



LAGIC Technical Services Quarterly Report

January - March, 2008

April, 2008

Summary:

During the third quarter of the 2007-2008 contract, tasks were centered around LouisianaMap 2.0 geospatial portal development, resulting in the creation of multiple map applications and services. Additionally, LAGIC Technical Services and OES Director coordinated a list of tasks to be contracted to ESRI and Methods Solutions, Inc. A scope of services was developed by LAGIC Technical Services and ESRI, and presented to OES director for comment/review. Finally, multiple data layers stored on LAGIC's data server were uploaded to the LouisianaMap data servers and verified.

By the end of the third-quarter, Technical Services staff consisted of one full-time and one part-time employees. In early November 2007, LAGIC and LSU coordinated the announcements for a GIS Systems Analyst/Developer and a Network Systems Administrator. These job announcements were published in local and state-wide newspapers. Approximately fourteen applications were received for the GIS analyst (8) and Systems Administrator (6) positions. Selected applicants were interviewed for the positions. However, a State-wide hiring freeze prevented LAGIC from filling the positions. On LAGIC's behalf, LSU human resources management (HRM) requested an exemption to the freeze from the Division of Administration. A response is anticipated for the last quarter of this contract.

Technical staff members have been preparing for the 2008 Louisiana Remote Sensing & GIS Workshop (LA RSGIS), to be held in New Orleans, LA in April. Additionally, LAGIC and members of the GIS Council have coordinated the first meeting of a technical support group for ArcGIS Server development - to be held in conjunction with the LA RSGIS workshop.

Finally, a limited number of technical enhancements to hardware, software and services were performed during the third quarter. Details of these enhancements and other related technical issues are provided in the following text.

Administrative & Staff:

1) *Staff:*

LAGIC Technical Services currently employs one fulltime professional, and one part-time graduate student. Additional staff are needed, and anticipated.

Günther Sagl, part-time research associate, resigned his position with LAGIC in late January - in compliance with his international visa regulations. Gunter was a valuable member of the LAGIC staff, having successfully managed and maintained a variety of short-term technical assignments. Günther returned to his home-country of Austria with our sincerest appreciation.

In October 2007, LAGIC and LSU-SC&E coordinated job announcements for two GIS Coordinators, a GIS Analyst/Developer, and a Network Systems Administrator. By the end of November, LAGIC Technical Services had received fourteen (14) applications for the GIS Analyst/Developer (8) and Systems Administrator (6) positions. After a joint review of the applicants among LAGIC staff, four applicants were contacted for interviews. By February, a number of candidates agreed to an interview with LAGIC staff held on the LSU Campus. Following a series of informal interviews limited to LAGIC managers, the qualified candidates were recommended for a formal interview with members of the LGISC oversight committee. This final interview process is scheduled for early April, 2008.

Due to a State-wide hiring freeze initiated by the Louisiana Division of Administration, LAGIC is not permitted to offer the positions until an exemption from the freeze can be secured. To that end, a request for approval to hire will be submitted by LSU Human Resources on behalf of LAGIC. Status of that request is expected sometime for the last quarter of the 2007-08 contract.

2) *Training:*

LAGIC Technical Staff participated in a few, short hands-on training sessions during the third quarter. Most sessions were informal review of existing software functionality. Training provides necessary introductions/reviews of the various hardware, software, and data services utilized and/or maintained at LAGIC.

Data Management:

1) **LAGIC Data Servers:**

Upgrades to the LAGIC geospatial data collections and services are nearly complete. These updates include:

a. *Database System Upgrades:*

No significant software or hardware upgrades were performed on the database during this quarter. An assessment of existing storage resources was conducted. Recommendations for a new server with larger storage capacity is being considered.

b. *DBMS Organization:*

Currently, the DBMS is consists of six (6) geospatial data servers:

- i. LAGIC (in-house/production data server)
- ii. Louisiana Spatial Data Infrastructure (LSDI) [UTM/GEOG]
- iii. US Census Bureau TIGER/Line - Second Edition 2006
- iv. LOSCO Data Catalog
- v. Louisiana Geographic Names Information System (GNIS)
- vi. Louisiana Recovery Authority - Louisiana Speaks datasets

The LSDI data structure continues is organized hierarchically according framework data layer category, feature name, data provider, and year of publication (see Figure 1 in Appendix). In order to accommodate various performance enhancement strategies for online publication, it was necessary to organize the data according to both Geographic and UTM coordinate systems.

