



MAPublisher® 9.1 for Adobe Illustrator®

When Map Quality Matters®

Avenza® MAPublisher® 9.1 Tutorial Guide

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MAPublisher 9 for Adobe® Illustrator® Tutorial Guide for Windows® and Macintosh®.

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Welcome

Avenza welcomes you to mapmaking in the 21st century!

Combined with Adobe Illustrator, MAPublisher has revolutionized the art of mapmaking by allowing spatial data files to be used to create maps inside a vector graphics program. MAPublisher allows you to perform all your cartographic tasks where they should be done: in a powerful graphics environment.

MAPublisher 9.1 improves on the already powerful tools of previous versions by adding additional file support, additional tools, and improvements to existing tools.

This tutorial guide assumes that the user is familiar with Adobe Illustrator CS5/CS5.1/CS6, and has at least a basic understanding of geographic information systems (GIS) terminology and concepts. The tutorials in this guide should be used in conjunction with the MAPublisher 9.1 User Guide.

By following these tutorials, you will learn how to create maps using the MAPublisher features and tools in Adobe Illustrator. This guide covers the steps necessary to build a map and perform fundamental cartographic and GIS tasks. Together, MAPublisher and Adobe Illustrator will give you a totally integrated cartographic design software system with graphics tools and geographic functions present in the same work environment.

TUTORIAL DATA

The tutorials in this guide use GIS data installed with MAPublisher. The tutorial data is installed at:

Windows XP

C:\Documents and Settings\All Users\Shared Documents\Avenza\MAPublisher 9\Tutorial Guide & Data\Tutorial Data

Windows Vista and Windows 7

C:\Users\Public\Public Documents\Avenza\MAPublisher 9\Tutorial Guide & Data\Tutorial Data

Mac OS X

/Applications/Avenza/MAPublisher 9.1/MAPublisher Tutorials/Tutorial Guide/Tutorial Data

Avenza produces and distributes helpful styles swatches, and symbols with the MAPublisher installation. These are installed into Adobe Illustrator's default library installation locations and can be accessed through Adobe Illustrator Symbols panel option menu: *Open Symbol Library > MAP Symbols*; the Adobe Illustrator Graphic Styles option menu: *Open Graphic Style Library > MAP Graphic Styles*; and through the Adobe Illustrator Swatches panel option menu: *Open Swatches Library > MAP Swatches*.

Helpful Styles and Symbols can be found in the following locations:

Windows XP

C:\Documents and Settings\All Users\Documents\Avenza\MAPublisher 9\Helpful Styles & Symbols

Windows Vista and Windows 7

C:\Users\Public\Documents\Avenza\MAPublisher 9\Helpful Styles & Symbols

Mac OS X

/Applications/Avenza/MAPublisher 9.1/Helpful Styles & Symbols

Contents

Welcome

Contents

1 Importing Map Data

1.1	Import a single data file	7
1.2	Import multiple datasets simultaneously.....	8
1.3	Import data to match an existing MAP Layer	9
1.4	Import data with point per path limitations	10
1.5	Import data that requires optional settings	11
1.6	Import point data	11
1.7	Import multiple data types	13
1.8	Import multiple datasets with different coordinate systems	15
1.9	Import data to match an existing MAP View.....	17
1.10	Assign a source coordinate system prior to import	18
1.11	Transform a coordinate system on import.....	20

2 MAP Views and Georeferencing

2.1	Create MAP View on import	22
2.2	Copy a MAP View from an existing MAPublisher document	22
2.3	Duplicate and delete MAP Views.....	23
2.4	Transform coordinate systems by drag and drop	24
2.5	Drag layers into existing coordinate systems	24
2.6	Drag new layers into different coordinate systems.....	25
2.7	Edit layer names using search and replace	26
2.8	Specify a source coordinate system after import.....	27
2.9	Transform a coordinate system using the MAP View editor.....	27
2.10	Edit scale and position	29
2.11	Copy a coordinate system from one layer to another	30
2.12	View coordinates and create a MAP Location.....	33
2.13	Create a new MAP View with Georeferencer.....	34
2.14	Export data to GIS formats.....	40


3	MAP Attributes	
3.1	View, edit, and zoom to MAP Attributes	43
3.2	Add a new column to a MAP Attribute table.	44
3.3	Change an existing column's properties	45
3.4	Create a new column using expressions.	46
3.5	Join tables	47
4	Plotting Points	
4.1	Plot points in decimal degree and degrees-minutes-seconds formats	49
4.2	Plot centroids	51
5	Drawing with MAPublisher	
5.1	Create shapes with specific map dimensions	52
6	Cropping with MAPublisher	
6.1	Crop data with MAP Vector Crop Tool	55
7	Art and Line Functions	
7.1	Buffer art using an entered value	57
7.2	Flip lines	59
7.3	Join lines based on attribute value	60
7.4	Simplify art	61
7.5	Join points	62
7.6	Join areas	65
8	MAP Themes and Legends	
8.1	Create an area stylesheet theme	67
8.2	Create a line stylesheet theme	69
8.3	Create a point stylesheet theme	71
8.4	Batch generate stylesheet theme rules	72
8.6	Create a bar chart theme	74
8.7	Create a pie chart theme	76
8.8	Create a chart legend	78
8.9	Create a dot density theme	79

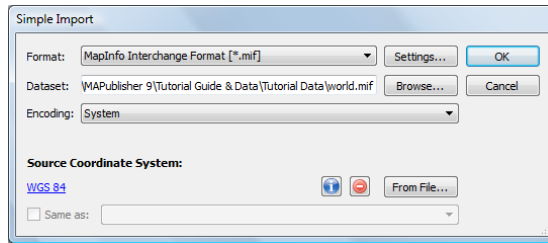
9	Labeling Functions	
9.1	Generate labels for a line layer using Label Features	80
9.2	Generate labels for an area layer using the MAP Tagger Tool	82
9.3	Create knockouts for labels	83
10	Making Selections	
10.1	Create an attribute filter	85
10.2	Create a spatial filter	86
10.3	Create an art selection filter	88
11	Working with Images	
11.1	Register an image with a reference file	89
11.2	Register an image without a reference file	90
11.3	Export a placed image as a georeferenced raster file	92
12	Grids, Graticules and Indexes	
12.1	Create an index grid	93
12.2	Create a graticule	96
12.3	Create a measured (UTM) grid	98
12.4	Create a feature based index	100
12.5	Create a text based index	102
13	Scale Bars and North Arrows	
13.1	Create a scale bar	103
13.2	Create a north arrow	104
14	MAP Web Author	
14.1	Prepare the map for web tags	106
14.2	Create web tag callouts	107
14.3	Export to Flash	109
14.3	Export to HTML5	113
15	Geospatial PDF Export	
15.1	Export to geospatial PDF	117
16	Import Spatial Databases	
16.1	Import Esri Personal or File geodatabase	122
16.2	Import Esri ArcSDE geodatabase	125
16.3	Import basic Esri ArcSDE server	128

1 Importing Map Data

See User Guide, Chapter 3.

1.1 Import a single data file

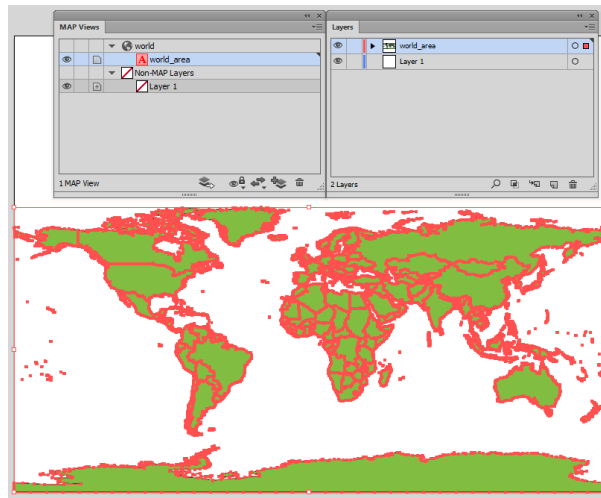
1. Create a new Letter sized Adobe Illustrator document in landscape orientation.
2. From the MAPublisher toolbar, click the Simple Import button  or go to *File > Import Map Data > Simple*.
3. Choose **MapInfo Interchange Format (*.mif)** from the Format drop-down list.
4. Click Browse, navigate to the *Tutorial Data* folder and select **world.mif**.



The Source Coordinate System is specified as *WGS 84* since MAPublisher reads this information from the data source. In cases where no coordinate system is specified, click the **Specify** button to choose a system.

5. With the dialog box matching the one above, click OK.

The data is added and fitted to the artboard. The layer *world_area* is added to Adobe Illustrator's Layers panel. The MAP Views panel now contains a MAP View with the imported *world* layer. See chapter 4 in the MAPublisher User Guide for more information on MAP Views.

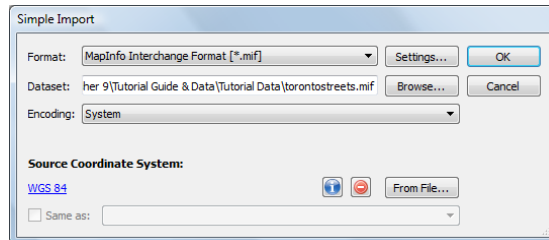


6. Close the document without saving.

1.2 Import multiple datasets simultaneously

Simple Import will import multiple map files simultaneously if the files are in the same data format, are in the same coordinate system, and are located in the same directory.

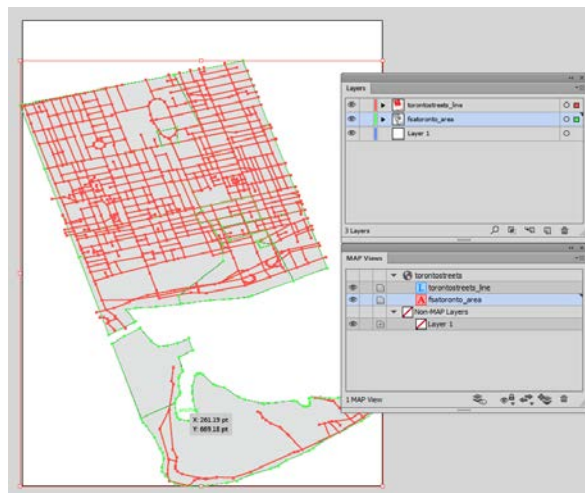
1. Create a new Letter sized Adobe Illustrator document in portrait orientation.
2. From the MAPublisher toolbar, click the Simple Import button.
3. Choose **MapInfo Interchange Format (*.mif)** from the Format drop-down list.
4. Click Browse, navigate to the *Tutorial Data* folder and select both **fsatoronto.mif** and **torontostreets.mif** (hold the Command key (Mac) or the Ctrl key (Windows) to select multiple files). Click Open.



Although two files are selected for import, the *Dataset* box only lists the last file (alphabetical order).

5. With the dialog box matching the one above, click OK.

The layers *fsatoronto_area* and *torontostreets_line* are added to Adobe Illustrator's Layers panel. The MAP Views panel now contains a MAP View called *fsatoronto* holding the two imported files.



6. Close the document without saving.

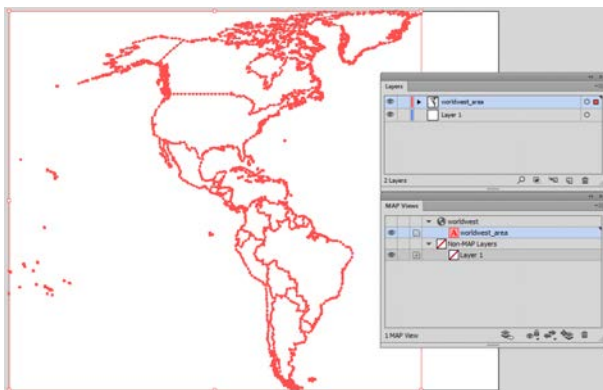
1.3 Import data to match an existing MAP Layer

1. Create a new Letter sized Adobe Illustrator document in landscape orientation.
2. From the MAPublisher toolbar, click the Simple Import button.
3. Choose **MapInfo Interchange Format [*.mif]** from the Format drop-down list.
4. Click Browse, navigate to the *Tutorial Data* folder and select **worldwest.mif**. Click Open.

The selected file appears in the *Dataset* file list in the MAPublisher Simple Import dialog box. Notice that the Source Coordinate System is Robinson.

5. Click OK to complete the import.

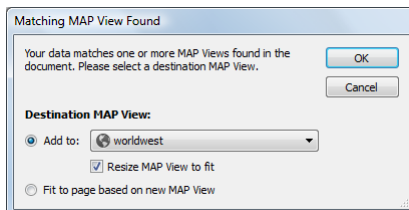
The layer *worldwest_area* is added to Adobe Illustrator's Layers Panel. The MAP Views panel contains the *worldwest* MAP View projected in a Robinson projected coordinate system.



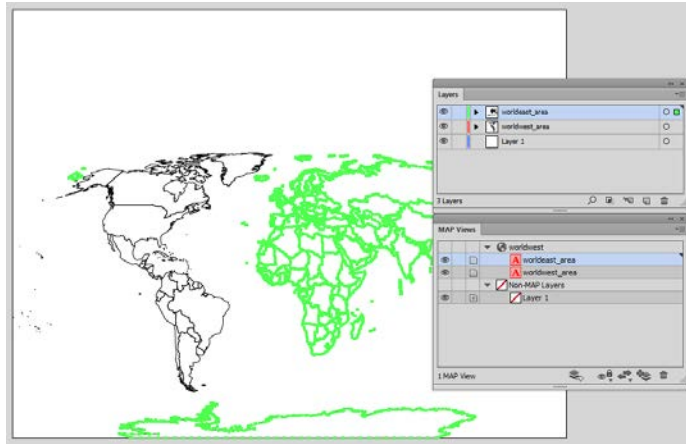
6. Import **worldeast.shp** (ensure **Esri Shapefile [*.shp]** is chosen in Format drop-down list.)

In the Simple Import dialog box, the Source Coordinate System of *worldeast.shp* is indicated as Robinson.

7. Click OK to continue the import process.
8. In the Matching MAP View Found dialog box, accept the default **Add to: worldwest** option as the Destination MAP View. Click the Resize MAP View to fit check box.



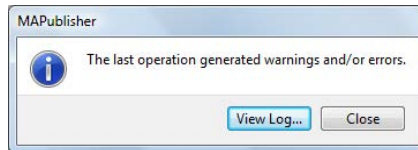
The *worldeast* layer is imported to match the *worldwest* layer. Notice that the scale of the *worldwest_area* layer has been adjusted so that both layers can now fit inside the page extents. The layer *worldeast_area* is added to the Adobe Illustrator Layers panel. In the MAP Views panel, the MAP View *worldwest* now contains both layers.



9. Close the document without saving.

1.4 Import data with point per path limitations

1. Create a new Letter sized Adobe Illustrator document in portrait orientation.
2. Click the Simple Import button.
3. Choose **MapInfo Interchange Format [*.mif]** from the Format drop-down list.
4. Click Browse, navigate to the *Tutorial Data* folder and select **greenland.mif**, click Open. Click OK.



A warning appears because the vertex count exceeds Adobe Illustrator's allowable 32,000 points per path.

5. Click View Log to read the warning messages. Click Close to close the MAPublisher Log.

MAPublisher removes points in order to meet Adobe Illustrator's maximum points per path while maintaining the integrity of the path's shape. Greenland looks distorted because there is no coordinate system defined.

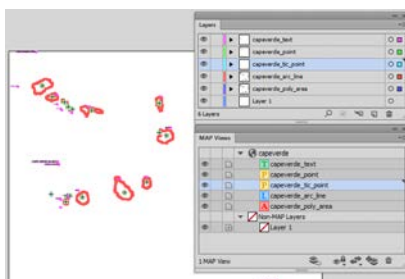
6. Close the document without saving.

1.5 Import data that requires optional settings

The *Tutorial Data* folder contains many GIS file formats. Various file formats require unique import settings that are accessed by clicking the **Settings** button in the Simple and Advanced Importer dialog boxes. Refer to Chapter 3 of the User Guide for the available settings for each format.

1. Create a new Letter sized Adobe Illustrator document in portrait orientation.
2. Click the Simple Import button.
3. Choose **Esri Interchange File [*.e00]** from the Format drop-down list.
4. Click Browse, navigate to the *Tutorial Data* folder and select **capeverde.e00**. Click Open.
5. Click the Settings button in the Simple Import dialog box.
6. Make sure **Ignore TIC layer** is unchecked. Click OK.
7. Click OK to complete the import.

Note: As e00 files are generally an archive of several files, MAPublisher will reproduce an e00 import as distinct Adobe Illustrator layers. Notice that MAPublisher generates point, area, line and text layers. An extra layer appended with *_tic_point* is created to hold tic points, as was specified in the *Settings* dialog box.



8. Close the document without saving.

1.6 Import point data

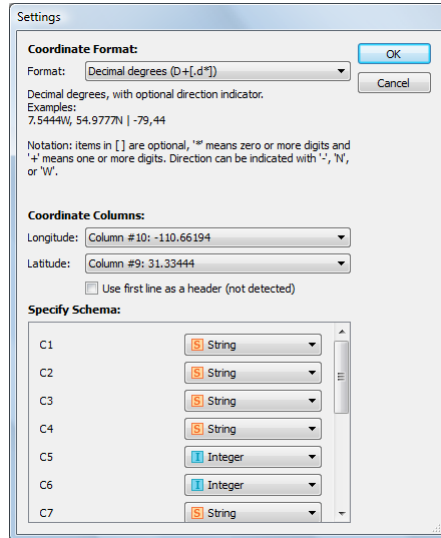
Along with importing Microsoft Excel files, MAPublisher can import delimited ASCII text files as point data provided they contain coordinate values. Supported delimiters include: *comma*, *return*, *end of line* and *tab* in multiple formats. Below is an example of ASCII that is supported for import:

```
"AZ,Antonio Tank,reservoir,Santa Cruz,4,23,312004N,1103943W,31.33444,-110.66194,,,,,,Duquesne"  
"AZ,Agua Prieta Substation,locale,Cochise,4,3,312006N,1093335W,31.335,-109.55972,,,,,,Douglas"  
"AZ,Adobe Spring,spring,Santa Cruz,4,23,312037N,1110234W,31.34361,-111.04278,,,,,,Pajarito Peak"
```

1. Create a new Letter sized Adobe Illustrator document in portrait orientation.
2. Click the Simple Import button.
3. Choose **Delimited XY Text Data [*.csv, *.tsv, *.txt]** from the Format drop-down list.
4. Click Browse, navigate to the *Tutorial Data* folder, and select **azdec1.txt**.

The Settings dialog box opens automatically. Specify the appropriate coordinate format of the data in the Format drop-down list before selecting in which columns of the import file the coordinates will be found.

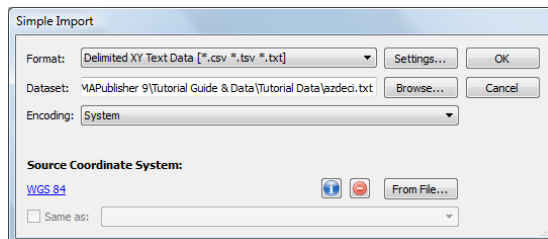
5. Use **Decimals Degrees (D+[.d*])** as the Coordinate Format.
6. Use **Column #10: -110.66194** for the **Longitude** coordinates and **Column #9: 31.33444** for the **Latitude** coordinates.
7. Leave Use first line as a header unchecked because the first line of this file does not contain column headings. Accept the default data types as assigned.



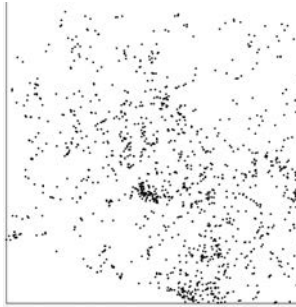
8. Make sure that this dialog box matches the one above and click OK.

Since a delimited text file does not contain coordinate system information, it must be manually specified. In this case we know that the Latitude and Longitude are given in WGS 84. (In your own work, check the metadata if you are unsure of the system.)

9. Click the **[No Coordinate System Specified]** link. In the Specify Source Coordinate System dialog box, navigate to **Geodetic > World**, choose the **WGS 84** coordinate system and click OK.




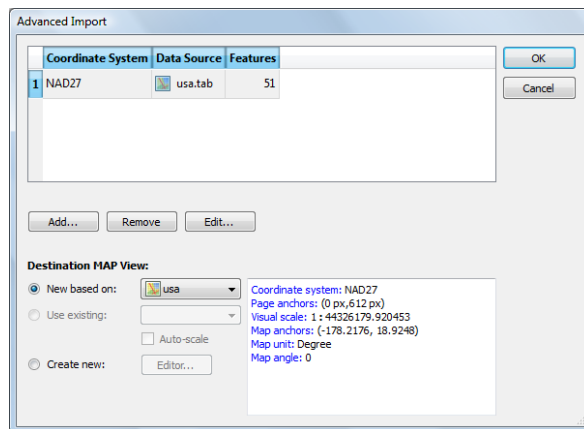
10. In the Simple Import dialog box, click OK to start the file import process.



11. Save this document as **MyPoints.ai** in the *Tutorial Data* folder. It will be used again in exercise 8.3.

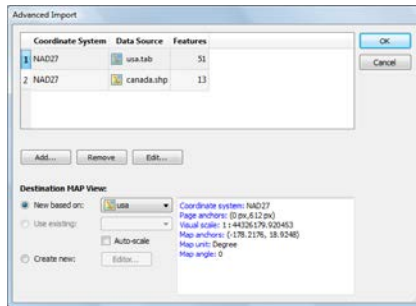
1.7 Import multiple data types

1. Create a new Letter sized Adobe Illustrator document in landscape orientation.
2. From the MAPublisher toolbar, click the Advanced Import button  or to *File > Import Map Data > Advanced*.
3. In the Advanced Import dialog box, click Add.
4. Select **MapInfo Table** [*.tab] from the Format drop-down list.
5. Click Browse, navigate to the *Tutorial Data* folder, select **usa.tab**, and click Open. A coordinate system is detected.
6. Click OK to close the Add dialog box.



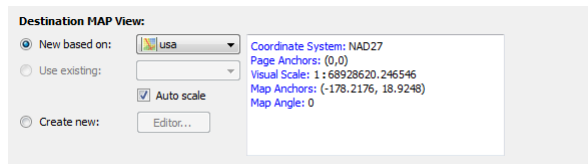
The selected file appears in row 1 of the file list. Now add another file in a different map file format.

7. Click Add to open the Add dialog box.
8. Select **Esri Shapefile** [*.shp] from the Format drop-down list.
9. Click Browse, navigate to the *Tutorial Data* folder and select **canada.shp**. Click Open.
10. Click OK to close the Add dialog box.



The selected file appears in the second row of the list. Both are in the NAD27 coordinate system.

11. Under Destination MAP View, *usa* is chosen by default in the New based on drop-down list. This bases the MAP View, coordinate system, and page scaling on the *usa.tab* file.
12. Check the **Auto-scale** option.



Auto-scale ensures all selected files are scaled to fit inside the page extents.

Note: Not checking the *Auto-scale* option will base the page scaling on the file selected in the New based on drop-down list only. Therefore only this file is fitted to the current page extents, which may cause elements in other selected files to be placed outside of the page boundary.

13. Click OK to import the two files.

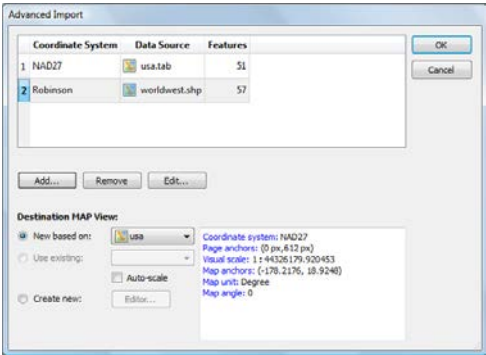


Notice that in the Adobe Illustrator Layers panel there are new layers called *usa_area* and *canada_area*. Also in the MAP Views panel there is a new MAP View called *usa* containing the imported files.

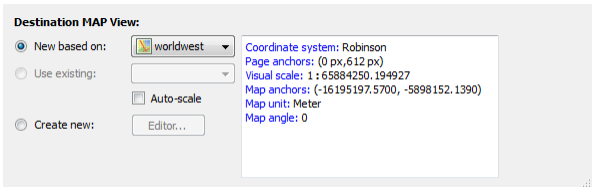
14. Close the document without saving.

1.8 Import multiple datasets with different coordinate systems

1. Create a new Letter sized Adobe Illustrator document in landscape orientation.
 2. From the MAPublisher toolbar, click the Advanced Import button.
 3. In the Advanced Import dialog box, click Add.
 4. Select **MapInfo Table** [*.tab] from the Format drop-down list.
 5. Click Browse, navigate to the *Tutorial Data* folder, select **usa.tab**, and click Open.
 6. Click OK to close the Add dialog box.
- The selected file appears in row 1 of the file list. The coordinate system of *usa.tab* displays NAD27. The coordinate system preview area lists various parameters of the file including the name of the coordinate system, page and map anchors, visual scale, and map angle.
7. Click the Add button to add another file.
 8. Select **Esri Shapefile** [*.shp] from the Format drop-down list.
 9. Click Browse, navigate to the *Tutorial Data* folder, select **worldwest.shp**, and click Open.
 10. Click OK to close the Add dialog box.



- The *worldwest.shp* file appears in the second row of the file list and displays the Robinson coordinate system.
11. In the Destination MAP View frame, select the New based on option and choose **worldwest** from the drop-down list.

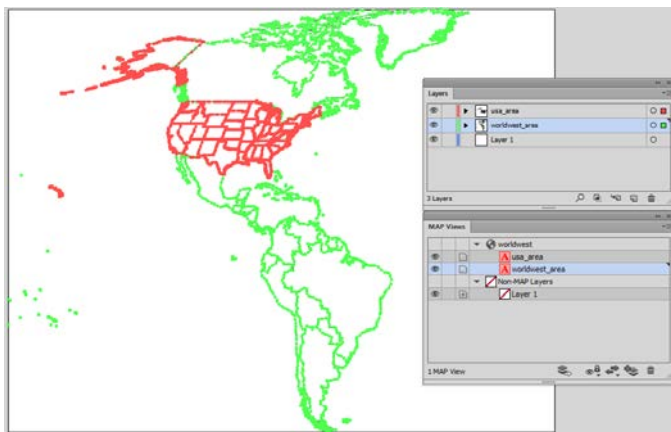


The destination MAP View will be based on the coordinate system and page scaling on the *worldwest.shp* file.

12. Click OK to import the two files into the Robinson coordinate system.

The map files are automatically sized to fit the page. Note that the *Auto-scale* option was not checked in the Advanced Import dialog box. The page scaling was based on the *worldwest.shp* which contained larger geographic extents than the *usa.tab* in all four compass directions.

In the Adobe Illustrator Layers panel, new layers called *usa_area* and *worldwest_area* are added. Also, in the MAP Views panel there is a new MAP View containing the imported files (the MAP View has the same name as the file selected for the MAP View destination).

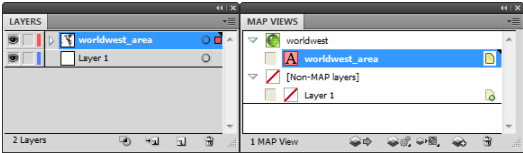


13. Close the document without saving.

1.9 Import data to match an existing MAP View

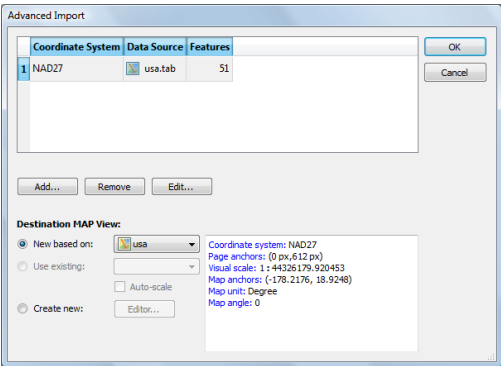
This tutorial will produce the same results as Tutorial 1.8 - Importing MAP files in multiple coordinate systems.

1. Create a new Letter sized Adobe Illustrator document in portrait orientation.
2. Click the Simple Import button.
3. Select **Esri Shapefile** [* .shp] from the Format drop-down list.
4. Click Browse, navigate to the *Tutorial Data* folder, select **worldwest.shp**, and click Open.
5. Click OK to close the Simple Import dialog box.

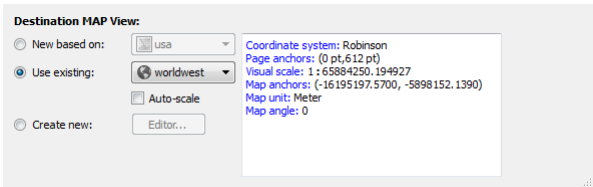


In the Adobe Illustrator Layers panel there is a new layer called *worldwest_area*. Also in the MAP Views panel there is a new MAP View called *worldwest* (which is set in the Robinson coordinate system).

6. Click the Advanced Import button on the MAPublisher toolbar, and then click Add.
7. Select **MapInfo Table** [* .tab] from the Format drop-down list.
8. Click Browse, navigate to the *Tutorial Data* folder, select **usa.tab**, and click Open.



9. In the Destination MAP View frame, click the Use existing option and choose **worldwest** from the drop-down list.



View the coordinate system of this map file in the coordinate system preview area.

10. Click OK to import the file based on the Robinson parameters of the *worldwest_area* layer.



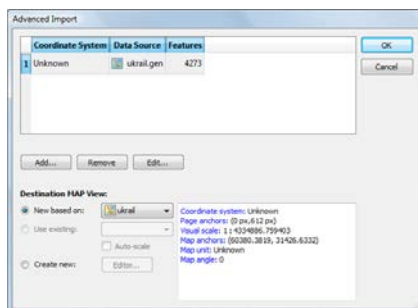
The file is imported and reprojected to automatically align with the *worldwest* layer. This functionality allows you to easily register multiple files with different coordinate systems.

In the Adobe Illustrator Layers panel there are new layers called *usa_area* and *worldwest_area*. Also in the MAP Views panel there is a new MAP View called *worldwest* containing the imported files set in the Robinson coordinate system

11. Close the document without saving.

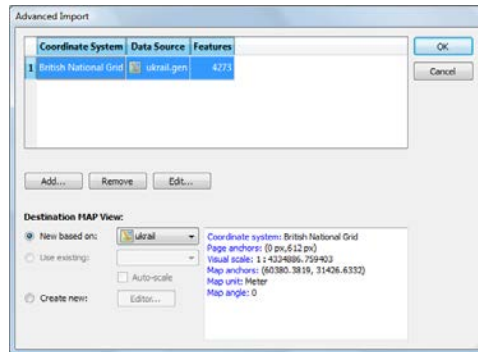
1.10 Assign a source coordinate system prior to import

1. Create a new Letter sized Adobe Illustrator document in portrait orientation.
2. Click the Advanced Import button. In the Advanced Import dialog box, click Add.
3. Select **Esri ArcInfo Generate (*.gen)** from the Format drop-down list.
4. Click Browse, navigate to the *Tutorial Data* folder, select **ukrail.gen**, and click Open.
5. Click OK to close the Add dialog box.



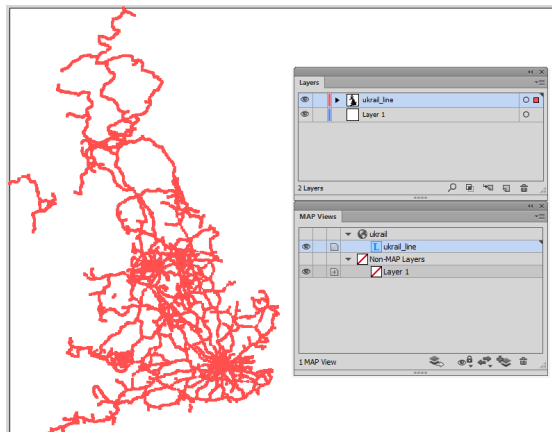
The selected file appears in the first row of the file list and it has an unknown coordinate system.

6. In the Advanced Import dialog box, with the first row selected, click Edit.
7. In the Edit dialog box, click the [No Coordinate System Specified] link, go to **Projected > Europe > United Kingdom**, choose **British National Grid**, and click OK.
8. Click OK to return to the Advanced Import dialog box.



Under Destination MAP View frame, view the coordinate system information in the area to the right.

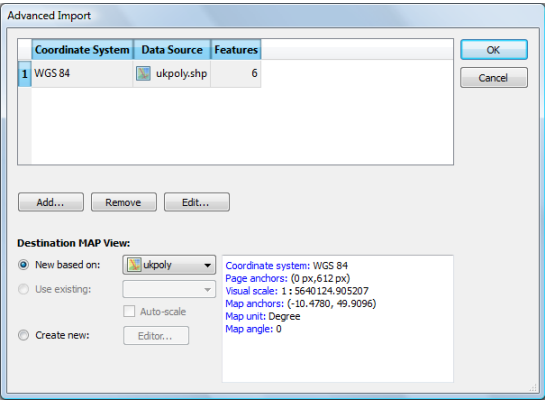
9. Click OK to import the file in the British National Grid coordinate system.



