Common Geopositioning Services (CGS) program

Representing more than 25 years of development, BAE Systems' Common Geopositioning Services (CGS) program is the Department of Defense standard for precision targeting, geopositioning services, and photogrammetric applications. CGS combines with SOCET GXP® — the company's commercial, off-the-shelf (COTS), electronic-light-table (ELT) application — to provide an all-source precision geolocation capability with reliable and accurate 3-D coordinates and statistically valid error estimates.

CGS merges COTS and government off-the-shelf (GOTS) software applications for UNIX® and Windows® platforms for precision geopositioning services in defense and intelligence applications. Using SOCET GXP as the integrated viewer, CGS can deploy as a stand-alone targeting workstation, setting the standard for target-location error determination.

CGS delivers standard GOTS applications that integrate with various services-based architecture systems such as Distributed Common Ground System (DCGS)-Navy, DCGS-Army, Global Command and Control System - Imagery and Intelligence Information (GCCS-I3) and DCGS-Air Force 10.2. Its applications also work with COTS and GOTS ELTs and viewers and with targeting; command and control; and intelligence, surveillance, and reconnaissance systems.

CGS engine

The CGS engine provides core geopositioning services, validation support, mensuration, and output product generation. All CGS services include rigorous error propagation and estimation and are validated by the National Geospatial-Intelligence Agency for tactical, national, Digital Point Positioning Data Base (DPPDB) data source, and commercial imagery.

BENEFITS

- Provides predicted accuracy at start of geopositioning process, quickly finds image set, and includes the "dial-an-accuracy" feature
- Offers single-image geopositioning, which provides rapid, direct targeting from single images using community sensor model (CSM) plug-In sensor models
- Offers multi-image geopositioning (MIG), which allows for rapid geopositioning without registration, combines different sensor types, and improves accuracy by combining multiple images
- Offers registration to control inaccurate imagery, increases accuracy, and provide single-point control to support time-sensitive targeting
- Offers resection that increases accuracy by adjusting inaccurate sensor models and creates a new sensor model or orthographic projection when support data is missing
- Uses BAE Systems' universal triangulation engine for MIG, registration, and resection
- Delivers blunder detection support for multi-image and multi-sample calculations
- Supports DPPDB, national, tactical, and commercial imagery measuring systems
- Provides precision geopositioning software tools to support precision-guided munitions and anti-terrorism initiatives
- Provides modular geopositioning services capable of calculating accurate three-dimensional geographic coordinates

COMMON GEOPOSITIONING SERVICES (CGS) PROGRAM

CGS applications

CGS offers several GOTS applications to support end-to-end use as a targeting workstation. Moreover, CGS simplifies user interactions with powerful workflow wizards including geopositioning, resection, and two levels of geopositioning workflow modes that enable various end-user operations. An aimpoint-verification workflow supports downstream verification and updates for CGS-generated aimpoint products. To decrease targeting time, workflow applications can be bypassed using SOCET GXP in direct mode.

CGS output products

CGS generates numerous finished products, including electronic files supporting machine-to-machine interfaces with other applications. Products and formats include PowerPoint® and Star Office briefings, Joint Targeting Toolbox responses, cursor-on-target (CoT), JPEG, HTML, Tasked Target Text Data XML files, Local Point files, text, comma-separated variable files, and Autonomous Target Acquisition and Mission Target Folders products.

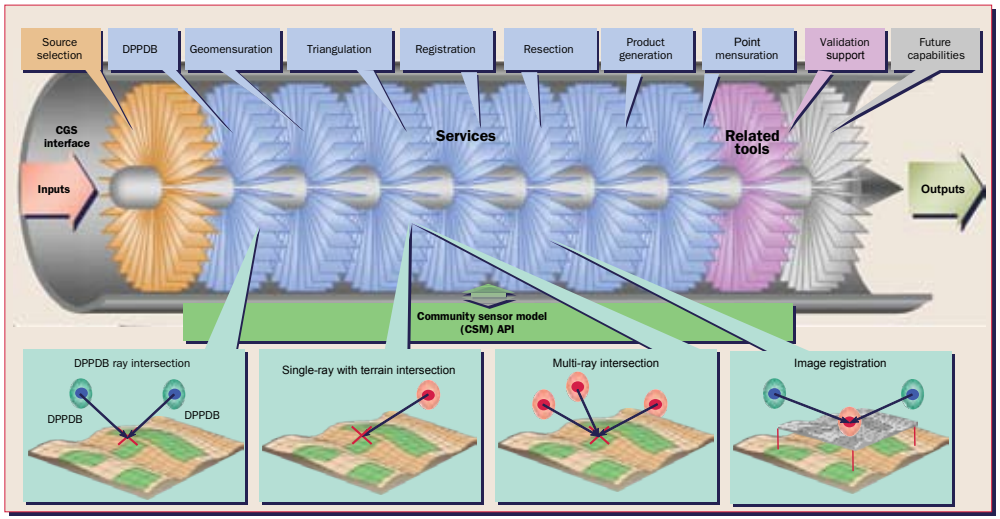
Supported sensor types

AESA
APS-149
ASARS 2
ASARS 2 CIP
ASARS 2 MOBSTR
ATARS MAEO
DPPDB
Global Hawk® EO / IR
Global Hawk® SAR (pre-production)
IKONOS® (commercial)
NTM
Orthographic
Predator® EO Legacy ("WESCAM Skyball")
QuickBird (commercial)
RAPTOR®
RSM – (Gridlock SMART images)
Shadow
SHARP EO / IR
SYERS
TARPS CD

Sensors handled via resection

ATARS IR
ATARS LAEO
Controlled imagery base (CIB)
Future image architecture (FIA)
Global Hawk SAR (production)
Images with no support data
JPEG

FUNCTIONAL ARCHITECTURE



JSTARS SAR
P3 SAR (AN/APG-73)
Predator MTS
SYERS 2
TARS EO

External interfaces

Fast Assessment Strike Tool – Collateral Damage (FAST CD)
Global Command and Control System–Imagery and Intelligence Information (GCCS-I3)
Image Product Library (IPL)
Joint Weaponeering System (JWS)
Joint Targeting Toolbox (JTT)
Joint Targeting Workstation (JTW)
Military Integrated Database (MIDB)
Portable Flight-Planning System (PFPS)
Product and Image Coverage Tool (PICT)
Theater Battle-Management Core System (TBMCS) – Unit-Level Intelligence (TULI)

FOR MORE INFORMATION, CONTACT:

BAE Systems
10920 Technology Place
San Diego, California 92127
Tel: 858 592 4407
www.baesystems.com

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