

MAPublisher[®] 8

for Adobe[®] Illustrator[®]

When Map Quality Matters[®]



Tutorial Guide
for MAPublisher 8.3

Avenza® MAPublisher® 8 Tutorial Guide

Copyright © 2000-2010 Avenza Systems Inc. All rights reserved.

MAPublisher 8 for Adobe® Illustrator® Quick Start Guide for Windows® and Macintosh®.

Protected by U.S. Patent # 7,583,273

Patents Pending in the U.S. and other countries

MAPublisher and When Map Quality Matters are registered trademarks of Avenza Systems Inc. Adobe, Adobe Illustrator, Adobe Acrobat, Adobe Creative Suite, and PostScript are trademarks of Adobe Systems Inc. or its subsidiaries and may be registered in certain jurisdictions. All other software product names and brands including trademarks or registered trademarks are the property of their respective owners.

This tutorial guide and the software described in it are furnished under license and may be used or copied only in accordance with the terms of such license. The content of this manual is furnished for informational use only, is subject to change without notice and should not be construed as a commitment by Avenza Systems Inc. or its related companies or successors. Avenza Systems Inc. assumes no responsibility or liability for any errors, omissions or inaccuracies that may appear in this book.

Except as permitted by such license, no part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, recording, or otherwise without prior written approval of Avenza Systems Inc.

Avenza Systems Inc.

124 Merton Street, Suite 400

Toronto, Ontario M4S 2Z2

Canada

Tel: (+1) 416 487 5116

Fax: (+1) 416 487 7213

Email: info@avenza.com

Web: <http://www.avenza.com>

Support Tel: (+1) 416 487 6442

Support email: support@avenza.com

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 all your cartographic tasks to be performed where they should be done; in a powerful graphics environment.

MAPublisher 8 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 CS3 or CS4, 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 8 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 supplied on the MAPublisher 8 CD or in the electronic download. Alternatively, if you have installed the software, you can find the Tutorial data in the following location on your hard drive:

Windows XP

C:\Documents and Settings\All Users\Shared Documents\Avenza\MAPublisher 8\Tutorial Guide & Data\Tutorial Data

Windows Vista and Windows 7

C:\Users\Public\Documents\Avenza\MAPublisher 8\Tutorial Guide & Data\Tutorial Data

Note: This data may be accessed through shortcuts available through the Windows Start menu.

Mac OS X

/Applications/Avenza/MAPublisher 8/MAPublisher Tutorials/Tutorial Guide/Tutorial Data

Helpful styles and symbols can be found in:

Windows XP

C:\Documents and Settings\All Users\Documents\Avenza\MAPublisher 8\Helpful Styles & Symbols

Windows Vista and Windows 7

C:\Users\Public\Documents\Avenza\MAPublisher 8\Helpful Styles & Symbols

Mac OS X

/Applications/Avenza/MAPublisher 8/Helpful Styles & Symbols

Contents

Welcome

Contents

1 Importing Map Data

1.1	Import a single map file	7
1.2	Import multiple map files at once.	8
1.3	Import map files to match an existing map layer	9
1.4	Import map files with point per path limitations	10
1.5	Import GIS file types that require optional settings	11
1.6	Import points	11
1.7	Import multiple file types	13
1.8	Import MAP files with different coordinate systems.	14
1.9	Import map files to match an existing MAP View	17
1.10	Assign a source coordinate system prior to import	19
1.11	Transform a coordinate system on import.	20

2 MAP Views and Georeferencing

2.1	Create MAP View on import	22
2.2	Import a MAP View from existing MAPublisher documents	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	Create a new MAP View	33
2.13	Export data to GIS formats.	36
2.14	Determine the coordinates of a specific location	39

3	MAP Attributes	
3.1	View, edit and zoom with MAP Attributes	40
3.2	Add a new column to a MAP Attribute table	41
3.3	Change an existing column's properties	42
3.4	Create a new column using expressions	43
3.5	Join tables	44
4	Plotting Points	
4.1	Plot points in decimal degree and degrees-minutes-seconds formats	46
4.2	Plot centroids	48
5	Drawing with MAPublisher	
5.1	Create shapes with specific map dimensions	49
6	Cropping with MAPublisher	
6.1	Crop MAPublisher data with MAP Vector Crop Tool	52
7	Art and Line Functions	
7.1	Buffer art using an entered value	54
7.2	Flip lines	56
7.3	Join lines based on attribute value	57
7.4	Simplify lines	58
7.5	Join points	59
8	Legends and Stylesheets	
8.1	Create an area stylesheet	63
8.2	Create a line stylesheet	65
8.3	Create a point stylesheet	67
8.5	Edit styles to change attributes	70
8.6	Create a MAP Stylesheet legend	71
9	Labeling Functions	
9.1	Generate labels for a line layer using Label Features	72
9.2	Generate labels for an area layer using the MAP Tagger Tool	74
9.3	Create knockouts for labels	75

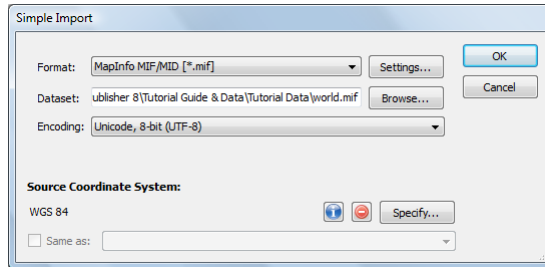
10 Making Selections	
10.1 Create an Attribute Filter	77
10.2 Create a Spatial Filter	78
10.3 Create an Art Selection filter	80
11 Working with Images	
11.1 Register an image with a reference file	81
11.2 Register an image without a reference file	82
11.3 Export a placed image as a georeferenced raster file	84
12 Grids, Graticules and Indexes	
12.1 Create an index grid	85
12.2 Create a graticule	87
12.3 Create a measured (UTM) grid	88
12.4 Create a feature based index	90
12.5 Create a text based index	92
13 Scale Bars and North Arrows	
13.1 Create a scale bar	93
13.2 Create a north arrow	94
14 MAP Web Author	
14.1 Prepare the map for Web tags	96
14.2 Create Web tag callouts	97
14.3 Export Flash map	99
15 Geospatial PDF Export	
15.1 Export to geospatial PDF	103
16 Import Spatial Databases	
16.1 Import ESRI Personal or File Geodatabase	108
16.2 Import ESRI ArcSDE Geodatabase	111
16.3 Import Basic ESRI ArcSDE Server	114

1 Importing Map Data

See User Guide, Chapter 3.

1.1 Import a single map file

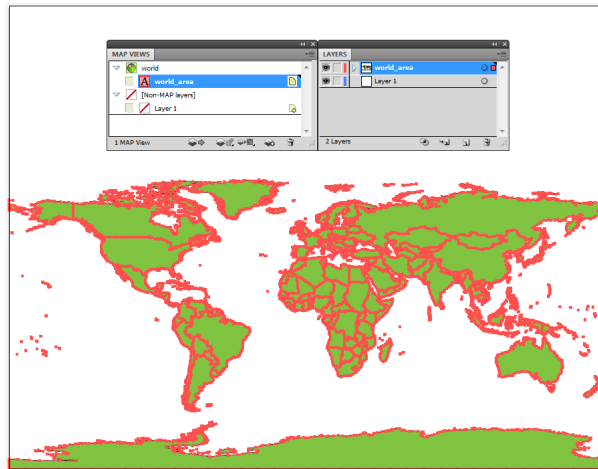
1. In Adobe Illustrator, create a new document in landscape orientation.
2. In the Adobe Illustrator menu, click *File > Import Map Data > Simple* to open the MAPublisher Simple Import dialog box or click the Simple Import button on the MAPublisher toolbar.
3. Select **MapInfo MIF/MID [*.mif]** from the Format drop-down list.
4. Click **Browse**, navigate to the *Tutorial Data* folder, select **world.mif**, and click Open.



The Source Coordinate System is automatically read as WGS 84 because MAPublisher has the ability to interpret this information if it is contained in the data.

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

The data is imported and automatically fitted to the width of the artboard. Notice that in the Adobe Illustrator Layers panel there is a new layer called *world_area*. In the MAP Views panel there is a new MAP View holding the imported file called *world*. See chapter 4 for more information on MAP Views in the MAPublisher User Guide.

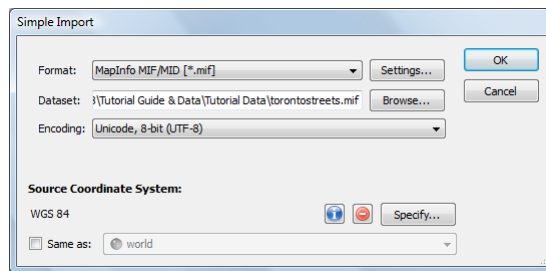


6. Close the document without saving.

1.2 Import multiple map files at once

Simple Import also allows multiple map files to be imported at once. When importing multiple files, all files must be of the same format, be in the same coordinate system, and be located in the same directory.

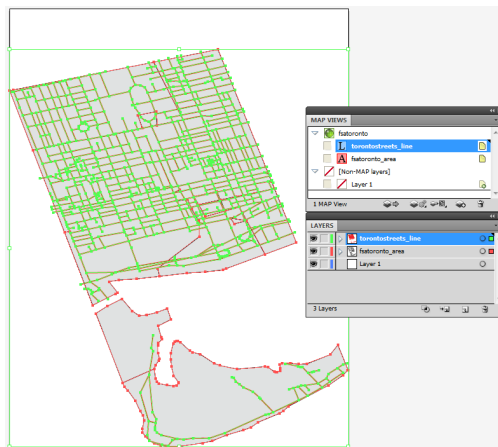
1. In Adobe Illustrator, create a new document in portrait orientation.
2. In the Adobe Illustrator menu, click *File > Import Map Data > Simple* to open the MAPublisher Simple Import dialog box or click the Simple Import button on the MAPublisher toolbar.
3. Select **MapInfo MIF/MID [*.mif]** from the Format drop-down list (it should already be selected by default).
4. Click Browse, navigate to the *Tutorial Data* folder, select both **fsatoronto.mif** and **torontostreets.mif** (hold the Command key (Mac) or the Ctrl key (Windows) to select multiple files), and click Open.



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

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

In the Adobe Illustrator Layers panel, there are new layers called *fsatoronto_area* and *torontostreets_line*. In the MAP Views panel there is a new MAP View called *fsatoronto* holding the two imported files.



6. Close the document without saving.

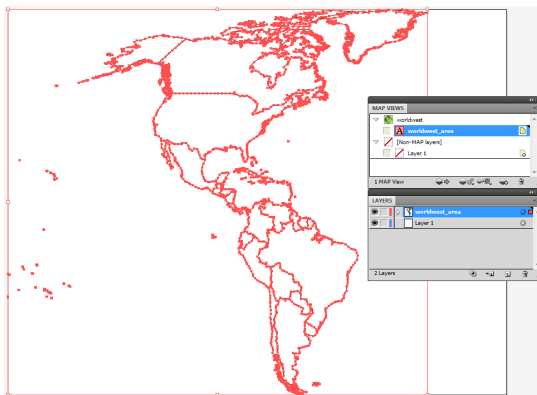
1.3 Import map files to match an existing map layer

1. In Adobe Illustrator, create a new document in landscape orientation.
2. In the Adobe Illustrator menu, click *File > Import Map Data > Simple* to open the MAPublisher Simple Import dialog box or click the Simple Import button on the MAPublisher toolbar.
3. Select **MapInfo MIF/MID** [* .mif] from the Format drop-down list.
4. Click Browse, navigate to the *Tutorial Data* folder, select **worldwest.mif**, and 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 automatically read as Robinson.

5. Click OK to complete the import.

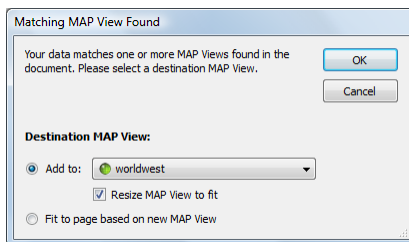
In the Adobe Illustrator Layers panel there is a new layer called *worldwest_area*. Also in the MAP Views panel there is a new MAP View called *worldwest* that is set in the Robinson coordinate system.



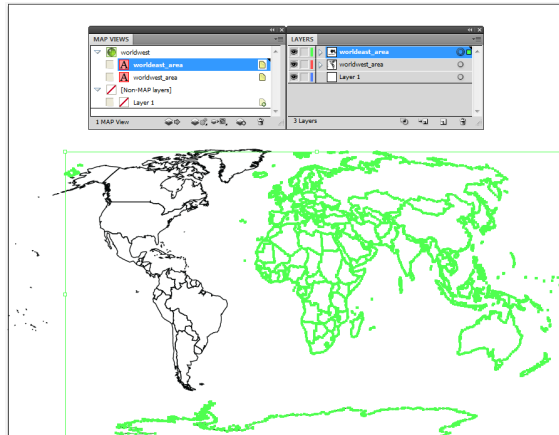
6. Repeat steps 2 to 4 above to import **worldeast.shp**, ensure the import **Format** drop-down list is **ESRI Shapefile** [* .shp].

In the Simple Import dialog box, the Source Coordinate System of *worldeast.shp* is automatically read 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 in the Destination MAP View frame. Then check **Resize MAP View to fit**.



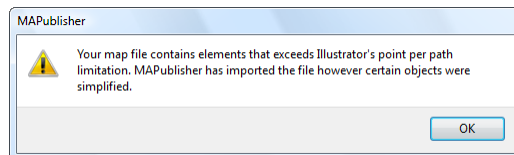
The *worldeast* layer is imported to match the previous import, *worldwest*. Notice that the *worldwest_area* layer is scaled so that it both layers fit inside the page extents. In the Adobe Illustrator Layers panel there is now an additional layer called *worldeast_area*. In the MAP Views panel, the MAP View *worldwest* now contains both layers.



9. Close the document without saving.

1.4 Import map files with point per path limitations

1. Create a new Adobe Illustrator document in portrait orientation.
2. Click the Simple Import button on the MAPublisher toolbar.
3. Select **MapInfo MIF/MID** [*.mif] from the Format drop-down list.
4. Click Browse, navigate to the *Tutorial Data* folder, select **greenland.mif**, click Open and then click OK



The vertex count exceeds the allowable 32,000 points per path in Adobe Illustrator. Greenland looks distorted because there is no coordinate system defined.

5. Click OK to close the warning dialog box.

MAPublisher calculated the amount of vertices in the file and removed just enough points in order to maintain the highest level of detail possible.

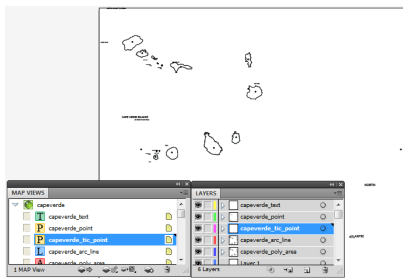
6. Close the document without saving.

1.5 Import GIS file types that require optional settings

There are a number of other file formats in the *Tutorial Data* folder to experiment with. MAPublisher can handle supported file formats in various ways. Some types of data import differently and require additional user input. There is an overview of the file formats supported by MAPublisher in the User Guide.

1. Create a new Adobe Illustrator document in portrait orientation.
2. Click the Simple Import button on the MAPublisher toolbar.
3. Select **ESRI Interchange File (*.e00)** from the Format drop-down list.
4. Click Browse, navigate to the *Tutorial Data* folder, select **capeverde.e00**, and click Open.
5. In the Simple Import dialog box, click the Settings button.
6. Make sure **Ignore TIC layer** is unchecked, and 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 points

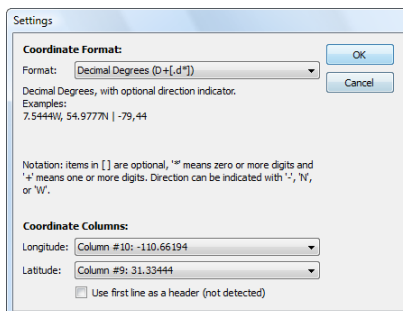
MAPublisher can import delimited ASCII text files as point data provided they contain coordinate values. Supported delimiters include: *comma*, *return*, *end of line* and *tab* in multiple formats. Below is an example of ASCII that is supported for import:

```
"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"
```

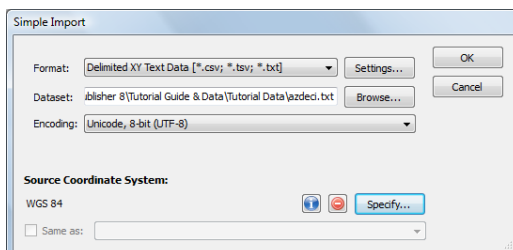
1. Create a new Adobe Illustrator document in portrait orientation.
2. Click the Simple Import button on the MAPublisher toolbar.
3. Select **Delimited XY Text Data (*.csv, *.tsv, *.txt)** from the Format drop-down list.
4. Click Browse, navigate to the *Tutorial Data* folder, and select **azdec1.txt**.

The Settings dialog box opens automatically. Specify the appropriate coordinate format of their data in the Format drop-down list before selecting the columns of the import file to be used.

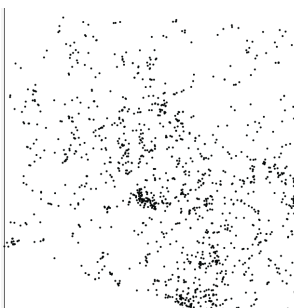
5. Use **Decimals Degrees (D+[.d*])** as the Coordinate Format
6. Use **Column #10: -110.66194** for the **Longitude** coordinates and **Column #9: 31.33444** for the **Latitude** coordinates.
7. Leave **Use first line as a header** unchecked. The first line of this file does not contain column headings.



8. Make sure that the dialog box matches the one above and click OK.
9. Since the file contains coordinates in decimal degrees, click **Specify**, select the **WGS 84** coordinate system from **Geodetic > World**, and click OK.



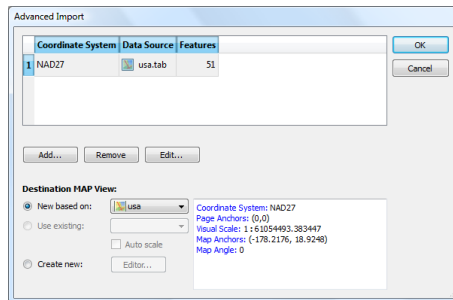
10. In the Simple Import dialog box, click OK to start the file import process.
The points are placed on the page as specified. All other columns that were in the file are imported as attribute data for the placed points.



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

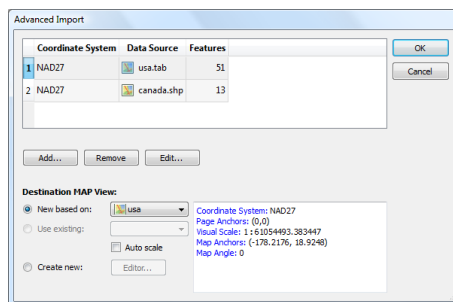
1.7 Import multiple file types

1. Create a new Adobe Illustrator document in landscape orientation.
2. In the Adobe Illustrator menu, click *File > Import Map Data > Advanced* to open the MAPublisher Advanced Import dialog box or click the Advanced Import button on the MAPublisher toolbar.
3. In the Advanced Import dialog box, click Add.
4. Select **MapInfo TAB [*.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.



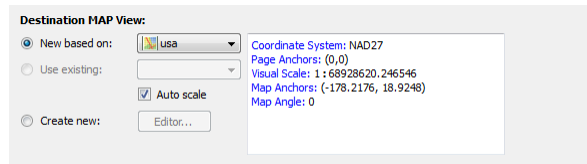
The selected file appears in row 1 of the file list. Now add another file in a different map file format.

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, select **canada.shp**, and click Open.
10. Click OK to close the Add dialog box.



The selected file appears in the second row of the list.

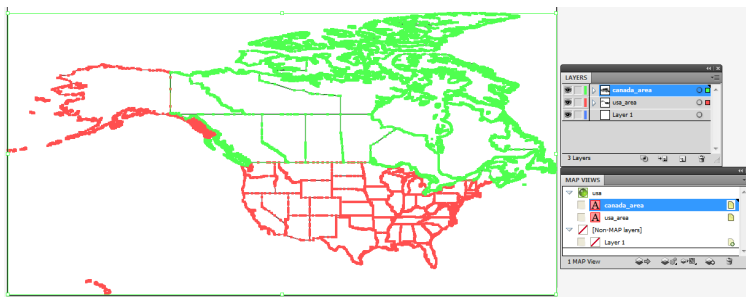
11. In the Destination MAP View frame, *usa* is selected by default in the New Based On drop-down list. This bases the page scaling on the *usa.tab* file.
12. Check the **Auto scale** option.



This 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.

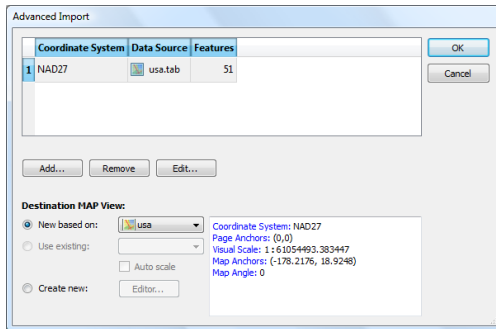


Notice that in the Adobe Illustrator Layers panel there are new layers called *usa_area* and *canada_area*. Also in the MAP Views panel there is a new MAP View called *usa* containing the imported files.

14. Close the document without saving.

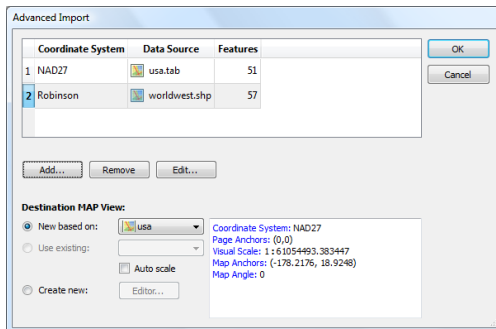
1.8 Import MAP files with different coordinate systems

1. Create a new Adobe Illustrator document in landscape orientation.
2. Click the Advanced Import button on the MAPublisher toolbar
3. In the Advanced Import dialog box, click Add.
4. Select **MapInfo TAB [*.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.



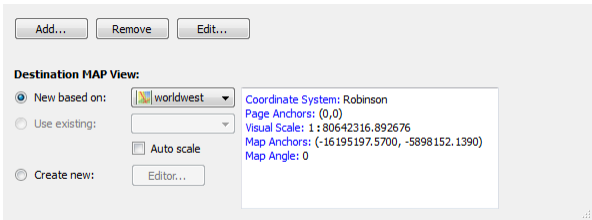
The selected file appears in row 1 of the file list. The coordinate system of *usa.tab* displays NAD27. The coordinate system preview area lists various parameters of the file including the name of the coordinate system, page and map anchors, visual scale, and map angle.

