Geospatial eXploitation Products™ (GXP®)
Solving the challenges of ISR-Processing, Exploitation & Dissemination in the Maritime Domain

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Geospatial eXploitation Products™ (GXP®)

From key military, security, and first responder operations, to a wide variety of commercial development and research initiatives, GXP provides a comprehensive suite of geospatial intelligence solutions that enable timely and effective decision-making.

Fast facts

- Off-the-shelf software complemented by an expanding Professional Services offering
- Over 25 years in commercial mapping and image exploitation
- Approximately 230 employees worldwide
- Over 15,000 licenses installed
- Regional offices and training centers
  - U.S.: San Diego, CA (HQ); Reston, VA; Tampa, FL; Denver, CO; St. Louis, MO; Rome, NY
  - International: Cambridge, U.K.; Canberra, Australia; New Delhi, India

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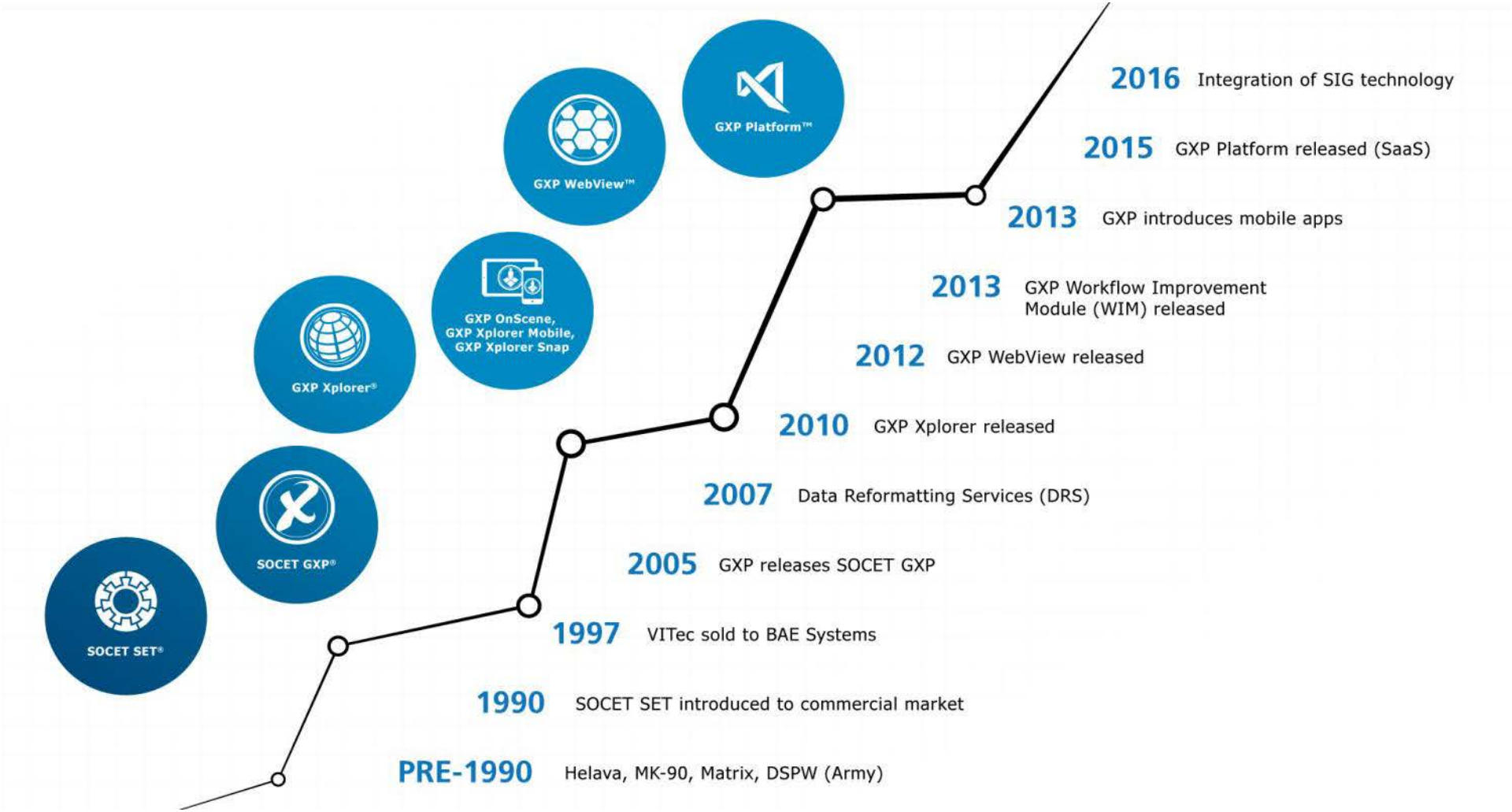
The evolution of GXP