All data are securely maintained, and are accessible via policy-based usernames and passwords.

Data and metadata records receive continuous QA/QC for continuity. Additional changes and edits to the data are made as needed.

c. *File-based Organization:*

Data provided on the ArcSDE Database is available online distribution. Feature data has been exported as ESRI Shapefile format, and include properly attributed metadata. These assets have be compressed to ZIP format, and are accessible for download from the LAGIC web site data catalog(s): <http://logic.lsu.edu/geodata/>

In accordance to contracted deliverables, a catalog detailing the LAGIC geospatial data assets is being developed: The 2008 Louisiana Spatial Data Index (LSDX). Details about this product will be forthcoming.

March 2008, the LGISC, LAGIC, Louisiana Recovery Authority (LRA), Center for Planning Excellence (CPEX), Calthorpe Associates (LRA contractor), and Dr. John Pine (LSU) participated in a conference regarding the data quality concerns observed within the Louisiana Speaks GIS data layers. It was concluded that a revised version of the LRA data and metadata would be developed and re-submitted for distribution. This data will replace the existing data layers provided on the LAGIC web site. Upon completion, this data will be replicated on the LouisianaMap data servers.

d. *Miscellaneous Data Services:*

LAGIC Technical staff continues to work closely with the technical administrators of the Geospatial One-Stop (GOS) regarding metadata harvesting. Due to an as-yet-undefined technical problem, the GOS is incapable of harvesting the geospatial metadata assets served from the LAGIC Metadata catalog.

LAGIC Technical staff continue to examine ways in which to optimize the 2007 NAIP aerial photography (1-meter, true-color photography) acquired from the US Dept. of Agriculture. Due to display problems attributed to the image compression routine (i.e. MrSID wavelet compression), the data is being manipulated and assessed for distribution via public map services.

2) **LouisianaMap Data Servers:**

LAGIC data assets have been replicated and transferred to the LouisianaMap data server(s) maintained by the Division of Administration, Office of Electronic Services (OES).

a. *DBMS Organization*

Organization of the LouisianaMap data servers mimic those created at LAGIC.

Recent interest has been expressed to extend the LouisianaMap data services capabilities to members of the LGISC and Louisiana geospatial community. This has prompted LAGIC Technical staff to explore data replication strategies that can be utilized across heterogeneous networks and the Internet. As time permits, testing for these capabilities will be incorporated within the LouisianaMap services program (see below).

Updated LRA Data will be uploaded to the LouisianaMap servers is planned.

Technical Support and Applications Development:

1) ***LouisianaMap 2.0:***

Data Services: Various data layers have been successfully uploaded to the LouisianaMAP Spatial Data server. To date, this data includes US Census Bureau's TIGER/Line 2006, LSDI, and other data products. Additional data layers will be added as needed.

a) *Applications Development:*

Development of LouisianaMap 2.0 application services has been the primary focus for the this third quarter. A number of key map applications and services have been developed, including:

- i. LouisianaMap 2.0 Base Map: Base-map of Louisiana constructed using U.S. Census Bureau's TIGER/Line 2006 Second edition data layers. Map services are cached to 9 scale factors, resulting in highly-responsive, interactive mapping. Services include basic map manipulation functionality, including zoom in/out, and pan. Additional functionality is planned (e.g. printing, geocoding/address matching).
- ii. Explore Louisiana 2.0 (BETA): Map application utilizing the LouisianaMap 2.0 base map. In addition to the functionality identified above, the mapping application includes an identify tool that can be used to reveal attribute details regarding user-selected parishes. Much of the custom functionality of this application required the assistance from ESRI technical services.
- iii. LOSCO Boat Launch & Lift Locator: Map application that reveals the location and details of publically-accessible boat launches throughout south Louisiana. Boat launch data was provided and maintained by the Louisiana Oil Spill Coordinator's Office (LOSCO).

The map applications and services presented above are accessible via the LouisianaMap beta site: <http://map.la.gov/maps/>. In addition to the web-based interface, users can access these data services via ArcGIS compliant applications, including ArcGIS ArcMap, ArcCatalog, ArcGIS Explorer, and Google Earth (limited availability).

Note: these services are beta, and are under constant revision.

In addition to the services listed, a number of enhancements are being planned.

