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1. Overview

The OpenGeoportal was collaboratively developed as an open source, federated web application to discover, preview, and retrieve geospatial data from different repositories. Several of the country's leading universities and a state agency have formed a partnership to make thousands of geospatial data layers available through a single, open source interface. The application also incorporates some new innovative search techniques. Partners include Tufts, Harvard, MIT, Princeton, MassGIS, Stanford and UC Berkeley. The single interface is skinnable and may have slight differences in appearance based on the institution hosting the application. MIT's implementation of OpenGeoportal is called MIT Geoweb.



2. Quick Start: Getting Started

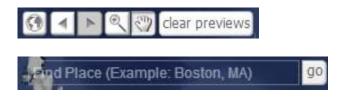
By clicking the **Getting Started** tab, you can get some of the most important information quickly on how to interact with the map, search, preview, and download data.



3. Search

3.1. Working With The Map

A set of buttons that display above the map allows you to switch or manipulate the current view.



- 3.1.1. Find a Place (Example: Boston, MA) is used for a geospatial search. When you use the Find Place field, MIT Geoweb provides a view of the location you entered and restricts the returned data records to those intersecting the spatial search area. Returned results are ranked according to a unique set of spatial algorithms.
- **3.1.2. Global Zoom** restores the highest level view available.
- 3.1.3. Back backs you up to previously viewed map extents.
- **3.1.4. Forward** moves you through subsequent map extents.
- **3.1.5. Zoom in** switches the cursor to a magnifying glass icon which, when clicked, zooms in to the identified point on the map. Hold down the left-click to drag and draw a box over the area to zoom to.
- **3.1.6. Pan control** switches the cursor to a hand icon which, when the left click is held down, allows you to drag and pan the map.
- **3.1.7.** The **Zoom Slider Bar** displays in the upper left portion of the map, allowing you to zoom in or zoom out by clicking the ends of the slider bar, or by dragging the slider up or down on the bar.
- **3.1.8. Clear previews** is used to deselect any results checked to preview and remove them from the map.



3.2. Two Types of Searches

In order to search for data, click on the **Search** tab.

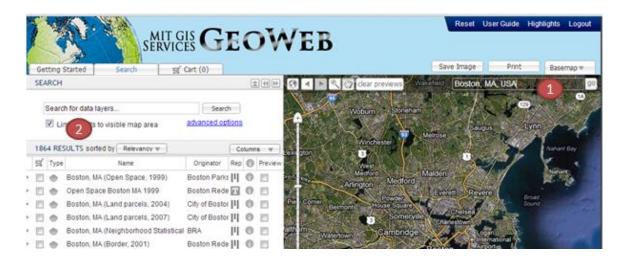


There are two ways to locate, explore and download data. These two types of searches are 1) **Using the Map to Search** and 2) **Text Search**. The two methods can be used individually or combined (default) for more effective searching. A change in the map extent will initiate a search for data.

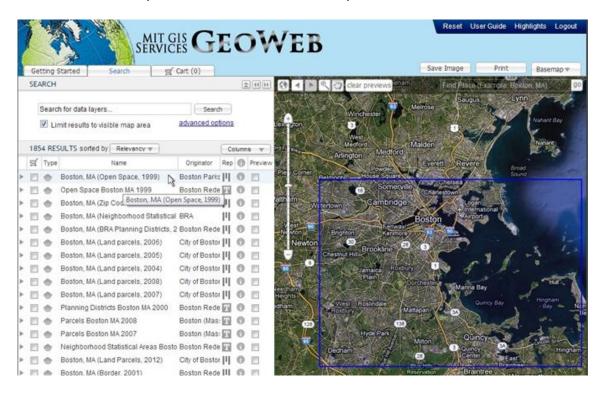
3.2.1. Using the Map to Search can be done in several ways:

The **Find Place** field is used for a geospatial search. When you use the Find Place field, MIT Geoweb zooms to the location you entered and restricts the returned data records to those intersecting the resulting map extent.

For example, to search for data in the Boston area: 1. In the **Find Place** field, type **Boston, MA** and click "go". 2. In **Search Results**, you see all the data layers that are within or partially within the Boston area. By default they are ordered by a unique spatial relevance algorithm.



