



Using ArcGIS™ StreetMap™

GIS by ESRI™

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CONTRIBUTING WRITERS
Andrew Perencsik, Agatha Tang

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StreetMap tutorial

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This tutorial introduces you to the ESRI® StreetMap™ USA extension to ArcGIS™. It will introduce you to the basic techniques for viewing StreetMap data and using the StreetMap geocoding service. Exercise 2 shows how you can convert the compressed StreetMap data to a shapefile or geodatabase feature class. Exercise 3 will show you how to create a geocoding service in an ArcSDE™ geodatabase.

This tutorial assumes that you are already familiar with using ArcCatalog™ and ArcMap™. You should know how to copy data to a new location and add data to a map. If you're not familiar with geocoding, first complete the *Geocoding tutorial*. If you're new to GIS or feel you need to refresh your knowledge, please take some time to read *Getting Started with ArcGIS*. You might also work through the quick-start tutorials in *Using ArcCatalog* and *Using ArcMap*.

Exercise 1: Getting started with StreetMap

Before you begin, make sure that you have obtained a license to use the StreetMap USA extension. Then the StreetMap USA extension and tutorial data have been installed on your computer. Copy the ArcTutor\Streetmap folder, which contains data required for this tutorial, to a new location on your computer such as the C:\ disk; you'll find it on your computer where the tutorial data was installed—for example, at C:\ArcGIS. Put the Data & Maps for StreetMap CD-ROM in your computer or find out where the data from this CD-ROM is located on the network.

Loading the StreetMap USA extension

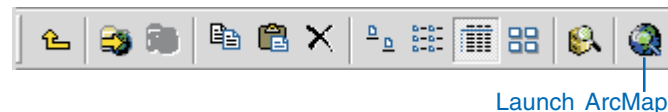
The StreetMap USA extension is an “auto-enabling” extension. This means that you do not need to explicitly enable the extension in order to use it. When you access StreetMap USA data in ArcGIS, a license will be checked out for you, if one is available, and the extension will be enabled.

1. Start ArcCatalog.
2. Click the Tools menu and click Extensions.
3. Check to ensure that StreetMap USA appears in the list of available extensions, then click Close.

If StreetMap USA doesn't appear in the list, the extension hasn't been installed. Stop ArcCatalog, consult the installation guide, install the extension, then start this tutorial again.

4. Add a folder connection that accesses your copy of the StreetMap folder.

5. Add a folder connection that accesses the Data & Maps for StreetMap CD-ROM. For example, if the CD drive was the E:\ disk on your computer, you would add a connection to that location.
6. Click the Launch ArcMap button on the Standard toolbar in ArcCatalog.



7. Click OK to start using ArcMap with a new, empty map.
8. In ArcMap, click the Tools menu and click Extensions.
9. Check to ensure that StreetMap USA appears in the list of available extensions, then click Close.
10. Click the File menu and click Exit.

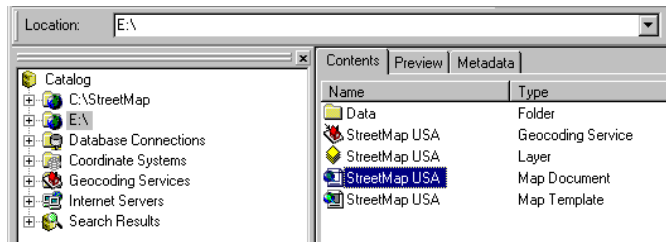
The next time you access the StreetMap USA data in ArcGIS, a license will automatically be checked out for you, and the extension will be enabled.

Opening the map for this tutorial

1. Select the folder connection that accesses the Data & Maps for StreetMap CD-ROM in the Catalog tree, then click the Contents tab in the ArcCatalog window.

