

The background of the entire page is a detailed, multi-colored topographic map showing various terrain features like mountains, rivers, and forests. In the bottom right corner, there is a faint, stylized graphic of a globe with latitude and longitude lines.

# **MAPublisher<sup>®</sup> 7**

for **Adobe<sup>®</sup> Illustrator<sup>®</sup>**

***When Map Quality Matters<sup>®</sup>***

## **Tutorial Guide**

# AVENZA MAPublisher® 7 Tutorial Guide

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MAPublisher 7 for Adobe® Illustrator® Tutorial Guide for Windows and Macintosh.

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# Welcome

Avenza welcomes you to mapmaking in the 21st century!

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

MAPublisher 7 improves on the already powerful tools of previous versions by adding additional file support, additional tools and improvements to existing tools.

This tutorial manual assumes that the user is familiar with Adobe Illustrator CS2, and has at least a basic understanding of geographic information systems (GIS) terminology and concepts. The exercises in this manual should be used in conjunction with the MAPublisher 7 User Guide. Note that the numbering of each Tutorial section matches the corresponding Chapter in the User Guide.

By following these tutorials you will learn how to create maps using the MAPublisher filters in Adobe Illustrator. This manual 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 exercises in this manual will use GIS data supplied in the *Tutorial Data* folder on your MAPublisher 7 CD or in the electronic download. Alternatively, if you have installed the Tutorial Data, you can find this in the *Avenza/MAPublisher 7* folder on your hard drive. However we do encourage you to experiment with your own data to gain additional experience with MAPublisher's tools and functions.

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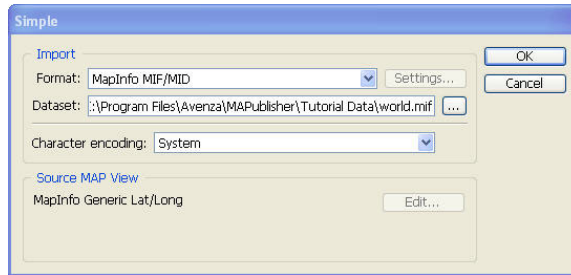
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# Importing Map Data

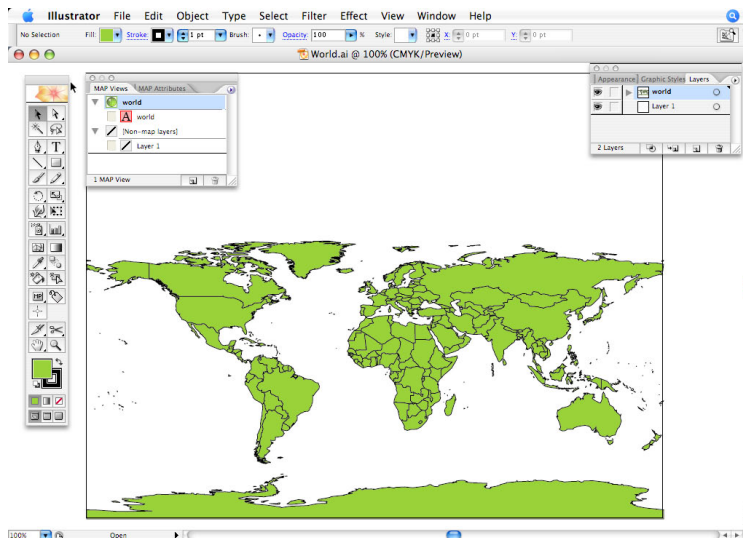
## 3-i: IMPORTING A SINGLE MAP FILE

1. Start by creating a new Illustrator page in landscape orientation. If you choose to edit the orientation of a current document, be sure to reset the rulers so that the 0,0 point is at the lower left corner of the page.
2. Select **File > Import Map Data > Simple...** to open the MAPublisher Simple Import dialog.
3. Select **MapInfo MIF/MID** from the **Format** dropdown
4. Click the **'...'** (Browse) button to open the data source browser.
5. Locate and select the **world.mif** file from the *Tutorial Data* folder and click **Open**.



Simple Import dialog after selecting world.mif.