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Challenges to geospatial exploitation in the maritime domain

Geospatial data resides in multiple formats and disparate locations, making it difficult to locate and retrieve in a time-efficient manner.

Specific problems

- In today's data enterprise, significant time and effort is spent locating data residing in multiple data stores
- Additional time is spent downloading the various types of data found
- Special software is often required to perform all tasks necessary for data ingestion
- Subsequent searches for similar information necessitate redundant data queries

Statistics show that analysts spend up to 50 percent of their time locating the data for their tasks across different systems, networks, and geographic locations.

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Challenges to geospatial exploitation in the maritime domain...2

Accurate and effective exploitation of geospatial data is difficult and typically requires expertise in the use of multiple software applications

Specific problems

- Specialized applications are required to perform analysis and exploitation - creating a time-consuming, cumbersome, and costly workflow
- Exploitation tools are typically non-intuitive and rigid in format
- Interoperability between geospatial technologies such as Google Earth, TerraGo®, GeoPDF®, SOCET for ArcGIS®, Esri® Geodatabase, and GXP Xplorer® is minimal
- Publishing intelligence into a simple and engaging format can be difficult

A common operating picture is difficult to construct and disseminate to users in a common, easy-to-use format.

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Challenges to geospatial exploitation in the maritime domain...3

It's difficult to coordinate and deliver accurate, timely, and clear intelligence into the hands of first responders in the field

Specific problems

- Real-time position of response personnel is difficult to track
- Coordinate response without a common operating picture, referenced by both field personnel and mission command
- Sharing assets, location, and conditions across response units and agencies for situational awareness
- Escape routes and safety zones cannot be identified without real-time knowledge of field personnel
- Development of accurate post-incident field reports

Shared situational awareness is critical to mission success

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GXP & DigitalGlobe® – One solution approach

- GXP Xplorer® supported by DigitalGlobe Basemap accelerates the data discovery process
- GXP creates a fully optimized end-to-end analysis workflow, allowing users to find, view, exploit, build, and publish their products quickly and easily
- Analysts produce products in half the time and they are disseminated in easy to use formats
- Operators & decision makers have the tools they need, when they need them

Decision makers have constant access to geospatial intelligence.

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The GXP Platform™

Providing the foundation for development of the most advanced geospatial intelligence, the GXP Platform delivers an unrivaled capacity for identification, visualization, and exploitation of mission critical imagery.

Solutions powered by the GXP Platform

GXP Xplorer

GXP Xplorer - A data management application that makes it easy to locate, retrieve, and share geospatial data files.

GXP WebView

GXP WebView™ - Supports simple, accurate data visualization and analysis, enabling the development of effective and actionable geospatial reports.

GXP InMotion

GXP InMotion™ - Manages video exploitation in an enterprise environment, allowing organizations to efficiently scale based volume required.

A scalable software framework enabling advanced geospatial exploitation at the enterprise level.

The GXP Platform also enables GXP mobile applications including GXP Xplorer Mobile, GXP Xplorer Snap, and GXP OnScene, which extend platform capabilities into the field.

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Value of the GXP Platform

The GXP Platform delivers tangible benefits to both enterprise end-users and system integrators alike.

- Supports synergies between GXP solutions
  - Seamless movement between apps
  - Data sharing
  - Consistent approach to integrating shared analytics
- Enables rapid extension of existing products and solutions with new capabilities, connectors, and technologies
- Used to build custom solutions for customers to meet unique workflows and requirements
- Leveraged by system integrators for new application development
- Meeting the needs of today's mobile, collaborative, and cloud-based workforce

Key components of the GXP Platform include server framework; data services; desktop, web, and mobile client framework; data source; and APIs and SDK.

