ArcGIS environment

SOCET SET works behind the scenes to process imagery from an unequalled range of aerial and satellite sensors

SOCET SET manages stereoscopic viewing

ArcMap Editor tools work in 3-D

SOCET SET sketch 3-D feature collection and editing tools are available on demand, including automatic attribution, with CE and LE statistics to NGA and NATO requirements

Works with personal, file, or multi-user geodatabases, or 3-D shapefiles

Versioning and topology

Imagery can be imported and triangulated on a SOCET SET workstation, then distributed to a group of SOCET for ArcGIS workstations for low-cost feature collection and editing

Requires SOCET SET v5.2 or later on the Microsoft® Windows platform, and ArcMap 8.3 or later

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