Solutions for Operational Intelligence Users

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Agenda

- GeoRover Product Solutions Overview
- Operational Intelligence Users
- US Army Special Operations Command - User Challenges and Solutions
GeoRover Product Solutions Overview

• GeoRover Locus Track
  – Powerful tools for geospatial feature data creation, editing, geospatial data fusion, and product creation

• GeoRover Digital Data Tracker
  – Field data collection tools and real-time map navigation

• GeoRover RPF Tools
  – High-speed indexing, display, and management of large file-based raster product format (RPF) datasets

• GeoRover Range Tools
  – Geospatial feature data creation, editing, and ingestion of ring, ellipse, and arc feature data

Extensions for ESRI® ArcGIS® 8.x / 9.x. Products install as toolbars in the ArcMap™ component
Operational Intelligence Users

• US Army Special Operations Command (USASOC)
• US Army
• US Marine Corps
• US Special Operations Command (USSOCOM)
• National Geospatial-Intelligence Agency (NGA)
• Intelligence Agencies
Summary of Key USASOC Challenges

• USASOC Challenges
  – Upgrade Geospatial Application Technology
  – Improve Geospatial Data Management
  – Leverage Existing GIS Resources

• Solutions
  – **Implement ESRI technologies**
    • GeoRover capabilities provide unique functionalities and interfaces that promote the use of ArcGIS technology
    • Able to move away from “stovepipe” applications
  – **Data Management**
    • ESRI technologies enable the use of geodatabases to consolidate data and server solutions for wide dissemination
    • Reduce the volume of disparate data
  – **Data Resources**
    • Using ArcGIS, users have access to more data sources and services being provided from other members of the community

• Results
  – Many users within USASOC have been able to transition into ArcGIS resulting in improved geospatial data analysis and data sharing. This translates into greater success in many areas, including conducting operations in the Global War on Terror.
Spatial Data Creation and Editing

• USASOC Challenges
  – How to implement a higher-end technology – with power comes complexity
  – Fast paced, operational intelligence environment may require tailored interfaces
  – Coordinates are everywhere, multiple formats/permutations
  – Need easy, flexible tools that work the same for very limited applications or enterprise applications

• Solution – GeoRover Locus Track
  – **User Interfaces**
    • Fast, flexible, easy interfaces maximize user acceptance
    • Optimized for operational intelligence (editing multiple layers quickly, ad hoc layer creation) – speed is important
  – **Coordinate ingestion**
    • Robust, flexible coordinate ingestion capabilities for non-spatial data with coordinates
  – **Maximum flexibility**
    • Comprehensive solution – users can edit ArcSDE enterprise data at home base, edit checked-out/versioned data when deployed forward, or build “ad-hoc” shapefiles – all with one interface
Spatial Data Creation and Editing

- Interactive (point-and-click) and coordinate-based tools for creating, editing, and deleting features from shapefiles and geodatabases
- Edit multiple workspaces anytime
- Rapid, single-click attribute editing
- Supports DD, DM, DMS, UTM, MGRS, and XY coordinate formats. All tools employ robust, smart, and flexible coordinate parsing capabilities
- **Shapefile compatibility:** Creates new layers, adds new features to existing layers and edits attributes for existing layers “on-the-fly.” Edits attribute table schema.
- **Geodatabase compatibility:** Adds new features to existing layers and edits attributes for existing layers. Edits attribute table schema. Supports personal, enterprise (ArcSDE®), and File geodatabases.
Spatial Data Creation and Editing

- Wizard-driven import of points, lines, or areas from any delimited text (.csv, .txt, .tab, etc.), Excel® spreadsheet, database (Access, Oracle®, SQL Server, etc.) or typed/pasted text with coordinates
- Robust import support of DD, DM, DMS, UTM, MGRS, and XY coordinate formats
- Ability upon import to create a new layer (shapefile) or add to an existing layer (shapefile, or feature class in Personal, File, or ArcSDE database)
- “On-the-fly” attribute matching
Field Data Collection

