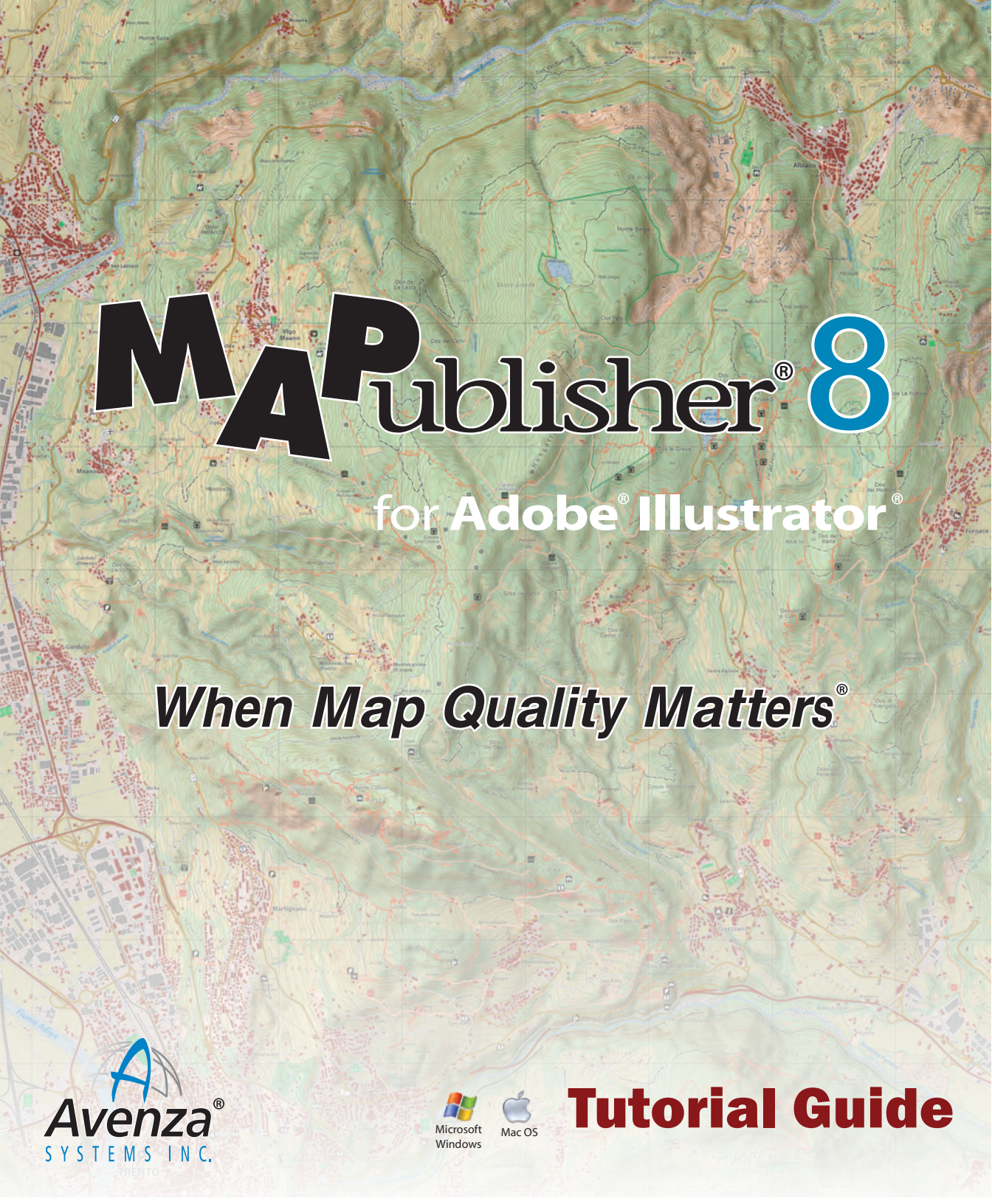


# MAPublisher® 8

## for Adobe® Illustrator®

*When Map Quality Matters®*

Avenza® SYSTEMS INC.

Microsoft Windows

Mac OS

# Tutorial Guide

# Avenza MAPublisher 8 Tutorial Guide


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



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*

Version 1.0—November 2008

# 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 CS2, 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 filters 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

All the tutorials in this guide will use GIS data supplied on your 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*
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*
C:\Users\Public\Documents\Avenza\MAPublisher 8\Helpful Styles & Symbols

*Mac OS X*
/Applications/Avenza/MAPublisher 8/Helpful Styles & Symbols

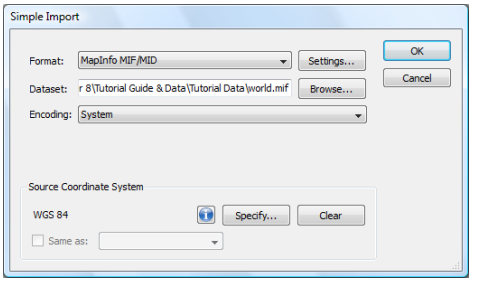
# Contents

# 1 Importing Map Data

*See User Guide, Chapter 3.*

## 1.1 Importing a Single Map File

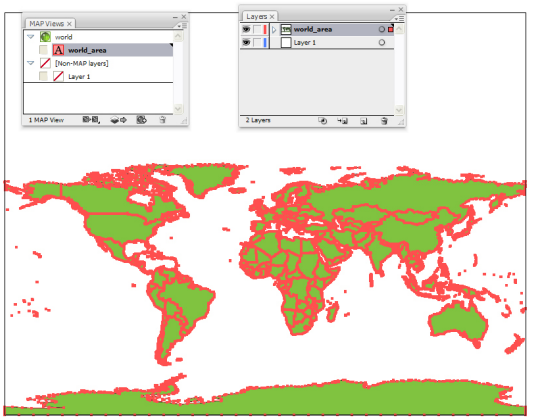
1. Create a new Adobe Illustrator document in landscape orientation.
2. In the Adobe Illustrator menu, click *File* > *Import Map Data* > *Simple...* to open the MAPublisher **Simple Import** dialog box or click the **Simple Import** button on the MAPublisher toolbar.
3. Select **MapInfo MIF/MID** from 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 on MAP Views in the User Guide.

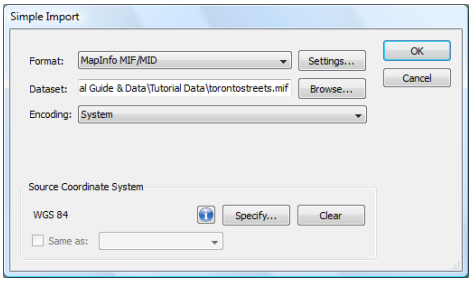



6. Close the document without saving.

## 1.2 Importing Multiple Map Files at Once

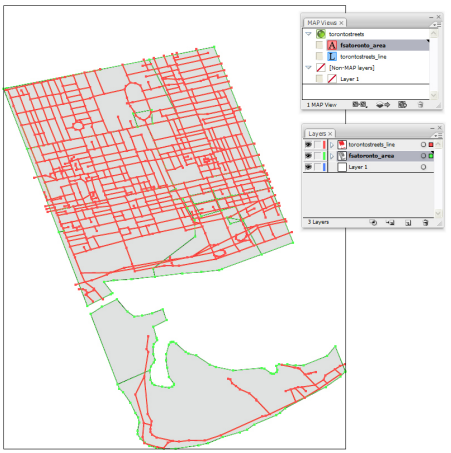
The Simple Import filter also allows for the import of multiple map files at a single time. When importing multiple files, all files must be of the same format, be in the same coordinate system, and be located in the same directory.

1. Create a new Adobe Illustrator 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** from the **Format** drop-down list (it should already be selected by default).
4. Click **Browse**, navigate to the *Tutorial Data* folder, select **fsatoronto.mif** and **torontostreets.mif** (hold the Command key (Mac) or the Ctrl key (Windows) to select multiple files), and click **Open**.




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 *torontostreets_line* and *fsatoronto_area*. Also in the MAP Views panel there is a new MAP View called *fsatoronto* holding the two imported files.



6. Close the document without saving.

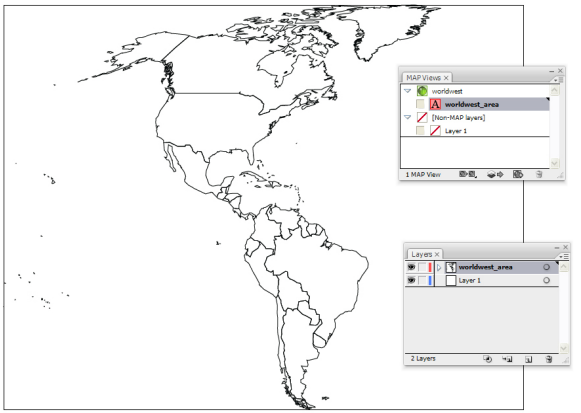
## 1.3 Importing Map Files to Match an Existing Map Layer

1. Create a new Adobe Illustrator 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** 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.**

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

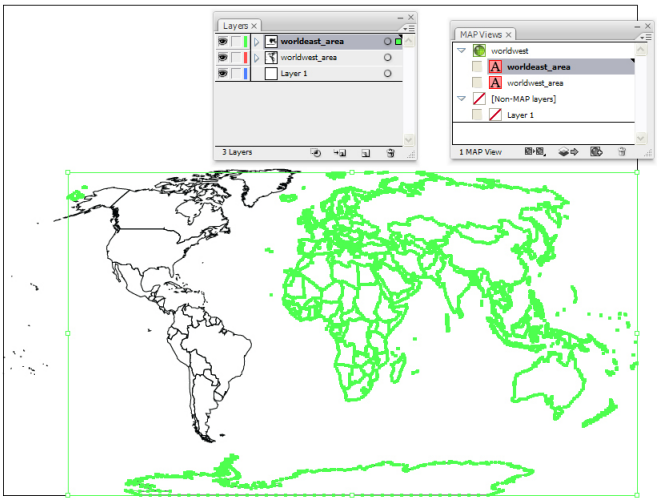



6. Repeat steps 2 to 4, however set the import **Format** drop-down list to **ESRI Shape**.
7. Navigate to the *Tutorial Data* folder, select **worldeast.shp,** and click **Open**.

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

8. Click **OK**.
9. 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 rescaled 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.




10. Close the document without saving.

## 1.4 Importing Map Files with Point Per Path Limitations

1. Create a new Adobe Illustrator 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** from the **Format** drop-down list.
4. Click **Browse**, navigate to the *Tutorial Data* folder, select **greenland.mif,** click **Open**, and click **OK**.

   The vertex count exceeds the allowable 32,000 points per path in Adobe Illustrator, a warning dialog box appears stating that the data was simplified in order to facilitate a successful import process.

5. Click **OK** to close the warning dialog box.

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

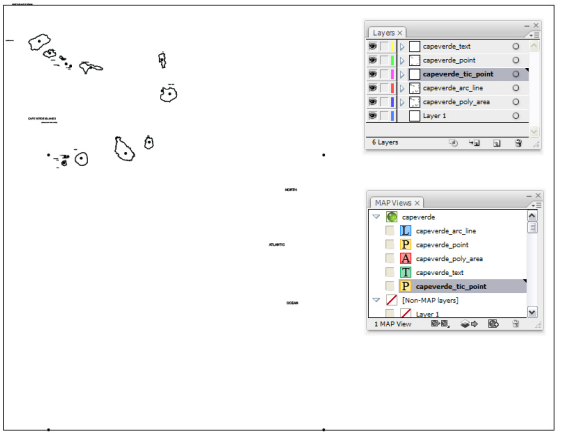
6. Close the document without saving.

## 1.5 Importing 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 mode.
2. Open the MAPublisher **Simple Import** dialog box.
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 close the **Simple Import** dialog box.

**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 generated 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 Importing Points

MAPublisher import filters also allow the import of delimited ASCII text files as point data provided they contain coordinate values. A typical file of this nature might be set up as follows:

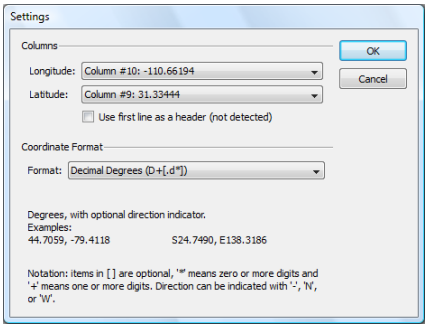
"AZ,Antonio Tank,reservoir,Santa Cruz,4,23,312004N,1103943W,31.33444,-110.66194,,,,,,,Duquesne"
"AZ,Agua Prieta Substation,locale,Cochise,4,3,312006N,1093335W,31.335,-109.55972,,,,,,,Douglas"
"AZ,Adobe Spring,spring,Santa Cruz,4,23,312037N,1110234W,31.34361,-111.04278,,,,,,,Pajarito Peak"

The MAPublisher Import Points filter supports the import of delimited ASCII files that contain any of the following delimiters between data values: *comma*, *return*, *end of line* and *tab* in multiple formats.

1. Create a new Adobe Illustrator document in portrait orientation.
2. Open the MAPublisher **Simple Import** dialog box.
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 **azdeci.txt.**

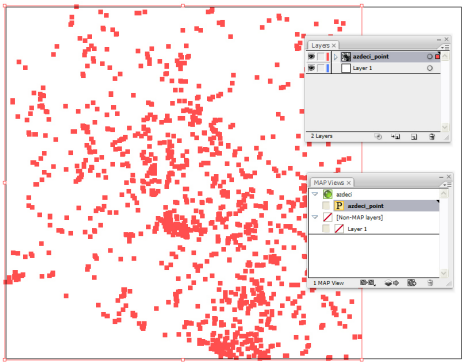
   The *Settings* dialog box opens automatically. Specify the appropriate coordinate format of their data in the *Format* drop-down list before selecting the columns of the import file to be used.

5. Use **Decimals Degrees (D+[.d*])**.
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** to close it.
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.

    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. Close the document without saving.

## 1.7 Importing 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. Click **Add** to open the **Add** dialog box.
4. Select **MapInfo 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.

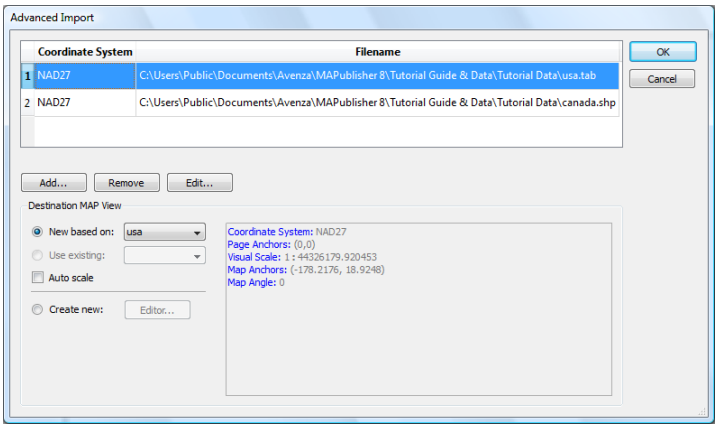
   The selected file appears in Row 1 of the file list inside the dialog box. Now add another file in a different map file format.

7. Click **Add** to open the **Add** dialog box.
8. Select **ESRI Shape** 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 Row 2 of the file list inside the dialog box.

11. In the **Destination MAP View** frame, *usa* is already selected 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 fitted inside the page extents.

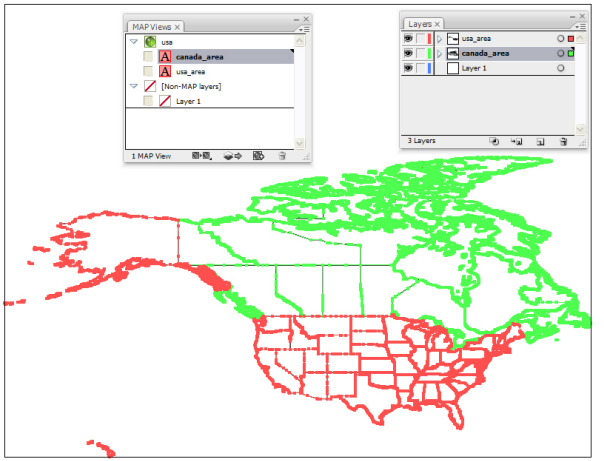
**NOTE:** Not checking the *Auto scale* option will base the page scaling on the file selected in the *New based on* drop-down list only. Therefore only this file is fitted to the current page extents, which may cause elements in other selected files to be placed outside of the page boundary.