Development of these capabilities will be coordinated through a technical-services contract with ESRI developers. OES, LAGIC, and ESRI have begun negotiations for a support-contract

that will detail LouisianaMap 2.0 developmental services performed by ESRI. A draft scope-of-services was submitted in March 2008, and delivered to the OES Director for review.

Furthermore, OES, LAGIC, and Methods Solutions have begun to outline plans for a geocoding service that will allow users to dynamically map non-spatially enabled datasets. A number of strategies are being investigated, including a Geographic Markup Language (GML) based service that geo-tags XML based data. This service will allow anyone to post non-spatial XML content to the LouisianaMap site without tools or conversions. The service will parse each record, identify a geographic reference (e.g. city, town, address, etc.) and assign a geographic coordinate to the record according to the GML open-source standard. Preliminary meetings have defined initial objectives. Additional meetings are expected to define specific goals, and establish a timeline of services. A working prototype is anticipated by Q4.

b) *Data Replication & Distributed Data Services:*

As indicated earlier, there is growing interest in extending data services to various members of the LGISC and Louisiana geospatial data community as a whole. The scope of these services have not been defined, and technical challenges of exchanging/replicating data across heterogeneous networks will need to be examined. Additional information will be compiled as time permits.

2) **Custom Services**

a) *Image Services:*

As mentioned earlier, LAGIC Technical staff has been exploring the potential of using ESRI Image Server as a means for quickly distributing raster data to data users. Initial tests at LAGIC suggest that there is a measurable performance increase when using the services. The 2007 NAIP photography will soon be deployed by the LAGIC image server, with a demo available in January 2008.

b) *Globe Services:*

In addition to the services listed above, LAGIC has begun to prepare globe services that present historic maps obtained from the US Library of Congress. These map services will utilize ArcGIS Explorer, Google Earth, and NASA World Wind globe/visualization software. Globe services will be available on the LouisianaMap 2.0 web site.

c) *Ad Hoc Services:*

The success of the map and data services provided during the 2007 hurricane season has prompted a number of inquiries about similar resources during the 2008 hurricane season. LAGIC will entertain these requests as time and resources permit.

3) **LAGIC Technical Services:**

a) *2008 Remote Sensing & GIS Workshop:*

Technical Services staff continue to support the 2008 Louisiana Remote Sensing & GIS Workshop, scheduled for April 8-10 in New Orleans. Support extends to the development and maintenance of the Workshop's web site, email notifications, post-card announcements, mail-outs, news, and agenda updates.

The LAGIC Technical Services manager agreed to moderate the Web Mapping Applications session to be held during the 2008 RSGIS workshop. Additionally, the Technical Services Manager will demonstrate many of the newly created LouisianaMap 2.0 mapping services during the session.

b) ArcGIS Server User Group:

LAGIC Technical Services has coordinated a first meeting of an ArcGIS Server developer's support group. LAGIC is coordinating this effort with various members of the GIS Council (currently LDOTD, LDEQ, and Lincoln Parish) and other interested parties. The first meeting is planned to coincide with the 2008 Louisiana Remote Sensing & GIS Workshop, held April 8-10.

LAGIC Technical Support Services:

- 1) LAGIC technical staff continues to maintain geospatial data systems and services. Additional hardware upgrades are planned in the coming quarter.
- 2) LAGIC technical staff members continue to support all LAGIC related IT issues and requests.

LGISC Technical Support Services:

- 1) LAGIC Technical staff members continue to support all LGISC related IT issues and requests.
 - a. Continual maintenance of LGISC Web Presence
 - b. Continual maintenance of LGISC contacts database
 - c. Continual maintenance of LGISC email list services
- 2) Ad Hoc Administrative Technical Support
 - a. Participation in LAGIC Oversight meetings.
 - b. Technical staff continues to respond to miscellaneous technical request and support.

Short-term Outlook:

The 2008 RSGIS Workshop will consume much of the efforts of the LAGIC technical staff during the end of the third, and beginning of the fourth quarter.

Work on new and existing geospatial data services will continue. Data catalogs will be updated with new LRA data, and indexed for use by the online data catalogs accessible via the LAGIC Geodata Services web page (<http://lagic.lsu.edu/geodata/>). Services will also be made available to clearinghouses maintained by the Federal Government (*e.g.* GOS, Geodata.gov, and the FGDC Metadata clearinghouse).

Anticipation of new Technical support staff will be hired and in place by the end of the fourth quarter.