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.

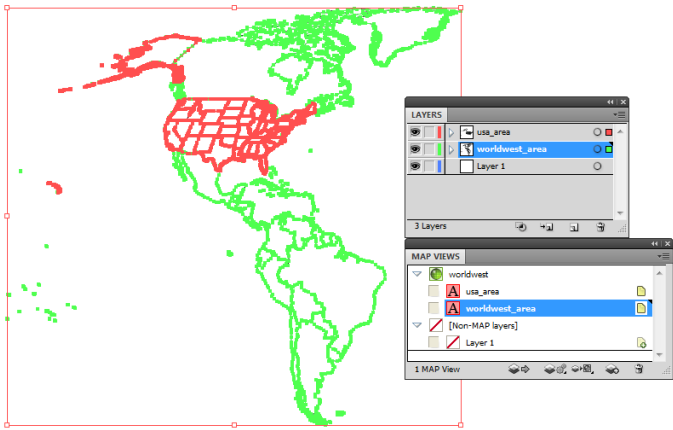


This bases the coordinate system and page scaling on the *worldwest.shp* file.

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 required to be 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).

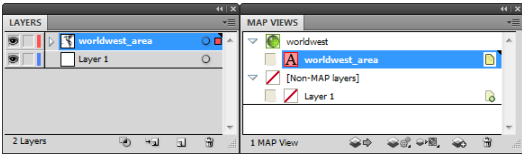


13. Close the document without saving.

1.9 Import map files to match an existing MAP View

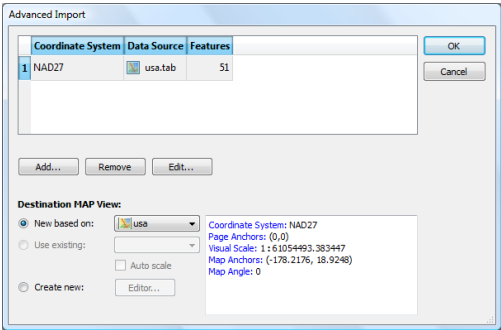
This tutorial will produce the same results as Tutorial 1.8 - Importing MAP files in multiple coordinate systems.

- 1. Create a new Adobe Illustrator document in portrait orientation.
- 2. Click the Simple Import button on the MAPublisher toolbar.
- 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.



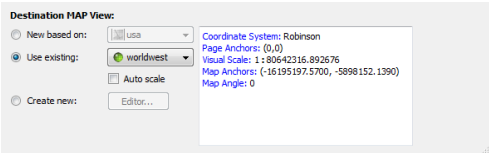
In the Adobe Illustrator Layers panel there is a new layer called *worldwest_area*. Also in the MAP Views panel there is a new MAP View called *worldwest* (which is set in the Robinson coordinate system).

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



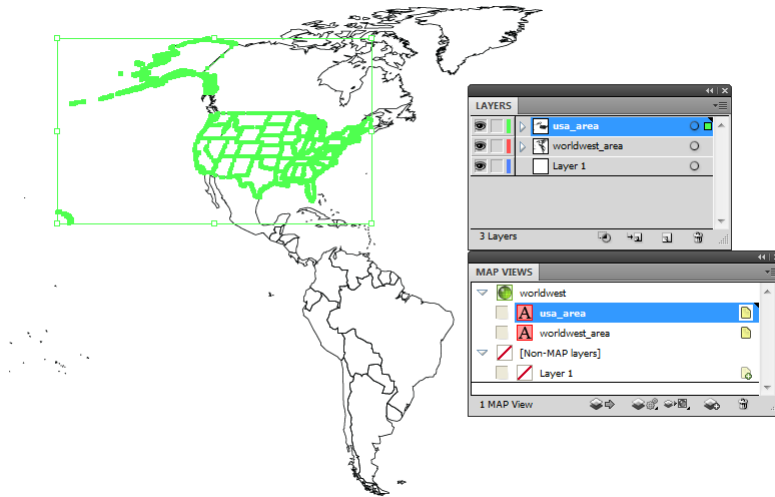
The selected file appears in Row 1 of the file list. The coordinate system of *usa.tab* displays NAD27.

- 9. In the Destination MAP View frame, select 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.



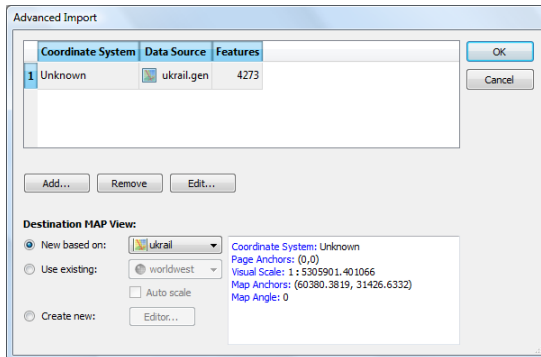
The file is imported and reprojected to automatically align with the *worldwest* layer. This functionality allows a user to easily register multiple files in differing coordinate systems.

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.

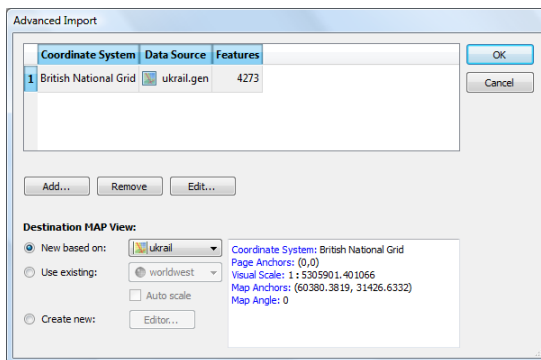
1.10 Assign a source coordinate system prior to import

1. Create a new Adobe Illustrator document in portrait orientation.
2. Click the Advanced Import button on the MAPublisher toolbar. 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.



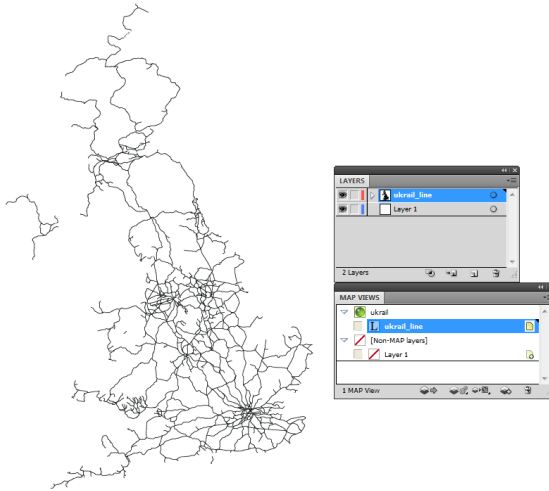
The selected file appears in the first row of the file list.

6. In the Advanced Import dialog box, with the first row selected, click Edit.
7. In the Edit dialog box, click Specify and choose **British National Grid** located under **Projected > Europe > United Kingdom**.
8. Click OK and OK again 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.

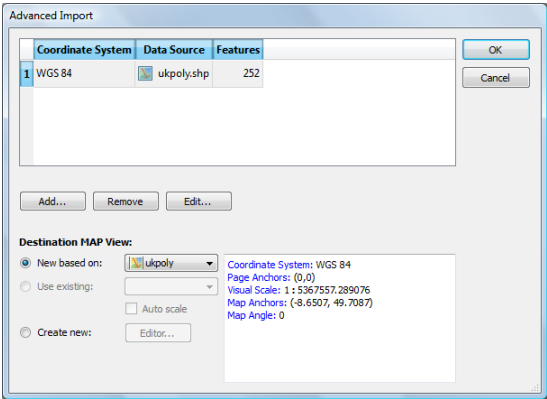


10. Close the document without saving.

1.11 Transform a coordinate system on import

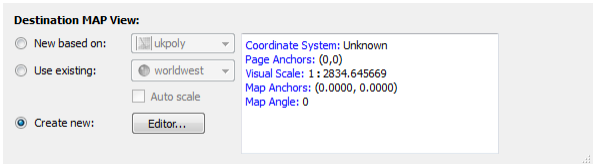
Read about the MAP View Editor in chapter 4 of the User Guide before completing the following tutorial.

1. Create a new Adobe Illustrator document in portrait orientation.
2. Click the Advanced Import button on the MAPublisher toolbar, and then 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.

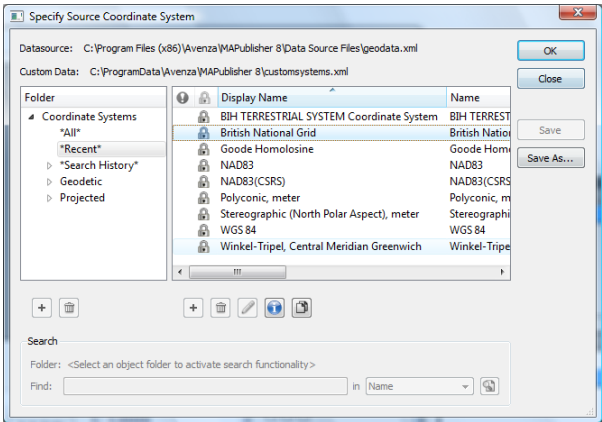


The selected file appears in Row 1 of the file list. The coordinate system of *ukpoly.shp* is currently WGS 84.

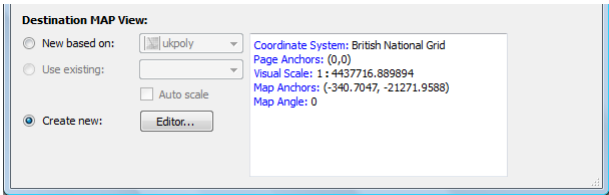
6. In the Destination MAP View frame, select the Create New option, and click the Editor button to open the Map View Editor dialog box.



7. Click Specify, navigate to the ***Recent*** category list under **Coordinate Systems > Projected** and choose **British National Grid**. Alternatively, navigate to **Projected > Europe > United Kingdom** to choose the same 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.

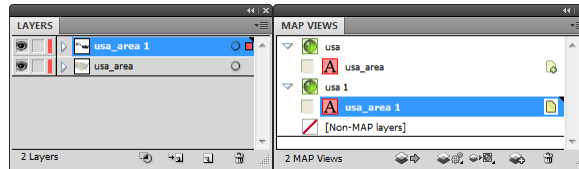
10. Click OK to import the file in the British National Grid coordinate system.
11. Close the document without saving.

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. In the Adobe Illustrator menu, click *Window > MAPublisher > MAP Views* to open the MAP Views panel or click the **MAP Views** button on the MAPublisher toolbar. 
3. Use Simple Import to import **usa.tab** from the *Tutorial Data* folder.



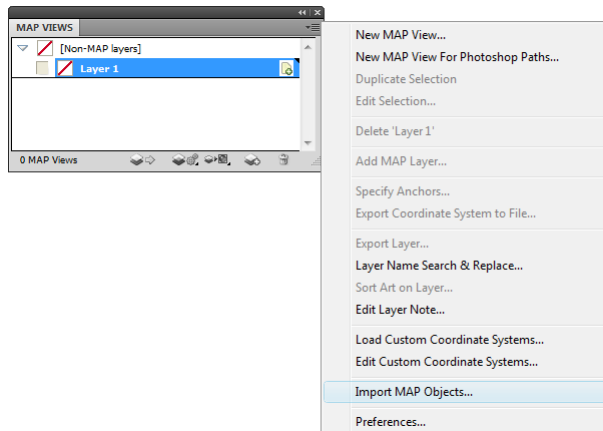
Notice that a MAP View called *usa 1* is automatically created. The *1* denotes that a MAP View already exists with that name, so it adds a suffix to differentiate it. Each Adobe Illustrator layer comprising the MAP View is depicted with an icon that represents the Feature type contained on each of the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

4. Continue with the next tutorial.

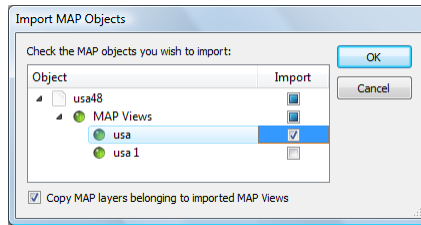
2.2 Import a MAP View from existing MAPublisher documents

Continue working with the previous tutorial.

1. Keep the *usa48.ai* document open, create a new Adobe Illustrator document and make it active.
2. Click the top right corner of the MAP Views panel to open the options menu and click **Import MAP Objects**.



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 Import column and click OK.

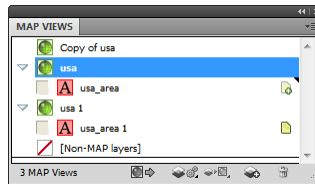
The MAP View is imported into the new document along with all the MAP Layers within that MAP View. It maintains the original scale and position of the *usa* MAP view.

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 *usa48.ai* document, select the **usa** MAP View.
2. In the MAP Views panel option menu, click **Duplicate "usa"**.



A new MAP View called *Copy of usa* is created. It doesn't contain any Adobe Illustrator layers. Since only empty MAP Views can be deleted, use the following steps to delete it.

3. Select the **Copy of usa** MAP View and click the Delete button. Alternatively, in the MAP Views panel option menu, click **Delete "Copy of usa"**.
4. Select the **usa 1** MAP View and open the MAP Views panel option menu.

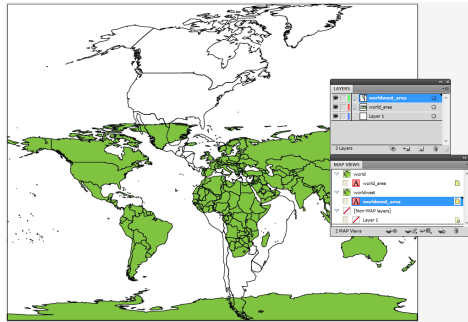
Notice that the Delete option is disabled. This is because a MAP View that still contains one or more map layers cannot be deleted. Move or delete all layers from a MAP View first before deleting the MAP View itself.

5. In the Adobe Illustrator Layers panel, delete the **usa_area 1** layer. Alternatively, select the **usa_area 1** layer in the MAP Views panel and click the Delete button.
6. Select the **usa 1** MAP View and click the Delete button.
7. Close the document without saving.

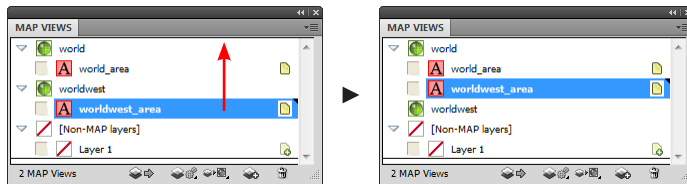
2.4 Transform coordinate systems by drag and drop

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

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



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



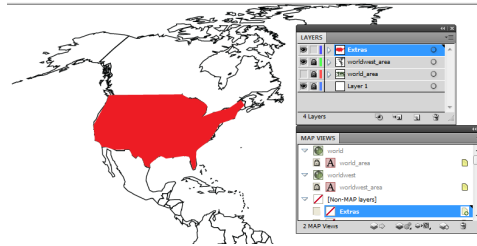
The *worldwest_area* layer is instantly transformed into the WGS 84 coordinate system and matches the page scaling of the *world_area* layer.

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

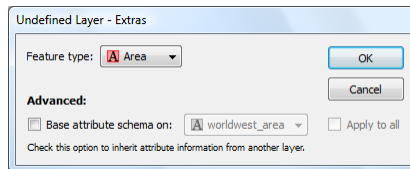
Continue working with the previous tutorial.

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.



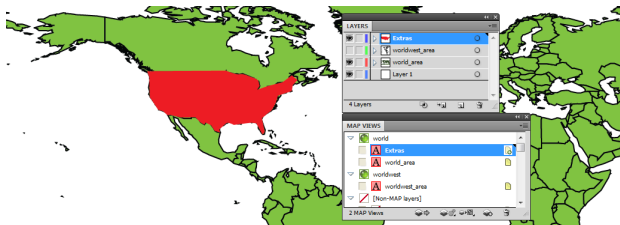
The *Extras* layer is now stored in the same coordinate system as the *worldwest* MAP View.

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.

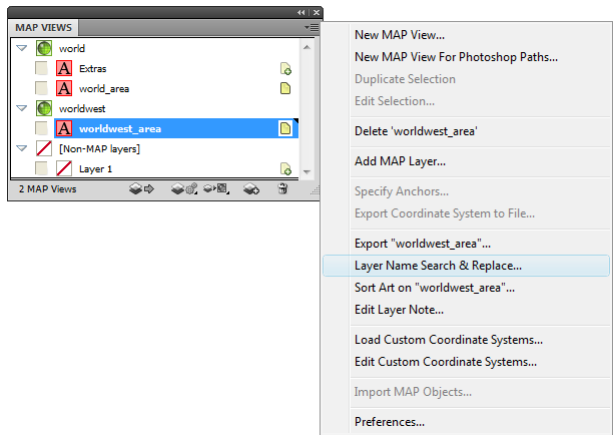


The *Extras* layer is moved to the coordinate system of the *world* MAP View. It is immediately transformed from Robinson to WGS 84 coordinate system and aligns with the data in the *world_area* layer.

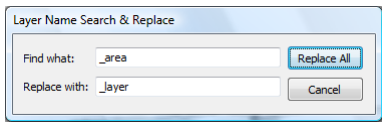
3. Keep the document open for the next tutorial.

2.7 Edit layer names using search and replace

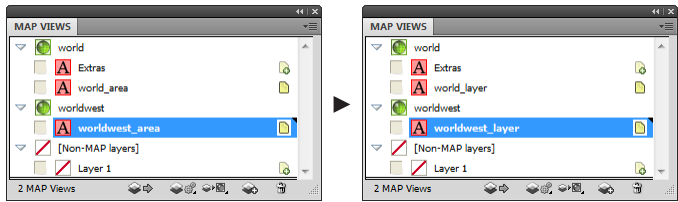
- Continue working with the previous tutorial.*
1. In the MAP Views panel option menu, click Layer Name Search & Replace.



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



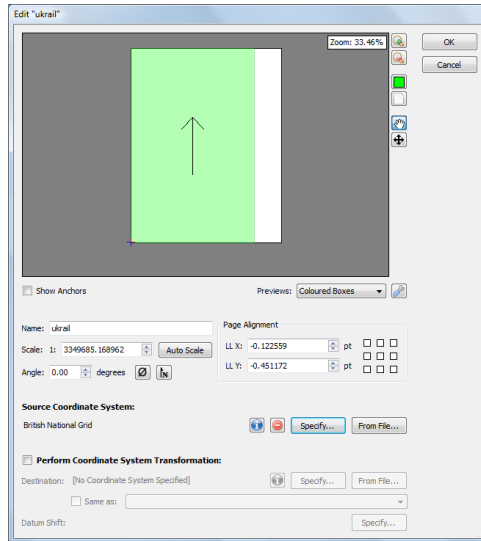
- The text **_area** is replaced with **_layer** in the name of all applicable layers.



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 import **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 Specify to open the Specify Source Coordinate system dialog box.
5. Select **British National Grid** located under **Projected > Europe > United Kingdom**.



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.

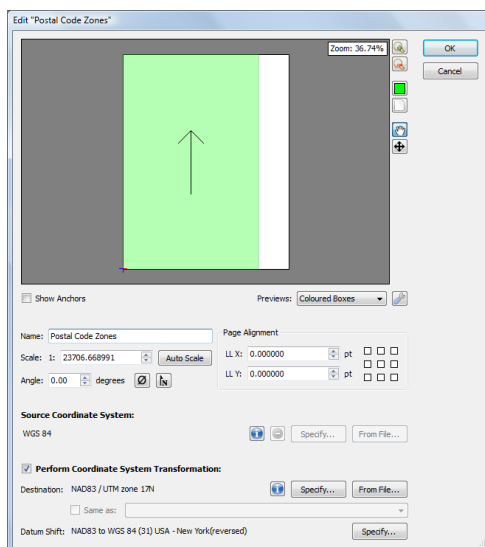
2.9 Transform a coordinate system using the MAP View editor

1. Create a new 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 Specify.
6. In the Specify Destination Coordinate System dialog box, select **NAD83 / UTM zone 17N** located under **Projected > UTM > NAD83** and click OK.



The Preview Pane displays how the new coordinate system are fitted onto the page.

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

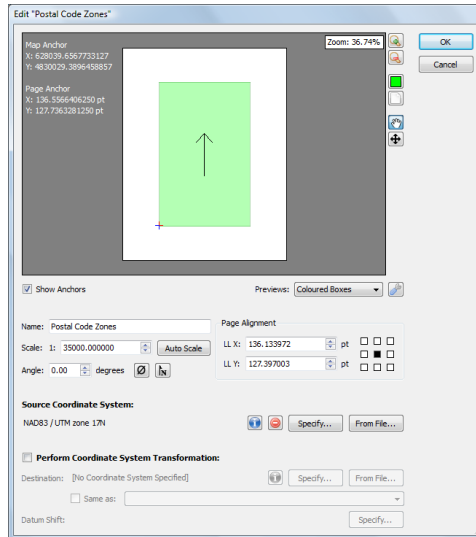


The MAP View is transformed from WGS 84 to NAD83 / UTM zone 17N. See Appendix A2 on *Projections and Datums* in the User Guide for more information.

8. Keep the document open for the next tutorial.

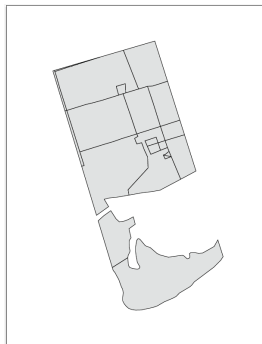
2.10 Edit scale and position

1. In the MAP Views panel, double-click the Postal Code Zones MAP View to open the MAP View editor.
2. Click the check box next to Show Anchors to display page and map anchor information.
3. Change the map scale to 1: 35,000 by typing **35000** in the Scale box.
4. In the Page Alignment frame, there are nine squares in the alignment control graphic. Click the center square to reposition the data to the center of the page.



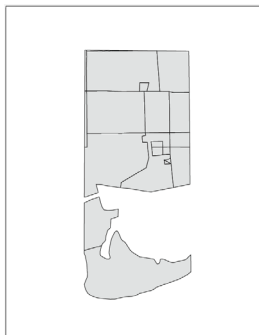
The *Preview Pane* shows the new data extents and the page anchor values have been automatically updated.