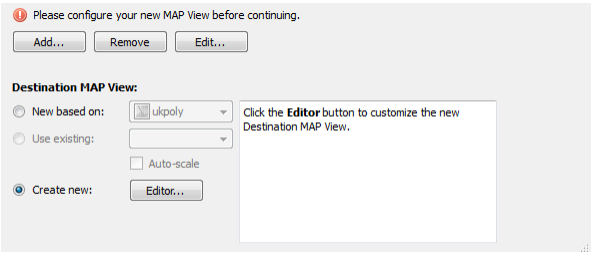
10. Close the document without saving.

1.11 Transform a coordinate system on import

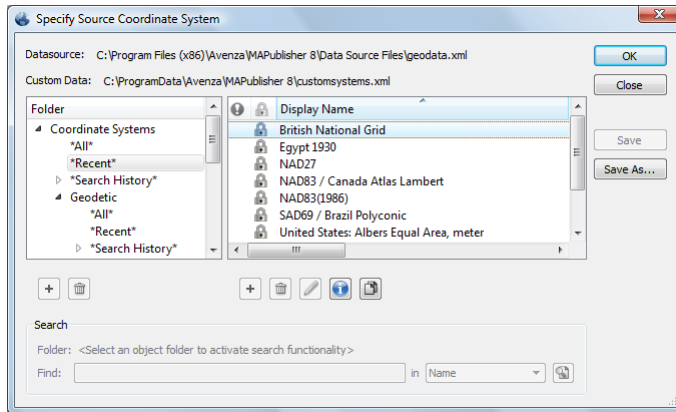
- Read about the MAP View Editor in chapter 4 of the User Guide before completing the following tutorial.
1. Create a new Letter sized Adobe Illustrator document in portrait orientation.
 2. Click the Advanced Import button. In the Advanced Import dialog box, click Add.
 3. Select **Esri Shapefile [* .shp]** from the Format drop-down list.
 4. Click Browse, navigate to the *Tutorial Data* folder, select **ukpoly.shp**, and click Open.
 5. Click OK to return to the Advanced Import dialog box.



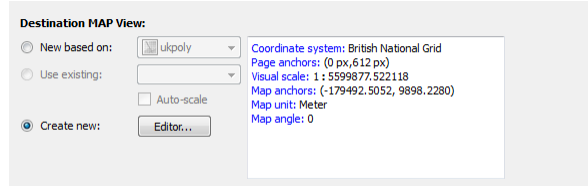
- The selected file appears in Row 1 of the file list. The coordinate system of *ukpoly.shp* is currently WGS 84.
6. In the Destination MAP View frame, select the Create New option, and click the Editor button to open the Map View Editor dialog box.



7. In the MAP View Editor, click the WGS84 coordinate system link. Click the ***Recent*** category list under **Coordinate Systems > Projected** and choose **British National Grid**. Alternatively, go to **Projected > Europe > United Kingdom** to choose the **British National Grid** coordinate system.



8. Click OK to close the Specify Source Coordinate System dialog box.
9. Click OK to close the MAP View Editor and return to the Advanced Import dialog box.



Under Destination MAP View, view the coordinate system information in the area to the right.

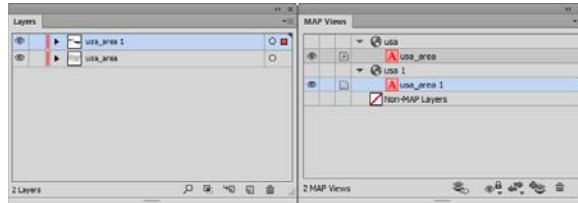
10. Click OK to import the file in the British National Grid coordinate system.
11. Close the document without saving.

2 MAP Views and Georeferencing

See User Guide, Chapter 4

2.1 Create MAP View on import

1. Open **usa48.ai** from the *Tutorial Data* folder.
2. From the MAPublisher toolbar, click the **MAP Views** button  or go to *Window > MAPublisher > MAP Views*.
3. Use Simple Import to import **usa.tab** from the *Tutorial Data* folder.



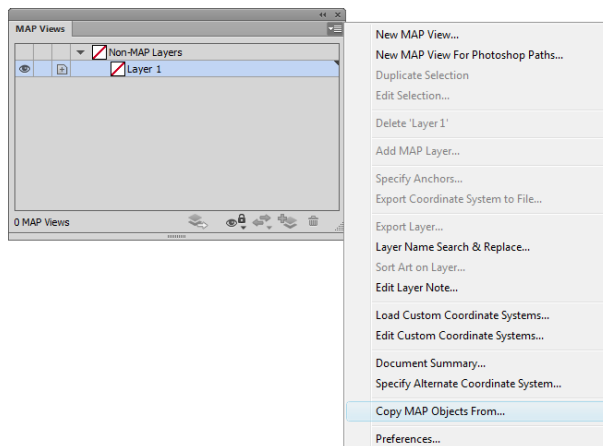
Notice that a MAP View called *usa 1* is automatically created. The *1* denotes that a MAP View already exists with that name, so it adds a suffix to differentiate it. Each Adobe Illustrator layer comprising the MAP View is depicted with an icon that represents the Feature type contained on each of the map layers.

4. Continue with the next tutorial.

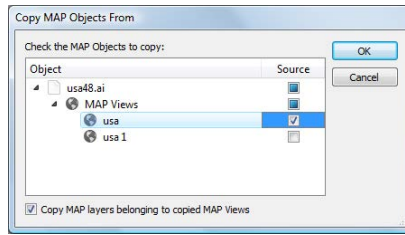
2.2 Copy a MAP View from an existing MAPublisher document

Continue working with the previous tutorial.

1. Keep the *usa48.ai* document open, create a new Adobe Illustrator document and make it active.
2. From the MAPublisher toolbar, click the **Copy MAP Objects From** button  or from MAP Views panel options menu.



A list of MAP Views are available from any opened document containing MAP Views. In this case, the MAP Views *usa* and *usa 1* are available to import.



3. Check the **usa** check box in the Source column and click OK.

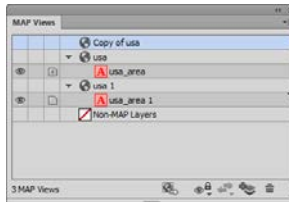
The MAP View is copied into the new document along with all the MAP Layers within that MAP View. It maintains the original scale and position of the *usa* MAP view.

4. Close the active document without saving, but keep the *usa48.ai* document open.
5. Continue with the next tutorial.

2.3 Duplicate and delete MAP Views

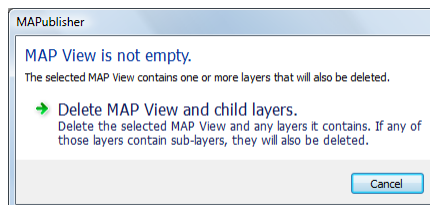
Continue working with the previous tutorial.

1. In the MAP Views panel, select the *usa* MAP View. Then click the panel option menu and click **Duplicate "usa"**.



A new MAP View called *Copy of usa* is created. It only duplicates the MAP View and not the MAP Layers that are contained in the source.

2. Select the *usa* MAP View and click the Delete button.



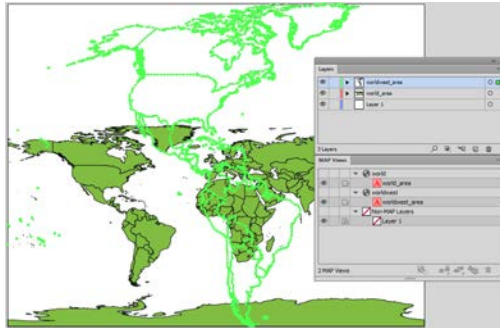
A message dialog box states that the MAP View is not empty. Click Delete MAP View and child layers.

3. Close the document without saving.

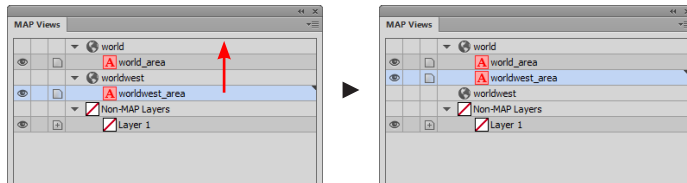
2.4 Transform coordinate systems by drag and drop

1. Create a new Letter sized Adobe Illustrator document in landscape orientation.
2. Use Simple Import to add **world.mif** from the *Tutorial Data* folder.
3. Use Simple Import to add **worldwest.shp** from the *Tutorial Data* folder.

There are two MAP Views: one called *world*, in the WGS 84 coordinate system, that contains the *world_area* layer; and the second called *worldwest*, in the Robinson coordinate system, that contains the *worldwest_area* layer.



4. In the MAP Views panel click the *worldwest_area* layer and drag it to the *world* MAP View.



The *worldwest_area* layer is transformed into the WGS 84 coordinate system and matches the page scaling of the *world_area* layer.

5. Drag *worldwest_area* back to the *worldwest* MAP View and it will transform the layer back to the Robinson coordinate system.
6. Keep the document open for the next tutorial.

2.5 Drag layers into existing coordinate systems

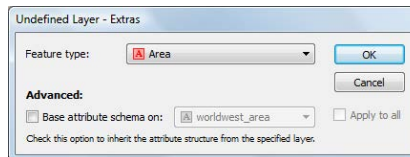
Continue working with the previous tutorial.

1. Use the Toggle Visibility button in the Adobe Illustrator Layers panel to hide the *world_area* layer.
2. In the Adobe Illustrator Layers panel, create a new layer called **Extras**, and move it to the top of the layers hierarchy.
3. With the *Extras* layer selected, roughly trace over some features that exist on the *worldwest_area* layer using the Adobe Illustrator Pen tool and give it a red colored fill.



The new features are polygons. Make sure that the elements are closed so that the start and end points of the lines are coincident.

4. In the MAP Views panel, click the *Extras* layer and drag it into the *worldwest* MAP View.
5. In the Undefined Layer dialog box, select **Area** from the Feature type drop-down list, and click OK.



The *Extras* layer is now stored in the same coordinate system as the *worldwest* MAP View.

6. Keep the document open for the next tutorial.

2.6 Drag new layers into different coordinate systems

Continue working with the previous tutorial.

1. In the Adobe Illustrator layers panel, use the Toggle Visibility buttons to hide the *worldwest_area* layer, and to make the *world_area* layer visible. The *Extras* layer is already visible.
2. In the MAP Views panel click the *Extras* layer and drag it into the *world* MAP View.

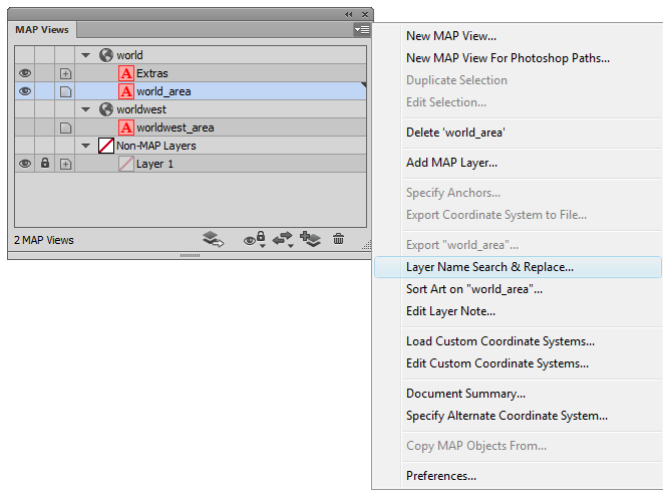


The *Extras* layer is moved to the coordinate system of the *world* MAP View. It is immediately transformed from Robinson to WGS 84 coordinate system and aligns with the data in the *world_area* layer.

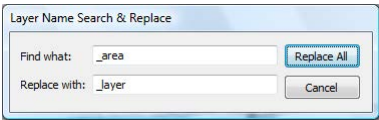
3. Keep the document open for the next tutorial.

2.7 Edit layer names using search and replace

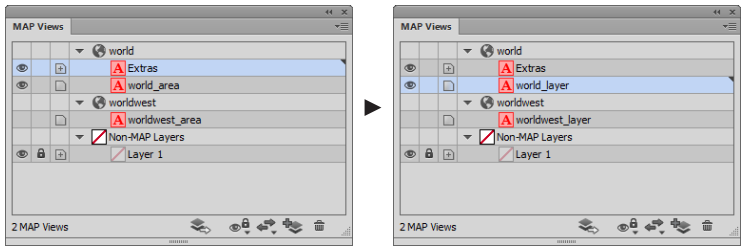
- Continue working with the previous tutorial.*
1. In the MAP Views panel option menu, click Layer Name Search & Replace.



2. In the Find what box, type `_area`. In the Replace with box, type `_layer`. Click the Replace All button.



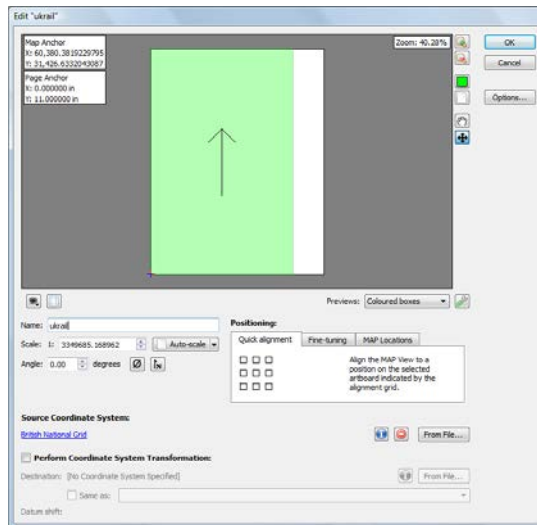
The text `_area` is replaced with `_layer` in the name of all applicable layers.



3. Close the document without saving.

2.8 Specify a source coordinate system after import

1. Create a new Adobe Illustrator document in portrait orientation
2. Use Simple Import to add **ukrail.gen** from the *Tutorial Data* folder (do not specify a coordinate system).
3. In the MAP Views panel, double-click the *ukrail* MAP View to open the MAP View editor. Close the warning dialog box that appears (it appears because no coordinate system was specified).
4. In the MAP View editor dialog box, click the [No Coordinate System Specified] link to open the Specify Source Coordinate system dialog box.
5. Go to **Projected > Europe > United Kingdom** and choose **British National Grid** (or choose it from the *Recent* folder).



6. Click OK to close the MAP View editor dialog box.

The source coordinate system for the file is now British National Grid. The MAP View is assigned a coordinate system and can now be transformed.

7. Close the document without saving.

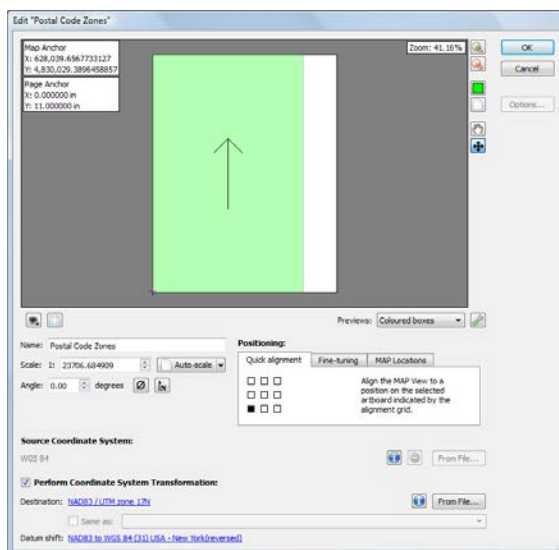
2.9 Transform a coordinate system using the MAP View editor

1. Create a new Letter sized Adobe Illustrator document in portrait orientation.
2. Import **fsatoronto.mif** from the *Tutorial Data* folder.

The map file is in the WGS 84 coordinate system.

3. In the MAP Views panel, double-click the *fsatoronto* MAP View to open the MAP View editor.
4. Change the name of the MAP View to **Postal Code Zones**.

5. Check the Perform Coordinate System Transformation check box to enable its frame options and click the [No Coordinate System Specified] link.
6. In the Specify Destination Coordinate System dialog box, go to **Projected > UTM > NAD83**, choose **NAD83 / UTM zone 17N**, and click OK.



The Preview Pane displays how the new coordinate system is fit to the page. UTM zone 17N is a proper projected coordinate system to use for this area.

7. Click OK to close the MAP View editor dialog box.

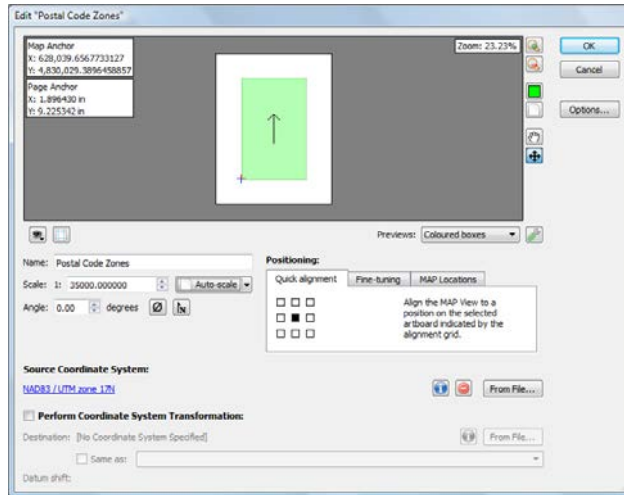


The MAP View is transformed from WGS 84 to NAD83 / UTM zone 17N. See Appendix A2 on *Projections and Datums* in the User Guide for more information.

8. Keep the document open for the next tutorial.

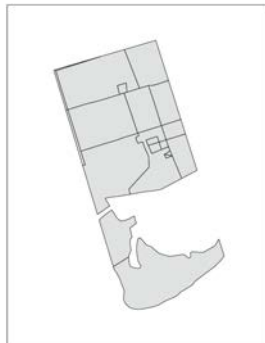
2.10 Edit scale and position

1. In the MAP Views panel, double-click the Postal Code Zones MAP View to open the MAP View editor.
2. Change the map scale to 1: 35,000 by typing **35000** in the Scale box.
3. In the Positioning section, click the Quick alignment tab to make it active. There are nine squares in the alignment grid indicating positions on the artboard. Click the center square to reposition the data to the center of the page.



The *Preview Pane* shows the new data extents and the page anchor values have been automatically updated.

4. Click OK.



The *Postal Code Zones* MAP View is rescaled and repositioned in the center of the page.

5. In the MAP Views panel, double-click the Postal Code Zones MAP View to open it again.
6. In the Angle box, type **343.00** to specify an angle of rotation, then click OK.



The layer is now rotated. Georeferencing has not been affected.

7. Close the document without saving.

2.11 Copy a coordinate system from one layer to another

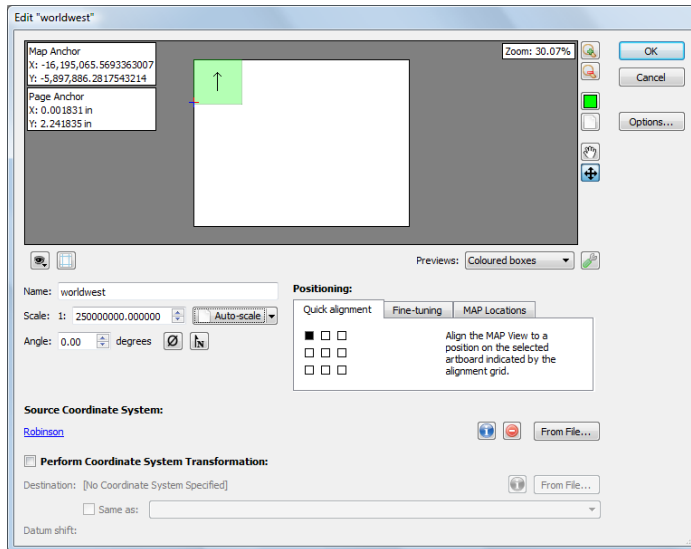
1. Create a new Letter sized Adobe Illustrator document in landscape orientation.
2. Import **worldwest.mif** from the *Tutorial Data* folder.

The map file is in the Robinson coordinate system.

3. Select the Canada polygon shape and assign a fill color to it.



4. In the MAP Views panel, double-click the *worldwest* MAP View to open the MAP View Editor.
5. Change the map scale to 1: 250 million by typing **250000000** in the Scale box.
6. Click the Show Anchors check box to display the map and page anchors (if the artboard is blocking the anchor numbers, click the zoom out button a few times). In the Quick alignment tab, click the top-left square to reposition the data to the top-left of the page.



The *Preview Pane* shows the new data extents and the Page Anchor values have been automatically updated. Move the artboard in the preview if the anchor values block the extent box.

7. Click OK.



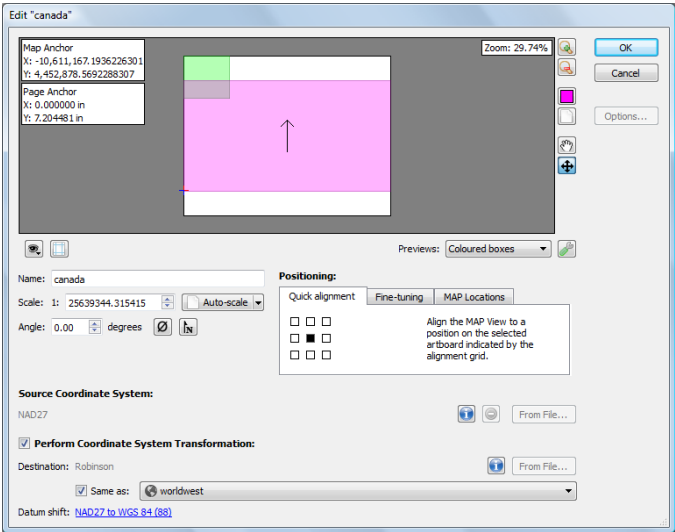
The *worldwest* MAP View is rescaled and repositioned in the top-left corner of the page. This can be used as a small inset map used referencing Canada to the Western Hemisphere countries.

8. Import **canada.shp** from the *Tutorial Data* folder.

The map file is in the NAD27 coordinate system.

9. In the MAP Views panel, double-click the *canada* MAP View to open the MAP View Editor.
10. Check the Perform Coordinate System Transformation check box to enable its frame options. Check the Same As check box and select the *worldwest* MAP View in the drop-down list. Notice how the destination is set to Robinson and the datum shift is NAD27 to WGS84 (88).

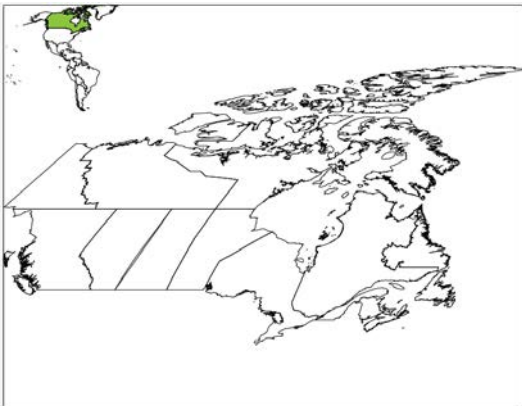
11. In the Quick alignment tab, click the center square to reposition the data to the center of the page.



The *Preview Pane* shows the new data extents and the *Page Alignment* values are automatically edited.


12. Click OK.

The MAP View is transformed to match the coordinate system of the *worldwest* MAP View.



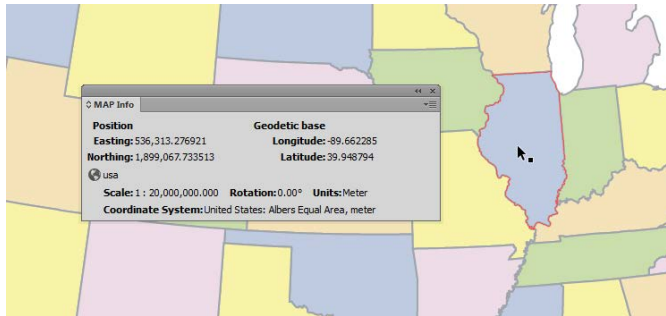
13. Close the document without saving.

2.12 View coordinates and create a MAP Location

1. Open **usa48.ai** from the *Tutorial Data* folder.
2. In the MAPublisher Toolbar, click the MAP Info button .

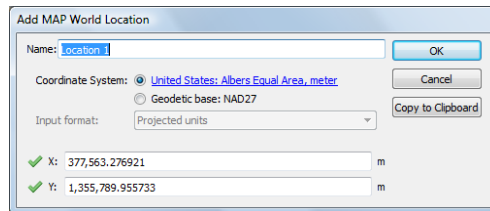
The MAP Info panel appears.

3. Move the mouse cursor to a location on the map to view its geographic coordinates.



The MAP Info panel shows the Position (Easting and Northing) and Geodetic base (Longitude and Latitude) values and are constantly updated as the mouse cursor is moved around the map document. (To view WGS84 or MGRS values, click the panel options menu.)

4. In the Adobe Illustrator Tools, click the MAP Locations tool (the cursor changes to a crosshair).
5. Click anywhere on the map to create a MAP Location.



A MAP Location is ready to be created at the point of the click. It is created in projected units of meters. Optionally, click the Copy to Clipboard button to make the coordinate values available beyond this dialog box.

6. Click OK.

A blue MAP Location pin is placed on the artboard. When the MAP Location tool is enabled, hovering near the pin will make its label visible. To see a list of all MAP Locations, open the MAP Locations dialog box from the MAPublisher toolbar.

7. Close the document without saving.

2.13 Create a new MAP View with Georeferencer

This tutorial provides a basic overview of assigning georeferencing information to existing Adobe Illustrator documents. Please see *Georeferencer* in Chapter 6 of the MAPublisher 9.1 User Guide.

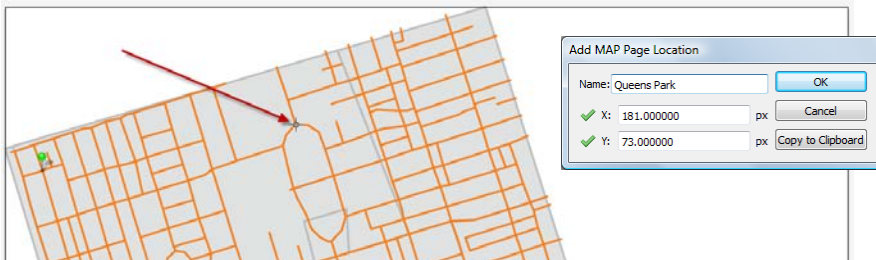
1. In Adobe Illustrator, open **toronto.ai** from the *Tutorial Data* folder.

This is a regular Adobe Illustrator document. It contains two Adobe Illustrator layers that do not have any georeferencing or attribute information. However, the data was known to be digitized in NAD 83/UTM Zone 17N coordinate system. They are located in the [Non-MAP layers] section of the MAP Views panel.

2. Click View menu and click Show MAP Locations.

MAP Locations are used to reference page locations (green pin) and world locations (blue pin). Three MAP Page Locations appear on the map. These were created for you for the purpose of this exercise. To georeference, a minimum of four MAP Page Locations are required. You'll need to add one more MAP Page Location. Later, you will assign it a world coordinate.

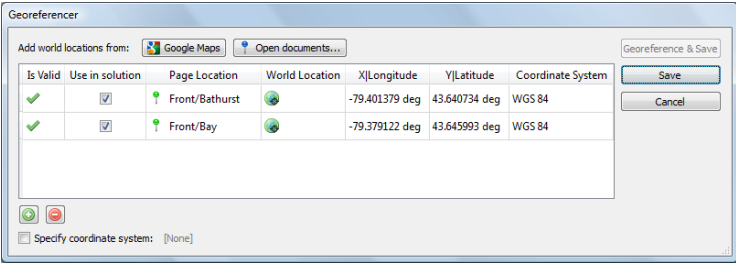
3. From the Tools toolbar, click the MAP Location Tool. The cursor changes to a crosshair.
4. Pan and zoom to the location pointed out in the graphic and click once. In the Add Map Page Location dialog box, type **Queens Park** into the Name box.



A MAP Page Location is placed in the document at the X,Y page coordinates above. (Your coordinates may be slightly different depending on where you clicked. You can adjust the X and Y values accordingly.)

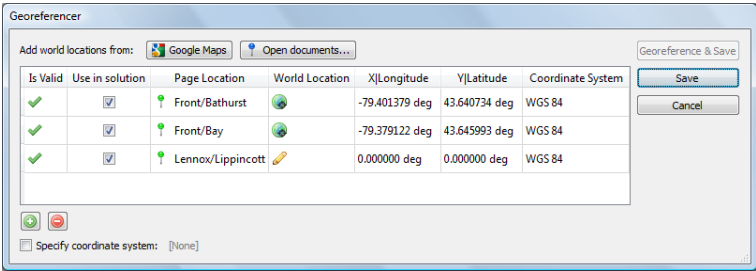


5. From the MAPublisher toolbar, click the Georeferencer button (read and close the brief tutorial graphic).



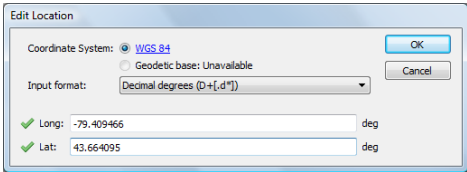
The Georeferencer dialog box opens. Two MAP Page Locations have already been assigned world locations for the purpose of this exercise. You'll need to assign two more world locations to the other MAP Page Locations: one manually and one using the online map service.

6. Click the Add reference location button.



The Lennox/Lipponcott MAP Page Location is added to the list (MAPublisher automatically finds it.)

7. Double-click the X|Longitude or Y|Latitude cell box.
8. Enter the values into the following dialog box, Long: **-79.409466** and Lat: **43.664095**. Then click OK.

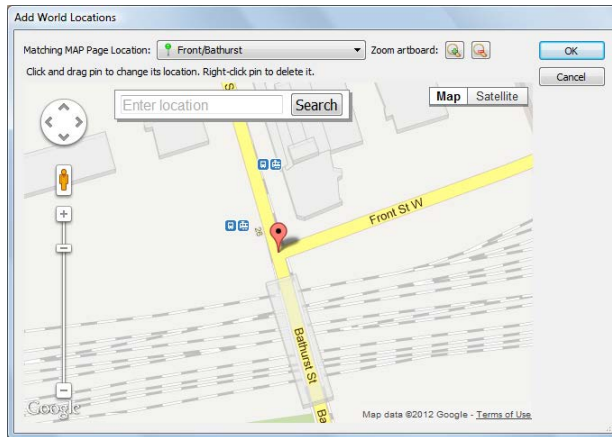


A world location is manually assigned to the Lennox/Lippincott MAP Page Location.

✓	✓	Front/bay		-79.379144 deg	43.640449 deg	WGS 84
✓	✓	Lennox/Lippincott		-79.409466 deg	43.664095 deg	WGS 84

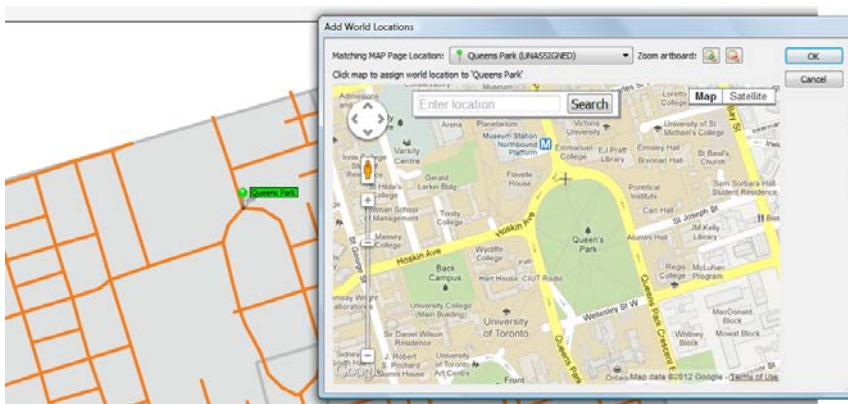
You'll assign the last MAP Page Location with world coordinates using an online map service.

9. In the Georeferencer dialog box, click the Google Maps button.



The Matching MAP Page Location of Front/Bathurst which was already assigned a world location is shown on the map with a placemark. The artboard also centers to the location. You can use the Zoom artboard buttons to zoom in to the artboard.

10. Click the Matching MAP Page Location drop-down list and choose **Queens Park (UNASSIGNED)**. On the left side of the map, click the Zoom out [-] button until you can see two other placed world locations. Pan north and zoom into the map area labeled University of Toronto. As you continue to zoom in, the Queen's Park map label will appear. Zoom into the north side of Queens Park and compare it to the features on the artboard.