13. Make sure that the dialog box matches the one above and 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 Importing MAP Files in Multiple Coordinate Systems

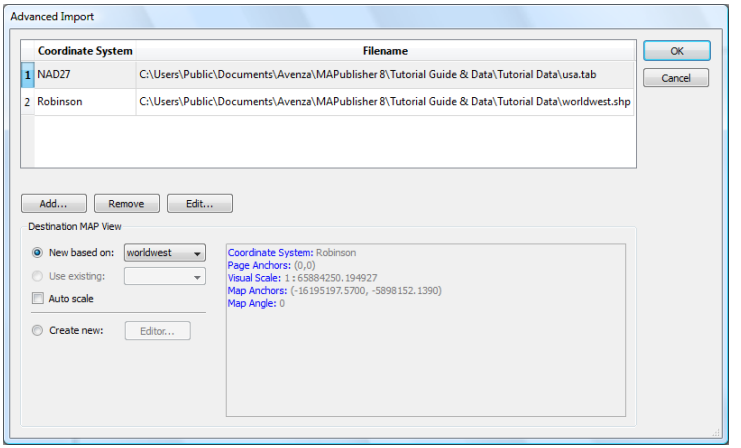
1. Create a new Adobe Illustrator document in landscape orientation.
2. Open the MAPublisher **Advanced Import** dialog box and click **Add**.
3. Select **MapInfo TAB** from the **Format** drop-down list.
4. Click **Browse**, navigate to the *Tutorial Data* folder, select **usa.tab**, and click **Open**.
5. 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* is automatically read as NAD27. The coordinate system preview area lists various parameters of the file including coordinate system, page and map anchors, visual scale, and map angle.

6. Click the **Add** button to open the **Add** dialog box.
7. Select **ESRI Shape** from the **Format** drop-down list.
8. Click **Browse**, navigate to the *Tutorial Data* folder, select **worldwest.shp,** and click **Open**.
9. Click **OK** to close the **Add** dialog box.

   The selected file appears in Row 2 of the file list. The map file *worldwest.shp* is automatically read as Robinson.

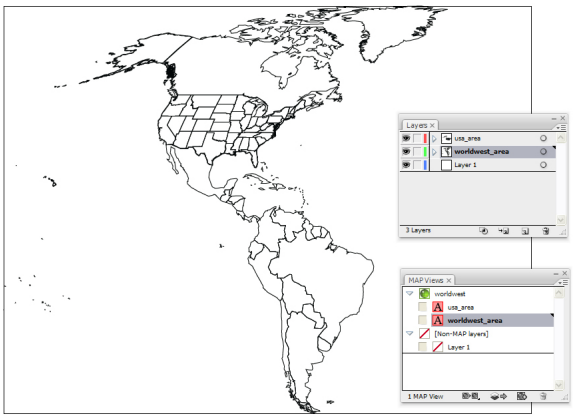
10. In the **Destination MAP View** frame, select the **New Based On** option and choose **worldwest** from the drop-down list. This bases the coordinate system and page scaling on the *worldwest.shp* file.




11. Make sure that the dialog box matches the one above and 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, as 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).



## 1.9 Importing Map Files to Match an Existing MAP View

This tutorial will produce the same results as Tutorial 1.8.

1. Create a new Adobe Illustrator document in portrait orientation.
2. Open the MAPublisher **Simple Import** dialog box.
3. Select **ESRI Shape** 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.

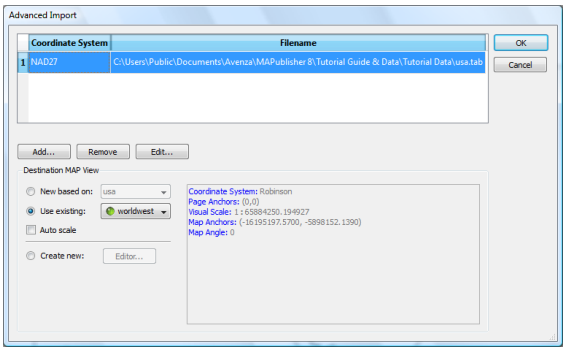
   In the Adobe Illustrator Layers panel there is a new layer called *worldwest_area.* Also in the MAP Views panel there is a new MAP View called *worldwest* set in the Robinson coordinate system.

6. Open the MAPublisher **Advanced Import** dialog box and click **Add.**
7. Select **MapInfo 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 map file *usa.tab* is automatically read as 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. Make sure that the dialog box matches the one above and 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 Assigning a Source Coordinate System Prior to Import

1. Create a new Adobe Illustrator document in portrait orientation.
2. Open the MAPublisher **Advanced Import** dialog box and click **Add**.
3. Select **ESRI ArcInfo Generate** 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 Row 1 of the file list.

6. In the **Advanced Import** dialog box, select Row 1 (**ukrail.gen**) and click **Edit...**
7. In the **Edit** dialog box, click **Specify...** and choose **British National Grid** located under **Projected > Europe > United Kingdom.**
8. Click **OK** to return to the **Advanced Import** dialog box.

   In the *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 Transforming the 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. Open the MAPublisher **Advanced Import** dialog box and click **Add**.
3. Select **ESRI Shape** 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** to display all recently used projections, and choose **British National Grid**. Alternatively, navigate to **Projected > Europe > United Kingdom.**
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.

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

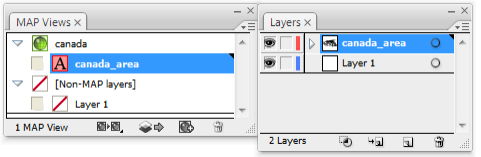
10. Click **OK** to import the file in the British National Grid coordinate system.
11. Close the document without saving.

# 2 MAP Views and Georeferencing

*See User Guide, Chapter 4*

## 2.1 The Creation of Map Views via Import

1. Create a new Adobe Illustrator document in portrait orientation.
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. Import any map file from the *Tutorial Data* folder.



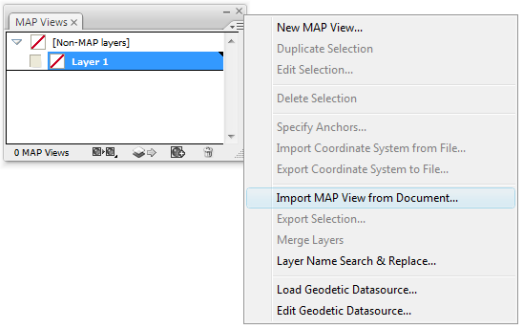

Notice that a MAP View is automatically created. It is the same name of the imported file and contains the Adobe Illustrator layer(s) containing map data. Each Adobe Illustrator layer comprising the MAP View is depicted with an icon that represents the feature type contained on each of the map layers.

4. Close the document without saving.

## 2.2 Importing a MAP View from Existing MAPublisher Documents

1. Open **usa48.ai** from the *Tutorial Data* folder.
2. Create a new Adobe Illustrator document.
3. Select the new document and open the **MAP Views** panel.
4. In the **MAP Views** panel option menu (top right corner of the panel), click **Import MAP View from Document...**

A list of MAP Views is available from any opened document containing MAP Views. In this case, only one MAP View called *usa* is available from the selected MAP Views to transfer.




5. Select the **usa** MAP View and click **OK**.

The MAP View is imported into the new document along with all the MAP Layers within that MAP View.

## 2.3 Duplicating and Deleting MAP Views

1. Create a new Adobe Illustrator document in portrait orientation.
2. Import any map file from the *Tutorial Data* folder.
3. In the **MAP Views** panel, select the new MAP View (of the same name as the imported map file).
4. In the **MAP Views** panel option menu, click **Duplicate**.

   A new MAP View entitled *Copy of [MAP view name]* is created. It doesn't contain any Adobe Illustrator layers.

5. Select the MAP View created in step 3.
6. In the **MAP Views** panel option menu, click **Delete.**

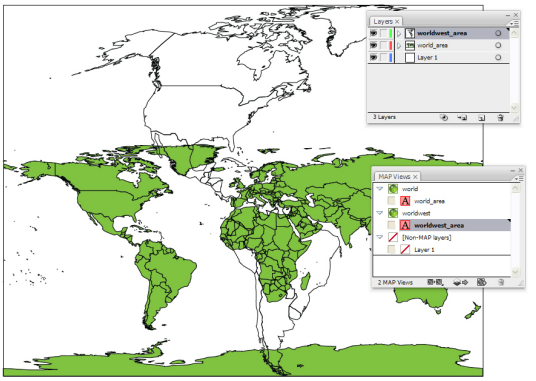
**NOTE:** A MAP View that contains one or more map layers cannot be deleted. Move or delete all layers from a MAP View first before deleting the MAP View itself.

7. Close the document without saving.

## 2.4 Transforming Coordinate Systems by Dragging and Dropping

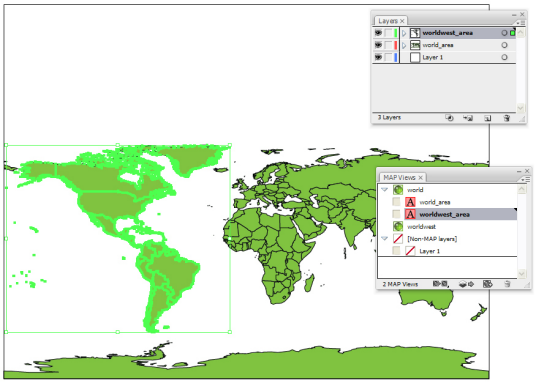
1. Create a new Adobe Illustrator document in landscape orientation.
2. Use **Simple Import** to import **world.mif** from the *Tutorial Data* folder.
3. Use **Simple Import** to import **worldwest.shp** from the *Tutorial Data* folder.

   There are now 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 on the **worldwest_area** layer and drag it into the **world** MAP View.

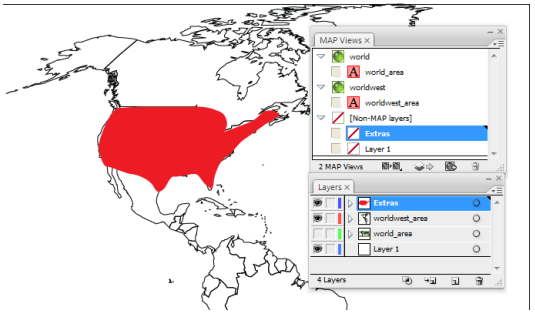
   The *worldwest_area* layer is instantly transformed into the WGS 84 coordinate system and matches the page scaling of the *world_area* layer. Drag *worldwest_area* back to the *worldwest* MAP View and it will transform the layer back to the Robinson coordinate system.



5. Close the document without saving.

## 2.5 Dragging Layers into Existing Coordinate Systems

1. Repeat Tutorial 2.4, steps 1 to 3.
2. Use the **Toggle Visibility** button in the Adobe Illustrator Layers panel to hide the **world_area** layer.
3. In the Adobe Illustrator Layers panel, create a new layer called **Extras**, and move it to the top of the layers hierarchy.
4. With the **Extras** layer selected, roughly trace over some features that exist on the **worldwest_area** layer using Adobe Illustrator drawing tools and give it a red coloured fill.



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

5. In the **MAP Views** panel, click the **Extras** layer and drag it into the **worldwest** MAP View.
6. 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.

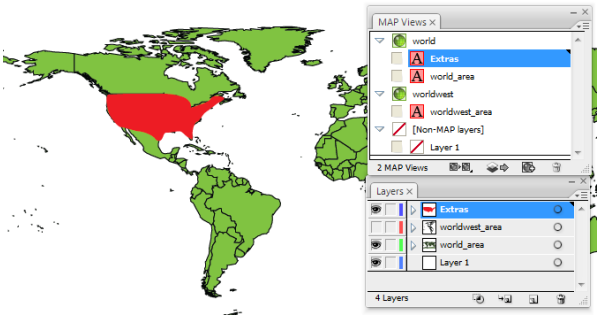
7. Keep the document open for the next tutorial.

## 2.6 Dragging New Layers into Different Coordinate Systems

*Continue from Tutorial 2.5*

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 has immediately been transformed from Robinson to WGS 84 (latitude and longitude) and aligns with the data in the *world_area* layer.




3. Close the document without saving.

## 2.7 Editing Layer Names Using Search and Replace

1. Create a new Adobe Illustrator document in portrait orientation.
2. Import **capeverde.e00** from the *Tutorial Data* folder. Uncheck the **Ignore TIC layer** option in the import settings.

   In the both the Adobe Illustrator Layers panel and MAP Views panel, five new layers are shown. An ESRI Interchange file (e00) contains multiple feature types. All five of these layers contain the layer name prefix *capeverde*.

3. In the **MAP Views** panel option menu, click **Layer Name Search & Replace…**
4. In the **Find what:** box, type **capeverde**. In the **Replace with:** box, type **Cape Verde**.
5. Click the **Replace All** button.

   The text *capeverde* is replaced with *Cape Verde* in the name of all applicable layers.

6. Close the document without saving.

## 2.8 Merging Map Layers

1. Create a new Adobe Illustrator document in landscape orientation.
2. Use **Simple Import** to import **worldeast.shp** and **worldwest.shp** from the *Tutorial Data* folder.
3. Ensure all of the data in the document is still selected and open the **MAP Attributes** panel (click *Window* > *MAPublisher* > *MAP Attributes*).

   Toggle between the layers using the **Layer** drop-down list. Both layers have an identical attribute structure so it is possible to merge the layers together.

   For more information on the *MAP Attributes* panel, see Tutorial 3 or chapter 5 of the MAPublisher User Guide.

4. In the **MAP Views** panel, shift-select the **worldeast_area** and **worldwest_area** layers so both are highlighted.
5. In the **MAP Views** panel option menu, click **Merge Layers**

   The two layers have been joined together to create a single layer holding all the map data and attribute information. Rename the merged layer in the Adobe Illustrator Layers panel if desired and view the combined attribute table in the **MAP Attributes** panel.

**NOTE:** Locked layers can not be merged.

6. Close the document without saving.

## 2.9 Specifying 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.
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.

## 2.10 Transforming the Coordinate System Using the MAP View Editor

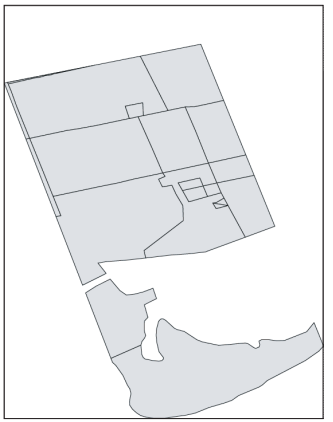
1. Create a new Adobe Illustrator document in portrait orientation.
2. Import **fsatoronto.mif** from the *Tutorial Data* folder. The map file is in the WGS 84 coordinate system.
3. In the **MAP Views** panel, double-click the **fsatoronto** MAP View to open the MAP View editor
4. Change the name of the MAP View to **Postalcode Zones**.
5. Check the **Perform Coordinate System Transformation** check box to enable its frame options and click **Specify...**
6. In the **Specify Destination Corodinate System** dialog box, **s**elect **NAD83 / UTM zone 17N** located under **Projected > UTM > NAD83.**

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

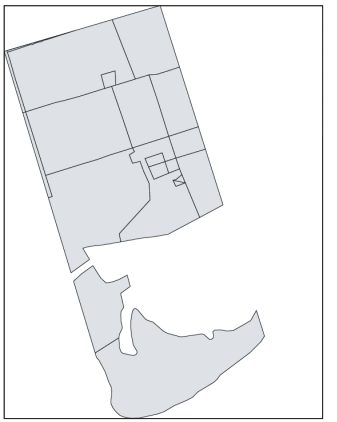
7. Click **OK** to close the MAP Views editor dialog box.

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

8. Leave the file open for the next tutorial.



*fsatoronto MAP View in WGS 84.*



*fsatoronto MAP View in UTM Projection.*

## 2.11 Editing Scale and Positioning

*Continue from Tutorial 2.10.*

1. In the **MAP Views** panel, double-click the **Postalcode Zones** MAP View to open the MAP View editor.
2. Change the map scale to **1: 30,000** by typing **30000** in the **Scale** text box.
3. There are nine buttons in the **Alignment Control** graphic *(***Data Extents LL Corner** frame*)*. Click the **Align Center** button (the button in the middle) to reposition the data to the centre of the page.

