Activity: Using MapBuilder

Requirements
Internet Browser, Google Account, Google Maps API key, MapBuilder Account, and access to edit the code of the webpage you wish to add a map to.

Preparation:

1. Create a Google Account
Navigate to the Create an Account website and enter an email address, a password for logging in, and agree to the terms and services (you do not need to have a Gmail email account to do this; any email address can be used).

https://www.google.com/accounts/NewAccount?continue=http%3A%2F%2Fmaps.google.com%2F%3Fie%3DUTF8%26ll%3D37.0625%2C-95.677068%26spn%3D47.838189%2C66.708984%26t%3Dh%26z%3D4&hl=en&service=local

> *Google Account email address:*_____
> *Google Account password:*_____

2. Register for a Google Maps API key
- Navigate to Google Maps API Home Page at http://code.google.com/apis/maps
- On the right side click on "**1. Sign up for a Google Maps API key**". We are going to use Map Builder to avoid the other steps.
- A new page opens with Terms of Use, highlights, and links on the left side. (http://code.google.com/apis/maps/signup.html)
- Scroll to the bottom of the page. In the gray box at the bottom, check "I have read and agree with the terms and conditions.
- Next, enter your website URL where you will be embedding your Google Map. *Note*: *if you have many pages that might use a Google Map but they all reside on the same server, then type in your basic web address, not the specific page pathname. For example, http://mysite.com will allow any page created in that mysite root folder to have a Google Map with the same API key. But, http://mysite.com/myspecificfolder/myspecificpage cannot use the same API key for a page on http://mysite.com/myotherfolder/myotherpage. There's no limit to API keys you can register from the same Google Account and there's no limit to maps created with the same API key. If you think you may want more than one map in the future, the more general the URL, the better!*
- Click "**Generate API key**"
- You will be prompted for your Google Account Sign in information if you are not currently signed in. Click "**Sign in**".

> This opens a new page with some code on it. Instead of freaking out, open **Notepad** on you computer and copy, paste and save your code, or "Key", as one file and copy, paste and save the larger block of code as another file. There! You have a Google Maps API!

> *Google Account password:*_____

Google Maps API key URL:_____
Google Maps API key code filename:_____
Google Maps API key larger block of code filename:_____

3. Create a Map Builder Account

Navigate to http://www.mapbuilder.net and click on "**Sign up**" on the top left corner of the page. Enter a user name, a password, and an email address. Click "**Create User**". A new page will open, congratulating you on signing up. Click on the "**home**" hyperlink in the text to get started. *Note: have you been keeping track of all your new user names and passwords?*

MapBuilder user name:_____
MapBuilder password:_____
MapBuilder email address:_____

Activity

1. Create a new map to edit

MapBuilder is a wizard-like interface that will allow you to quickly add data to a map – in our case, to a Google Map. It's a rapid mashup tool! The beauty of MapBuilder, though, is that as you add data, MapBuilder builds a block of code based on your edits. When you are done, you will then copy and paste this code into your Google Maps API code on your webpage. Voila! Your very own hand-coded, customized Google Map now resides on your webpage and you didn't have to learn a bit of code to do it!

If you followed the preparation above, you should be signed in and on the home page of MapBuilder. If not, navigate to MapBuilder and sign in to begin. http://www.mapbuilder.net
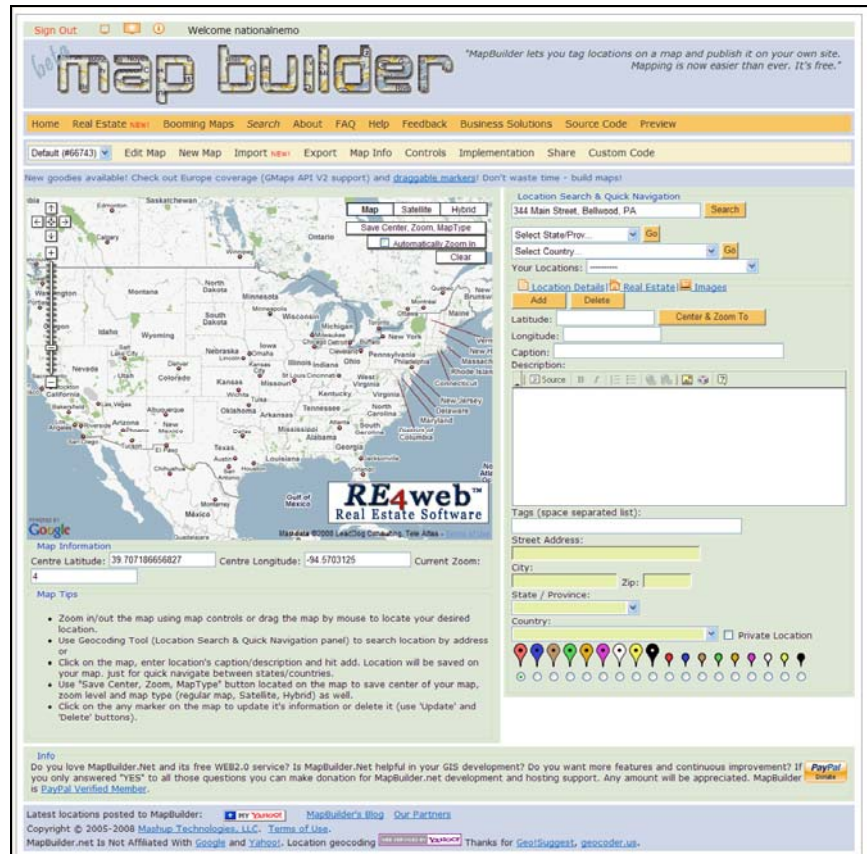
- Click **Map Info** in the menu bar above the map.
- A new page opens for you to enter your Map Info.
- Type "NEMO U's Map" in the **Map Name** field.
- Type "A map of NEMO Universities" in the **Description** field.
- We'll leave **Map Tags** blank and check **Private Map,** and uncheck the **Shared Map** box, so that the map does not come up in MapBuilder searches.