6. Note the **Source MAP View** (Source Coordinate System) has been automatically read as being **Generic Lat/Long**.
7. Click **OK**.  
*The Simple Import dialog closes and the selected map file is imported. The map has been imported to automatically fit to the size of the page.*
8. Notice that in the Illustrator Layers palette there is a new layer called **'world'**. Also in the MAP Views palette there is a new MAP View holding the imported file. See more on MAP Views on page 22.



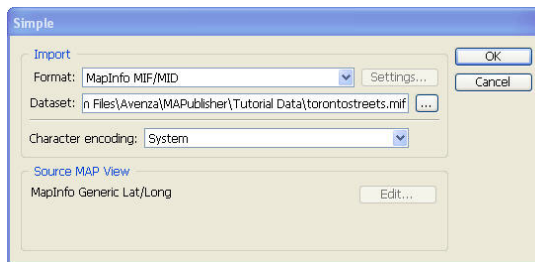
Adobe Illustrator after Simple Import of world.mif.



### 3-ii: IMPORTING MULTIPLE MAP FILES AT ONCE

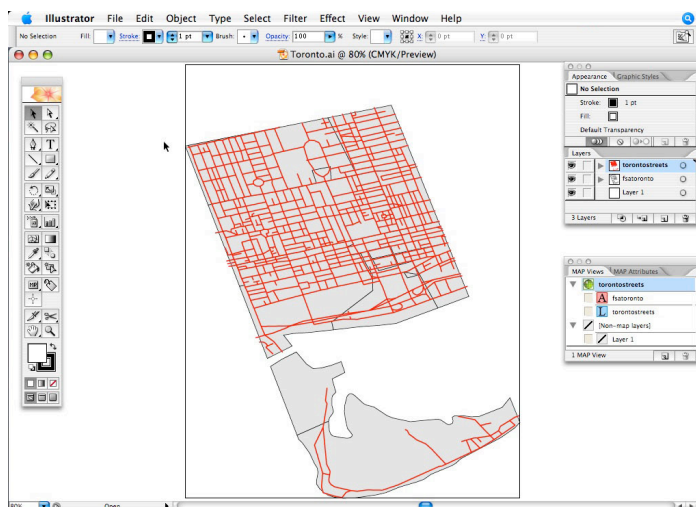
The Simple import filter also allows for the import of multiple map files at a single time. When importing multiple files, all files must be of the same format, be in the same projection, and be located in the same directory.

1. Start by creating a new Illustrator page in portrait orientation.
2. Select **File > Import Map Data > Simple...** to open the MAPublisher Simple Import dialog.
3. Select **MapInfo MIF/MID** from the **Format** dropdown.
4. Click the **'...' (Browse)** button to open the data source browser.
5. Locate and select the **fsatoronto.mif** and **torontostreets.mif** files from the *Tutorial Data* folder. Use the Apple key (Mac) or the Ctrl key (Windows) to select the two files, and then click **Open**.



Simple Import dialog after selecting the fsatoronto.mif and torontostreets.mif.

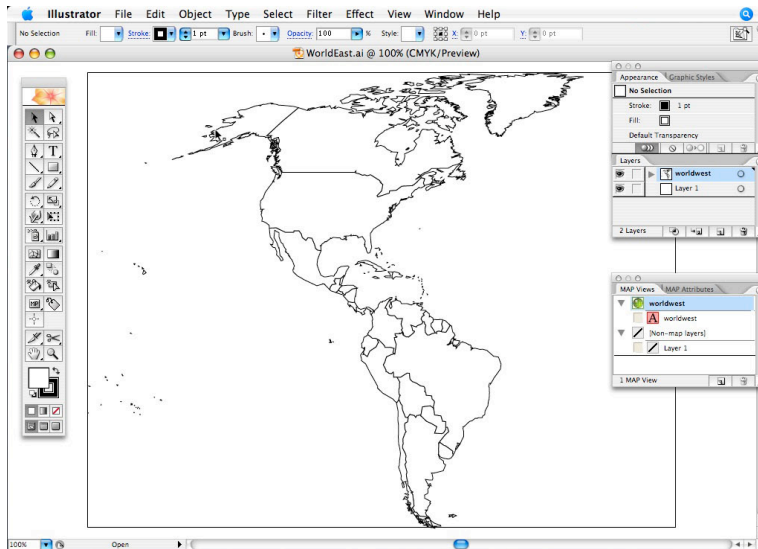
6. Note the **Source MAP View** (Source Coordinate System) has been automatically read as being **Generic Lat/Long**.
7. Click **OK** to import the map files. The data files will be imported to automatically fit to the size of the page.
8. Notice that in the Layers palette there are new layers called **'torontostreets'** and **'fsatoronto'**. Also in the MAP Views palette there is a new MAP View holding the two imported files (Note that the layers are listed alphabetically under the host MAP View in the MAP Views palette).