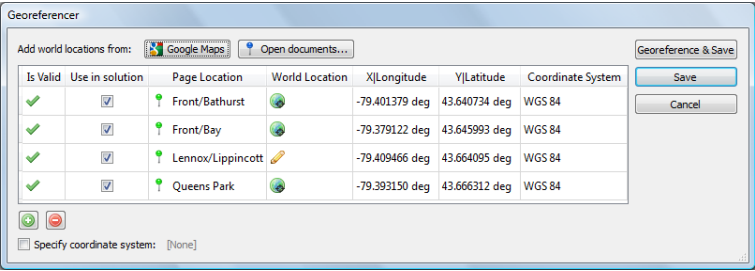


11. Click the map to assign a world location to the Queens Park MAP Page Location. Click Yes when asked to confirm the location.



A world location is assigned and a placemark is plotted.

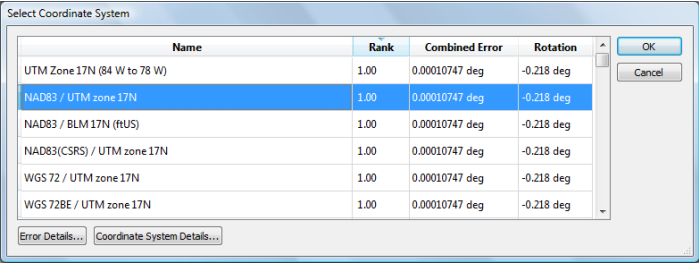
12. Click OK to close the Add World Locations dialog box.



Four reference locations are available and the Georeference & Save button is enabled.

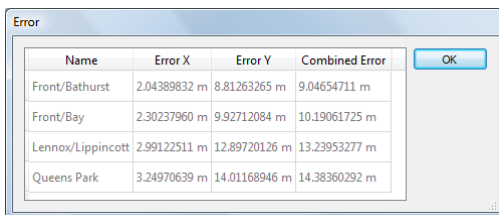
13. Click the Georeference & Save button.

14. In the Select Coordinate System list, choose NAD83 / UTM zone 17N.



The data was known to be digitized in NAD83 / UTM Zone 17N. It is the most appropriate coordinate system to use. Sometimes a coordinate system may not have the highest Rank, but may be the most appropriate to use. You'll also view some of the error introduced with georeferencing.

15. Click the Error Details button.



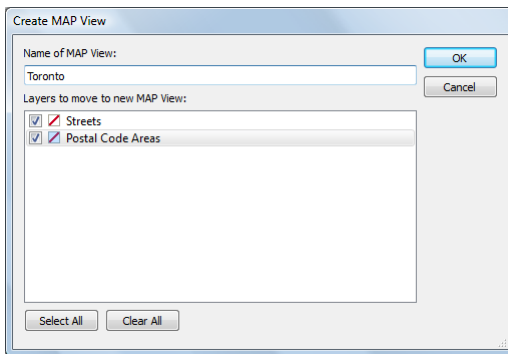
Name	Error X	Error Y	Combined Error
Front/Bathurst	2.04389832 m	8.81263265 m	9.04654711 m
Front/Bay	2.30237960 m	9.92712084 m	10.19061725 m
Lennox/Lippincott	2.99122511 m	12.89720126 m	13.23953277 m
Queens Park	3.24970639 m	14.01168946 m	14.38360292 m

The table shows Error X, Error Y, and Combined Error. These errors come from how accurately the MAP Page Locations are assigned world locations. Lower error values means a higher georeferencing accuracy. Your errors may vary depending on how accurate you placed your MAP Locations.

16. Click OK to close the Error dialog box.

17. In the Select Coordinate System dialog box, click OK.

18. In the Create MAP View dialog box, change the MAP View name to **Toronto**. Click the two check boxes beside the Streets and Postal Code Area layers. Then click OK.

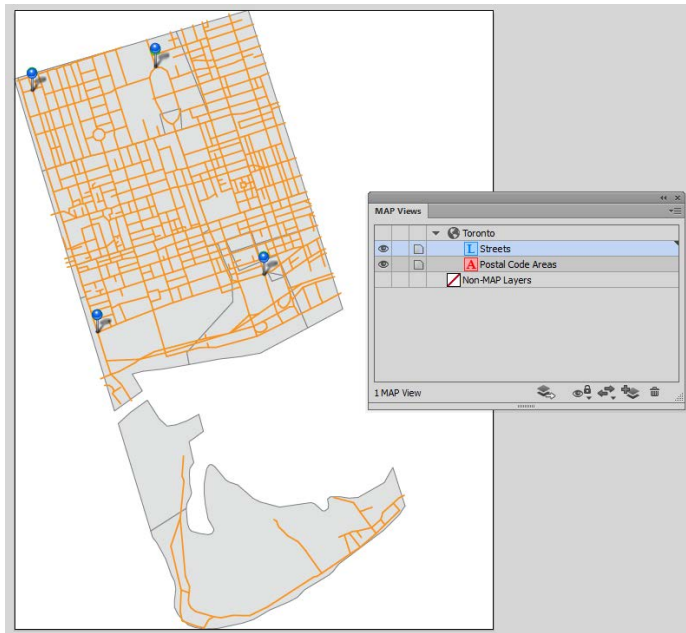



19. Click OK.

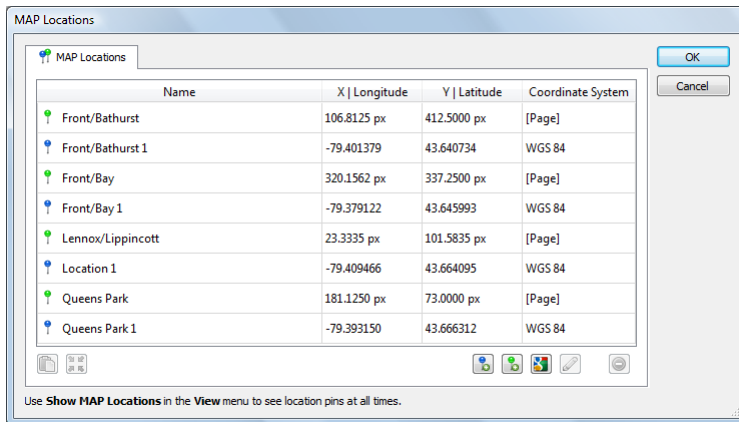
20. Assign the appropriate MAP Layer type to Streets and Postal Code Areas.




The MAP Views panel updates and lists the Toronto MAP View and two layers.



21. From the MAPublisher toolbar, click the MAP Locations button .

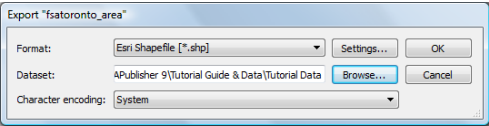


The MAP Locations table lists the four MAP Page Locations and the four newly added MAP World Locations. This verifies that the document is georeferenced.

22. Close the document without saving.

2.14 Export data to GIS formats

1. Create a new Letter sized Adobe Illustrator document in portrait orientation.
2. Use Simple Import to import **fsatoronto.mif** and **torontostreets.mif**. Click OK to add the fsatoronto MAP View.
3. In the MAP Views panel, select the *fsatoronto_area* layer and in the MAP Views panel option menu, click Export "fsatoronto_area".
4. In the Export dialog box, choose **Esri Shapefile (*.shp)** from the Format drop-down list, click Browse, navigate to a location to save the shapefile, and click OK. The Dataset box is populated with the directory path.



5. Click OK to export the file.

View the contents of the destination folder. The *fsatoronto* layer is exported as an Esri Shapefile with all attributes and georeferencing intact. This Esri Shapefile consists of four files: *fsatoronto.shp*, *fsatoronto.shx*, *fsatoronto.dbf*, and *fsatoronto.prj*. It is ready to be used in software supporting this format. Descriptions of these file extensions can be found in chapter 2 of the MAPublisher 9.1 User Guide.

Name	Date modified	Size
fsatoronto.dbf	09/03/2012 9:33 AM	2 KB
fsatoronto.prj	09/03/2012 9:33 AM	1 KB
fsatoronto.shp	09/03/2012 9:33 AM	6 KB
fsatoronto.shx	09/03/2012 9:33 AM	1 KB

6. In the Adobe Illustrator Layers panel, select all objects on the *torontostreets_line* layer.
7. Click the MAP Attributes panel button  on the MAPublisher toolbar. Resize the MAP Attributes panel to see all the attribute column headings and then click the Edit Schema button.

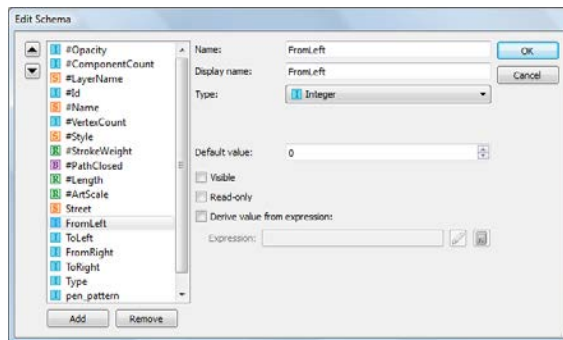
MAP Attributes

Layer: torontostreets_line (1197 lines selected)

	Street	FromLeft	ToLeft	FromRight	ToRight	Type
1	ACE LA	0	0	0	0	0
2	ADELAIDE PL	0	0	1	11	0
3	ADELAIDE ST E	0	0	0	0	0
4	ADELAIDE ST E	6	14	1	25	0
5	ADELAIDE ST E	36	48	33	53	0
6	ADELAIDE ST E	50	72	55	69	0
7	ADELAIDE ST E	0	136	0	0	0
8	ADELAIDE ST E	78	122	125	147	0
9	ADELAIDE ST W	7	11	6	26	0
10	ADELAIDE ST W	17	33	28	48	0

1197 lines selected

8. In the column list, click **#Length** and check the Visible check box. Click **FromLeft** to view its schema and uncheck the Visible check box and click OK.



The *#Length* attribute is visible now and the *FromLeft* attribute is hidden.

MAP Attributes

Layer: **torontostreets_line** (1197 lines selected)

	#Length	Street	ToLeft	FromRight	ToRight	Type
1	0.000650 deg	ACE LA	0	0	0	0
2	0.000608 deg	ADELAIDE PL	0	1	11	0
3	0.000734 deg	ADELAIDE ST E	0	0	0	0
4	0.001238 deg	ADELAIDE ST E	14	1	25	0
5	0.000777 deg	ADELAIDE ST E	48	33	53	0
6	0.001572 deg	ADELAIDE ST E	72	55	69	0
7	0.000589 deg	ADELAIDE ST E	136	0	0	0
8	0.002038 deg	ADELAIDE ST E	122	125	147	0
9	0.001125 deg	ADELAIDE ST W	11	6	26	0
10	0.001248 deg	ADELAIDE ST W	33	28	48	0

1197 lines selected

Before continuing, the other Integer type columns need to be hidden.

9. Right-click the **ToLeft** column and click Hide Column.

MAP Attributes

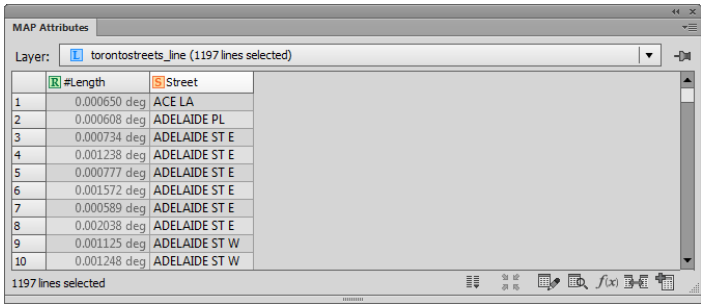
Layer: **torontostreets_line** (1197 lines selected)

	#Length	Street	ToLeft	FromRight	ToRight	Type
1	0.000650 deg	ACE LA				0
2	0.000608 deg	ADELAIDE PL				0
3	0.000734 deg	ADELAIDE ST E				0
4	0.001238 deg	ADELAIDE ST E				0
5	0.000777 deg	ADELAIDE ST E				0
6	0.001572 deg	ADELAIDE ST E				0
7	0.000589 deg	ADELAIDE ST E				0
8	0.002038 deg	ADELAIDE ST E				0
9	0.001125 deg	ADELAIDE ST W				0
10	0.001248 deg	ADELAIDE ST W				0

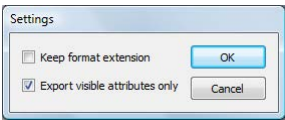
1197 lines selected

Note: Alternatively, click the Show/Hide Column button and choose an attribute to make visible or hidden.

10. Hide the remaining columns: FromRight, ToRight and Type.

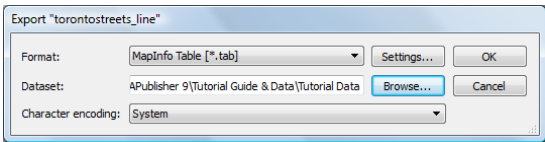


11. Ensure *torontostreets_line* is selected. In the MAP Views panel option menu, click Export “torontostreets_line”.
12. In the Export dialog box, select **MapInfo Table [*.tab]** from the Format drop-down list, click Settings, ensure the option for Export visible attributes only is checked, and click OK.



This ensures that only visible attributes are exported (*#Length* and *Street* columns in the attribute table).

13. Click Browse and navigate to a location to save the export and click OK.



14. Click OK to export the layer.


The *torontostreets_line* layer is exported to MapInfo Table format with the specified attributes and georeferencing intact. It is ready to be used in software supporting this format. View the contents of the destination folder. You'll see that four new files were created: *torontostreets.tab*, *torontostreets.dat*, *torontostreets.id*, and *torontostreets.map*. Descriptions of these file extensions can be found in chapter 2 of the User Guide. Each file format has its own settings.

15. Close the document without saving.

3 MAP Attributes

See User Guide, Chapter 5

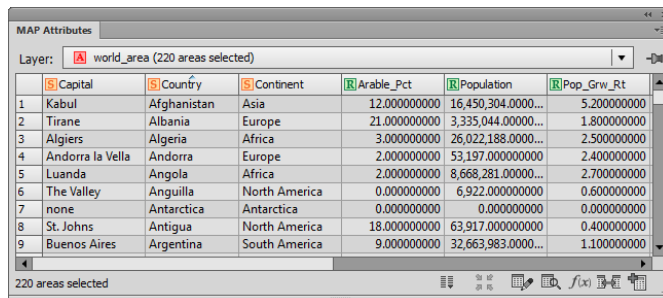
3.1 View, edit, and zoom to MAP Attributes

1. Create a new Adobe Illustrator document.
2. Import **world.mif** from the *Tutorial Data* folder.
3. With all of the art selected on the *world_area* layer, click the MAP Attributes button  on the MAPublisher toolbar or from the menu *Window > MAPublisher > MAP Attributes*.
4. To edit attribute values, double-click inside a cell and type a new value.

All attribute values and some property attributes can be edited. MAPublisher creates some attributes which have the hash symbol (#) as a prefix. These attributes are editable (but must be made visible first). However, *#Area*, *#Perimeter*, *#VertexCount*, and *#Length* are properties of the geometry and cannot be edited.

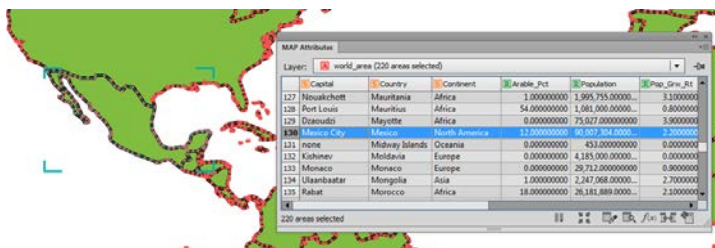
Keep in mind to enter values that correspond with a column's type (e.g. only enter numbers into a column of type *Real* or *Integer*). The edits are automatically maintained in the attribute table once entered.

5. The widths of the columns in the MAP Attributes panel may be changed by dragging the column separator left or right. Right-click and click *Resize All To Fit Content*.
6. Click a column heading to sort it in an ascending manner. Click the column heading again to sort it in a descending manner.



	Capital	Country	Continent	Arable_Pct	Population	Pop_Grw_Rt
1	Kabul	Afghanistan	Asia	12.000000000	16,450,304.0000...	5.200000000
2	Tirane	Albania	Europe	21.000000000	3,335,044.0000...	1.800000000
3	Algiers	Algeria	Africa	3.000000000	26,022,188.0000...	2.500000000
4	Andorra la Vella	Andorra	Europe	2.000000000	53,197.000000000	2.400000000
5	Luanda	Angola	Africa	2.000000000	8,668,281.0000...	2.700000000
6	The Valley	Anguilla	North America	0.000000000	6,922.000000000	0.600000000
7	none	Antarctica	Antarctica	0.000000000	0.000000000	0.000000000
8	St. Johns	Antigua	North America	18.000000000	63,917.000000000	0.400000000
9	Buenos Aires	Argentina	South America	9.000000000	32,663,983.0000...	1.100000000

7. Zoom to a specific piece of art via the MAP Attributes panel. Select an attribute record and click the *Zoom to Feature* button. MAPublisher zooms to the area of the file where the artwork is located and displays it within visible handles.



8. Keep the document open for the next tutorial.

3.2 Add a new column to a MAP Attribute table

Continue working with the previous tutorial.

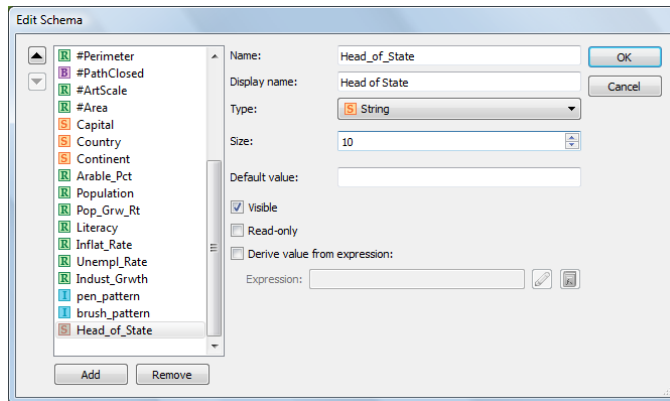
1. If necessary, open the MAP Attributes panel and select all objects on the *world_area* layer. The panel displays all of its attribute columns and values.
2. Click the Edit Schema button at the bottom of the MAP Attributes panel.

The Edit Schema dialog box displays the columns associated with the MAP Attributes table on the currently selected layer.

3. Click Add to add a new attribute column.
4. In the Name box, rename Attribute1 to **Head of State**.

Note: Notice that spaces are not accepted for column names. MAPublisher inserts an underscore (**_**) if a space is typed into a column name. Also, notice that the Display Name box is populated with the same name. This can be changed to reflect a name with no spaces in it.

5. In the Display Name box, remove the spaces, so the name becomes **Head of State**.
6. In the Type drop-down list, choose **String** (this allows the column to contain alphanumeric values).
7. Set a width of **10** (this is the number of characters which can be displayed in each cell).



In certain instances, a default value for an attribute may be required. Setting a Default Value gives each record the same value. Do not enter a default value for this tutorial.

8. Click OK to close the dialog box.

The new column is created and can be given values in the MAP Attributes panel.

9. Leave the document open for the next tutorial.

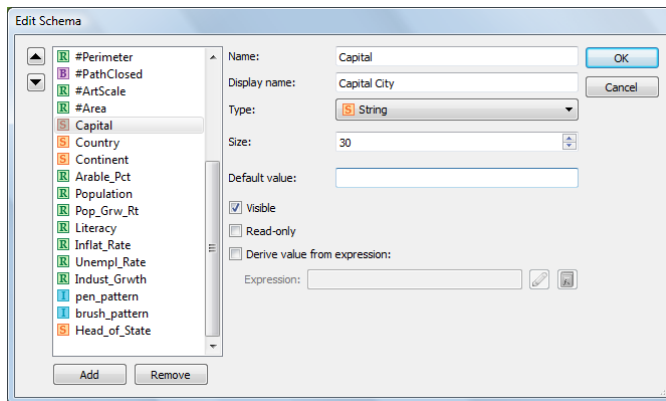
3.3 Change an existing column's properties

Continue working with the previous tutorial.

1. If necessary, open the MAP Attributes panel and select all objects on the *world_area* layer.
2. Open the Edit Schema dialog box and select **Capital** in the attribute column list.
3. In the Display Name box, rename it to **Capital City**. Also, change the size to **30**.

The column type may be changed after it is created (e.g. convert a type real column to a type integer column). For this tutorial, leave the type as *String*. Also, any new polygons added to the *world_area* layer will have a default value of *None*.

4. Leave the Visible check box enabled and the Read-only and Derive value from expression unchecked.



5. Click OK.

The column is now renamed and its width is increased to accommodate longer names.

6. Leave the document open for the next tutorial.

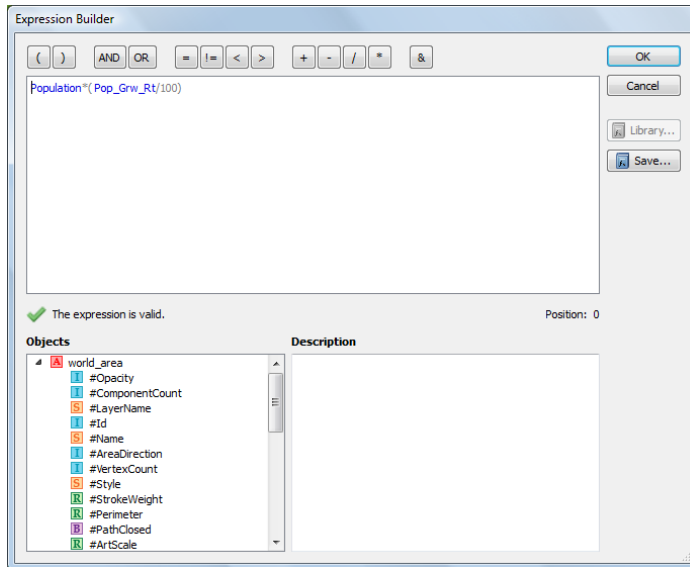
3.4 Create a new column using expressions

Continue working with the previous tutorial.

1. If necessary, open the MAP Attributes panel and select all objects on the *world_area* layer.
2. Open the Edit Schema dialog box.
3. Click Add to create a new attribute column called **Annual_Increase** and set the Type to **Integer**.
4. Check the Derive value from expression check box and click the Expression Builder button next to the Edit Expression box.

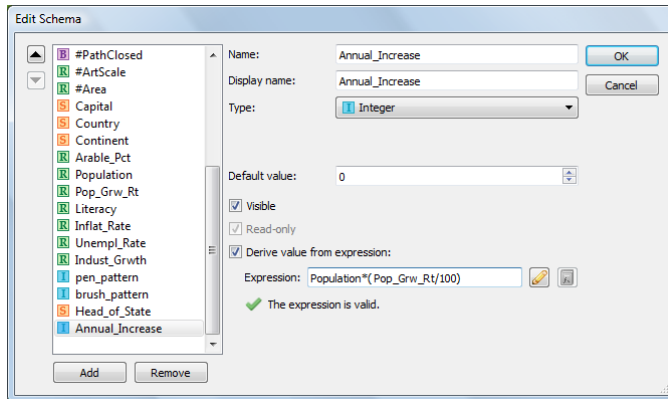
Build expressions by making selections from the Objects list in combination with using the operators available at the top of the dialog box.

5. In the Expression Components section at the bottom of the dialog box, double-click the Population column in the Objects list, click the * symbol button, click the (symbol button, double-click **Pop_Grw_Rt** column, click the / symbol button, then type **100**. Finally, click the) symbol button to close the expression builder. The final expression in the Edit Expression box is: **Population*(Pop_Grw_Rt/100)**.



The expression is valid statement means that the expression syntax is correct and can be performed.

6. Click OK to close the Attribute Expression Builder dialog box



The expression box is populated with the expression that was just created.

7. Click OK again to close the Edit Schema dialog box. The *Annual_Increase* attribute column is updated with values calculated from the expression. Notice that these calculated values are grayed out. They can only be edited by modifying the attribute expression.

	eracy	Inflat_Rate	Unempl_Rate	Indust_Growth	Head of State	Annual_Increase
1	29.000000000	92.000000000	0.000000000	6.200000000	f.s.	855,415
2	72.000000000	0.000000000	0.000000000	0.000000000	f.s.	60,030
3	50.000000000	20.000000000	26.000000000	0.900000000	f.s.	650,554
4	0.000000000	0.000000000	0.000000000	0.000000000	f.s.	1,276
5	42.000000000	23.200000000	0.000000000	0.000000000	f.s.	234,043
6	95.000000000	4.500000000	5.000000000	0.000000000	f.s.	41
7	0.000000000	0.000000000	0.000000000	0.000000000	f.s.	0

8. Close the document without saving.

3.5 Join tables

1. Create a new Adobe Illustrator document.
2. Import **canada.shp** from the *Tutorial Data* folder.
3. Open the MAP Attributes panel and click the Join Table button at the bottom right of the panel.
4. Make sure the Data Type is set to **Files (ASCII, Excel, Sdts, Dbf)***, click Browse next to the Dataset Name box and select **CA_commute.csv** from the *Tutorial Data* folder.
5. Check the First line contains column names check box and choose **NAME** from the Matching Column drop-down list. Leave the schema specifications character encoding at their default values. Since there is only one MAP Layer in the MAP View, the Destination Target Layer will default to **canada_area**.

*The Data Type drop-down list is not available on Mac.

6. The Matching Column drop-down list shows attribute columns of the same type (String) from the target layer to base the join on. Set the matching column to **NAME**.

Join Table

Source:

Data type: Files (ASCII, Excel, Sdts, Dbf) OK Cancel

Dataset name: Data/Tutorial Data/CA_commute.csv Browse...

Name: CA_commute

Matching column: [S] NAME

☒ First line contains column names

Specify Schema...

Character encoding: System

Destination:

Target layer: canada_area [A]

Matching column: [S] NAME

Options:

☐ Case sensitive when matching

☐ Add matching column from source

☐ Update existing columns instead of adding columns when possible

7. Make sure that the dialog box matches above and click OK.

MAP Attributes

Layer: [A] canada_area (13 areas selected)

	[S] CODE	[S] NAME	[I] POP2001	[I] POP2010	[I] SQKM_2001	[I] Cmt_Drive	[I] Cmt_Public	[I] Cmt_Walk	[I] Cmt_Bicycl	[I] Cmt_Other	[I] Cmt_Ride
1	CA13	Nunavut	26,745	33,220	1,936,113	2,585	15	5,095	15	1,360	1,225
2	CA06	Northwest Terri...	37,360	43,759	1,183,085	10,920	150	5,410	425	1,570	2,065
3	CA12	Yukon Territory	28,674	34,525	474,391	11,650	410	2,125	425	325	1,195
4	CA02	British Columbia	3,907,738	4,530,960	925,186	1,353,790	195,150	130,280	37,370	27,620	145,845
5	CA01	Alberta	2,974,807	3,720,946	642,317	1,253,085	155,480	99,725	19,300	25,555	133,395
6	CA11	Saskatchewan	978,933	1,045,622	591,670	336,320	9,305	34,300	6,455	7,070	30,755
7	CA03	Manitoba	1,119,583	1,235,412	553,556	378,365	46,605	38,605	8,380	6,090	45,390
8	CA08	Ontario	11,410,046	13,210,667	967,741	4,038,035	736,055	320,070	69,035	57,345	470,410
9	CA10	Quebec	7,237,479	7,907,375	1,365,128	2,525,440	445,250	230,580	48,395	32,280	192,310
10	CA04	New Brunswick	729,498	751,755	71,450	251,625	6,365	21,385	2,110	5,490	36,090

13 areas selected

8. Scroll to the right to view the joined attributes. The imported table is joined with the attribute table of *canada.shp*.
9. Close the document without saving.

4 Plotting Points

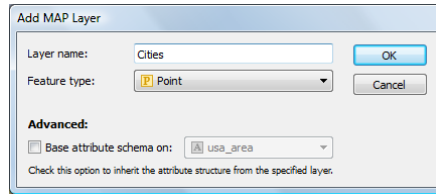
See User Guide, Chapter 6

4.1 Plot points in decimal degree and degrees-minutes-seconds formats

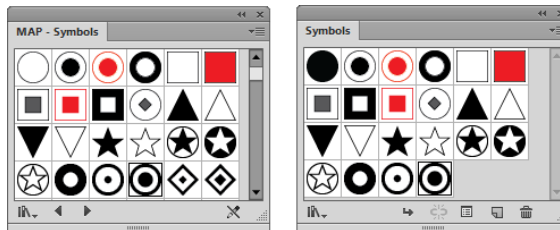
1. Open **usa48.ai** from the *Tutorial Data* folder.


This document contains the conterminous United States. The polygons are on the *usa_area* layer, in a MAP View named *usa*. The specified coordinate system is *United States: Albers Equal Area, meter*.

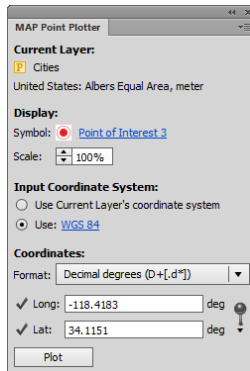
2. In the MAP Views panel, click the Add MAP Layer button. In the Add MAP Layer dialog box, rename Layer 1 to **Cities**, set the Feature type to **Point** and click OK.



3. Open the Adobe Illustrator Symbols panel (*Window > Symbols*).
4. In the Symbols panel option menu, click *Open Symbol Library > MAP Symbols > MAP - Symbols*. If you're using a non-English version of Illustrator, browse to *Open Symbol Library > Other Library* and load **MAP - Symbols.ai** from *\Helpful Styles & Symbols\MAP Symbols* folder (see page iii).
5. Choose several city symbols in the Map Symbols panel to add them to the Adobe Illustrator Symbols panel.



6. In the MAP Views panel, select the *Cities* layer.
7. Open the MAP Point Plotter panel (choose *Window > MAPublisher > MAP Point Plotter*) or click the **MAP Point Plotter** button  on the MAPublisher toolbar.
8. To change the plot symbol, click the [MAPublisher Default Symbol] and select a different map symbol. Leave the Scale set to 100%.
9. Set the Input Coordinate System to Use: **WGS 84**.
10. Ensure that **Decimal Degrees (D+[.d*])** is chosen in the Format drop-down list.
11. To plot a point for Los Angeles, type **-118.4183** in the Long box and type **34.1151** in the Lat box. Click the Plot button to plot the point on the map.

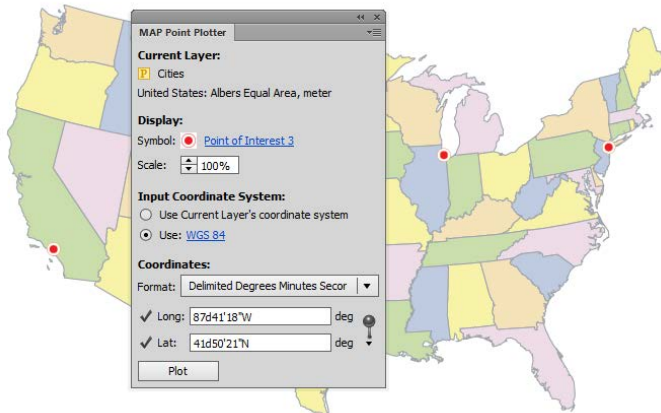


A point is plotted at the location of Los Angeles (34.1151 degrees north, 118.4183 degrees west).

12. Choose **Delimited Degrees Minutes Seconds (D+dMM'SS[.s*])** from the Format drop-down list.
13. To plot a point for New York City, type **73d56'39.0"W** in the Long box and **40d41'14.0"N** in the Lat box.
14. Click the symbol text name to select a symbol style, change the Scale to **150%** and click Plot.

A point is plotted at the location of New York City (40 degrees, 41 minutes, 14 seconds north and 73 degrees, 56 minutes, 39 seconds west).

15. Finally, plot a point for Chicago. Type **87d41'18"W** in the Long box and **41d50'21"N** in the Lat box. Alternatively, change the Format back to **Decimal Degrees (D+[.d*])** and type **-87.6883** in the Long box and **41.8392** in the Lat box.



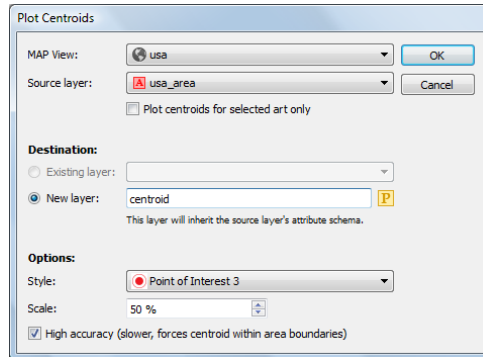
All the points are plotted on the map. Experiment with plotting your own points, using different symbols, coordinates, coordinate systems and data.

