



## TerraSight® Product Guide

Real-Time Video Processing  
& Exploitation Systems





The TerraSight® solution powerfully integrates streaming video and data for superior situational understanding, targeting, sensor cross-cueing, and forensic reconstruction.

TerraSight® meets increasing demands to extract maximum value from air and ground video surveillance by presenting rich, instantaneous information from widely distributed sensors, including critical details from sensitive Battle command and intelligence data. The TerraSight suite uniquely strengthens C4ISR competency to deliver the ultimate in mission capability. It provides precise, context-rich information to diverse end users, ranging from mission commanders to tactical operators and image analysts.

All U.S. military branches have deployed the TerraSight product suite. It addresses demanding Department of Defense requirements for image stabilization, sensor cross cueing, video dissemination, image markup/export, and accurate 3D geographic coordinates for each pixel processed. Through advanced image processing, TerraSight builds a composite common operating picture (COP) from diverse sensor input to provide actionable information in real time.

## **Benefits**

### **Accuracy**

- *Stabilized video for better clarity and viewing*
- *Accurate synchronized video and metadata storage and replay*

### **Communication**

- *Standardized reports*
- *Cursor on Target (CoT)*
- *MERC Chat*

### **Collaboration**

- *Real-time decision making between command centers and tactical field units*
- *Dissemination of video clips using industry standard protocols*

### **Visual Context**

- *Real-time mosaics for situational awareness aligned with standard image and terrain maps*
- *National and commercial image sources include CIB, DTED, CARDG, DPPDB, BuckEye, and LIDAR*
- *Multiple live videos draped on 3D terrain and image maps*



### Actionable Information

- Georegistration assigns accurate 3D coordinates to every pixel
- Improved accuracy is based on reference imagery and terrain
- Moving target indication (MTI) maintains image tracks from camera to camera
- Two-way dissemination of relevant video and data over bandwidth-limited networks

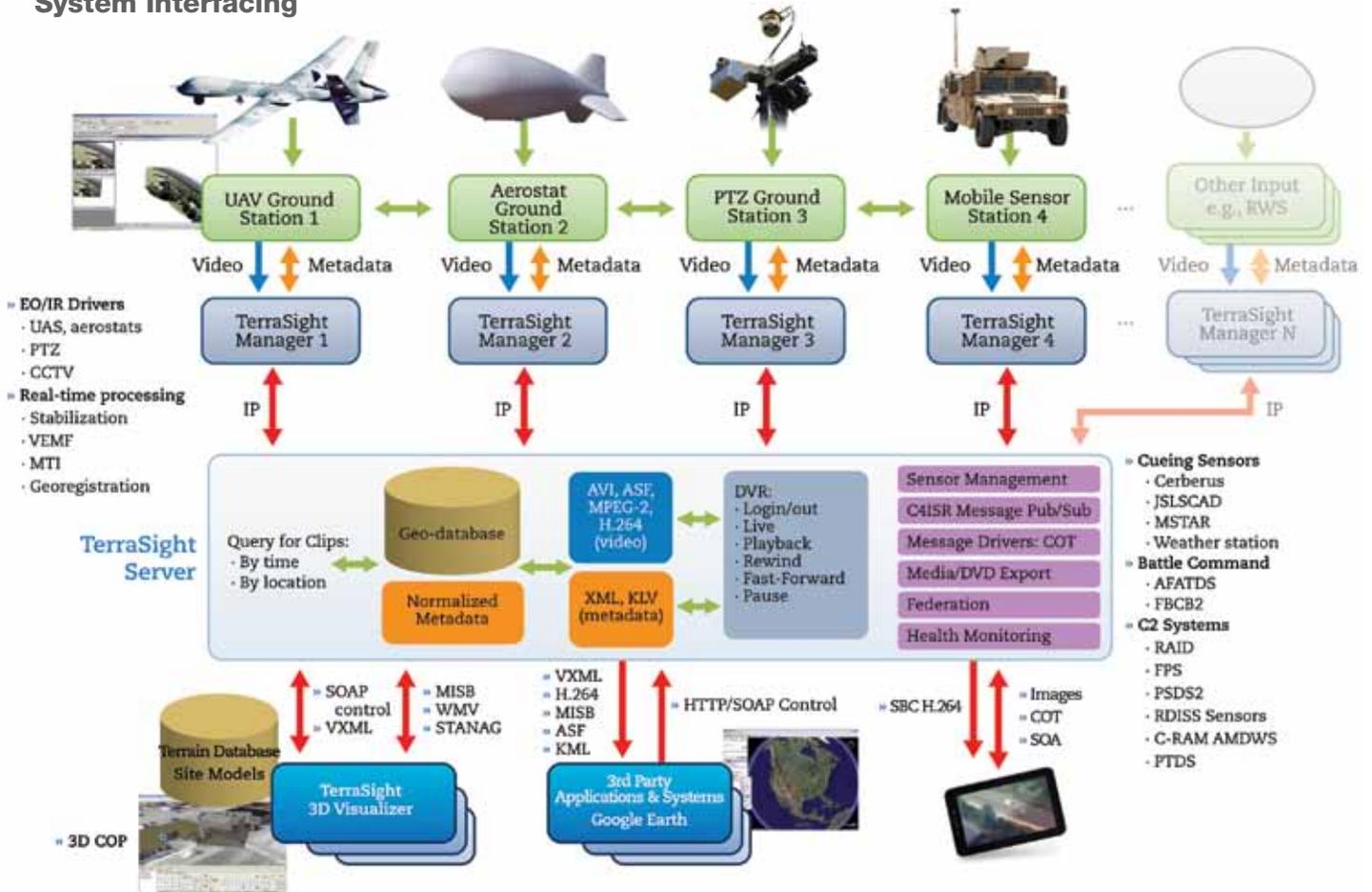
### Open Architecture

- Modular SOA compliant
- Generic sensor ICD
- Runs on commercial off-the-shelf (COTS) hardware
- Windows® operating system
- Federated sensor control

### Interoperability

- Platform/sensor independent
- Real-time common operating picture (COP)
- MISB & STANAG compliant
- Windows Media® Player
- Battle Command, Intel, and C2 message processing

### System Interfacing





## Software Configurations

The TerraSight software suite is organized into a set of three core components that provide image and data capture, dissemination, visualization, and archiving. Additional modules detect and highlight moving objects, support video analysis, and improve accuracy of geolocation.