Adobe Illustrator after multiple import of fsatoronto.mif and torontostreets.mif.

### 3-iii: IMPORTING MAP FILES TO MATCH AN EXISTING MAP LAYER

1. Start by creating a new Illustrator page in landscape orientation.
2. Select **File > Import Map Data > Simple...** to open the MAPublisher Simple Import dialog.
3. Select **ESRI Shape** from the **Format** dropdown.
4. Click the **Browse** button to open the data source browser.
5. Locate and select the **worldwest.shp** file from the *Tutorial Data* folder and click **Open**.  
*The dialog closes and the selected file appears in the file list in the MAPublisher Simple Import window.*
6. Note that the **Source MAP View** has been automatically read as being **Robinson in Meter**.
7. Click **OK**.  
*The Simple Import dialog closes and the selected map file is imported. The data file has been imported to automatically fit to the size of the page.*
8. Notice that in the Illustrator Layers palette there are new layer called '**worldwest**'. Also in the MAP Views palette there is a new MAP View called '**worldwest**' in Robinson, which holds the imported file. See more on MAP Views on page 22.

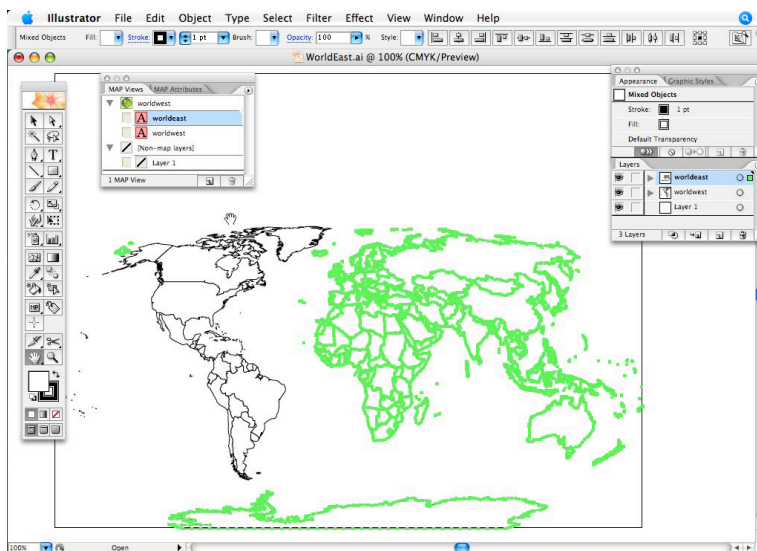


Adobe Illustrator after Simple Import of worldwest.shp.

9. Repeat Steps 2 to 4
10. Locate and select the **worldeast.shp** file from the *Tutorial Data* folder and click **Open**.  
*The dialog closes and the selected file appears in the file list in the MAPublisher Simple Import window.*
11. Note that as in the *worldwest* import, the **Source MAP View** has been automatically read as being **Robinson in Meter**.
12. Click **OK**.



13. In the **Matching MAP View Found** dialog, choose to **Add to 'worldwest'**. Then check **Resize MAP View to fit**. The Simple Import dialog closes and the selected map file is imported to match the previous import. Notice that the 'worldwest' layer has been rescaled so that both itself and the 'worleaste' layer will fit inside the page extents.
14. Notice that in the Illustrator Layers palette there is now an additional layer called **'worleaste'**. Also in the MAP Views palette the MAP View 'worldwest' now holds both layers.



Adobe Illustrator after import of worleaste.shp file, with worldwest layer rescaled.