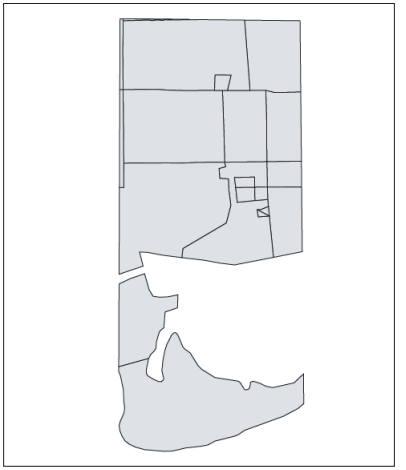
   The *Preview Pane* shows the new data extents and the Page Anchor values have been automatically updated.

4. Click **OK**.

   The *Postalcode Zones* MAP View is rescaled and repositioned in the centre of the page.

5. In the **MAP Views** panel, double-click the **Postalcode Zones** MAP View.
6. In the **Angle** text box, type **-17** for an angle of rotation. Alternatively use the clock hand in the graphic to achieve the rotation value of 343 degrees.
7. Click **OK**.

The data is now rotated and gives a better result for subsequent MAPublisher operations, such as labeling. Georeferencing has not been affected.



*fsatoronto MAP View in UTM Projection, rotated -17 degrees, and with a new scale of 1:30,000.*

8. Close the document without saving.

## 2.12 Copying 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 colour 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** text box.
6. Click the **Align Top Left** button in the **Alignment Control** graphic *(***Data Extents LL Corner** frame).

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

7. Click **OK**.

   The *worldwest* MAP View is rescaled and repositioned in the upper left corner of the page. This can be used as a small locator map.

8. Import **canada.shp** from the *Tutorial Data* folder. The map file is in the NAD27 coordinate system.
9. In the **MAP Views** panel, double-click the **canada** MAP View to open the MAP View Editor**.**
10. Check the **Perform Coordinate System Transformation** check box to enable its frame options.
11. Check the **Same As** check box and select the **worldwest** MAP View in the drop-down list.

    Notice how the destination is automatically set to Robinson.

12. Click the **Align Center** button in the Alignment Control graphic (**Data Extents LL Corner** frame).

    The *Preview Pane* shows the new data extents and the *Data Extents LL Corner* values are automatically edited.

13. Click **OK.**

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

14. Close the document without saving.

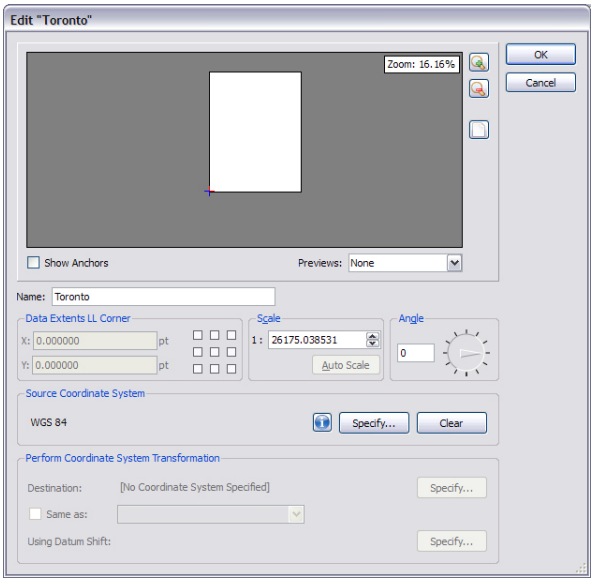
## 2.12 Creating a New MAP View

This tutorial will provide 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, click **New MAP View...** or click the **Create New MAP View** button at the bottom of the **MAP Views** panel. If needed, close the warning dialog box.
3. Rename the MAP View to **Toronto**.
4. Click **Specify...** in the **Source Coordinate System** frame.
5. Set the coordinate system to **WGS 84** located under **Geodetic > World** and click **OK** to close the **Specify Source Coordinate System** dialog box.
6. The scale for this file is 1: 26175.038531(as the data is in degrees, the scale value is approximated using the common formula 1°= 111.353 metres) so type **26175.038531** in the **Scale** text box.

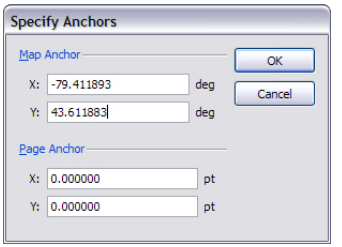



7. Make sure that the dialog box matches the one above and click **OK** to apply the information to the new MAP View.
8. In the **MAP Views** panel option menu, click **Specify Anchors.**

   The *Specify Anchors* dialog box will establish 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. For this example use X = **-79.411893** deg and Y = **43.611883** deg.
10. Set the **Page Anchors** to the value of the same location in document units. For this example use X = **0**, Y = **0**.

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




11. Make sure that the dialog box matches the one above and click **OK** to apply the changes.
12. In the **MAP Views** panel click and drag the **Postalcode Zones** layer into the **Toronto** MAP View.
13. In the **Undefined Layer** dialog box, select **Area** in the **Feature Type** drop-down list and click **OK**.

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

14. Click and drag the **Roads** layer into the **Toronto** MAP View.
15. In the **Undefined Layer** dialog box, select **Line** in the **Feature Type** drop-down list and click **OK**.

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

    *Optional steps*
16. In the Adobe Illustrator Layers panel, select all objects on the **Postalcode Zones** layer (click on the target button beside the layer name).
17. In the **MAP Attributes** panel, and click the **Edit Schema** button at the bottom of the panel.
18. Below the column list, click **Add** to add a new column, rename it **Zone**, set the **Type** to **String**, set the **Size** to **3**, and click **OK.**
19. Select the southernmost polygon of **Postalcode Zones** and in the **MAP Attributes** panel, type **M5J** in the cell under the **Zone** column.

    Proceed in this manner to create attribute structures and enter values for both Adobe Illustrator layers.

    The map files are now fully georeferenced and be exported to other GIS formats if required. The addition of an attribute structure means that it can fully utilize all MAPublisher functions.

20. To validate the georeferencing process, import **fsatoronto.mif** from the *Tutorial Data* folder and add it to the **Toronto** MAP View to see how it registers with the newly created MAP layers.
21. Close the document without saving.

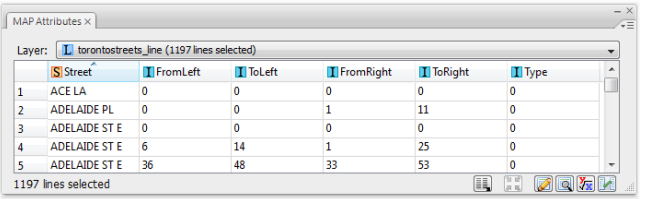
## 2.14 Exporting Data to GIS Formats

1. Create a new Adobe Illustrator document.
2. Use **Simple Import** to import **fsatoronto.mif** and **torontostreets.mif**.
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, select **ESRI Shape** 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 *fsatoronto* layer is exported as an ESRI shapefile with all attributes and georeferencing intact. It is ready to be used in software supporting this format.

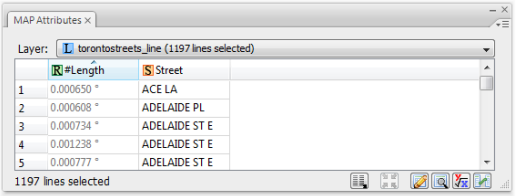
   View the contents of the destination folder. Four new files have been created: *fsatoronto.shp, fsatoronto.shx, fsatoronto.dbf,* and *fsatoronto.prj*. Descriptions of these file extensions can be found in chapter 2 of the MAPublisher 8 User Guide.

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




8. In the column list, select **#Length** and check the **Visible** check box. Keep **Street** visible and select the other visible attribute columns (shown in the **MAP Attributes** panel) and *uncheck* the **Visible** check box for each one.

   Only the *#Length* and *Street* attributes are visible.




9. In the **MAP Views** panel option menu, click **Export "torontostreets_line"...**
10. In the **Export** dialog box, select **MapInfo TAB** from the **Format** drop-down list, click **Settings**, check the option for **Export visible attributes only**, and click **OK**.

    This keeps only the visible attributes (*#Length* and *Street* columns in the attribute table).

11. Click **Browse** and navigate to a location to save the export and click **OK**. The **Dataset** field is populated with the directory path.
12. Click **OK** to export the layer.

    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.

    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.

13. Close the document without saving.

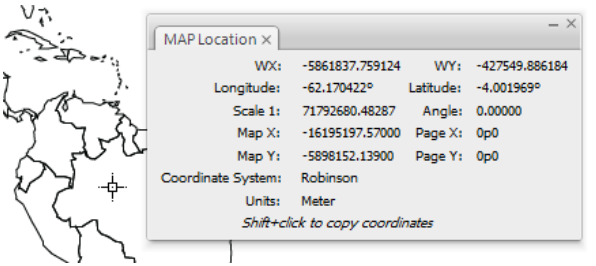
## 2.15 Determining the Coordinates of a Specific Location

1. Create a new Adobe Illustrator document.
2. Import any map file from the *Tutorial Data* folder.
3. In the Adobe Illustrator Tools panel, click the **MAPublisher Location Tool**. 
4. In the **MAP Views** panel, select the imported map layer.
5. Move the mouse cursor (it looks like a crosshair) 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.

6. With the **MAPublisher Location Tool**, determine a location on the map to generate coordinates for. Hold down the **Shift key** and **click** this location.

**NOTE**: Holding the Shift key and clicking on a location copies the coordinates to the Clipboard.




7. 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.

# 3 MAP Attributes

*See User Guide, Chapter 5*

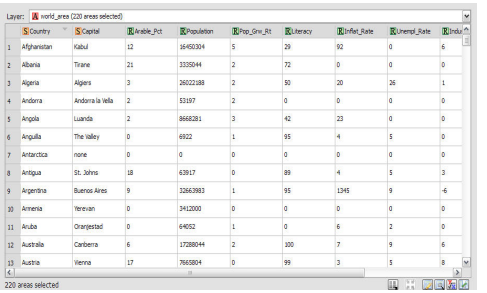
## 3.1 Viewing, Editing and Zooming with MAP Attributes

1. Create a new Adobe Illustrator document.
2. Import **world.mif** from the *Tutorial Data* folder.
3. Select all of the objects on the **world_area** layer if there are none already selected.
4. Open the **MAP Attributes** panel (click *Window* > *MAPublisher* > *MAP Attributes*) or click the **MAP Attributes** button on the MAPublisher toolbar.
5. To edit attribute values, double-click inside a cell and type a new value.

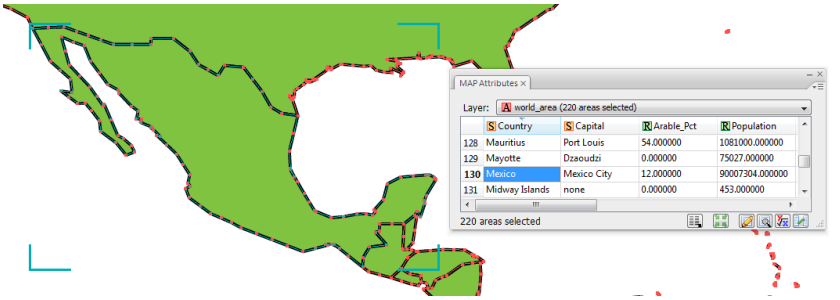
   All attribute values and some property attributes can be edited. MAPublisher creates some attributes which have the hash symbol (#) as a prefix. These attributes are editable (but must be made visible first). However, #Area, #Perimeter, #VertexCount, and #Length are properties of the geometry and cannot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

6. The widths of the columns in the **MAP Attributes** window may be changed by clicking on the column separator and dragging it left or right. Double-click a column separator to set the column width to the column attribute with the greatest amount of characters.
7. Attribute columns may also be sorted in an ascending manner by clicking on the column heading.




New to MAPublisher 8 is the ability to 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.



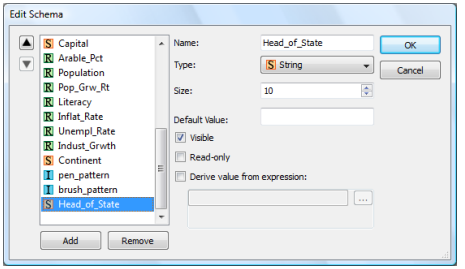
## 3.2 Adding a New Column to a MAP Attribute Table

*Continue working with the previous document.*

1. If necessary, open the **MAP Attributes** panel and select all objects on the **world_area** layer. The panel displays 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 Attribute table on the currently selected layer.
3. Click **Add** to add a new attribute column.
4. In the **Name** text box, type **Head_of_State**.

**NOTE:** Spaces are not accepted for column names. MAPublisher inserts an underscore ( _ ) when a space is typed into a column name.

5. In the **Type** drop-down list, select **String** (this allows the column to contain alphanumeric values).
6. 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.

7. Click **OK** to close the dialog box.

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

8. Leave the document open for the next tutorial.

## 3.3 Changing an Existing Column's Properties

*Continue with the previous document.*

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. Rename it to **Capital_City**, change the size to **30**, and change the **Default Value** to **None**.

   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.

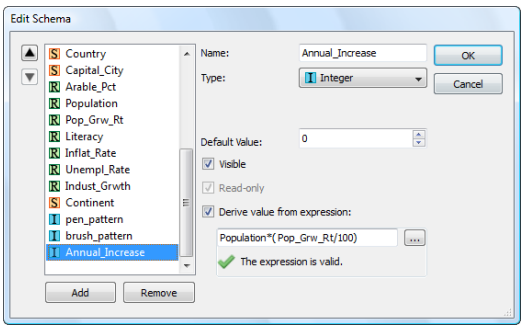
## 3.4 Creating a New Column Using Expressions

*Continue working with the previous document.*

7. If necessary, open the **MAP Attributes** panel and select all objects on the **world_area** layer.
8. Open the **Edit Schema** dialog box.
9. Click **Add** to add a new attribute column called **Annual_Increase** and set the **Type** to **Integer.**
10. Check the **Derive value from expression** check box.
11. Click the browse button (**...**) to open the **Edit Expression** dialog box.
12. Expand the **Expression Components** section at the bottom of the dialog box.

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

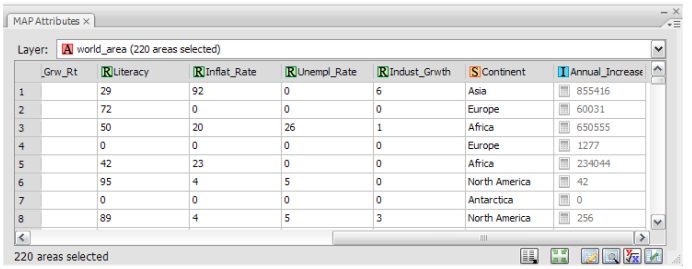
13. Double-click the **Population** column in the **Objects** list, click the ***** symbol button, the **(** symbol button, double-click **Pop_Grw_Rt** column, click the **/** symbol button, then type **100**. Finally, click the **)** symbol button to close the expression builder**.**
14. The final expression 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.

15. Click **OK** to close the **Edit Expression** dialog box, and click **OK** again to close the **Edit Schema** dialog box.

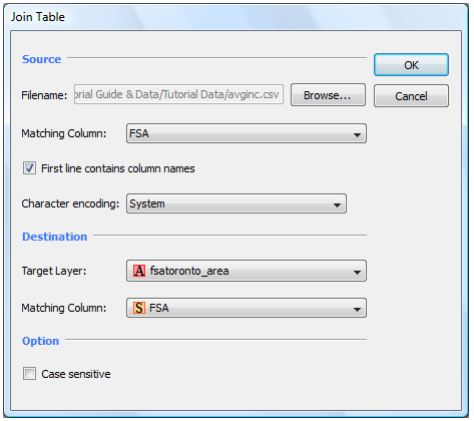
    The *Annual_Increase* attribute column is updated with values calculated from the expression.