- Click **Update Map**.

- Notice your newly created map's title is now listed in a dropdown menu in the menu bar. As you create more maps, this is where you can select which one to edit.
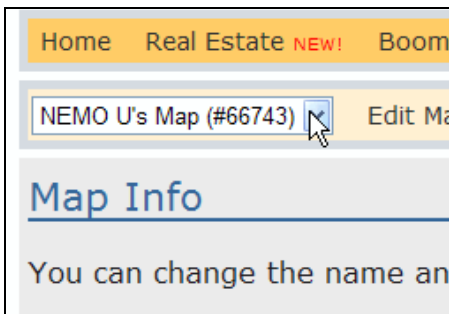
2. Adding data to your map with the Geolocator Tool

We will now navigate to where we want to place a placemark panning, zooming in or out, and changing the base map according to what works best. Let's navigate to the Monterey Bay Aquarium and place a placemark there. Don't know where it is exactly? Save some time and do a **Search**.

- Click **Edit Map** in the menu bar next to your selected map title in the dropdown menu.
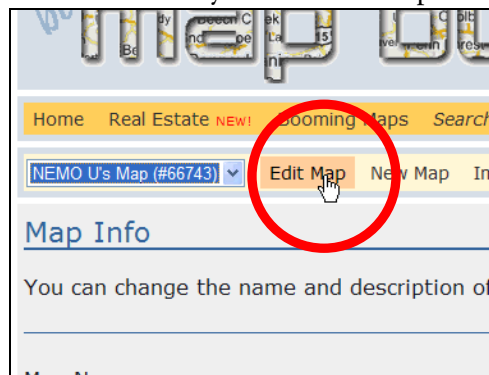
- You are navigated back to the map and editing sidebar that opened after you first signed in, only this time your "NEMO U's Map" map info is saved and you are ready to edit!
- Type "Monterey Bay Aquarium, Monterey, CA" in the **Search** field under **Location Search & Quick Navigation** in the top right box.

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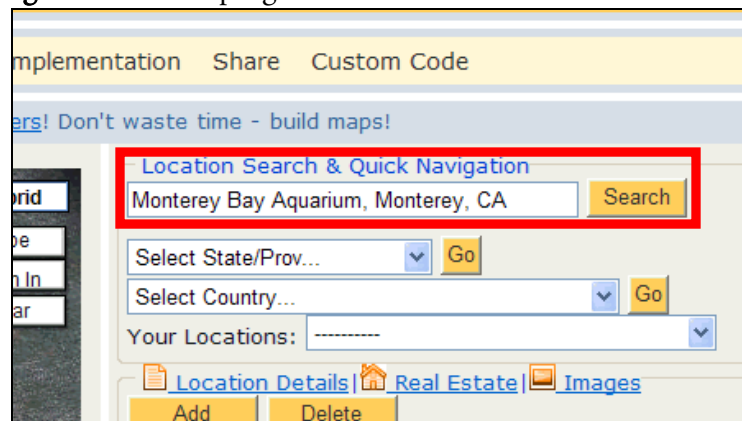
- Click **Search**
- Zoom in, pan and change the base map to make sure the search result is what we wanted. If it's not, pan to where it should be and double-click to drop a new placemark. Notice that the coordinates for the placemark have been generated automatically, as well as a Street Address, both below the map and in the right sidebar. This is invaluable!
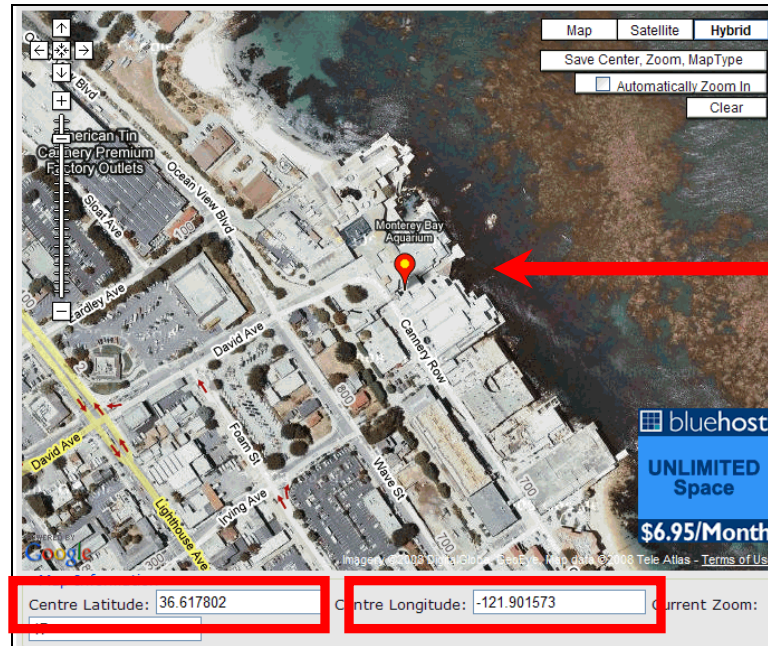
- Now let's edit the information that will be stored with the coordinates. In the **Caption** field under **Location Details**, type in, "NEMO U6 Reception".