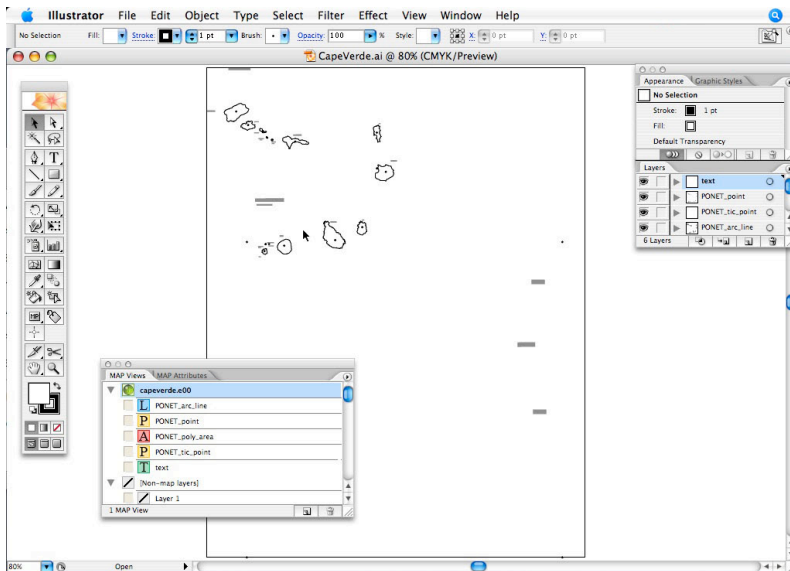
### 3-iv: IMPORTING MAP FILES WITH AUTO GRAIN

1. Start by creating a new illustrator page.
2. Select **File > Import Map Data > Simple...** to open the MAPublisher Simple Import dialog.
3. Select **MapInfo MIF/MID** from the **Format** dropdown
4. Click the **Browse** button to open the data source browser.
5. Locate and select the **greenland.mif** file from the **Tutorial Data** folder and click **Open**. The dialog closes and the selected file appears in the file list in the MAPublisher Simple Import window.
6. Click **OK**.
7. Due to this file being complex, in that it exceeds the allowable 32,000 points per path in Illustrator, the **Auto Grain** warning dialog appears.
8. Click **OK** in this warning dialog. The Simple Import dialog closes and the selected map file is imported. MAPublisher has calculated the grain and removed points to give the highest level of detail possible.

### 3-v: IMPORTING GIS FORMATS THAT REQUIRE OPTIONAL SETTINGS

There are a number of other file formats in the *Tutorial Data* folder to experiment with. MAPublisher will deal with its supported file formats in varying ways, and some will import differently and/or require extra user input. There is an overview of the file formats supported by MAPublisher in the User Guide.

1. Create a new document and open the MAPublisher Simple Import dialog.
2. Select **ESRI ArcInfo Export (E00)** from the **Format** dropdown.
3. Select the **capeverde.e00** file from the *Tutorial Data* folder.
4. Click the **Settings** button.
5. Enable the **Include TIC layer** setting.
6. Click **OK**.
7. As e00 files are generally an archive of several files, MAPublisher will reproduce an e00 import as distinct Illustrator layers. Notice therefore that MAPublisher has generated point, area, line and text layers. An extra layer appended with **\_tic\_point** has been created holding tic points, as was specified in the *Settings* dialog.



Adobe Illustrator after import of capeverde.e00.

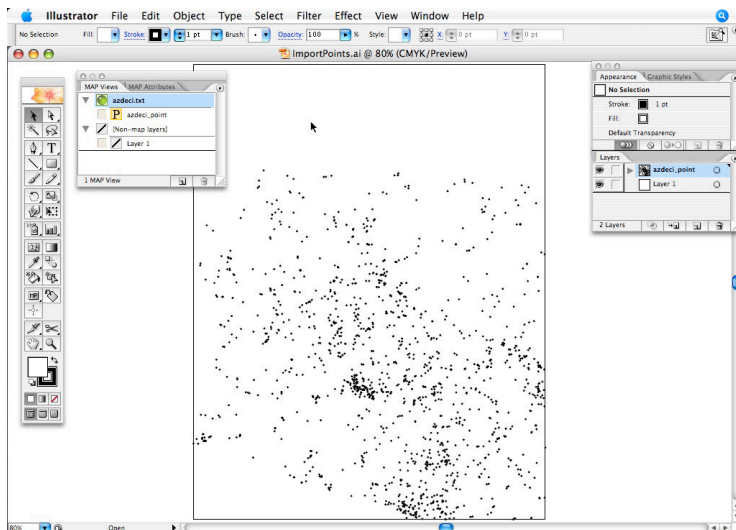
### 3-vi: IMPORTING POINTS

The 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:

```
"X value","Y value","Name","Population"  
"3.4","5.4","Metropolis","2345000"  
"6.54","21.4","Gotham City","1234000"  
"6.32","66.6","Smallville","54"
```

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.