16. Close the document without saving.

## 3.5 Joining a Table

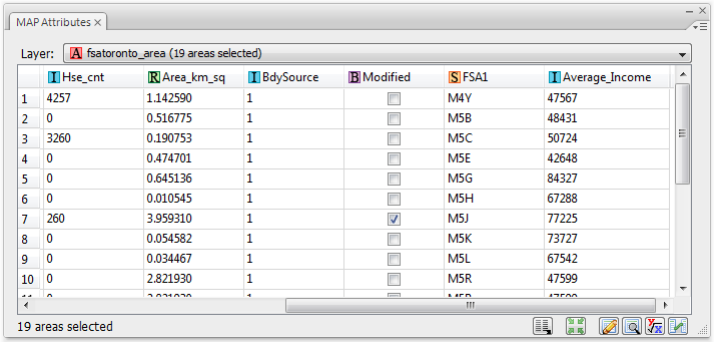
1. Create a new Adobe Illustrator document.
2. Import **fsatoronto.mif** from the *Tutorial Data* folder.
3. Open the **MAP Attributes** panel and click **Join Table** from the panel option menu, or click the **Join Table** button at the bottom of the panel.
4. Click **Browse** beside the **Filename** text box and select **avginc.csv** from the *Tutorial Data* folder.
5. Click the check box to enable **First line contains column names** and select **FSA** from the **Matching Column** drop-down list.
6. Leave the default **Character encoding** as **System**.
7. Since there is only one MAP Layer in the MAP View, the **Destination Target Layer** will default to **fsatoronto_area**. The **Matching Column** drop-down lists attribute columns from the target layer to base the join on. In this case, the matching column is **FSA.**




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

   The imported table is joined with the attribute table of *fsatoronto*.

View the changes in the **MAP Attributes** panel. 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 following *FSA1* contain the joined table records.




| | Hse_cnt | Area_km_sq | BdySource | Modified | FSA1 | Average_Income |
|---|---|---|---|---|---|---|
| 1 | 4257 | 1.142590 | 1 | ☐ | M4Y | 47567 |
| 2 | 0 | 0.516775 | 1 | ☐ | M5B | 48431 |
| 3 | 3260 | 0.190753 | 1 | ☐ | M5C | 50724 |
| 4 | 0 | 0.474701 | 1 | ☐ | M5E | 42648 |
| 5 | 0 | 0.645136 | 1 | ☐ | M5G | 84327 |
| 6 | 0 | 0.010545 | 1 | ☐ | M5H | 67288 |
| 7 | 260 | 3.959310 | 1 | ☑ | M5J | 77225 |
| 8 | 0 | 0.054582 | 1 | ☐ | M5K | 73727 |
| 9 | 0 | 0.034467 | 1 | ☐ | M5L | 67542 |
| 10 | 0 | 2.821930 | 1 | ☐ | M5R | 47599 |

9. Close the document without saving.

# 4 Plotting Points

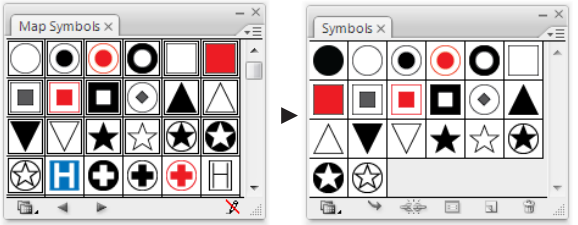
*See User Guide, Chapter 6*

## 4.1 Plotting Points in Decimal Degree and Degrees-Minutes-Seconds Formats

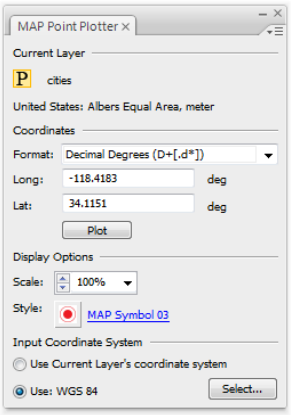
1. Open **usa48.ai** from the *Tutorial Data* folder.

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

2. In the Adobe Illustrator Layers panel, create a new layer named **cities**.
3. In the **MAP Views** panel, click and drag the **cities** layer into the **usa** MAP View.
4. In the **Undefined Layer** dialog box, select **Point** from the **Feature Type** drop-down list.
5. Open the Adobe Illustrator Symbols panel (click *Window* > *Symbols*).
6. 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 ii).
7. Choose a selection of city symbols in the **Map Symbols** panel, and drag them into the Adobe Illustrator **Symbols** panel.




8. In the Adobe Illustrator Layers panel, select the **cities** layer.
9. Open the **MAP Point Plotter** panel (click *Window* > *MAPublisher* > *MAP Point Plotter)* or click the **MAP Point Plotter** button on the MAPublisher toolbar.
10. At the bottom of the panel, set the **Input Coordinate System** to **Use: WGS 84.**
11. Select **Decimal Degrees (D+[.d*])** from the **Format** drop-down list.
12. To plot a point for Los Angeles, type **-118.4183** in the **Long** text box and type **34.1151** in the **Lat** text box.
13. Click the symbol text name to select a symbol style, leave the **Scale** set to **100%**, and click **Plot**.

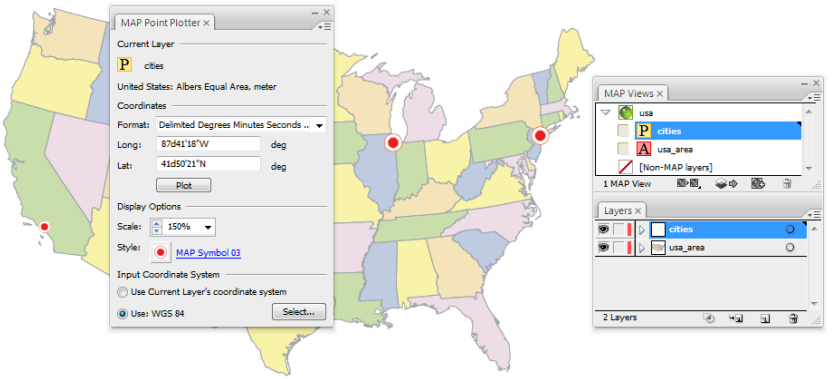


A point is plotted at the location of Los Angeles (34.1151 degrees north, 118.4183 degrees west).

14. Select **Delimited Degrees Minutes Seconds (D+dMM'SS[.s*]")** from the **Format** drop-down list.
15. To plot a point for New York City, type **73d56'39.0"W** in the **Long** text box and **40d41'14.0"N** in the **Lat** text box.
16. 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).

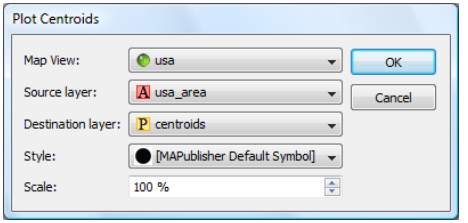
17. Finally, plot a point for Chicago. Type **87d41'18"W** in the **Long** text box and **41d50'21"N** in the **Lat** text box. Alternatively, change the **Format** back to **Decimal Degrees (D+[.d*])**, and type **-87.6883** in the **Long** text box and **41.8392** in the **Lat** text box.




18. Close the document without saving.

## 4.2 Plotting Centroids

1. Open **usa48.ai** from the *Tutorial Data* folder.
2. In the Adobe Illustrator Layers panel, create a new layer named **centroids**.
3. In the **MAP Views** panel, click and drag the **centroids** layer into the **usa** MAP View.
4. In the **Undefined Layer** dialog box, select **Point** from the **Feature Type** drop-down list.
5. Select all of the map data (Adobe Illustrator menu, click *Select* > *All*).
6. Open the **MAP Point Plotter** panel (click *Window* > *MAPublisher* > *MAP Point Plotter)* or click the **MAP Point Plotter** button on the MAPublisher toolbar.
7. In the **MAP Point Plotter** panel option menu, click **Plot Centroids** to open the dialog box.

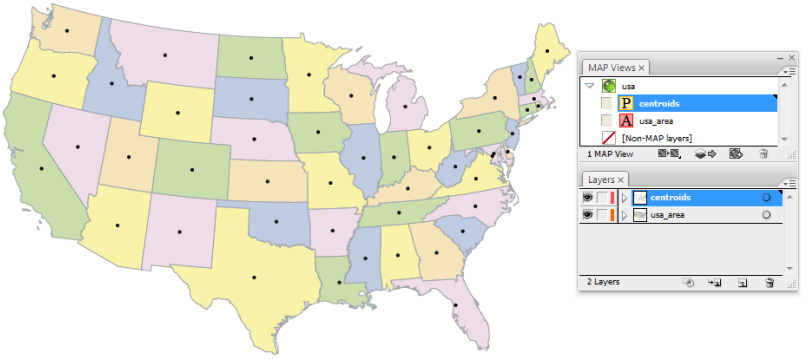



8. Set the **Scale** to **100%**. Leave the other options as the default settings.

**NOTE:** These options may be changed as desired depending on user requirements.

9. Click **OK** to close the Plot Centroids dialog box.

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




*Optional*

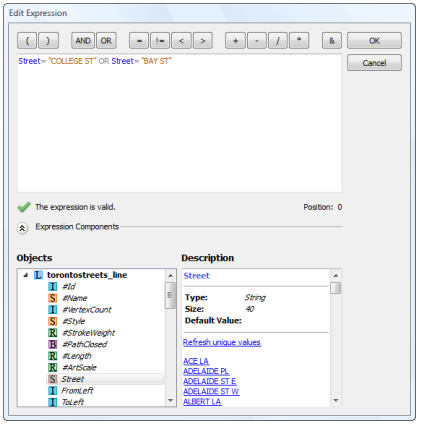
10. To add symbology to the centroids, follow steps 5 to 7 in Tutorial 4.1. The symbols appear in the **Style** drop-down list in the **Plot Centroids** dialog box.
11. Close the document without saving.

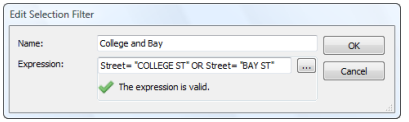
# 5 Drawing with MAPublisher

*See User Guide, Chapter 7*

## Creating 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 2.10).
4. In the Adobe Illustrator Layers panel, create a new layer called **Buildings**.
5. In the **MAPS View** panel, click and drag the **Buildings** layer to the **fsatoronto** MAP View, and specify the **Feature Type** as **Area**.
6. In the Adobe Illustrator Layers panel, select the **torontostreets_line** layer, and create and apply a new **Selection Filter** (Tutorial 10.1) to select College St. and Bay St. Build the expression: **Street = "COLLEGE ST" OR Street = "BAY ST"**




7. Zoom in to the intersection of these streets. A recommended zoom level is 600%.

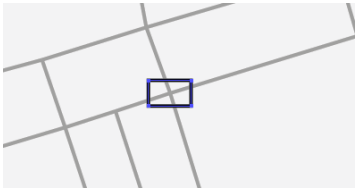
*To construct an imaginary building at precise map dimensions*

8. In the Adobe Illustrator Layers panel, select the **Buildings** layer and click the **MAP Area Tool (box)** button in the Adobe Illustrator Tools panel. 
9. Single-click on one of the corners of the intersection of the two selected streets to open the **Add Area** dialog box.

   Since the **fsatoronto** MAP View is in UTM, the units are displayed in metres in the drop-down list.

10. Type **50** into the **Width** text box, type **30** into the **Height** text box, check the **Center area on click** check box, and click **OK**.

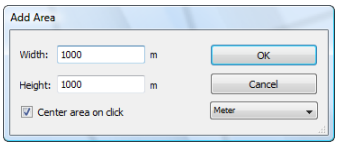
    These parameters create a rectangle 50 x 30 metres. The centre of the polygon locates at the single-click point from the previous step.



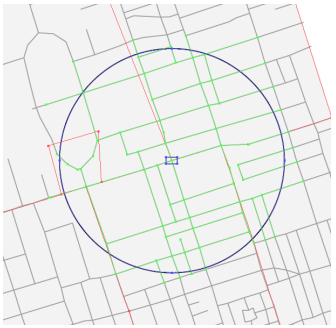
11. Move the building and rotate it as desired using the **Rotate Tool**. Give the building a fill colour.
12. Zoom out to 150%.

    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 metres of the store.

13. Click the **MAP Area Tool (ellipse)** button in the main Adobe Illustrator Tools panel.
14. Single-click in the centre of the building to open the **Add Area** dialog box.
15. Type **1000** for both the **Width** and **Height,** check the **Center area on click** check box, and click **OK**.




A circle is placed which mimics the maximum distance away from the store that the majority of customers live. Notice that the streets which fall inside this circle, whether entirely or in part, are selected.



The company is planning to construct another grocery store in the same area and wishes to determine if a new store (Store B) will take any business away from its original store (Store A). Repeat the tutorial for a store located at the intersection of **Beverley St.** and **Queen St. W.**

16. Close the document without saving.

# 6 Cropping with MAPublisher

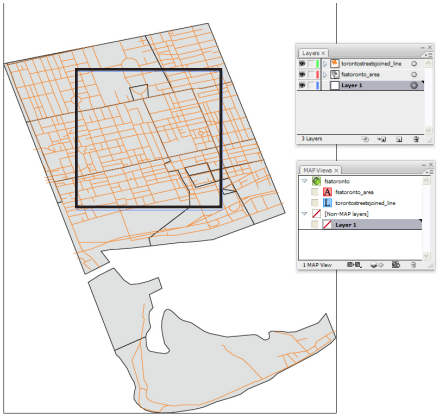
*See User Guide, Chapter 7*

## Cropping MAPublisher Data with MAP Vector Crop

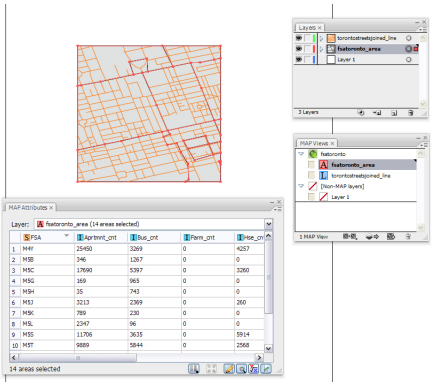
1. Create a new Adobe Illustrator document.
2. Import **torontostreetsjoined.mif** and **fsatoronto.mif** from the *Tutorial Data* folder.
3. Select all data in both layers and open the **MAP Attributes** panel.

   View the table structure and map attribute records and then deselect the data. Close the **MAP Attributes** panel.

4. Click the **Map Vector Crop Tool** from the main Adobe Illustrator Tools panel.
5. With the **MAP Vector Crop Tool** selected, manually click and drag a marquee window that encompass the desired map area coverage.



6. The map is cropped to the area defined in the previous step.



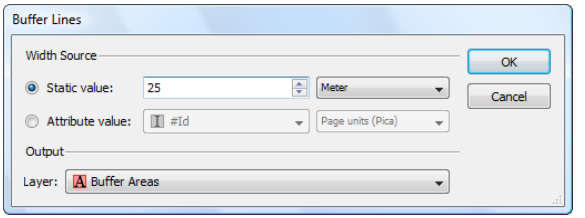
7. Once again select all data in both layers and open the **MAP Attributes** panel. Notice that the attributes have been maintained.
8. Close the document without saving.

# 7 Line Functions

*See User Guide, Chapter 8*

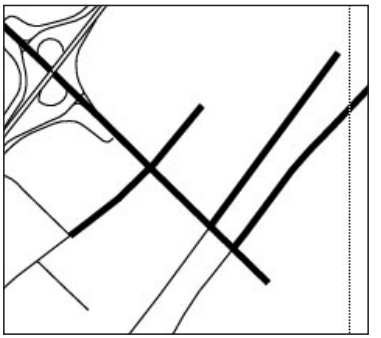
## 7.1 Buffering Lines Using an Entered Value

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. In the Adobe Illustrator Layers panel, create a new layer called **Buffer Areas**.
4. In the **MAP Views** panel, click and drag the new layer into the **burlroads** MAP View, and specify the **Feature Type** as **Area**.
5. Select a few lines to be buffered.
6. In the Adobe Illustrator menu, click *Filter** > *MAP Lines* > *Buffer Lines* to open the **Buffer Lines** dialog box.
7. Click the **Static Value** option if it is not already enabled.
8. In the **Units** drop-down list select **Meter**, and type **25** in the adjacent text box to represent a buffer value of 12.5 metres on either side of the selected road(s).
9. In the **Output Layer** drop-down list, select the **Buffer Areas** layer.




10. Click **OK**.

    The lines that were selected for buffering have been overlaid with new area objects, representing a buffer created around the original lines of the specified width. Buffered lines can be styled like any other object.



11. Close the document without saving.

* In Adobe Illustrator CS4, the Filters menu is located in the Objects menu (Objects > Filters).

## 7.2 Flipping 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 *Feature Text Label* 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. In the Adobe Illustrator Layers panel, select the**torontostreetsjoined_line** layer, and create and apply a new **Selection Filter** (Tutorial 10.1) to select College St. and Dundas St. Build the expression: **Street ="COLLEGE ST" OR Street = "DUNDAS ST W"**.