16. Keep the document open for the next tutorial.

4.2 Plot centroids

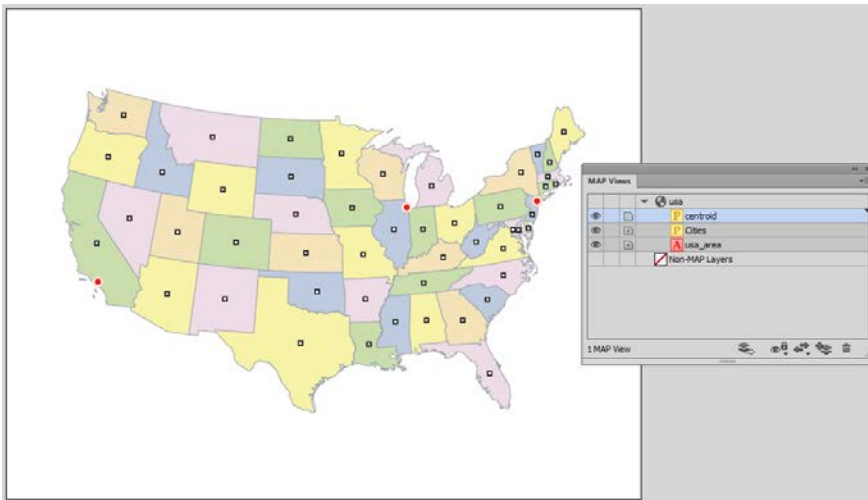
Continue working with the previous tutorial.

1. Choose Plot Centroids from the MAP Point Plotter panel option menu.



The MAP View and Source layer are already set in the Plot Centroids dialog box. The Destination is already set to be a new layer called **centroid**. This creates a new destination layer and places the points on this layer.

2. Change the Style to a different map symbol and change its scale to **50%**.
3. Leave the other options as default and click OK to close the dialog box.



Points are plotted for the centroid location for each state polygon.

4. Close the document without saving.

5 Drawing with MAPublisher

See User Guide, Chapter 7

5.1 Create shapes with specific map dimensions

1. Create a new Adobe Illustrator document.
2. Import **fsatoronto.mif** and import **torontostreets.mif** from the *Tutorial Data* folder.
3. Transform the coordinate system of the fsatoronto MAP View to **NAD83 / UTM zone 17** (see Tutorial 2.9).
4. Zoom to an intersection of these streets. A recommended zoom level is 600%.

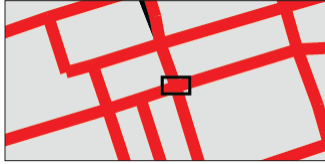


To construct an imaginary building at precise map dimensions

5. In the MAP Views panel, add a new MAP Layer called **Buildings** and specify it as an **Area** feature type.
6. In the Adobe Illustrator Tools panel, click the MAP Area Plotter Rectangle Tool button.
7. In the Adobe Illustrator Layers panel, make sure the *Buildings* layer is active. Click once near the intersection of the two selected streets to open the Area Plotter dialog box.
8. Type **50** into the Width box, type **30** into the Height box, check the Center area on click check box, and click OK.

A screenshot of the 'Area Plotter' dialog box in Adobe Illustrator. The 'Target' is set to 'Buildings'. Under 'Input', 'World coordinates' is selected with 'fsatoronto' as the source. The 'Coordinate system' is 'NAD83 / UTM zone 17N'. Under 'Options', 'Shape' is 'Rectangle', 'Location type' is 'Position', and 'Point' is 'Center'. The 'X' coordinate is 630,144.391970 and the 'Y' coordinate is 4,835,476.612399. Under 'Dimensions', 'Units' is 'Meter', 'Width' is 50.00000000000000 m, and 'Height' is 30.00000000000000 m. The 'Constrain dimensions' checkbox is unchecked.


Since the *fsatoronto* MAP View is in UTM, the units are displayed in meters. These settings create a rectangle 50 x 30 meters. The center of the polygon locates at the single-click point from the previous step.

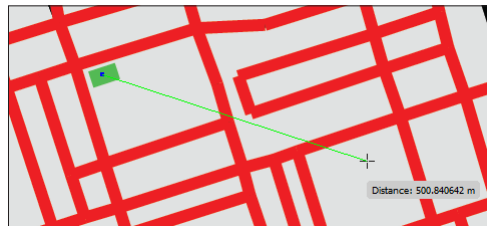


9. Move the building to the southeast corner of the intersection. Rotate it so that it is parallel to College St. using the Rotate Tool. Give the building a fill color.



Presume that this building is an established grocery store. In a recent survey it was found that on average, the majority of its customers lived within 500 meters of the store.

10. In the main Adobe Illustrator Tools panel, click the MAP Measurement Tool.  Click the center of the building rectangle and move the cursor outwards until the distance is about 500 meters.



The MAP Measurement Tool displays a distance of about 500 meters. This helps to approximate a distance of 500 meters around the grocery store. To measure multiple straight sections, hold the Shift key and click.

11. In the main Adobe Illustrator Tools panel, click the MAP Area Plotter Rectangle Tool button (Alternatively, click and hold the button to choose the MAP Area Plotter Ellipse Tool). Single-click in the center of the building to open the Area Plotter dialog box.
12. In the Options section, type **1000** for both the Width and Height (or click the Constrain Dimensions check box). Make sure the Shape is an Ellipse and the Point is Center. Click OK.

Options:

Shape: Ellipse

Location type: Position

Point: Center

✓ X: 630,182.724626 m

✓ Y: 4,835,603.456861 m

Size:

Units: Meter

Width: 500.00000000000000 m

Height: 500.00000000000000 m

☒ Constrain dimensions

A 1000 meter diameter circle (500 meter radius) is placed around the grocery store and shows where the majority of customers live. The circle can be selected and styled like other area and line elements.



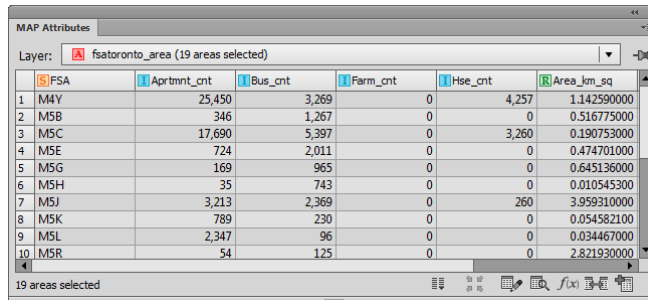
13. Close the document without saving.

6 Cropping with MAPublisher

See User Guide, Chapter 7

6.1 Crop data with MAP Vector Crop Tool

1. Create a new Adobe Illustrator document.
2. Import **torontostreetsjoined.mif** and **fsatoronto.mif** from the *Tutorial Data* folder.
3. With all data on both layers selected, open the MAP Attributes panel.




MAP Attributes

Layer: **fsatoronto_area** (19 areas selected)

	FSA	Aprmnt_cnt	Bus_cnt	Farm_cnt	Hse_cnt	Area_km_sq
1	M4Y	25,450	3,269	0	4,257	1.142590000
2	M5B	346	1,267	0	0	0.516775000
3	M5C	17,690	5,397	0	3,260	0.190753000
4	M5E	724	2,011	0	0	0.474701000
5	M5G	169	965	0	0	0.645136000
6	M5H	35	743	0	0	0.010545300
7	M5J	3,213	2,369	0	260	3.959310000
8	M5K	789	230	0	0	0.054582100
9	M5L	2,347	96	0	0	0.034467000
10	M5R	54	125	0	0	2.821930000

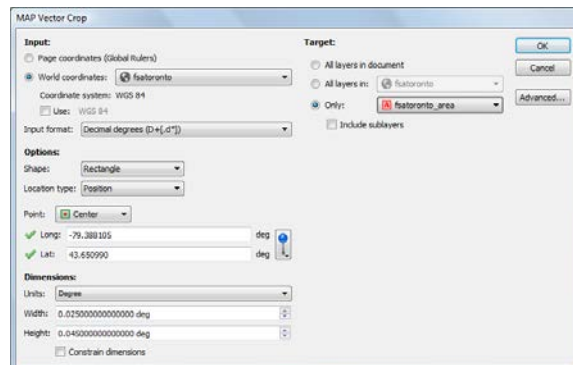
19 areas selected

Examine the table structure and map attribute records. Deselect the data and close the MAP Attributes panel.

4. Click the MAP Vector Crop Rectangle Tool from the main Adobe Illustrator Tools panel. 

Notice the mouse cursor has changed to a cross hair.

5. Click once near the center of the map. This opens the Vector Crop dialog box.
6. In the Size section, enter a width of **0.025** and a height of **0.045** (degrees). In the Target section, choose **Only** and choose the **fsatoronto_area** layer in the drop-down list.



MAP Vector Crop

Input:

☐ Page coordinates (Global Rulers)

☒ World coordinates: **fsatoronto**

Coordinate system: WGS 84

☐ Uses: WGS 84

Input format: Decimal degrees (D+[,d°])

Options:

Shape: **Rectangle**

Location type: **Position**

Point: **Center**

Long: -79.388105 deg

Lat: 43.650990 deg

Dimensions:

Units: **Degree**

Width: 0.025000000000000000 deg

Height: 0.045000000000000000 deg

☐ Constrain dimensions

Target:

☐ All layers in document

☐ All layers in: **fsatoronto**

☒ Only: **fsatoronto_area**

☐ Include sublayers

OK Cancel Advanced...

Move the dialog box out of the way to see a preview of the crop area size. This will give you an idea of what section of the data will be cropped. The crop should only target **fsatoronto_area** layer and the streets will remain untouched.

7. Click OK to complete the crop.

The fsatoronto_area layer is cropped to the crop extent and the streets were untouched because they were not included as a target.



- In the Adobe Illustrator Tools, click and hold the MAP Vector Crop Rectangle Tool button to choose the Ellipse Rectangle Tool. On the artboard, click and drag an ellipse to draw a crop extent. Release the mouse button to complete the crop.



Note: To achieve a proportional crop area, hold the Shift key while dragging the crop area.

- Once again, select all data in both layers and open the MAP Attributes panel.

Layer: fsatoronto_area (13 areas selected)						
	PSA	Aptrent_cnt	Bus_cnt	Farm_cnt	Hise_cnt	Area_km_sq
1	MMV	25,450	3,269	0	4,257	1.142590000
2	MSB	346	1,267	0	0	0.516775000
3	MSC	17,690	5,897	0	3,260	0.340751000
4	MSE	724	2,011	0	0	0.474701000
5	MSG	169	965	0	0	0.645136000
6	MSJ	3,213	2,369	0	260	3.059310000
7	MSK	789	730	0	0	0.054382100
8	MSL	2,347	96	0	0	0.034467000
9	MS5	11,706	3,635	0	5,914	1.790720000
10	MST	9,899	5,844	0	2,568	1.575710000
13 areas selected						

Notice that the attributes have been maintained, but there are fewer features because of the crop.

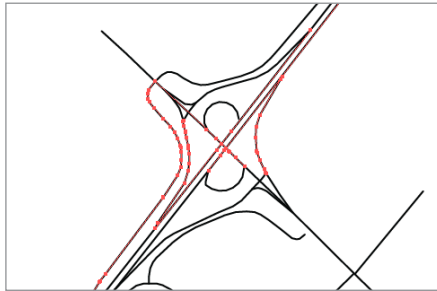
- Close the document without saving.


7 Art and Line Functions

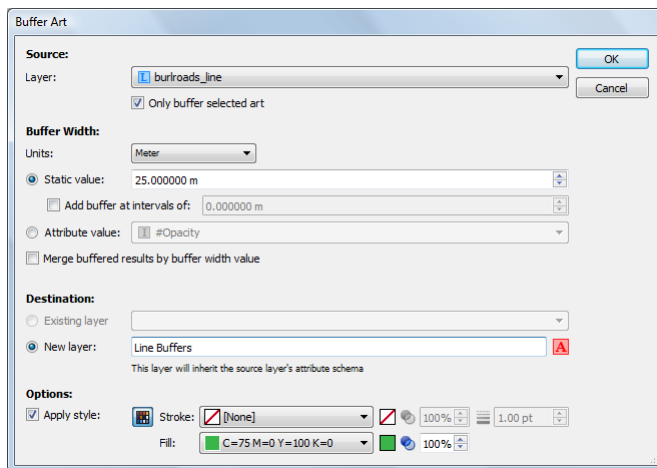
See User Guide, Chapter 8

7.1 Buffer art using an entered value

1. Create a new Adobe Illustrator document.
2. Import **burlroads.mif** from the *Tutorial Data* folder and assign **NAD83 / UTM zone 17N** as the source coordinate system. Navigate to the location, **Projected > UTM > NAD83** to find the coordinate definition (Tutorial 1).
3. Select a few lines to be buffered.



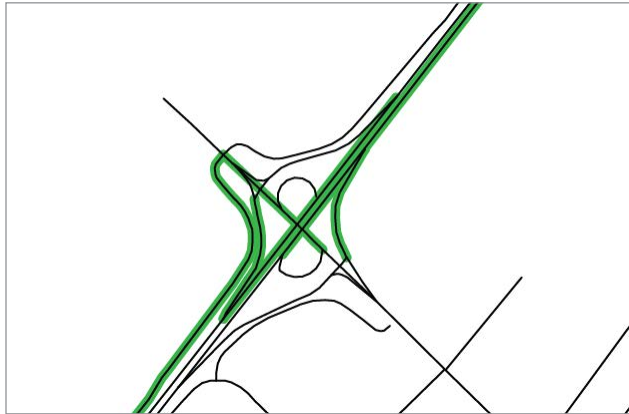
4. On the MAPublisher toolbar, click the **Buffer Art** button  or choose **Object > MAPublisher > Buffer Art**.
5. In the Buffer Art dialog box, click the **Only buffer selected art** check box. Under the Buffer Width section, choose the Static Value option, in the Units drop-down list choose **Meter**, and type **25** into the adjacent box. Under the Destination section, choose the New Layer option and type **Line Buffers** into the box. Under the Options section, click the Apply style check box and choose a fill color.



A static value of 25 meters represents a buffer value of 12.5 meters on either side of the selected roads.

6. Click OK to apply the buffer art settings.

The lines that were selected for buffering now have a buffer around them on a layer called Line Buffers. The buffered lines were styled according to the fill color options set. Like any other object in Adobe Illustrator, then can be styled separately. As with most buffers, it's best to make them stand out from the features above them.



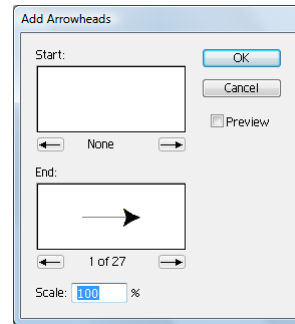
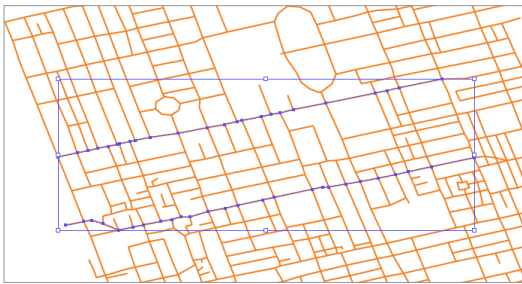
Alternatively, a Graphic Style can be chosen in the Buffer Art dialog box so that a style is automatically applied to the newly created buffer. To do this, click the toggle to switch to Graphic Style mode.

7. Close the document without saving.

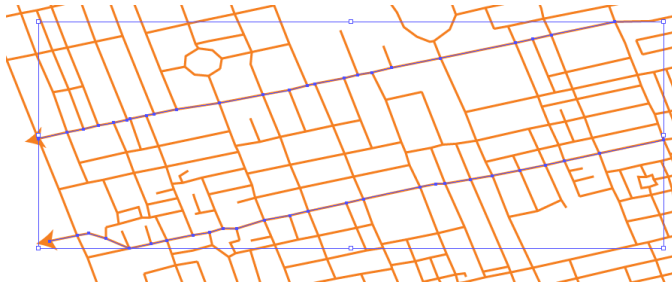
7.2 Flip lines

There are two methods in MAPublisher to ensure that text labels are oriented correctly when they are attached to paths. The first is to check the *Reverse right to left paths (flip upside-down text)* option in Label Features or the MAP Tagger Tool. Alternatively, permanently correct any digitizing irregularities by using the Flip Lines function.


1. Create a new Adobe Illustrator document.
2. Import **torontostreetsjoined.mif** from the *Tutorial Data* folder.
3. Select the two lines as indicated in the graphic below and add arrowheads to the lines. In Illustrator CS5/CS6 the Add Arrowheads controls have been integrating into the Stroke panel (*Window > Stroke*).



4. Accept the default arrowhead style and click OK.



Arrowheads are added to the selected road lines.

5. On the MAPublisher toolbar, click the Flip Lines button. 

Notice how the selected lines now have their beginning and end points switched (as indicated by the arrowhead). The orientation of the lines are permanently corrected. Any labels placed along these lines are now oriented correctly (labels would be oriented below the lines if the lines were not flipped).

6. Close the document without saving.

7.3 Join lines based on attribute value


1. Create a new Adobe Illustrator document.
2. Import **torontostreets.mif** from the *Tutorial Data* folder.

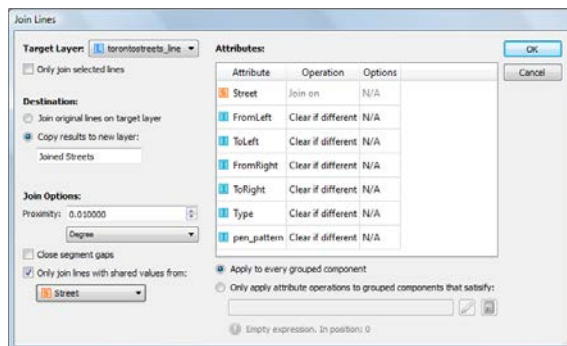


Select individual line segments to see that lines are not joined with other line segments, even though the line may be of the same street.

3. Select all objects on the *torontostreets_line* layer.

In the MAP Attributes panel, notice there are 1197 line segments in the *torontostreets_line* layer.

4. On the MAPublisher toolbar, click the Join Lines button. 
5. Make sure that *torontostreets_line* is selected as the Target Layer. Leave join lines on target layer selected.
6. Under Destination choose the Copy result to new layer option and enter the layer name **Joined Streets**.
7. Under Join Options, leave the Only join lines with shared values from option checked and choose the **Street** attribute from the drop-down menu.
8. Type **0.01** in the Proximity box and make sure the proximity unit is set to **Degree**. Proximity is the tolerance setting used in the join process.
9. Ensure the Close Segment Gaps check box is unchecked.




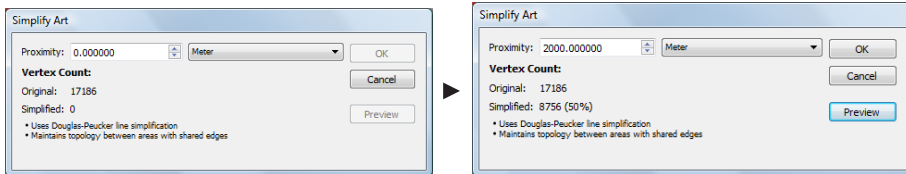
10. Make sure that the dialog box matches the one above and click OK.

A new layer called *Joined Streets* is created and contains 264 line segments (according to the MAP Attributes panel). The original dataset contained 1197 line segments. Select an individual line segment and notice that the line is joined with line segments that share the same street name (the attribute the join was based on).

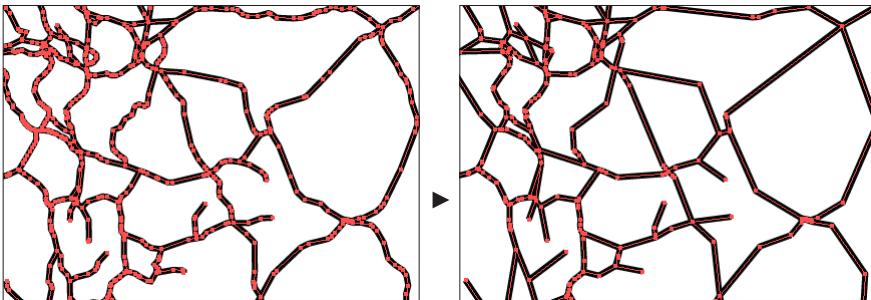
11. Close the document without saving.

7.4 Simplify art

1. Create a new Adobe Illustrator document.
2. Import the **ukrail.gen** file from the *Tutorial Data* folder and specify **British National Grid** as the coordinate system. It is located under **Projected > Europe > United Kingdom**.
3. Select all objects in the *ukrail_line* layer and click the Simplify Art button  on the MAPublisher toolbar.
4. In the Simplify Art dialog box, type **2000** in the Proximity box and choose **Meter** in the Units drop-down list.
5. Click Preview to see a preview of the simplified data with the current settings.



6. Click OK to start the simplification process.

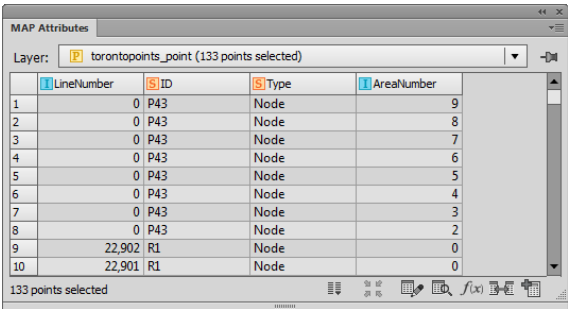


The selected art is now simplified based on a proximity value of two kilometers (2000 meters) and have been simplified from 17,186 vertices to 8,756 vertices or a vertex reduction of about 50%.

7. Close the document without saving.

7.5 Join points

1. Create a new Adobe Illustrator document.
2. Import **torontostreetsjoined.mif** and **torontopoints.mif** from the *Tutorial Data* folder. After import, ensure the *torontopoints_point* layer is positioned at the top of the layers hierarchy in the Adobe Illustrator Layers panel.
3. If necessary, deselect all layers and only select the points of the *torontopoints_point* layer and open the MAP Attributes panel.



	LineNumber	ID	Type	AreaNumber
1	0	P43	Node	9
2	0	P43	Node	8
3	0	P43	Node	7
4	0	P43	Node	6
5	0	P43	Node	5
6	0	P43	Node	4
7	0	P43	Node	3
8	0	P43	Node	2
9	22,902	R1	Node	0
10	22,901	R1	Node	0

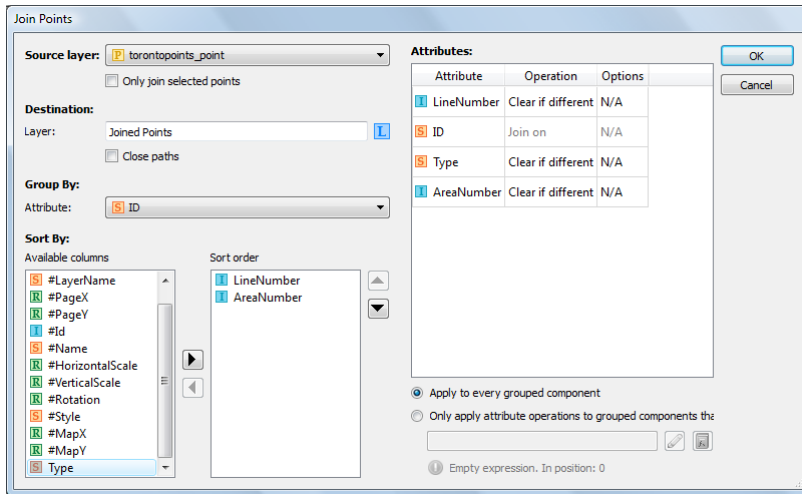
The *ID* attribute column contains four unique values identifying points that compose: two subway lines (S1 and S2), the mainline rail track (R1), and a park boundary (P43). The *LineNumber* and *AreaNumber* columns contain rising numeric values indicating the number of each point in its sequence. Note that some points contain matching values.

4. Deselect all points and on the MAPublisher toolbar, click the Join Points button. 

Since only one point layer is present in the document and there are no points selected, the Source Layer defaults to the *torontopoints_point* layer in the Join Points dialog box.

5. In the Destination Layer box, type **Joined Points** (a new layer will be created with this name) and leave the Close paths check box unchecked.
6. In the Group By Column drop-down list, choose **ID**. This contains the unique attributes that will be used to join similar points together.
7. In the Sort By section, click **LineNumber** in the Available Columns list, and click the right arrow button to add it to the Sort Order list. Click **AreaNumber** and click the right arrow button again to add it to Sort Order.

Ensure that *LineNumber* is at the top of the Sort Order list box. Having *LineNumber* at the top of the *Sort Order* column makes it the primary sorting column when determining the order of points in the chain. The *AreaNumber* column is used as the secondary sorting column, if any points in the primary column contain matching values.

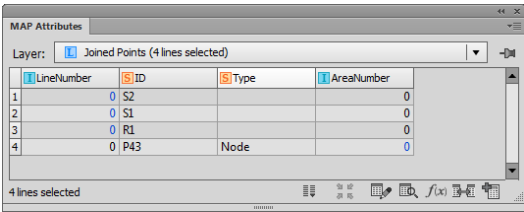


8. Make sure the dialog box matches the one above and click OK.



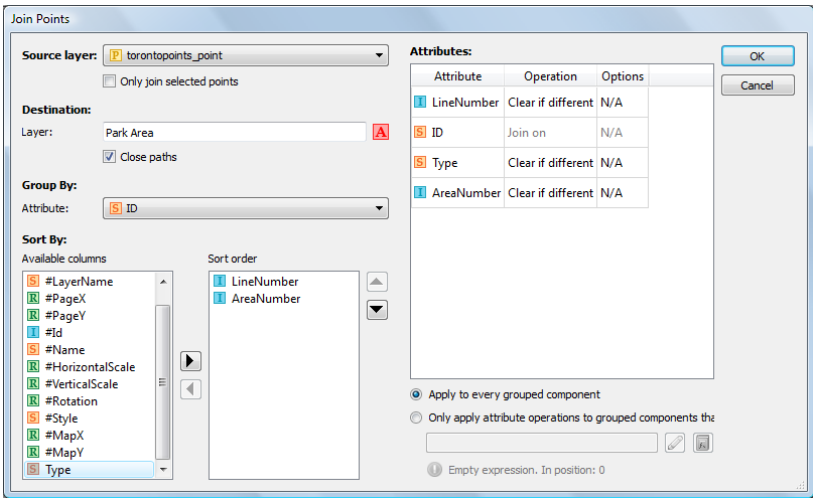
All the points are joined based on the specified parameters. A line layer called **Joined Points** is created that contains four new lines. The lines represent two subway lines, the mainline rail track, and the perimeter of a small park. To see the **Joined Points** line more clearly, hide the other layers.

9. Select the four lines of the Joined Points layer and open the MAP Attributes panel.



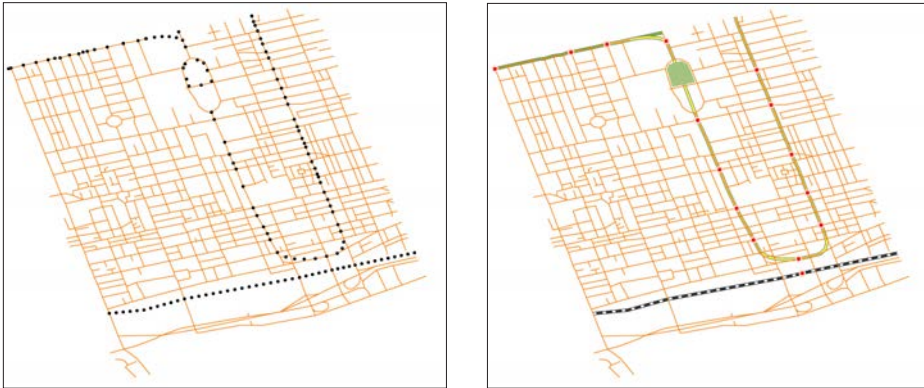
- Notice that an attribute column named *ID* was created and contains the values specified in the Group By Column setting in the Join Points dialog box. Note that the small segment with the attribute P43 is the outline of a park area. However, this segment should be closed and should be deleted using the following steps.
- 10. In the Adobe Illustrator Layers panel, select the *torontopoints_point* layer and use the MAP Selections to select all the points with an ID equal to P43 (see Tutorial 10 on Making Selections).
 - 11. With the points of P43 selected, click the Join Points button.

- In the Join Points dialog box, the *torontopoints_point* layer and Selected Points option are chosen by default.
- 12. In the Destination Layer box, type **Park Area**. This time, check the Close Paths check box. Leave the Group By column as the default of ID.
 - 13. Add *AreaNumber* and *LineNumber* to the Sort Order column list, and make sure *LineNumber* is at the top of the list.



14. Make sure your dialog matches the graphic above and click OK.

The selected points are joined based on the specified parameters. A new *Park Area* layer is created that contains a polygon that represents the perimeter of a small park. The map can be styled to more clearly show the subway lines, rail line and park.



15. Close the document without saving.

7.6 Join areas

1. Create a new Adobe Illustrator document.
2. Import **world.d.mif** from the *Tutorial Data* folder.
3. With the *world* layer selected open the MAP Attributes panel.

MAP Attributes

Layer: world_area (220 areas selected)

	Capital	Country	Continent	Arable_Pct	Population	Pop_Grw_Rt	Literacy
1	Kabul	Afghanistan	Asia	12.000000000	16,450,304.0000...	5.200000000	29.000000000
2	Tirane	Albania	Europe	21.000000000	3,335,044.0000...	1.800000000	72.000000000
3	Algiers	Algeria	Africa	3.000000000	26,022,188.0000...	2.500000000	50.000000000
4	Andorra la Vella	Andorra	Europe	2.000000000	53,197,000.0000...	2.400000000	0.000000000
5	Luanda	Angola	Africa	2.000000000	8,668,281.0000...	2.700000000	42.000000000
6	The Valley	Anguilla	North America	0.000000000	6,922.000000000	0.600000000	95.000000000
7	none	Antarctica	Antarctica	0.000000000	0.000000000	0.000000000	0.000000000
8	St. Johns	Antigua	North America	18.000000000	63,917.000000000	0.400000000	89.000000000
9	Buenos Aires	Argentina	South America	9.000000000	32,663,983.0000...	1.100000000	95.000000000
10	Yerevan	Armenia	Europe	0.000000000	3,412,000.0000...	0.000000000	0.000000000

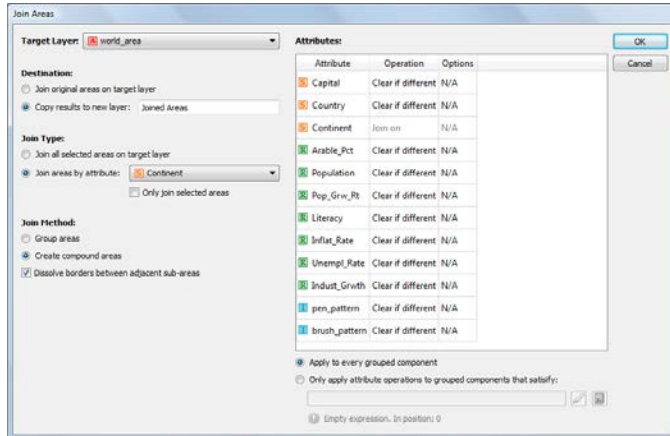
220 areas selected

Notice that the Continent column holds the continent entry for each country. This is the attribute that you will join areas with.

4. Deselect all art by going to *Select > Deselect* in the file menu.
5. On the MAPublisher toolbar, click the Join Areas button

Since only one layer is present in the document and there are no areas selected, the Source Layer defaults to the *world_area* layer in the Join Areas dialog box.

6. Under Destination, choose the *Copy results to new layer* option and type **Joined Areas** (a new layer will be created with this name).
7. Under Join Type, choose the *Join areas by attribute* option and choose **Continent** from the drop-down menu.
8. Leave all attributes set to Clear if different when joining. Notice beside Continent it states "Join on". Click Ok.



New areas have been created based on matching Continent attributes and the boundaries of counties of have been dissolved.



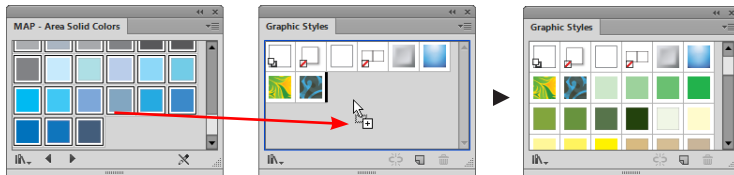
9. Close document without saving.