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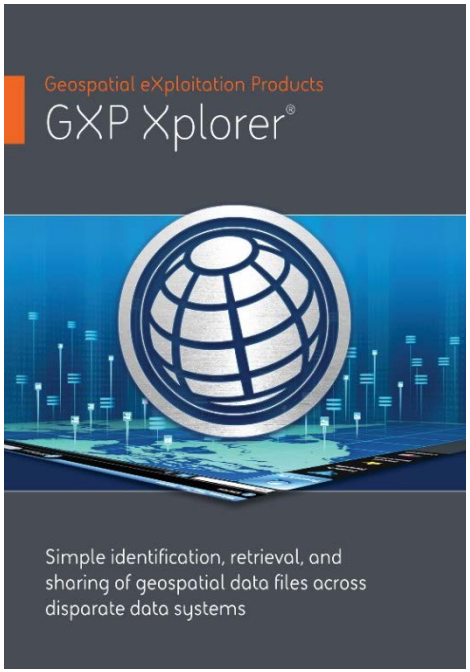
GXP Xplorer

Minimizing the time spent searching for critical data, GXP Xplorer provides a convenient way to manage and access all of your geospatial content.

Powered by the GXP Platform

- Crawls your enterprise network searching for relevant files in existing data systems from a standard web browser
- Identifies files and creates an online catalog for rapid retrieval
  - Imagery, terrain, and features
  - Maps and charts
  - Videos and reports
  - 100+ data types, GeoPDF files, and unstructured text
- Data can be visualized, downloaded, processed, or opened directly for additional analysis



Analysts typically spend up to 50% of their time trying to locate data across disparate systems.

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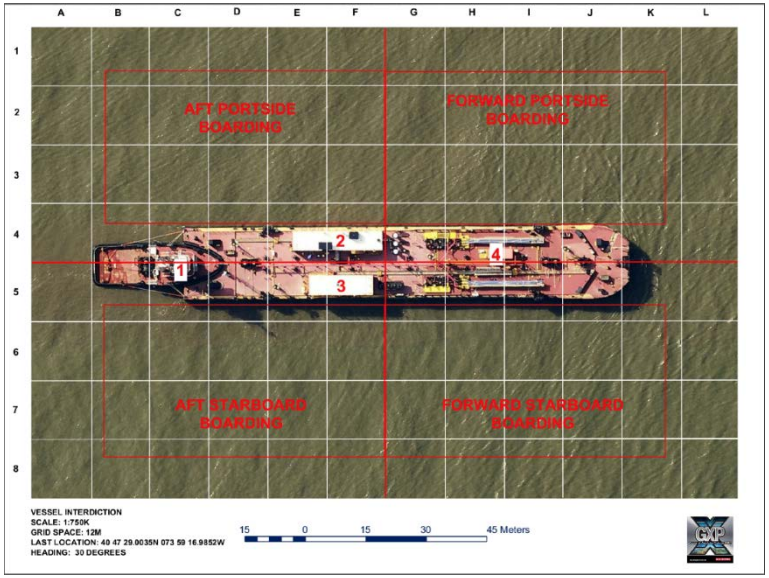
GXP OnScene Gridded Reference Graphic (GRG) maps: Ports & harbors security management

- First responder communication
- Incident response & recovery
- VBSS mission rehearsals