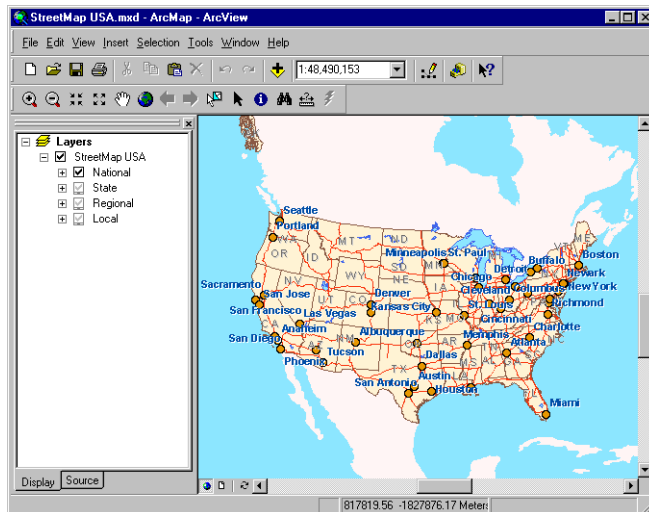
The CD contains a map document, a map template, a group layer, a geocoding service, and a folder named “Data”. The map document and map template both include a copy of the group layer. The StreetMap extension must be enabled before you can access the

StreetMap data on this CD and before you can use the geocoding service.



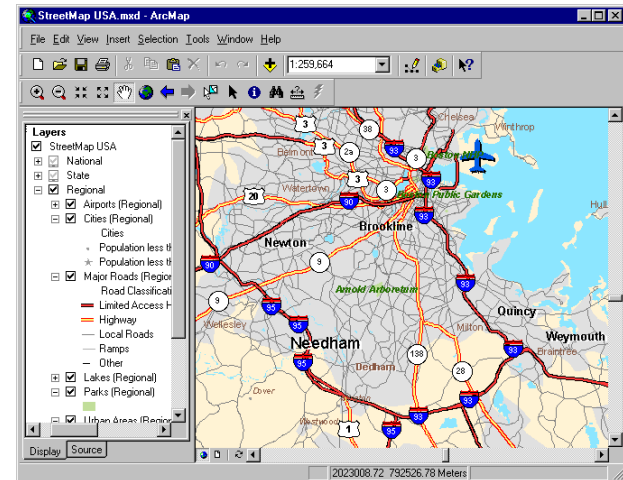
2. Double-click the StreetMap USA map document.

The map opens in ArcMap. You can use the map template or group layer to create your own map at a later time.



The map contains a group layer named StreetMap USA. This layer provides different levels of detail at different map scales. Each of the National, State, Regional, and Local

group layers appear when the map's scale falls within the appropriate range for that layer. For example, the Local group layer appears on the map when the map's scale is larger than 1:200,000.



Try zooming in and out or setting the map to different scales. Click the plus sign next to a group layer to see the individual layers it contains. Layers that aren't currently drawn on the map have gray check boxes. Look at a layer's properties to see the map scale at which it appears and the data that it references. If you zoom to an area with a map scale of 1:20,000 or larger, the detail streets are drawn in thick double lines. To make the lines joined together, turn on the advanced drawing options. Right-click on Layers in the map's table of contents, then click Advance Drawing Options in the context menu. Check the box next to Draw using advanced drawing options in the Advanced Drawing Options dialog. Click Apply and OK.

The National, State, Regional, and Local layers each reference increasingly detailed data.

Finding an address interactively

You can use the StreetMap USA geocoding service to locate addresses with the StreetMap data.

1. Click the Find button on the Tools toolbar in ArcMap.



2. In the Find dialog box, click the Addresses tab.



The StreetMap USA geocoding service is available to you. This geocoding service resides on the Data & Maps for StreetMap CD-ROM.

3. Type a valid U.S. street or intersection address containing the street, city, state abbreviation, and a 5-digit ZIP Code.
4. Click Find.

The candidates appear in the list below the Find dialog box.