8 MAP Themes and Legends

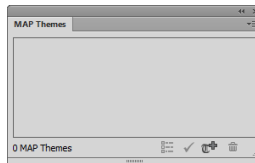
See User Guide, Chapter 9

8.1 Create an area stylesheet theme

1. Create a new Adobe Illustrator document.
2. Import **world.mif** from the *Tutorial Data* folder.
3. In the Adobe Illustrator menu, choose *Window > Graphic Styles* to open the Graphic Styles panel.
4. In the Graphic Styles panel option menu, choose *Open Graphics Style Library > MAP Graphic Styles > MAP - Area Solid Colors*. For non-English installations of Illustrator choose *Open Graphics Style Library > Other Library* and load **MAP - Area Solid Colors.ai** from the *\Helpful Styles & Symbols\Graphic Styles* folder (see page iii).
5. Shift-select all the graphic styles in the MAP - Area Solid Colors panel and drag them into the Adobe Illustrator Graphic Styles panel.



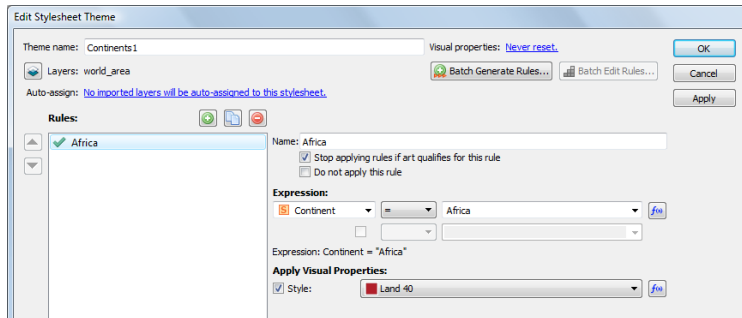
6. Open the MAP Themes panel, click the MAP Themes button on the MAPublisher toolbar or from the menu *Window > MAPublisher > MAP Themes*.



7. In the MAP Themes panel option menu, click *New MAP Theme*.
8. In the New MAP Theme dialog box, type **Continents1** into the Theme Name box, choose **Stylesheet** as the Theme Type, choose **Area** from the Feature type drop-down list, and click OK.



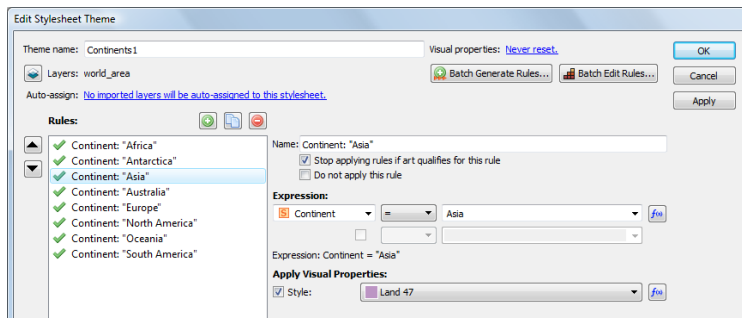
9. Double-click *Continents1* stylesheet, or choose *Edit "Continents1"* from the MAP Themes panel option menu
10. Click the Layers button, click the checkbox for the *world_area* layer and click OK. In the Edit Stylesheet Theme dialog box, click the Add button to add a style rule. Rename Rule 1 to **Africa**.
11. In the Expression section, click the left-hand drop-down list to set the attribute to **Continent**, choose the equal sign as the operator, and choose **Africa** from the right-hand drop-down list as the attribute value.
12. Under Apply Properties click the Style check box and choose the **Land 40** graphic style.



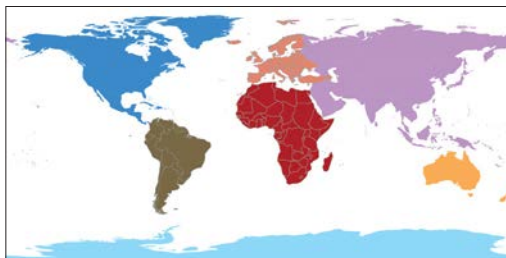
13. Leave the other display properties at their default values and click Apply to see the changes made to the map.

Note: The MAPublisher Log records which artwork was affected or not. Click View Log to see which pieces of art did not satisfy the expression. Otherwise click Close. If changes are made to a style, click white empty space in the dialog box before clicking the Apply button.

14. Repeat steps 9 to 11 for each of the subsequent continents. Note that the same style cannot be used more than once, as one style equals one legend entry. When all of the continents are assigned a style, click the Apply button to see the changes, or click OK to close the dialog box.



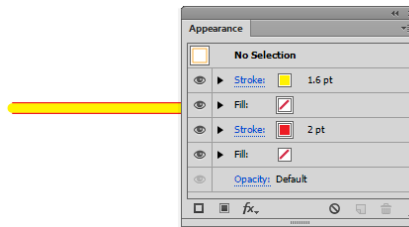
The styles specified have been applied to the map. The styles in the Graphic Styles panel are now linked to the attribute values specified by the style rules.



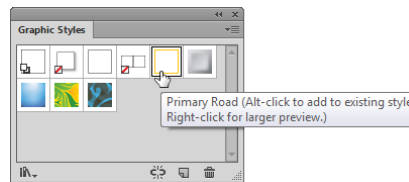
15. Save this document as **MyWorld.ai** in the *Tutorial Data* folder.

8.2 Create a line stylesheet theme

1. Create a new Adobe Illustrator document.
2. Import **fstreets.mif** from the *Tutorial Data* folder.
3. Open the Adobe Illustrator Graphic Styles panel.
4. Use the Adobe Illustrator Line Segment Tool to create a graphic style by drawing a line on the page. Assign the line a stroke weight of 2 pt, a stroke color of red, and a fill of none.
5. Open the Adobe Appearance panel via *Windows > Appearance*. From the Appearance panel option menu choose *Add New Stroke*. Set the color to yellow and the stroke weight to 1.6. Make sure the newly created stroke is above the 2 pt red stroke in the Appearance panel.



6. Use the Selection Tool to drag this line into the Graphic Styles panel. In the Graphic Styles panel, double-click the style to open the Graphic Style Options dialog box. Rename the style to **Primary Road**.



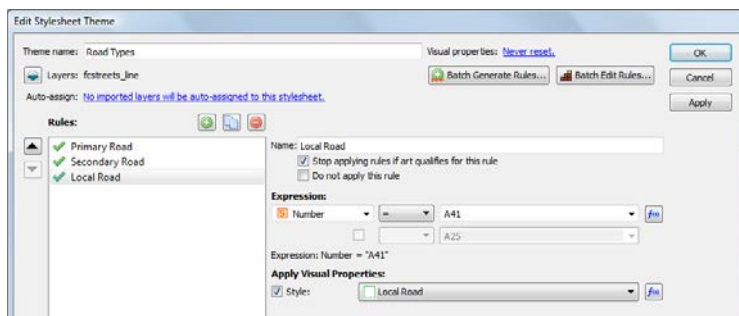
Delete the line on the artboard (the style will remain available inside the Graphic Styles panel).

7. In the Graphic Styles panel option menu, click *Open Graphic Style Library > MAP Graphic Styles > MAP - Line Styles*. If using a non-English version of Illustrator, choose *Other Library > Open Graphic Style Library* and browse to the MAPublisher supplied file **MAP - Line Styles.ai** from *\Helpful Styles & Symbols\Graphic Styles* folder (see page iii).
8. From the MAP - Line Styles panel, add the graphic styles MAP Line 12 and MAP Line 16 to the document's Graphic Style panel.

These new styles will now be available for use in the current document.

9. Rename MAP Line 12 to **Local Road** and MAP Line 16 to **Secondary Road**. Close the MAP - Line Styles panel.
10. Open the MAP Themes panel and in the panel option menu, click *New MAP Stylesheet*.
11. In the New MAP Theme dialog box, type **Road Types** into the Theme name field, choose the **Stylesheet** Theme type, choose **Line** from the Feature type drop-down list, and click OK.

12. Double-click the *Road Types* stylesheet. Click the Layers button and click the **fcstreets_line** layer checkbox in the Selected column, then click OK.
13. In the Edit Stylesheet Theme dialog box, click the Add button three times to add three rules. Rename Rule 1 to **Primary Road**, Rule 2 to **Secondary Road**, and Rule 3 to **Local Road**.
14. In the Expression field, for the Primary Road rule select "Number" from the pull down menu displaying attributes, and choose the unique attribute value "A25". Under Apply Properties, check the Style check box and choose the Primary Road style.
15. In the Expression field, for the Secondary Road rule select "Number" from the pull down menu displaying attributes, and choose the unique attribute value "A31". Under Apply Properties, check the Style check box and choose the Secondary Road style.
16. In the Expression field, for the Local Road rule select "Number" from the pull down menu displaying attributes, and choose the unique attribute value "A41". Under Apply Properties, check the Style check box and choose the Local Road style.



17. When all the rules are defined with a style and expression, click Apply. (If a MAP Theme warning appears, just click the close button.)

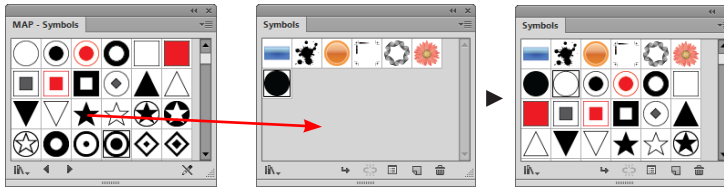
The primary, secondary and local roads are styled accordingly.



18. Save this document as **MyRoads.ai** in the *Tutorial Data* folder.

8.3 Create a point stylesheet theme

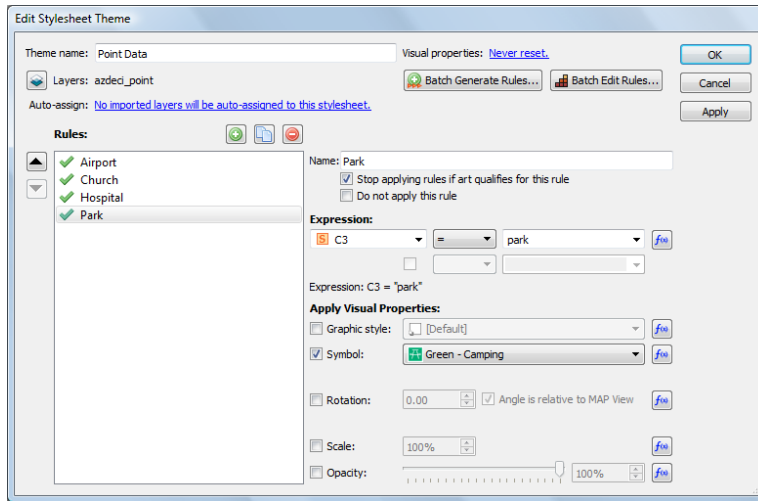
1. Complete Tutorial Guide exercise 1.6 or open your previously saved **MyPoints.ai** in the *Tutorial Data* folder.
2. Open the Adobe Illustrator Symbols panel (choose *Window > Symbols*), in the Symbols panel option menu, click *Open Symbol Library > MAP Library > MAP Symbols > MAP - Symbols*. If using a non-English version of Adobe Illustrator choose *Open Symbol Library > Other Library* and load **MAP - Symbols.ai** from *\Helpful Styles & Symbols\MAP Symbols* (see page iii).
3. Shift-select all the symbols in the MAP Symbols panel, and drag them into the Adobe Illustrator Symbols panel.



4. Open the MAP Themes panel and in the panel option menu, click *New MAP Theme*.
5. In the New MAP Theme dialog box, type **Point Data** into the Theme Name field, choose **Stylesheet** as the Theme Type, choose **Point** from the Feature type drop-down list, and click OK.



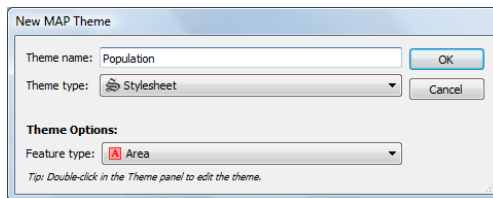
6. Double-click the *Point Data* stylesheet, or choose *Edit "Point Data"* from the MAP Themes panel option menu. Click the *Layers* button and select the *azdec1_point* layer.
7. In the Edit Stylesheet Theme dialog box, click the *Add* button four times to add four rules. Rename Rule 1 to **Airport**, Rule 2 to **Church**, Rule 3 to **Hospital** and Rule 4 to **Park**. In the Expression column, build the expression: **C3 = "airport"** and under Apply Properties, check the Symbol check box and from the drop-down list choose **MAP Symbol 34** (airplane symbol). Check the Scale check box and change the Scale to **70%**.
8. Select the Church rule and in the expression column, build the expression **C3 = "church"**. Under Apply Properties check the Symbol check box and from the drop-down list choose a church symbol. Check the Scale check box and change the Scale to **70%**.
9. Select the Hospital rule and in the expression column, build the expression **C3 = "hospital"**. Under Apply Properties check the Symbol check box and from the drop-down list choose a hospital symbol. Check the Scale check box and change the Scale to **70%**.
10. Select the Park rule and in the expression column, build the expression **C3 = "park"**. Under Apply Properties check the Symbol check box and from the drop-down list choose a park symbol. Check the Scale check box and change the Scale to **70%**.



11. Click Apply. The specified symbol styles are applied to the map. The styles used in the Symbols panel are now linked to the attribute values specified by the style rules.
12. Close the document without saving.

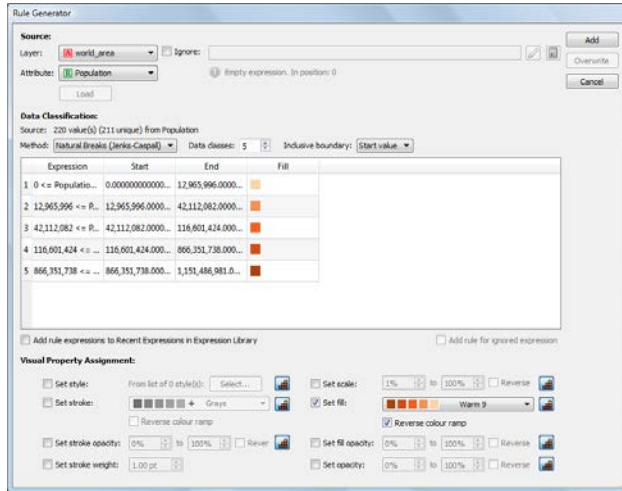
8.4 Batch generate stylesheet theme rules

1. Create a new Letter sized Adobe Illustrator document in landscape orientation.
2. Import **world.mif** from the *Tutorial Data* folder.
3. In the MAP Themes panel option menu, click New MAP Theme.
4. In the New MAP Theme dialog box, type **Population** into the Theme Name box, choose Stylesheet as the Theme Type, choose **Area** from the Feature type drop-down list, and click OK.

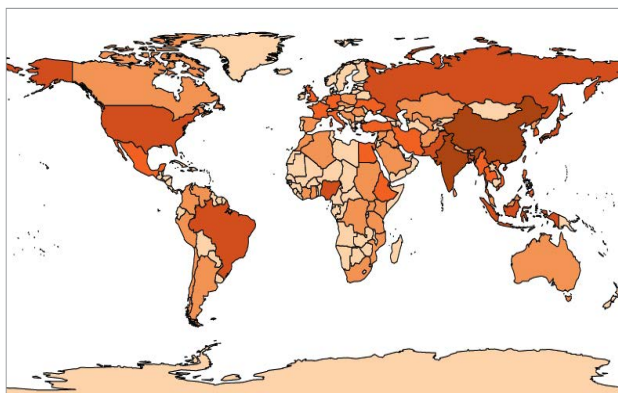


5. Double-click *Population* stylesheet, or choose Edit "Population" from the MAP Themes panel option menu.
6. Click the Layers button and select the *world_area* layer.

7. Click the **Batch Generate Rules** button to open the Rule Generator dialog box. Under Source: choose be sure that the world_area layer is selected. Choose **Population** from the Attribute drop-down list.
8. Click **Load** to generate rules. Rules are produced using the default values of 5 classes using Equal Intervals.
9. The Natural Breaks Jenks-Caspall method offers a more mathematically rigorous classification. Click the Method drop-down list and change Equal Intervals to Natural Breaks Jenks-Caspall.
10. Under Visual Property Assignment click the Set fill icon and choose a color ramp from the drop-down list. Available color ramps are those loaded into the Illustrator Swatches panel. Reverse the color ramp as necessary.



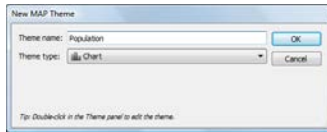
11. Click Add to close the Rule Generator dialog box, and back in the Edit Stylesheet Theme dialog box click Apply. Your map has now been stylized based on your batch generated rules.



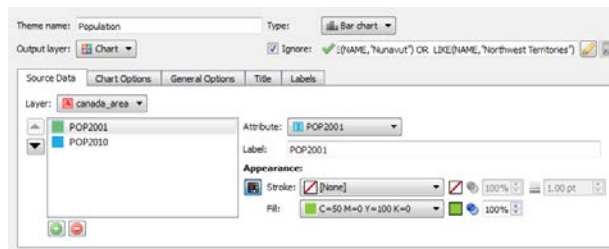
12. Close the document without saving.

8.6 Create a bar chart theme

1. Create a new Adobe Illustrator document.
2. Import **canada.shp** from the *Tutorial Data* folder.
3. In the MAP Themes panel option menu, click New MAP Theme. In the New MAP Theme dialog box, type **Population** into the Theme Name box, choose **Chart** as the theme type.



4. Double-click *Population* Chart theme in the Themes Panel. Click Yes when the alert box asks to create the required Legend layer.
5. In the Edit Chart Theme dialog box, choose **Bar Chart** from the Type drop-down list.
6. Check the "Ignore" check box and enter in the following expression: **LIKE(NAME,"Yukon") OR LIKE(NAME,"Nunavut") OR LIKE(NAME,"Northwest Territories")**. This will prevent bar charts from being applied to Canada's far north.
7. In the Source Data tab, with *canada_area* selected in the Layer drop-down list, click the Add button twice to add two attributes.
8. Highlight the first unspecified attribute. In the Attribute drop-down list, choose **POP2001**. In the Appearance section choose a fill color and set the stroke to None.
9. Repeat these steps with the second unspecified attribute highlighted, this time using the **POP2010** attribute and a different color for the chart bar (and no stroke).



10. In the Chart Options tab, change the bar thickness to **10**, the maximum bar length to **80**, the bar spacing to **4**.



11. In the General Options tab, click the *Draw chart border* check box.

12. In the Title tab, click the *Show title* check box. Enter **Pop** as the title in the Specify box.



13. In the Labels tab, click the *Show attribute value labels* check box. Change the rotation value to **90** and click the Appearance text style link.

14. In the Edit Text Rendition dialog box change the text size to **8.00** pt and click OK.

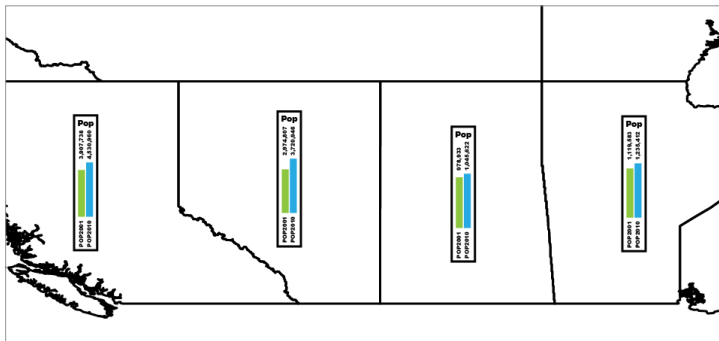
15. Click the Align value labels check box.

16. Click the *Show attribute name labels* check box and repeat steps 13 and 14.



17. Click Apply to apply the theme to the map.

18. Select the newly created charts and go to *Object > Transform > Transform Each*. Adjust the horizontal and vertical scale to both 30% and click OK.



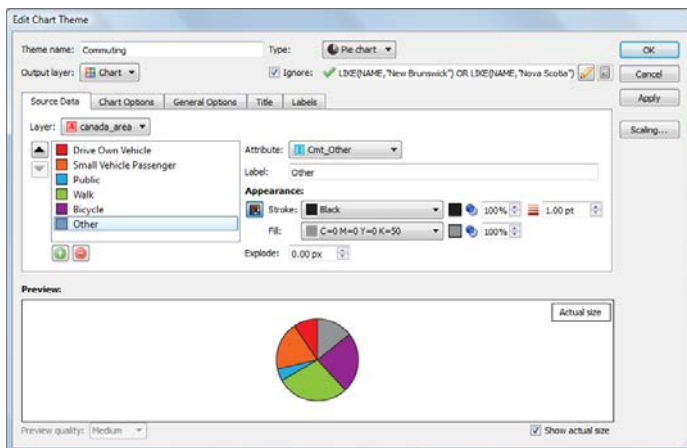
19. Close the document without saving.

8.7 Create a pie chart theme

1. Create a new Adobe Illustrator document.
2. Import **canada.shp** from the *Tutorial Data* folder.
3. Join the table **CA_commute.csv** to the *canada_area* layer on the NAME column (see Exercise 3.5).
4. In the MAP Themes panel option menu, click New MAP Theme. In the New MAP Theme dialog box, type **Commuting** into the Theme Name box, choose **Chart** as the theme type.



5. Double-click *Commuting* Chart theme in the Themes Panel. Click Yes when prompted to create a Legend layer.
6. In the Edit Chart Theme dialog box, choose **Pie Chart** from the Type drop-down list.
7. Check the "Ignore" check box and enter in the following expression: **LIKE(NAME,"New Brunswick") OR LIKE(NAME,"Nova Scotia") OR LIKE(NAME,"Prince Edward Island") OR LIKE(NAME,"Newfoundland and Labrador")**. This will prevent pie charts from being applied to Canada's Maritime region.
8. In the Source Data tab, with *canada_area* selected in the Layer drop-down list, click the Add button six times to add six attributes to the pie chart.
9. Highlight the first unspecified attribute. In the Attribute drop-down list, choose **Cmt_Drive**. In the Label field, enter **Drive Own Vehicle**. In the Appearance section, choose a fill color from the drop-down list or click the color swatch to open the Color Picker dialog box.
10. Repeat step nine for the five remaining attributes choosing a unique color for each attribute and assigning attributes and labels as follows: Cmt_Ride as **Small Vehicle Passenger**, Cmt_Public as **Public Transit**, Cmt_Walk as **Walk**, Cmt_Bicycl as **Bicycle**, and Cmt_Other as **Other**.



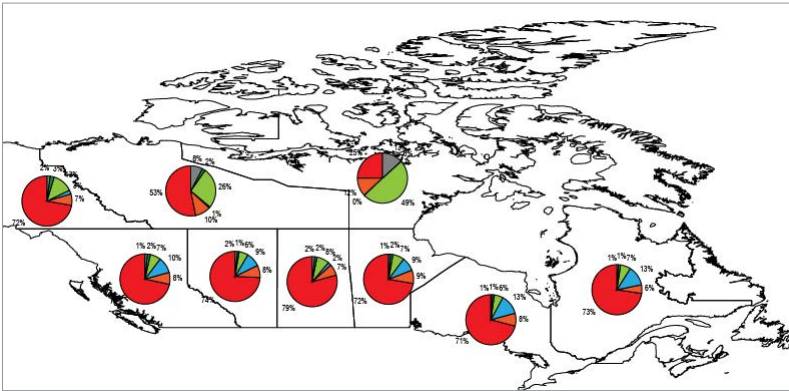
11. In the Chart Options tab, change the Pie radius to **25.00**.
12. In the Labels tab, click the *Show attribute value labels* check box. Set the offset to **3.0**, click the *Label with pie percentage* check box, and click the Appearance text style link.

13. In the Edit Text Rendition dialog box, leave the font as Arial and choose Narrow as the text style and change the font size to **8.00** pt.



14. Click Apply to apply the theme to the map.

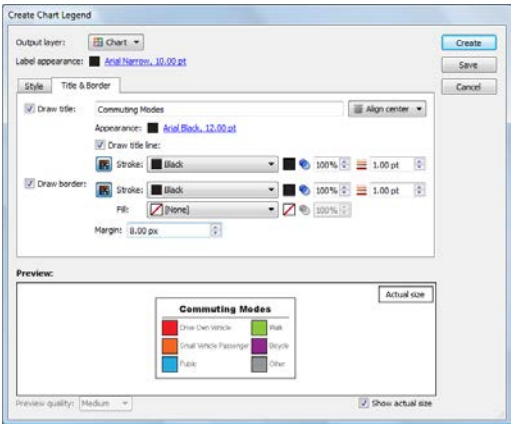
Note that some text labels, particularly the value labels for "Other" and "Bicyclce" attributes, will need to be manually adjusted for optimal appearance. This is caused by small percentage values.



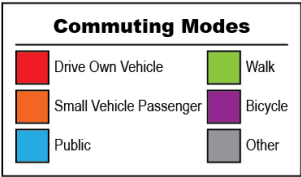
15. Leave the document open for the next exercise.

8.8 Create a chart legend

- 1. Create a MAP Theme, Bar chart or Pie chart like those found in exercise 8.4 to 8.7. Click a Chart Theme in the MAP Themes panel, open the MAP Themes panel option menu and click **Create Legend**.
- 2. In the Create Chart Legend dialog box, accept the default output layer.
- 3. Click the Label appearance text style link. In the Edit Text Rendition dialog box, leave the font as Arial, choose Narrow as the text style, and change the font size to **10** pt.
- 4. In the Style tab, change the number of columns to **2**.
- 5. In the Title & Border tab, click the *Draw title* check box and enter **Commuting Modes**. Click the *Draw title line* check box and increase the margin to **8.00** px.



- 6. Click Create to create the Chart Legend. The Legend will be placed in the centre of the current MAP View, and can be manually placed elsewhere on the document.



- 7. Close the document without saving.

8.9 Create a dot density theme

1. Create a new Adobe Illustrator document.
2. Import **southchinasea.shp** from the *Tutorial Data* folder.
3. In the MAP Themes panel option menu, click New MAP Theme.
4. In the New MAP Theme dialog box, type **Population** into the Theme name box and choose **Dot Density** as the Theme type.



5. In the MAP Themes panel, double-click the *Population* Dot Density theme.
6. In the Edit Dot Density Theme dialog box, choose **POP_ADMIN** from the attribute drop-down list. Click the Load button to view the attribute's data range. Notice that the low end of the range contains negative values.
7. Enter a dot value of **25000**.
8. Leave the Dot Options at default values and click Apply to create dot density theme.
9. Click View Log in the MAPublisher alter box. Notice that three pieces of art were not stylized as they held negative values in the POP_ADMIN column. Close the MAP Theme Log dialog box.



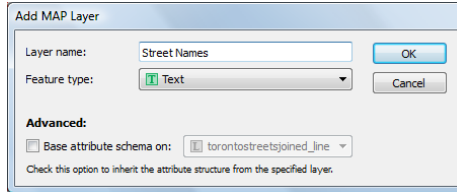
10. Close the document without saving.


9 Labeling Functions

See User Guide, Chapter 10

9.1 Generate labels for a line layer using Label Features

1. Create a new Adobe Illustrator document.
2. Import **torontostreetsjoined.mif** from the *Tutorial Data* folder.
3. In the MAP Views panel, add a new MAP Layer called **Street Names** and set the Feature type to **Text**.



4. Open the *Window > Type > Character* panel. Set the font to Arial 8 pt size. This will be the style for the labels.
5. Select several streets from *torontostreetsjoined_line*. These are going to be labeled.
6. On the MAPublisher toolbar, click the Label Features button. 
7. Only one layer is listed (*torontostreetsjoined_line*). In the Attribute drop-down list, choose **Street**. In the Target drop-down, choose **Street Names**. Leave the Style as *Use current settings*.



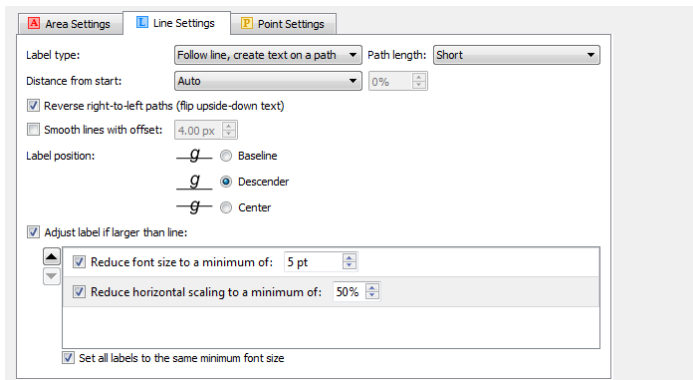
The *Layer* column shows the line, area, point, and text layers currently containing selected data. For each layer, the *Attribute* drop-down list is populated with the attribute structure of that layer. Label the data based on a column that holds the appropriate attribute values.

The Label Settings tabs, contain options to adjust label position, alignment to lines of latitude, minimum font sizes, and horizontal scaling to best place labels within polygons and paths. MAPublisher places line labels intelligently, depending on the curvature and length of the line string.

8. In Line Settings tab, set the Label Position option to **Descender**. Leave all of the other options as their default.

Labels can be modified if they exceed the length of the line with the current default font size.

9. Check the *Adjust label if larger than line* check box to activate the label rules.
10. Check the *Reduce font size* check box to reduce the size of the font to a specified minimum size in points. The default minimum font size value is set to **5 pt**.
11. Check the *Reduce horizontal scaling to a minimum of* check box and set the value to **50%**. This allows text to be scaled down horizontally by the fraction specified to adjust the kerning of the text.
12. Check the *Set all labels to the same minimum font size* check box.



If *any* of the labels have been adjusted in size due to the activation of a line adjustment rule, *all* labels can be resized to the same size. In this case, it is set to reduce to a minimum of 5 pt.


13. Make sure your dialog box matches the graphics above and click OK to label your map.



The labels are added to the map for the streets that were selected. These labels are static and can be styled, edited, and moved.

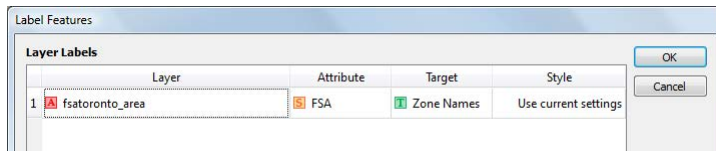
14. Close the document without saving.

9.2 Generate labels for an area layer using the MAP Tagger Tool

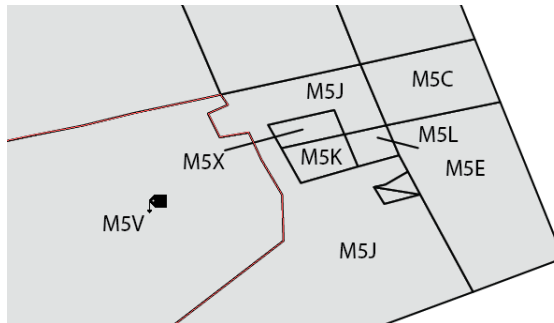
1. Create a new Adobe Illustrator document.
2. Import **fsatoronto.mif** from the *Tutorial Data* folder.
3. In the MAP Views panel, add a new Text MAP Layer called **Zone Names** to the fsatoronto MAP View.
4. In the Type Character panel, set the font to Arial and its size to 8 pt. This will be the style for the labels.
5. Double-click the MAP Tagger Tool  button in the Adobe Illustrator Tools panel.

Similar to *Label Features* in the previous tutorial, the label settings must be chosen before MAPublisher is able to determine the attributes that will be labeled. The *Layer* column shows the line, area, point, and text layers currently containing selected data.

6. In the Label Settings dialog box, choose **FSA** in the Attribute drop-down list. This attribute contains the name of every postal code zone in the selected MAP Layer. In the Target column, choose **Zone Names**. Click OK to confirm these settings.



Notice that the mouse cursor is now the MAP Tagger Tool cursor. Using the MAP Tagger Tool, click on any area feature to label it. You can click multiple times on an area to label it more than once.




Note: To create leader lines, hold the Shift key and click and drag. Release when the leader line is the appropriate length. To reopen the Label Settings dialog box, double-click the MAP Tagger Tool button.

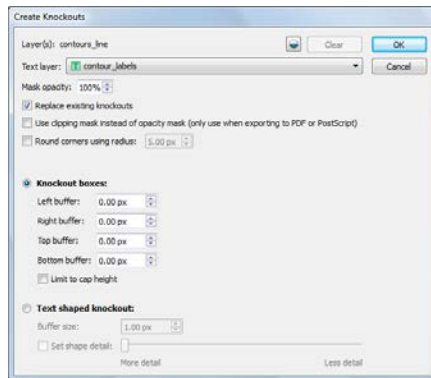
7. Close the document without saving.