- Disseminated on mobile devices
- Blue Force tracking feature

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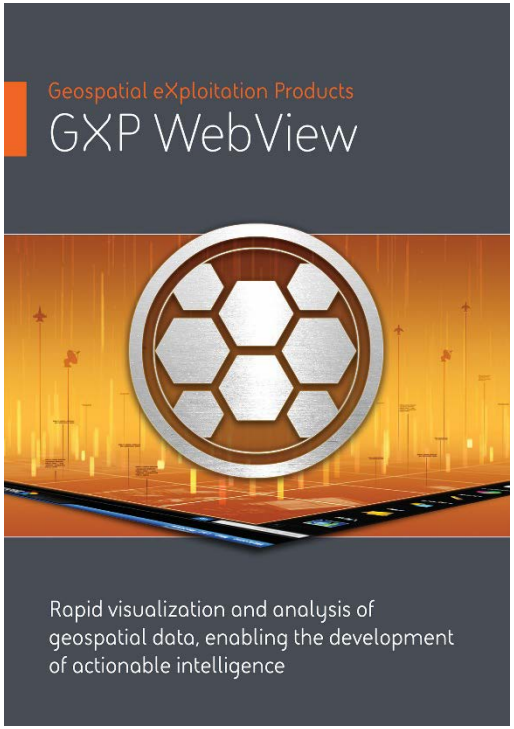
GXP WebView

Built for both the all-source and image analyst, GXP WebView supports simple, accurate data visualization and analysis, enabling the development of effective and actionable geospatial reports.



Powered by the GXP Platform

- A Web based server supported toolkit allowing you to efficiently view, measure, annotate, and disseminate geospatial imagery directly from a Web browser
  - Detailed annotation including text, lines, polygons, circles, buffers
  - Distance and elevation
  - Overlays with geographic coordinates & GRGs
  - Publishing to PowerPoint, GeoPDF, PNG, and more
- Integrated with GXP Xplorer's search capability
- GXP Pixel Streaming

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GXP InMotion

The GXP InMotion Video Suite lets you manage video exploitation in an enterprise environment, allowing organizations to efficiently scale based on the number of video missions and analysts required.

Powered by the GXP Platform

- Tools designed for every level of the video analysts' needs – from simple viewing and screen capture to full video editing
  - Live video re-streaming
  - Forensic video file streaming
  - DVR capabilities
  - Channel source setup and configuration
  - Centralized Mission Manager
- Video recorded from any airborne platform or CCTV
- Multicast feeds for collaborative analysis, exploitation, and review among disparate mission groups

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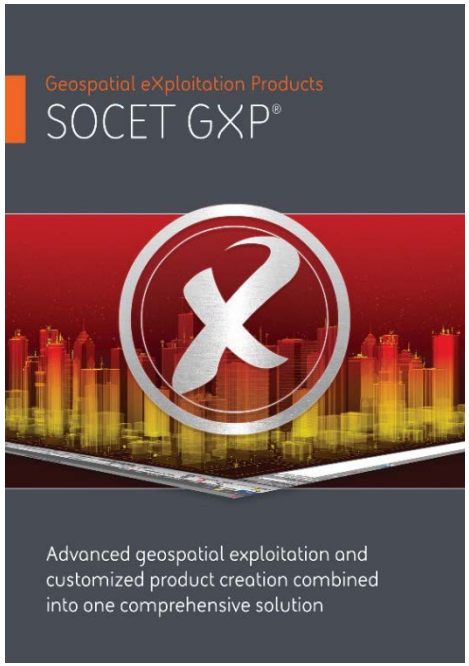
SOCET GXP®

SOCET GXP utilizes data and imagery from satellite and aerial sources to rapidly identify, analyze, and extract ground features, allowing for rapid product development (geospatial intelligence) and better decision making moving forward.



Integrated with the GXP Platform

- Automatically query and load reference imagery from GXP Xplorer
- Preview and exploit local and wide area network data from GXP Xplorer without leaving SOCET GXP
- Create customized geospatial products and reports to collaborate with colleagues and mission partners
- Increase throughput - create more products in less time

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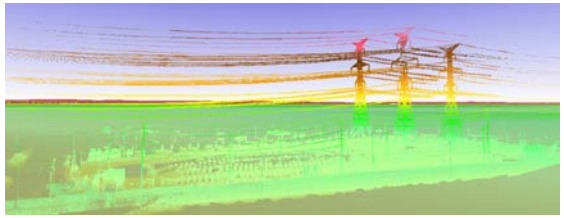
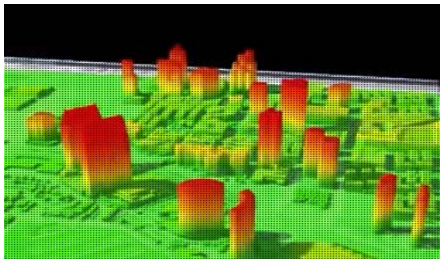
SOCET GXP ...2