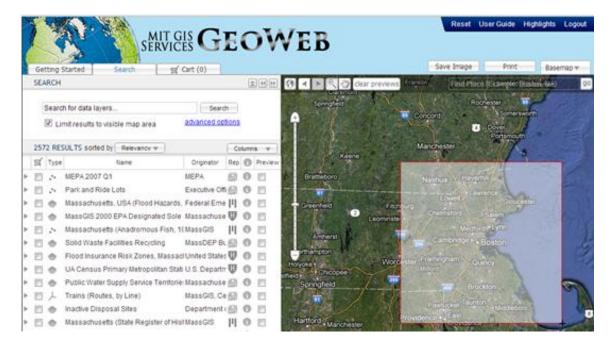
If you hover your mouse pointer over a data layer in the **Results** list, you can see its extent previewed in blue on the map.



Drag and Draw a Box to perform a search similar to "Find Place". Using

the **Zoom In** tool while clicking and dragging draws a box that zooms to the extent of the area of interest. By default MIT Geoweb returns relevant results each time the displayed map extent changes.

For example, to search for data for the Boston area: 1. Drag and draw a box over **Boston, MA**. 2. In **Search Results**, you will see all the data layers that are within or partially within Boston.



Also, panning or zooming in to a different area immediately initiates another search for the new area.

Try combining your spatial search with a text search to further refine your results.

3.2.2. Text Search allows you to type in search terms. There are **Basic** and **Advanced Search** options.

3.2.2.1. Basic Search

For a **Basic** search, you can type in a search term, such as **buildings**, in the search field. You can also put a place name in the Search Text Key field, such as **buildings Boston**. This search goes through the metadata to find these key terms. Remember, the search will return results which include either word in the metadata.

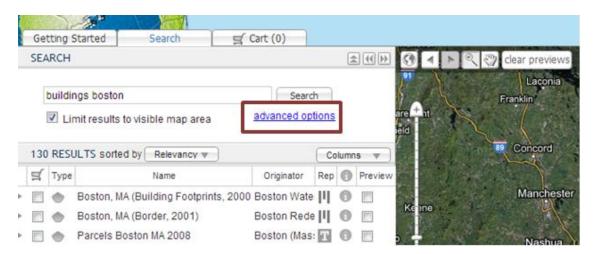
For example, you want to find buildings in Boston. 1. Make sure the **Search** tab is selected. 2. Type **buildings Boston** in the search text field and click on **Search**. 3. You see that the Search Results change to include those data layers with rivers of Boston.



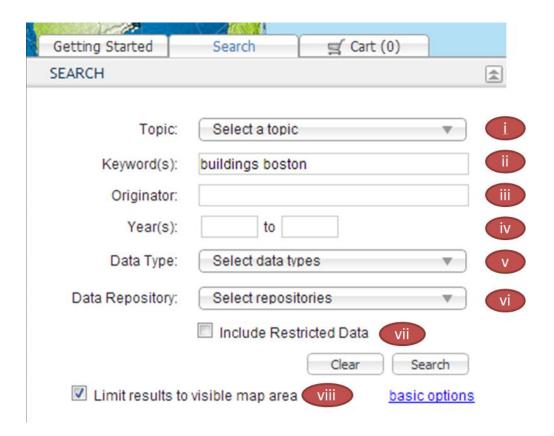
3.2.2.2. Advanced Search

If the Basic Search options are too general, use the **Advanced Search** options to further refine your search. To use the Advanced Search:

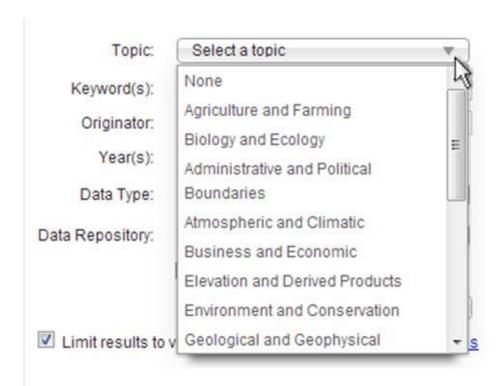
With the Search tab selected, click **Advanced Options**. The options for search are expanded.



The additional options (defined below) allow you to further define your search criteria. You can specify any of the following:



3.2.2.2.1. Topic allows you to search for data that includes information related to a particular subject or data theme. Left click on the arrow in the Topic field to show the list of topics.



Agriculture and Farming

The rearing of animals or cultivation of plants. For example, resources describing irrigation, aquaculture, herding, and pests and diseases affecting crops and livestock.

Biology and Ecology

Naturally occurring flora and fauna. For example, resources describing wildlife, biological sciences, ecology, wilderness, sea life, wetlands, and habitats.

Administrative and Political Boundaries

Administrative units within countries and borders between countries.

• Atmospheric and Climatic

Atmospheric processes and phenomena. For example, resources describing cloud cover, weather, atmospheric conditions, climate change, and precipitation.