5. Click OK.



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

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



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

8. Close the document without saving.

2.11 Copy a coordinate system from one layer to another

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

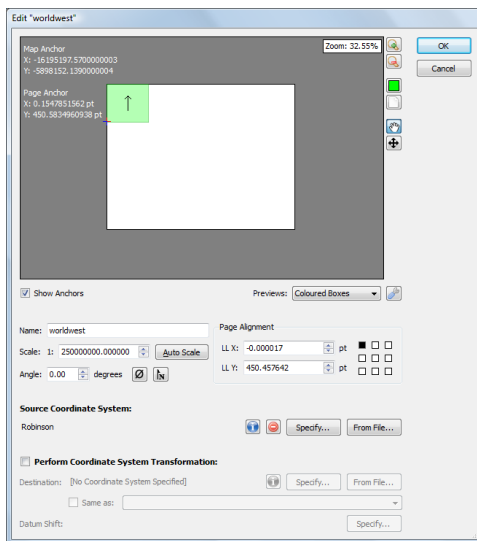
The map file is in the Robinson coordinate system.

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.

- 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 Page Alignment frame, 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.

- Click OK.



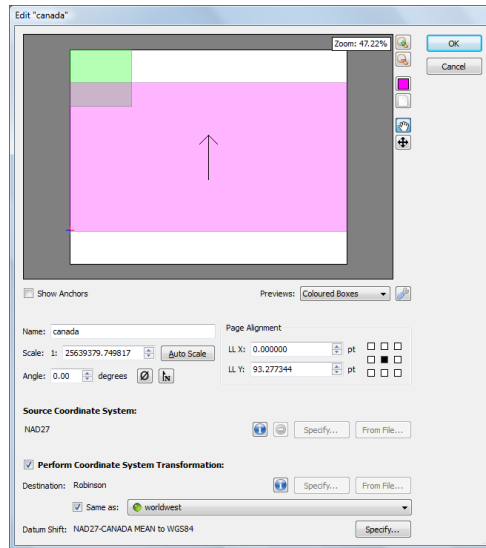
The *worldvest* MAP View is rescaled and repositioned in the upper left corner of the page. This can be used as a small inset map used to reference Canada and to Western Hemisphere countries.

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

The map file is in the NAD27 coordinate system.

- In the MAP Views panel, double-click the *canada* MAP View to open the MAP View Editor.

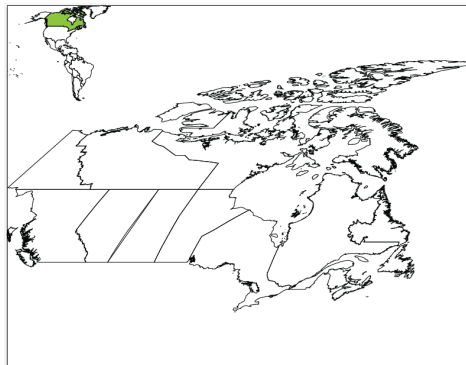
10. Check the Perform Coordinate System Transformation check box to enable its frame options. Check the Same As check box and select the *worldvest* MAP View in the drop-down list. Notice how the destination is set to Robinson and the datum shift is NAD27-CANADA MEAN to WGS84.
11. In the Page Alignment frame, 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 *worldvest* MAP View.



13. Close the document without saving.

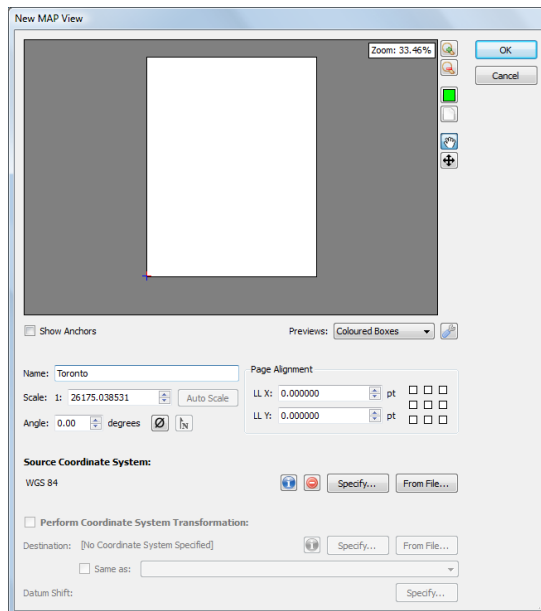
2.12 Create a new MAP View

This tutorial provides a basic overview of assigning georeferencing information to existing Adobe Illustrator documents. Please see *Georeferencing an Adobe Illustrator File* in the MAPublisher 8 User Guide for more information.

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

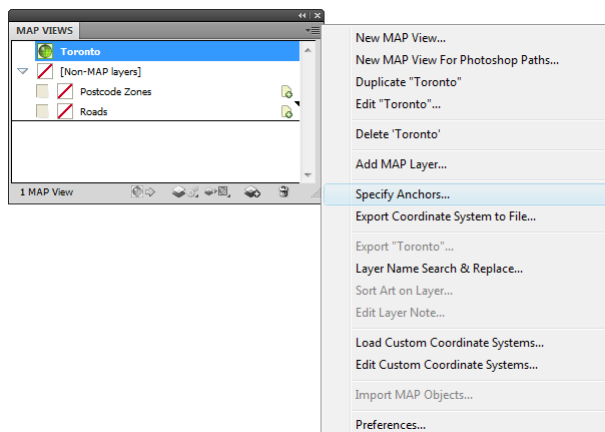
This is a regular Adobe Illustrator document digitized in WGS 84 (degrees). It contains two Adobe Illustrator layers that do not have any georeferencing or attribute information. They are located in the [Non-MAP layers] section of the MAP Views panel.

2. In the MAP Views panel option menu, choose New MAP View. Close the warning dialog box.
3. Rename the MAP View to **Toronto**.
4. Under the Source Coordinate System section, click Specify.
5. In the Specify Source Coordinate System dialog box, choose **WGS 84** located in **Geodetic > World** and then click OK.
6. Type **26175.038531** in the Scale box. The data is in degrees so the scale value is approximated using the common formula $1^\circ = 111.353$ meters.



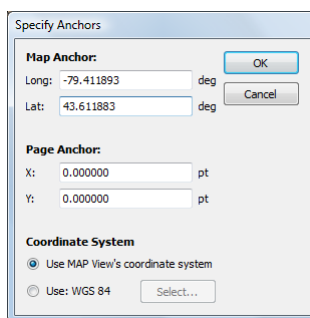
7. Make sure that the dialog box matches the one above and click OK.

8. Make sure the Toronto MAP View is selected and choose Specify Anchors in the MAP Views panel option menu.



The Specify Anchors dialog box establishes the tie-in point between map anchors (real world coordinates) and page anchors (coordinates in page units).

9. Set the Map Anchors to the value of a tie-in location of Long: **-79.411893** deg and Lat: **43.611883** deg. Leave the Page Anchors to the default value of X: **0.000000** pt and Y: **0.000000** pt.

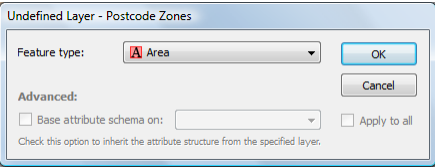


The option is available to specify anchors using another coordinate system. Our anchor points are using WGS 84 coordinate system so the Use MAP View's coordinate system option is selected.

Note: The map/page anchor relationship can be established at any known tie-in point (preferably within the extents of the dataset being georeferenced).

10. Make sure that the dialog box matches the one above and click OK to apply the changes.
11. In the MAP Views panel, click and drag the *Postal Code Zones* layer into the *Toronto* MAP View.

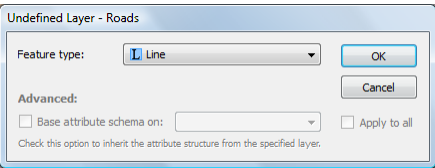
12. In the Undefined Layer dialog box, choose **Area** in the Feature type drop-down list and click OK.



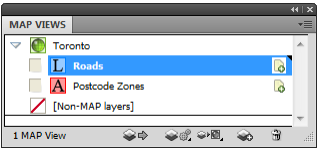
The *Postal Code Zones* area layer is moved to the specified coordinate system of the *Toronto* MAP View.

13. Click and drag the *Roads* layer into the *Toronto* MAP View.

14. In the Undefined Layer dialog box, choose **Line** in the Feature type drop-down list and click OK.



The *Roads* line layer is moved to the specified coordinate system of the *Toronto* MAP View.

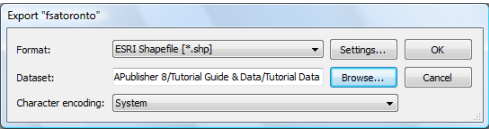


Both Adobe Illustrator layers are now map layers, in the specified coordinate system of the *Toronto* MAP View.

15. Close the document without saving.

2.13 Export data to GIS formats

1. Create a new 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.

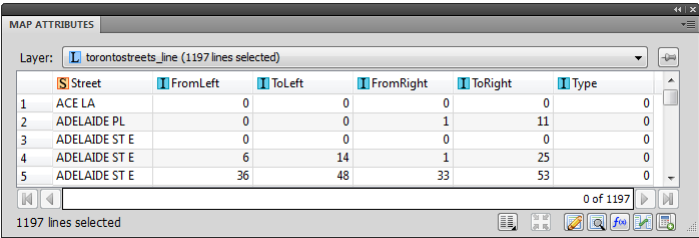


5. Click OK to export the file.

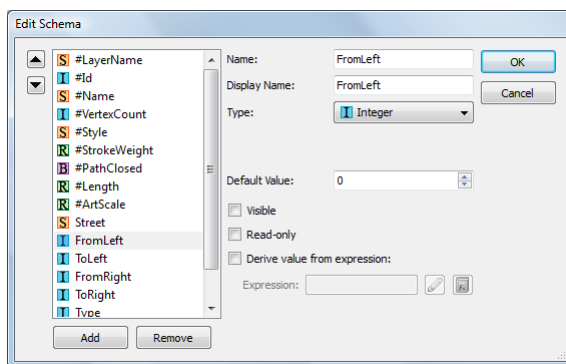
View the contents of the destination folder. The *fsatoronto* layer is exported as an ESRI Shapefile with all attributes and georeferencing intact. This ESRI Shapefile consists of four files: *fsatoronto.shp*, *fsatoronto.shx*, *fsatoronto.dbf*, and *fsatoronto.prj*. It is ready to be used in software supporting this format. Descriptions of these file extensions can be found in chapter 2 of the MAPublisher 8 User Guide.

Name	Date modified	Type	Size	Ta
fcstreets.mid	02/06/2009 4:13 PM	MIDI Sequence	3 KB	
fcstreets.mif	02/06/2009 4:13 PM	MIF File	30 KB	
fsatoronto.dbf	24/08/2009 1:24 PM	OpenDocument S...	2 KB	
fsatoronto.mid	02/06/2009 4:13 PM	MIDI Sequence	1 KB	
fsatoronto.mif	02/06/2009 4:13 PM	MIF File	9 KB	
fsatoronto.prj	24/08/2009 1:24 PM	PRJ File	1 KB	
fsatoronto.shp	24/08/2009 1:24 PM	SHP File	6 KB	
fsatoronto.shx	24/08/2009 1:24 PM	SHX File	1 KB	
greenland.mid	02/06/2009 4:13 PM	MIDI Sequence	1 KB	
greenland.mif	02/06/2009 4:13 PM	MIF File	990 KB	
southchinesea.dbf	02/06/2009 4:13 PM	OpenDocument S...	70 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 click the Edit Schema button.



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

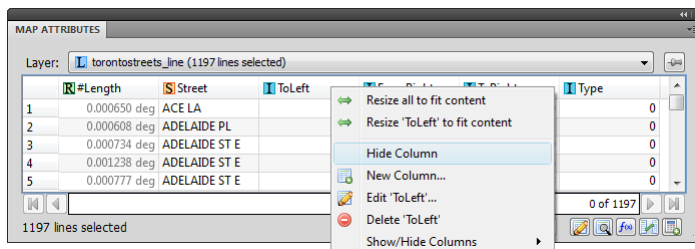


The *#Length* attribute is visible now and the *FromLeft* attribute is hidden.

	#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

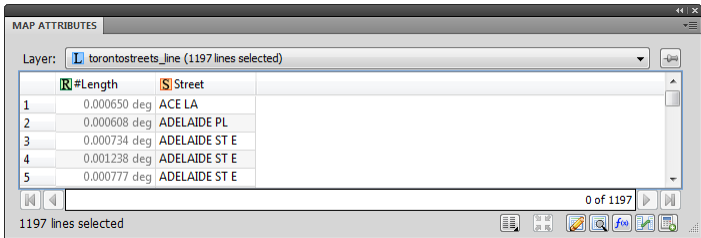
Before continuing, the other Integer type columns need to be hidden.

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

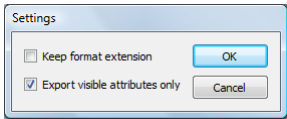


Note: Alternatively, click the Show/Hide Column button and choose an attribute to make visible or hidden.

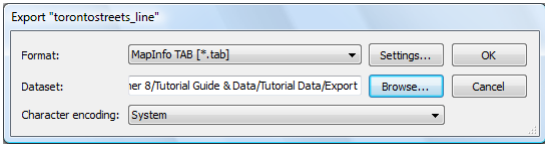
10. Hide the remaining columns: FromRight, ToRight and Type.



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 TAB [*.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.

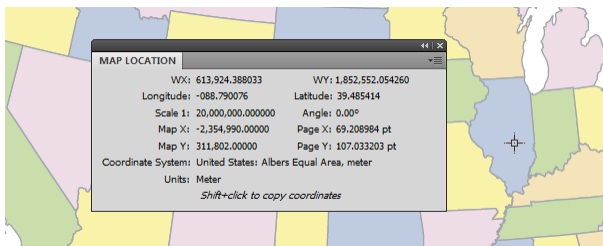
- The *torontostreets_line* layer is exported to MapInfo TAB format with the specified attributes and georeferencing intact. It is ready to be used in software supporting this format. View the contents of the destination folder. Four new files were created: *torontostreets.tab*, *torontostreets.dat*, *torontostreets.id*, and *torontostreets.map*. Descriptions of these file extensions can be found in chapter 2 of the User Guide.
15. Close the document without saving.

2.14 Determine the coordinates of a specific location

1. Open **usa48.ai** from the *Tutorial Data* folder.
2. In the Adobe Illustrator Tools panel, click the MAPublisher Location Tool. 

Notice that the MAP Location panel appears.

3. Move the mouse cursor (it looks like a cross hair) to a location on the map to view its geographic coordinates.



The MAP Location panel shows the WX and WY values and are constantly updated as the mouse cursor is moved around the map document. This tool also allows for the copying of coordinates.

4. With the MAPublisher Location Tool, determine a location on the map to generate coordinates for. Hold down the Shift key and click this location. Holding the Shift key and clicking on a location copies the coordinates to the Clipboard.
5. Open a simple text editor and use the Paste function to paste the coordinate values.


Note: The MAPublisher Location Tool panel continues to track the coordinates of the current cursor location regardless of which tool is currently selected in the Adobe Illustrator Tools panel. However, to copy coordinates to the clipboard, the MAPublisher Location Tool must be used.

6. Close the document without saving.

3 MAP Attributes

See User Guide, Chapter 5

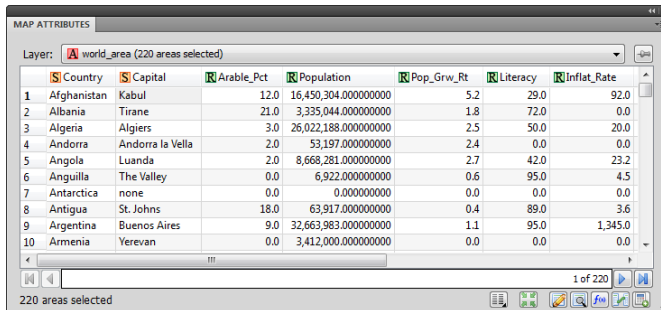
3.1 View, edit and zoom with MAP Attributes

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, open the MAP Attributes panel (choose *Window > MAPublisher > MAP Attributes*) or click the MAP Attributes button on the MAPublisher toolbar. 
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.

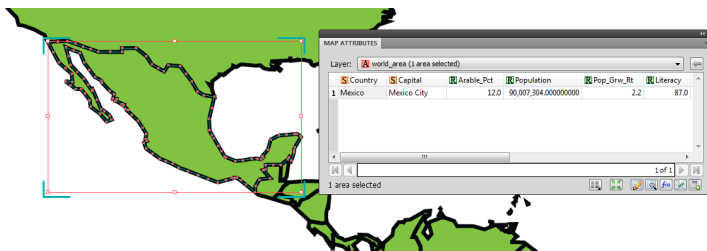
Keep in mind to enter values that correspond with a column's type (e.g. only enter numbers into a column of type *Real* or *Integer*). The edits are automatically maintained in the attribute table once entered.

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



	Country	Capital	Arable_Pct	Population	Pop_Grw_Rt	Literacy	Inflat_Rate
1	Afghanistan	Kabul	12.0	16,450,304.000000000	5.2	29.0	92.0
2	Albania	Tirane	21.0	3,335,044.000000000	1.8	72.0	0.0
3	Algeria	Algiers	3.0	26,022,188.000000000	2.5	50.0	20.0
4	Andorra	Andorra la Vella	2.0	53,197.000000000	2.4	0.0	0.0
5	Angola	Luanda	2.0	8,668,281.000000000	2.7	42.0	23.2
6	Anguilla	The Valley	0.0	6,922.000000000	0.6	95.0	4.5
7	Antarctica	none	0.0	0.000000000	0.0	0.0	0.0
8	Antigua	St. Johns	18.0	63,917.000000000	0.4	89.0	3.6
9	Argentina	Buenos Aires	9.0	32,663,983.000000000	1.1	95.0	1,345.0
10	Armenia	Yerevan	0.0	3,412,000.000000000	0.0	0.0	0.0


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



7. 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.

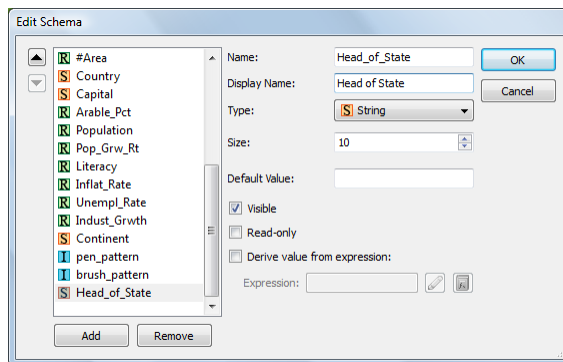
1. If necessary, open the MAP Attributes panel and select all objects on the *world_area* layer. The panel displays all of its attribute columns and values.
2. Click the Edit Schema button at the bottom of the MAP Attributes panel. 

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.

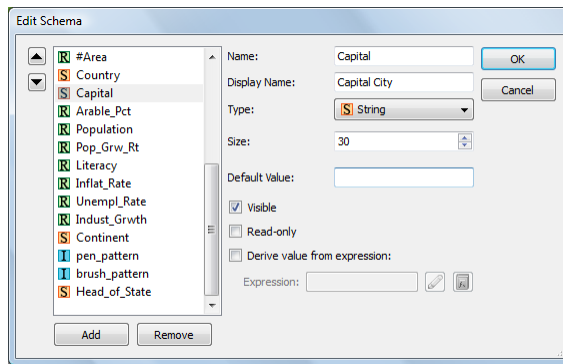
3.3 Change an existing column's properties

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 width increased to accommodate longer names.

6. Leave the document open for the next tutorial.

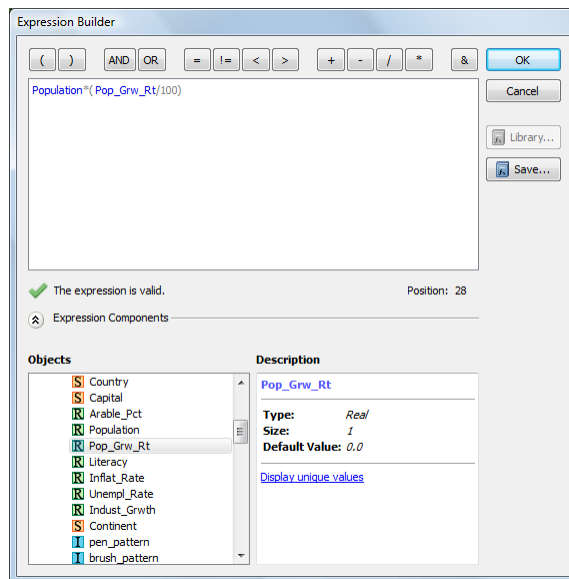
3.4 Create a new column using expressions

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.

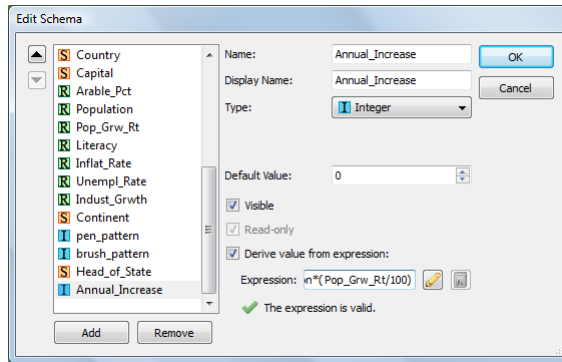
Build expressions by making selections from the Objects list in combination with using the operators available at the top of the dialog box.

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 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.

- 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.

MAP ATTRIBUTES

Layer: **A** world_area (220 areas selected)


	Unempl_Rate	Indust_Grwth	Continent	Head of State	Annual_Increase
1	32.0	0.0	6.2 Asia		855,415
2	0.0	0.0	0.0 Europe		60,030
3	20.0	26.0	0.9 Africa		650,554
4	0.0	0.0	0.0 Europe		1,276
5	23.2	0.0	0.0 Africa		234,043
6	4.5	5.0	0.0 North America		41

1 of 220

220 areas selected

- Close the document without saving.

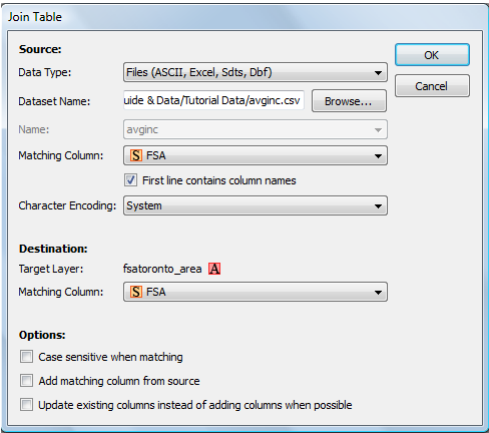
3.5 Join tables

- Create a new Adobe Illustrator document.
- Import **fsatoronto.mif** from the *Tutorial Data* folder.
- Open the MAP Attributes panel and click the Join Table button at the bottom of the panel. 
- Make sure the Data Type is set to Files (ASCII, Excel, Sdts, Dbf)*, click Browse next to the Dataset Name box and select **avginc.csv** from the *Tutorial Data* folder.
- Click the check box to enable First line contains column names and choose **FSA** from the Matching Column drop-down list.