4. In the Adobe Illustrator menu, click *Filter* > *MAP Lines* > *Flip Lines* to run the **Flip Lines** function.

   The selected lines will have their beginning and end points switched. The orientation of the lines is permanently corrected. Any labels placed along these lines are now oriented correctly.

5. Use **Feature Text Label** or the **MAP Tagger Tool** to label these lines (see Tutorial 9).


   The selected lines are labeled and the text is oriented above the lines (they would be oriented below the lines if the lines were not flipped).

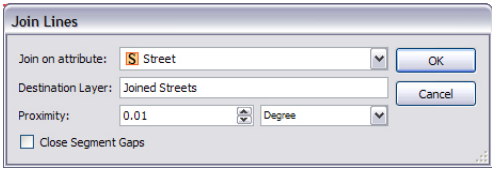
6. Close the document without saving.

## 7.3 Joining 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 and open the **MAP Attributes** panel. Notice there are 1197 line segements in the layer.
4. In the Adobe Illustrator menu, click *Filter* > *MAP Lines* > *Join Lines...* to open the MAPublisher **Join Lines** dialog box.
5. In the **Join on Attribute** drop-down list, select **Street** in order to join the lines by their street name attribute.
6. Type **Joined Streets** in the **Destination Layer** text box. It will be the name of the new layer containing the joined lines.
7. Type **0.01** in the **Proximity** text 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.



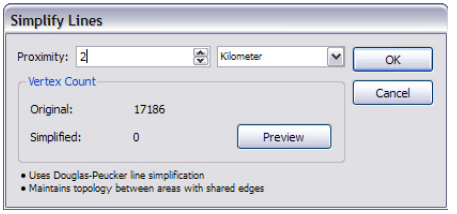

9. Make sure that the dialog box matches the one above and click **OK**.

   A new layer called *Joined Streets* is created and contains 284 line segments. The original map file contains 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 Simplifying Lines

1. Create a new Adobe Illustrator document.
2. Import the **Ukrail.gen** file from the *Tutorial Data* folder.
3. Specify the coordinate system as **British National Grid** (see Tutorial 1.10).
4. In the Adobe Illustrator Layers panel, select all objects in the **ukrail_line** layer and click **Simplify Lines...** (Adobe Illustrator menu, click *Filter* > *MAP Lines* > *Simplify Lines...)*.
5. In the **Units** drop-down list, select **Kilometer**, and type **2** in the **Proximity** text box.
6. Click **Preview** to see a preview of the simplified data with the current settings.




7. Click **OK** to start the simplification process.

   The selected lines are now simplified based on a proximity value of two kilometres and have been simplified from 17,186 vertices to 8,756 vertices or a reduction of about 50%.

8. Close the document without saving.

## 7.5 Joining Points

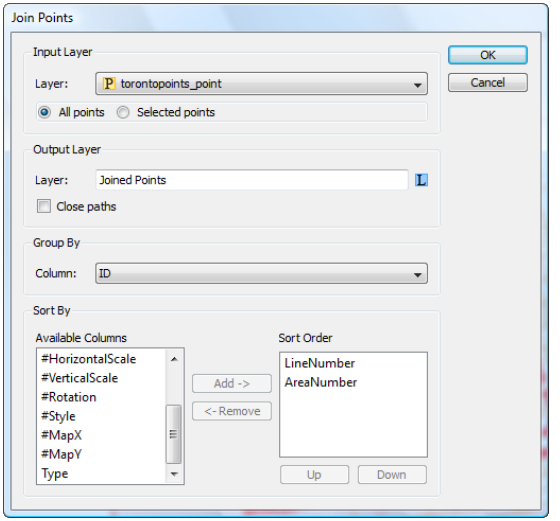
1. Create a new Adobe Illustrator document.
2. Import **torontostreetsjoined.mif** and **torontopoints.mif** from the *Tutorial Data* folder. After import, ensure the **torontopoints_point** layer is at the top of the layers hierarchy in the Adobe Illustrator Layers panel.
3. If necessary deselect all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

   Notice that the **ID** attribute column contains four unique values identifying points that compose: two subway lines, the mainline rail track, and a park boundary. 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 in the Adobe Illustrator menu, click *Filter* > *MAP Lines* > *Join Points...* to open the **Join Points** dialog box.
5. Since only one point layer is in the document and there are no points selected, the **Input Layer** frame defaults to all points in the **torontopoints_point** layer.
6. In the **Output Layer** frame, type **Joined Points** (a new layer will be created with this name) and leave the **Close Paths** check box unchecked.
7. In the **Group By** frame, select **ID** from the **Column** drop-down. This contains the unique attributes that will be used to join similar points together.
8. In the **Sort By** frame, click **AreaNumber** in the column list and click the **Add** button.
9. In the **Sort By** frame, click **LineNumber** in the column list and click the **Add** button.
10. Ensure that **LineNumber** is at the top of the **Sort Order** list box by selecting it and clicking the **Up** button.

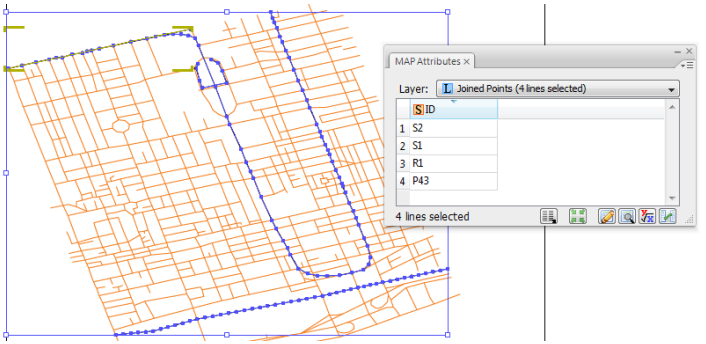
    Having *LineNumber* at the top of the *Sort Order* column makes it the primary sorting column when determining the ordering of points in the chain. The *AreaNumber* column is used as the secondary sorting column, if any points in the primary column contain matching values.

11. Make sure the dialog box matches the one below 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.

12. Select the four lines on the **Joined Points** layer and open the **MAP Attributes** panel.

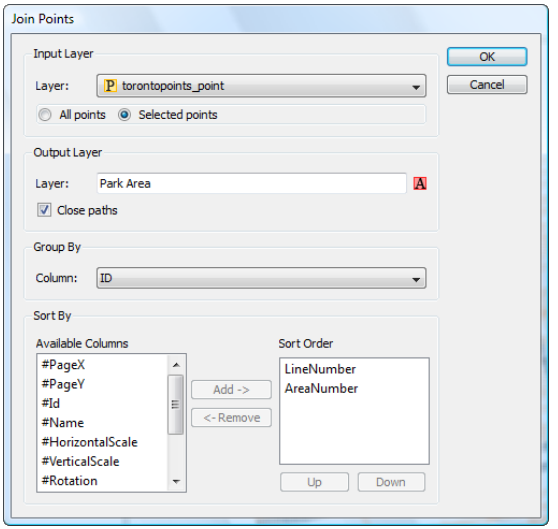



Notice that an attribute column named **ID** is created and contains the values in the **Group By** frame from the **Join Points** dialog box.

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.

13. In the Adobe Illustrator Layers panel, select the **torontopoints_point** layer and use the **MAP Selection Filters** to select all the points with an **ID** equal to **P43** (see Tutorial 10 on Making Selections).

14. With these points selected, open the **Join Points** dialog box.
15. In the **Input Layer** frame, chose the **Selected Points** option.
16. In the **Output Layer** frame, type **Park Area** as the layer name. This time, check the **Close Paths** check box.
17. Add **AreaNumber** and **LineNumber** to the **Sort Order** column list, and make sure **LineNumber** is at the top of the list.
18. Click **OK**.



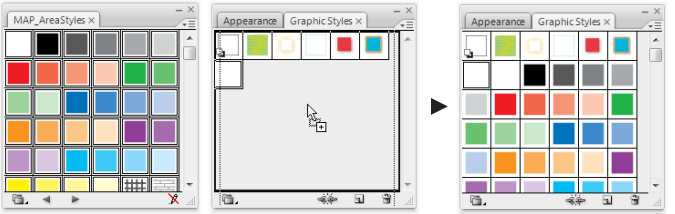

The selected points are joined based on the specified parameters. A new **Park Area** layer is created that contains a polygon that represents the perimeter of a small park.

# 8 Legends and Stylesheets

*See User Guide, Chapter 9*

## 8.1 Creating an Area Stylesheet

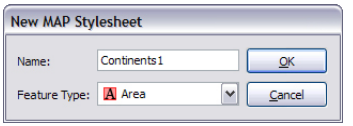
1. Create a new Adobe Illustrator document.
2. Import **world.mif** from the *Tutorial Data* folder.
3. In the Adobe Illustrator menu, click *Window* > *Graphic Styles* to open the **Graphic Styles** panel.
4. In the **Graphic Styles** panel option menu, click *Open Graphics Style Library* > *Other Library...*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




6. In the Adobe Illustrator menu, click *Window* > *MAPublisher* > *MAP Stylesheets* to open the **MAP Stylesheets** panel.

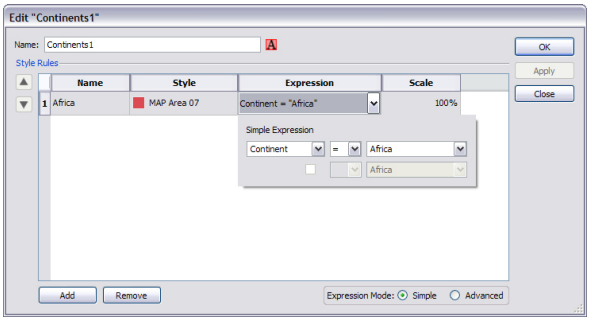
   The **world_area** layer does not belong to any stylesheet, so it is automatically placed into **[No MAP Stylesheet]**.

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

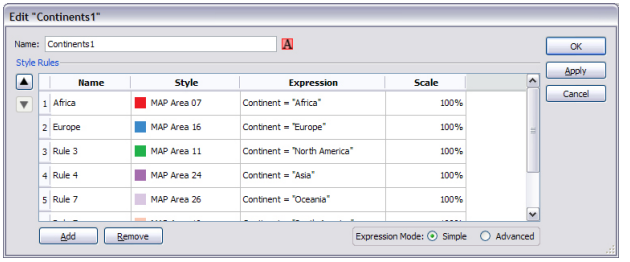



9. In the **MAP Stylesheets** panel, drag the **world_area** layer into the **Continents1** stylesheet.
10. Double-click the **Continents1** stylesheet, or click **Edit "Continents1"** from the panel option menu.
11. In the **Edit "Continents1"** dialog box, click **Add** to add a style rule.
12. Rename the rule 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 on the **Expression** field 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** set to **100%**.
15. Click **Apply** to see the changes made to the map.

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

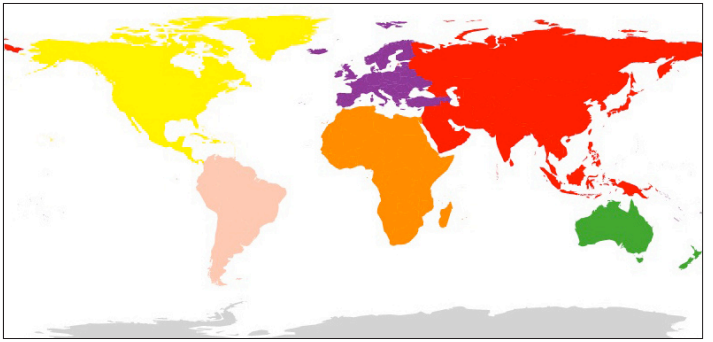



16. Repeat steps 11 to 15 for each of the subsequent continents. Note that the same style cannot be used more than once, as one style equals one legend entry.
17. When all of the continents are assigned a style, click the **Apply** button to see the changes, or click **OK** to close the dialog box.



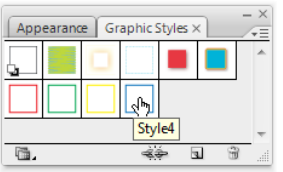

The styles specified have been applied to the map. The styles in the *Graphic Styles* panel are now linked to the attribute values specified by the style rules.

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

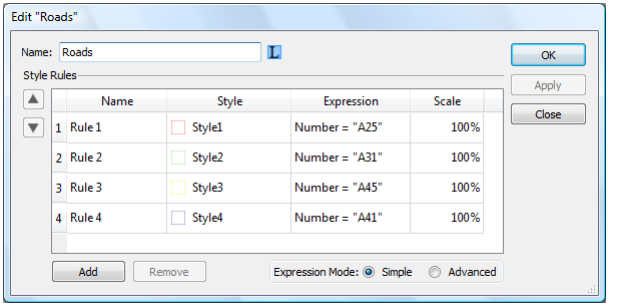


## 8.2 Creating a Line Stylesheet

1. Create a new Adobe Illustrator document.
2. Import **fcstreets.mif** from the *Tutorial Data* folder.
3. Open the Adobe Illustrator **Graphic Styles** panel.
4. 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 colour 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.
5. 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.




6. Open the **MAP Stylesheets** panel and in the panel option menu, click **New MAP Stylesheet...**
7. In the **New Map Stylesheet** dialog box, type **Road** as the name, select **Line** from the **Feature Type** drop-down list, and click **OK.**
8. In the **MAP Stylesheets** panel, click and drag the **fcstreets_line** layer into the **Road** stylesheet.
9. Double-click the **Road** stylesheet and in the **Edit "Road"** dialog box, click the **Add** button.
10. In the first row, use the **Style** drop-down list to choose the **red** style created previously.
11. In the **Expression** column, build the expression **Number = A25**.
12. Change the **Scale** to **200%**.
13. Repeat this process for each of the subsequent road numbers; where **A31** is styled **green**, **A41** is styled **blue**, and **A45** is styled **yellow**. For these three road types, leave each scale at **100%**.




14. When all the rules are defined with a style, click **OK**.

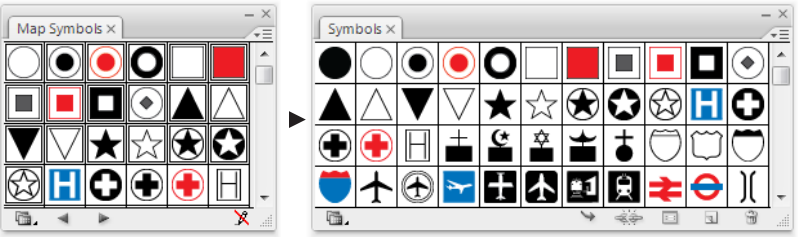
The styles specified are applied to the map. The styles used in the **Graphic Styles** panel are now linked to the attribute values specified by the style rules.

Notice that road A25 (red) has a 4 pt stroke weight. This is due to the scale being set to 200%.

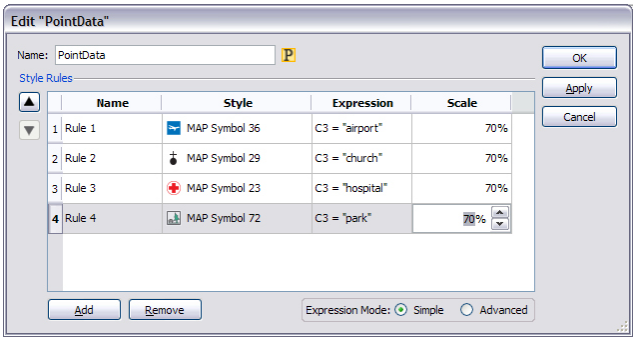
15. Save this document as **MyRoads.ai** in the *Tutorial Data* folder. It will be used again in Tutorial 8.5.

## 8.3 Creating a Point Stylesheet

1. Repeat Tutorial 1.6 (Importing Points).
2. Open the Adobe Illustrator **Symbols** panel (click *Window* > *Symbols*).
3. 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 ii).
4. Shift-select all the symbols in the **MAP Symbols** panel, and drag them into the Adobe Illustrator **Symbols** panel.




5. Open the **MAP Stylesheets** panel and click **New MAP Stylesheet...** in the panel option menu.
6. In the **New Stylesheet** dialog box, type **Point Data** as the name, select **Point** in the **Feature Type** drop-down list, and click **OK.**
7. In the **MAP Stylesheets** panel, drag the **azdeci_point** layer from **[No MAP Stylesheet]** into the **Point Data** stylesheet.
8. Double-click the **Point Data** stylesheet and in the **Edit "Point Data"** dialog box, click the **Add** button.
9. In the first row, use the **Style** drop-down list to choose **MAP Symbol 34** from the symbols loaded previously.
10. In the **Expression** column, build the expression: **C3 = airport**.
11. Change the **Scale** to **70%**
12. Repeat this process for each of these points: **church**, **hospital** and **park**. Choose an appropriate symbols for each.