- In the **Description** field, type in, "Jelly fish and dessert!" This description is the information that will be displayed in the balloon for the placemark.

- You can edit the text further with the menu options about the **Description** field. Highlight all the text and click the button to bold the text.

- Now click on the button to hyperlink the text to the Aquarium website. A new window pops up to prompt you for the hyperlink information. In the **Link Info** tab, set the **Link Type** to "**URL**". Under the **Protocol** menu, select "**http://**". In the **URL** field, enter the Aquarium's website address, www.mbayaq.org/

- Open the **Target** tab. From the **Target** menu, select "**New Window (_blank)**". This will open the website link in a new window, rather than replacing the information on the current webpage. *Note: you cannot set the target in Google Maps My Maps; any hyperlink, when clicked in My Maps, will replace the current page information with the linked page information.*
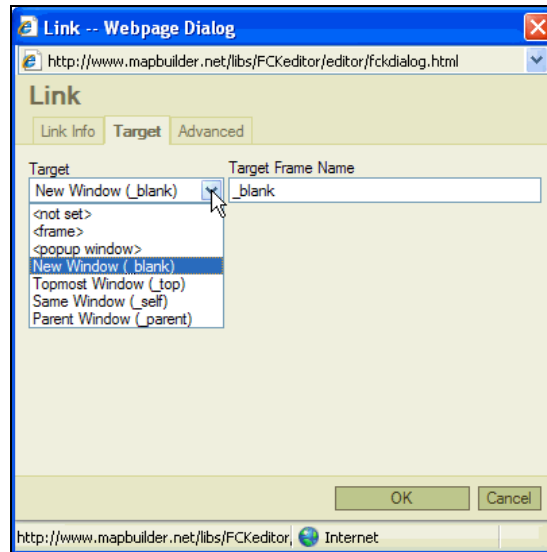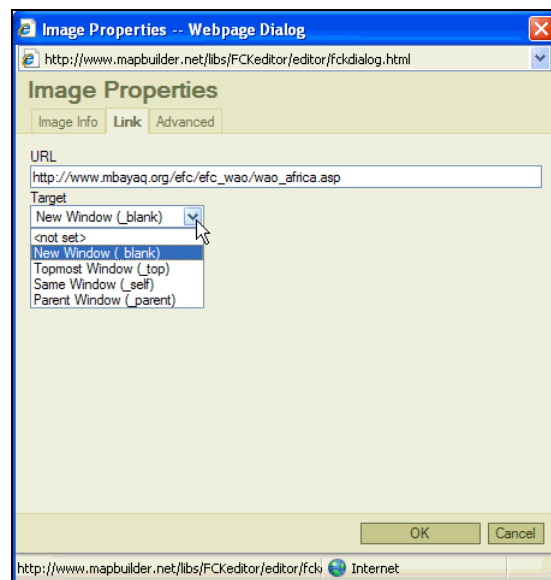

- Click **OK**. Our hyperlink is all coded and ready!
- Click the ⬚ button to add a photo. A new window pops up to prompt you for the photo information. In the **Image Info** tab, type in the URL of the image you wish to add. In our case, we'll add a picture of an otter from the Aquarium's website: http://www.mbayaq.org/efc/efc_wao/content/images/wao_africa/africa_cape_clawless_other.jpg
Note: you can only add photos that already exist online somewhere.
- Next type "otter" in the **Alternative text** field. The image is now labeled as "otter" in the code. Set the **Border** to "2" to draw a noticeable border around the image. In the **Align** menu, select "**Right**" to move the image to the right. The **Preview** box shows you what the image will look like in the balloon.
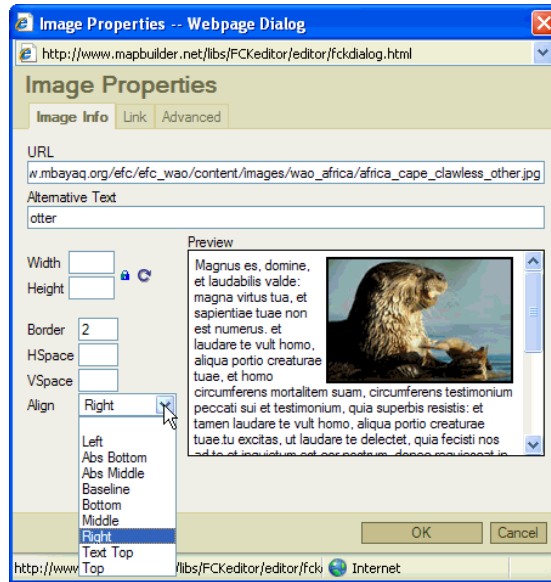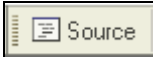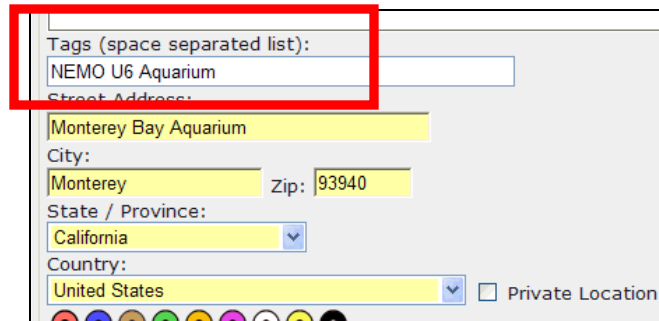
- Open the **Link** tab. In the **URL** field, enter the webpage address that the photo came from: http://www.mbayaq.org/efc/efc_wao/wao_africa.asp
and set the **Target** to "**New Window (_blank)**" so that the link will open in a new window.