9.3 Create knockouts for labels

1. Open **Contours.ai** from the *Tutorial Data* folder.

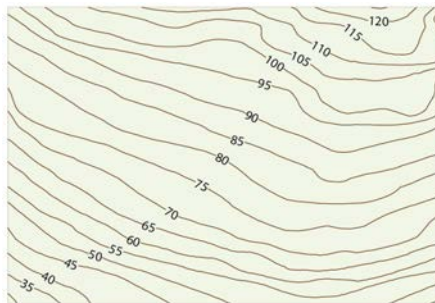
Three MAP layers are visible: contours_labels, contours_line and Background. The contour labels are positioned above the contour lines. Use the Create Knockouts feature to mask the contour line below the label.

2. From the MAPublisher toolbar, click the Create Knockouts button. 
3. Click the Select Layers icon and click the check box for **contours_line**, then click OK.



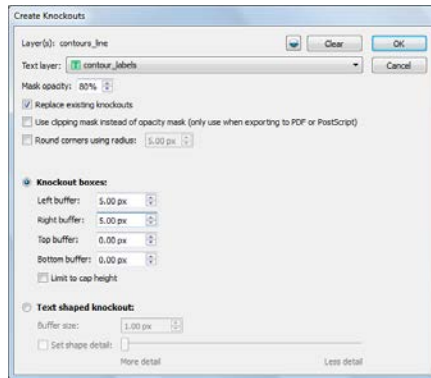
The Create Knockouts feature bases the masks on the input of contours_line and contour_labels. Accept the default settings shown above to see how the knockouts will look.

4. In the Create Knockouts dialog box, click OK.



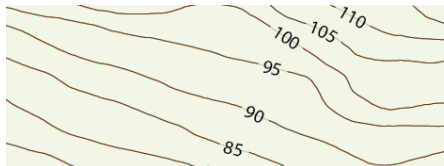
The knockouts are created. However, the labels are too close to the contour ends. Adjust the masks by adding a buffer and changing the transparency. There is no need to undo the previous step.

5. In the MAPublisher toolbar, click the Create Knockouts button.
6. Set the Mask opacity to **80%**. In the Knockout boxes section, set both the Left and Right buffer to **5.00** pixels.



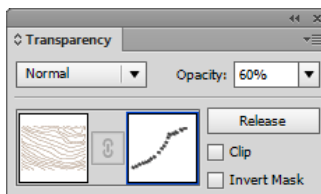
The Mask opacity adjusts the transparency of the contour lines so that they will be slightly visible (100% opacity means that it is completely invisible). The side buffer adds space to the left and right sides of the label so that it creates the effect that the contour lines are further away from the label. The reason there is no need to Undo the previous mask is because the *Replace existing knockouts* option is checked.

7. Click OK to close the Create Knockouts dialog box.



The knockouts are created with a 5 pixel buffer and 80% opacity. To further adjust the mask, change the settings in the Transparency panel.

8. In the Adobe Illustrator Layers panel, click the target to select all art on the *contours_line* layer. Go to the Window menu and click Transparency, then click the Mask (right-hand frame). In the Adobe Illustrator Layers panel, click the target to select all the art of <Opacity Mask>. In the Transparency panel, adjust the Opacity to see how it affects the contour lines.




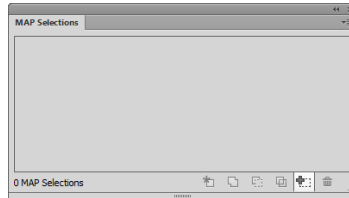
9. Close the document without saving.

10 Making Selections

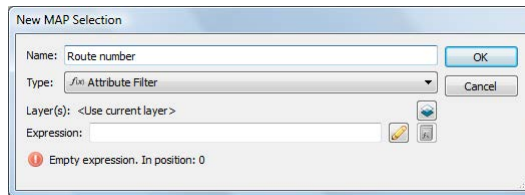
See User Guide, Chapter 11

10.1 Create an attribute filter

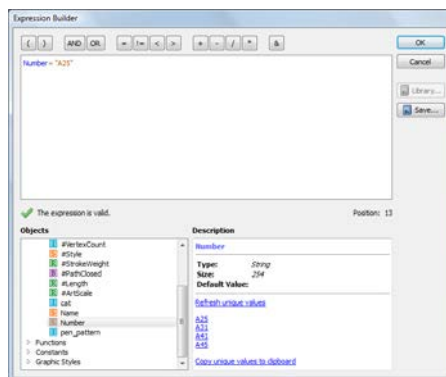
1. Create a new Adobe Illustrator document
2. Import **fcstreets.mif** from the *Tutorial Data* folder. It is a line file depicting the major roads of Falls Church, Virginia.
3. Select *fcstreets_line* and click the MAP Selections button on the MAPublisher toolbar. 
4. Click the Create New MAP Selection button at the bottom of the panel.



5. In the Name box, type **Route number**. Leave the type as Attribute Filter.

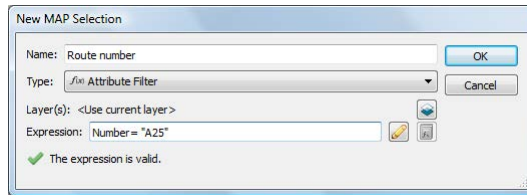


6. Click the Expression Builder button to open the Expression Builder dialog box.
7. In the Objects list, under the heading *fcstreets_line*, double-click **Number** so that it is entered into the expression entry box above. Click the equals (=) button and type **"A25"** (including quotes).



Note: To view the unique values of a specific attribute column, click *display unique values* under the Description box. Click a value to enter it into the expression entry box. It recognizes the attribute as a string and places quotations around the value.

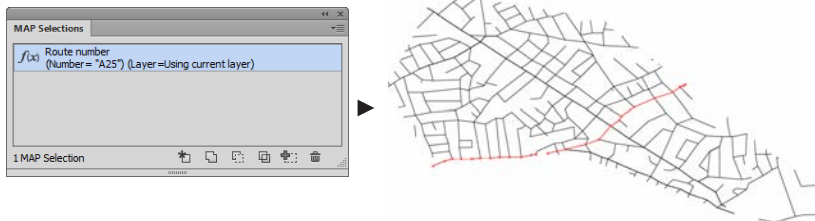
8. Click OK to close the Edit Expression dialog box.



The expression is valid.

- Click OK. In the MAP Selection panel, click the Apply as New Selection button.

Lines corresponding to the selection parameters are selected and the MAP Selection is saved in the panel.



- Deselect all artwork and leave the document open for the next tutorial.

10.2 Create a spatial filter

Continue working with the previous tutorial.

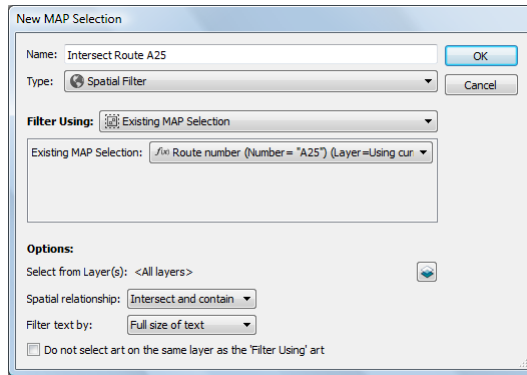
- In the MAP Selections panel, click the Create New MAP Selection button.
- In the New MAP Selection dialog box, type **Intersect Route A25** into the Name box. In the Type drop-down list, choose Spatial Filter.

This spatial filter will select any roads that intersect with Route A25. Use the attribute filter that was created in the previous tutorial.

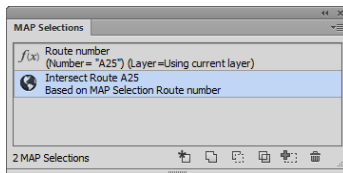
- In the Filter Using drop-down list, choose Existing MAP Selection. In the frame below, the attribute filter Route Number is already chosen (because it is the only one).
- Ensure that the Spatial Relationship drop-down list is set to Intersect and contain.

5. Uncheck the *Do not select art on the same layer as the 'Filter Using' art* option.

Since this spatial filter is selecting art on the one and only MAP layer, this option must be unchecked.



6. Make sure the dialog box matches the one above and click OK.
7. In the MAP Selection panel, click the Apply as New Selection button.



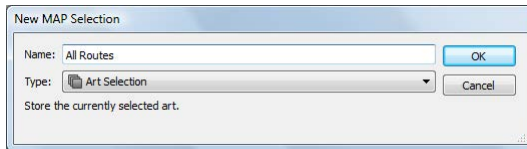
Roads that intersect Route A25 are selected and the MAP Selection is saved in the panel.

8. Deselect all artwork and leave the document open for the next tutorial.

10.3 Create an art selection filter

Continue working with the previous tutorial.

1. Select all artwork on the *fcstreets_line* layer.
2. In the MAP Selections panel, click the Create New MAP Selection button.
3. In the New MAP Selection dialog box, type **All Routes** into the Name box. In the Type drop-down list, choose Art Selection and click OK.



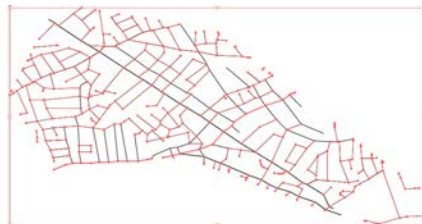
All selected roads are saved as a MAP Selection in the panel. Now use the MAP Selections panel controls to select subsets and add or remove selections altogether.

4. In the MAP Selections panel, select the Intersect Route A25 spatial filter and click the Remove from Current Selection button.



All the roads that were based on the spatial filter are removed from the current selection.

5. Select the Route Number attribute filter and click the Add to Current Selection button.



Route A25 is added to the current selection. Experiment with different combinations to vary selections.

6. Close the document without saving.

11 Working with Images

See User Guide, Chapter 13

11.1 Register an image with a reference file

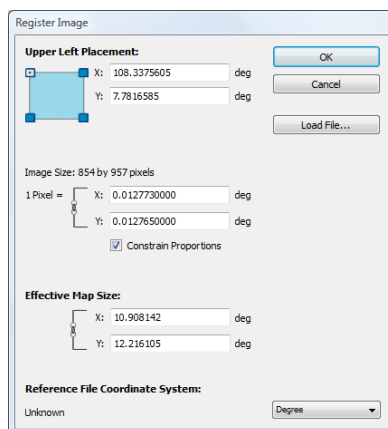
1. Create a new Adobe Illustrator document in landscape mode Letter sized.
2. Import **southchinasea.shp** from the *Tutorial Data* folder.
3. In the MAP View panel create a new layer of Image type and name it **Borneo**.
4. Make sure that the Layer Borneo is selected. In the Adobe Illustrator menu, click *File > Place*, navigate to the *Tutorial Data* folder, select the sample raster image file **borneo.tif**, and click Place.



The raster image is placed at a default position and scale in the center of the screen.

5. With the image selected, click the Register Image button on the MAPublisher toolbar. 
6. Click the Load File button and select **borneo.tfw** from the *Tutorial Data* folder.

All boxes in the dialog box are updated to reflect the data contained in the reference info file. Click OK to close the warning.

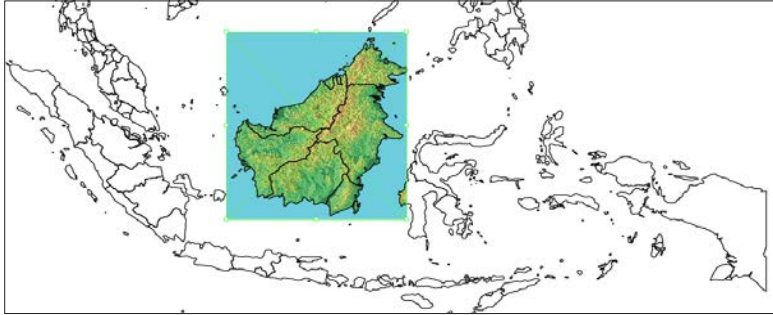


The Register Image dialog box contains the following fields and controls:

- Upper Left Placement:** A small square icon with a crosshair. To its right are input fields for X: 108.3375605 deg and Y: 7.7816585 deg.
- Image Size:** 854 by 957 pixels.
- 1 Pixel =** Input fields for X: 0.0127730000 deg and Y: 0.0127650000 deg.
- ☒ **Constrain Proportions**
- Effective Map Size:** Input fields for X: 10.908142 deg and Y: 12.216105 deg.
- Reference File Coordinate System:** A dropdown menu showing 'Unknown' and 'Degree'.
- Buttons: OK, Cancel, and Load File...

7. Click OK to register the image.

The image is registered; its size and position have been changed to reflect the information in the reference file.



Note: A new map view can be created by registering an image on a non-map layer. The new map view will have the same coordinate system of the registered image, the image will be scaled to fit the document size and placed on an MAP Layer of the Image type. For more information on this see MAPublisher User Guide, Chapter 12.

8. Leave the document open for the next tutorial.

11.2 Register an image without a reference file

Continue working with the previous tutorial.

1. Select and delete the existing Borneo image, but leave the *Borneo* layer in the document.
2. With the *Borneo* layer highlighted, in the Adobe Illustrator menu, click *File > Place*, navigate to the *Tutorial Data* folder, select the sample raster image file, **borneo.tif**, and click Place.

The raster image is brought in at a default position and scale in the center of the screen.

3. With the image selected, click the Register Image button on the MAPublisher toolbar.

One of the four corners of the raster image is what MAPublisher will use as the raster anchor point (Upper Left Placement, Lower Left Placement, Upper Right Placement or Lower Right Placement).

4. Click the Upper Left Placement (top left corner of the blue diagram) and type the following values into the Upper Left Placement X and Y boxes: X=**108.3375605**, Y=**7.7816585**.
5. Make sure that Constrain Proportions option is checked and type pixel size X equal to **0.012773**.

Register Image

Upper Left Placement:

X: 108.3375605 deg
Y: 7.7816585 deg

Image Size: 854 by 957 pixels

1 Pixel = X: 0.012773 deg
Y: 0.012772999601977 deg

☒ Constrain Proportions

Effective Map Size:

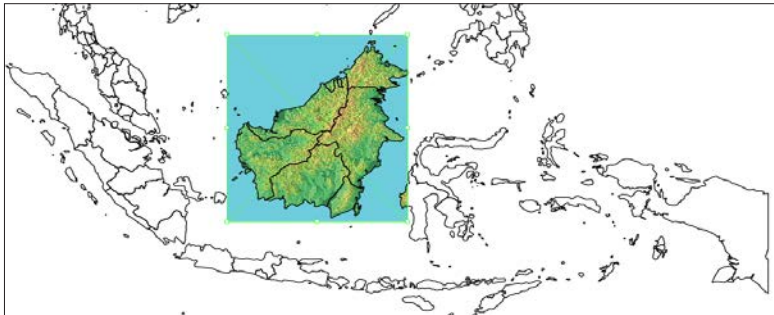
X: 10.908142 deg
Y: 12.223760619092 deg

Reference File Coordinate System:

Unknown Degree

OK
Cancel
Load File...

- Make sure the dialog box matches above and click OK.



The image is registered to the selected layer. This method is useful if no reference file is available. However, it is necessary to know the coordinates for one of the corners of the image as well as the pixel scale in order to register the image correctly.

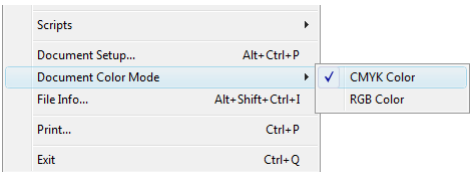
- Leave the document open for the next tutorial.

11.3 Export a placed image as a georeferenced raster file

Continue working with the previous tutorial.

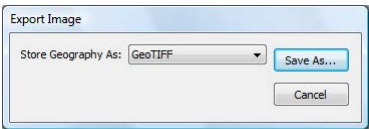
A referenced image must be placed on an Image layer in order to export it.

1. To set the color mode, in the Adobe Illustrator menu, click *File > Document Color Mode*.

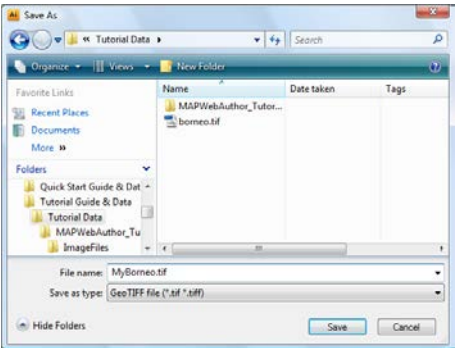


Select RGB Color or CMYK Color depending on the color mode required for the exported raster image.

2. For this example, choose **CMYK Color**.
3. With the *Borneo* layer selected within the southchinasea MAP View, choose **Export "Borneo"** from the MAP View panel option menu.
4. In the Export Image dialog box, choose **GeoTIFF** in the Store Geography As drop-down list to set the georeferencing output format.



5. Click Save As and navigate to a location to save the export image.
6. Type a file name (e.g. MyBorneo.tif) for the export image and click Save to complete the export process.



The image of Borneo is exported as a GeoTIFF file using the coordinate system of the South China Sea layer.

7. Close the document without saving.

12 Grids, Graticules and Indexes

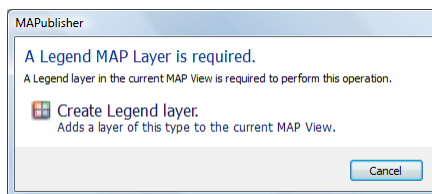
See User Guide, Chapter 13

12.1 Create an index grid

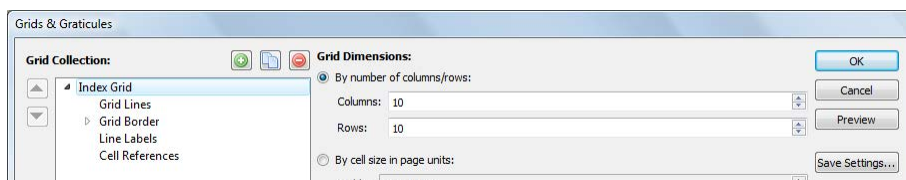
1. Open **grids-example.ai** from the *Tutorial Data* folder.

Make sure the world_area layer in the WGS 84 MAP View is chosen. Several graphic styles and character styles have been created for you for this tutorial to style grids and graticules. You can also create these prior to using the Grids & Graticules dialog box and the styles will be available from the menus. Alternatively, you can use the Custom mode to create a style or font and apply it directly.

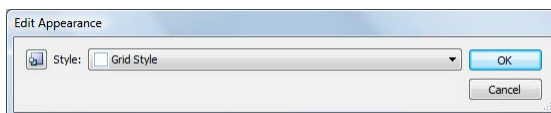
2. On the MAPublisher toolbar, click the Grids & Graticules button.  In the message, click Create Legend layer.



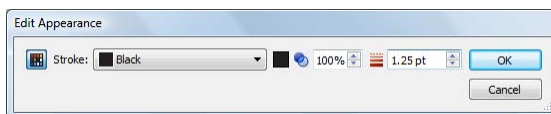
3. In the Grids & Graticules dialog box, click the Index Grid button to show its options. Leave the By number of columns/rows as **10** for each box.



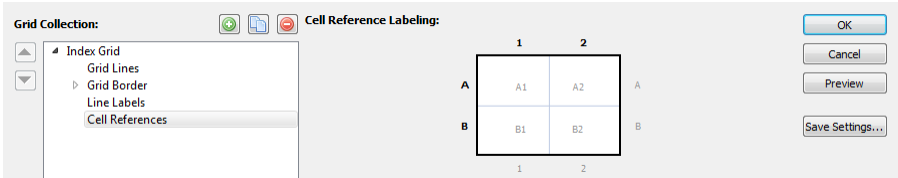
4. In the Grid Collection box, click Grid Lines. Ensure the Draw Grid Lines check box is checked and the Solid line option is chosen. Click the style link (1 pt Black). In the Edit Appearance dialog box, click the Graphic style/Custom style toggle icon and then select **Grid Style** from the Style drop-down list, then click OK.



5. In the Grid Collection box, click Grid Border. Ensure the Draw Border check box is checked and the Solid line option is chosen. Click the style link (1 pt Black). In the Edit Appearance dialog box, change the stroke weight to **1.25 pt**, then click OK.

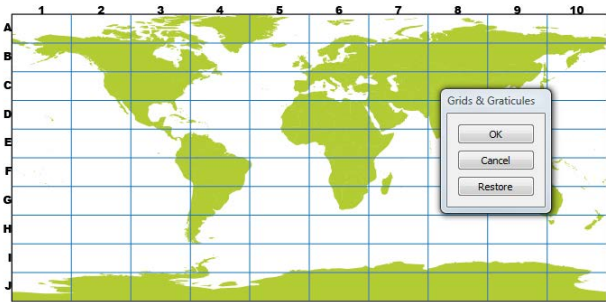


- In the Grid Collection box, click Cell References. In the Label placement control, click both the top label (1, 2) and the left label (A, B) to enable them. Notice that labels in the Label placement control highlighted with a green box when the mouse hovers over the different style options.

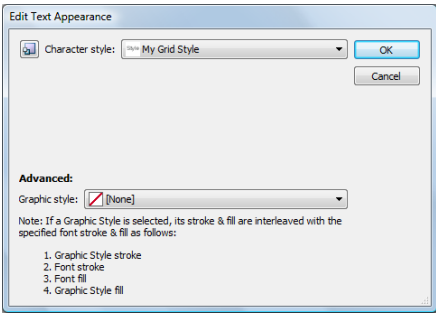


Clicking the border reference labels enables or disables the display of border labels on the grid.

- Click Preview.



- The Grids & Graticules dialog box minimizes and a grid is drawn with the settings you specified. You'll change more index settings such as offset and label style.
- Click Restore.
 - In the Label placement control, click the center style label to enable them.
 - Under the Cell References section, increase the Place labels off cell by value to **5.00 px**.
 - Click the Border style link. In the Edit Text Appearance dialog box, click the Character style/Custom style toggle icon, and choose **My Grid Style** from the Character style drop-down list, then click OK.



12. Click the Center style link. In the Edit Text Appearance dialog box, change the font size to **9.00** pt and choose a gray fill color. Then click OK.
13. Click the Row order drop-down list and choose **Ascending**.

Grid Collection:

▲

▼

Index Grid

Grid Lines

Grid Border

Line Labels

Cell References

Cell Reference Labeling:

12

B

A

12

B1

A1

B2

A2

B

A

Cell References:

Place labels off cell by: 5,00 px

Border style: My Grid Style

Center style: Arial Black, 9.00 pt

Reference Order:

☒ Alpha on left/right, numeric top/bottom

☐ Numeric on left/right, alpha on top/bottom

Row order: Ascending

Column order: Ascending

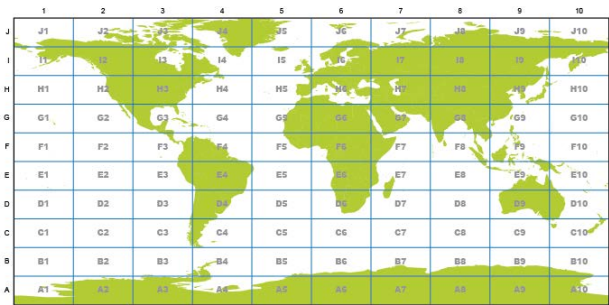
OK

Cancel

Preview

Save Settings...

14. Make sure your settings match the ones above and click OK to create the index grid.



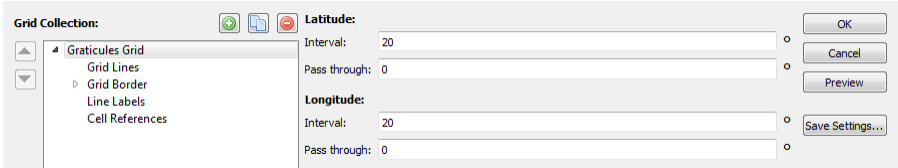
- An index grid is placed on the map. Each cell is labeled with an alphanumeric reference label. The border labels are offset from the border compared to the first preview. To edit an existing grid, select the grid and click the Grids & Graticules button.
15. Save the document as **MyGrid.ai**. It will be used in Tutorial 12.4 *Creating an Index: Feature Based*.

12.2 Create a graticule

1. Open **grids-example.ai** from the *Tutorial Data* folder.

Hide all other layers and make sure the world_area projected layer is visible in the Mollweide MAP View.

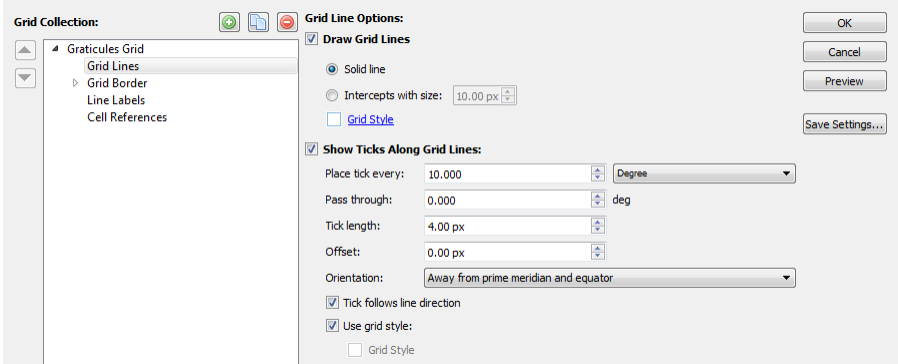
2. From the MAPublisher toolbar, click the Grids & Graticules button. In the message box, click Create Legend layer.
3. In the Grids & Graticules dialog box, click the Graticules button to show its options. Under Latitude, type **20** in the Interval box. Under Longitude, type **20** in the Interval box.



Graticules can be plotted to intersect at specific lines of latitude and longitude. Pass through values of zero will create a graticule that passes through the Prime Meridian and the Equator. This graticule will have lines at intervals of 20 degrees.

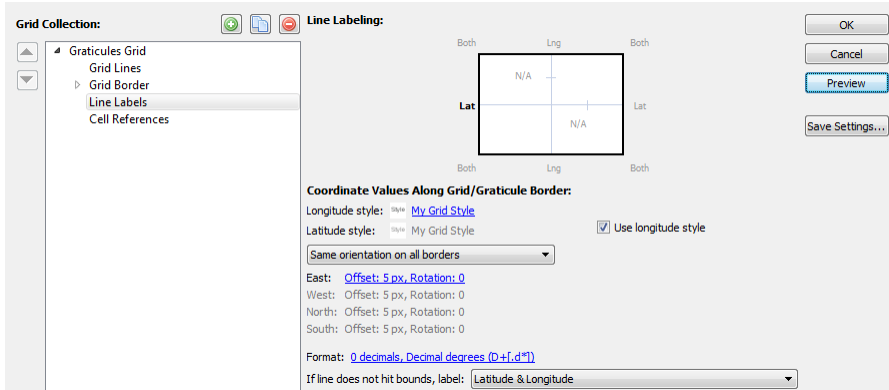
The Vertices slider controls the number of nodes to construct the graticule. Higher numbers should be used if graticules are curved or in anticipation of transforming them. For now, leave the default setting.

4. In the Grid Collection box, click Grid Lines. Ensure the Draw Grid Lines check box is checked and the Solid line option is chosen. Click the style link (1 pt Black). In the Edit Appearance dialog box, click the Graphic style/Custom style toggle icon and then select **Grid Style** from the Style drop-down list, then click OK.
5. Click the Show Ticks Along Grid Lines check box. Change the Place tick every setting to **10.00** (degrees) and the Tick length setting to **4.00** px.



6. In the Grid Collection box, click Grid Border. Click Draw Grid Border to uncheck it.

7. In the Grid Collection box, click Line Labels. In the Label placement control, click the West label (Lat) to enable it.
8. Under the Coordinate Values Along Grid/Graticule Border section, click the Longitude style link and change the character style to **My Grid Style**. Click the East link to change the offset to **5.00 px**. Finally, make sure the If line does not hit bounds, label drop-down list is set to **Latitude & Longitude**.



9. Click OK to create the graticule.

A graticule is placed over the map with latitude labels. To edit an existing grid, select the grid and click the Grids & Graticules button.



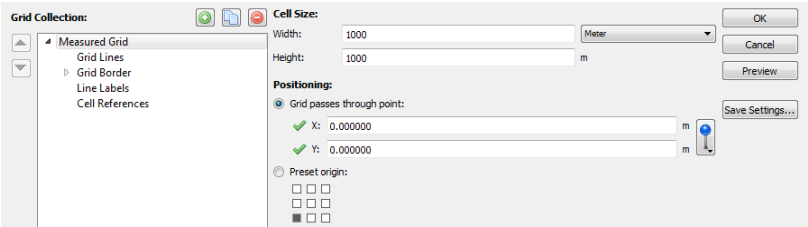
10. Close the document without saving.

12.3 Create a measured (UTM) grid

1. Open **grids-example.ai** from the *Tutorial Data* folder.

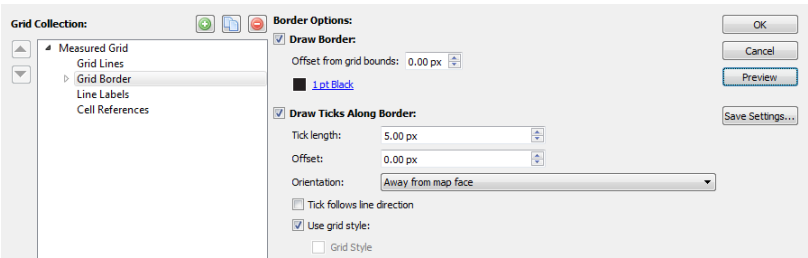
Hide all other layers and make sure the toronto_area layer is visible in the Toronto NAD 83 / UTM 17N MAP View.

2. From the MAPublisher toolbar, click the Grids & Graticules button. In the message box, click Create Legend layer.
3. In the Grids & Graticules dialog box, click the Measured Grid button to show its options. Set the Cell Size Width and Height to **1000** (meters). Leave the Positioning options as default.

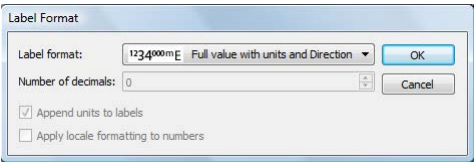


Grid cell sizes will be created at 1000 x 1000 meters in size.

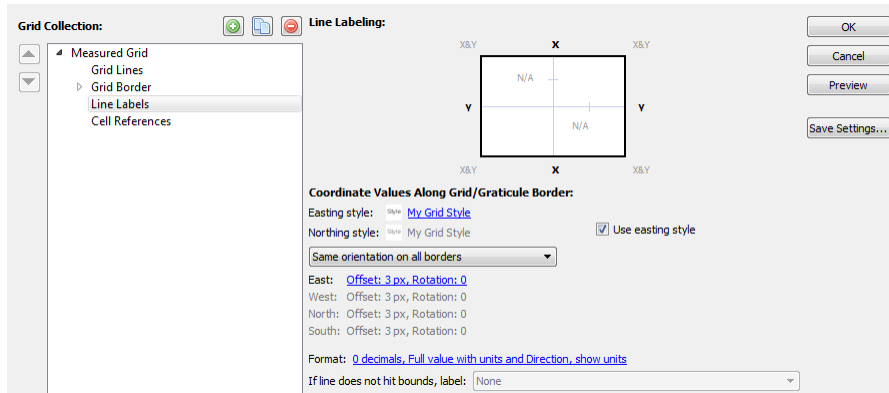
4. In the Grid Collection box, click Grid Lines. Ensure the Draw Grid Lines check box is checked and the Solid line option is chosen. Click the style link and change it to the **Grid Style** graphic style.
5. In the Grid Collection box, click Grid Border. Click the Draw Ticks Along Border check box and change the Tick length to **5.00** px.



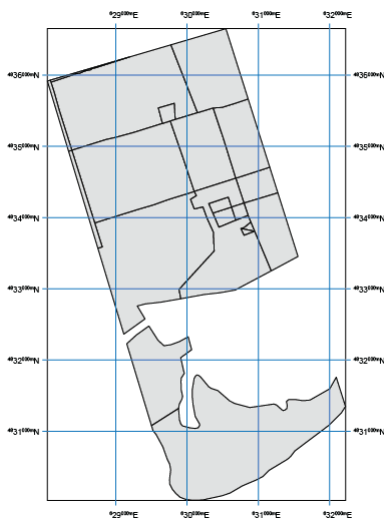
6. In the Grid Collection box, click Line Labels. In the Label placement control, click the X and Y labels for East, West, North, and South to enable them.
7. Under the Coordinate Values Along Grid/Graticule Border section, change the Easting style to the **My Grid Style** character style. Change the East offset to **3.00** px.
8. Click the Format link and choose **Full value with units and Direction** in the Label format drop-down list and click OK.