13. When all the rules are defined with a style, 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.

14. Close the document without saving.

## 8.4 Duplicating Stylesheets

1. Open **MyWorld.ai** (saved at the end of Tutorial 8.1) from the *Tutorial Data* folder.
2. In the **MAP Stylesheets** panel, select the **Continents1** stylesheet, open the panel option menu, and click **Duplicate "Continents1"...**
3. Double-click the **Copy of Continents1** stylesheet.
4. In the **Edit "Copy of Continents1"** dialog box, rename the stylesheet to **Continents2**.
5. Use the **Style** drop-down list for each style rule to change the colours used to represent the continents.
6. 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.

7. In the **MAP Stylesheets** panel, click and drag **world_area** from the **Continents1** stylesheet into the **Continents2** stylesheet.

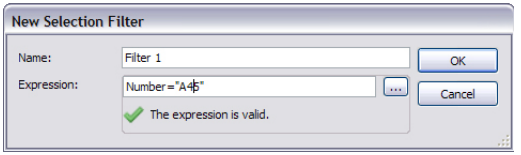
   The new styles assigned in this stylesheets are applied to the map accordingly. Now drag the *world_area* layer back to *Continents1* to restore the map to its previous style scheme. Having multiple stylesheets defined allows a user to easily create multiple colour schemes for the same map.

8. Close the document without saving.

## 8.5 Editing 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 *Window* > *MAPublisher* > *MAP Selection Filters* to open the **MAP Selection Filters** panel (see Tutorial 10).

3. In the **MAP Selection Filters** 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 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 corresponds with this selection.

5. With the line selected, open the Adobe Illustrator **Graphic Styles** panel, and assign the **blue** line style.
6. Open the **MAP Attributes** window, 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 attributes of the selected line from *A45* to *A41*.

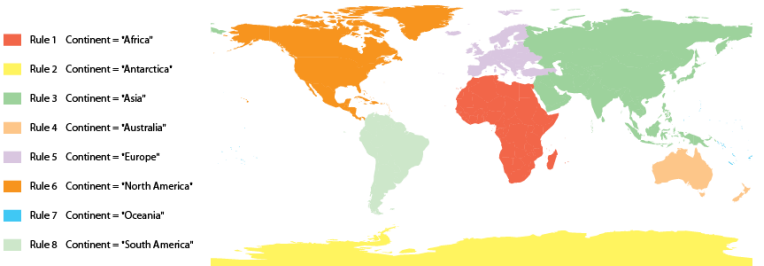
7. Close the document without saving.

## 8.6 Creating 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 layer **Legend** into the **world** MAP View and set the **Feature Type** to **Legend**.
4. Select the Adobe Illustrator **Type Tool**, choose a font, and set the size to **10 pt**.
5. In the **MAP Stylesheets** panel, highlight the **Continents1** stylesheet, open the panel option menu, and click **Create MAP Stylesheet Legend**. In the target layer window, choose **Legend**, and click **OK.**

The legend is created and positioned in the SW corner using the type face chosen at 10 pts.

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

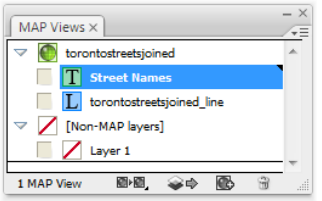


# 9 Labeling Functions

*See User Guide, Chapter 10*

## 9.1 Generating Labels for a Line Layer Using Feature Text Label

1. Create a new Adobe Illustrator document.
2. Import **torontostreetsjoined.mif** from the *Tutorial Data* folder.
3. Create a new layer called **Street Names** in the Adobe Illustrator Layers panel**.**
4. In the **MAP Views** panel, click and drag the **Street Names** layer into the **torontostreetsjoined** MAP View and set the **Feature Type** to **Text**.




5. Select a font and text size for the labels.
6. Select features from **torontostreetsjoined_line** to be labeled. In this example, simply select one or more of the streets that were just imported.
7. In the Adobe Illustrator menu, click *Filter** > *MAP Legend* > *Feature Text Label* to open the **Feature Text Label** dialog box or click the **Feature Text Label** button on the MAPublisher toolbar.
8. 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.

9. In the **Label Settings** area, click the **Line Labels** button on the left to assign MAPublisher line label settings, if it is not already enabled.

   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.

10. Set the **Label Type** option to **Follow Line, create text on a path**.
11. Set the **Distance from Start** option to **Auto**.
12. Check the **Reverse right-to-left paths (flip upside-down text)** check box (should be enabled by default).
13. Leave the **Line Smoothing** check box unchecked
14. Set the **Label Position** option to **Descender.**

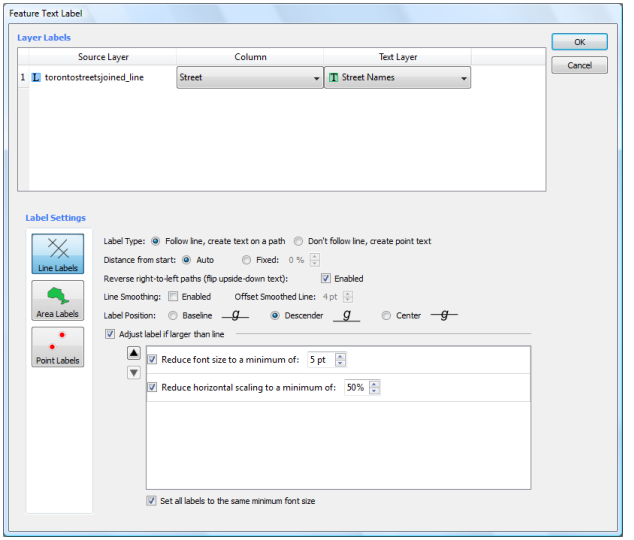
    Labels can be modified if they exceed the length of the line with the current default font size.

15. 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.

* In Adobe Illustrator CS4, the Filters menu is located in the Objects menu (Objects > Filters).

16. 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.**
17. 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.
18. 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 5 pt).




19. Click **OK** and the labels appear for the selected map features.
20. Close the document without saving.

## 9.2 Generating 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. Create a new layer called **Zone Names** in the Adobe Illustrator Layers panel**.**
4. In the **MAP Views** panel, click and drag **Zone Names** into the **fsatoronto** MAP View, and set the **Feature Type** to **Text.**
5. Select a font and text size 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 *Feature Text Label* in the previous tutorial, the options must first be set in the *Label Settings* dialog box before MAPublisher is able to determine the attributes that will be converted to labels. The *Source Layer* list shows the line, area, point and/or text layers currently containing selected data.

7. In the **Label Settings** dialog box, set the **Column** drop-down list to **FSA**. This column contains the name of every postal code zone in the selected MAP Layer.
8. Now set the **Text Layer** drop-down list to the **Zone Names** layer.
9. Click **OK**.
10. With the **MAP Tagger Tool** button, click on any feature to label it.

**NOTE:** To create leader lines for tagged data click and drag while holding down the *Shift* key.

**NOTE:** To reopen the *Label Settings* dialog box, double-click the MAP Tagger Tool button.


11. Close the document without saving.

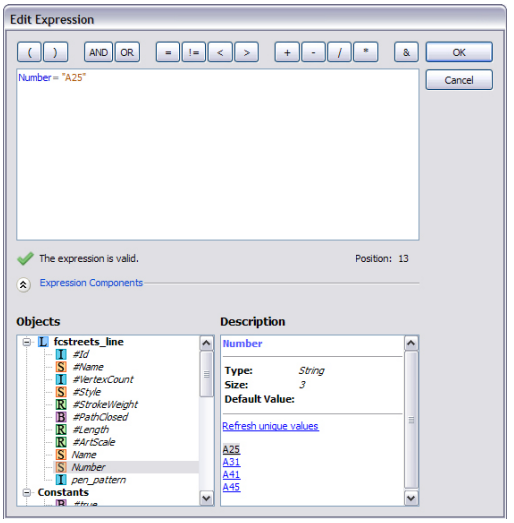
# 10 Making Selections

*See User Guide, Chapter 11*

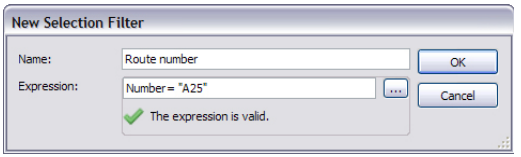
## 10.1 Making a Selection with MAP Selection Filters

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 in the Adobe Illustrator menu, click *Window > MAPublisher > MAP Selection Filters* to open the **MAP Selection Filters** panel or click the **MAP Selection Filters** button on the MAPublisher toolbar.
4. Click the **Create New Selection Filter** button at the bottom of the panel or select the same option from the panel option menu.
5. Enter **Route number** in the **Name** text box.
6. Click the **(. . .)** browse button to open the **Edit Expression** dialog box.
7. Click on the arrow button to expand the **Expression Component**s.
8. In the **Objects** box, double-click **Number** under the heading **fcstreets_line** so that it is entered into the expression entry box. 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.




9. Click **OK** to close the Edit Expression dialog box.



10. Click **OK** once more to close the New Selection Filter dialog box.

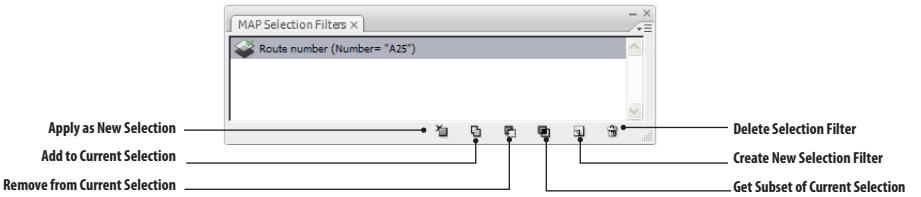
    Lines corresponding to the selection rule are selected.

11. Leave the document open for the next tutorial.

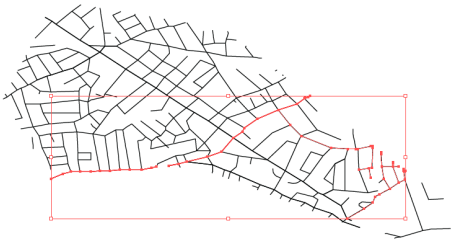
## 10.2 Using Add to Current Selection to Add to an Existing Selection

*Continue working with the previous tutorial.*

1. Use the **Selection Tool** to select some of the road data.
2. Ensure the **fcstreets_line** layer is selected and open the **MAP Selection Filters** panel.
3. Select the previously created filter **Route number** from the list in the panel (selected by default if it is the only one).
4. Now click the **Add to Current Selection** button at the bottom of the panel.




The features that match the expression are added to the selection.

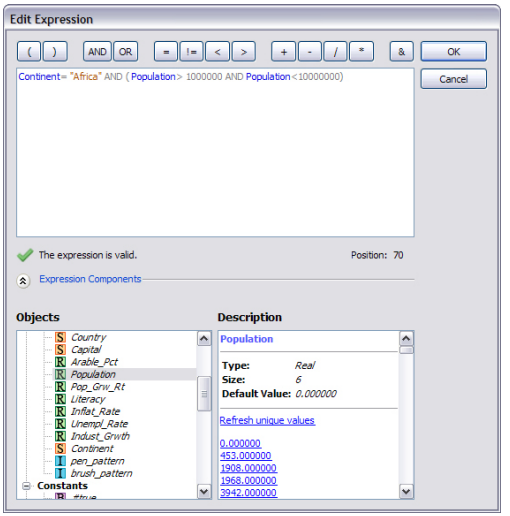


5. Use the **Remove from Selection** and **Get Subset of Current Selection** buttons to experiment with other selection types.
6. Close the document without saving.

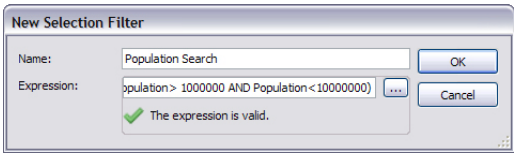
## 10.3 Using Selection Filters for Advanced Selections

*MAP Selection Filters* can also be used to generate selections based on a number of attribute columns and criteria.

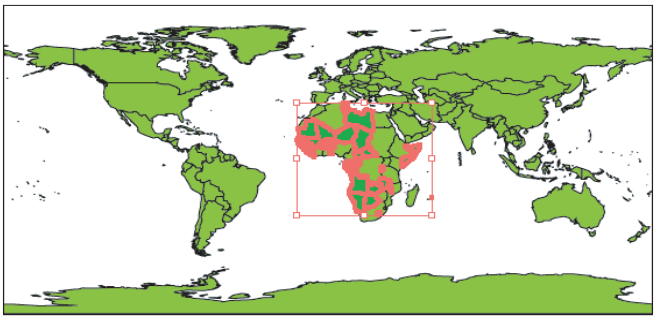
1. Create a new Adobe Illustrator document.
2. Import **world.mif** from the *Tutorial Data* folder.
3. Make sure the **world_area** layer is selected and open the **MAP Selection Filters** panel.
4. Click the **Create New Selection Filter** button at the bottom of the panel.
5. Enter **Population search** in the **Name** text box.
6. Click the **(. . .)** browse button to open the **Edit Expression** dialog box.
7. In the **Expression Components** section, double-click the **Continent** column in the **Objects** list to enter it into the expression entry box.
8. Continue building the expression. Click the = symbol button and select "**Africa**" from the unique values list. Click the **AND** button, click the **(** symbol button, in the **Options** list double-click the **Population** column, click the **>** symbol button, type **1000000**, click the **AND** button, in the **Options** list double-click the **Population** column, click the **<** symbol button, type **10000000**, and finally click the **)** symbol button to close the expression. The final expression should match the following: **Continent = "Africa" AND (Population > 1000000 AND Population < 10000000)**




9. Click **OK** to close the **Edit Expression** dialog box**.**




10. Click **OK** to close the **New Selection Filter** dialog box to launch the selection.



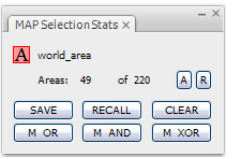
**NOTE:** When a selection filter in MAPublisher 8 contains an expression that is valid for the active map layer, a green checkmark icon is displayed to the left of the expression in the *MAP Selection Filters* panel. If the expression is not valid for that particular map layer, a red exclamation mark is displayed.

11. Leave the document open for the next tutorial.

## 10.4 Making Selections with MAP Selection Stats

*Continue working with the previous document.*

1. Make sure a MAP Layer is selected in the Adobe Illustrator Layers panel, and select a few features on the map.
2. In the Adobe Illustrator menu, click *Window* > *MAPublisher* > *MAP Selection Stats* to open the **MAP Selection Stats** panel or click the **MAP Selection Stats** button on the MAPublisher toolbar.




The total number of features and the number of features that are selected are displayed in the panel.

**NOTE:** This tool only functions on MAP Layers.

3. Click the **R** button.

   The selections made in step 1 are reversed.

4. Click the **SAVE** button, deselect all features, then click **RECALL**.

   All the features that were selected in step 3 are reselected.

5. Deselect all features, make another random selection of features, and click **M OR**.

   The selected set of features now consists of both the saved features and the features just selected.

6. Deselect all features, make another random selection of features, and click **M AND**.

   The selected set of features now consists of the features that are common to the saved selection set and the selection just made.

7. Deselect all features, make another random selection of features, and click **M XOR**.

   The selected set of features now consists of the features that are not common to the saved selection set and the selection just made.

8. Click **CLEAR** to clear the saved selections.
9. Close the document without saving.

# 11 Working with Images

*See User Guide, Chapter 12*

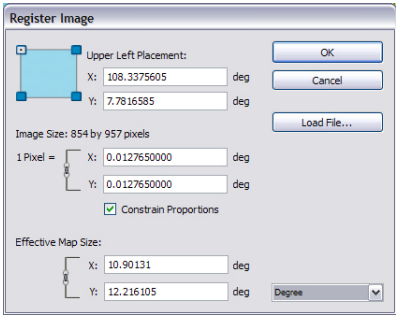
## 11.1 Registering an Image with a Reference File

1. Create a new Adobe Illustrator document.
2. Import **southchinasea.shp** from the *Tutorial Data* folder.
3. Make sure the **southchinasea_area** layer is selected in the Adobe Illustrator Layers panel.
4. In the Adobe Illustrator menu, click *File* > *Place*, navigate to the *Tutorial Data* folder, select the sample raster image file **borneo.tif,** and click the **Place** button.

