PLTS™ for ArcGIS®—Foundation:
Meeting the Needs of Public Safety Agencies

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An ESRI White Paper

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The Challenge

Public safety agencies are required to perform several tasks such as data collection, intelligence analysis, risk assessment and planning, as well as response and recovery activities. During an emergency, personnel visualize an incident and analyze conditions to support response and recovery. Geographic information system (GIS) technology supports first responders by giving them tools to respond efficiently and make informed decisions. However, agencies still face tough challenges such as improving data production methods, providing high-quality data, and generating up-to-date maps. The need to provide additional efficiency to the overall disaster/emergency process presents a unique opportunity to implement ESRI's Production Line Tool Set (PLTS™) for ArcGIS®—Foundation.

Overview of PLTS for ArcGIS—Foundation

PLTS for ArcGIS—Foundation is a collection of turnkey software applications for database production, maintenance, quality control, cartographic product generation, and workflow management. These applications, developed by the ISO 9001:2000-certified ESRI Services Production Group, facilitate every step in a GIS production process. Foundation provides tools needed to streamline data and map production. It allows users to implement organizational and industry-specific business rules in data modeling, attribution, validation, and product generation.

With PLTS for ArcGIS—Foundation, public safety agencies can

■ Efficiently produce geospatial data and cartographic products while adhering to public safety industry-specific production requirements.

■ Dramatically cut data editing time with single-click, smart editing, and on-the-fly validation tools.

■ Streamline GIS database creation and maintenance via automated in-process, rule-based quality control using intelligent attribution tools.

■ Significantly decrease the time required to perform data ingest and delivery through automated data import and export tools.

■ Create high-quality, high-volume map products by automating the map production process.

■ Simplify workflow management and job tracking.

Key Benefits for Public Safety Agencies

Outlined below are some of the ways public safety agencies can benefit from using PLTS for ArcGIS—Foundation.

Need: Define workflows and data management processes across the organization to ensure consistency and quality by standardizing the operating procedures of technical staff and first responders.

Solution: The Workflow Management application within PLTS for ArcGIS—Foundation provides an integrated framework for ArcGIS multiuser geodatabase environments. It streamlines the workflow and provides tools for allocating resources, thereby creating a more efficient system. For example, map requests can be streamlined with the following sample steps:

■   The emergency staff puts in a request for a hard-copy map with a defined spatial extent.

■   The situation officer approves or denies the map creation.

■   If approved, the GIS specialist creates the map product and prints the map.

■   The emergency staff picks up the map based on the request number.

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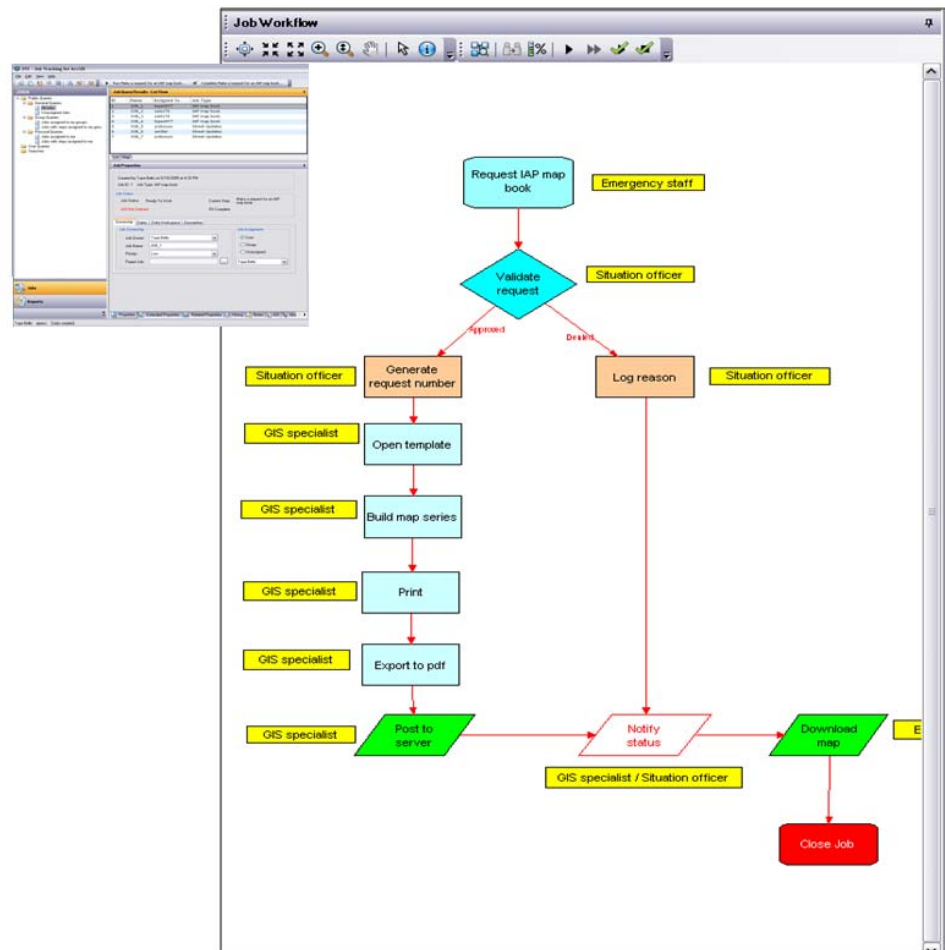
Establish standardized workflows for public safety staff using PLTS for ArcGIS—Foundation.