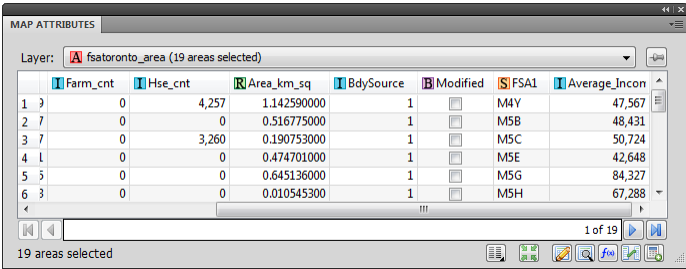
Leave the default Character encoding as System. Since there is only one MAP Layer in the MAP View, the Destination Target Layer will default to **fsatoronto_area**.

*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. In this case, the matching column is **FSA**.



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



8. Scroll to the right to view the joined attributes.

The imported table is joined with the attribute table of *fsatoronto*. The additional match column is appended with a "1" after the name (in this case, *FSA1*). This helps to differentiate the joined column and the original *FSA* column. All columns to the right of *FSA1* contain the joined table records.

9. Close the document without saving.

4 Plotting Points

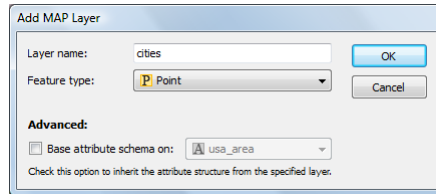
See User Guide, Chapter 6

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

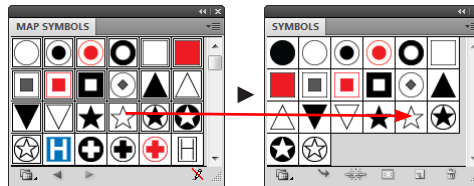
1. Open **usa48.ai** from the *Tutorial Data* folder.

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*.

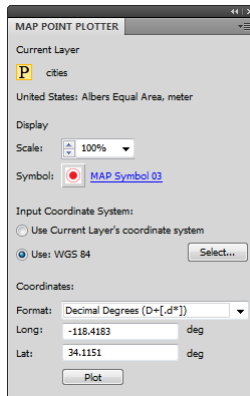
2. In the MAP Views panel, click the Add MAP Layer button. In the Add MAP Layer dialog box, rename Layer 1 to **cities**, set the Feature type to **Point** and click OK.



3. Open the Adobe Illustrator Symbols panel (click *Window > Symbols*).
4. In the Symbols panel option menu, click *Open Symbol Library > Other Library* and load **MAP Symbols.ai** from the *\Helpful Styles & Symbols\Symbols* folder (see page iii).
5. Choose some city symbols in the Map Symbols panel and drag 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 symbol and select MAP Symbol 03. 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.

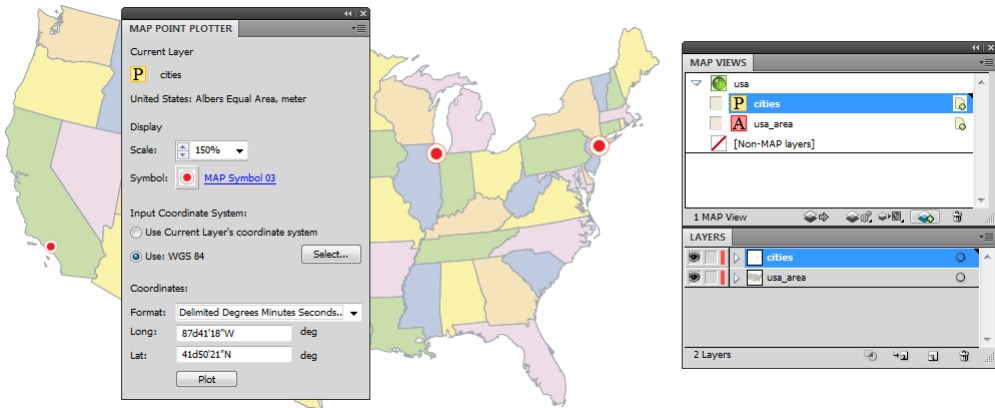


A point is plotted at the location of Los Angeles (34.1151 degrees north, 118.4183 degrees west).

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.



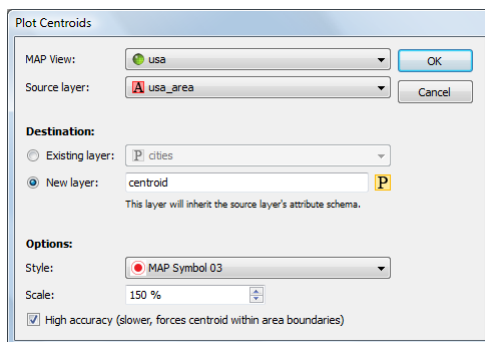
All the points are plotted on the map. Experiment with plotting your own points, using different symbols, coordinates, coordinate systems and data.

16. Keep the document open for the next tutorial.

4.2 Plot centroids

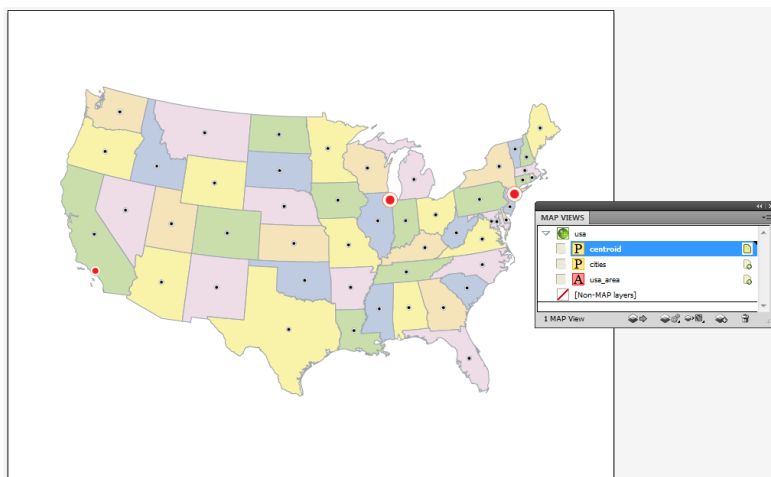
Continue working with the previous tutorial.

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 since no existing point layer is present.

2. Change the Style to **MAP Symbol 02** 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

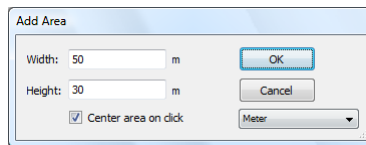
5.1 Create shapes with specific map dimensions

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 Layers panel, select the *Buildings* layer and click the MAP Area Tool (box) button in the Adobe Illustrator Tools panel. 
7. Click once near the intersection of the two selected streets to open the Add Area 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.




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.

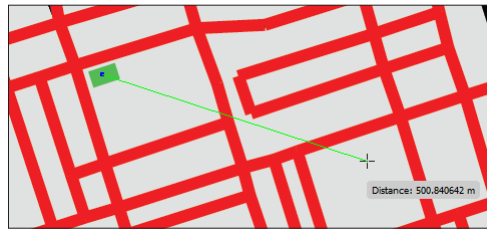


9. Move the building to the southeast corner of the intersection. Rotate it so that it is parallel to College St. using the Rotate Tool. Give the building a fill color.




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.

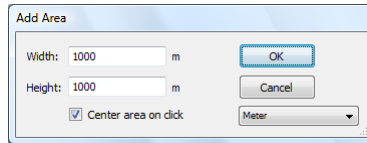
10. In the main Adobe Illustrator Tools panel, click the MAP Measurement Tool.  Click the center of the building rectangle and move the cursor outwards until the distance is about 500 meters.



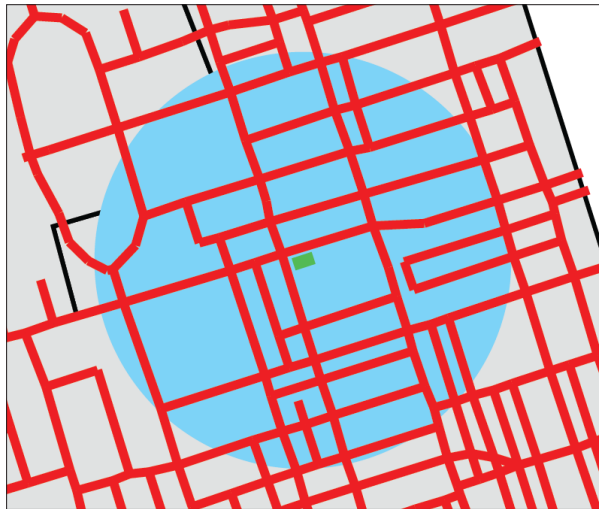
The MAP Measurement Tool displays a distance of about 500 meters. This helps to approximate a distance of 500 meters around the grocery store. To measure multiple straight sections, hold the Shift key and click.

11. In the main Adobe Illustrator Tools panel, click the MAP Area Tool (ellipse) button. 
12. Single-click in the center of the building to open the Add Area dialog box.

13. Type **1000** for both the Width and Height, check the Center area on click check box, and click OK.

A screenshot of the 'Add Area' dialog box in MAPublisher. It has a title bar 'Add Area'. Inside, there are two input fields: 'Width: 1000 m' and 'Height: 1000 m'. To the right of these fields are 'OK' and 'Cancel' buttons. Below the input fields is a checked checkbox labeled 'Center area on click'. At the bottom right is a unit dropdown menu currently set to 'Meter'.

A 1000 meter diameter circle (500 meter radius) is placed around the grocery store and shows where the majority of customers live. Notice that the streets which fall inside this circle, whether entirely or in part, are selected. The circle can be selected and styled like other area and line elements.



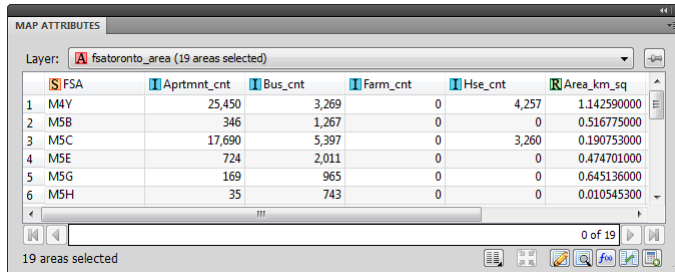
14. Close the document without saving.

6 Cropping with MAPublisher

See User Guide, Chapter 7

6.1 Crop MAPublisher 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: **A** fsatoronto_area (19 areas selected)

	FSA	Aptmnt_cnt	Bus_cnt	Farm_cnt	Hse_cnt	Area_kmq
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

0 of 19

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 Tool from the main Adobe Illustrator Tools panel. 

Notice the mouse cursor has changed to a cross hair.

5. With the MAP Vector Crop Tool active, click and drag a marquee window that encompasses the desired map area to be cropped. Release the mouse button to complete the crop.



Note: To achieve a perfectly square crop area, hold the Shift key while dragging the marquee window.

The map area is cropped to the defined area.



Note: If the size and extent of the crop is undesired, click *Edit > Undo* and then Geocrop again.

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

A screenshot of the MAP ATTRIBUTES panel. At the top, it says "Layer: fsatoronto_area (8 areas selected)". Below this is a table with 7 columns: FSA, Aptmnt_cnt, Bus_cnt, Farm_cnt, Hse_cnt, and Area_km_sq. The table contains 6 rows of data, numbered 1 to 6. The bottom of the panel shows "8 areas selected" and a scroll bar.

	FSA	Aptmnt_cnt	Bus_cnt	Farm_cnt	Hse_cnt	Area_km_sq
1	M4Y	25,450	3,269	0	4,257	1.142590000
2	MSB	346	1,267	0	0	0.516775000
3	MSG	169	965	0	0	0.645136000
4	MSJ	3,213	2,369	0	260	3.959310000
5	MST	9,889	5,844	0	2,568	1.535210000
6	MSV	432	534	0	0	3.810090000

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

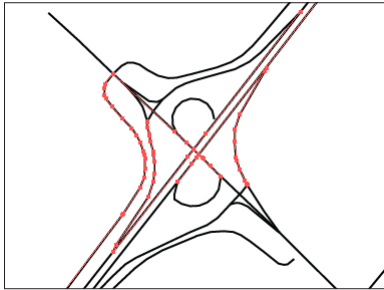
7. Close the document without saving.


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.



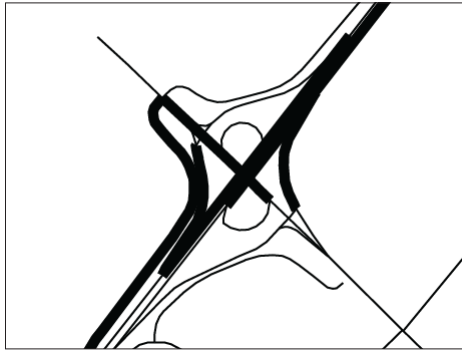
4. On the MAPublisher toolbar, click the Buffer Art button  or choose **Object > MAPublisher > Buffer Art**.
5. In the Buffer Art dialog box, click the *Only buffer selected art* check box. Under the Buffer Width section, choose the Static Value option, in the Units drop-down list choose **Meter**, and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

A screenshot of the 'Buffer Art' dialog box. The 'Source' section shows 'Layer: burlroads_line' and a checked 'Only buffer selected art' checkbox. The 'Buffer Width' section has 'Static value' selected with a value of '25.000000' and units set to 'Meter'. The 'Destination' section has 'New Layer' selected with the name 'Line Buffers'. The 'Options' section has 'Apply style' set to '[Default]' and 'Add concentric circles every' set to '0.000000' with units set to 'Meter'. 'OK' and 'Cancel' buttons are at the top right.

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.



Buffered lines can be styled like any other object. Try this to make them stand out from the roads.



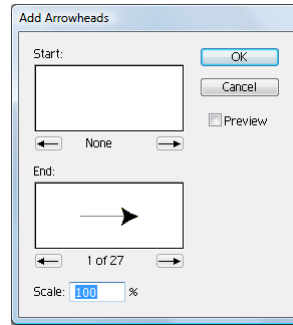
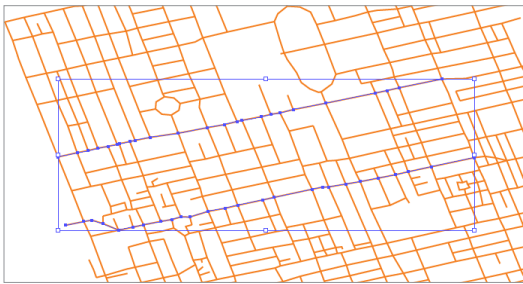
Alternatively, a Graphic Style can be chosen in the Buffer Art dialog box so that a style is automatically applied to the newly created buffer.

7. Close the document without saving.

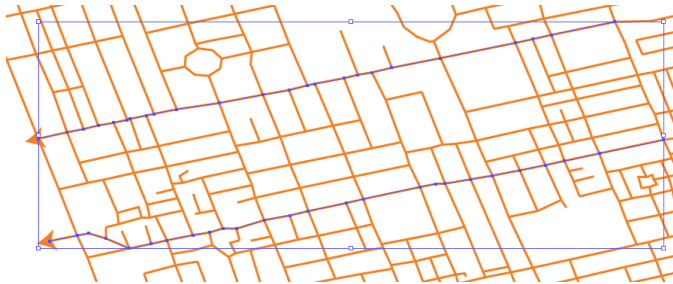
7.2 Flip lines

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 by choosing *Effect > Stylize > Add Arrowheads*.



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.

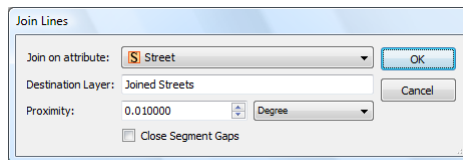


Select individual line segments to see that lines are not joined with other line segments, even though the line may be of the same street.

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. In the Join Lines dialog box, choose **Street** from the Join on Attribute drop-down list. This specifies that the streets are joined based on the Street name attribute.
6. In the Destination Layer box, rename it to **Joined Streets**. It will be the name of the new layer containing the joined lines.
7. 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.
8. Ensure the Close Segment Gaps check box is unchecked.




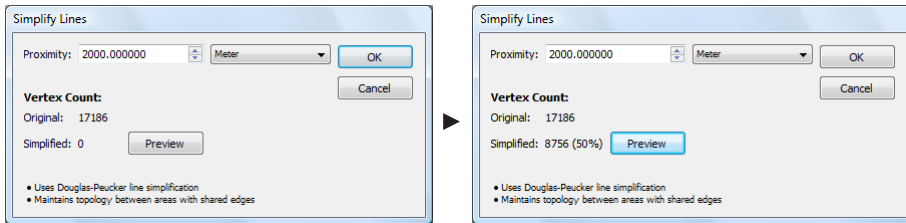
9. Make sure that the dialog box matches the one above and click OK.

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).

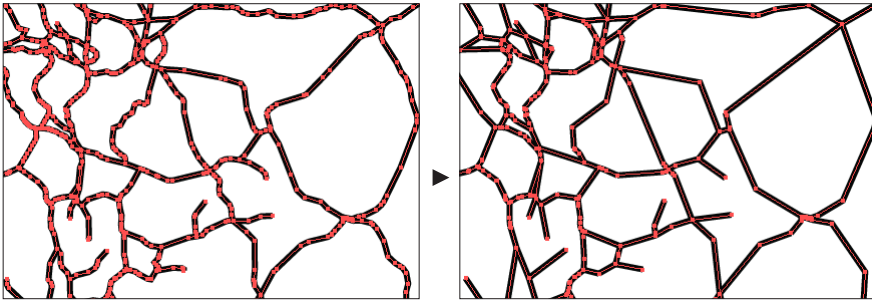
10. Close the document without saving.

7.4 Simplify lines

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 Lines button on the MAPublisher toolbar .
4. In the Simplify Lines 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 lines are 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.

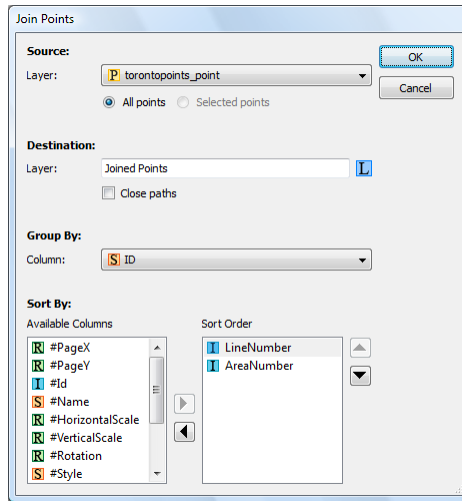
7.5 Join points

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

- 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 (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.

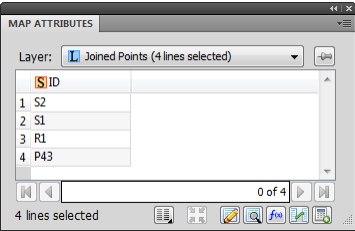


8. Make sure the dialog box matches the one above and click OK.



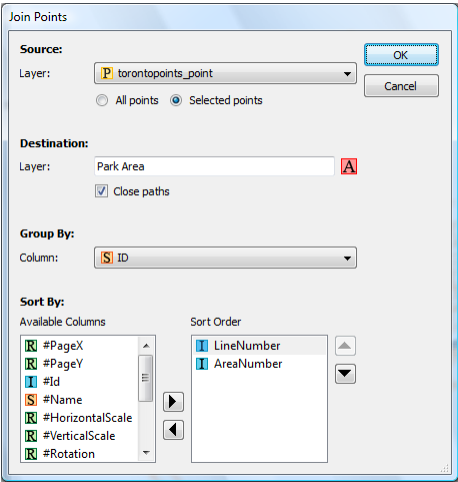
All the points are joined based on the specified parameters. A line layer called **Joined Points** is created that contains four new lines. The lines represent two subway lines, the mainline rail track, and the perimeter of a small park. To see the **Joined Points** line more clearly, hide the other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



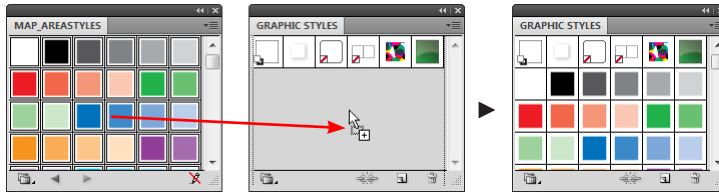
15. Close the document without saving.

8 Legends and Stylesheets

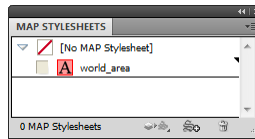
See User Guide, Chapter 9

8.1 Create an area stylesheet

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 > Other Library* and load **MAP_AreaStyles.ai** from the *\Helpful Styles & Symbols\Graphic Styles* folder (see page iii).
5. Shift-select all the graphic styles in the MAP_AreaStyles panel and drag them into the Adobe Illustrator Graphic Styles panel.

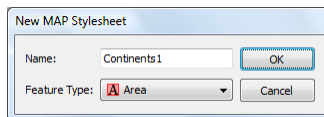


6. Open the MAP Stylesheets panel (choose *Window > MAPublisher > MAP Stylesheets*) or click the MAP Stylesheets button on the MAPublisher toolbar.

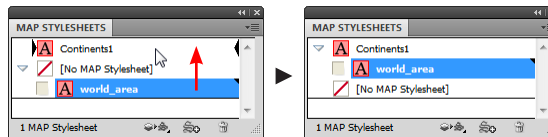


The *world_area* layer does not belong to any stylesheet, so it is automatically placed into [No MAP Stylesheet].

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

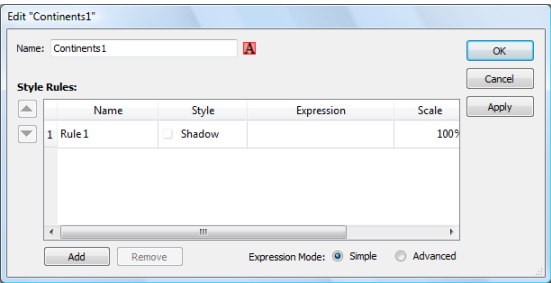


9. In the MAP Stylesheets panel, drag the *world_area* layer into the *Continents1* stylesheet.

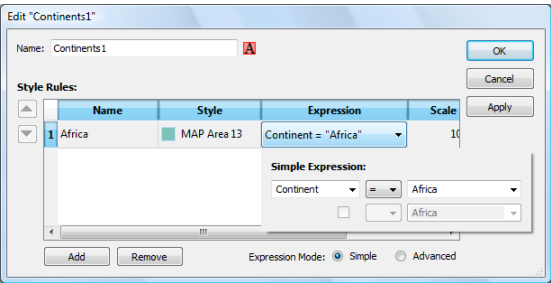


10. Double-click *Continents1* stylesheet, or choose *Edit "Continents1"* from the MAP Stylesheets panel option menu.

11. In the Edit "Continents1" dialog box, click Add to add a style rule.



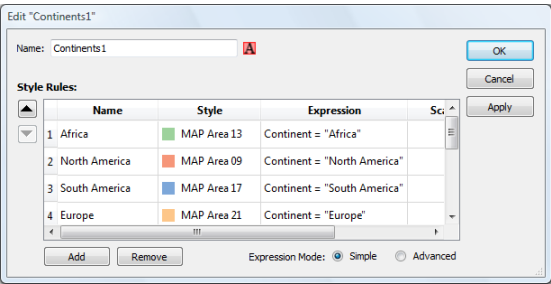
12. Rename Rule 1 to **Africa** and choose a style from the Style drop-down list (these are the styles previously added).
13. At the bottom of the dialog box, set the Expression Mode to Simple. Click inside the Expression field of row 1 to open the Simple Expression builder. On the left-hand drop-down list, set the attribute to **Continent**, select the equal sign for the operator, and select **Africa** from the right-hand drop-down list as the attribute value.