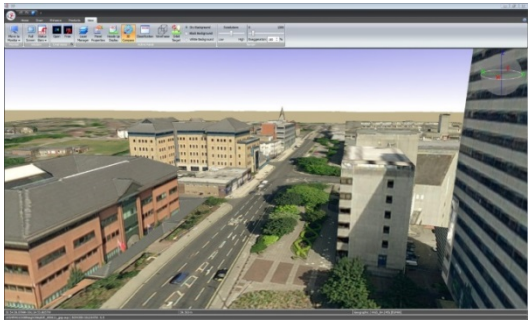
Supporting multiple projects and missions, SOCET GXP workflows are designed to reduce production cycle times, eliminate the redundancy of multiple software packages, and maximize interoperability with other geospatial technologies.

Key Capabilities

- Line of sight, 3-D modeling and visualization
- Distance, slope, and elevation
- Helicopter landing zones
- Multi-spectral analysis
- Rapid annotation
- Targeting







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SOCET GXP mission challenges – Maritime Patrol Reconnaissance example

GXP mission support – Maritime domain awareness

- Multi-sensor imagery exploitation, EO, SAR & FMV
- Dissemination in PPT, GeoPDF & KMZ/KML
- Mono & multi-image photogrammetry
- Workflow development
- TTP support

Intelligence specialist workflow support

- Find-in-Scene & Line-of-Sight tools
- Lines of communication analysis
- Order of battle change detection
- Points of entry studies
- Image classifications
- 3-D visualization
- Collaboration
- Kneeboards
- Fly-through
- VBSS

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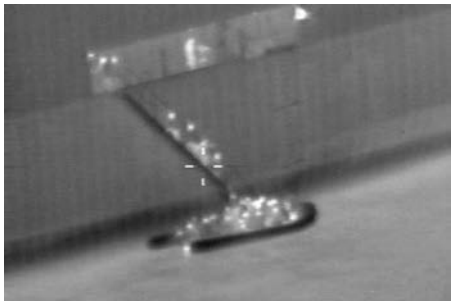
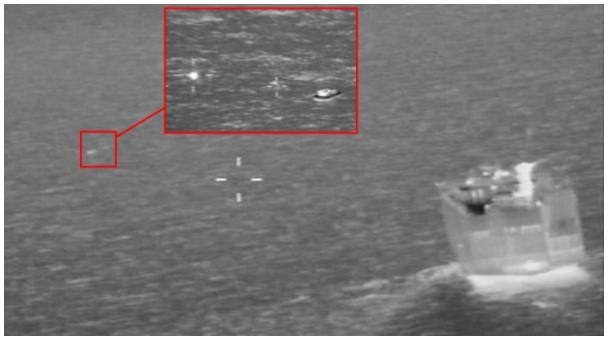
Maritime Patrol Reconnaissance Forces ISR FMV exploitation workflow

- Pre-mission load maps, imagery, terrain models for patrol area
- Collect EO,SAR imagery, FMV chip
  - P3C – Tactical Mobile TOC/MTOC
  - P8A - TOMS
- Attribute feature
  - Apply DEM (lat/long)
  - Observed activity noted
  - Direction of travel, speed
  - Hull class, cargo, capabilities
- Prepare product for dissemination
  - Apply template
  - Save to .PPT, NITF, JPG 2000
- Collaboration & dissemination
  - P3C – Save image to Tactical Mobile Server
  - P8A – INMARSAT transfer to big deck or shore facility

Easy to follow checklist for IS/AW/ST operators!