5. Right-click the top candidate in the list and click Add as Graphic(s) to Map.

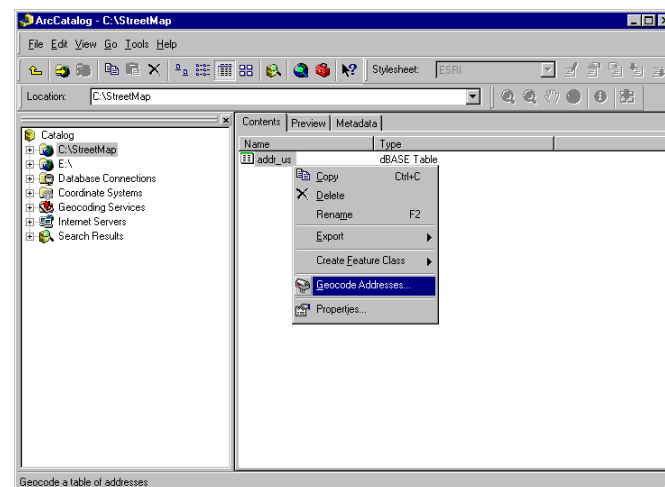
A graphic point representing the address's location appears on the map. Your map's scale will remain the same. If a large area is displayed on the map, right-click the top candidate again and click Zoom to Candidate(s) and Flash. The map will zoom to the Local level; this gives you a better look at where the address is located.

6. Click Cancel.

Geocoding addresses in a table

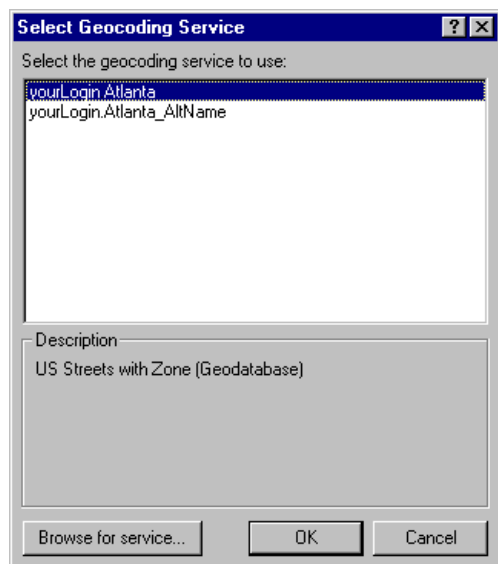
If you have a table that contains address information, you can geocode all of its addresses at once.

1. In ArcCatalog, click the folder connection that accesses your copy of the tutorial StreetMap folder in the Catalog tree.

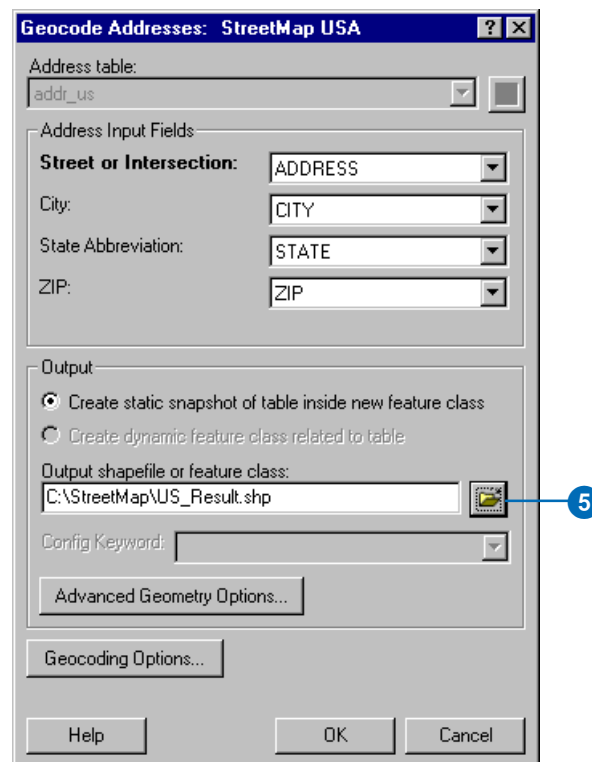


2. In the Contents tab, right-click the `addr_us` dBASE® table and click Geocode Addresses.

The Select Geocoding Service dialog box appears. It lists the geocoding services that are available in your local Geocoding Services folder.



