GIS on Drupal in 2008

Where we ARRRR
At the DrupalCon in Boston, we talked a lot about plans. This time, let's talk about what we can do right now.
We do mapping *right now* using the Location and GMap modules.

- Location is nearing a 3.0 release
- After years of purely dev releases, GMap 1.0 is in Beta
The current iterations of both GMap and Location are for Drupal 5

- GMap for Drupal 6 is a functional 'dev'
- Location for Drupal 6 is... in progress
The Location module records, geocodes, and stores addresses.
The GMap module is an implementation of the Google Maps API for Drupal.

- Displays geospatial data on embedded Google Maps
- Provides controls for Google Maps attributes
Things you can do with GMap and Location right out of the box

- Location version 5.x-3.x-dev
  - Has features that 5.x-3.0-test2 lacks
- GMap version 5.x-1.x-dev
  - No significant feature changes from 5.x-1.0-beta3
User-submitted locations

- “where you live”
- “your favorite coffee shop”
- “drupal gatherings you've attended”
User-submitted locations

• In this case, I allow anonymous users to create “user submitted place” nodes

• Anonymous users are also given the “submit latitude/longitude” permission so that they can use the “location picker” map widget provided by GMap.
Display nodes on a map

- GMap provides a “Gmap View” view type, which we can use to build a map “view” of the user-submitted locations.
- Different map markers are associated with taxonomy terms using GMap Taxonomy.
Filter a view by proximity

- A list of nodes with locations can be filtered by distance from a postal code
Filter a view by proximity

- Imprecise, because the proximity calculations are based on geocoded postal codes that are loaded into the `{zipcode}` table

- Zip code data for eight countries is included with Location in the `databases` directory. You have to manually load it into your database to use the proximity search:

  - `mysql -u db_user -p db_name < path/to/location/database/zipcodes.us.mysql`
Generate GeoRSS

• When any node with a location is included in an RSS feed, Location can provide its data as GeoRSS.

• Choose the format on the node type config page—admin/content/types/node-type—from the Locative information > RSS Settings section.
Create one-off maps

• Use GMap macros to display maps in content areas.

• Add the GMap Macro filter to one of your input filters (after any HTML filters)

• The GMap Macro Builder is a clicky interface for generating macro text; a full dictionary of available attributes is available at http://mapedelic.org/documentation
But there is more to Location and GMap

- Both have APIs for developers
GMap has the “GMap Array”

- Useful for generating maps programatically
- Check out the GMAP-ARRAY-DICTIONARY.txt file in the GMap package for structure
- Render a GMap array to display with theme('gmap', $map_array)
<?php
$map = array(
    'id' =>               // id attribute for the map
    'width' =>            // map width in pixels or %
    'height' =>           // map height in pixels
    'latitude' =>         // map center latitude
    'longitude' =>        // map center longitude
    'zoom' =>             // zoom level
    'maptype' =>          // baselayer type
    'contoltype' =>       // size of map controls
    'behavior' => array(),// various map behavior flags
    'markers' => array(),  // array of points on the map
    'shapes' => array(),  // array of shapes to overlay on the map
);
?>
<?php

// a simple GMap array
$map_array1 = array(
    'id' => "my-map",       // id attribute for the map
    'width' => "100%",       // map width in pixels or %
    'height' => "400px",     // map height in pixels
    'latitude' => 41.9023,    // map center latitude
    'longitude' => -87.5391,  // map center longitude
    'zoom' => 7,              // zoom level
    'maptype' => "Map",      // baselayer type
    'controltype' => "Small"  // size of map controls
);

$output = theme('gmap', $map_array);
?>
GMap 1.0 features

− “It's supported”
Location 3.0 features
location_newapi()

- Yes, there is a new Location API; check for it with
  
  ```php
  function_exists('location_newapi')
  ```

- Location 3.0 features, including the API, will be consistent between D5 and D6

- `hook_locationapi()`, `locatoin_save()`, `location_load_location()`
New architecture

- Location<->Drupal object associations are stored separately from address and point data
- Location display is controlled by a template file
- Location fields are a custom Forms API element
Locations and Drupal objects

- One table stores the address and the lat/lon
- Another stores the nid/vid, uid, or “genid”
- “genid” can be used by a module to associate locations with things that aren't nodes or users
  - Taxonomy terms
  - Private messages
  - Roles
  - ...

Next Up

- Location is fine for points, but we want to play with points and lines, too
- Geographic calculations: typically “X within Y”, “Q within R km of Z”
Geo.module

• Separating geographic storage from address storage
  – Who cares about addresses? Talking in State boundaries, GPS-tracked paths, etc.

• Allie Micka has been working on this
Resources

- http://mapedelic.org/blog
- http://drupal.org/project/location
- http://drupal.org/project/gmap
- http://drupal.org/project/geo