TerraSight's software package vastly increases overall mission capability. Some fielded applications include:

- BETSS-C
- PGSS/PGST
- PSDS2
- ScanEagle
- TigerShark
- Shadow



## TerraSight® Manager

The TerraSight Manager provides real-time video processing, synchronization, geolocation, and streaming data to the TerraSight 3D Visualizer and Server.

- *Real-time capture and digitization of video stream and associated metadata*
- *Video and metadata alignment containing aircraft location, sensor orientation, and sensor field-of-view data*
- *Georegistration that assigns accurate 3D coordinates to every pixel*
- *Moving target indication (MTI) that highlights moving objects in stabilized video*

## Service-wide license for US Army



# Scalable solutions based on customer requirements



## TerraSight® 3D Visualizer

The TerraSight 3D Visualizer overlays video on an image map through a process of aerial video capture, exploitation, analysis, and visualization. It provides situational awareness by displaying multiple real-time video feeds from different sensors over a 3D Earth model.

- *Simultaneous display of up to eight live video feeds*
- *Point-and-click target location acquisition with elevation correction*
- *3D display of COP using MIL-STD-2525C symbology and import of shape file overlays*
- *Dissemination and reporting via Cursor on Target (CoT) display of real-time moving targets*



## TerraSight® Server

The TerraSight Server offers users the ability to store, search, and send data in real time. It has DVR-like playback of live video and metadata from multiple sensors, as well as archival functionality with the ability to stream information via IP to multiple operators and analysts.

- *Live/DVR playback and streaming functionality per sensor*
- *Priority-based sensor discovery, sharing and PTZ control*
- *Messaging interfaces*
- *Centralized web-based TerraSight configuration and health monitoring*
- *Interfaces with DCGS-A, FBCB2 (BFT), Cerberus, MSTAR, FPS, C-RAM, Predator, Shadow, UTAMS, PTDS, and PGSS/PGST*



## TerraSight® Salience-Based Compression Module

The TerraSight SBC Module delivers relevant, high-resolution video and data to handheld devices over existing, bandwidth-limited communication networks. This module enables two-way information sharing between dismounted operators and ground stations or mobile command posts in real time.

- *Reduces overall bandwidth requirements to 50 Kbps and below*
- *Chooses area of interest based on motion, key IR signatures or operator selection*
- *Displays location of video sensors and coverage areas on the handheld COP*
- *Utilizes standard compression formats such as H.264—no customization required*
- *Operators can control the orientation and zoom of available cameras*



## Hardware Configurations

System commonality  
and interoperability  
are preserved  
via the TerraSight  
software baseline



### **TerraSight® Ground Station (TGS)**

The TGS system—like the customized US Army Standard Ground Station (SGS) variant—utilizes SRI Sarnoff's TerraSight software to rapidly deliver complete situational understanding.

This platform allows operators and mission commanders to quickly monitor and control multiple sensors connected via IP or analog, and respond to multiple cues within the tactical environment.

The TGS enables real-time decision making from surveillance and early warning air and ground sensors. Options are available for direct interfacing to RAID and UAS sensors.



### **TerraSight® Rack-Mounted Workstation**

The rack-mounted system provides a compact, versatile, rugged platform for running mission-critical TerraSight applications. The highly-reliable workstation is designed to save space and weight and can be used for demanding military and industrial operations. It has been tested for high shock and vibration as well as MIL-STD-810F compliance.

The configuration is optionally loaded with the Microsoft® Windows operating system along with TerraSight software, making it ready for insertion into a command center, ground station, or video exploitation cell. The system relies on the same processors that form the heart of the TerraSight ground stations.



### **TerraSight® EX**

The TerraSight EX platform is a ruggedized MIL-STD-810F Windows® laptop with embedded TerraSight software. The portable system brings advanced video exploitation to the forward operator. Expeditionary teams get a single, integrated, tactical display for ultimate 3D situational awareness. Features include ingest of industry standard MISB and STANAG UAS feeds, full-motion video stabilization, geo-mosaic construction, and geo-registration with embedded mensuration for generating real-time, accurate target coordinates which can be transmitted via CoT.

The EX system is complete with aerial sensor ingest and state-of-the-art 3D visualization for mobile or dismounted situational understanding from indigenous or in-range aerial ISR assets. EX includes appropriate storage capacity and video processing to support a single UAV for expeditionary use.



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### Headquarters

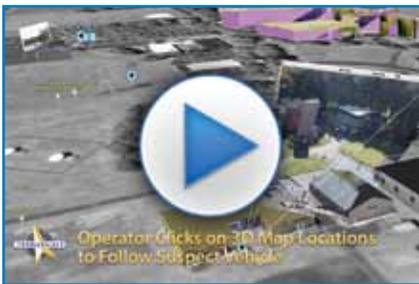
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