- Click **OK**. Our photo is all coded and ready to go!

- You can also directly edit the **Source** code by clicking the [Source] button.
- In the **Tags** field on the right sidebar, enter "NEMO U6 Aquarium". These become the keywords when you search your placemarks later.

- Finally, let's change the placemark icon to a large, green balloon by selecting the radio button below the green icon.
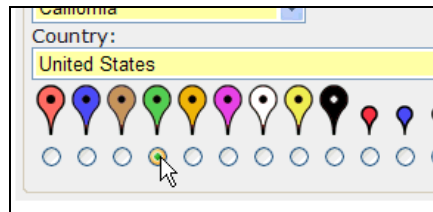

- Now that we have completed editing our first placemark, click the **Add** button below **Location Details**. This saves the placemark and all of the information we just edited!
- Notice the **Add** button changes to an **Update** button. Click on **Update** if you make any changes to your placemark later.

## 2. Adding data to your map by hand

- To add a placemark without the use of the **Location Search & Quick Navigation** tool, click **Edit Map** at the top of the page. By hand, pan and zoom back to your Aquarium placemark. To pan, your curser automatically becomes a pan tool when it's over the map. To drag the map, click and hold the mouse to "grab" the map and move the mouse to then move the map.
- Once you have found the Aquarium placemark, pan over to the Lighthouse Reservation, west of the Aquarium. Zoom in to the Lighthouse Reservation and turn on the **Satellite** or the **Hybrid** map to find the monument on the property.
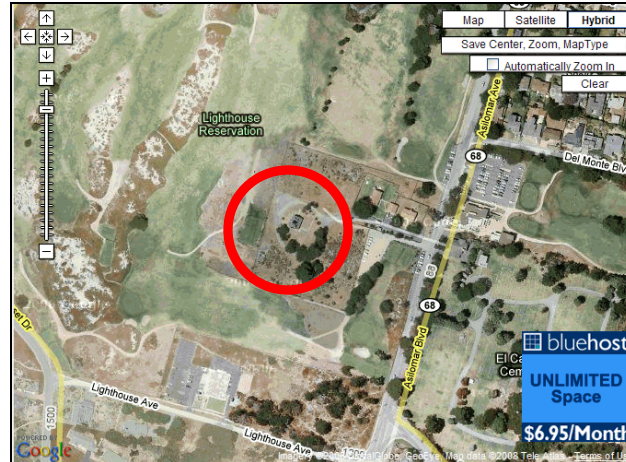
- Double click on the monument to place a placemark. The coordinates for this point are automatically added to the right sidebar.
- Let's type, "Lighthouse Resevation" in the **Caption**.
- Type "Lighthouse NEMO U6" in the **Tags** field.
- Type "Monterey" in the **City** field and select "**California**" as the **State/Province**.
- Change the icon to a large yellow icon. Appropriate for a lighthouse!
- Click the **Add** button at the top of the right sidebar to add and save your new placemark!
- If you receive the error:
    The following errors have been detected: Location Longitude too long
    then manually shorten the **Latitude** and **Longitude** values in the right sidebar to 6-digits after the decimal point.
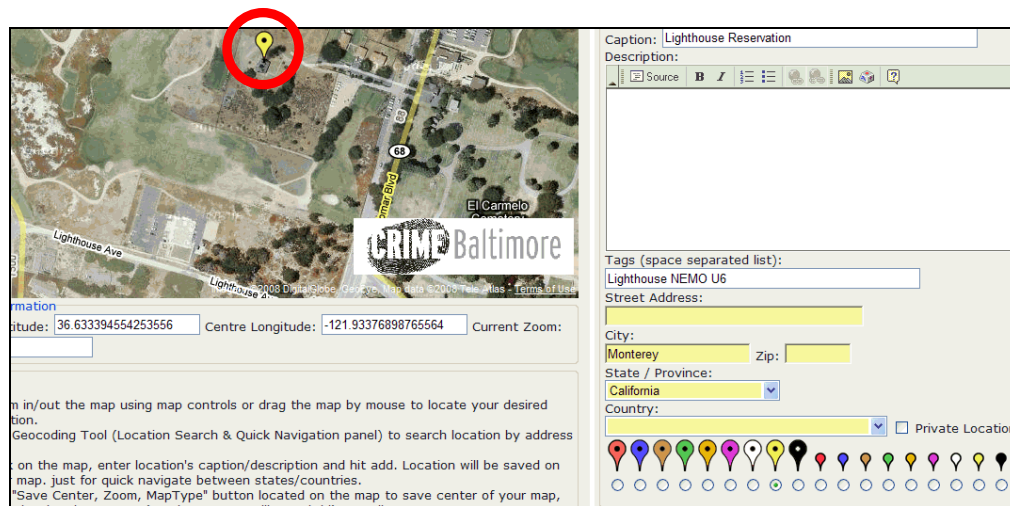
- You now have two placemarks on your map: "NEMO U6 Reception" and "Lighthouse Reservation". You'll notice they have both been added to the **Your Locations** dropdown menu in the right sidebar. Selecting one in the dropdown menu will re-center the map to that placemark, open a balloon that says, "**Here I am!**" so you can find the placemark, and open the information details in the right sidebar to edit. Handy!
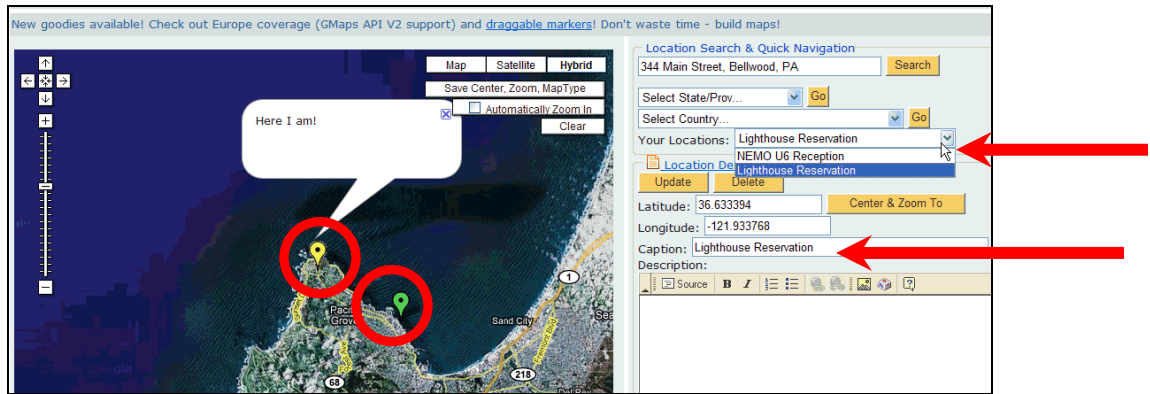
3. Importing data to your map