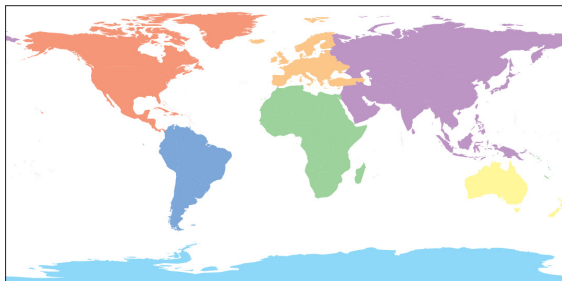
14. Leave the Scale as 100% and click Apply to see the changes made to the map.

Note: If changes are made to a style, click white empty space in the dialog box before clicking the Apply button.

15. Repeat steps 11 to 15 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.

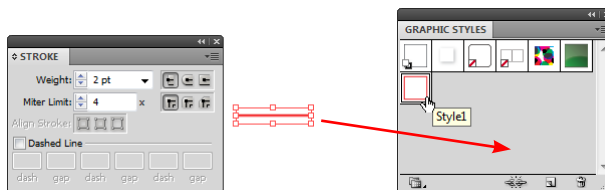


The styles specified have been applied to the map. The styles in the Graphic Styles panel are now linked to the attribute values specified by the style rules.

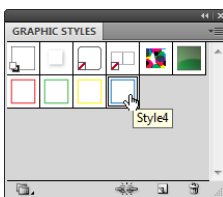
- Save this document as **MyWorld.ai** in the *Tutorial Data* folder. It will be used again in Tutorial 8.4.

8.2 Create a line stylesheet

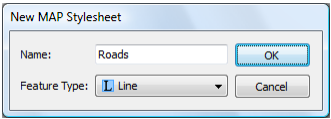
- Create a new Adobe Illustrator document.
- Import **fstreets.mif** from the *Tutorial Data* folder.
- Open the Adobe Illustrator Graphic Styles panel.
- Use the Adobe Illustrator Line Segment Tool to create the first graphic style by drawing a line on the page. Assign it a stroke weight of 2 pt, a stroke color of red, and a fill of none. Drag this line into the Graphic Styles panel. In the Graphic Styles panel, double-click the style to give it a new name (e.g. Style 1).



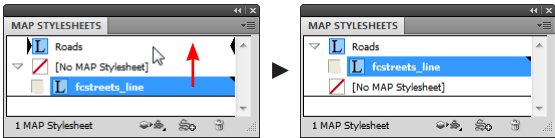
- Repeat the previous step to generate three more styles: green, yellow, and blue. Be sure to give each style a unique name and delete the lines when the styles are completed (the styles will remain intact inside the Graphic Styles panel).



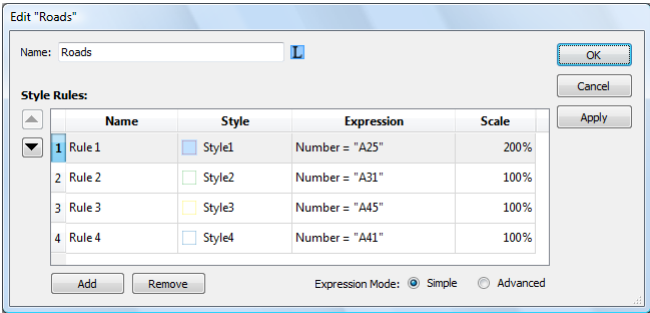
- Open the MAP Stylesheets panel and in the panel option menu, click New MAP Stylesheet.
- In the New Map Stylesheet dialog box, type **Road** as the name, choose **Line** from the Feature type drop-down list, and click OK.



- In the MAP Stylesheets panel, click and drag the *fcstreets_line* layer into the Road stylesheet.



- Double-click the Road stylesheet and in the Edit "Road" dialog box, click the Add button.
- In the first row, use the Style drop-down list to choose Style1 (red).
- In the Expression column, build the expression **Number = "A25"**.
- Change the Scale to **200%**.
- Repeat this process for each of the subsequent road numbers; where A31 is styled green, A45 is styled yellow, and A41 is styled blue. For these three road types, leave each scale at 100%.



- When all the rules are defined with a style and expression, click OK.

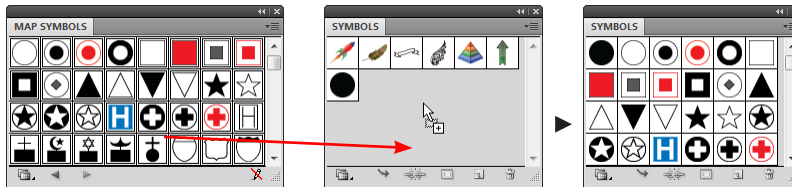
The styles specified are applied to the map. The styles used in the Graphic Styles panel are now linked to the attribute values specified by the style rules. Notice that road A25 (red) has a 4 pt stroke weight. This is due to the scale being set to 200%.



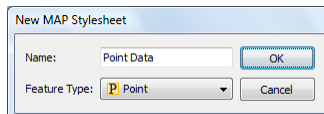
15. Save this document as **MyRoads.ai** in the *Tutorial Data* folder. It will be used again in Tutorial 8.5.

8.3 Create a point stylesheet

1. Open **MyPoints.ai** (saved at the end of Tutorial 1.6) 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 > Other Library* and load **Map Symbols.ai** from *\Helpful Styles & Symbols\Symbols* (see page iii).
3. Shift-select all the symbols in the MAP Symbols panel, and drag them into the Adobe Illustrator Symbols panel.

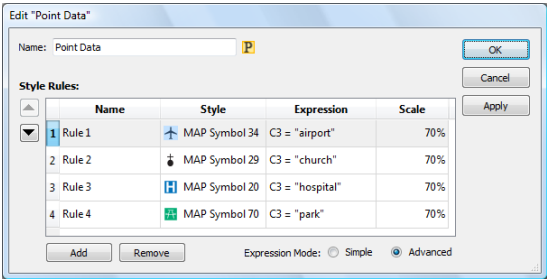


4. Open the MAP Stylesheets panel and in the panel option menu, click **New MAP Stylesheet**.
5. In the New Stylesheet dialog box, type **Point Data** as the name, choose **Point** in the Feature type drop-down list, and click OK.



6. In the MAP Stylesheets panel, drag the *azdec_i_point* layer from [No MAP Stylesheet] into the *Point Data* stylesheet.
7. Double-click the *Point Data* stylesheet and in the Edit "Point Data" dialog box, click the Add button.
8. In the first row, use the Style drop-down list to choose **MAP Symbol 34** (airplane symbol).
9. In the Expression column, build the expression: **C3 = "airport"** and change the Scale to **70%**.

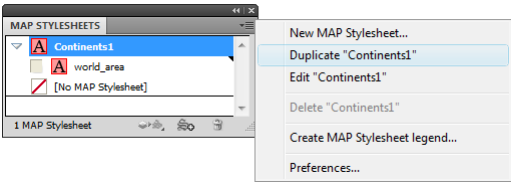
- Repeat this process for each of these points: **church**, **hospital** and **park**. Choose an appropriate symbols for each. When all the rules are defined with a style and expression, click OK.



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

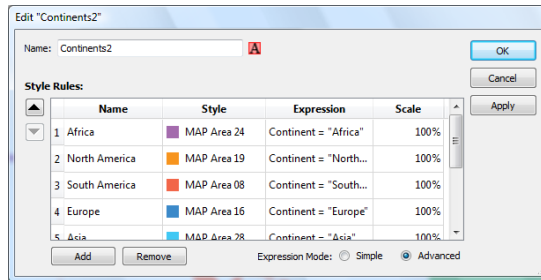
8.4 Duplicate stylesheets

- Open **MyWorld.ai** (saved at the end of Tutorial 8.1) from the *Tutorial Data* folder.
- In the MAP Stylesheets panel, select the *Continents1* stylesheet, open the panel option menu, and click Duplicate "Continents1".



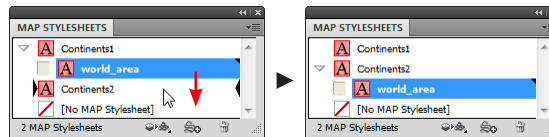
- In the MAP Stylesheets panel, double-click the *Copy of Continents1* stylesheet.
- In the Edit "Copy of Continents1" dialog box, rename the stylesheet to **Continents2**.

- Use the Style drop-down list for each style rule to change the colors used to represent the continents. When all continents have been assigned different styles, click OK.

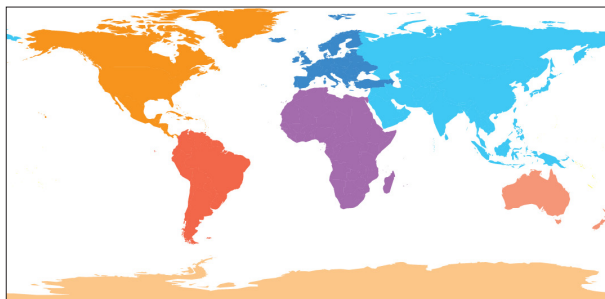


There are now two stylesheets available to use that have rules specifically for the *world_area* layer.

- In the MAP Stylesheets panel, click and drag the *world_area* layer from the *Continents1* stylesheet to the *Continents2* stylesheet.




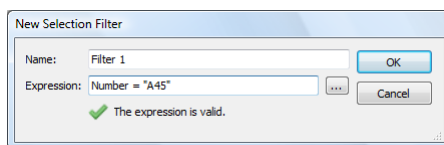
The new styles assigned in this stylesheets are applied to the map accordingly. Now drag the *world_area* layer back to *Continents1* to restore the map to its previous style scheme. Having multiple stylesheets defined allows a user to easily create multiple color schemes for the same map.



- Close the document without saving.

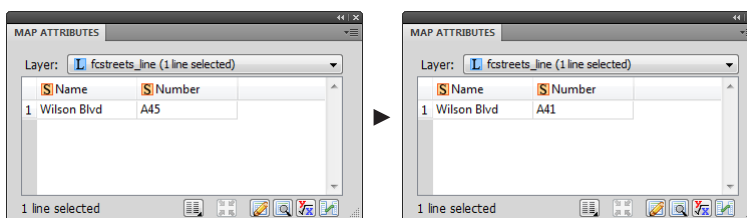
8.5 Edit styles to change attributes

1. Open **MyRoads.ai** (saved at the end of Tutorial 8.2) from the *Tutorial Data* folder.
2. In the Adobe Illustrator menu, click the MAP Selections button.  (see Tutorial 10).
3. In the MAP Selections panel option menu, click New Selection Filter.
4. In the Expression box, type **Number = "A45"** (case sensitive, include quotes), and click to OK close the dialog box.



This filter selects all lines on the *fcstreets_line* layer that have a number equal to A45. The yellow line at the lower right corner of the document is the only line that is select with this filter.

5. With the line selected, open the Adobe Illustrator Graphic Styles panel, and assign the blue line style (Style4).
6. Open the MAP Attributes panel, to display the line attributes of the currently selected objects.

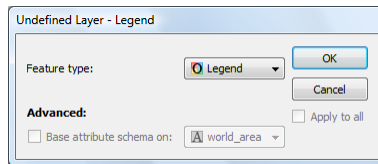


Notice that by changing to the blue line style, the line attribute has also been updated. By simply changing the style currently used to represent another attribute in the *Road* stylesheet, it has changed the Number attribute of the selected line from A45 to A41.

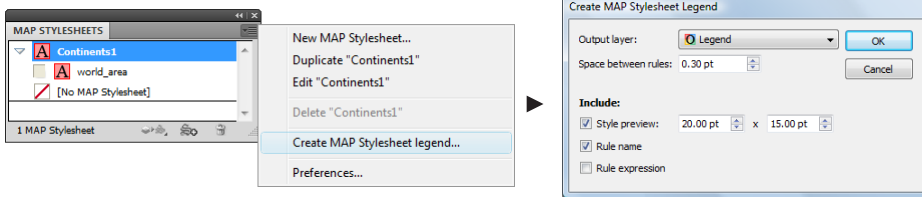
7. Close the document without saving.

8.6 Create a MAP Stylesheet legend

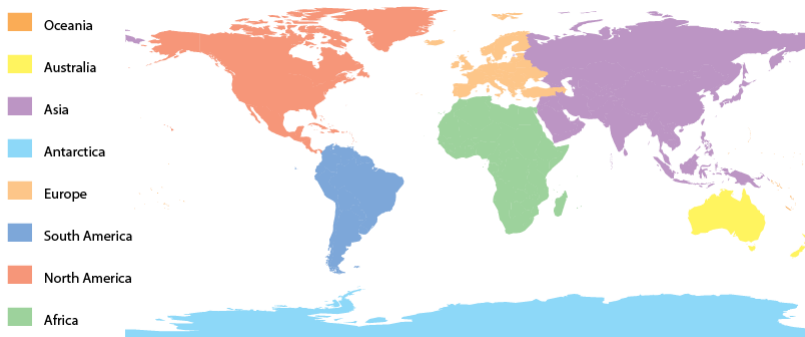
1. Open **MyWorld.ai** (saved at the end of Tutorial 8.1) from the *Tutorial Data* folder.
2. In the Adobe Illustrator Layers panel, rename Layer 1 to **Legend**.
3. Open the MAP Views panel, drag the Legend layer into the *world* MAP View. In the Undefined Layer dialog box, set the Feature type to **Legend**, and click OK.



4. In the Type Character panel, set the font to Arial and its size to 10 pt.
5. In the MAP Stylesheets panel, select the *Continents1* stylesheet, and in the panel option menu, click **Create MAP Stylesheet Legend**. In the Create MAP Stylesheet Legend dialog box, set the Style preview to **20.00 pt x 15.00 pt** and uncheck the Rule expression check box. Leave the Space between rules setting as default and click OK.



A legend is created on the Legend layer and placed on the artboard. Reposition it as necessary. Experiment with the Style preview to create different sizes.



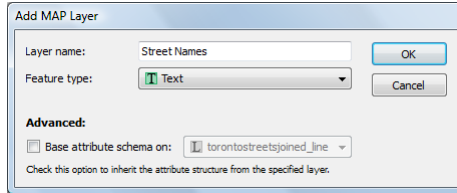
Stylesheet legends can be created from any stylesheet (area, line, point or text). A stylesheet legend can display the symbol for the type of stylesheet used, the stylesheet rule names, and the expression used to create the rule. MAP Stylesheets legends can easily be edited because it is considered an Adobe Illustrator nested object.


9 Labeling Functions

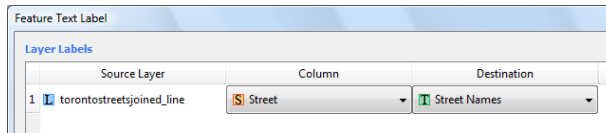
See User Guide, Chapter 10

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. 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. Select several streets from *torontostreetsjoined_line* to be labeled.
6. On the MAPublisher toolbar, click the Label Features button. 
7. Only one Source Layer is listed (*torontostreetsjoined_line*). In the Column drop-down list, select **Street**. In the Text Layer drop-down list select **Street Names**.

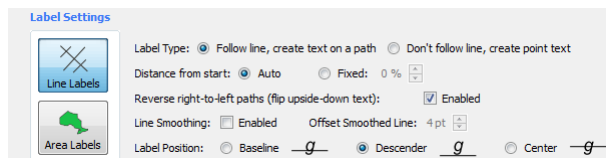


The *Source Layer* list shows the line, area, point and/or text layers currently containing selected data. For each layer, the *Column* drop-down list is populated with the attribute structure of that layer. Label the data based on a column that holds the appropriate attribute values.

8. In the Label Settings area, click the Line Labels button on the left to assign MAPublisher line label settings (it should be enabled by default, if not, click it).

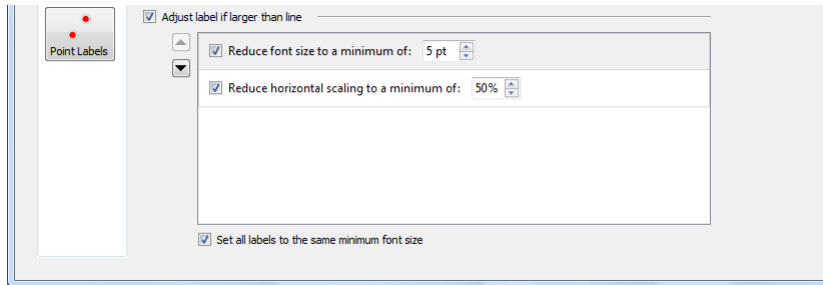
In the Label Settings area, users can specify label preferences such as label position, alignment to lines of latitude, minimum font sizes, and horizontal scaling to best place labels within polygons and paths. MAPublisher places line labels intelligently, depending on the curvature and length of the line string.

9. Set the Label Position option to **Descender**. Leave all of the other options as their default.



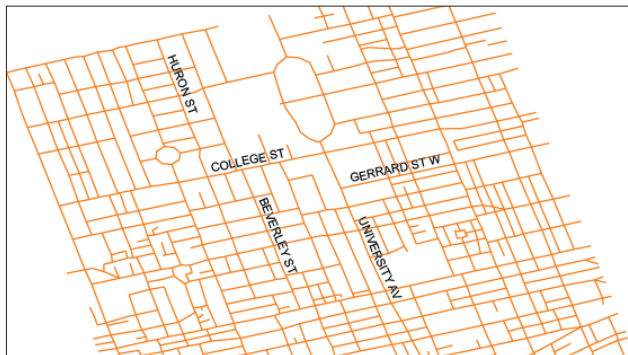
Labels can be modified if they exceed the length of the line with the current default font size.

10. Check the **Adjust label if larger than line** check box to activate the label rules. The order for the rules can be changed by clicking on the rule and then pressing the Up or Down arrow button.
11. 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**.
12. 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.
13. 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.

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



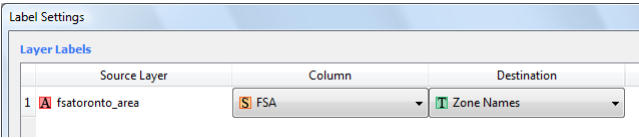
15. Close the document without saving.

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

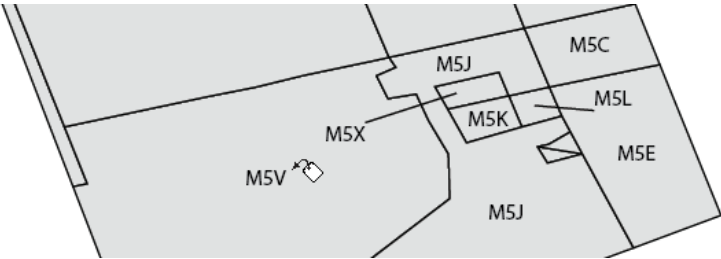
1. Create a new Adobe Illustrator document.
2. Import **fsatoronto.mif** from the *Tutorial Data* folder.
3. In the Adobe Illustrator Layers panel, create a new layer called **Zone Names**.
4. In the MAP Views panel, click and drag Zone Names into the fsatoronto MAP View, and set the Feature type to **Text**.
5. In the Type Character panel, set the font to Arial and its size to 8 pt. This will be the style for the labels.
6. Double-click the MAP Tagger Tool  button in the Adobe Illustrator Tools panel to open the Label Settings dialog box.

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

7. In the Label Settings dialog box, choose **FSA** in the Column drop-down list. This attribute contains the name of every postal code zone in the selected MAP Layer. The destination layer, *Zone Names*, is chosen by default. 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.

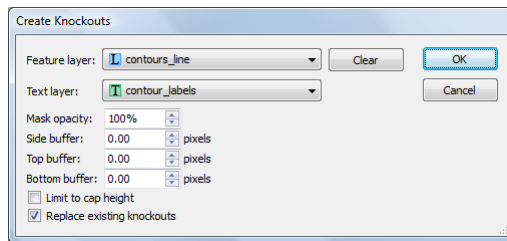
8. Close the document without saving.

9.3 Create knockouts for labels

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

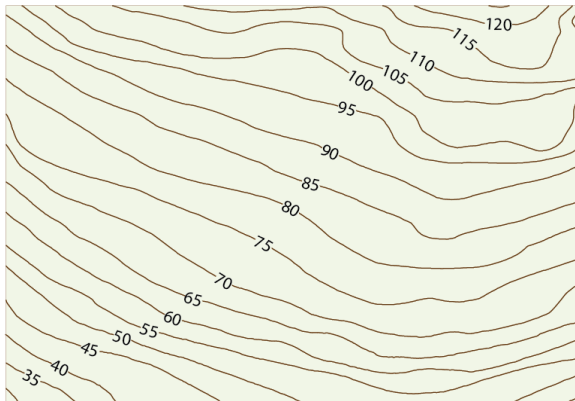
Three MAP layers are visible: contours_labels, contours_line and Background. The contour labels are positioned above the contour lines. Use the Create Knockouts feature to mask the contour line below the label.

2. In the MAPublisher toolbar, click the Create Knockouts button .



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.

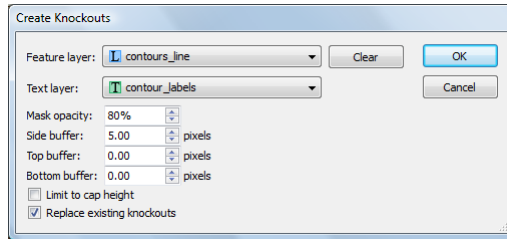
3. In the Create Knockouts dialog box, click OK.



The knockouts are created. However, the labels are too close to the contours. Adjust the masks by adding some buffer and change the transparency. There is no need to undo the previous step.