Additional efforts developing the data and application services at LouisianaMap 2.0 are planned for the fourth quarter (both contracted and in-house).

LAGIC has been asked to participate in the ESRI ArcGIS 9.3 Beta program. Testing will be focused on the new ArcGIS Server 9.3 development platform (e.g. JavaScript REST protocol services).

Naming Concept - Geodata Framework

Version 1.1 09/30/2007

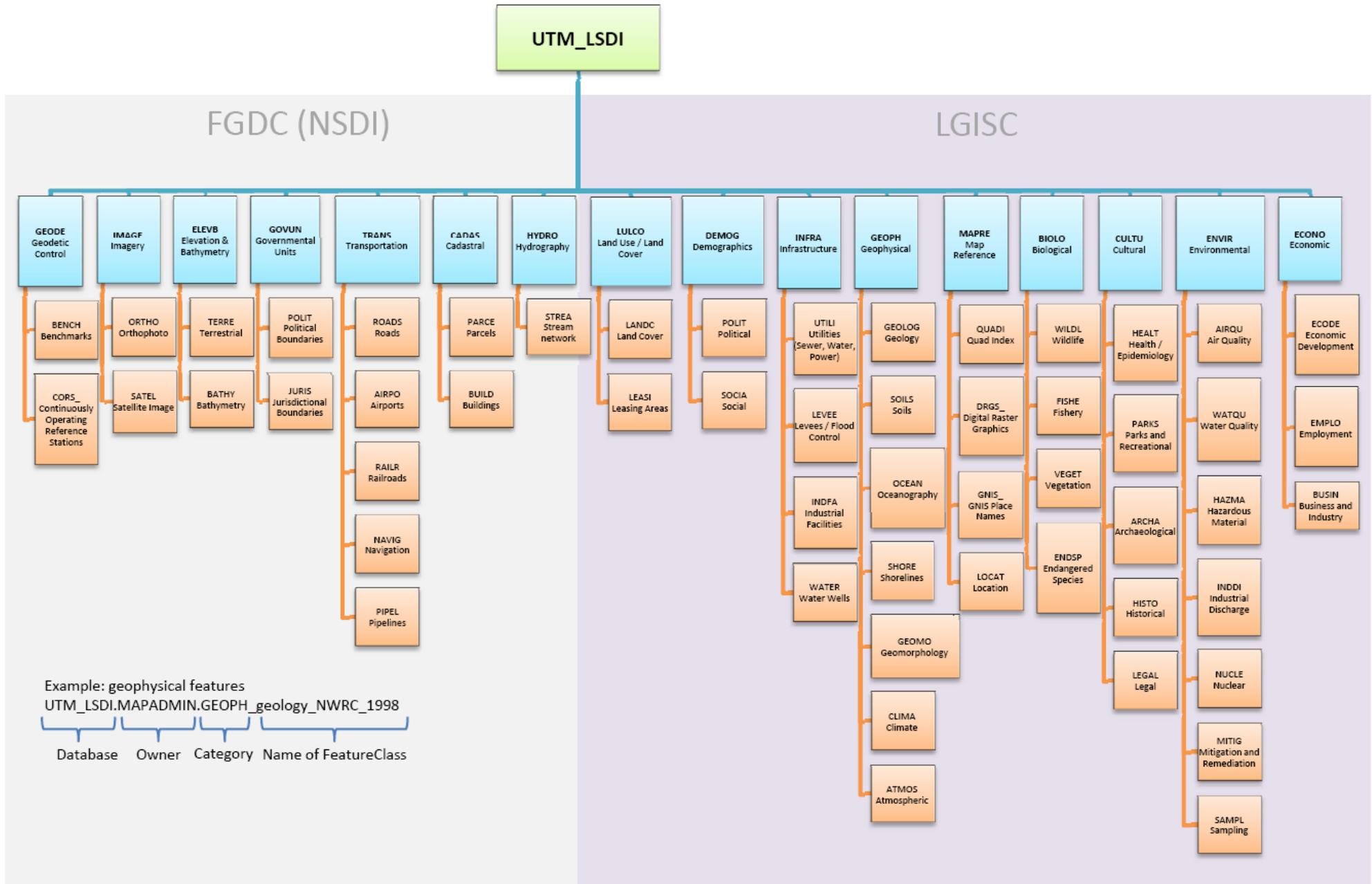


Figure 1: Naming Concept for the Geodata Framework – Günther Sagl (9/30/07)