So we've briefly visited a few ways to search, pan, zoom and hand enter and save placemarks to your MapBuilder map. But what if you already have data in Excel or a CSV file that you would rather just import? Let's import it!

- Click **Import**.
- A new page opens with instructions about how to import a CSV file (Comma Separated Value). If you have an Excel database, first "Save As" the file type "CSV"! *Note: Your CSV file must contain at least a "Caption" or "name" column.*
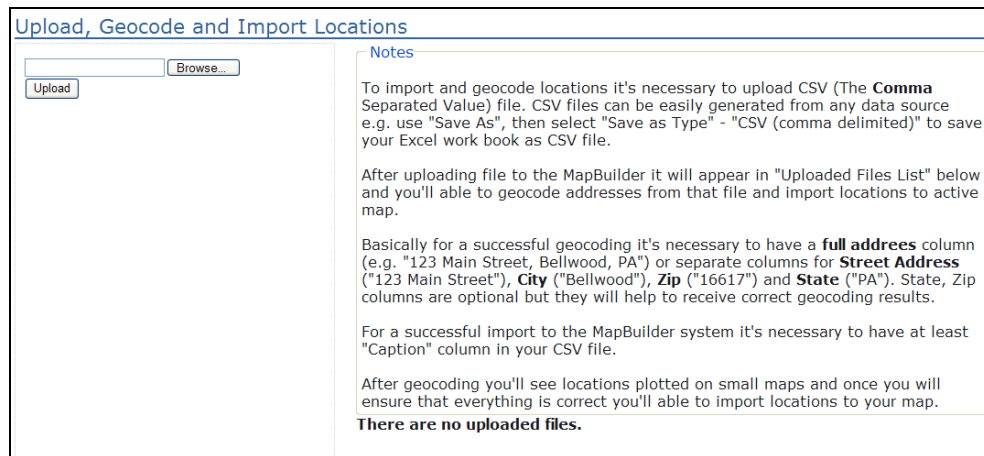
- Click **Browse**.
- Navigate to the NEMO_University.csv file you downloaded in the zipped "activity_data" folder at the beginning of the activities. You should have saved and unzipped it to a folder called "Data" on your C drive. C:\Data\activity_data\NEMO_University.csv
- Click **Upload**.
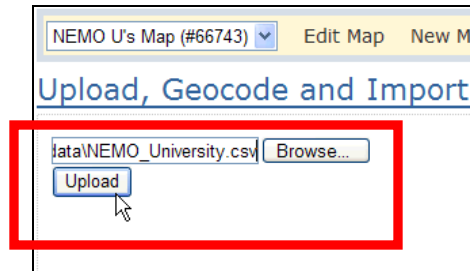
- A new section appears under the **Notes** sidebar named **Updated Files List**. Below it you should see the name or your CSV file (NEMO_University.csv). This means the file has been uploaded…not yet imported.
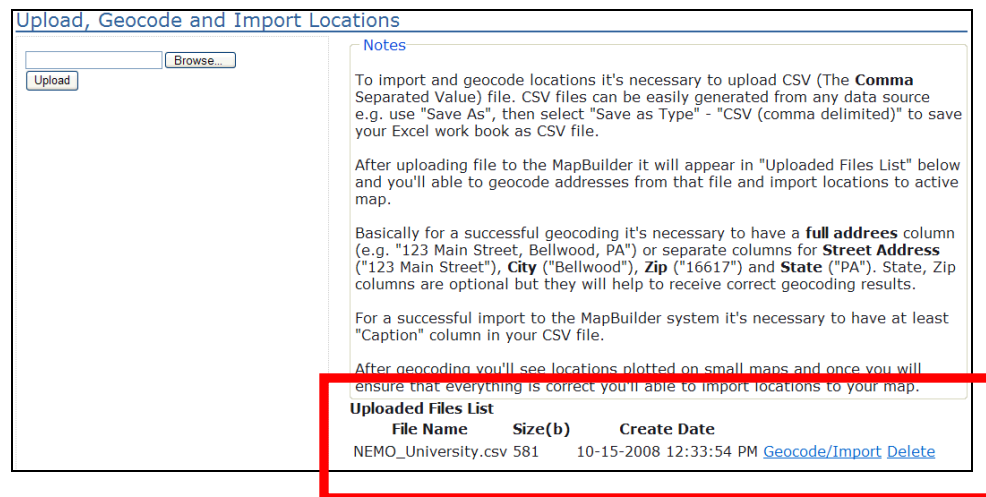
- Click **Geocode/Import** next to the file's information.
- A new page opens with instructions about how to "geocode" your uploaded information. It's a fancy way of associating the file's information with spatial information so that your import will be displayed properly on your map.
- Following the **Notes** steps, we first "Map", or link, data rows to corresponding "types" so MapBuilder knows how to interpret the data rows. Scroll down to the uploaded rows of information. Next to the first row of your data, that begins with "IDENT", open the **Map Field To:** dropdown menu and select "**Caption**". This tells MapBuilder that all the cells in this row are to be interpreted as **Captions**.