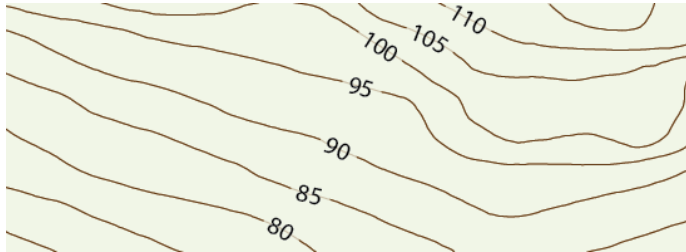
4. In the MAPublisher toolbar, click the Create Knockouts button.

- Set the Mask opacity to **80%** and set the Side buffer to **5.00** pixels.



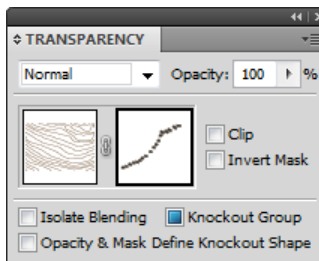
The Mask opacity adjusts the transparency of the contour lines so that they will be slightly visible (100% opacity means that it is completely invisible). The side buffer adds space to the left and right sides of the label so that it creates the effect that the contour lines are further away from the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

- 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.

- Click the Window menu and click Transparency. 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 100%. The masks are now invisible again.




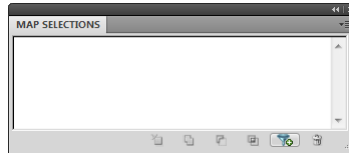
- Close the document without saving.

10 Making Selections

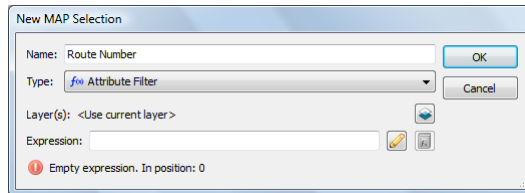
See User Guide, Chapter 11



10.1 Create an Attribute Filter

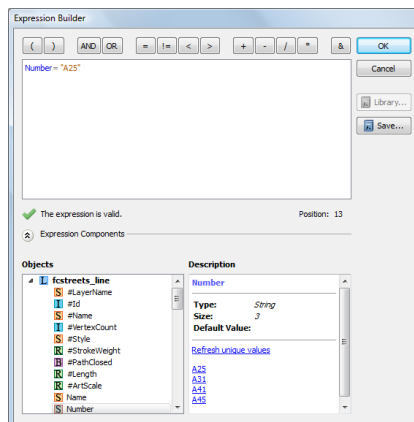
1. Create a new Adobe Illustrator document
2. Import **fcstreets.mif** from the *Tutorial Data* folder. It is a line file depicting the major roads of Falls Church, Virginia.
3. Select **fcstreets_line** and click the MAP Selections button on the MAPublisher toolbar. 
4. Click the Create New MAP Selection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



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

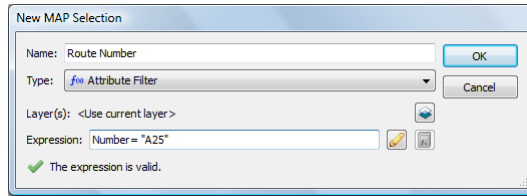


6. Click the Expression Builder button  to open the Expression Builder dialog box.
7. If necessary, click the arrow button  to expand the Expression Components section.
8. In the Objects list, under the heading **fcstreets_line**, double-click **Number** so that it is entered into the expression entry 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.

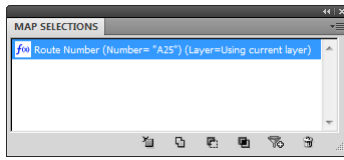
- Click OK to close the Edit Expression dialog box.



The expression is valid.

- Click OK once more to apply the selection to the map data.

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.

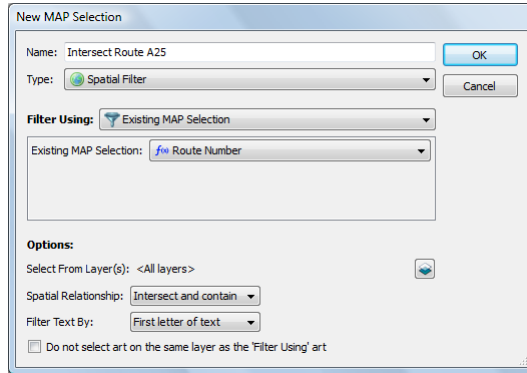
- In the MAP Selections panel, click the Create New MAP Selection button.
- In the New MAP Selection dialog box, type **Intersect Route A25** into the Name box. In the Type drop-down list, choose Spatial Filter.

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

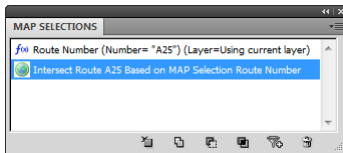
- In the Filter Using drop-down list, choose Existing MAP Selection. In the frame below, the attribute filter Route Number is already chosen (because it is the only one).
- Ensure that the Spatial Relationship drop-down list is set to Intersect and contain.

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.



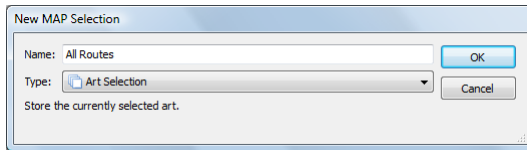
Roads that intersect Route A25 are selected and the MAP Selection is saved in the panel.

7. 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 12

11.1 Register an image with a reference file

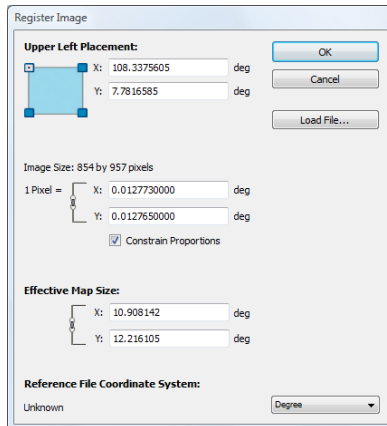
1. Create a new Adobe Illustrator document.
2. Import **southchinasea.shp** from the *Tutorial Data* folder and make sure the *southchinasea_area* layer is selected in the Adobe Illustrator Layers panel.
3. In the Adobe Illustrator menu, click *File > Place*, navigate to the *Tutorial Data* folder, select 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.

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

A warning that the coordinates from the reference file will be used in the registration process appears. This is normal and is not indicative of an issue with the data. All boxes in the dialog box are updated to reflect the data contained in the reference info file. Click OK to close the warning.

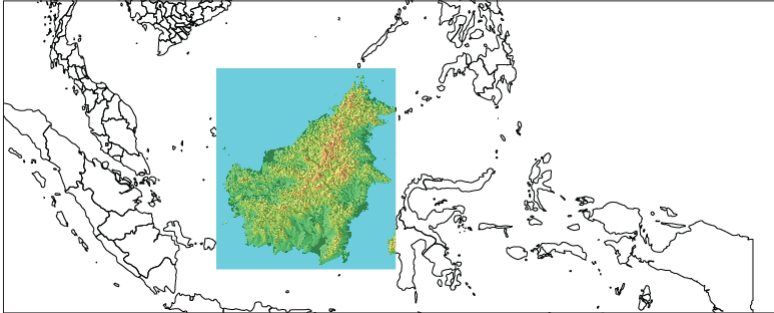


The 'Register Image' dialog box contains the following fields and controls:

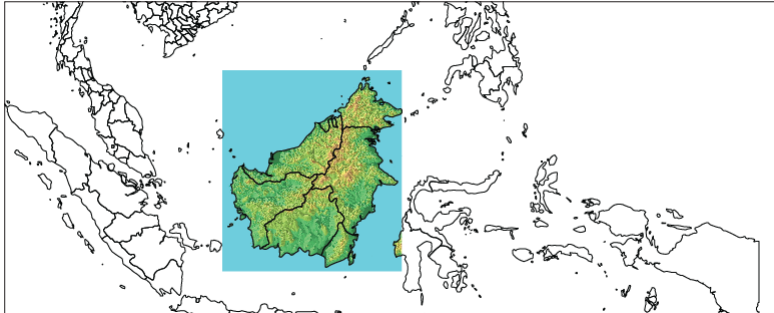
- Upper Left Placement:** A small square icon with a crosshair. Fields for X: 108.3375605 deg and Y: 7.7816585 deg.
- Image Size:** 854 by 957 pixels.
- 1 Pixel =** Fields for X: 0.0127730000 deg and Y: 0.0127650000 deg. A checkbox for 'Constrain Proportions' is checked.
- Effective Map Size:** Fields 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...

6. Click OK to register the image.

The image is registered to the selected layer.



7. Select the raster image, right-click it and choose *Arrange > Send to Back* from the context menu.



The raster image is positioned below the *southchinasea_area* art work.

Note: A new map view can be created by registering a 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. 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.

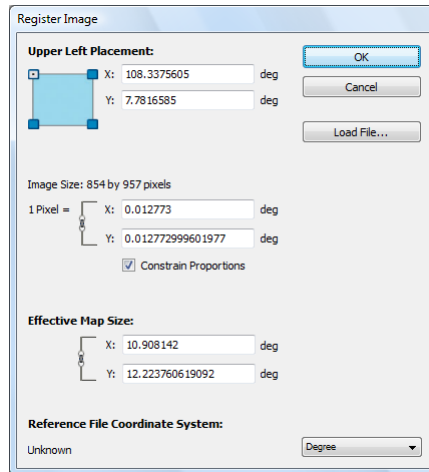
1. Select and delete the existing registered Borneo image from the document.
2. In the Adobe Illustrator Layers panel, make sure the *southchinasea_area* layer is highlighted.
3. In the Adobe Illustrator menu, click *File > Place*, navigate to the *Tutorial Data* folder, select the sample raster image file, **borneo.tif**, and click Place.

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

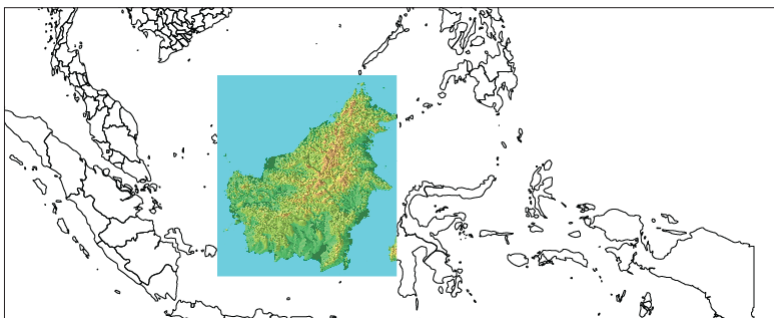
- With the image selected, click the Register Image button on the MAPublisher toolbar.

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).

- 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**.
- Make sure that Constrain Proportions option is checked and type pixel size X equal to **0.012773**.



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

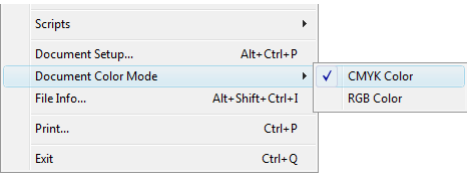



The image is registered to the selected layer. This method is useful if no reference file is available. However, it is necessary to know the coordinates for one of the corners of the image as well as the pixel scale in order to register the image correctly.

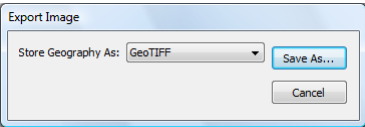
- Leave the document open for the next tutorial.

11.3 Export a placed image as a georeferenced raster file

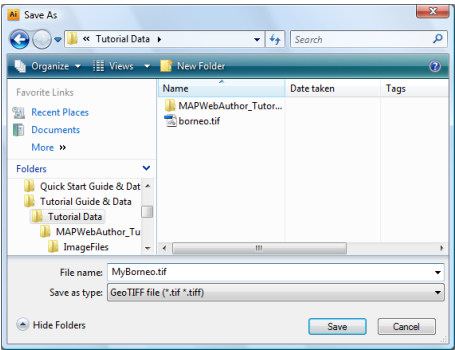
- Continue working with the previous tutorial.*
1. To set the color mode, in the Adobe Illustrator menu, click *File > Document Color Mode*.



- 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. Select the registered Borneo image if it is not already selected. On the MAPublisher toolbar, click the Export Image button. 
 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.



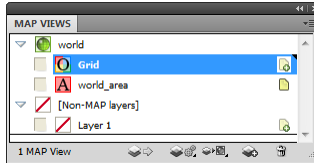
- The image of Borneo is exported as a GeoTIFF file using the coordinate system of the South China Sea layer.
7. Close the document without saving.

12 Grids, Graticules and Indexes

See User Guide, Chapter 13

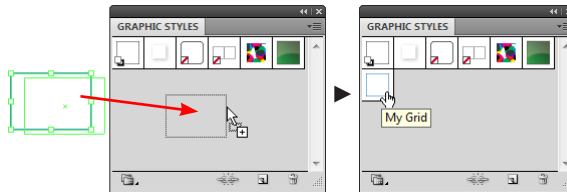
12.1 Create an index grid

1. Create a new Adobe Illustrator document.
2. Import **world.mif** from the *Tutorial Data* folder.
3. In the MAP Views panel, add a new MAP Layer called **Grid** and specify the Feature type as **Legend**.

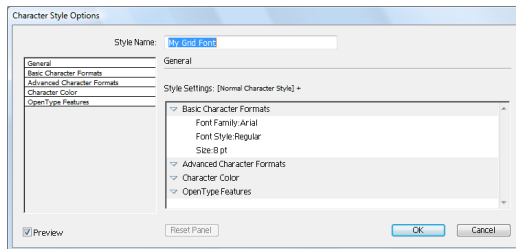



To use a style for a grid, one should first be created before it can be applied. A default grid style is used if no styles are defined.

4. Use the Rectangle Tool to draw a small rectangle with no fill color, choose a blue stroke color, and set a 0.5 pt stroke width.
5. Select the rectangle and drag it to Graphic Styles panel and rename it **My Grid**. Delete the drawn blue rectangle.



6. In the Adobe Illustrator menu, click *Window > Type > Character Styles* to open the Character Styles panel.
7. In the Character Styles panel, click the Create New Style button. Double-click Character Style 1, choose Basic Character Formats, and choose an Arial font at 8 pt size. Change the Style Name to **My Grid Font** (see the Adobe Illustrator Users Guide to learn more about Character Styles) and click OK.



8. In the Adobe Illustrator Layers panel, select the *Grid* layer. In the Adobe Illustrator menu, click the Grids and Graticules button on the MAPublisher toolbar. 
9. In the Grids and Graticules dialog box, click the Index Grid button to show its options. Leave the Number of Columns/Rows as the default of 10 for each box.

10. Under Grid Style Options, select My Grid from the Style drop-down list to set the grid line style. To keep the border of the grid the same as the lines, select My Grid from the drop-down list next to Draw Border.
11. Under Coordinate Values along Grid/Graticule Border, select the **My Grid Font** character style from each of the X Axis style and Y Axis style drop-down lists.
12. In the Labeling diagram, click the letter/number of "A ↔ B" and "1 ↔ 2" to enable the labels for all sides of the grid.

Grid Style Options:

Line Style:

My Grid

☒ Draw Border

My Grid

Labeling:

1 ↔ 2

A ↔ B

A1

A2

B1

B2

Coordinate Values along Grid/Graticule Border:

X Axis style:

My Grid Font

X Axis label rotation:

Horizontal

Y Axis style:

My Grid Font

Y Axis label rotation:

Horizontal

Place labels off line by:

6 pt

Number of decimals:

0

Label values:

Coordinates

☐ Append units to labels

☐ Apply locale formatting to numbers

Dialog units:

Degree

Cell References:

Place labels off cell by:

6 pt

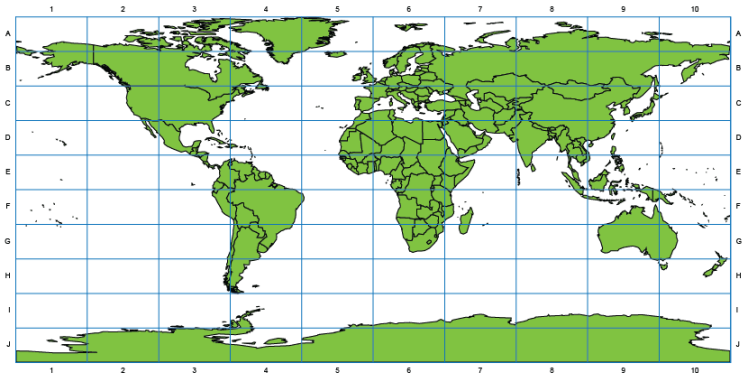
Center style:

Normal Character Sty

Axes style:

Normal Character Sty

- Clicking the letter or number enables or disables the display of labels on the grid. Clicking the bidirectional arrow reverses the order of the labels. For this example, leave the bidirectional arrows as the default.
13. 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 carries an alphanumeric identifier. To edit an existing grid, choose *Object > Edit Index Grid* to change the configuration settings or type of grid.
14. Save the document as **MyGrid.ai**. It will be used in Tutorial 12.4 *Creating an Index: Featured Based*.

12.2 Create a graticule

1. Create a new Adobe Illustrator document.
2. Import **world.mif** from the *Tutorial Data* folder.
3. In the MAP Views panel, add a new MAP Layer called **Graticule** and specify the Feature type as **Legend**.
4. Draw a rectangle with no fill and a blue stroke of 1 pt, then click and drag the rectangle into the Graphic Styles panel and rename it **My Grid**. Delete the drawn blue rectangle after adding it to the panel.
5. In the Adobe Illustrator Layers panel, highlight the *Graticule* layer and click the Grids and Graticules button.
6. In the Grids and 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.

Latitude:		Longitude:	
Interval:	<input type="text" value="20"/>	Interval:	<input type="text" value="20"/>
Pass through:	<input type="text" value="0"/>	Pass through:	<input type="text" value="0"/>

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.

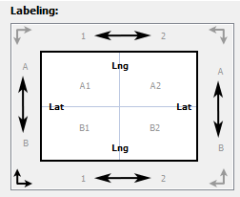
The Vertices slider controls the number of nodes to construct the graticule. Higher numbers should be used if graticules are curved or in anticipation of transforming them. For now, leave the default setting.

The Don't Label option is used in situations where the projection is creating a curved graticule that may have a section in one of the corners that do not need to be labelled. For example, when there is no data in the graticule or when there is only a small portion of the graticule showing and it does not need to be labelled. For this tutorial these options are not needed.

7. Under Grid Style Options, set the style to **My Grid** in the drop-down list. To keep the border of the grid the same as the lines, select **My Grid** from the drop-down list next to Draw Border.

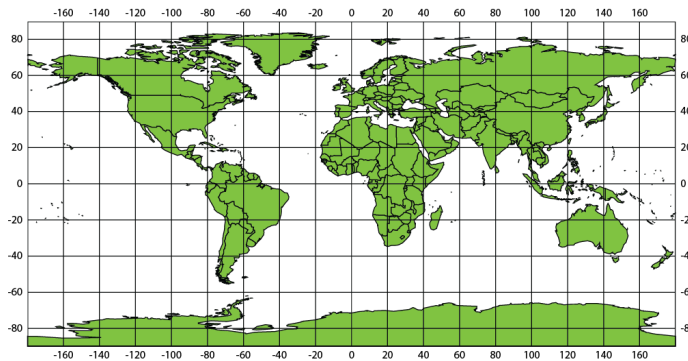
Grid Style Options:	
Line Style:	<input type="text" value="My Grid"/>
<input checked="" type="checkbox"/> Draw Border	<input type="text" value="My Grid"/>

8. In the Labeling diagram, click the **Lng** and **Lat** options located on each grid line. When enabled, the Lng and Lat options display as a bold typeface. If needed, hover over each toggle to see its description.



9. Make sure the dialog box matches above and click OK to process the graticule.

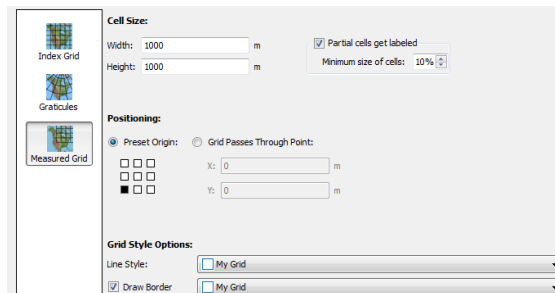
A graticule is placed over the map. To edit a graticule, select it and choose *Object > Edit Graticules*.



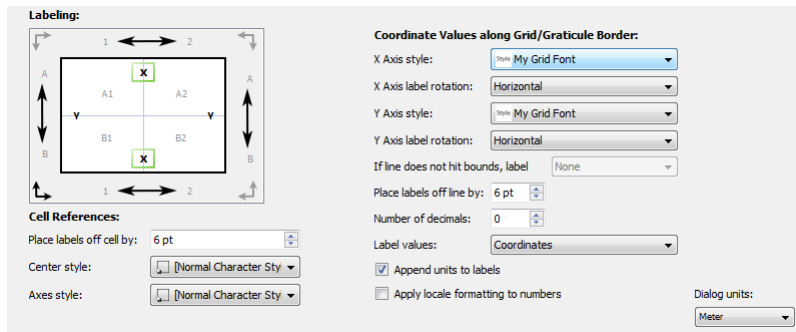
10. Close the file without saving

12.3 Create a measured (UTM) grid

1. Create a new Adobe Illustrator document.
2. Import **torontostreets.mif** from the *Tutorial Data* folder and perform a coordinate system transformation to **NAD83 / UTM zone 17N**, located in **Projected > UTM > NAD83** (see MAPublisher User Guide, Chapter 4 or Tutorial 2.9).
3. In the MAP Views panel, add a new MAP Layer called **Grid** and specify the Feature type as **Legend**.
4. Create a **My Grid** graphic style with a 1 pt width stroke. Also, create a **My Grid Font** character style using Arial font and an 8 pt size (Tutorial 12.1).
5. Select the *Grid* layer and click the Grid and Graticules button on the MAPublisher toolbar.
6. In the Grids and Graticules dialog box, click the Measured Grid button to show its options. Set the Cell Size to **1000** (meters) for both the width and height. Leave the Positioning options as default.
7. Under Display Options, set the style to **My Grid**. To keep the border of the grid the same as the lines, select My Grid from the drop-down list next to Draw Border.



8. At the bottom of the dialog box, check the Append units to labels check box to show the units in the map document. The unit drop-down list to the right shows the units (Meter).
9. In the Labeling diagram box, click the X and Y label option at the end of each grid line. When selected the X and Y labels turns bold.
10. Under Coordinate Values along Grid/Graticule Border, choose **My Grid Font** for both X Axis style and Y Axis style drop-down lists. Leave Place label off line by the default of 6 pt.



Notice that labels in the Labeling diagram are highlighted with a green box when the mouse hovers over the different labeling options.