9. Make sure your dialog box matches the following and click OK.



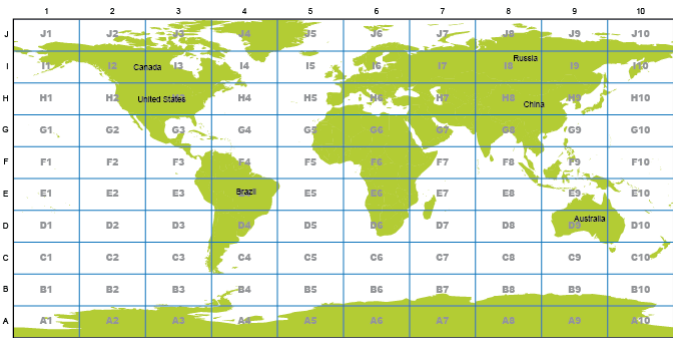
A grid is placed on the map based on the specifications made. Each cell line has UTM map coordinate labels. To edit an existing grid, select the grid and click the Grids & Graticules button. If the grid is moved, the grid labels will automatically adjust to new coordinates.



10. Close the document without saving.

12.4 Create a feature based index

- 1. Open **MyGrid.ai** (saved from Tutorial 12.1).
- 2. In the Adobe Illustrator Layers panel, turn on the Country labels Text layer.

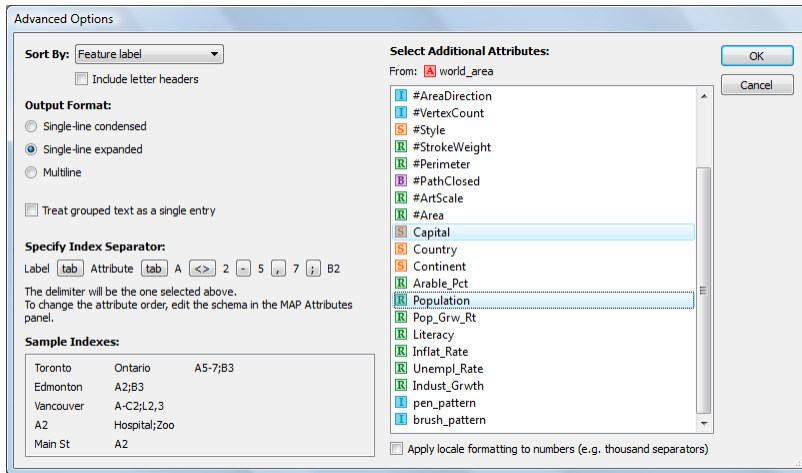


- 3. Select the grid in the map document and click the Make Index button on the MAPublisher toolbar. **A-1**
- 4. Choose the Make index based on label and matching feature position option. In the Label Layer drop-down list, choose **Country labels**. In the Feature layer drop-down list, choose **world_area** (the layer that was labeled). In the Label text matches attributes drop-down list, choose **Country** (the attribute column used to label the map).



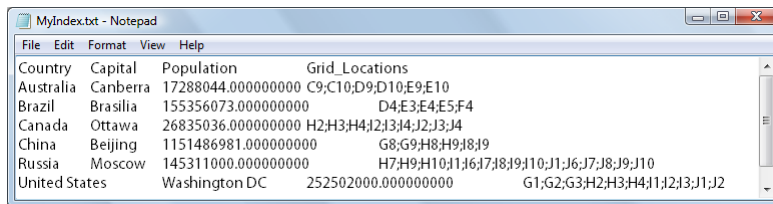
Advanced options are available for fine-tuning index appearance.

- 5. Click the Advanced button.
- 6. In the Advanced Options dialog box, choose Feature label from the Sort by drop-down list. Under Output Formats, choose the Single-line expanded option. To add an attribute to the index, select the Capital and Population attributes in the Select Additional Attributes list.



The grid cell locator and feature name in the index file are separated by a single tab. The index is sorted alphabetically by feature label.

- Click OK to accept the advanced options and in the Make Index dialog box, click Save As to save the index. Browse to a location to save the index, name it **MyIndex.txt**, and click Save.



A text file is created based on the specifications entered in the Make Index dialog box.

- The index may be inserted into the map document by creating an Adobe Illustrator box and using the *Place* command (*File > Place*).
- Leave the document open for the next tutorial.

12.5 Create a text based index

Continue working with the previous tutorial.

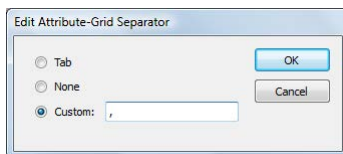
1. Select the grid in the map document and click the Make Index button on the MAPublisher toolbar.
2. Choose the Make index based on label position option. Click the Layers button and click the Selected toggle for Country labels, then click OK.



Indexing by label position generates an index containing only grid cells that contain a text label within it.

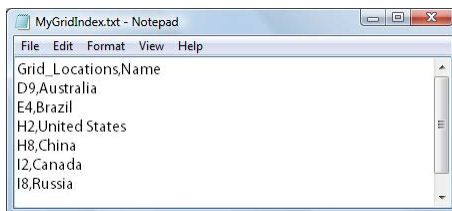
Note: Text labels are indexed according to the text object's anchor.

3. Click the Advanced button. Choose Grid Cell from the Sort index by drop-down list. Under Specify Index Separator, to the right of *Attribute*, click the **tab** button. In the Edit Attribute-Grid Separator dialog box, type "," into the Custom box and click OK.



The grid cell locator and feature label in the index file is separated by a single comma. The index is sorted alpha-numerically by grid cell label.

4. In the Make Index dialog box, click Save As to save the index. Browse to a location to save the index, name it **MyGridIndex.txt**, and click Save.




5. Close the document without saving.

13 Scale Bars and North Arrows

See User Guide, Chapter 14

13.1 Create a scale bar

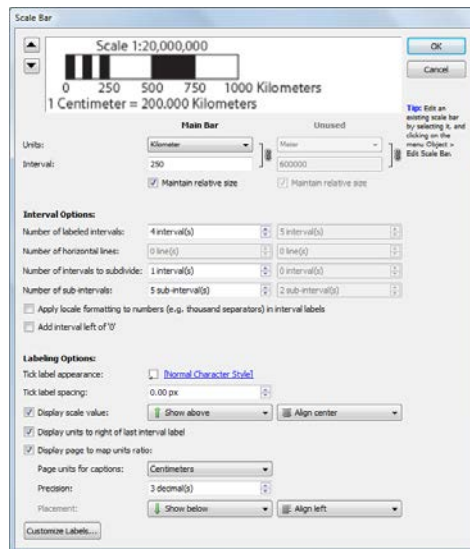
1. Open **usa48.ai** from the *Tutorial Data* folder.
2. On the MAPublisher toolbar, click the Scale Bar button.  When prompted, create a Legend layer.
3. In the Scale Bar dialog box, use the up and down arrow buttons to view scale bar styles (for this tutorial, use the default one). Choose **Kilometer** in the Units drop-down list. In the Interval box, type **250**.

Depending on the scale bar chosen, select the Number of horizontal lines to use in the plotted scale bar. These settings create a scale bar that equates centimeters on the page to kilometers on the map.

4. In the *Number of labeled intervals* box, type **4**. Set the *Number of intervals to subdivide* to **1** and the *Number of sub intervals* to **5**.

These settings create a scale bar that represents a total distance of 1000 km. It has four main intervals each representing 250 km with the first interval further divided into five smaller intervals.

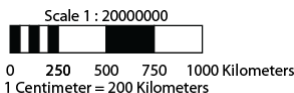
5. In the Labeling Options section. Click the Tick label appearance hyperlink to open the Edit Text Rendition dialog box. Click the character style / custom style toggle icon so that [Normal Character Style] is displayed. Click OK.
6. Click the *Display scale value* check box, choose **Show above** from the drop-down list, and choose **Align center**.
7. Click the *Display units to right of last interval* label check box.
8. Click the *Display page to map units ratio* check box, choose **Centimeters** from the Page units for captions drop-down list, and choose **Show below** from the Placement drop-down list.



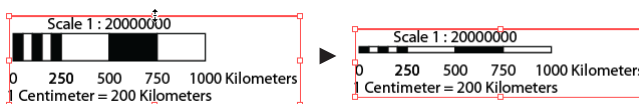
Look at the preview to see how these settings affect the look of the scale bar.

9. Click OK to close the Scale Bar dialog box.

The Scale Bar is placed at the center of the page according to the defined Settings. If necessary, resize the scale bar using the bounding box. The scale automatically adjusts after it is resized.



- Click the scale bar to select it. Click and drag the top anchor of the bounding box slightly downward to resize the scale bar. (Note: dragging it too much will prevent it from resizing).




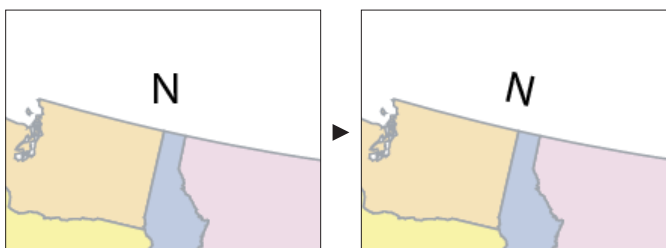
- Leave the document open for the next tutorial.

Note: The scale bar can be edited through the Adobe Illustrator menu *Object > Edit Scale Bar*. When the MAP view is rescaled, the scale bar dynamically updates. The scale bar can be expanded to be edited as regular Adobe Illustrator artwork (however, doing so breaks the link to the MAP View scale value).

13.2 Create a north arrow

Continue working with the previous tutorial.

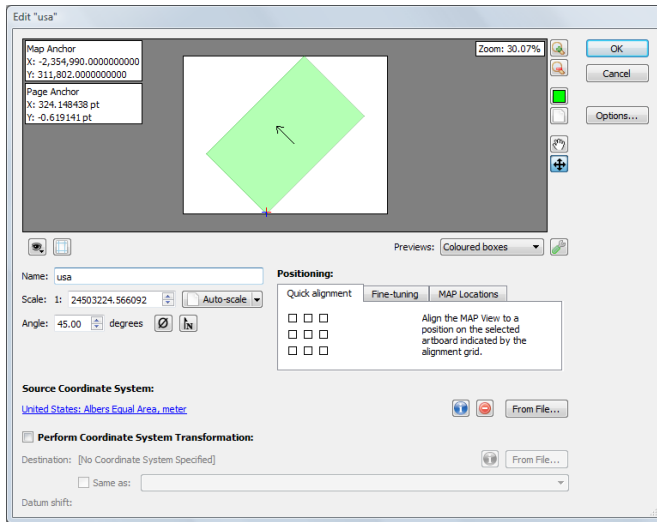
- In the MAP Views panel, add a new MAP Layer called **North Arrow** and specify the Feature type as **Legend**.
- Make sure the *North Arrow* layer is active and use the Adobe Illustrator Type tool to type the letter **N**.
- Select the letter N and click the North Arrow button on the MAPublisher toolbar. 



The type is changed from regular text (above left) to a north arrow (above right) and is aligned in the north direction. North arrows can be created from any art object in Adobe Illustrator including symbols and characters. Note that the north arrow created is added to the Symbols panel!*

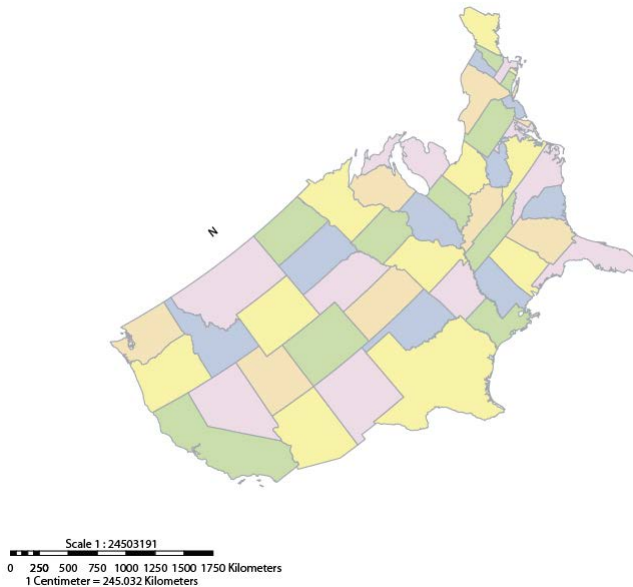
- In the MAP Views panel, double click the *usa* MAP View.
- In the MAP View editor, set an Angle of **45** degrees, click the Auto Scale button and the center page alignment.

* Sample north arrow designs are located in the *\Helpful Styles & Symbols\Symbols* folder (see page iii).



6. Click OK to accept the angle edits.

The north arrow is oriented according to the MAP View it is placed in. Any changes made to the coordinate system or angle of the MAP View will cause the north arrow to automatically orient itself towards North.



7. Close the document without saving.

14 MAP Web Author

See User Guide, Chapter 15


Complete this tutorial to learn the MAP Web Author work flow from map document to Flash map and HTML5 map.

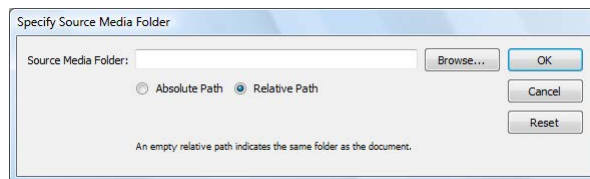
14.1 Prepare the map for web tags

1. In Adobe Illustrator, click *File > Open*, navigate to the `\Tutorial Data\MAPWebAuthor_Tutorial` folder and open the `Canada_Web_Map.ai` tutorial document.



Before creating any web map, it is recommended to appropriately set the document size in Adobe Illustrator. This will also determine the size of the web map. Use Document Setup or the Artboard Tool to set the document dimensions. For this tutorial, the document is already set at 500 pixel width x 500 pixel height.

2. In the Adobe Illustrator menu, click the MAP Web Author button on the MAPublisher toolbar. 
3. In the MAP Web Author panel option menu, click Specify Source Media Folder.
4. Choose the Relative Path option and leave the Source Media Folder field blank.



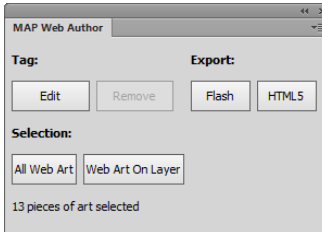
This dialog box sets the path to the *ImageFiles* folder (the folder containing the image data) for web tagging. To indicate that the *ImageFiles* folder is in the same directory as `Canada_Web_Map.ai`, leave the path blank.

5. Click OK to close the Specify Source Media Folder dialog box.
6. Click any province on the map and open the MAP Attributes panel to become familiarized with the attribute structure and data.
7. Close the MAP Attributes panel and continue to the next tutorial.

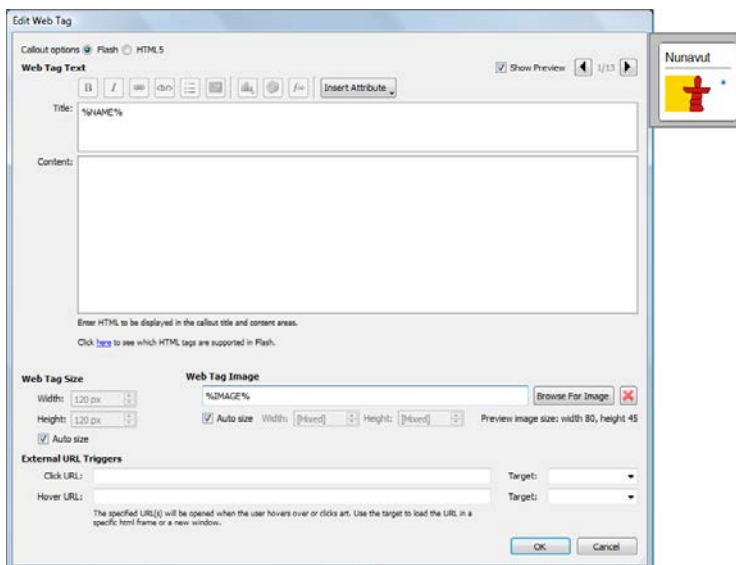
14.2 Create web tag callouts

This tutorial creates Web tag callouts for every object in the *Provinces* layer. These Web tags are used to expose attribute information when map features are clicked.

1. In the Adobe Illustrator Layers panel, click the target button beside the *Provinces* layer name to select all art.
2. In the MAP Web Author panel, click the Edit button to open the Edit Web Tag dialog box.



3. In the Edit Web Tag dialog box, click the Title box and then click the Insert Attribute button and in the expanded list, click **%NAME%** to insert it. Similarly, click the Web Tag Image box and insert **%IMAGE%**.



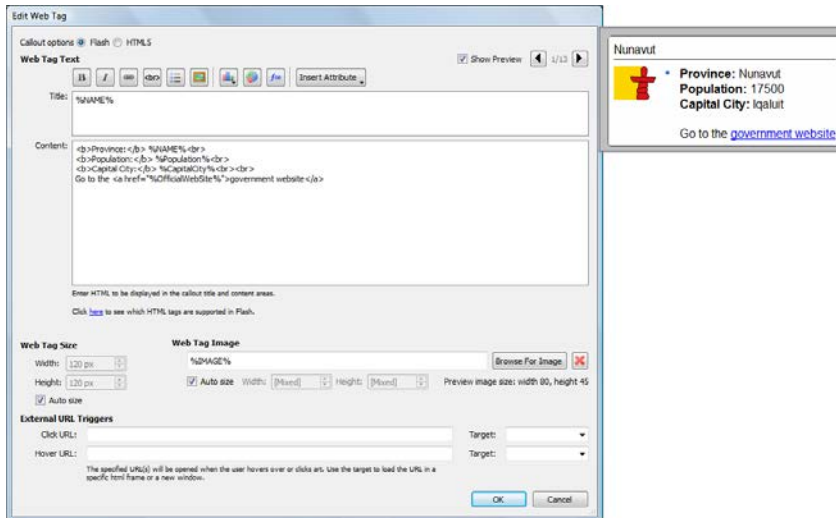
The **%NAME%** and **%IMAGE%** attribute variables retrieve values from the Provinces attribute table. In the case of **%IMAGE%**, the attribute is actually the image path (you saw this when you reviewed the layer attributes). The Show Preview option is enabled by default. This displays a preview of the web tag as content is entered.

Note: The attribute names are case sensitive and should match exactly as they are in the MAP Attribute table.

Now, add more information to the web tag by entering some basic HTML code. Look at the preview to see how it changes as the code is typed.

4. In the Content box, type the following:

```
<b>Province: </b> %NAME%<br>
<b>Population: </b> %Population%<br>
<b>Province: </b> %Capital City%<br><br>
Go to the <a href="%OfficialWebsite%">government website</a>
```



Beside the preview, click the arrow buttons to scroll through the web tags for each province. The current and total number of web tags being edited is shown in between the arrow buttons. The web tags can be manually resized, however, the Auto Size feature ensures that content will fit properly.

5. Click OK to save the web tags and to close the Edit Web Tag dialog box.
6. Keep the document open and continue to the next tutorials to export the map. There are two types of map export to choose from: Flash and HTML5.

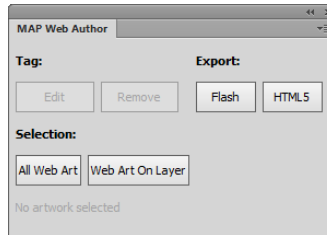
Follow tutorial 14.3 to learn how to export to a Flash map.

Follow tutorial 14.4 to learn how to export to an HTML5 map.

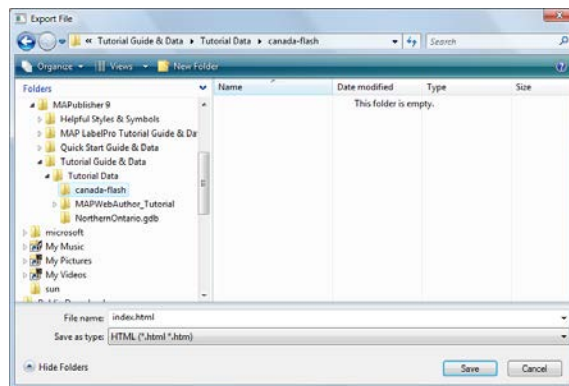
14.3 Export to Flash

After creating web tags, the next step is to export the map. This tutorial teaches how to export to Flash so that it can be viewed in a web browser. It is necessary to have the latest version of Adobe Flash Player installed that is compatible with your web browser.

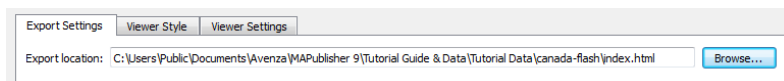
1. In the MAP Web Author panel under Export, click the Flash button (art does not have to be selected to export).



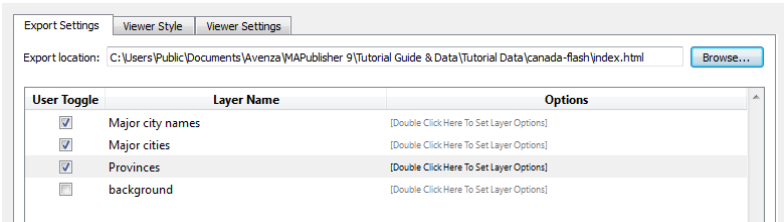
2. In the Export to Flash dialog box, click the Browse button next to the Export location box. In the Export File dialog box, navigate to \Tutorial Data and create a new folder called **canada-flash** and use the **index.html** file name. Click Save.



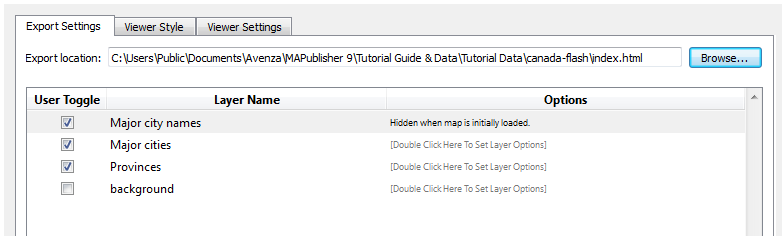
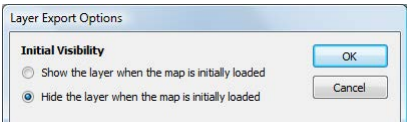
The Export location box populates with the new file path.



3. In the Export Settings tab, locate the User Toggle column and click the check boxes for **Major city names**, **Major cities** and **Provinces**.

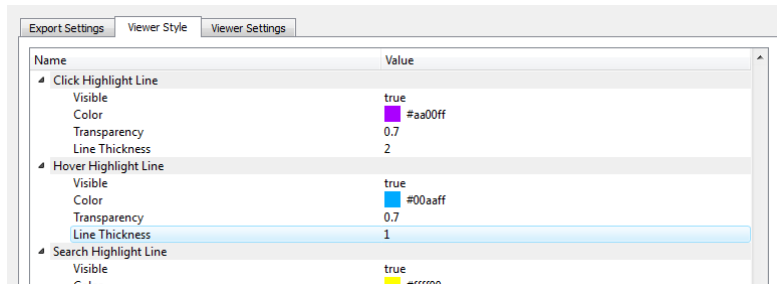


- The User Toggle allows the layers to be turned on and off in the map viewer.
4. Under the Options column for the Major city names layer, double-click to setup layer options. In the Layer Export Options dialog box, choose Hide the layer when the map is initially loaded option and click OK.



- The Options column now shows that the Major city names layer is hidden when the map is initially loaded. Experiment with the other Layer Export options to see what kind of affect it has on the final map. Refer to the MAPublisher 9.1 User Guide for more information.
5. Leave the other options in the Export Settings tab as the default and click the Viewer Style tab.

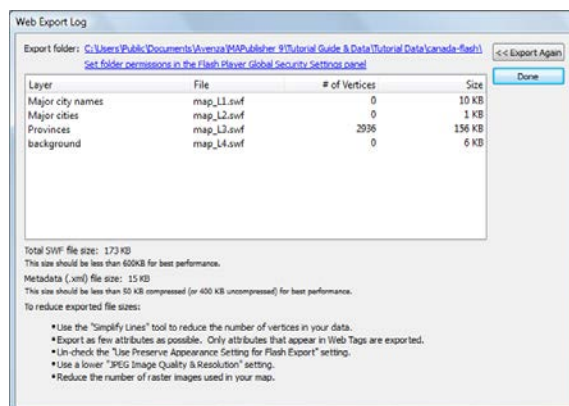
- In the Viewer Style list, scroll down to Click Highlight Line and double-click the color value to change it. Select a purple color (RGB 170, 0, 255 - **#aa00ff**) and click OK. Double-click the Line Thickness value and change it to **2**. Scroll down to Hover Highlight Line and change the color to blue (RGB 0,170,255 - **#00aaff**) and the Line Thickness to **1**.



The Viewer Styles are used to style Flash elements on the map. Do not confuse these with the MAP Stylesheets or Adobe Illustrator graphic styles. These are strictly to style elements such as the web tag callout, the navigation buttons, overview map and search box. Changing the default Viewer Style settings creates a Cascading Style Sheet (CSS) that contains CSS code that manipulates the look of the Flash elements. For more information about this and MAP Web Author, see chapter 15 of the MAPublisher User Guide.

- Leave the options in the Viewer Settings tab as the default and click Export. More information about Viewer Settings are available in the MAPublisher User Guide.

After the export process finishes, the Web Export Log dialog box appears. It provides a summary of which layers were exported, the corresponding export file name, the number of vertices in each layer and the Flash file sizes. It also provides a link to the Export Folder that was specified earlier.

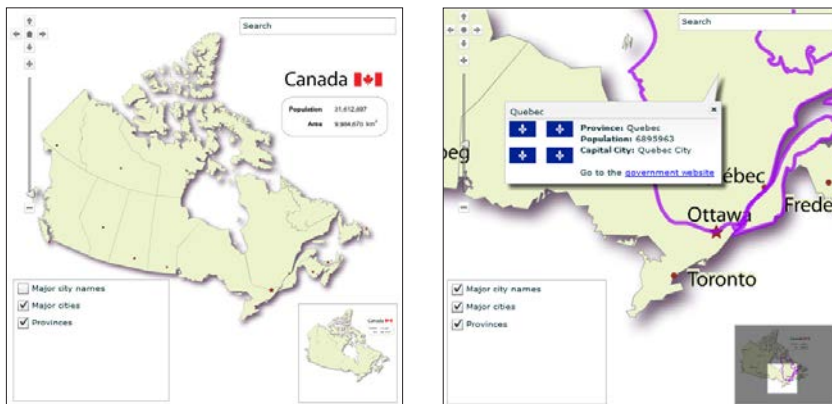


Note: Make sure you have properly configured permissions in the Flash Player Global Security Settings panel. See chapter 15 of the MAPublisher User Guide for more information.

- Click the Export Folder link to open the folder. The index.html is located in the export folder. Double-click the index_data folder to view all of the map export files.

Name	Date modified	Type	Size
sourcemedia	18/10/2012 2:21 PM	File Folder	
avenza.js	17/10/2012 6:41 PM	JScript Script File	6 KB
expressInstall.swf	17/10/2012 6:41 PM	Shockwave Flash	1 KB
map.png	18/10/2012 2:21 PM	Adobe Fireworks ...	74 KB
map.xml.zip	18/10/2012 2:22 PM	Compressed (zipp...	15 KB
map_L1.swf	18/10/2012 2:21 PM	Shockwave Flash	10 KB
map_L2.swf	18/10/2012 2:21 PM	Shockwave Flash	1 KB
map_L3.swf	18/10/2012 2:22 PM	Shockwave Flash	156 KB
map_L4.swf	18/10/2012 2:22 PM	Shockwave Flash	6 KB
MAPublisherViewer.swf	17/10/2012 6:41 PM	Shockwave Flash	467 KB
MAPublisherViewer-lo...	17/10/2012 6:41 PM	Shockwave Flash	467 KB
map-viewer.css	18/10/2012 2:21 PM	Cascading Style S...	1 KB
README.txt	17/10/2012 6:41 PM	Text Document	3 KB
swfobject.js	17/10/2012 6:41 PM	JScript Script File	10 KB
viewer_parameters.txt	18/10/2012 2:21 PM	Text Document	1 KB

- Return to the *canada-flash* folder and double-click **index.html** to open the Flash map in a Web browser.



Navigate the map using the map zoom slider and zoom in and out buttons, the pan tools and using the mouse to pan around the map. When the mouse hovers over a province, it highlights to the color specified earlier. Click the province and the Web tag callout appears with information defined in the Multiple Web Tag Dialog. Notice that the Major city names are hidden. This option was set earlier. Use the layers list to toggle the visibility of the provinces, major cities and city names. The overview map in the bottom right corner can be used to navigate the entire map without having to zoom out.

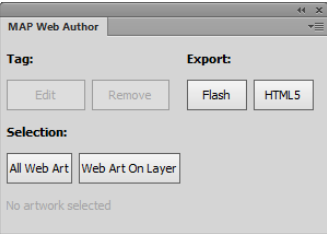
The latest Adobe Flash Player is required. It can be downloaded from the Adobe Website at www.adobe.com. If you encounter a Flash permissions warning, please see the Avenza Systems forums at www.avenza.com/forum.

- Keep the document open to continue working with it and learn how to export to HTML5.

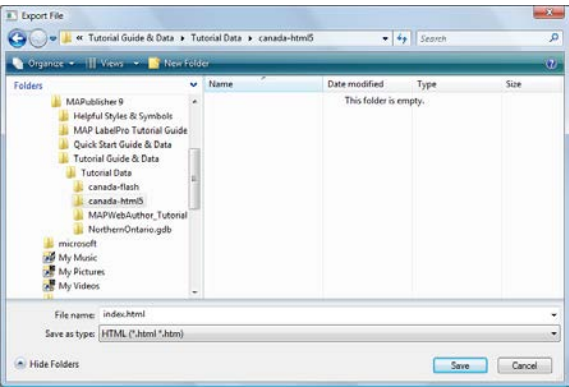
14.3 Export to HTML5

This tutorial teaches how to export to HTML5 so that it can be viewed in a web browser. Unlike Flash, it does not require any special plug-ins to be installed. The export process varies slightly and the final result may look similar, but the technology used behind the scenes is different.

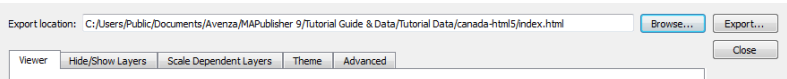
1. In the MAP Web Author panel under Export, click the HTML5 button (art does not have to be selected to export).



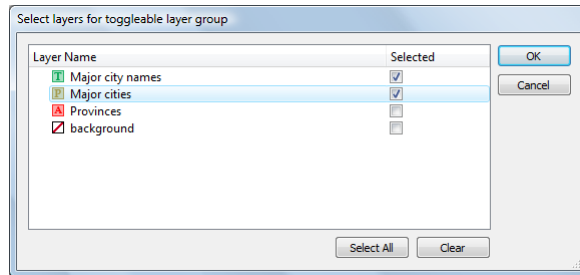
2. In the Export to HTML5 dialog box, click the Browse button next to the Export location box. In the Export File dialog box, navigate to \Tutorial Data and create a new folder called **canada-html5** and use the **index.html** file name. Click Save.



The Export location box populates with the new file path.

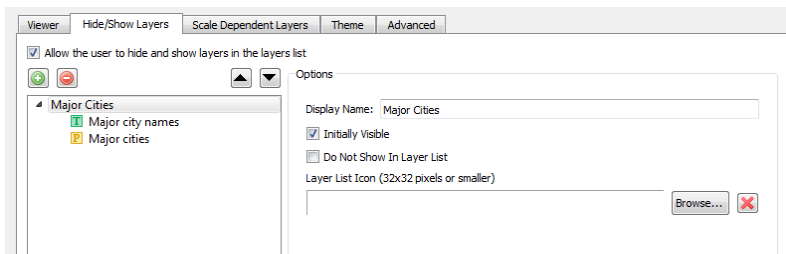


- Click the Hide/Show Layers tab. Click the *Allow user to hide and show layers in this viewer* check box. Click the Add button and then click the check boxes for **Major city names** and **Major cities** in the Selected column, then click OK.



This setting allows the layers to be turned on and off in the map viewer. The layers are added as a group to the list. To the right are several options to change initial visibility, the layer group name and layer format. Expand the new layer group to see the layers.

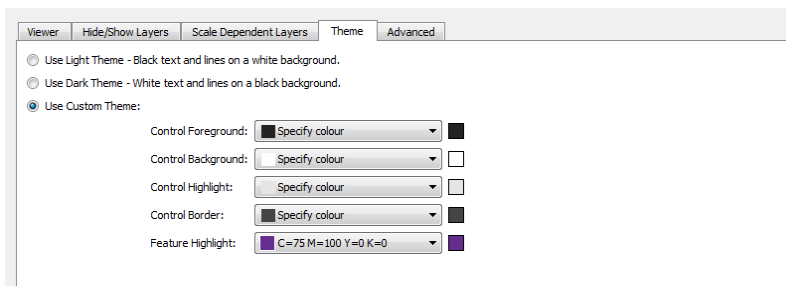
- In the Options frame, rename the layer group to **Major Cities**.



The Major cities and Major city names will be able to be toggled on and of in the Layers control.

Note: The *Hide and show layers only at specific zoom levels* option puts layers below layers specified in the *Allow user to hide and show layers in this viewer* option.