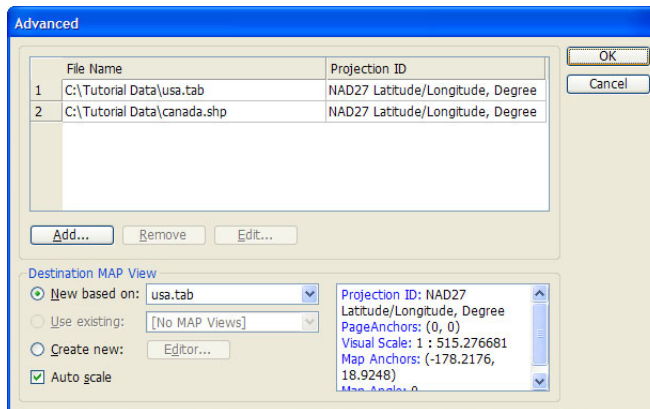
1. Create a new document and open the MAPublisher Simple Import dialog.
2. Select **ASCII Point Data** from the **Format** dropdown.
3. Select the **azdec1.txt** file.
4. The **Settings** dialog will open automatically.
5. Select the columns of the file to be used as the points' X and Y coordinates, using the X and Y axis dropdown lists. The dropdown lists are filled with the numeric columns found in your ASCII file. For this file, use **'Column 6'** for the X coordinates, and **'Column 5'** for the Y coordinates.
6. (Optional) Set the values by which the X and Y coordinates will be multiplied by before they can be imported by first clicking the **Multipliers** button. You can multiply the X coordinates by a different value than the Y coordinates if you wish. The default for each is 1, which will not change your values at all. Click **OK**.
7. Leave the **Use first line as a header** option unchecked, as the first line of this file does not contain column headings.
8. Click **OK**.
9. The points are placed on the page as specified. All columns that were in the file are imported as attribute data for the created points.



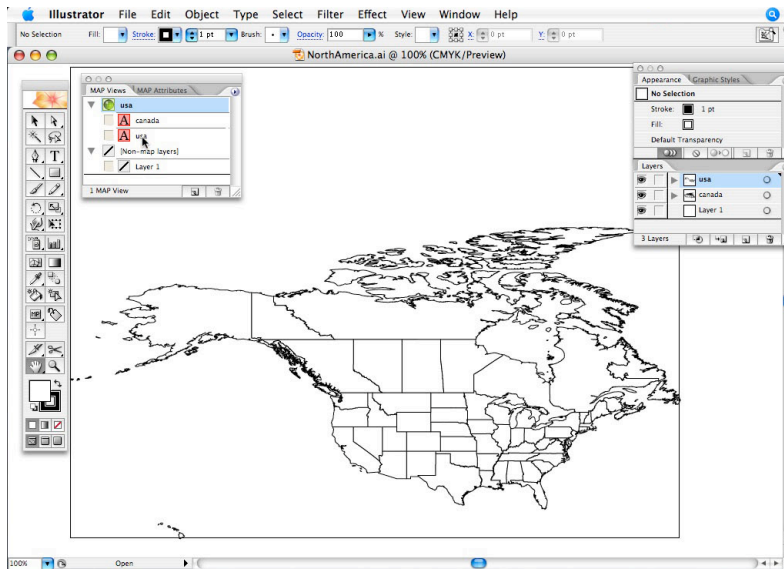
Adobe Illustrator after import of azdec1.txt.