Need: Establish a custom editing environment to standardize data collection and maintenance and to adhere to industry standards, such as the GIS standard operating procedures (GSTOP) developed by the Geospatial Task Group.

Solution: The Editing Environment offers a standardized production workspace through tailored attribute display (using PLTS Target and Selection tabs), predefined favorites, on-the-fly validation, and single-click access to commonly used editing tools. It also provides integrated feature metadata and data quality check functionalities. These tools enable public safety organizations to produce industry-standard data and map products.
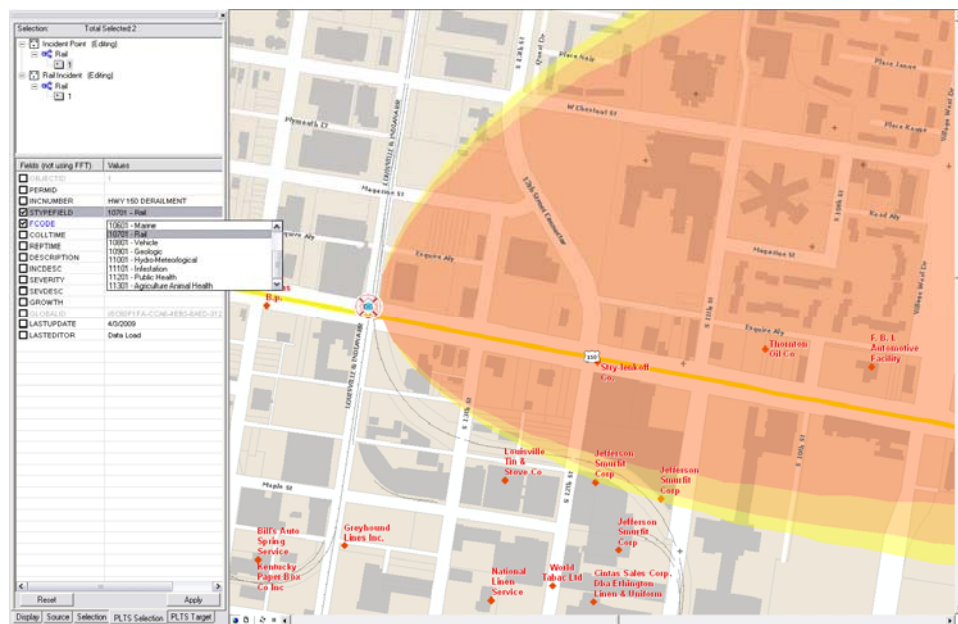
Predefine attributes as well as perform on-the-fly validation as features are being collected.

Need: During an emergency, response agencies and first responders have an immediate need for information about the underlying data they use to make critical decisions. Accurate and current metadata that defines the quality, accuracy, and temporal origin of the data is important in assessing its appropriate use by first responders.

Solution: The Feature Metadata tools manage feature-level metadata attribution. Geodatabase feature-level metadata attributes are used to describe relevant characteristics and information about the features including

- Source data used to collect the features
- Date last modified and author
- Horizontal and vertical accuracy of the features
- Security clearance level of the features

Need: Establish centralized data quality assurance processes.