Business and Economic

Economic activities or employment. For example, resources describing labor, revenue, commerce, industry, tourism and ecotourism, forestry, fisheries, commercial or subsistence hunting, and exploration and exploitation of resources such as minerals, oil, and gas.

• Elevation and Derived Products

Height above or below sea level. For example, resources

describing altitude, bathymetry, digital elevation models, slope, and products derived from this information.

Environment and Conservation

Environmental resources, protection, and conservation. For example, resources describing pollution, waste storage and treatment, environmental impact assessments, environmental risks, and nature reserves.

Geological and Geophysical

Earth sciences. For example, resources describing geophysical features and processes, minerals, the composition, structure and origin of the earth's rocks, earthquakes, volcanic activity, landslides, gravity information, soils, permafrost, hydrogeology, and erosion.

Human Health and Disease

Health services, human ecology, and safety. For example, resources describing human disease and illness, factors affecting health, hygiene, mental and physical health, substance abuse, and health services.

Imagery and Base Maps

Base maps. For example, resources describing land cover, topographic maps, and classified and unclassified images.

Military

Military bases, structures, and activities. For example, resources describing barracks, training grounds, military transportation, etc.

• Inland Water Resources

Inland water features, drainage systems, and their characteristics. For example, resources describing rivers and glaciers, lakes, water use plans, dams, currents, floods, water quality, and hydrographic charts.

Locations and Geodetic Networks

Positional information and services. For example, resources describing addresses, geodetic networks, postal zones and services, control points, and place names.

Oceans and Estuaries

Features and characteristics of salt water bodies excluding inland waters. For example, resources describing tides, tidal waves, coastal information, and reefs.

Cadastral

Property maps. A cadastre commonly includes details of the ownership, the tenure, the precise location (some include GPS coordinates), the dimensions (and area), the cultivations if rural, and the value of individual parcels of land.

• Cultural, Society, and Demographics

Characteristics of societies and cultures. For example, resources describing natural settlements, anthropology, archaeology, education, traditional beliefs, manners and customs, demographic data, crime and justice, recreational areas and activities, social impact assessments, and census information.

Facilities and Structure

Man-made construction. For example, resources describing buildings, museums, churches, factories, housing, monuments, and towers.

Transportation Networks

Means and aids for conveying people and goods. For example, resources describing roads, airports and airstrips, shipping routes, tunnels, nautical charts, vehicle or vessel location, aeronautical charts, and railways.

Utilities and Communication

Energy, water and waste systems, and communications infrastructure and services. For example, resources describing hydroelectricity, geothermal, solar, and nuclear sources of energy, water purification and distribution, sewage collection and disposal, electricity and gas distribution, data communication, telecommunication, radio, and communication networks.

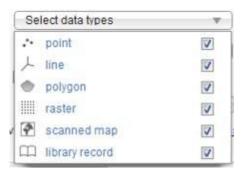
3.2.2.2.2. Keyword(s) - Keywords are words that serve as criteria, identifying relevant search results based on document metadata.

Key	word(s):					
3.2.2.2.3. the s	_	itor - The ori	•	e office or	agency providi	ทg
Origin	nator:					
•		_		•	ws you to spec be entered in th	-

to

Year(s):

- **3.2.2.5. Data Type** Data Type allows you to define the type of data you want to find, such as raster data, vector data, or scanned maps.
 - Raster Raster data represents a generally rectangular grid
 of pixels or points of color, viewable via a monitor, paper, or
 other display medium.
 - Vector Vector graphic formats points, lines, and polygons (shapes), which are all based on mathematical equations, to represent images in computer graphics.
 - **Scanned Maps** Scanned maps have coordinate system information in the margins that can be used to georeference the image without reference to any other data.
 - Library Record Catalog entry for non-digital spatial data (such as paper maps). No downloadable data exists on Geoweb for these records. However, metadata, such as information on where to find the physical item in the library, is available (see Section 5.6 of this User Guide).



3.2.2.6. Repository - Click the **Select Repositories** dropdown. Use the checkboxes to include all or a select set of the data available from the contributing data repositories.



3.2.2.7. Inclusion of Restricted Data - A portion of the data provided by the data sources is protected from public view, and requires the user to login to view or download the restricted data.

Generally speaking, individuals from each of the data repositories will have privileges to log in to data from their own institution. By checking this, results might be returned that you would be unable to preview or download through the portal.

☑ Include Restricted Data

3.2.2.2.8. Results limited to just the visible map area- You can elect to have MIT Geoweb restrict the search results to correspond to the map in one of two ways.