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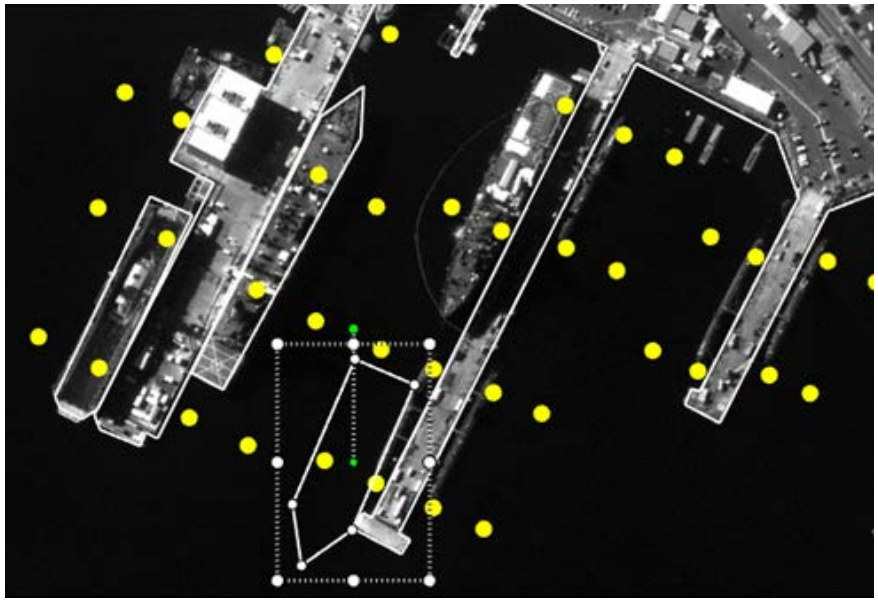
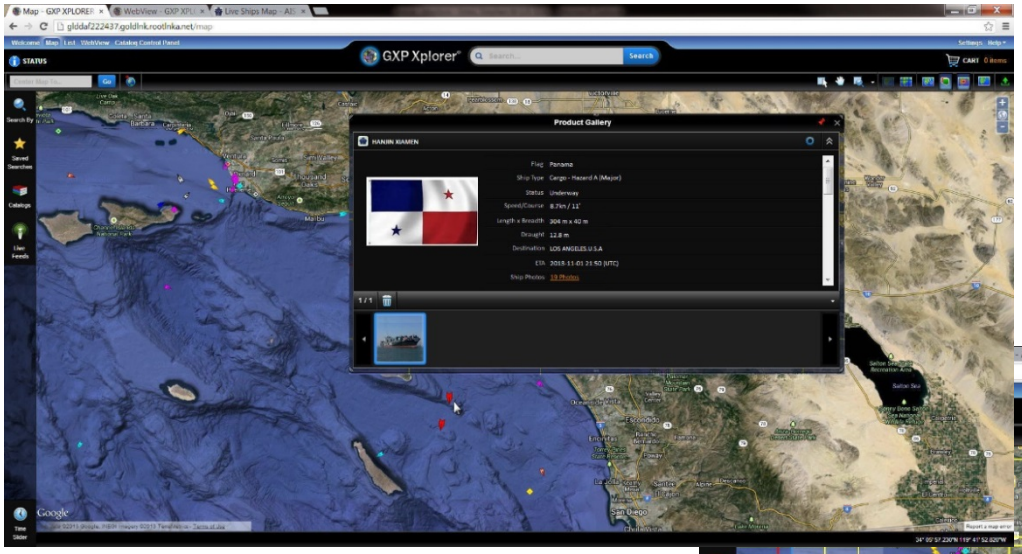
Maritime traffic analyst – Maritime Order of Battle change detection

- Select Facility – narrow down the area of interest where exploitation will be performed.
  1. Describe the Scene – data entry of scene related information.
  2. Define Obscured Area – collect features in the scene to delineate any obscured areas.
  3. Remove Vessels – remove any vessels that have left since the last exploitation.
  4. Add Vessels – add vessels that have arrived since the last exploitation.
  5. Update Activities – identify current activities of vessels in the scene.
  6. Save Changes – save current exploitation data to the database.
  7. Generate Products – generate and publish products.

The workflow is tightly coupled with a specific Esri geodatabase data model (can also be loosely coupled with image registration processes such as those provided with CGS).



MDA – Interoperability of AIS data with GXP Xplorer



- Select the Feed to Display Live Data
- Display AIS Data on the Map In Real Time
- Interact with track data, show target metadata

- Overlay with GXP Xplorer results
- The same capability exists to display Sea Watch data in a classified environment

Source for data:
http://www.marinetraffic.com/ais/

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Questions?

www.geospatialexploitationproducts.com

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