- In the **Map Field To:** dropdown menu next to the second row that begins with "LAT", select "**Latitude**" to continue linking your file's information to the MapBuilder's "types".
- In the **Map Field To:** dropdown menu next to the third row that begins with "LONG", select "**Longitude**".
- In the **Map Field To:** dropdown menu next to the fourth row that begins with "COMMENT", select "**Description**". You have now associated all of your file's data with a corresponding MapBuilder "type" so you can properly import the data!
- Check the box next to "**Header Column**" to to MapBuilder not to try and geocode that first column of header information.

- Click **Geocode/Import Locations** to begin the geocoding process!

- Now the empty fields for **LONGITUDE** and **LATITUDE** above your data will have been filled in with values based on your geocoding assignments. Check the values to make sure they are correct. *Note: if you didn't have coordinates, your CSV file should include address information to allow for MapBuilder to assign coordinates. Also, you must at least have a Caption to be able to import a file.*

- If you make any changes, click **Geocode/Import Locations** to save these changes before you import.
- Chose the little red balloon icon in the **Icons** section. This icon will be used for each new placemark we are about to import.
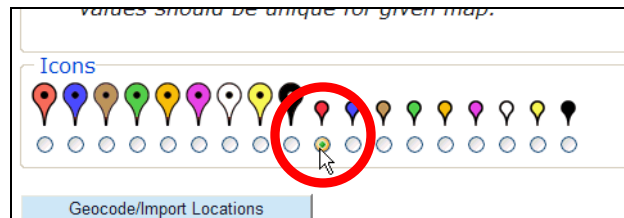
- Click **Add Locations to Your Map** to finally import your data!
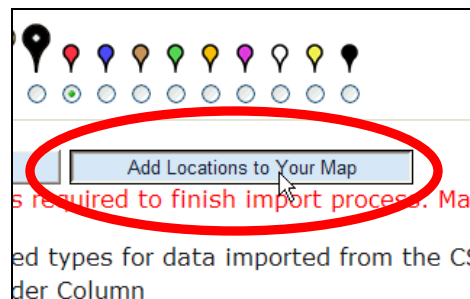
- A page opens with the **Import Summary**. Check the summary to make sure the import was successful. Otherwise, start over to overwrite the faulty import with a new import. *Note: the Total Geocoded Rows is 7 but the Successfully Imported Rows is 6…the "missing" row is the column we identified as a Header Column before importing – so nothing's really missing!*

Import Summary
On this screen you'll see import summary. To check imported results directly on your map use MapBuilder's standard methods; navigate to map "Home" or use "Preview" functionality.
If something is wrong with locations names, descriptions you might re-import your locations to the same map. **Location details (caption, description) will be overwritten by new import results for locations with the same latitude/longitude values.**

NEMO U1(41.47386451,-72.5022783) - imported.
NEMO U2(32.84966469,-79.94249098) - imported.
NEMO U3(41.3166366,-72.06266333) - imported.
NEMO U4(38.89656894,-77.03339375) - imported.
NEMO U5(41.55763015,-72.64732208) - imported.
NEMO U6(36.61699369,-121.93607283) - imported.

Summary:
Total Geocoded Rows: 7
Successfully Imported Rows: 6
Failed Imported Rows: 0

- Click **HOME** to return to your map and view the results of your import.

- You will now see your map with the little red balloon icons for your imported data in addition to the two placemarks we added earlier! You can view and/or edit the information for any of the placemarks simply by clicking on the icon, or selecting the **Caption** name from the **Your Locations** in the right sidebar.
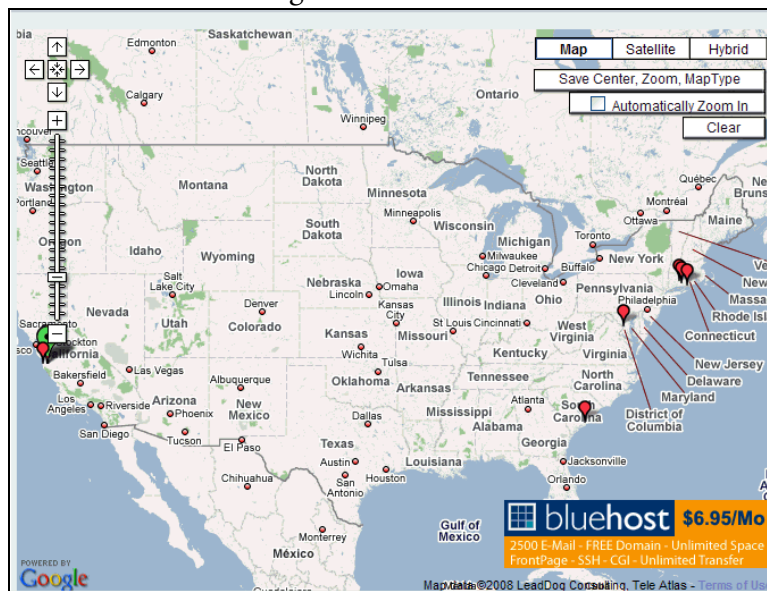

4. Edit your map

Remember, you are using MapBuilder to generate code for your Google Maps API. So we now need to generate the map *style* code, to format how you want your Google Maps to look.