Limit results to visible map area

If you keep the **Limit the Visible Map Area checked**, the search results layers correspond only to features that intersect with the visible map extent.

If you uncheck **Limit the Visible Map Area**, the spatial component of the search will be removed. The search results will include layers from different parts of the world. Only the text search will be in effect.

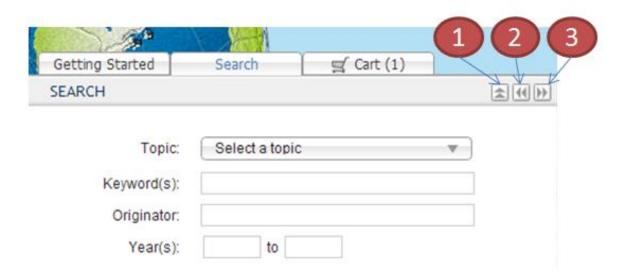
3.3. Helpful Hints for Finding Data

- Combine spatial and text searches For example, zoom in to Boston,
 MA and type "buildings" in the search box for an effective way to search
 for Boston buildings. An advantage to this type of search is that buildings
 layers for towns in the Boston area, but not a part of Boston proper will
 appear. Use the "Find a Place" search box for a quick way to zoom in to a
 location.
- Use Multiple Terms to Refine Searches For example, search for land cover to find documents with both the words 'land' and 'cover' somewhere in the metadata, but not necessarily together.
- Capitalization Searches on MIT Geoweb are not case sensitive; e.g. "roads" returns the same results as "Roads".

3.4. Search Tab Preferences

Elements on the **Search** tab can be adjusted to suit your preferences. Three buttons appear in the header of the Search tab have the following functions:

- **3.4.1. Collapse/Expand** collapses or expands the portion of the Search tab where criteria are entered. Having this portion of the tab collapsed allows more search results to appear on the screen.
- **3.4.2. Collapse Left** collapses the tabbed area of the interface completely, maximizing the map view. When the left side of the screen is collapsed, the button to expand right displays at the left edge of the screen. Using the expand right button will restore the interface to the default view.
- **3.4.3. Expand Right** collapses the map area of the interface completely, maximizing the tabbed potion of the interface. When the right side of the screen is collapsed, using the expand left button will restore the interface to the default view.

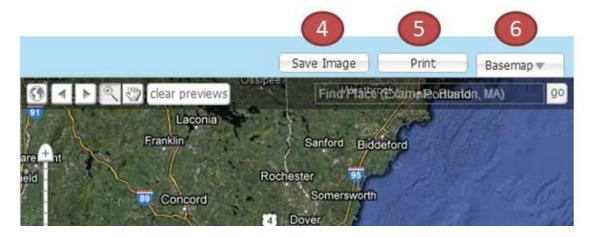


Above the map on the right, three buttons are displayed:

- **3.4.4. Save Image** allows you to save a .png image of the datasets that are actively being previewed on your map within the current extent.
- **3.4.5. Print** The Print button allows you to print the current map extent, including the previewed layers and basemap.

Tip - Consider using a PDF printer to avoid having to download a map, saving the map with a name and location of your choosing.

3.4.6. Basemap There are five options for the basemap you can use in MIT Geoweb.



- **3.4.7.** Basemap types when you hover your cursor over **Basemap**, your options for the basemap appear. The one selected is in **blue**.
 - **Google Hybrid** The Hybrid view shows a map depicting roads, parks, borders, and more, overlayed on satellite imagery.
 - **Google Satellite** The Satellite view shows aerial imagery of roads, parks, borders, and more.
 - **Google Streets** The Map view shows a map with a traditional depiction of roads, parks, borders, and more.
 - **Google Physical -** This shows the topography and physical features of the land along with major roads.
 - Open Street Map This option is a free, editable source of geographic data, which is built similar to Wikipedia. OSM has mapped some parts of the world not easily available from other sources.

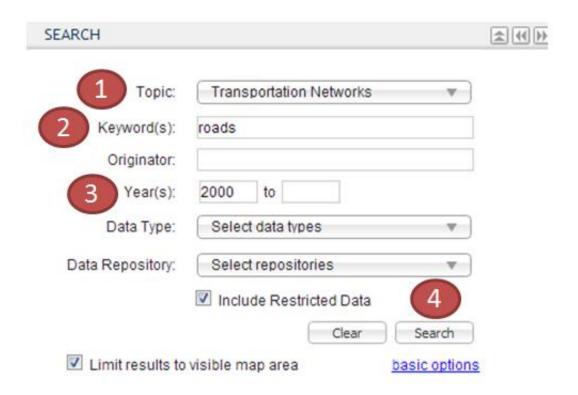


4. Practice Search

When you are finished defining your search criteria, click the Search button. Results corresponding to the criteria you've entered display under Search Results.

