

Accessing GIS Data for Oregon through the Internet

Developing an interactive geo-referenced interface for static data

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 Special thanks to:
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 This project was supported by the Robert & Dorris Thomas Endowment Fund
 http://libweb.uoregon.edu/map/GIS

Project Description

Finding accurate and useful data is one of the biggest challenges in working with a GIS. Although many GIS web sites are now offering free data downloads, few provide an easy-to-use, navigable interface which allows the user to find what they want. The University of Oregon Libraries sought to remedy this problem by providing access to its own collection of geospatial datasets.

The University of Oregon Libraries has hundreds of GIS datasets produced by government agencies, including DRGs, DOQs, and DEMs, which were in great demand by students. Nevertheless, getting the data to the students required many hours of staff time burning compact discs and/or directing students to different web sites. The UO Libraries needed an easy-to-use but attractive web index so students with even the most rudimentary knowledge of local geography could download data.

Goals of the new interface

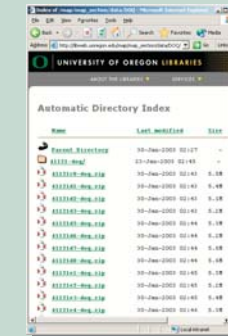
The original interface required the user to:

- Know the exact 7-digit Ohio Code for the desired quadrangle.
 - There was no reference map on the website with which the user could obtain this code.
 - There was no search feature in place on the system to search by quadrangle name or number.
- Know the exact location of the data on the Library server.
 - No paths or links to this data were incorporated in the website.
 - Correspondence with the Map Librarian was necessary to locate the file path and parent directory of the GIS data.

The goals of the new interface were to:

- Maximize access of the information to the public.
- Create a user-friendly interface where general knowledge of a geographic area could be used to find data on a specific region.
- Development of a database that can develop and change as needed in the future.
 - Updates to data should not require additional development or resources.
 - As additional resources become available, the website architecture and database should be able to expand to incorporate the changes.
- Reduce the necessity of the Map Library staff to guide the user to the GIS data.
- Maximize the technologies available to minimize the pre-requisite knowledge of the user through a visually rich environment.

Initial Product



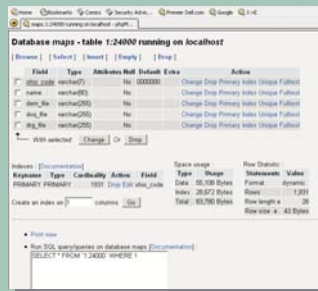
Project Development

Development of the SQL Framework

At the conceptualization of the project, it was realized that the website would have to be more dynamic in order to handle the hundreds of webpages needed. Approximately 1900 web pages would be involved with this portion of the website, and it was necessary for a database to be incorporated into the website. Using a database driven website not only allowed more efficient production in the initial phases of the project, but also allows greater flexibility with future updates, changes, expansion, and website renovations.

The development of the SQL database involved:

- Creation of the initial data file with quadrangle names and Ohio Codes.
 - Compiled in MS Excel, and imported into the SQL database.
- Placement and naming conventions of the data on the Mass Storage Unit (MSU)
 - Over 5000 GIS data files were placed on the UO Library's MSU.
 - These GIS files were renamed to a standard naming convention according to file type (DEM, DRG, MAP). This was a necessity for the files to be referenced from the website.



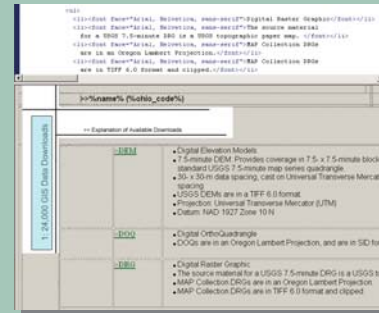
Development of the php Template

With the database functioning as the avenue to the GIS files on the MSU, a portal to access the data was needed. The development of a php template served the role of the interface between the user and the data.

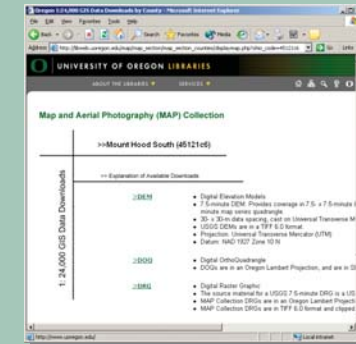
- The initial web page was designed with the following goals:
 - To be visually appealing.
 - The ability to load quickly (small file size).
 - Arranged in a manner for which the user could easily understand the data that was accessible from the page.
 - Contain a brief description of the files and their metadata.
- After the initial design was completed, it was converted into php, and embedded into an HTML web page.

The php and the server work together to auto-generate over 1900 pages that correspond to the Quadrangle Name or Ohio Code.

Each page generated also had links to the DEM, DOQ, and DRG files that correspond to the Ohio Code listed on the page.



Final Web Page



Project Implementation

Creation of Base Maps

With the dynamic web pages enabled and database in action, it was necessary to create a spatially geo-referenced interface for the user that would be visually rich and easy to navigate. The first stage of creating such an interface was the development of base maps. The reference maps were divided by county, thus allowing the user to focus on their particular region of interest.

The creation of the base maps was based on the following procedures:

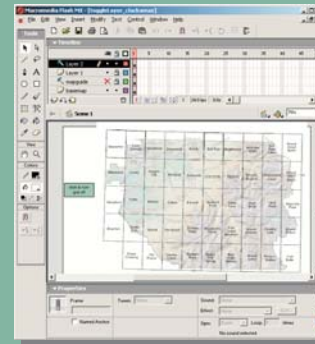
- ArcMap was used in the initial phases of the cartographic process.
 - University of Oregon GIS datasets of Oregon were used, and projected in Lambert Conformal Conic.
 - 30 meter DEM and Hill shades were clipped to the county boundaries.
 - The project was then exported to Adobe Illustrator.
- In Illustrator, the base maps were refined to have better cartographic representation.



Implementation of the Flash Interface

This final component of the project incorporated Macromedia Flash to create a navigation layer for the individual quadrangles. This aspect of the project required the fusion of cartographic principles and web navigability. Initially the labels linking each quadrangle to the data for each quadrangle were difficult to discern from the text on the base map. A reference layer was created that had the ability to toggle on/off. This interactivity enabled the user to better examine the base map, and locate the area of interest.

- The layers were imported into Flash and aligned.
- An interactive button was created that would be applied to each county.
- For each individual button, the links to the respective Quadrangle page were then scripted into the Flash file.



Final Product Interface