### 3-vii: IMPORTING MULTIPLE FILE TYPES

1. Start by creating a new illustrator page in landscape orientation. If you choose to edit the orientation of a current document, be sure to reset the rulers so that the 0,0 point is at the lower left corner of the page.
2. Select **File > Import Map Data > Advanced...** to open the MAPublisher Advanced Import dialog.
3. Click the **Add** button to open the Import Map Data Source dialog.
4. Select **MapInfo TAB** from the **Format** dropdown.
5. Click the **'...' (Browse)** button to open the data source browser.
6. Locate and select the **usa.tab** file from the **Tutorial Data** folder and click **Open**.
7. Click **OK** in the Import Map Data Source dialog as you do not need to specify a projection.  
*The dialog closes and the selected file appears in the file list in Row 1 of the MAPublisher Advanced Import window.*
8. Click the **Add** button to open the Import Map Data Source dialog.
9. Select **ESRI Shape** from the **Format** dropdown.
10. Click the **'...' (Browse)** button to open the data source browser.
11. Locate and select the **canada.shp** file from the **Tutorial Data** folder and click **Open**.
12. Click OK in the Import Map Data Source dialog as you do not need to specify a projection.  
*The dialog closes and the selected file appears in the file list in Row 2 of the MAPublisher Advanced Import window.*
13. In the **Destination MAP View** section click the **New Based On** radio button, and then choose **usa.tab** from the dropdown. This will base the page scaling on the usa file.
14. Check the 'Auto scale' option. This will ensure 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' listbox only. Therefore only this file will be fitted to the current page extents, which may cause elements in other selected files to be placed outside of the page boundary.*



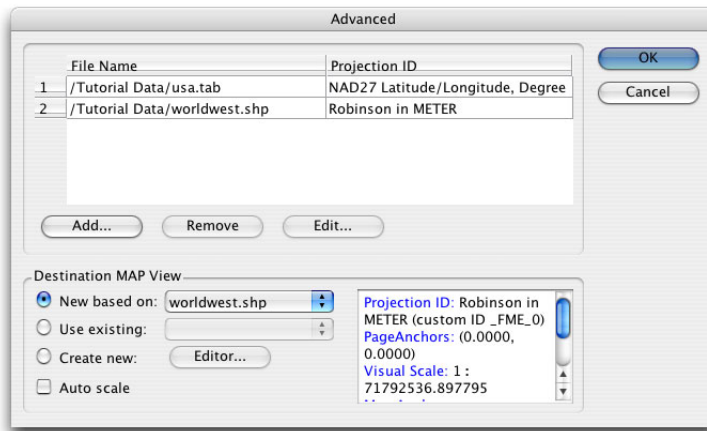
14. Click **OK** to import the two files.  
*The Advanced Import dialog closes and the selected map files are imported. The files have been imported with both files fitted to the size of the page.*
15. Notice that in the Illustrator Layers palette there are new layers called **'usa'** & **'canada'**. Also in the MAP Views palette there is a new MAP View holding the imported files. See more on MAP Views on page 22.



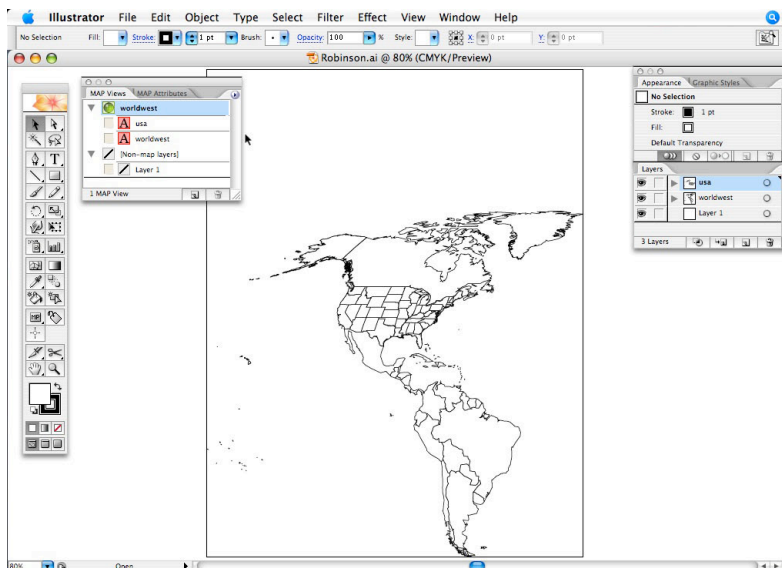
Adobe Illustrator after Advanced Import of usa.tab and canada.shp.