11. Click Preview to see the grid and the settings that were chosen.



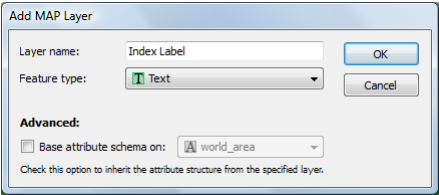
12. Click OK to confirm the settings of the Measured Grid.

A grid is placed on the map based on the specifications made. Each cell line has UTM map coordinate labels. To edit an existing measured grid, go to *Object > Edit Measured Grid* to change the configuration Settings. If the grid is moved, the grid labels will automatically adjust to new coordinates.

13. Close the document without saving.

12.4 Create a feature based index

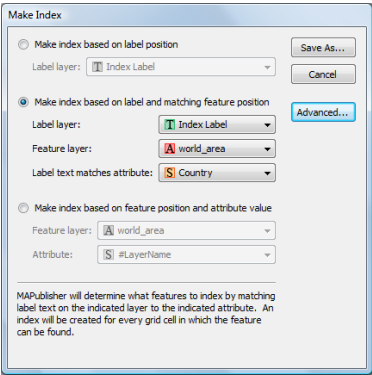
- 1. Open **MyGrid.ai** (saved from Tutorial 12.1).
- 2. In the Map Views panel, add a new MAP Layer called **Index Label** and specify the Feature type as **Text**.



- 3. Apply country labels to several or all of the countries using Label Features or the MAP Tagger Tool (see Chapter 9).

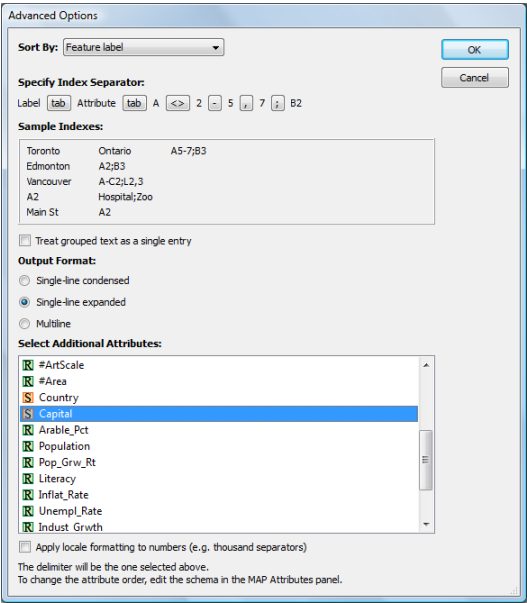


- 4. Select the grid in the map document and click the Make Index button on the MAPublisher toolbar. **A-1**
- 5. Choose the Make index based on label and matching feature position option. In the Label Layer drop-down list, choose **Index Label**. In the Feature layer drop-down list, choose **world_area**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



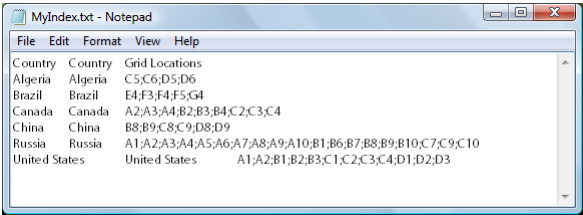
To get some fine tuning on the index, there are several advanced options that could be applied.

- 6. Click the Advanced button.
- 7. In the Advanced Options dialog box, choose Feature label from the Sort Index by drop-down list. Under Output Formats, choose the Single-line expanded option. To add an attribute to the index, select additional attribute columns in the list.



For this example, Capital was chosen. The grid cell locator and feature name in the index file is separated by a single tab. The index is sorted alphabetically by feature label.

- 8. 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.

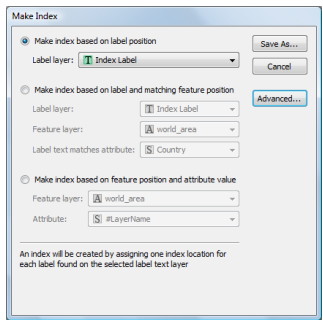


- A text file is created based on the specifications entered in the Make Index dialog box.
- 9. The index may be inserted into the map document by creating an Adobe Illustrator box and using the *Place* command (*File > Place*).
 - 10. Leave the document open for the next tutorial.

12.5 Create a text based index

Continue working with the previous tutorial.

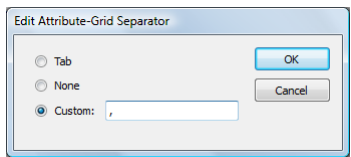
1. Select the grid in the map document and click the Make Index button on the MAPublisher toolbar. **A-1**
2. Select the Make index based on label position option.



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

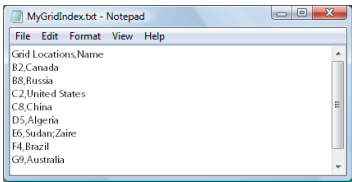
Note: Text labels are indexed according to the text object's anchor.

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

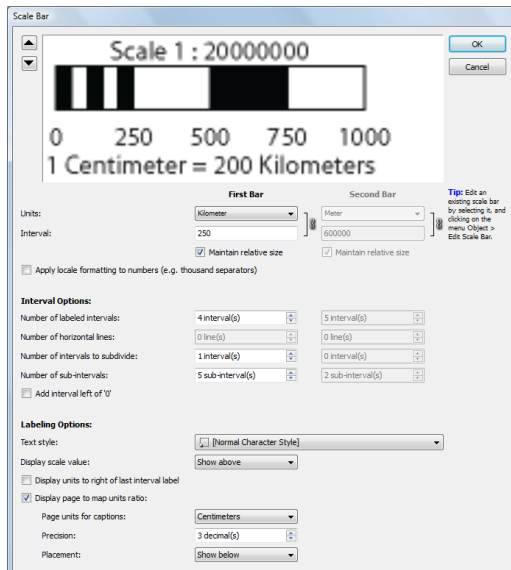
1. Open **usa48.ai** from the *Tutorial Data* folder.
2. In the MAP Views panel, add a new MAP Layer called **Scale Bar** and specify the Feature type as **Legend**.
3. In the Adobe Illustrator Character panel, choose an Arial font and 8 pt font size.
4. On the MAPublisher toolbar, click the Scale Bar button. 
5. In the Scale Bar dialog box, use the left and right arrow buttons to view scale bar styles (for this tutorial, use the default one). Select **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.

6. 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, has four main intervals each representing 250 km and where the first interval is further divided into five smaller intervals.

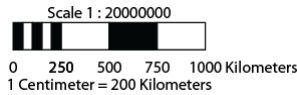
7. In the Labeling Options section, select **Show above** from the Display scale value drop-down list. Check the Display units to right of last interval label check box. Check the Display page to map units ratio check box, choose **Centimeters** from the Page units for captions drop-down list, and choose **Show below** from the Placement drop-down list.



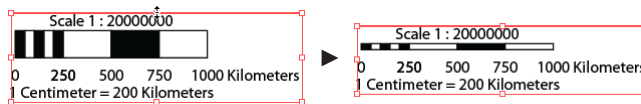
Look at the preview to see how these settings affect the look of the scale bar.

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

The Scale Bar is placed on 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 to resize the scale bar.




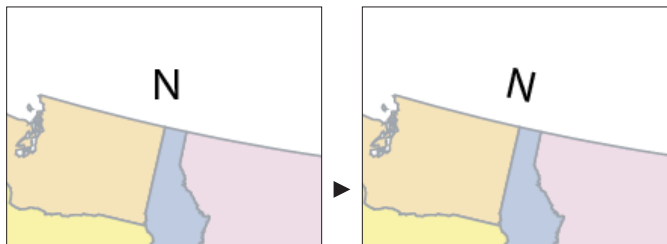
- Leave the document open for the next tutorial.

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.

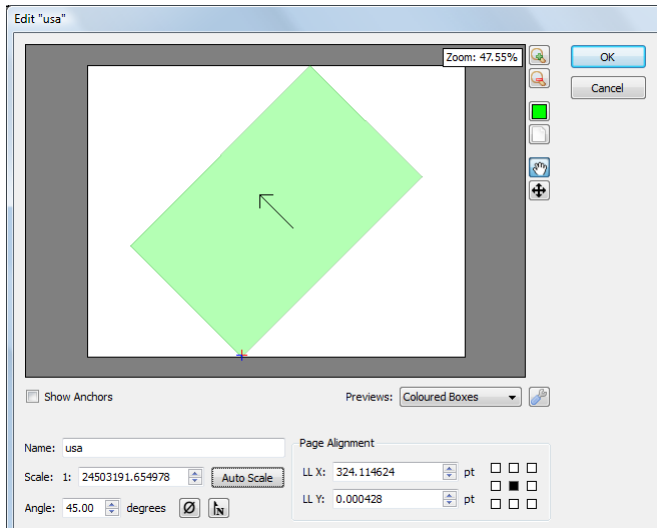
- In the MAP Views panel, add a new MAP Layer called **North Arrow** and specify the Feature type as **Legend**.
- Make sure the *North Arrow* layer is active and use the Adobe Illustrator Type tool to type the letter **N**.
- Select the letter N and click the North Arrow button on the MAPublisher toolbar. 



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*.

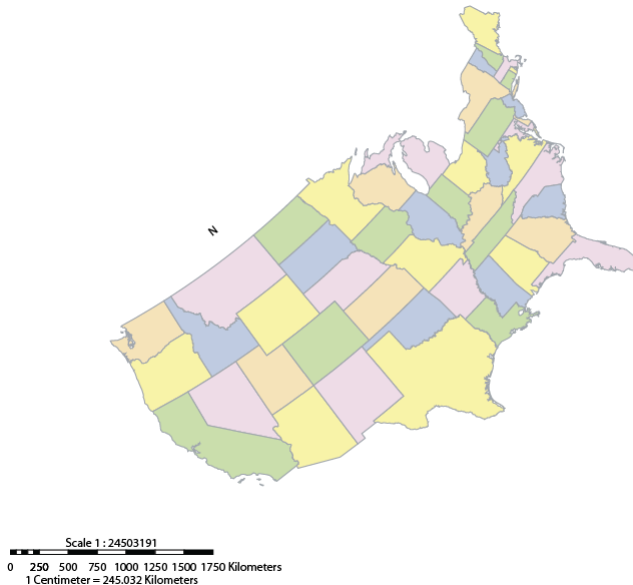
- In the MAP Views panel, double click the *usa* MAP View.
- In the MAP View editor, set an Angle of **45** degrees, click the Auto Scale button and the center page alignment.

* 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

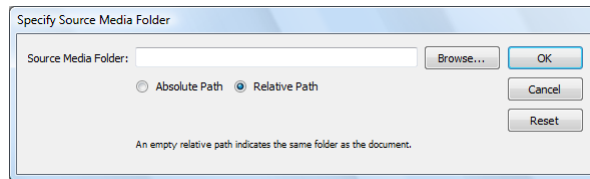
14.1 Prepare the map for Web tags

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



Before creating any Flash map, it is recommended to appropriately set the document size in Adobe Illustrator. This will also determine the size of the Flash 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, choose Specify Source Media Folder.
4. Select the Relative Path option and leave the Source Media Folder field blank.

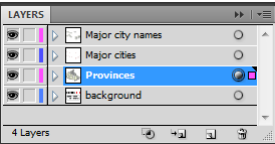


This dialog box sets the path to the *ImageFiles* folder (the folder containing the image data) for Web tagging. To indicate that the *ImageFiles* folder is in the same directory as `Flash_Canada.ai`, leave the path blank.

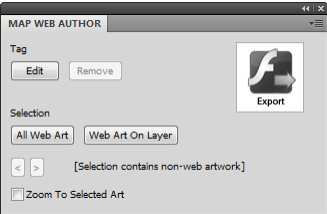
5. Click OK to close the Specify Source Media Folder dialog box.
6. Click a province on the map and open the MAP Attributes panel to become familiarized with the attribute structure and data.
7. Close the MAP Attributes panel and continue to the next tutorial

14.2 Create Web tag callouts

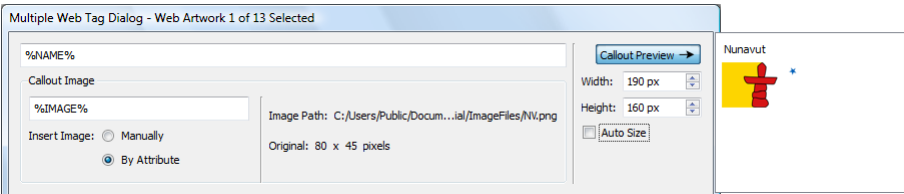
- This tutorial creates Web tags callouts for every object in the *Provinces* layer. These Web tags are used to expose attribute information when map features are clicked.
1. In the Adobe Illustrator Layers panel, click the target button beside the *Provinces* layer name to select all art on the layer.



2. In the MAP Web Author panel, click the Edit button to open the Multiple Web Tag Dialog dialog box.



3. In the Multiple Web Tag Dialog dialog box, type **%NAME%** into the Callout Title box.
4. In the Callout Image frame, make sure the By Attribute option is selected and type **%IMAGE%** into the box above.



The **%NAME%** and **%IMAGE%** variables retrieve values from the Provinces attribute table. In the case of **%IMAGE%**, the attribute is the image path. The image path and dimensions are shown on the right-hand side of the frame. By default, the Callout Preview is enabled. This previews what the Web tag callout will look like when exported to Flash.

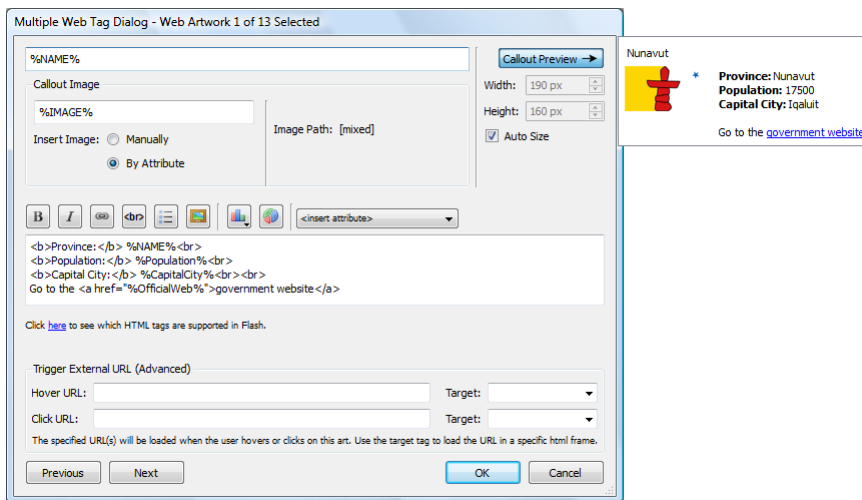
Note: The attribute names are case sensitive and should match exactly as they are in the MAP Attribute table.

Now, add more information to the Web tag callout by entering some basic HTML code. View the Callout Preview to see how it changes as the code is typed.

5. In the main content entry box type the following:

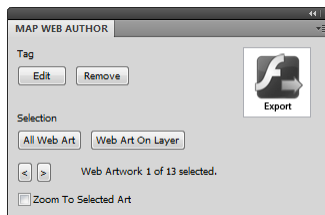
```
<b>Province:</b> %NAME%<br>
<b>Population:</b> %Population%<br>
<b>Capital City:</b> %CapitalCity%<br><br>
Go to the <a href="%OfficialWeb%">government website</a>
```

6. Click the Auto Size check box.



Click the Previous and Next buttons to scroll through the Web tags for each province. The dialog box title bar shows the current and total number of Web tags being edited. The Callouts can be manually resized, however, the Auto Size feature ensures that content will fit properly inside each Web tag.

7. Click OK to save the web tags and to close the Multiple Web Tag Dialog dialog box.
8. The MAP Web Author panel displays that one web artwork is selected (out of 13).



9. Keep the document open and continue with the next tutorial.

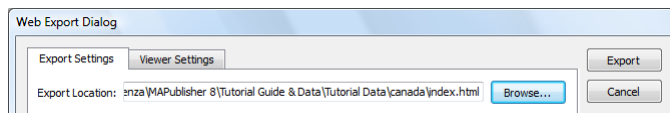
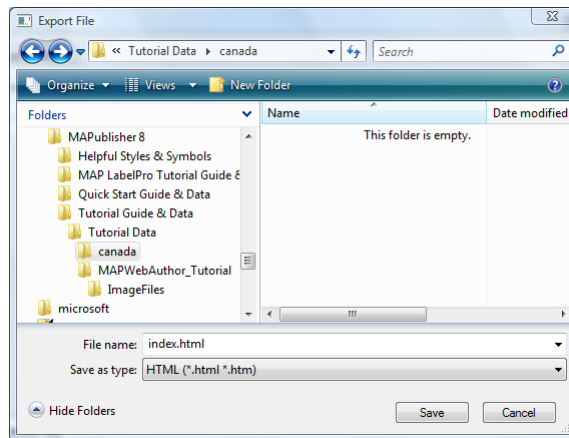
14.3 Export Flash map

After creating the Web tags, the next step is to export the map to Flash so that it can be viewed in a Web browser and shared over the Internet.

1. In the MAP Web Author panel, click the Export button.

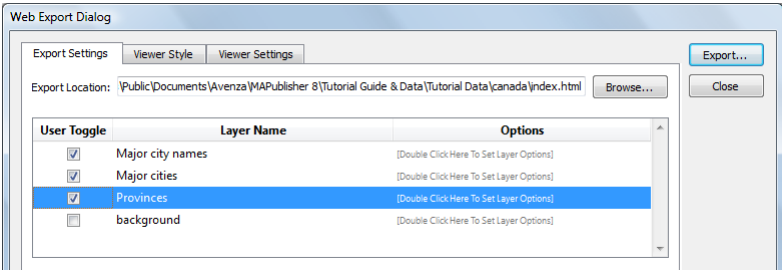


2. In the Web Export Dialog dialog box, click the Browse button next to the Export Location box. In the Export File dialog box, navigate to \Tutorial Data and create a new folder called **canada**. Save the file into the *canada* folder and use the default file name of **index.html**. Click Save.

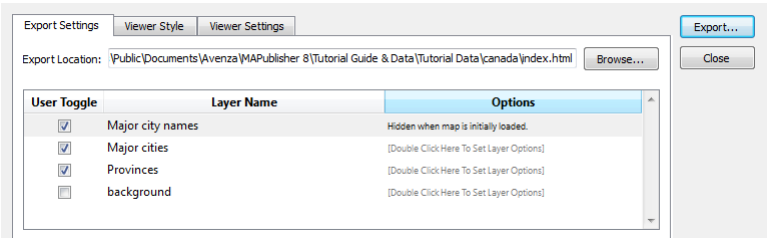
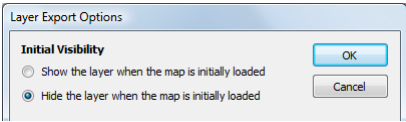


The Export Location box populates with the new file path.

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

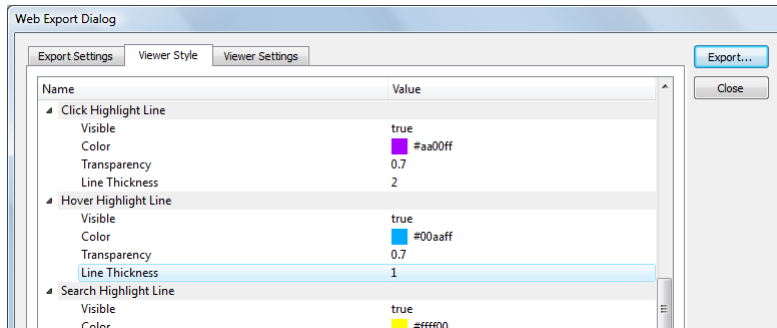


- The User Toggle allows the layers of a map to be turned on and off in the map interface.
4. Under the Options column for the Major city names layer, double-click to setup layer options. In the Layer Export Options dialog box, choose Hide the layer when the map is initially loaded option and click OK.



- 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 8 User Guide for more information.
5. Leave the other options in the Export Settings tab as the default and click the Viewer Style tab.

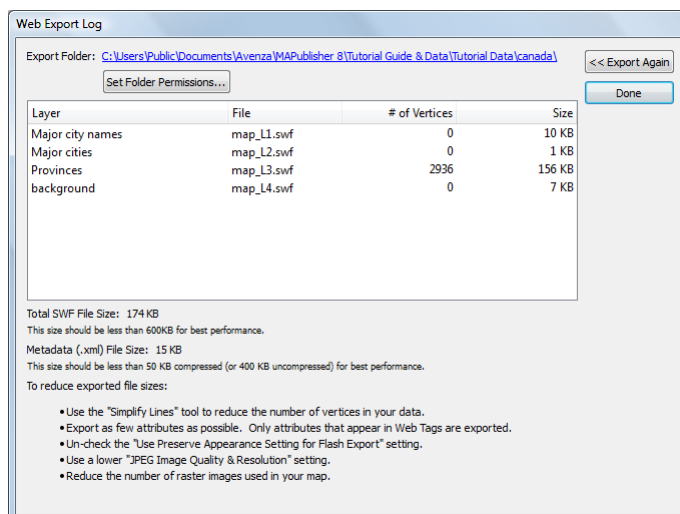
6. In the Viewer Style list, scroll down to Click Highlight Line and double-click the color value to change it. Select a purple color (**#aa00ff** or RGB 170, 0, 255) and click OK. Double-click the Line Thickness value and change it to **2**. Scroll down to Hover Highlight Line and change the color to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

7. Leave the options in the Viewer Settings tab as the default and click Export.

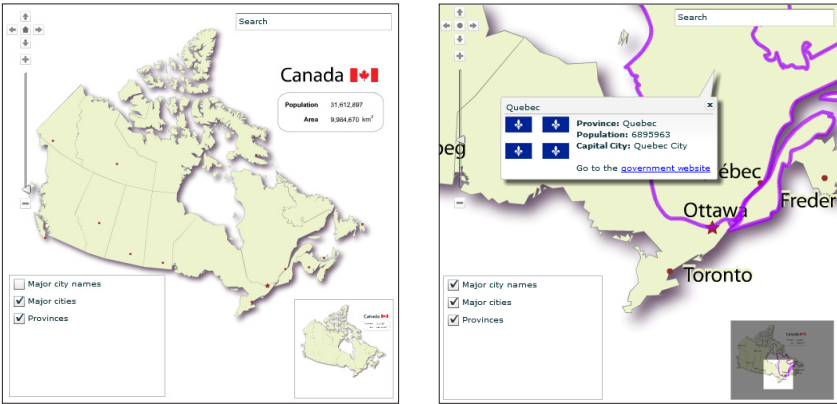
After finishing export, the Web Export Log dialog box appears. It provides a summary of which layers were exported, the corresponding export file name, the number of vertices in each layer and the Flash file sizes. It also provides a link to the Export Folder that was specified earlier.