- Click **Controls** in the menu bar above the map.
- A new page opens on which you can set your **Map Controls**.

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16

- "Controls" are features added to the map by adding code to the Google Maps API code. The names of the controls, while not straight forward to you or I, are identical to what they are called in the code. These controls include scale bar, zoom controls, map setting defaults, etc. Here, by clicking radio buttons, MapBuilder adds the necessary code for you.
- Check the box next to **Markers Tooltips/Labels**. This adds a function to the map that creates a popup window of the placemark Caption when you move the curser over a placemark.
- Click the radio button next to **GSmallMapControl**, making the pan and zoom control small. (Again, the name of the control is how it is named in the Google Maps API code.)
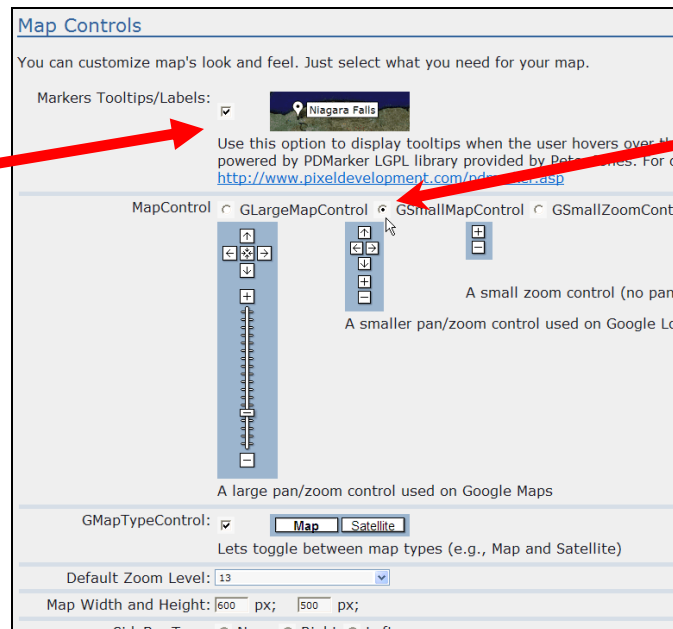
- Leave everything else as it is and click **Save** at the bottom of the page.
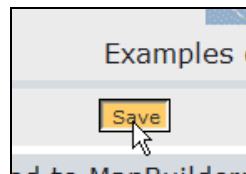
- Your control code has now been saved! Click **Home** in the menu bar to return to your map. *Note: you are generating source code to use later with Google Maps API, so your control code probably will not display on your map right now. The map you look at now is not the end product, though, so don't worry! Trust the code for what you've saved is there!*

5. Add your MapBuilder work to you Google Maps API

All you hard editing work can now be added to Google Maps on your website! *Note: the second half of this section is an Extra Credit portion that can be completed later, when you have access to your webpage editing software program.*

- First, let's preview what a Google Map would look like with the code you have just generated in MapBuilder. Click **Preview** at the end of the top menu bar to preview the map.
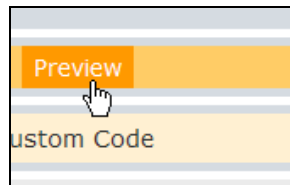

- A new window pops up with a Google Map as it would look with your MapBuilder code added to a Google Maps API. How does it look? *Note: Here your map title, map description, data points, icons, map controls, and other settings are all displayed as the code dictates.*
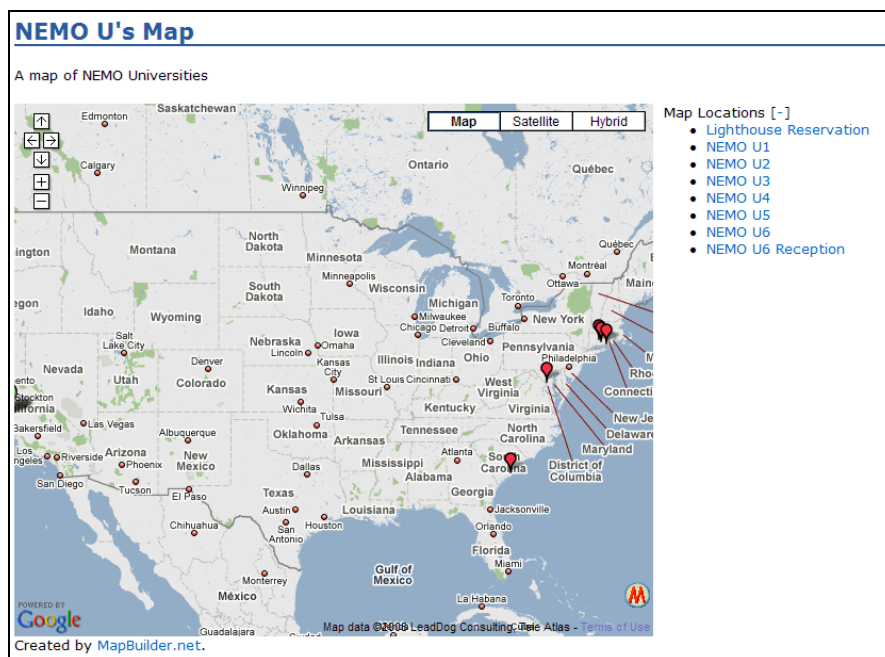
- If you wish to make any changes to the controls, the icons, the data, or anything else, close the preview window and make your changes.
- If your map is wonderfully good-to-go, let's keep going! Close your preview window.
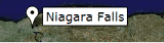- Click **Source Code** in the top menu bar.
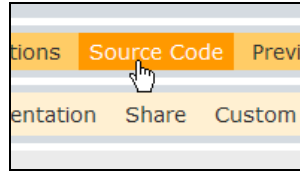
- A new page opens with the **Map Source Code**. Here is all the code that MapBuilder has generated based on your edits, imports, and settings! You are now just a copy-paste away from completed your Google Maps API and you didn't have to borrow of copy of <u>Coding for Dummies</u>.