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

5. With the image selected, click the Adobe Illustrator menu *Filter* > *MAP Images* > *Register Image* to open the **Register Image** dialog box or click the **Register Image** button on the MAPublisher toolbar.
6. 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 text boxes in the dialog box are updated to reflect the data contained in the reference info file.



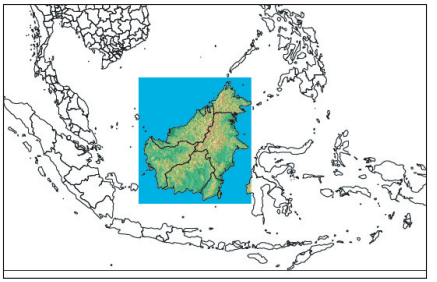

7. Click **OK**.

   The image is registered to the selected layer.

* In Adobe Illustrator CS4, the Filters menu is located in the Objects menu (Objects > Filters).

8. Select the raster image, right-click, select *Arrange* > *Send to Back*.
   This moves the raster image below the **southeastchina** data.

9. Leave the document open for the next tutorial.



## 11.2 Registering an Image without a Reference File

*Continue working with the previous document.*

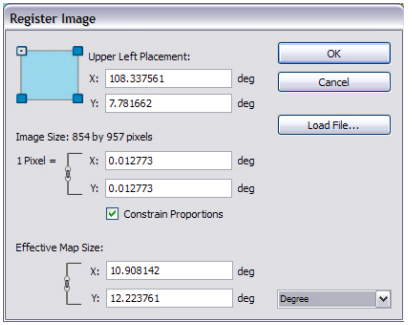
1. Select and delete the existing registered Borneo image from the document.
2. Select the **southchinasea_area** MAP layer in the Adobe Illustrator Layers panel.
3. In the Adobe Illustrator menu, click *File* > *Place*, navigate to the *Tutorial Data* folder, select the sample raster image file, **borneo.tif**,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

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

4. With the image selected, open the **Register Image** dialog box.

   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**).

5. Click the **Upper Left Placement** (blue diagram) and type the following values into the Upper Left Placement X and Y text boxes: **X=108.337561**, **Y=7.781662**
6. Make sure that **Constrain Proportions** option is checked and type pixel size X equal to **0.012773**.



7. 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 an image.

8. Leave the document open for the next tutorial.

## 11.3 Exporting a Placed Image as a Georeferenced Raster File

*Continue working with the previous document.*

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

   Select RGB or CMYK depending on the colour mode required for the exported raster image. For this example, use CMYK.

2. Select the registered image if it is not already selected. In the Adobe Illustrator menu, click *Filter* > *MAP Images* > *Export Image* to open the **Export Image** dialog box or click the **Export Image** button on the MAPublisher toolbar.
3. In the **Store Geography As:** drop-down list, select **GeoTIFF** to set the georeferencing output format.


4. Click **Save as** to browse to a location to save the export image.
5. Type a name 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.

6. Close the document without saving.

# 12 Grids, Graticules and Indexes

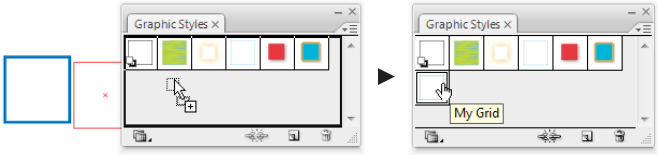
*See User Guide, Chapter 13*

## 12.1 Creating an Index Grid

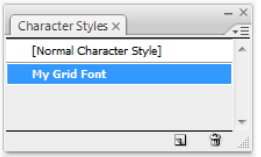
1. Create a new Adobe Illustrator document.
2. Import **world.mif** from the *Tutorial Data* folder.
3. In the Adobe Illustrator Layers panel, create a new layer called **Grid**.
4. In the **MAP Views** panel, click and drag the **Grid** layer into the **world** MAP View, and specify the **Feature Type** as **Legend**.

   To define the visual parameters for a grid, a style should first be created before it can be applied.

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




7. In the Adobe Illustrator menu, click *Window* > *Type* > *Character Styles* to open the **Character Styles** panel.
8. Create a new character style setting the font family, font style, size and character colour and name it **My Grid Font** (see the Adobe Illustrator Users Guide to learn more about Character Styles).




9. In the Adobe Illustrator Layers panel, select the **Grid** layer.

   The grid must be placed on a visible and unlocked MAP layer.

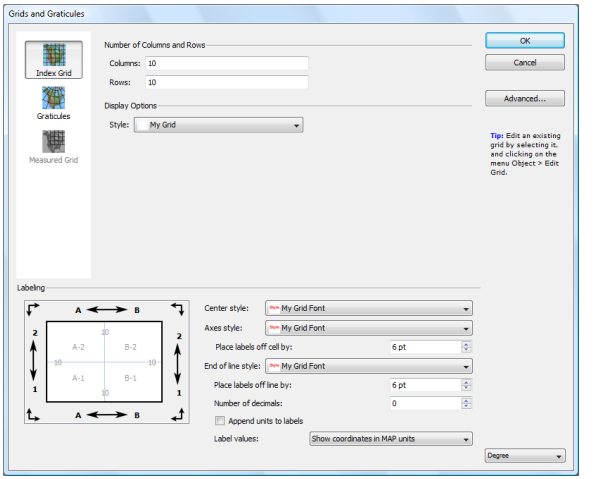
10. In the Adobe Illustrator menu, click *Filter** > *MAP Legend* > *Grid & Graticules* to open the MAPublisher **Grids and Graticules** dialog box or click the **Grid and Graticules** button on the MAPublisher toolbar.
11. In the **Grids and Graticules** dialog box, click the **Index Grid** button to show its options. Leave the **Number of Columns/Rows** as the default of **10**.
12. Under **Display Options**, select **My Grid** from the **Style** drop-down list to set the style of grid.
13. In the **Labeling** frame, select the **My Grid Font** character style for each of the **Center**, **Axes** and **End of Line** style drop-down lists.

    Notice that when the mouse hovers over each style the Labeling box highlights the corresponding item.

* In Adobe Illustrator CS4, the Filters menu is located in the Objects menu (Objects > Filters).

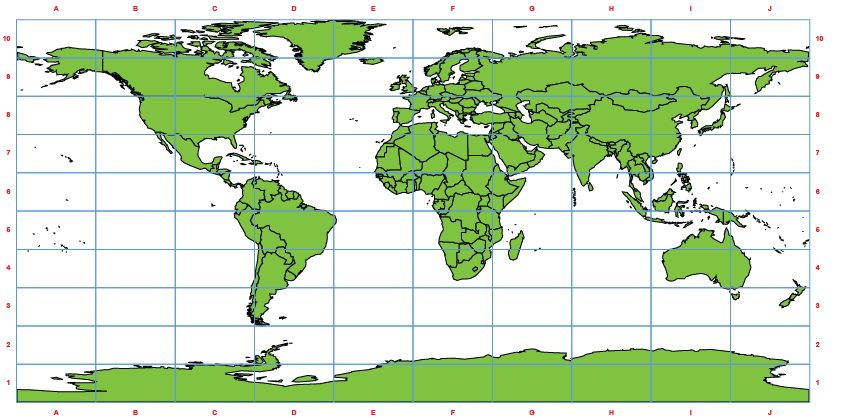
14. Leave both **Place labels off cell by** and **Place label off line by** as the default of **6 pt**.
15. In the label diagram, click "A ⟷ B" or "1 ⟷ 2" to enable the labels for the corresponding side of the grid.

    Click on the letter or number to enable or disable the display of labels on the grid. Click the bidirectional arrow to reverse the order of the labels.




16. Make sure the dialog box matches above and click **OK** to process the index grid.

    An index grid is placed on the map. Each cell carries an alphanumeric identifier. To edit an existing grid, go to *Object* > *Edit Index Grid* to change the configuration settings or type of grid.




17. Save the document as **MyGrid.ai**. It will be used in Tutorial 12.4 *Creating an Index: Featured Based.*

## 12.2 Creating a Graticule

1. Create a new Adobe Illustrator document in landscape orientation.
2. Import **world.mif** from the *Tutorial Data* folder.
3. In the Adobe Illustrator Layers panel, create a new layer called **Graticule**.
4. In the **MAP Views** panel, click and drag the **Graticule** layer into the **world_area** MAP View, and specify the **Feature Type** as **Legend**.
5. Draw a rectangle with **no fill** and a **blue** stroke of **1 pt**.
6. Click and drag the rectangle into the **Graphic Styles** panel and rename it **My Grid.**
7. In the Adobe Illustrator Layers panel, select the **Graticule** layer and open the **Grid and Graticules** dialog box.
8. Click the **Graticules** button to show its options.

   Graticules can be plotted to intersect at specific lines of latitude and longitude.

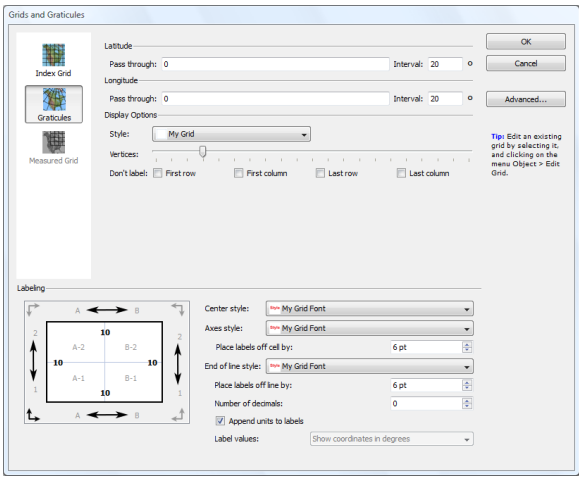
9. Under **Latitude**, type **0** in the **Pass through** text box and type **20** in the **Interval** text box.
10. Under **Longitude**, type **0** in the **Pass through** text box and type **20** in the **Interval** text box.

    Pass through values of zero will create a graticule that passes through the Prime Meridian and the Equator. The graticule will have lines at intervals of 20 degrees.

11. Under **Display Options**, set the style to **My Grid**.

    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.

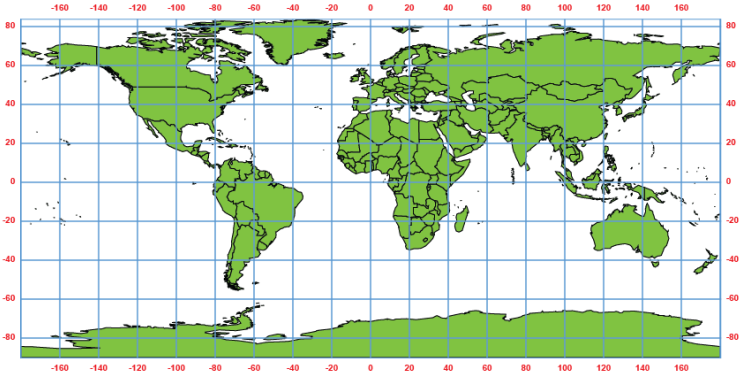
    The *Don't Label* option is used in situations where the projection is creating a curved graticule that may have a section in one of the corners that do not need to be labelled. For example, when there is no data in the graticule or when there is only a small portion of the graticule showing and it does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



12. In the **Labeling** frame, enable the four end of line labels options. For this tutorial, label just the grid lines. In the Labeling diagram box, click all four numerical options located at the end of each grid line (**10**). When selected the number turns bold. Hover over each toggle to see its description.

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

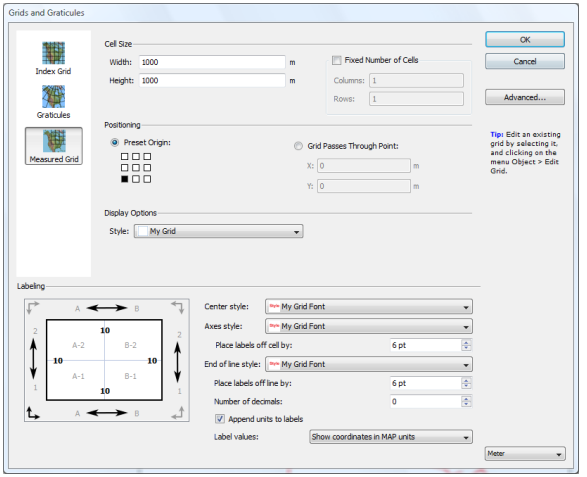
    A graticule is placed on the map based on the specifications made. To edit an existing graticule, go to *Object* > *Edit Graticules* to change the configuration settings.




14. Close the file without saving

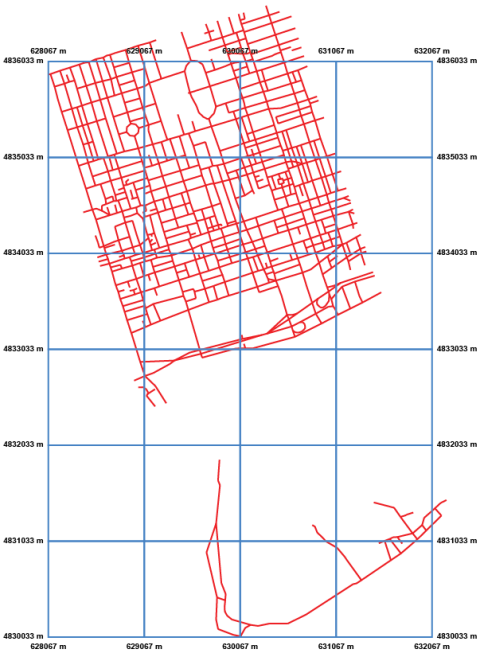
## 12.3 Creating a Measured (UTM) Grid

1. Create a new Adobe Illustrator document.
2. Import **torontostreets.mif** from the *Tutorial Data* folder.
3. Perform a coordinate system transformation to **NAD83 / UTM zone 17N**, located in **Projected > UTM > NAD83** (see MAPublisher User Guide, Chapter 4 or Tutorial 2.10).
4. In the Adobe Illustrator Layers panel, create a new layer called **Grid**.
5. In the **MAP Views** panel, click and drag the **Grid** layer into the **world** MAP View, and specify the **Feature type** as **Legend.**
6. Create a **My Grid** graphic style and a **My Grid Font** character style, as was done in tutorial 12.1.
7. Select the **Grid** layer and Open the **Grid and Graticules** dialog box.
8. Click the **Measured Grid** button to show its options.
9. Set the **Cell Size** as **1000** (metres) for both the width and height.
10. Leave the **Positioning** options as default.
11. Under **Display Options**, set the style to **My Grid**.
12. Check the **Append units to labels** check box to show the units in the map document (metres).
13. In the **Labeling** frame, select the **My Grid Font** character style for each of the **Center**, **Axes** and **End of Line** style drop-down lists
14. In the **Labeling** diagram box, click all four numerical options located at the end of each grid line (**10**). When selected the number turns bold.
15. Leave **Place labels off cell by** and **Place label off line by** the default of 6 pt.




16. Click **OK** to process 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.



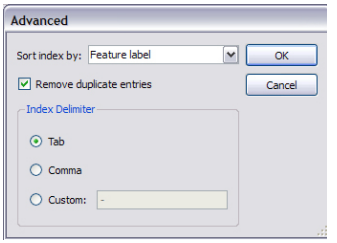
## 12.4 Creating an Index: Feature Based

1. Open **MyGrid.ai** (saved from Tutorial 12.1).
2. In the Adobe Illustrator Layers panel, create a new layer called **Text**.
3. In the **Map Views** panel, click and drag the **Text** layer into the **world** MAP View, and specify the **Feature Type** as **Text**.
4. Apply country labels to several or all of the countries using **Feature Text Label** or the **MAP Tagger Tool**.
5. Select the **Grid** layer and then select the grid in the map document**.**
6. In the Adobe Illustrator menu, click *Filter *> MAP Legend > Make Index* to open the **Make Index** dialog box.
7. Choose the **Make index based on label and matching feature position** option.
8. In the **Label Layer** drop-down list, select **Text**.
9. In the **Feature layer** drop-down list, **world_area** (the layer that was labeled).
10. In the **Label text matches attributes** drop-down list, select **country (**the attribute column containing the text labels derived from the labeling operation).

    Indexing by Feature generates an index entry for every legend cell that the labeled map object occurs in.


11. If desired, click the **Advanced...** button to enable the **Remove duplicate entries** check box.

    The *Remove duplicate entries* feature checks for instances where two labels appear in the same grid cell and subsequently index only unique text items.