Solution: The Quality Control Management application provides close to 40 out-of-the-box quality control checks with the option to develop additional custom checks. These checks can be saved as batch jobs and set to run at scheduled intervals. This frees up resources to perform other critical tasks. It also provides tools that aid in the visual review of data.
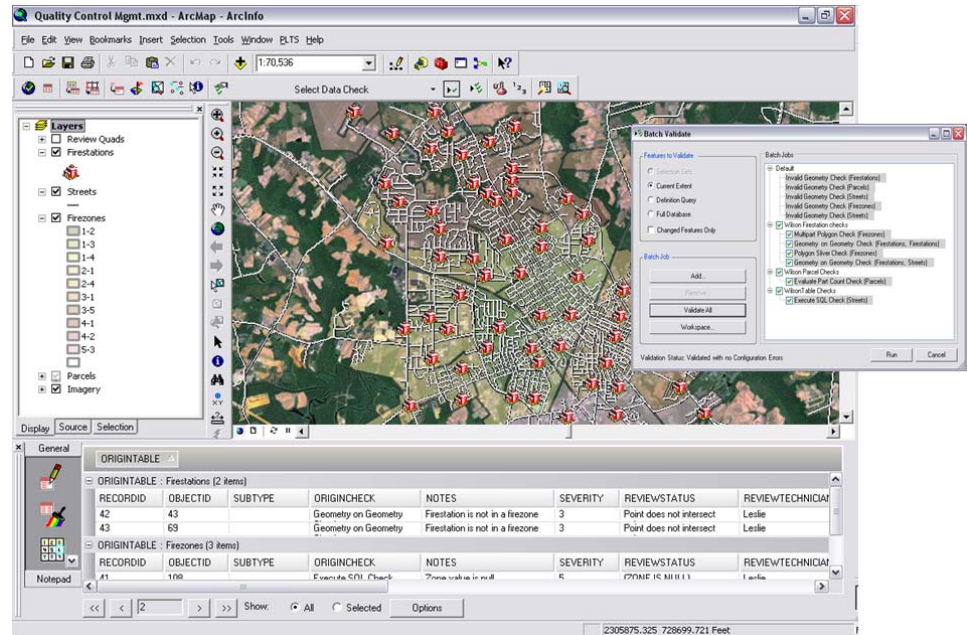
Simplify the data review processes with tools to assess, document, correct, and verify the overall quality of public safety data.

Need: Create preconfigured basemaps consisting of ready-to-use and easy-to-read layouts that support efficient production of map series and map books for emergency response.

Solution: The Map Production application allows consistent production of high-quality, high-volume map products; creation of dynamic surround elements; tools to manage layout; and access to tools for cartographic editing and map output. The emergency management maps template (available as a free download from the ESRI Public Safety Resource Center) contains a series of ArcGIS map documents (MXDs) that can be used as a starting point for generating standard emergency management maps for preparedness and response activities. Map templates include an incident action plan (IAP), an incident briefing map, and a hazards map. Several of these map templates follow the GSTOP on Incidents Project standards developed by the Geospatial Task Group. Also included are sample PDF maps, a sample geodatabase, style file, and documentation that help users start using the template.
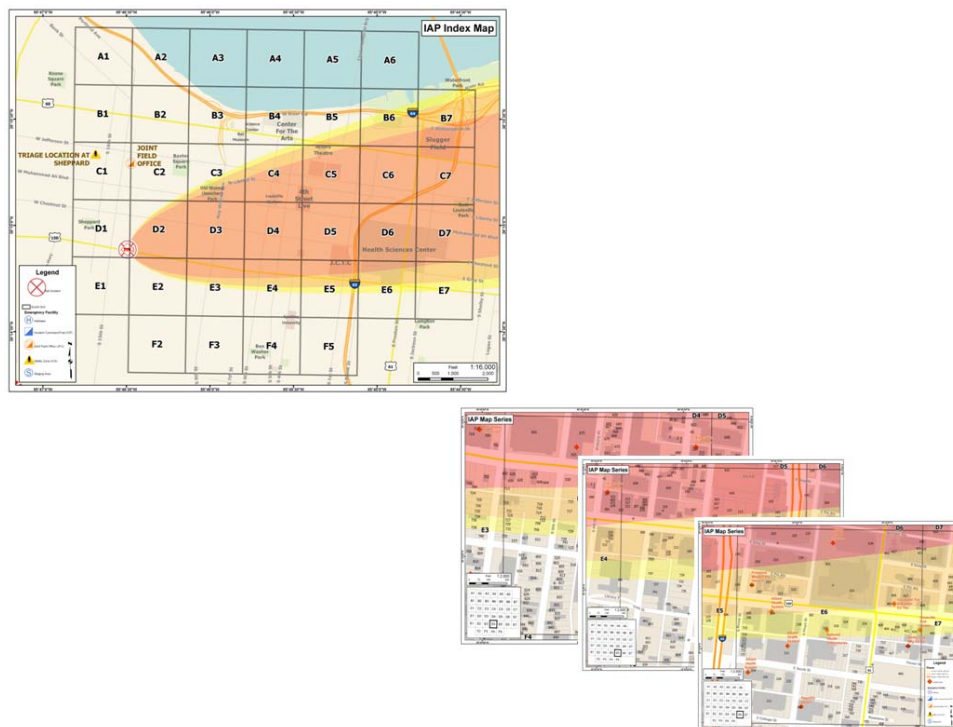
An Incident Action Plan Index Map and an IAP Map Series

Need: Create a central repository for the storage of business rules, data, map documents, generated output, and other information and resources that is easily accessible to all emergency response agencies involved in an incident.