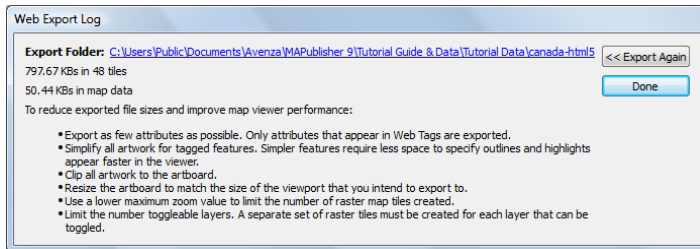
- Click the Theme tab. Click the Use Custom Theme option to enable its settings. Click the Feature Highlight drop-down and choose a purple color (C=75, M=100, Y=0, K=0).



The Theme tab has options to style viewer elements. Do not confuse these with the MAP Stylesheets or Adobe Illustrator graphic styles. These are strictly to style elements such as the background and foreground controls, border and feature highlight. Alternatively, use one of the predefined themes (light or dark). For more information about this and other detailed HTML5 options, see chapter 15 of the MAPublisher User Guide.

6. Click Export.

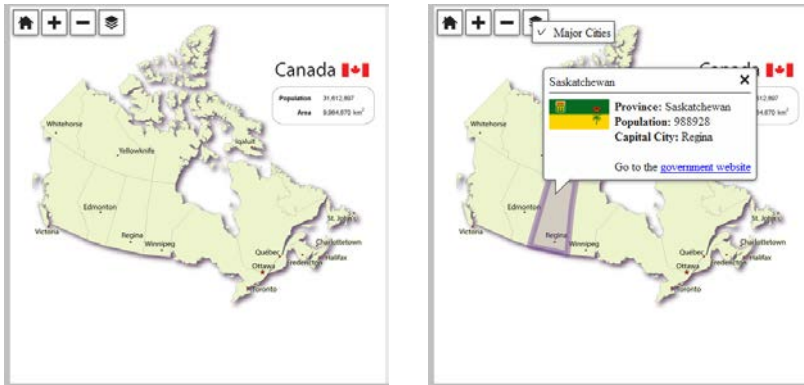
After the export process finishes, the Web Export Log dialog box appears. It provides a summary of how many tiles were exported, the size of the map data, and the path to the export folder.



7. Click the Export Folder link to open the canada-html5 folder. The index.html is located in the export folder. Double-click the index_data folder to view all of the exported files.

Name	Date modified	Type	Size	Tags
layer_1_files	05/11/2012 2:26 PM	File Folder		
layer_2_files	05/11/2012 2:26 PM	File Folder		
licenses	05/11/2012 2:26 PM	File Folder		
sourcemedia	05/11/2012 2:26 PM	File Folder		
avenza.css	02/11/2012 9:43 PM	Cascading Style S...	10 KB	
avenza-theme.css	05/11/2012 2:26 PM	Cascading Style S...	2 KB	
avenza-viewer.js	02/11/2012 9:43 PM	JScript Script File	34 KB	
data.js	05/11/2012 2:26 PM	JScript Script File	51 KB	
jquery-1.7.1.min.js	02/11/2012 9:43 PM	JScript Script File	92 KB	
layer_1.dzi	05/11/2012 2:26 PM	DZI File	3 KB	
layer_2.dzi	05/11/2012 2:26 PM	DZI File	1 KB	
openseadragon-min.js	02/11/2012 9:43 PM	JScript Script File	88 KB	

8. Return to the *canada-html5* folder and double-click **index.html** to open the Flash map in a Web browser.



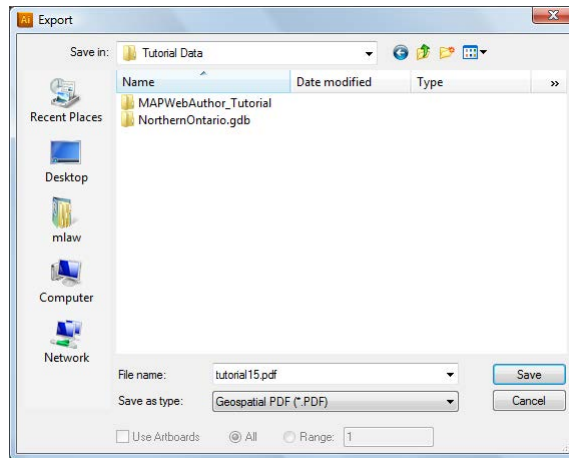
Navigate the map using the mouse to pan, the zoom in and zoom out buttons, and the home button (see all). When the mouse hovers over a province, it highlights to the color specified in the Theme tab and shows its web tag. Click a province and the web tag appears until it is manually closed. The Layers List button allows you to toggle layers on and off. Since the Major city and Major cities name layers were grouped, there is only one toggle. Add them individually to get individual layer toggle functionality.

9. If necessary, save the document. Otherwise close the document without saving.

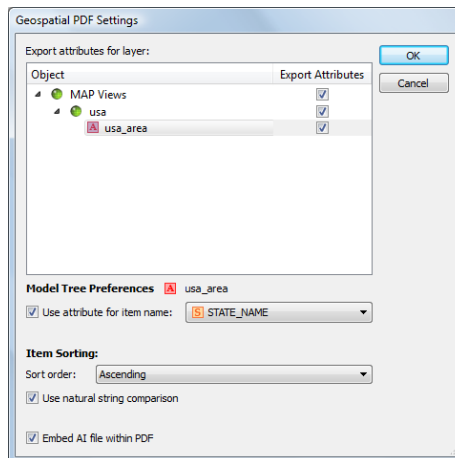
15 Geospatial PDF Export

15.1 Export to geospatial PDF

1. Open **usa48.ai** from the *Tutorial Data* folder.
2. Click the Export Geospatial PDF button on the MAPublisher toolbar. In the Export dialog box, choose **Geospatial PDF** from the Save as type drop-down list. Navigate to the *Tutorial Data* directory, specify the file name as **tutorial15.pdf** and click Save.

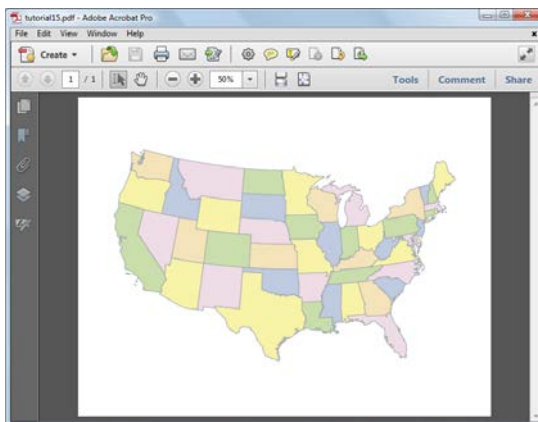


3. In the Geospatial PDF Export Settings dialog box, click **usa_area** to enable the Model Tree Preferences.
4. Click the check box beside *Use attribute for item name*. Make sure the sort order is set to Ascending and click the *Use Natural String Comparison* check box.



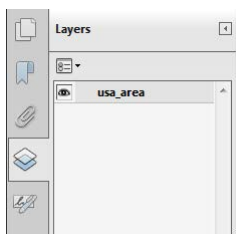
This setting will use the attributes of STATE_NAME, in an ascending sort order, in the Model Tree.

5. Open the operating system file browser window and navigate to the *Tutorial Data* folder.
6. Double-click to open tutorial15.pdf in Adobe Acrobat Reader (the latest version is required).



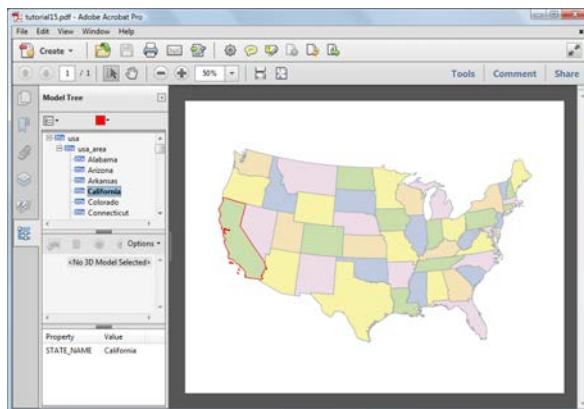
The latest Acrobat Reader supports geospatial PDF files and comes with tools to explore the map. The Analyze toolbar is located in the Tools menu. It holds three tools specific to geospatial PDFs: Object Data Tool, Measuring Tool and Geospatial Location Tool. On the left hand side, there are two useful Navigation panels related to geospatial PDFs: Layers and Model Tree. There are also Acrobat Reader preferences to change display elements such as geographic units.

7. Click the Layers button in the Navigation panel to expand it. (If it is not present, right-click the Navigation panel and choose Layers.)



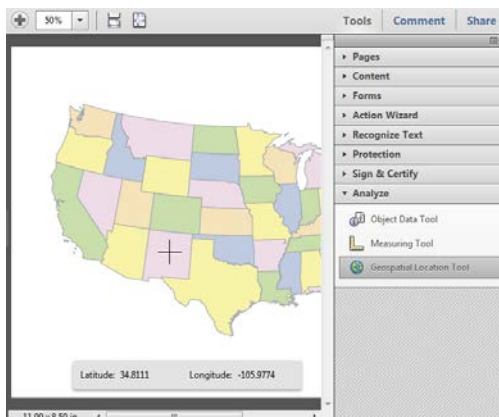
Only the `usa_area` layer is present in this geospatial PDF. Click the eye button to toggle the layer's visibility.

8. Click the Model Tree in the Navigation panel to expand it. Click the + symbol beside *usa*, then *usa_area* to expand them. Click on a state to view its relative location on the map. Alternatively, use the Object Data Tool and click features on the map.

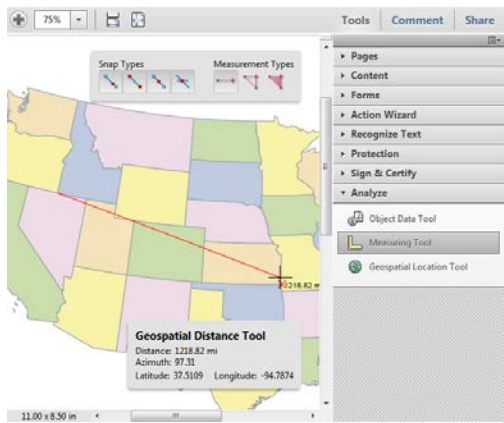


The Model Tree shows the map features of all the layers in the document. At the bottom of the Model Tree is a window that displays attribute data. In this case, the state name for the feature selected is California.

9. Click Tools, click Analyze, then click the Geospatial Location Tool. A status window appears in the bottom-right corner that displays the longitude and latitude of the cursor position.

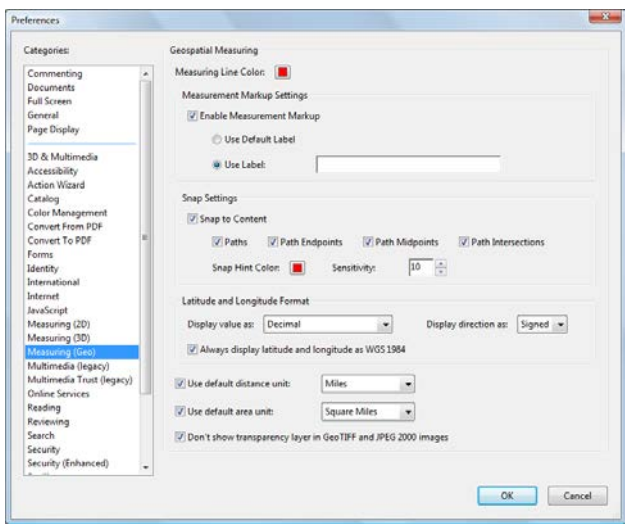


10. In the Analyze menu, click the Measuring Tool. Click the southeast corner of Oregon and draw a measurement line to the southeast corner of Kansas. Use the Object Data Tool to find these states if you are unfamiliar with the geography. (If necessary, zoom in to see the features in more detail).



When the Measurement Tool is enabled, a secondary measurement toolbar appears that contains Snap Types and Measurement Types. A status window in the bottom-right corner appears that displays information on the distance measured, azimuth, latitude and longitude of the cursor position. In this case, the straight line distance from Portland to Kansas is approximately 1218 miles (or about 1,960 km).

11. In the Acrobat Reader menu, click *Edit > Preferences*. In the Categories list, click Measuring (Geo).



This panel is used to change geospatial measuring options. See the MAPublisher User Guide for detailed information on all of its options and settings.

12. In the *Display value as* drop-down list, choose Degrees, Minutes, Seconds.
13. In the *Use default distance unit* drop-down list, choose Miles.

Latitude and Longitude Format

Display value as: Degrees, Minutes, Seconds Display direction as: Signed

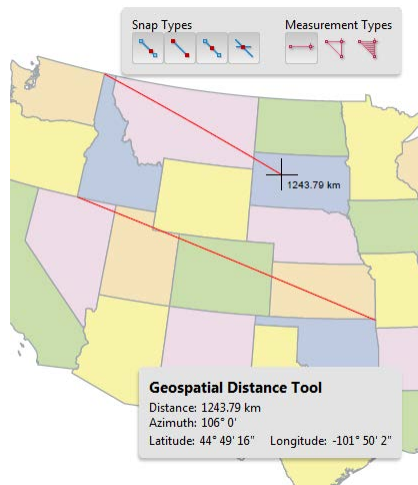
☒ Always display latitude and longitude as WGS 1984

☒ Use default distance unit: Kilometers

☒ Use default area unit: Square Miles

☒ Don't show transparency layer in GeoTIFF and JPEG 2000 images

14. Click OK to accept these settings.
15. Using the Measure Tool, choose several points to measure.



Notice that the distance is displayed in miles (km) and that the coordinates are displayed as Degrees, Minutes, Seconds. Return to the Measuring (Geo) preferences to experiment with the settings to see how they can help you explore geospatial PDF maps.

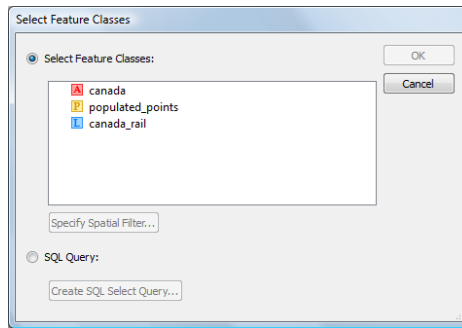
16 Import Spatial Databases

16.1 Import Esri Personal or File geodatabase

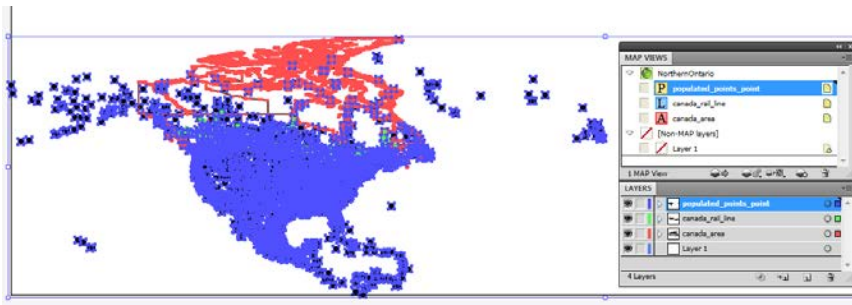
Note: To work with this tutorial, an ArcGIS license is required. See the User Guide for more information.

In this tutorial, you will be importing data to be used for a Northern Ontario rail map.

1. In Adobe Illustrator, click *File > New*, and create a new landscape oriented document.
2. Using Simple Import or Advanced Import click, from the Format drop-down list choose **Esri File Geodatabase (*.gdb)** or **Esri Personal Geodatabase (*.mdb)**.
3. Click Browse and in the Tutorial Data folder select **NorthernOntario.gdb** to open a File Geodatabase or **NorthernOntario.mdb** to open a Personal Geodatabase.
4. The Select Feature Classes dialog box appears. Click the *populated_points*, *canada_rail*, and *canada* feature classes to select them.



5. Click OK to close the Select Feature Classes dialog box and OK again to import the feature classes.

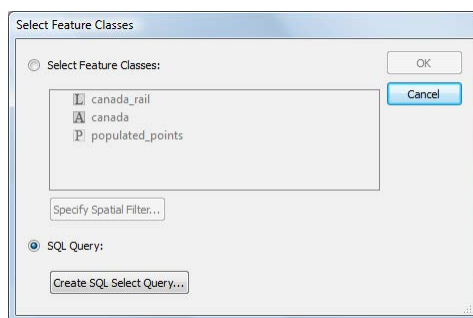


Notice on import that the imported point data covers all of North America. You will import the data again, instead this time specifying a spatial filter and using SQL (Special Query Language) to perform an attribute filter to limit the amount of imported data.

6. Click *Edit > Undo* to remove the imported data.
7. Use Simple or Advanced Import again to import the NorthernOntario geodatabase again.

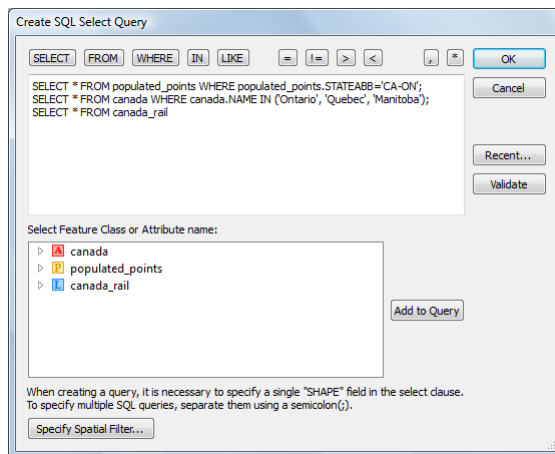
Note: To only use a spatial filter, click the Spatial Filter button on the Select Feature Classes dialog box.
To perform both a spatial filter and an SQL query simultaneously, choose SQL Query.

8. In the Select Feature Classes dialog box, choose SQL Query and click the Create SQL Select Query button.



9. In the Create SQL Select Query dialog box, enter the following query:

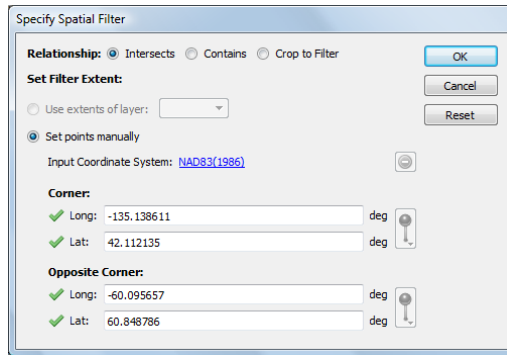
```
SELECT * FROM populated_points WHERE populated_points.STATEABB='CA-ON';  
SELECT * FROM canada WHERE canada.NAME IN ('Ontario', 'Quebec', 'Manitoba');  
SELECT * FROM canada_rail
```



10. At the bottom of the dialog box, click the Specify Spatial Filter button.

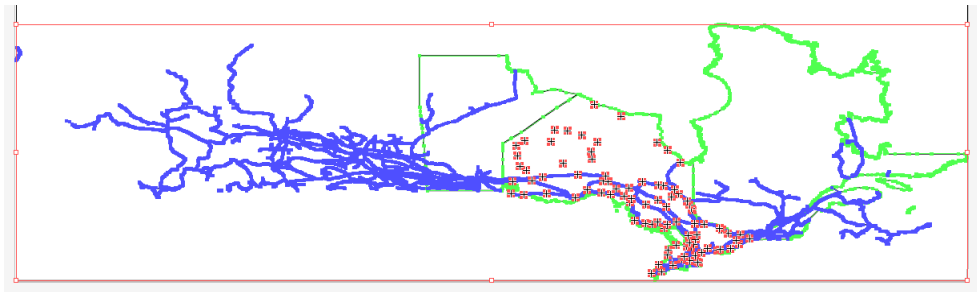
Note: Note that the spatial filter has been defined by the extents of the data selected by the SQL query. Through the spatial filter, you will further refine the selection to an envelope just beyond Northern Ontario.

11. Ensure the Intersects relationship option is chosen and enter the following Lower left and Upper right coordinate values:



The 'Specify Spatial Filter' dialog box is shown. It has three radio buttons under 'Relationship': 'Intersects' (selected), 'Contains', and 'Crop to Filter'. There are 'OK', 'Cancel', and 'Reset' buttons. Under 'Set Filter Extent', there is a dropdown for 'Use extents of layer' and a selected radio button for 'Set points manually'. The 'Input Coordinate System' is set to 'NAD83(1986)'. There are two sections for coordinates: 'Corner' and 'Opposite Corner'. Each section has 'Long' and 'Lat' fields with green checkmarks, and a unit dropdown set to 'deg'. The 'Corner' values are Long: -135.138611 and Lat: 42.112135. The 'Opposite Corner' values are Long: -60.095657 and Lat: 60.848786.

The Intersects relationship option specifies that only data that intersects the spatial filter boundary will be imported. Click OK to confirm these values, OK again to confirm the SQL Query, OK to close the Select Feature Classes dialog box, and finally OK to import the features.



The feature classes are successfully imported using the SQL query and spatial filter.

12. Close the document without saving.

16.2 Import Esri ArcSDE geodatabase

Esri ArcSDE technology is a means to interface with and access spatial data from an RDBMS (Relational Database Management System). Data stored in an ArcSDE is accessed from a server, whether on an internal network, or externally through the Internet. The Utah GIS Portal (<http://gis.utah.gov>) is one such resource that serves GIS data free of charge. This tutorial requires the use of an Internet connection.

1. In Adobe Illustrator, click *File > New*, and create a new landscape oriented document.
2. Using Simple or Advanced Import, choose **Esri ArcSDE Geodatabase** from the format drop-down list.
3. Click Browse. In the Browse ArcSDE Geodatabase dialog box, select Connections and click the Create New button to enter the following parameters:

Connection Name: **UtahGISPortal**
Server: **gdb93.agrc.utah.gov**
Service: **5151**
Database Name: **SGID93**
User Name: **agrc**
Password: **agrc**
Transactional Version: **sde.DEFAULT**

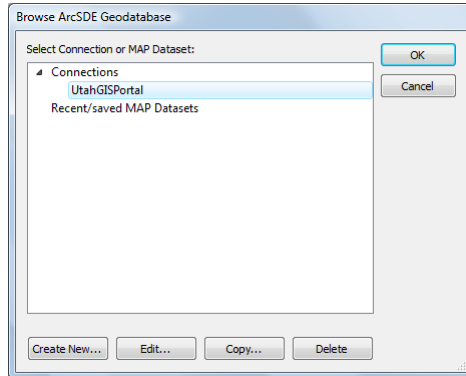
The screenshot shows a dialog box titled "Create New ArcSDE Geodatabase Connection". It has several input fields and buttons. The fields are: "Connection Name" (UtahGISPortal), "Server" (gdb93.agrc.utah.gov), "Service" (5151), "Database Name" (SGID93), "User Name" (agrc), "Password" (masked with dots), and "Transactional Version" (sde.DEFAULT). There are "OK" and "Cancel" buttons on the right. Below the password field, there is a checkbox "Check if you want MAPublisher to remember your password." and two radio buttons: "Database Authentication" (selected) and "Operating System Authentication". At the bottom, there is a "Test Connection" button and a "Specify..." button next to the "Transactional Version" field.

Optionally, click Test Connection to check whether these settings work. A message dialog box appears informing you whether the connection was successful or not.

4. Click OK to confirm the connection settings.

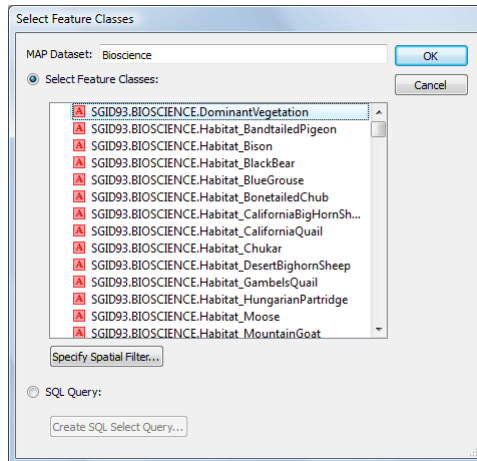
The UtahGISPortal connection is saved to the list. A saved connection can be accessed again in the future.

5. In the Browse ArcSDE Geodatabase dialog box, make sure UtahGISPortal is selected and click OK.



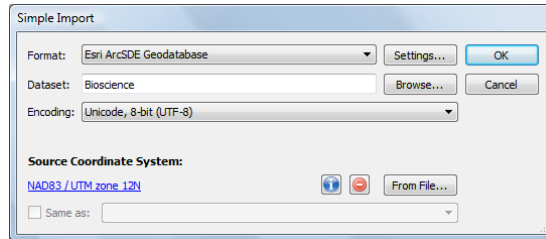
Note: Depending on the Internet connection speed, it may take a few seconds to connect to the server.

6. In the Select Feature Classes dialog box, type **Bioscience** into the MAP Dataset box. Choose the feature at the top of the list **SGID93.BIOSCIENCE.DominantVegetation** and click OK.

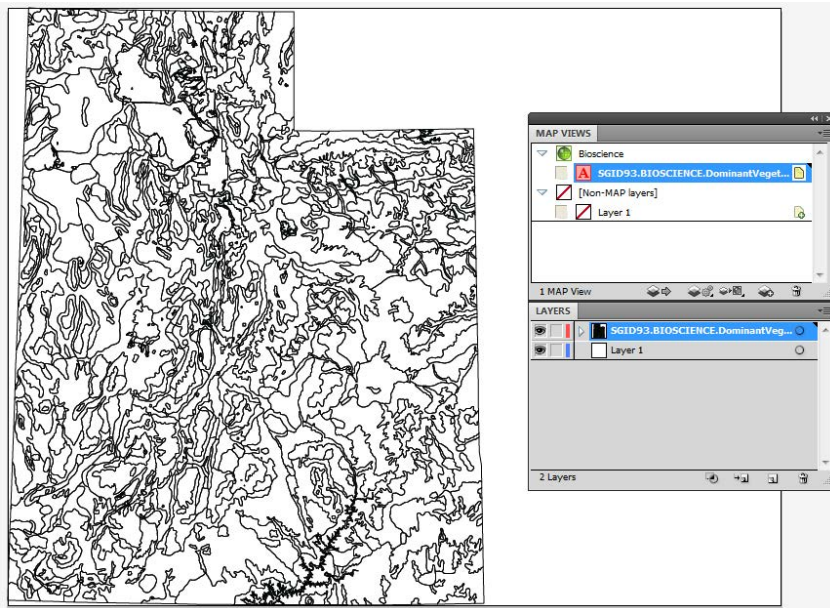


Note: After clicking OK, it may take a few minutes to retrieve the data from the ArcSDE server.

7. In the Simple (or Advanced) Import dialog box, click OK again to finalize the import.



The DominantVegetation layer for Utah downloads and is imported into Adobe Illustrator successfully.



Note: The connection parameters to this ArcSDE database service may have changed since the time of printing. Updated parameters should be available on the Utah GIS Portal website located at <http://gis.utah.gov>.

8. Close the document without saving.

16.3 Import basic Esri ArcSDE server

Users who do not have an ArcGIS license can install the free Esri desktop application called ArcReader (see the Esri Website for information - www.Esri.com). File and Personal Geodatabases cannot be read. Access to files with Basic Esri ArcSDE Server connections is limited compared to the Esri ArcSDE Geodatabase connections.

1. In Adobe Illustrator, click *File > New* and create a new landscape oriented document.
2. Using Simple or Advanced Import, choose **Basic Esri ArcSDE Basic** from the Format drop-down list.
3. Click Browse. In the Browse Basic ArcSDE Server dialog box, select Connections and click the Create New button to enter the following parameters:

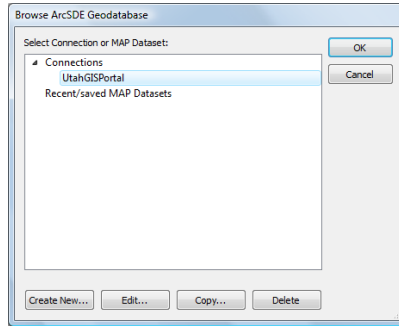
Connection Name: **UtahGISPortal_Basic**
Server: **gdb93.agrc.utah.gov**
Service: **5151**
Database Name: **SGID93**
Version: **sde.DEFAULT**
User Name: **agrc**
Password: **agrc**

The screenshot shows a dialog box titled "Create New Basic ESRI ArcSDE Server Connection". It contains several input fields with the following values: Connection Name: UtahGISPortal_Basic, Server: gdb93.agrc.utah.gov, Service: 5151, Database Name: SGID93, Version: sde.DEFAULT, User Name: agrc, and Password: agrc. There are three buttons: OK, Cancel, and Test Connection. A checkbox labeled "Check if you want MAPublisher to remember your password." is also present and is currently unchecked.

4. Click OK to confirm the connection settings.

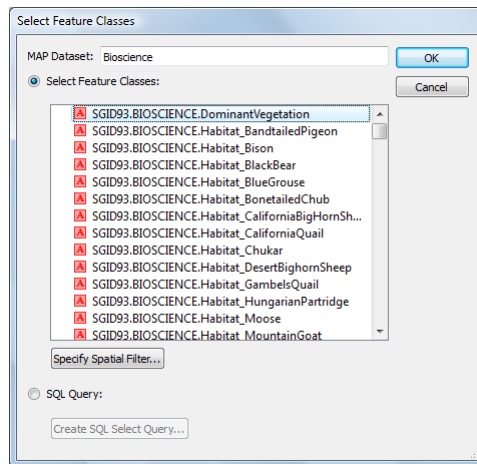
The UtahGISPortal_Basic connection is saved to the list. A saved connection can be accessed again in the future.

5. In the Browse ArcSDE Geodatabase dialog box, make sure UtahGISPortal_Basic is selected and click OK.



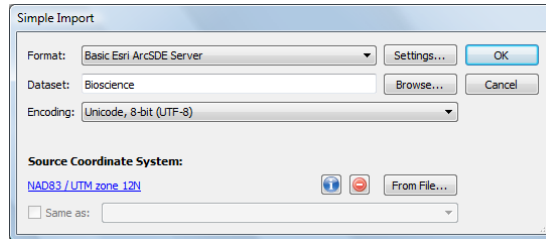
Note: Depending on the Internet connection speed, it may take a few seconds to connect to the server.

6. In the Select Feature Classes dialog box, type **Bioscience** into the MAP Dataset box. Choose the feature at the top of the list **SGID93.BIOSCIENCE.DominantVegetation** and click OK.

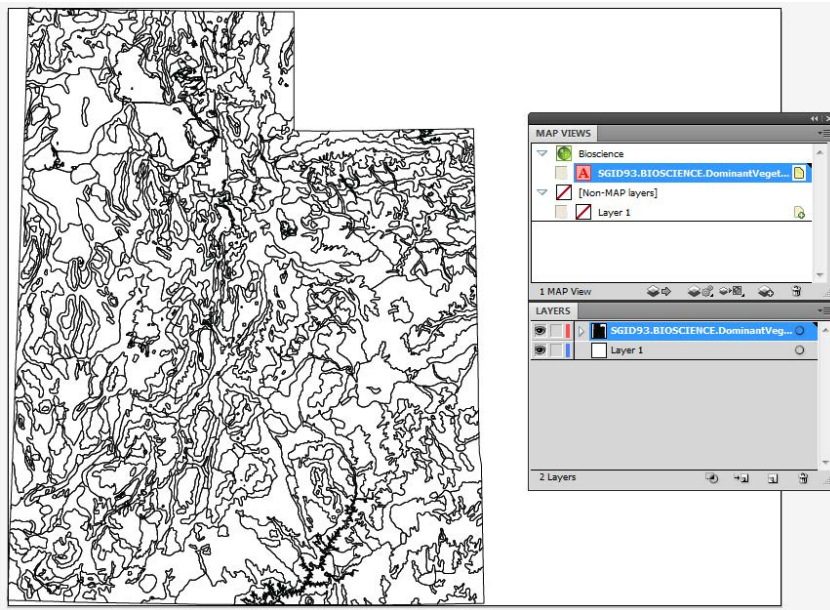


Note: After clicking OK, it may awhile to retrieve the data from the ArcSDE server.

7. In the Simple (or Advanced) Import dialog box, click OK again to finalize the import.



The DominantVegetation layer for Utah downloads and is imported into Adobe Illustrator successfully.



Note: The connection parameters to this ArcSDE database service may have changed since the time of printing. Updated parameters should be available on the Utah GIS Portal website located at <http://gis.utah.gov>.

8. Close the document without saving.

Congratulations! You have completed the MAPublisher Tutorial Guide. Please see the MAPublisher 9.1 User Guide for more detail and information on specific features and commands. Check the Avenza Systems web site and forums for updates and more information.