8. 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	Ta
sourcemedia	16/04/2010 1:32 PM	File Folder		
avenza.js	16/04/2010 7:49 AM	JScript Script File	5 KB	
expressInstall.swf	16/04/2010 7:48 AM	Shockwave Flash	1 KB	
map.png	16/04/2010 1:32 PM	Adobe Fireworks ...	98 KB	
map.xml.zip	16/04/2010 1:32 PM	Compressed (zipp...	15 KB	
map_L1.swf	16/04/2010 1:32 PM	Shockwave Flash	10 KB	
map_L2.swf	16/04/2010 1:32 PM	Shockwave Flash	1 KB	
map_L3.swf	16/04/2010 1:32 PM	Shockwave Flash	156 KB	
map_L4.swf	16/04/2010 1:32 PM	Shockwave Flash	7 KB	
MAPublisherViewer.swf	16/04/2010 7:49 AM	Shockwave Flash	462 KB	
MAPublisherViewer-local.swf	16/04/2010 7:49 AM	Shockwave Flash	462 KB	
map-viewer.css	16/04/2010 1:32 PM	Cascading Style S...	1 KB	
README.txt	16/04/2010 7:48 AM	Text Document	3 KB	
swfobject.js	16/04/2010 7:48 AM	JScript Script File	10 KB	
viewer_parameters.txt	16/04/2010 1:32 PM	Text Document	1 KB	

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



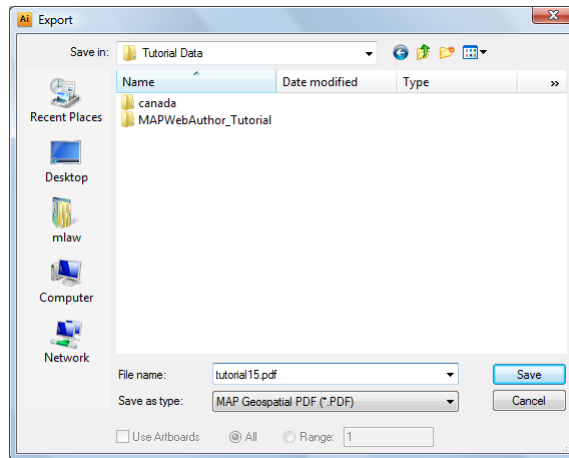
- Navigate the map using the map zoom slider and zoom in and out buttons, the pan tools and using the mouse to pan around the map. When the mouse hovers over a province, it highlights to the color specified earlier. Click the province and the Web tag callout appears with information defined in the Multiple 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 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.

10. Close the document without saving.

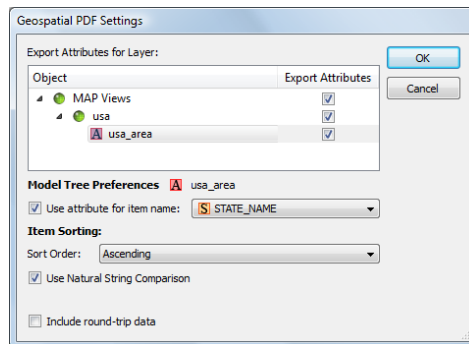
15 Geospatial PDF Export

15.1 Export to geospatial PDF

1. Open **usa48.ai** from the *\Tutorial Data* folder.
2. In the Adobe Illustrator menu, click *File > Export* or click the Export Geospatial PDF button on the MAPublisher toolbar. In the Export dialog box, choose **MAP 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.

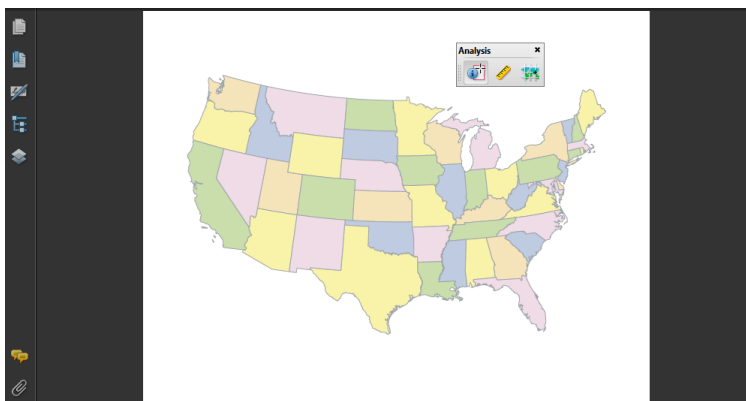


3. In the Geospatial PDF Export Settings dialog box, click *usa_area* to enable the Model Tree Preferences.
4. Click the check box beside *Use attribute for item name*. Make sure the sort order is set to Ascending and click the *Use Natural String Comparison* check box.



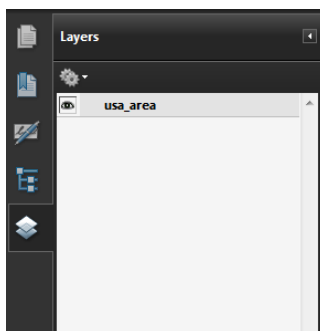
This setting will use the attributes of STATE_NAME, in an ascending sort order, in the Model Tree.

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).



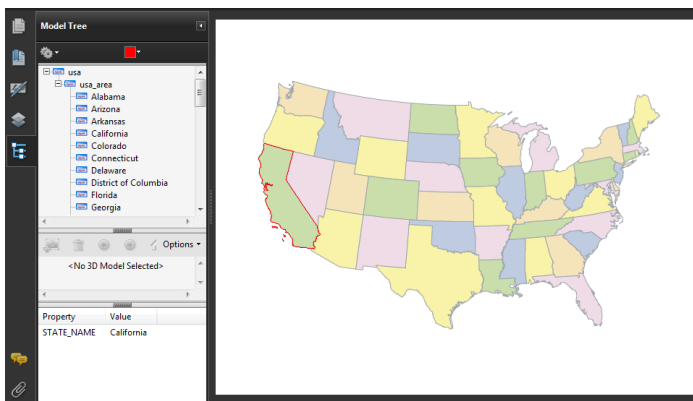
The latest Acrobat Reader supports geospatial PDF files and comes with tools to explore the map. The Analysis toolbar holds three tools specific to geospatial PDFs: Object Data Tool, Measuring Tool and Geospatial Location Tool. On the left hand side, there are two useful Navigation panels related to 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.



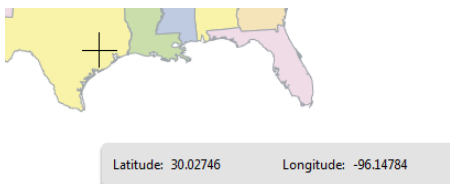
Only the *usa_area* layer is present in this geospatial PDF. Click the eye button to toggle the layer's visibility.

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.

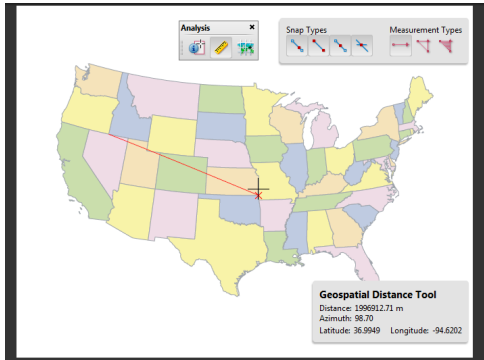


The Model Tree shows the map features of all the layers in the document. At the bottom of the Model Tree is a window that displays attribute data. In this case, the state name for the feature selected is California.

9. In the Analysis toolbar, click the Geospatial Location Tool. A status window appears in the bottom-right corner that displays the longitude and latitude of the cursor position.

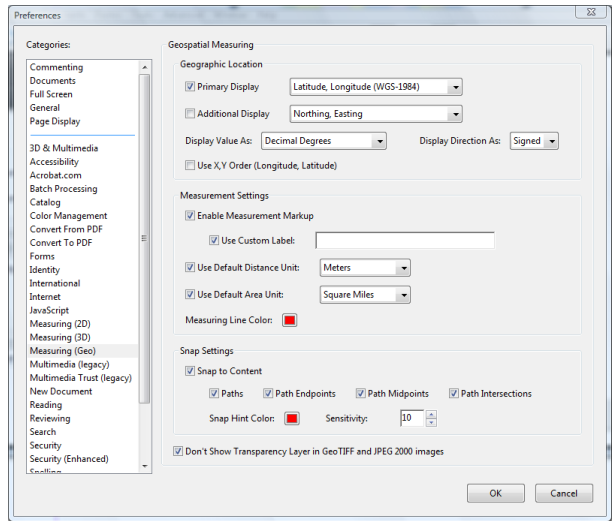


10. In the Analysis toolbar, click the Measure Tool. Click the southeast corner of Portland and draw a measurement line to the southeast corner of Kansas. Use the Object Data Tool to find these states if you are unfamiliar with the geography.



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 1,996,912 meters (or about 1,997 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.

Geospatial Measuring

Geographic Location

☒ Primary Display Latitude, Longitude (WGS-1984)

☐ Additional Display Northing, Easting

Display Value As: Degrees, Minutes, Seconds Display Direction As: Signed

☐ Use X,Y Order (Longitude, Latitude)

Measurement Settings

☒ Enable Measurement Markup

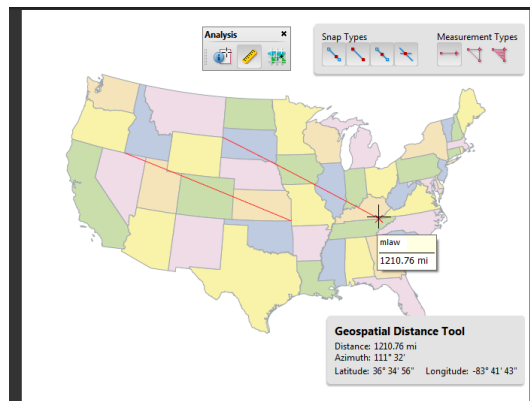
☒ Use Custom Label:

☒ Use Default Distance Unit: Miles

☒ Use Default Area Unit: Square Miles

Measuring Line Color: ■

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



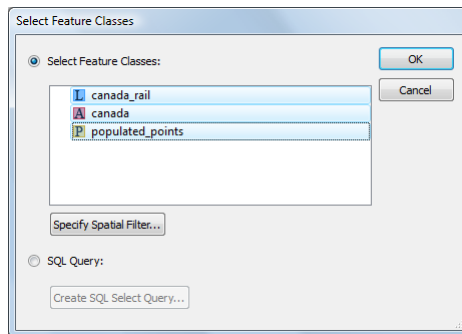
Notice that the distance is displayed in miles (mi) and that the coordinates are displayed as Degrees, Minutes, Seconds. Return to the Measuring (Geo) preferences to experiment with the settings to see how they can help you explore geospatial PDF maps.

16 Import Spatial Databases

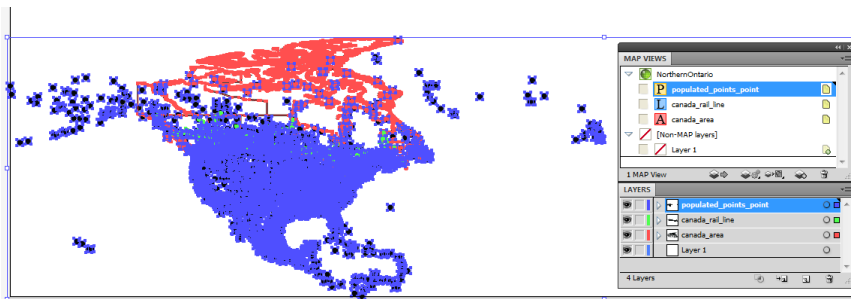
16.1 Import ESRI Personal or File Geodatabase

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.

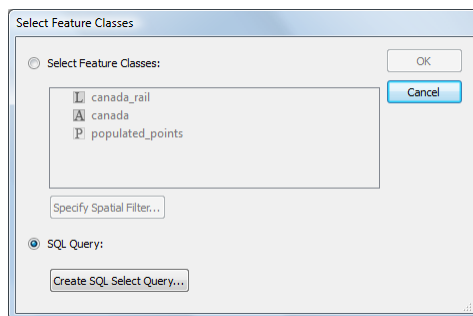


Notice on import that the imported point data covers all of North America. You will import the data again, instead this time specifying a spatial filter and using SQL (Special Query Language) to perform an attribute filter to limit the amount of imported data.

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

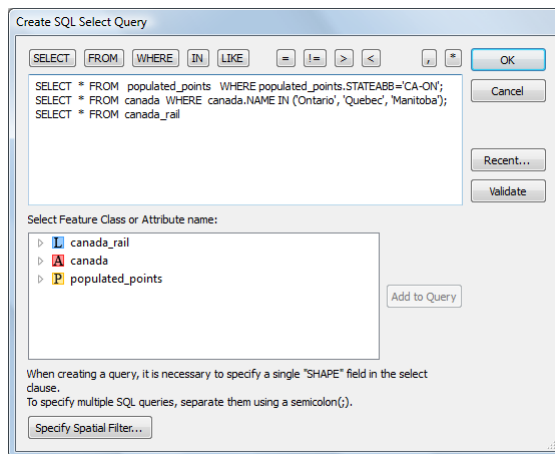
Note: To only use a spatial filter, click the Spatial Filter button on the Select Feature Classes dialog box.
To perform both a spatial filter and an SQL query simultaneously, choose SQL Query.

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. Enter the following spatial envelope values:

Specify Spatial Filter

X

Y

Point 1: -095.55702057.473410Degree

Point 2: -078.77543057.473410Degree

Point 3: -078.77543047.152100Degree

Point 4: -095.55702047.152100Degree

Relationship:

☒ Intersects

☐ Contains

Source Coordinate System: NAD83(1986)

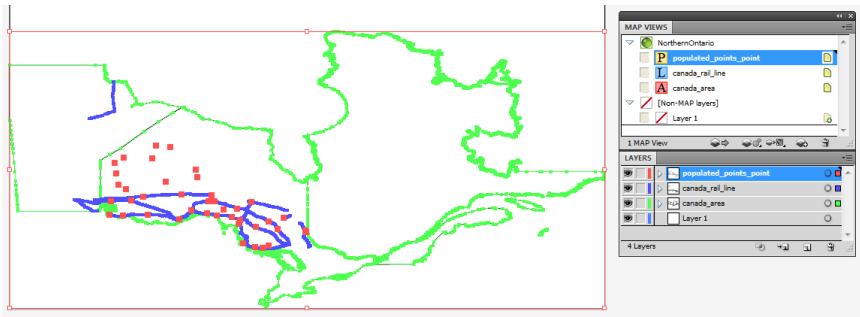
Specify Input Coordinate System...

Clear Input Coordinate System

OK

Cancel

Be sure the Intersects relationship option is chosen, as this will allow the import of data that can later be cropped if not needed. 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**

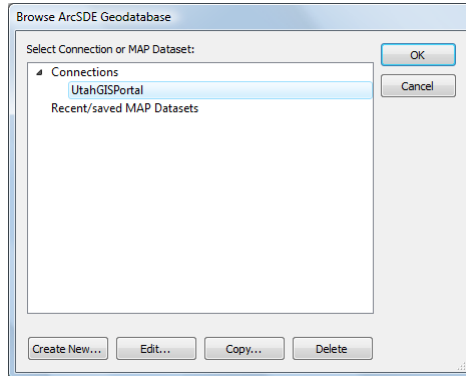
The screenshot shows the 'Create New ArcSDE Geodatabase Connection' dialog box. It has the following fields and controls:

- Connection Name:
- Server:
- Service:
- Database Name:
- Authentication: ☒ Database Authentication, ☐ Operating System Authentication
- User Name:
- Password:
- Check if you want MAPublisher to remember your password: ☐
- Transactional Version:
-
-

4. Click OK to confirm the connection settings.

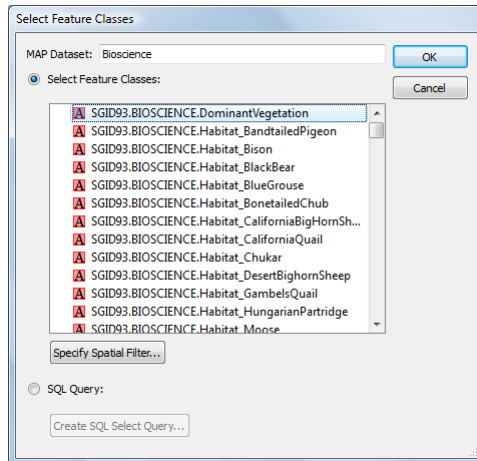
The UtahGISPortal connection is saved to the list. A saved connection can be accessed again in the future.

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



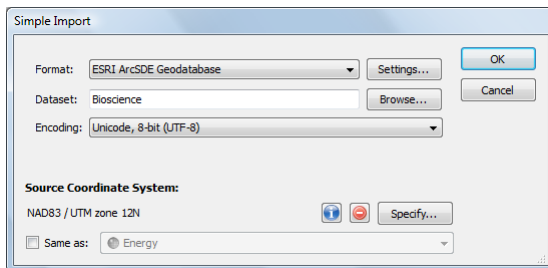
Note: Depending on the Internet connection speed, it may take a few seconds to connect to the server.

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.

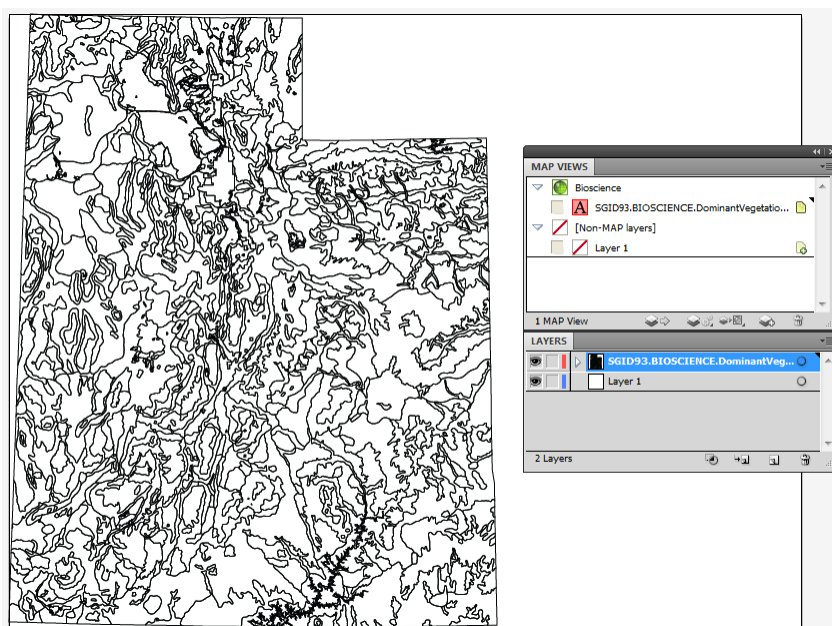


Note: After clicking OK, it may awhile to retrieve the data from the ArcSDE server.

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.

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 and 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**

Create New Basic ESRI ArcSDE Server Connection

Connection Name:

Server:

Service:

Database Name:

Version:

User Name:

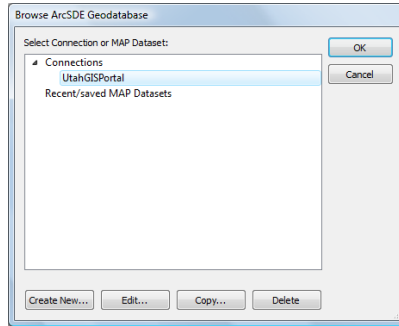
Password:

☐ Check if you want MAPublisher to remember your password.

4. Click OK to confirm the connection settings.

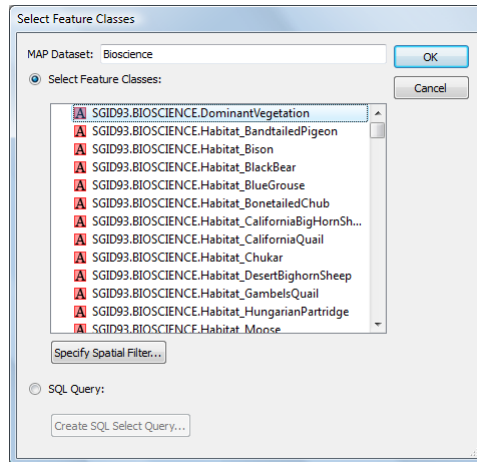
The UtahGISPortal_Basic connection is saved to the list. A saved connection can be accessed again in the future.

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



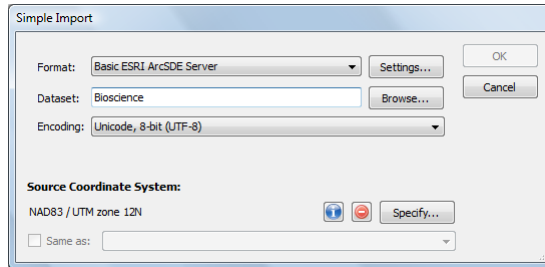
Note: Depending on the Internet connection speed, it may take a few seconds to connect to the server.

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.

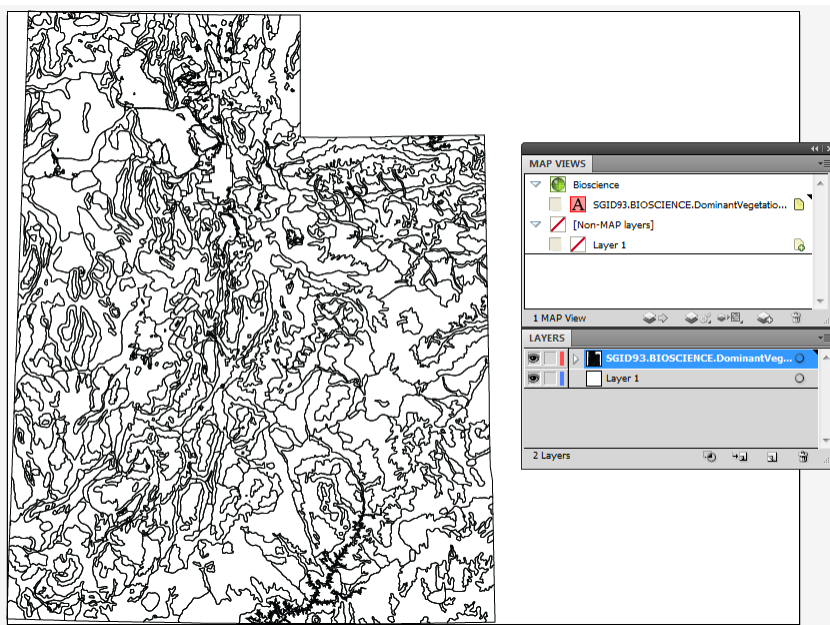


Note: After clicking OK, it may awhile to retrieve the data from the ArcSDE server.

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 8 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.