Overview

In support of USMC business process modernization, Installation and Environment (I&E) established the GEOFidelis program to define their approach to enterprise geospatial systems. It is based on a common infrastructure foundation that supports inter-operability across the Marine Corps. By establishing a uniform approach to GIS, GEOFidelis enables users to effectively managing their resources and accomplish the Marine Corps mission.

A survey of GIS Managers in 2002 found redundancies in custom tool development, as well as wide disparity in the availability of GIS resources among the installations. Moreover, many bases were facing the need to fund projects to upgrade tools to keep up with changes in the underlying technologies and the testing requirements for the Navy/Marine Corps Intranet (NMCI). Based on these findings, the Marine Corps GIS Working Group (MCGWG) recommended the creation of a standardized Marine Corps GIS Tool Set. In 2004, Headquarters Marine Corps began development of the GEOFidelis Tool Set as part of its program to establish GIS standards for the Marine Corps.

The GEOFidelis Tool Set is based on common user requirements and processes. The long-term project goal is to develop a set of GIS tools that can be installed and used at any Marine Corps Installation that meets minimum standards (i.e., use the CADD/GIS Technology Center's Spatial Data Standard for Facilities, Infrastructure and Environment—SDSFIE—for data storage and comply with NMCI policies).

The first version of the Tool Set is a set of ArcGIS extensions, most based on existing products. Wherever possible, the developers have reused existing code to minimize costs and leverage the Government’s investments in technology. The cost of maintaining the Tool Set will be borne by HQMC and the tools will be deployed to users’ desktops through NMCI or through Citrix server. Guidelines for developing applications for the Tool Set and establishing a change control process for future enhancements and updates have been developed.

Capabilities

The GEOFi Tool Set, version 1, consists of several ArcGIS extensions. The General GIS Tools is intended for all GIS users. The others are more specialized applications for Noise Complaint Tracking and Anti-Terrorist/Force Protection (ATFP) planning.

The GEOFi General GIS Tools augment the native ArcMap functions and provide shortcuts for commonly used processes. The General tools are designed to work with shapefiles, personal geodatabases, and enterprise geodatabases, and as much as
possible, to be independent of the underlying data structures. The tools in this application include:

- **Data Loader**, allows the user to view a list of available shapefiles, layer files and geodatabase tables in a user-friendly tree structure and select the datasets to be loaded; Save a collection of datasets as named sets (i.e., a theme manager); and preview selected datasets before loading them to ArcMap.

- **Zoom To Tools**, that include a Zoom to Road intersection and Facility locator. A new function added allows the user to create and save commonly used “zoom to” queries.

The ATFP Tools are intended to support military planners in the preparation of maps and plans for each security alert level. Using this tool, the planner will be able to:

- Define values for various attributes required for different threat levels (e.g., stand-off distances);
- Define assets to be managed for ATFP including buildings, aircraft parking areas, ships, and manage the ATFP attributes associated with each feature;
- Display maps showing ATFP features automatically for a selected threat level;
- Generate reports including curtailment plans, lists of critical assets, and number of barriers required for a selected feature.
- The ATFP Tool will use the same common GIS dataset as all other users, but the ATFP attributes are stored in a secure database.

The tool set also includes Administrator and Edit applications for publishing a data catalog, batch exporting data, and editing shortcuts. The Noise Complaint tracker associates a noise complaint with an address and adds it to a point layer.

**Benefits**

The development of a common set of tools is expected to reduce development costs, ensure USMC-wide implementation of best-in-class GIS, and streamline the C4/NMCI application approval process. Deployment of the Tool Set will reduce the total number of applications in use, thereby furthering the goal of streamlining information management systems. By supporting application development and deployment at the HQ level, GEOFidelis ensures that money spent on software development benefits all GIS users in the Marine Corps. Decision-makers are provided with tools that leverage their GIS data and make business processes more efficient.

**Contact Information**
Figure Captions:

Figure 1
Zoom Tools include predefined queries and ability to develop ad hoc queries

Figure 2
Example of Zoom to Intersection Tool and results

Figure 3
Example of a User Defined “Zoom” that can be saved, edited, and reused

Figure 4 and 5
The ATFP Tool allows planners to develop maps for different levels of alert status

Figure 6
The dialog box is an example of the user friendly interface that allows the user to select layers to view and condition code to apply