• **USASOC Challenges**
  – How to manage and visualize collected field data (GPS tracks/routes, images, video clips, audios clips)
  – Collectors often cannot bring a PC, even a small one
  – Many devices in use (off-the-shelf GPS receivers, digital cameras, newer GPS-integrated devices)

• **Solution – GeorRover Digital Data Tracker**
  – **GPS Track/Waypoint Download/Georeference collected field data**
    • Collected track logs and waypoints can be downloaded directly into ArcGIS
    • Works with very popular Garmin® (USB and serial) GPS devices
    • Automatically georeferences and plots collected field data (digital images, digital video clips, digital audio) as layer by correlating the data with the GPS track data
  – **No PC required in field**
    • Minimal burden to field collector
    • Anyone can process the data (Operational units can actually pass their gear to intel units)
  – **Use nearly any digital device**
    • Solution for existing gear within organization
    • Future support for GPS-integrated devices (Ricoh Caplio 500SE camera) allows organization to phase in other technologies
Field Data Collection

Real-time track log

Collection devices

Digital Video

Digital Audio

Digital Images
Working with RPF Data

- **USASOC Challenges**
  - Operational and disconnected environment requires widespread use of file-based RPF data
  - Need to rapidly index, display, manage, and sort through very large file-based RPF data sets
  - Distributing RPF data for mobile or disconnected users

- **Solution – GeoRover RPF Tools**
  - **RPF Data Management and Display**
    - Extremely rapid indexing of very large, file-based RPF data sets supports fast-paced environment
    - All tools and controls fully integrated into ArcMap and custom zooming tools ensure every product is accessed at native resolution
  - **Disconnected/Mobile Use**
    - Select/copy/delete map data based on polygon selection or by spatial queries
    - Copy map data tools can “chip-out” subsets of existing map data and move map data to new location – ideal for quickly passing map data to other users
    - Ideal for rapidly staging file-based data for loading into server products (ArcSDE) for widespread dissemination
Working with RPF Data

Geospatial query
RPF selection

Right-click zoom tool

Table-of-contents RPF layer controls

RPF metadata
Coordinate Display and Extraction

- **USASOC Challenges**
  - Time-sensitive operations require rapid coordinate extraction from map
  - Users often spend too much time reformatting coordinates to plug into a different application

- **Solution – GeoRover Coordinate Viewer**
  - **Fully customizable coordinate display viewer**
    - Ability to customized font styles, sizes, colors and coordinate structure maximizes user confidence and awareness in time-sensitive situations
  - **Coordinate extraction tools**
    - Users can extract coordinates directly off of ArcMap Data Frame in single or batch mode, providing ability to quickly disseminate coordinates to others
    - Defined structure is what is extracted – saves valuable time as users do not have to reformat coordinates to add into other products or applications
Coordinate Display and Extraction

- Customized coordinate displays
- Data frame menu
- Batch extraction
## Intelligence Product Creation

- **USASOC Challenges**
  - Need to provide geospatial intelligence information to decision makers in fast-paced environment
  - Need to provide geospatial intelligence information to others with no GIS and/or no network connectivity

- **Solution – ****GeoRover Locus Track**
  - **Rapid Intelligence Product Generation**
    - User can use export wizards to build self-contained, customizable interactive HTML, PowerPoint®, and Spreadsheet products directly from ArcGIS layers
    - Ability to include raster, hyperlinked, and attribute content – products are self-contained and can be passed off to others
    - Greatly reduces manual work to build products – users can get back to doing geospatial intelligence
    - Improves data sharing in many cases (i.e. shapefile vs. spreadsheet over e-mail)
Intelligence Product Creation

Excel spreadsheets

Interactive HTML

Slides for each feature with attributes
Summary

• Operational intelligence users have specific challenges facing them due to the nature of the environment
• GeoRover product solutions provide robust, flexible tools and interfaces—ideal ArcGIS Desktop interface solution for these types of users
• US Army Special Operations Command has utilized GeoRover product solutions to address specific challenges, extending ESRI technology and data management capabilities within the operational intelligence domain

Please visit the GeoRover booth (#417) in the exhibit hall to learn more about these solutions