3. Click Browse for service.
4. In the Choose a geocoding service dialog box, navigate to the Data & Maps for StreetMap CD-ROM, click the StreetMap USA geocoding service, then click Choose.
5. In the Geocode Addresses: StreetMap USA dialog box, click the Browse button to define the Output shapefile or feature class.



6. In the Saving Data dialog box, navigate to your copy of the StreetMap folder. In the Name text box, type "US_Result". Click Save.

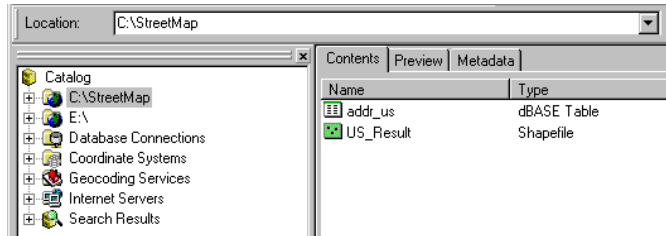
A new point shapefile named `US_Result` will be created in the StreetMap folder. The point features generated by the geocoding process will be saved in that shapefile. If you prefer, the geocoding results can be saved in a new geodatabase feature class.

7. Click OK to geocode the table of addresses.

When the table finishes geocoding, the Review/Rematch Addresses dialog will appear. You can rematch the resulting features later if you wish.

8. Click Done.

The new US_Result shapefile appears in your copy of the StreetMap folder.

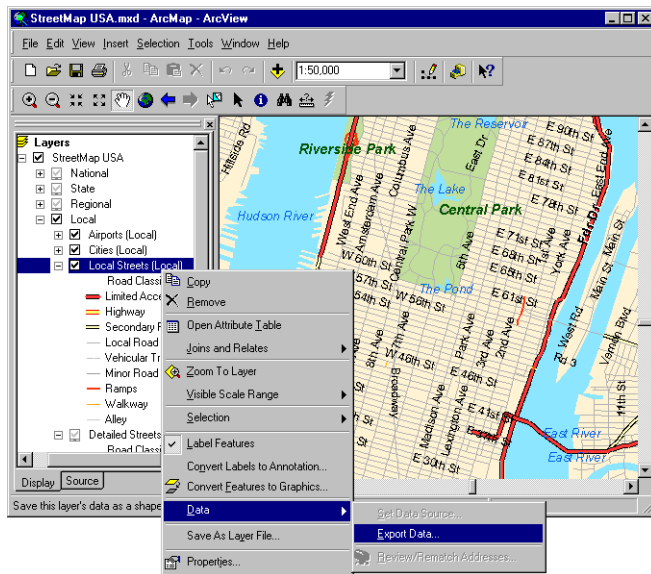


Exercise 2: Exporting StreetMap data

While you can use the street data directly from the CD, you may prefer to convert some of the compressed street data to a local shapefile or geodatabase feature class on your computer. You can export the StreetMap data using either ArcMap or ArcCatalog.

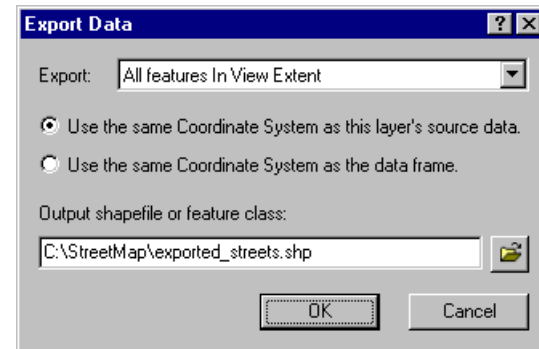
Converting compressed street data using ArcMap

1. In ArcMap, zoom to a local area on the map or set the map's scale to 50,000 or larger with the scale box on the Standard toolbar.
2. Right-click the Local Streets (Local) layer in the map's table of contents, point to Data, then click Export Data.