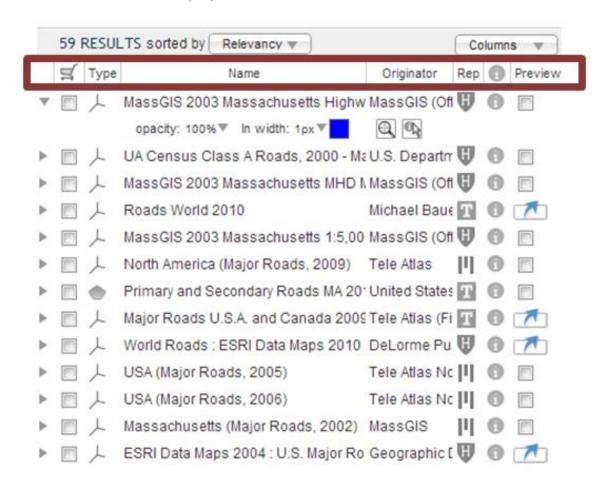
Try a search. Let's get recent roads data for Boston. In

1) **Topics** choose **Transportation Networks**, 2) in **Keywords** type **roads**, 3) in **Year(s)** type **2000** and then 4) click **Search**.

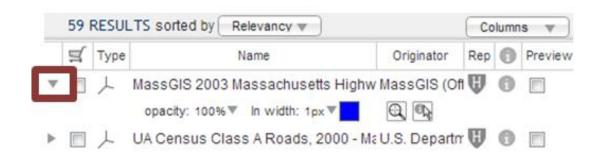


5. Search Results

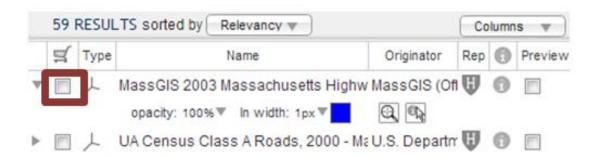
Default columns that display for returned Search results are as follows:



5.1. Show/Hide Preview Controls Expands/hides options to customize opacity, font size and color, adjusting how the data will preview on the map. Click on the arrow by the data layer to show controls. When you check the preview data checkbox (see Section 5.7), the preview controls are automatically expanded.



5.2. Add to Cart - A checkbox used to save a result to the Cart. Simply check the box and the data layer will be placed in the cart. The cart is a temporary holding place to preview or download chosen results, which can be accessed by clicking the Cart tab.



5.3. Data Type

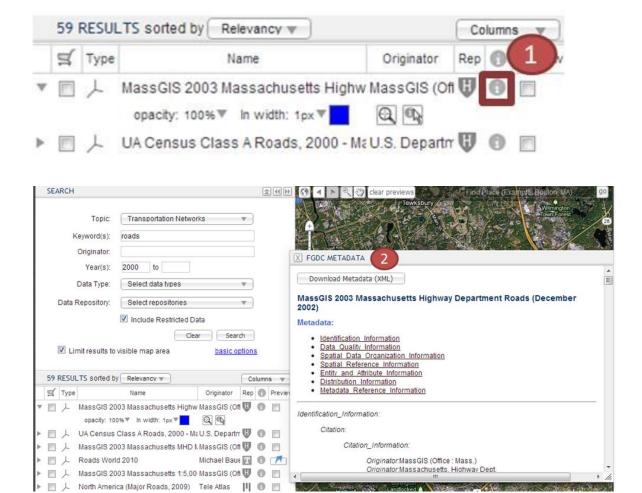
- Raster a generally rectangular grid of pixels
- Point a vector graphic format using points
- Line a vector graphic format using lines
- Polygon a vector graphic format using polygons
- Scanned Map a digital image of a physical map
- Library Record catalog entry for non-digital spatial data (such as paper maps). No downloadable data exists on Geoweb for these records. However, metadata, such as information on where to find the physical item in the library, is available (see Section 5.6 of this User Guide).
- **5.4. Name** The document or data set name.