Solution: The Product Library is a document management system that supports the entire production life cycle—from source data collection and management to the production and storage of standard map products. It facilitates organization and management of data models, image files, map document templates, data validation rules, and other cartographic information relevant to response activities.

Need: Adopt best practices in geodatabase design and cartographic symbolization to support multiagency response efforts.

Solution: The Data Loader tool provides a mechanism for loading data from one geodatabase or set of shapefiles into another geodatabase that may or may not have the same schema. For public safety organizations, it is important to follow established best practices when developing data models and symbology for use in emergency response GIS applications. The use of tools to load your existing GIS data into a common data model will help maintain interoperability on multiagency response efforts and facilitate the sharing of data and maps. The emergency management data model template (available as a free [download](#) on the ESRI Public Safety Resource Center) contains a geodatabase model that can be used as a template for building a public safety geodatabase. It provides a good example of relevant feature classes and tables that can be used when designing and building public safety/emergency management applications.

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Need: Establish standardized visualization of data for incident and support analyses.

Solution: The Visual Specifications tool can be used to ensure standardized visualization of data and to provide management and storage inside the geodatabase. The symbols and text created as results of the specification rules are also stored inside the geodatabase using feature class representations and calculated fields.
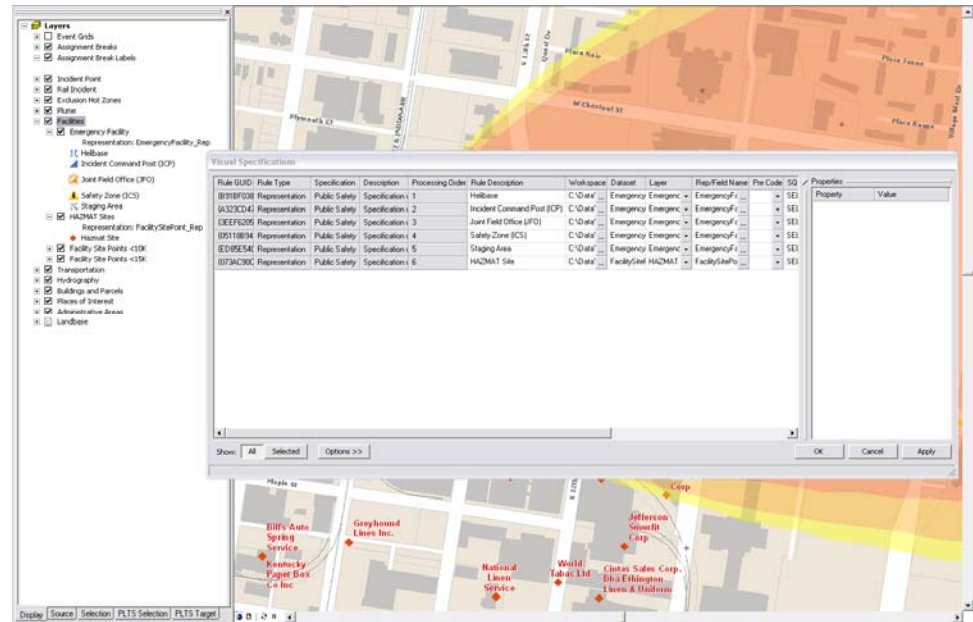
Represent features in a meaningful way via standardized visualization of your data.

For more information on PLTS for ArcGIS—Foundation, visit www.esri.com/plts or e-mail plts@esri.com. For more information on the public safety user community, visit the ESRI Resource Center at http://resources.esri.com/.

About ESRI

Since 1969, ESRI has been helping organizations map and model our world. ESRI's GIS software tools and methodologies enable these organizations to effectively analyze and manage their geographic information and make better decisions. They are supported by our experienced and knowledgeable staff and extensive network of business partners and international distributors.

A full-service GIS company, ESRI supports the implementation of GIS technology on desktops, servers, online services, and mobile devices. These GIS solutions are flexible, customizable, and easy to use.

Our Focus

ESRI software is used by hundreds of thousands of organizations that apply GIS to solve problems and make our world a better place to live. We pay close attention to our users to ensure they have the best tools possible to accomplish their missions. A comprehensive suite of training options offered worldwide helps our users fully leverage their GIS applications.

ESRI is a socially conscious business, actively supporting organizations involved in education, conservation, sustainable development, and humanitarian affairs.

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