12. **Sort Index** by **Feature Label**, in the **Index Delimiter** frame select the **Tab** option, and click **OK**.

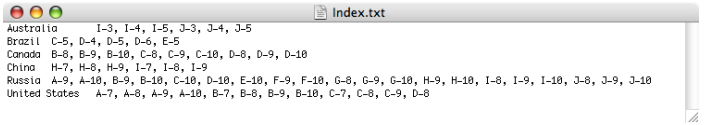
    The grid cell locator and feature name in the index file is separated by a single tab. The index is sorted alphabetically by feature label.

* In Adobe Illustrator CS4, the Filters menu is located in the Objects menu (Objects > Filters).

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

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

15. The index may be inserted into the map document by creating an Adobe Illustrator text box and using the *Place* command *(File > Place)*.




16. Leave the document open for the next tutorial.

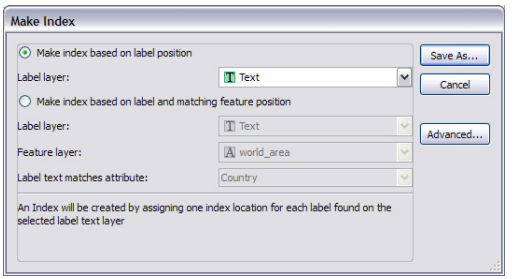
## 12.5 Creating an Index: Text Based

*Continue working with the previous document.*

1. In the Adobe Illustrator menu, click *Filter > MAP Legend > Make Index* to open the **Make Index** dialog box.
2. Click the **Make index based on label position** radio button.

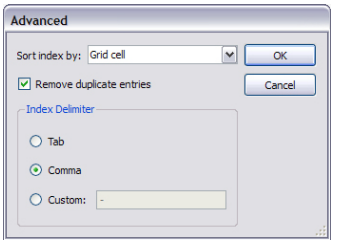
Indexing by label position generates an index containing only grid cells that contain a text label within it.

**NOTE**: Text labels are indexed accodring to the text object's anchor.




3. If desired, click the **Advanced...** button to enable the **Remove duplicate entries** check box.
4. **Sort index** by **Grid Cell**. In the **Index Delimiter** frame, select **Comma**, and click **OK**.

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




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

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

   The index may be inserted into the map document by creating an Adobe Illustrator text box and using the *Place* command *(File > Place)*.

7. Close the document without saving.

# 13 Scale Bars and North Arrows

*See User Guide, Chapter 14*

## 13.1 Creating a Scale Bar

1. Open **usa48.ai** from the *Tutorial Data* folder.
2. Create a new Adobe Illustrator layer and rename it **Scale Bar**.
3. In the **MAP Views** panel, click and drag the **Scale Bar** layer to the **usa** MAP View, and specify the **Feature Type** as **Legend**.
4. In the Adobe Illustrator **Character** panel, choose a desired font and **8 pt** font size.
5. In the Adobe Illustrator menu, click *Filter** > *MAP Legend* > *Scale Bar* to open the MAPublisher **Scale Bar** dialog box or click the **Scale Bar** button on the MAPublisher toolbar.
6. In the **Scale Bar** dialog box, navigate with the **Previous** and **Next** buttons to choose a desired scale bar.
7. For the **Units** drop-down list, select **Kilometer**.
8. In the **Interval** text box, type **250**.
9. Click the arrow button to expand the **Advanced** options.
10. In the **Number of labeled intervals** text box, type **4**.

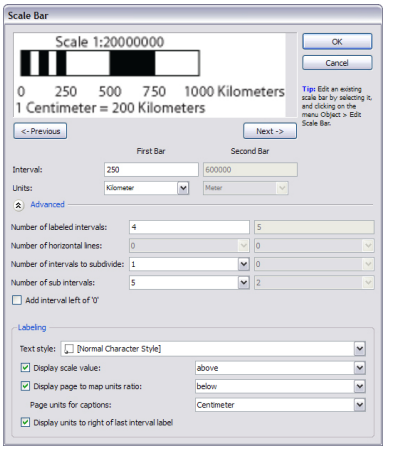
    Depending on the scale bar chosen, select the *Number of horizontal lines* to use in the plotted scale bar. These settings create a scale bar that equates centimetres on the page to kilometres on the map.

11. 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.

12. In the **Labeling** options frame, check the **Display Scale** check box and select **above** from the drop-down list.
13. Check the **Display page to map units ratio** check box and select **below** (depending on the scale bar chosen, this option may not be enabled).
14. Set the **Page Units for captions** drop-down list to **Centimeter**.
15. Check the **Display units to right of last interval label** check box.

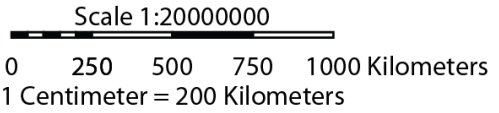
    Use the preview to see how these settings affect the look of the scale bar.




* In Adobe Illustrator CS4, the Filters menu is located in the Objects menu (Objects > Filters).

16. 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.



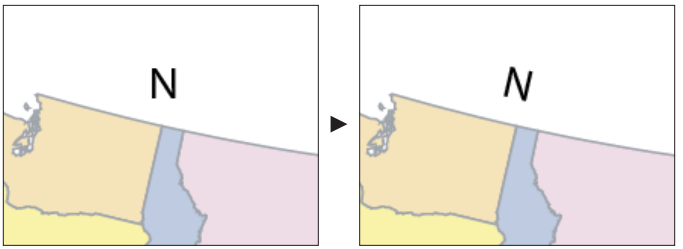

17. Leave the document open for the next tutorial.

**NOTE:** The scale bar maybe be changed through the Adobe Illustrator menu *Object* > *Edit Scale Bar...* When the MAP view is rescaled, the scale bar is updated automatically. At the end of the cartographic process, the scale bar can be expanded to be edited as a regular Adobe Illustrator artwork (doing so breaks the link to the MAP View scale value).

## 13.2 Creating a North Arrow

*Continue working with the previous document.*

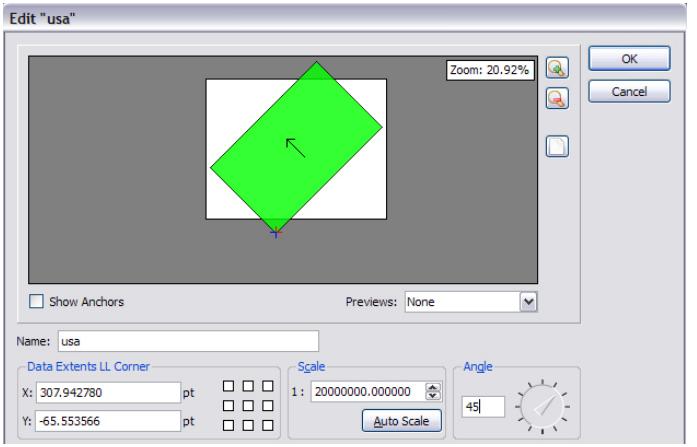
1. Create a new Adobe Illustrator layer and rename it **North Arrow**.
2. In the **MAP Views** panel, drag the **North Arrow** layer into the **usa** MAP View, and specify the **Feature Type** as **Legend**.
3. Make sure the **North Arrow** layer is active and use the Adobe Illustrator Type tool to create the letter **N**.
4. Select the letter N and click the menu *Filter* > *MAP Legend* > *Create North Arrow* or 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*.

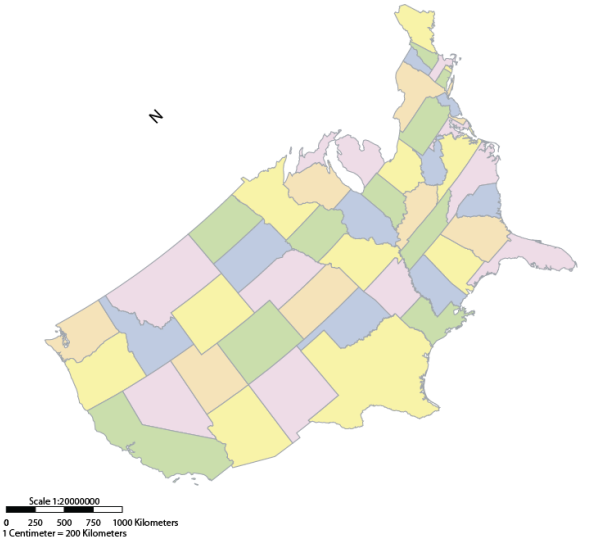
5. Open the MAP View of the imported file and adjust the **Angle** to **45.**

* Sample north arrow designs are included on the MAPublisher CD or download. They are located in the *\Helpful Styles & Symbols\Symbols* folder (see page ii).




6. Click the **OK** button.

   The north arrow is orientated 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

## Exporting a Map to Flash Using MAP Web Author

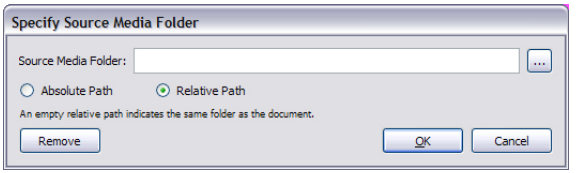
1. In Adobe Illustrator menu, click *File* > *Open*, navigate to the *\Tutorial Data\MAPWebAuthor_Tutorial* folder and open **Flash_Canada.ai**.

   The *MAPWebAuthor_Tutorial* folder contains all the required files necessary for creating the web flash map in this tutorial and should have a file structure similar to the image below.

**NOTE:** Before creating the map, it is recommended to appropriately set the document size in Adobe Illustrator. The document size is the same size as the Flash map viewed in a web browser. Use Document Setup (*File* > *Document Setup...*) to set the size. For the tutorial sample, *Flash_Canada.ai*, the document size is set at 500 pixel width x 500 pixel height.

2. In the Adobe Illustrator menu, click *Window* > *MAPublisher* > *Map Web Author* to open the **MAP Web Author** panel or click the **MAP Web Author** button on the MAPublisher toolbar.
3. In the **MAP Web Author** panel option menu (click menu icon in the top right corner of the panel), click **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.

   This tutorial creates a callout bubble for every object in the Provinces layer.

6. In the Adobe Illustrator Layers panel, click the target button beside the **Provinces** layer name to select all art on the layer.
7. In the **MAP Web Author** panel, click the **Multiple** button to open the **Multiple Web Tag Dialog** dialog box.
8. Type **Province** into the Callout Title text box.
9. In the **Callout Image** frame, select the **By Attribute** option and type **%IMAGE%** into the text box that appears.

   This retrieves the value from the Provinces attribute table. The image path and dimensions are shown on the right-hand side of the frame. Click the **Callout Preview->** button to see a preview of the callout. The image is located in the upper-left hand corner of the callout.

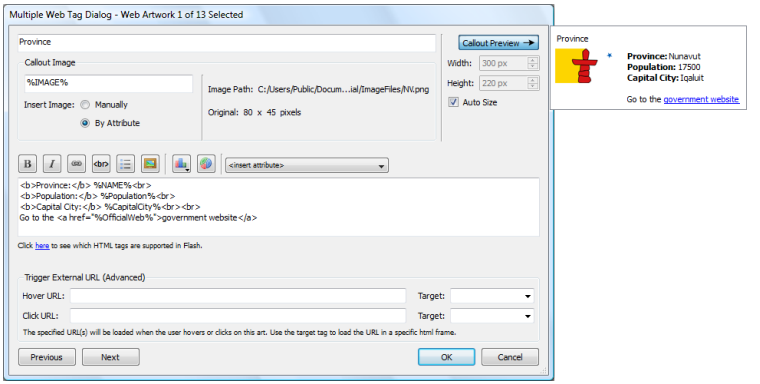
   Now, add more information to the callout bubble by entering some basic HTML code. Check the Callout Preview to see how it changes as the code is typed.

**NOTE:** The attribute names are case sensitive.

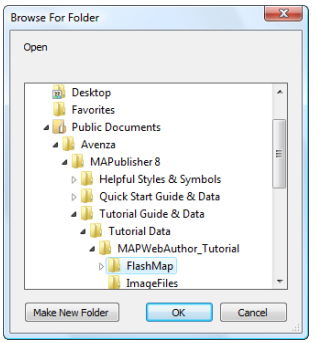
10. In the main content entry box type the following:

```
<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>
```

11. Enable the **Auto Size** check box on the upper right of the window
12. If necessary, click the **Callout Preview** button to see the result of the HTML code entered.

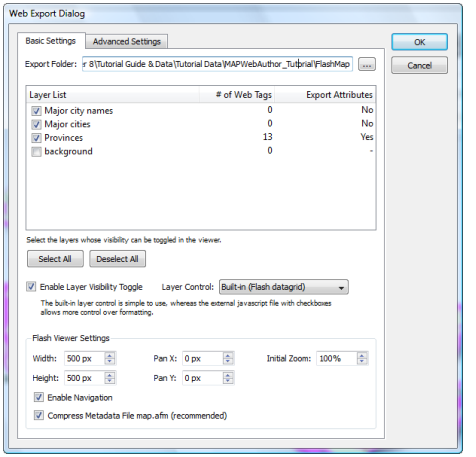



13. Click **OK** to close the **Multiple Web Tag Dialog** dialog box.
14. In the **MAP Web Author** panel, click the **Export to Web** button to open the **Web Export Dialog** dialog box.
15. Click the **(...)** browse button to locate the working directory *MAPWebAuthor_tutorial* folder and highlight it.
16. Click **Make New Folder** to create a new folder in the working directory. Name the new folder **FlashMap.**



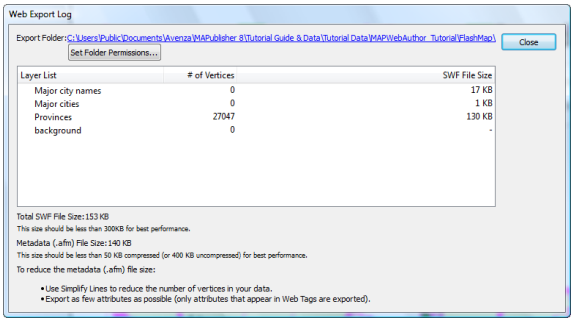

17. Select the **FlashMap** folder and click **OK** to close the Browse For Folder dialog box.
18. In the **Web Export Dialog** dialog box, check the **Enable Layer Visibility Toggle** check box. In the **Layer List,** enable the check boxes for the following: **Major city names, Major cities** and **Provinces.**
19. Select **Built-in (Flash data-grid)** in the **Layer Control** drop-down list.
20. Check the **Enable Navigation** check box.

21. Check the **Compress Metadata file map .afm (recommended)** check box.




22. Leave the other options as the default and click **OK**.

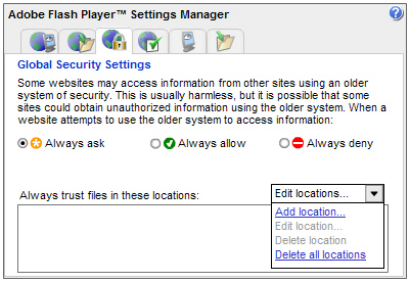
    The **Web Export Log** dialog box opens.



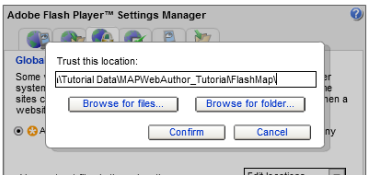

23. Right-click on the blue-highlighted path for the export folder and click **Copy Link Location**.
24. Click the **Set Folder Permissions** button.
25. A warming message appears. Click **OK** to close it.

The default Web browser opens and goes to the Web page *http://www.macromedia.com/support/documentation/en/flashplayer/help/settings_manager04.html*.

26. In the **Adobe Flash Player™ Settings Manager**, select **Add Location** in the **Edit locations** drop-down list.




27. In the **Trust this location** dialog box, right-click to paste the link (...\Avenza\MAPublisher 8\Tutorial Guide & Data\Tutorial Data\MAPWebAuthor_Tutorial\FlashMap\) copied from the **Web Export Log** dialog box.




28. Click **Confirm** to complete the Global Security Settings.
29. Back in the **Web Export Log**, click **Close**.
30. Navigate to the working directory and find the **FlashMap** folder.
31. Open **MAPublisherSWF.html** in a Web browser (this file has the Flash file, MAPublisher.swf, embedded in it).

    If required, install the latest Flash Player version to view the images properly (it can be downloaded from the Adobe Website at *www.adobe.com*).