5.5. Originator - The office or agency providing the source data for the search result.



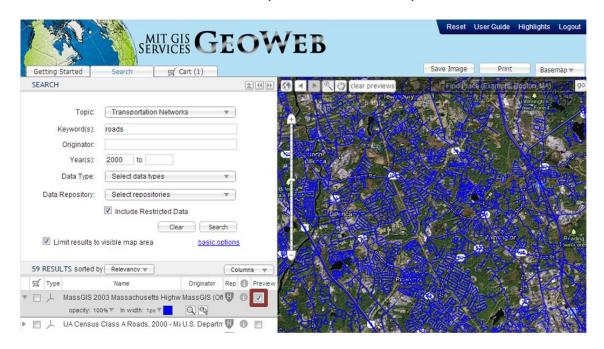
5.6. *i* - Used to display metadata for the returned result. 1) Click on the *i* and 2) the **metadata** appears.



5.7. Preview

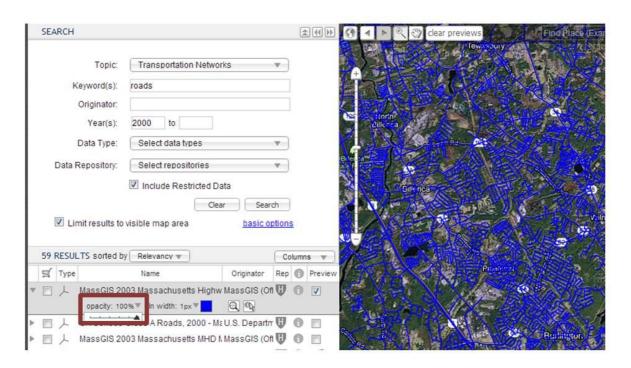
• **Checkbox** - If the data is public, simply click the checkbox beside the result to preview the data on the map. The layer goes to the top of the list.

• **Login** lifthe data is protected, click the login button to provide your credentials to access the data and preview it on the map.

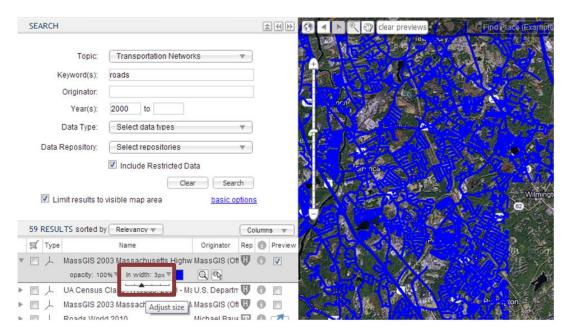


Within Preview, there are several options for controlling how your features look and exploring their attribute data. They are a. Opacity, b. Width, c. Color, d. Zoom to Geographic Extent of Layer, and e. Click a Previewed Feature on the Map to View its Attributes.

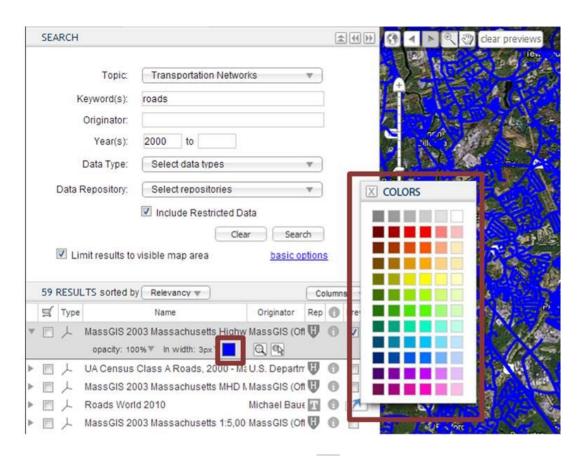
5.7.1. Opacity - controls the transparency of the data layer in the view. Hover your cursor over the control and a scale bar appears. Move the arrow up and down the scale to adjust the opacity of the layer.



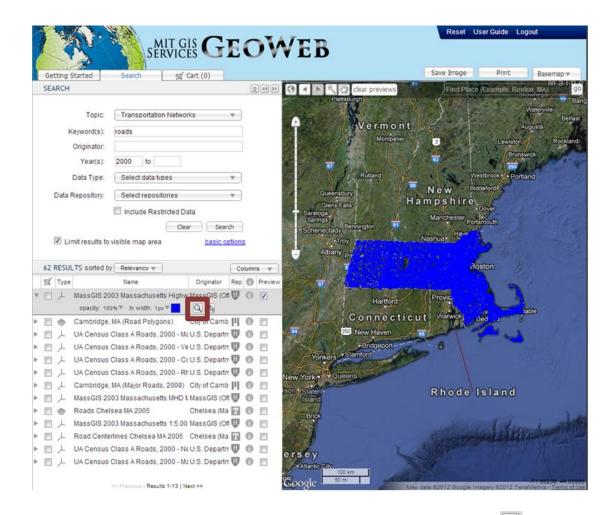
5.7.2. Size/Ln Width- This controls the size of points or the width of the lines (or borders for polygons) in the data layers. Move the arrow on the scale to adjust. Note this option is not available for raster data.