- Keep this browser window open, and open your webpage editing software program on your desktop. CT NEMO uses Adobe Dreamweaver.
- In your software program, open to edit the code of the webpage that you registered your Google Maps API URL to (the page that the map with sit on). *Note: it's a good idea to start with a blank page that is within the URL pathname registered to your Google Maps API key as the code you will copy from MapBuilder includes addition code headers and footers for a new, blank page. Otherwise, you can go through and edit out repetitive code if you paste in to an already created web page.*
- Return to your browser and copy all of the **Map Source Code** from the MapBuilder page.
- Return to your webpage editing software and paste the code into the page's code.
- We're not done yet! Now you need to link your Google Maps API key to this code as well. On your desktop, open your Google Maps API key code file that we saved in the preparation portion of this activity.
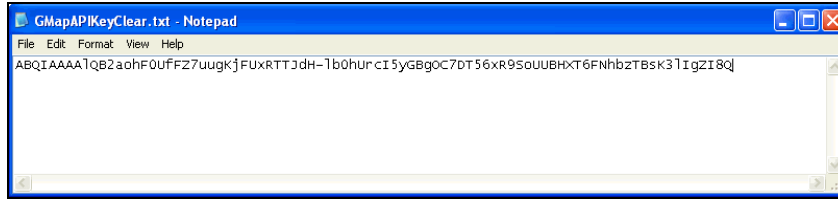
- Copy the key from the text document
- Return to your webpage editing software program. Scroll a little ways down, passed

  </style>

  and before

  /*************************Configuration Options************************/

  to the portion of your pasted code to where you see the phrase

  <script src="http://maps.google.com/maps?file=api&v+2&key=YOURGMAPKEY"

Here, in place of "*YOURGMAPKEY*", paste your Google Maps API key code into the MapBuilder code (between the "key=" and the quotation mark at the end).

- Save your webpage and put it online with your new code. The next time your webpage is loaded, your Google Map will open with the placemarks and edits we made in MapBuilder!
- *Note: MapBuilder has provided you with a very user-friendly block of code. Each section of code, you will notice, has a brief description of what that portion of the code is used for. If you are adventurous enough, you can follow these pointers to edit parts of the code directly, rather than returning to MapBuilder and generating a new block of code.*
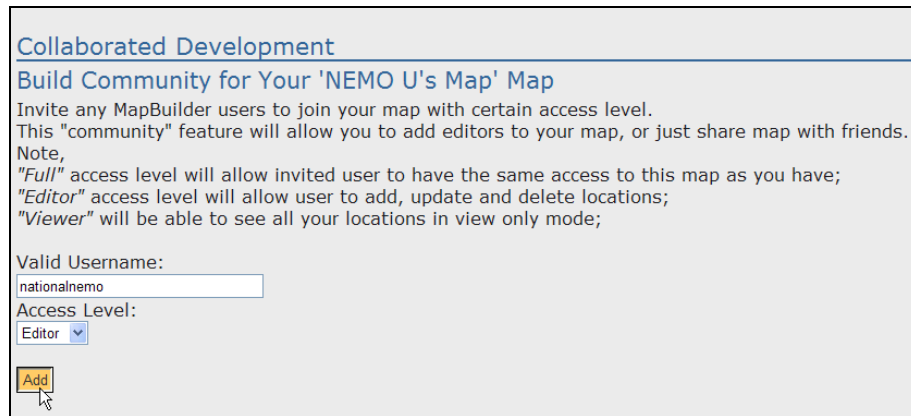

Extra Credit: Sharing and collaborating with others

Before moving out of MapBuilder, and to Google Maps API, be sure to take advantage of sharing and collaborating your work in progress! *Note: you may only share with others who also have a MapBuilder account.*

- Click **Share** in the menu bar above the map.
- This opens a new page, **Collaborated Development**. Make sure the title of the map in the subheading is the title of the map we wish to share (NEMO U's Map).
- In **Valid Username** field, enter the MapBuilder username of the person you wish to share with.
- In the **Access Level** dropdown menu, select the type of access you wish to grant to this person: Full access, Editor access, or Viewer access.
- Click **Add** and now the person you have shared the access with can login and open your map in MapBuilder from their map dropdown menu in the top left-hand side of the menu bar.

Collaborated Development
Build Community for Your 'NEMO U's Map' Map
Invite any MapBuilder users to join your map with certain access level.
This "community" feature will allow you to add editors to your map, or just share map with friends.
Note,
"Full" access level will allow invited user to have the same access to this map as you have;
"Editor" access level will allow user to add, update and delete locations;
"Viewer" will be able to see all your locations in view only mode;

Valid Username:
nationalnemo
Access Level:
Editor

Add

Extra Credit: Exporting your data

At anytime you can click **Export** to download the data saved in your MapBuilder map as a CSV file. You can then open the CSV file on your desktop to edit the data manually or use it elsewhere. This may save a great deal of time depending on what you need to edit. After editing the CSV file, save it and then import it back into your map in MapBuilder!

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