The Export Data dialog box appears.

3. Click the Export dropdown arrow, then click All features In View Extent.



If you chose to export All features instead, all street features in the United States would be exported.

4. Click the Browse button to define the Output shapefile or feature class. Navigate to your copy of the StreetMap folder. In the Name text box, type a name such as “exported_streets” for the new shapefile that will be created. Click Save.

If you prefer, the exported data can be saved to a new geodatabase feature class. If the exported data will be saved to disk, make sure there is enough space available to store the results. For example, if the map scale is 1:50,000 or larger, 5 to 10 MB of space should be sufficient.

5. Click OK to export the data.

Be aware that if you are not viewing the contents of the Local group layer, the streets in the Local Streets (Local) layer won't appear on the map. However, all features

associated with this layer that fall within the view's extent will be exported even if they don't appear on the map.

When a very large number of features are exported, it will require a long period of time to convert the data, and unexpected system errors may occur due to insufficient disk space. If this happens, click Cancel in the Export Progress dialog box to halt the process.

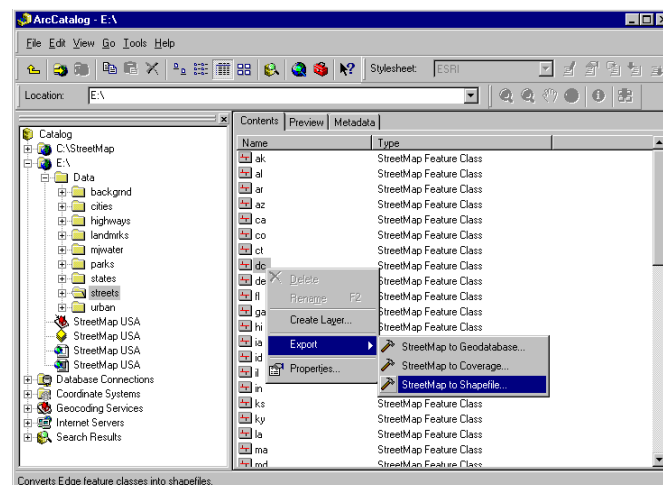
Converting compressed street data using ArcCatalog

With ArcCatalog you can export street data either state by state or for the entire United States at once.

1. In ArcCatalog, click the folder connection that accesses the Data & Maps for StreetMap CD-ROM in the Catalog tree.
2. In the Contents tab, double-click the Data folder, then double-click the streets folder.

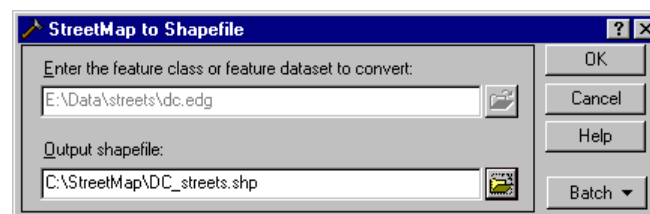
The compressed street data files are listed in the Contents tab. There is one file for each state and the District of Columbia and another file that contains streets for the entire country. The name of each file is named using the abbreviation for the state. If you aren't using the option to hide file extensions in ArcCatalog, you'll see that these files use the file extension .edg; for example, the file "ak.edg" contains the compressed street data for the State of Alaska.

3. Right-click the dc StreetMap feature class in the Contents tab, point to Export, then click StreetMap to Shapefile.



The StreetMap to Shapefile data conversion tool appears.