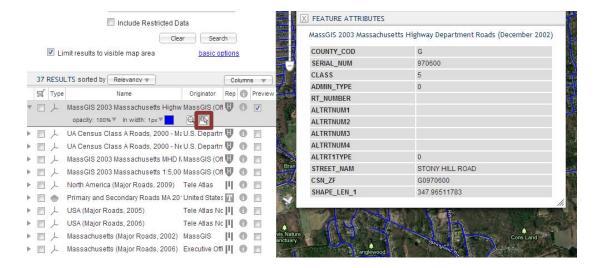
5.7.3. Color - Click on the color icon to bring up the color palette. Note this option is not available for raster data.



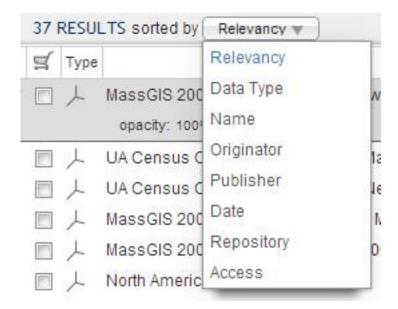
5.7.4. Zoom to Geographic Extent of Layer Click on the magnifying glass to pan and zoom the map to the full extent of the layer.



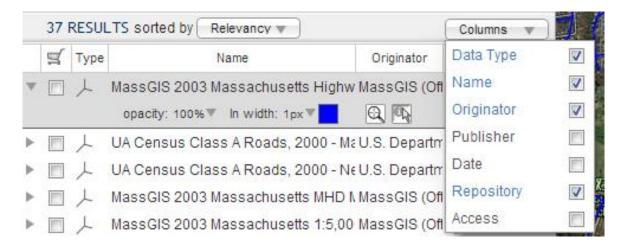
5.7.5. Click a Previewed Feature on the Map to View its Attributes Clicking on this button turns your cursor into a crosshairs. Next, click on any feature to bring up attribute information.



5.8. Sorting and Columns - Used to include or exclude data being displayed in the set of Search Results and to sort the results. Clicking the sort dropdown (default is Relevancy) will show a list of criteria to sort by. Only one option may be selected to sort the results. You can also sort by clicking on the column title. Clicking the column title a second time sorts by the column in reverse order.



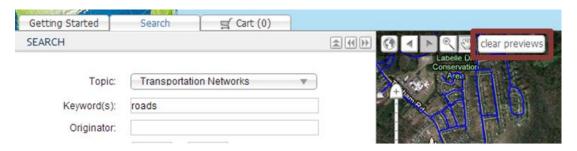
Click on the **Columns** dropdown. Check and uncheck checkboxes to choose which columns are displayed in the search results.



The available columns and sort orders are:

- Relevancy ranked by relevance.
- **Data Type** grouped in this order: Library Record, Line, Point, Polygon, Raster, and Scanned Map
- Name alphabetically, by the name of the document or data set

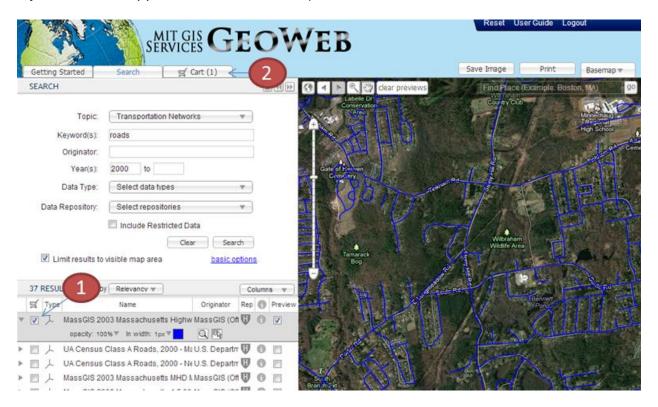
- **Originator** alphabetically, by the name of the office or agency providing the source data
- Publisher alphabetically, by the name of the agency that published the source data
- Date chronologically, by publication date, with data having the most recent metadata first
- **Repository** grouped by the university or state agency that contributed the data
- Access whether or not the data layer is Public or Restricted.
- **5.9. Clear Previews** Used to deselect any results checked to preview and remove them from the map.



