Geocoding: Using Addresses to Map Sites

Geocoding allows you to use addresses to plot points – buildings and businesses - on maps by using their street addresses as reference points. In this tutorial, you will learn how to use ESRI’s GIS Server and the Geocoding Service to create a map of tourist sites in New York City.

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Copy Data Files to the Desktop
To complete this tutorial, you will need to copy the Geocoding folder from the O:\envstudies\GIS Tuorials folder to the desktop of your computer. If you have done this already, skip to the next section, Start a New Map Document.

1. Go to the Start menu
2. Click My Computer
3. Double click on the O: Drive

4. Folders are listed alphabetically by department acronym. Double click on the envstudies folder.

5. Double click on the GIS Tutorial folder. Inside you will see the Geocoding folder.
6. Right click on the Geocoding folder, and choose the Copy option.
7. Close the GIS Tutorial window.
8. Right click anywhere in the blank, blue space on the Desktop. Choose the Paste option. You should now see the Geocoding folder on your Desktop.

Start a New Map Document
1. Open ArcMap.
2. Choose A new empty map document.
3. Click OK.
Add GIS Services Server to Data Lists
Adding the GIS Services Server to your list of available data resources allows you to download ready-made maps for data analysis. This can save a great deal of time over using raw data files downloaded from other online sources.

1. Click the Add Data button.

2. In the Look In: menu of the Add Data dialog box, choose GIS Servers→Add ArcGIS Server.

NOTE: If you already see arcgis on services.arcgisonline.com and arcgis on tasks.arcgisonline.com as options, skip Step 3 in the next section.

3. Click OK.

4. Make sure that the Use GIS Services radio button is chosen.

5. Click Next.

6. Under Chose the type of ArcGIS Server connection in the General dialog box, make sure that the radio button next to Internet is chosen.

7. In the Server URL: field, type in the following URL:
   http://services.arcgisonline.com/arcgis/services

   Your General dialog box should look like this:

   8. Click Finish.

   The ArcGIS Services Server should now be added to your list of available data resources.
Add the GIS Services Map of New York to Your Map Document

1. Click the **Add Data** button.
2. In the **Look In:** menu of the Add Data dialog box, choose **GIS Servers**.
3. Select `arcgis on services.arcgisonline.com` from the list of options and click **Add**.

4. Choose **ESRI_StreetMap_World_2D** from the list of available options. It may take a few seconds to process, since you are downloading a map from a remote server.

5. Once the map appears, click on the **Zoom In** tool.

6. Click and drag with the Zoom In tool around the New York City area. Continue to use the Zoom In tool until you have the island of Manhattan between I-895 (North) and I-478 (South) centered in your viewing window.
Create a Spatial Bookmark

Zooming In adjusts the map’s scale so that you can see features like streets and read the labels. To make sure that you can come back to the map at this scale, you can create a Spatial Bookmark.

1. Click on the Bookmarks pull down menu at the top, left-hand side of the screen.

2. Choose Create.

3. In the Spatial Bookmark dialog box that appears, name your Spatial Bookmark “Manhattan.”

4. Use the Bookmark pull down menu – your “Manhattan” Bookmark should be there.

Now any time you want, you can use the Bookmark tool to zoom out to the scale you created with the Manhattan bookmark. To erase or re-organize Bookmarks, use the Manage function.

Add a Basemap from ArcGIS Online

1. Go to the Tools pull down menu→Geocoding→Address Locator Manager.

2. Select Add in the Address Locator Manager dialog box.

3. In the Look In: field, select GIS Servers.

NOTE: If you already see arcgis on tasks.arcgisonline.com as an option under GIS Servers, select it and click Add. Then skip to the next section.

4. Click Add ArcGIS Server and select Add.

5. In the Add ArcGIS Server wizard, select Use GIS Services. Click Next.

6. Under Chose the type of ArcGIS Server connection in the General dialog box, make sure that the radio button next to Internet is chosen.

7. Enter the following address into the Server URL: field: http://tasks.arcgisonline.com/arcgis/services

Your General dialog box should look like this:

8. Click Finish.
Add the North American Locator service to your Map

1. In the ArcGIS Server list, select arcgis on tasks.arcgisonline.com and click Add.

2. Double-click the Locators folder, and then click Add.

3. Select the North American locator, called TA_Address_NA and click Add.

4. The Address Locator Manager dialog box will appear. Click to highlight Locators/TA_Address_NA and select Add. The Address Locator function for North America will be activated for your map automatically.

5. Select Close.

Geocode NYC Points of Interest

Geocoding the addresses in the points.shp file will make the points of interest in the associated table display on the New York City map.

1. Go to the Tools pull down menu→Geocoding→Geocode Addresses command.

2. When the Choose an Address Locator to use… dialog box appears, highlight Locators/TA_Address_NA.

3. Click OK. The Geocode Addresses dialog box will appear.

4. Click on the Browse button next to the Address table: field.

5. Navigate to I:\YourUserName\Desktop\Geocoding

6. Highlight the points_of_interest.csv file and click Add.

7. Click OK. The Geocoding Addresses progress box will appear.

8. When it says geocoding is 100% complete, click Close.

You should now have 2 elements inside your Layers list, Geocoding Result: Geocoding_Result and ESRI_StreetMap_World_2D. You should also see small dots on your Manhattan map that correlate the points of interest you just loaded from the points_of_interest.csv file.
Re-label the Geocoding Result
1. Double-click on the layer name, Geocoding Result: Geocoding_Result_2. The Layer Properties dialog box will appear.

2. Click on the General Tab.

3. In the Layer Name field, rename the layer “NYC Points of Interest.”

4. Click OK. The new name will appear in the Layers list.

Turn on Labels
1. Right-click on the name NYC Points of Interest. Choose Properties at the bottom of the drop-down list. The Layer Properties dialog box will appear.

2. Click on the Labels tab.

3. Check the box at the top, left-hand corner next to Label features in this layer.

   ![Layer Properties dialog box]

4. In the Text String area, click on the drop-down menu for the Label Field field.

5. Scroll down the list until you find the attribute Point. Choose Point.

6. In the Text Symbol area, click Bold, and make the font size 9 point.

7. Click Apply, and then OK.

8. Right-click the NYC Points of Interest label in the Layers list.

9. Choose Label Features.
The names of all the points of interest you geocoded now appear on the map.

Re-symbolize Your Points of Interest
You can adjust the color and shape of the points of interest.

1. Right-click on the small dot below the NYC Points of Interest label in the Layers list. The Symbol Selector dialog box will appear.

2. Choose the type of Symbol, the Color, and the Size for your icons.

Save Your Map
Save your map to use for the next tutorial exercise.

1. Go to the File pull down menu.
2. Choose **Document Properties**
3. In the **Properties** dialog box, at the bottom, right choose **Data Source Options**.
4. In the **Data Source Options** dialog box, check the radio button next to **Store relative path names to data sources**. This insures that, no matter where you save your map document, you will be able to direct ArcMap to the proper location of the files that make up your map.
5. Click **OK** in the **Data Source Options** dialog box.
6. Click **OK** in the **Properties** dialog box.
7. Go back to the **File** pull down menu and choose **Save As…**
8. Save your map by navigating to **I:→YourUserName→Desktop→Geocoding**. In the **File name:** field, name your file **GeocodingNYC**. Don’t worry if the .mxd file extension shown at right does not appear – the computer will add this automatically.
9. In the **Save as type:** field, make sure that **ArcMap Document (*.mxd)** is the selected file type.
10. Click **OK**.

**Use the Zoom In tool to explore the points of interest on your map.**