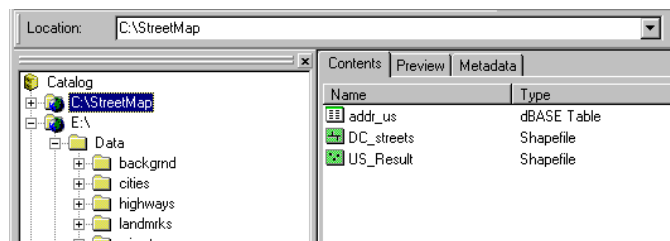
4. Click the Browse button to define the Output shapefile. Navigate to your copy of the StreetMap folder. In the Name text box, type a name such as "DC_streets" for the new shapefile that will be created. Click Save.



Use the StreetMap to Geodatabase conversion tool instead if you prefer to export the data to a geodatabase feature class. Define the name of the feature class and the feature dataset it should reside in, if appropriate.

5. Click OK to export the data.

If you look in your copy of the StreetMap folder, you'll see that the new DC_streets shapefile appears in the Contents tab.



If the exported data will be saved to disk, make sure there is enough space available to store the results.

Exercise 3: Geocoding on an ArcSDE server

If ArcInfo™ or ArcEditor™ is installed on your computer, and if you have access to an ArcSDE geodatabase, you can complete this exercise. ArcView® users will not be able to complete this exercise.

Make sure the spatial database administrator has installed and set up the StreetMap extension to the ArcSDE server. The data from the Data & Maps for StreetMap CD-ROM should be accessible from the server. To accomplish this, the administrator should create an environment variable named ESRI_US_STREETS_DIR in the /etc/dbinit.sde file under the database installation folder. This variable must contain the path to the directory that contains the US Streets data—for example, ESRI_US_STREETS_DIR=/streetmap/data/streets. Consult the ArcSDE install guide for more details.

Once it has been set up correctly, you will be able to create geocoding services in your spatial database and share them with others in your organization. When you use those services, the ArcSDE server will do the work of matching addresses to geographic locations.

Do not use the StreetMap USA geocoding service in the Data & Maps for StreetMap CD-ROM. It can only be used for client-side geocoding. You need to create a new one in the ArcSDE server.

1. In ArcCatalog, create a database connection that accesses the ArcSDE server that you will use for geocoding.

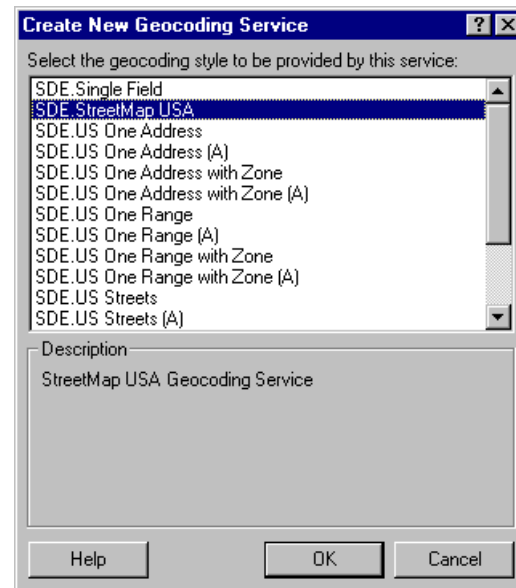
Within the geodatabase you'll see the server's Geocoding Services folder.



2. Double-click 'Create New Geocoding Service' in the server's Geocoding Services folder.

The Create New Geocoding Service dialog box appears.

3. Click SDE.StreetMap USA, then click OK.



The New SDE.StreetMap USA Geocoding Service dialog box appears.

4. In the Name text box, replace the default name “New Geocoding Service” with the name “StreetMap USA”.
5. Click OK.

The new geocoding service appears in the server’s Geocoding Services folder. As with the geocoding services created on your computer, ArcSDE geocoding services will be prefaced by the username you used to access the geodatabase.



Now you can repeat the task you completed in the first exercise (geocoding the addresses in the addr_us dBASE table). This time, use the ArcSDE geocoding service.