6. Cart

The Cart tab provides temporary storage for datasets and map images you have selected. From the cart, several actions are possible; downloading layers, creating web services (coming soon), sharing the contents of your cart, and opening layers in GeoCommons (coming soon). Hovering on each button will highlight which layers are available for that particular action. Additionally, you can preview the data in the cart the same way you preview data on the Search tab.

While in the Search tab, **check the layer** you want to download. The number of layers selected appears in the Cart tab. 2) Select the **Cart** tab.

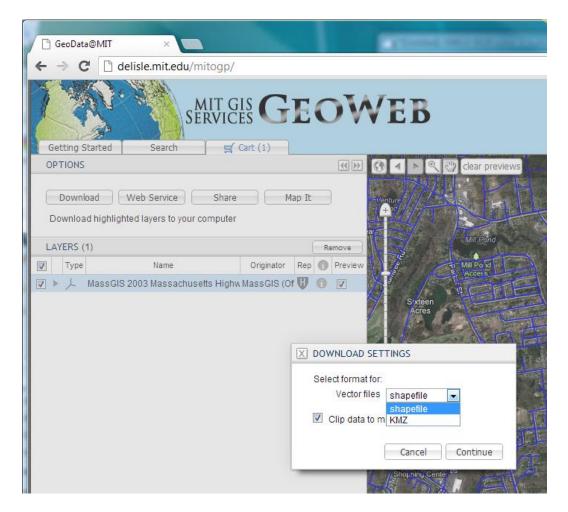


Once in the Cart tab, 1) you see the **layers selected** and 2) four buttons let you manage the contents of your cart: **Download, Web Service, Share** and **Map it.**

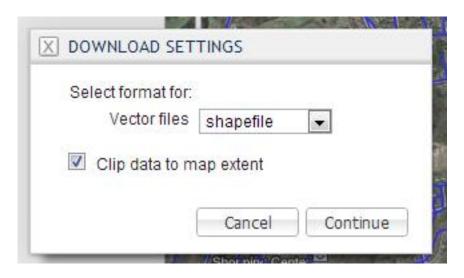


The four buttons are:

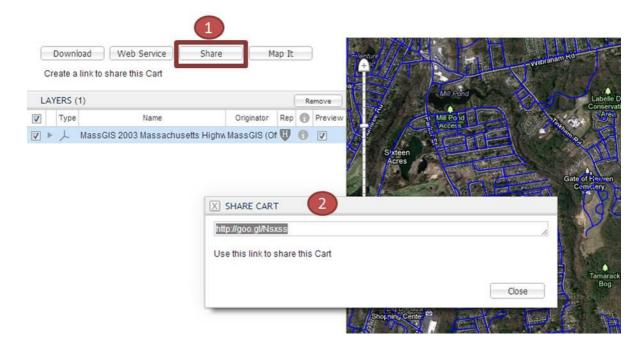
- **6.1. Download** Used to save selected data and maps to the location of your choice. When you choose to download items in your cart, you are given options on the format and map extent to include.
 - **6.1.1. File Format** The file format dropdown defines how your selected items will be saved.
 - **Shapefile** A shapefile is a geospatial vector data format for geographic information systems. A table of records stores attributes for each feature in the shapefile.
 - KMZ Keyhole Markup Language (KML) is an XML schema for expressing geographic annotation and visualization within Internetbased, two-dimensional maps and three-dimensional Earth browsers, for example Google Earth, or any other 3D Earth browser. KMZ is a compressed KML file which does not have to be uncompressed to use.



6.1.2. Clip to map extent - Clip to map extent limits the properties/attributes to only those shapes visible in the shapefile. This is an advised option for raster layers and large datasets.



- **6.2. Web Service** (Coming Soon)- Create a WFS or WMS to stream layers into an application like ArcMap.
- **6.3. Share** 1 Click on the Share button. 2) You are provided with a **URL link** for your current map which you can copy and paste to share the map and associated data set with others.



6.4. Map it (Coming Soon)- opens the layer in GeoCommons to create maps.

7. MIT Geoweb Interface

Several links are always visible on the MIT Geoweb interface. They include three links on a menu bar on the upper right of the site:

- **7.1 Reset** restores MIT Geoweb to its default state, erasing any previously entered search criteria and emptying your Cart.
- 7.2User Guide opens this guide.
- **7.3 Login** allows you to log into your institution's portal and access restricted data.



Also always visible are two links at the lower left of the window:

- 7.4 About provides basic information about OpenGeoportal and MIT Geoweb.
- **7.5 Contact** provides information for support and assistance.



User Guide Originally developed by Tufts University UIT Training & Documentation Department April 2011

Updated by MIT GIS Services November 2012