### 3-viii: IMPORTING MAP FILES IN MULTIPLE PROJECTIONS

1. Start by creating a new illustrator page in portrait orientation.
2. Select **File > Import Map Data > Advanced...** to open the MAPublisher Advanced Import dialog.
3. Click the **Add** button to open the Import Map Data Source dialog.
4. Select **MapInfo TAB** from the **Format** dropdown.
5. Click the **'...' (Browse)** button to open the data source browser.
6. Locate and select the **usa.tab** file from the *Tutorial Data* folder and click **Open**.
7. Click **OK** in the Import Map Data Source dialog as you do not need to specify a projection.  
*The dialog closes and the selected file appears in the file list in Row 1 of the MAPublisher Advanced Import window. Note that the Coordinate System of the usa.tab file has been automatically read as being NAD 27 Latitude/Longitude in Degree.*
8. Click the **Add** button to open the Import Map Data Source dialog.
9. Select **ESRI Shape** from the **Format** dropdown.
10. Click the **Browse** button to open the data source browser.
11. Locate and select the **worldwest.shp** file from the *Tutorial Data* folder and click **Open**.
12. Click **OK** in the Import Map Data Source dialog as you do not need to specify a projection.  
*The dialog closes and the selected file appears in the file list in Row 2 of the MAPublisher Advanced Import window. Note that the Coordinate System of the worldwest.shp file has been automatically read as being Robinson in Meter.*
13. In the **Destination MAP View** section click the **New Based On** radio button, and then choose **worldwest.shp** from the dropdown. This will base the projection and page scaling on the worldwest file.



14. Click **OK** to import the two files in the Robinson projection.  
*The Advanced Import dialog closes and the selected map files are imported. The files have been imported to automatically fit to the size of the page. Note that the 'Auto scale' option was not required to be checked in the Advanced Import dialog, as the page scaling was based on the 'worldwest.shp', which contained larger geographic extents than the 'usa.tab' in all four compass directions.*
15. Notice that in the Illustrator Layers palette there are new layers called **'usa'** and **'worldwest'**. Also in the MAP Views palette there is a new MAP View holding the imported files (the MAP View will have the same name as the first selected file in the Advanced Import list, above). See more on MAP Views on page 22.

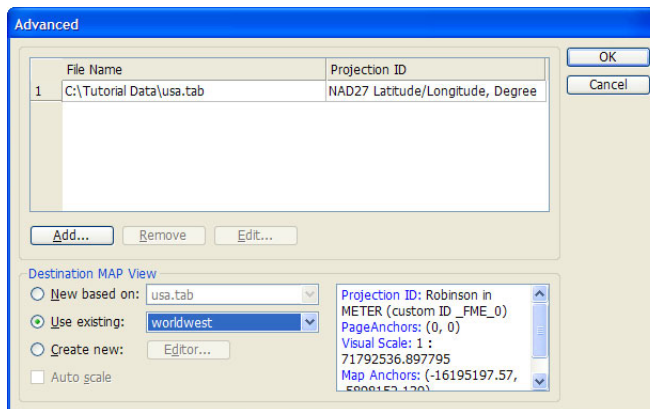


Adobe Illustrator after Advanced Import of worldwest.shp and usa.tab.

### 3-ix: IMPORTING MAP FILES TO MATCH AN EXISTING LAYER'S PROJECTION

This exercise will produce the same results as Tutorial 3-viii.

1. Start by creating a new Illustrator page in portrait orientation.
2. Select **File > Import Map Data > Simple...** to open the MAPublisher Simple Import dialog.
3. Import the **worldwest.shp** file from the *Tutorial Data* folder.
4. Notice that in the Illustrator Layers palette there is a new layer called '**worldwest**'. Also in the MAP Views palette there is a new MAP View called '**worldwest**' in Robinson, which holds the imported file.
5. Select **File > Import Map Data > Advanced...** to open the MAPublisher Advanced Import dialog.
6. Select **MapInfo TAB** from the **Format** dropdown.
7. Click **Add**, and choose the **usa.tab** file from the *Tutorial Data* folder.
8. Click **OK** in the Import Map Data Source dialog as you do not need to specify a projection.  
*The dialog closes and the selected file appears in the file list in Row 1 of the MAPublisher Advanced Import window. Note that the Coordinate System of the 'usa.tab' file has been automatically read as being NAD 27 Latitude/Longitude in Degree.*
9. In the **Destination MAP View** section click the **Use Existing** radio button, and then choose '**worldwest**' from the dropdown. View the coordinate system of this file in the right hand panel.



10. Click **OK** to import the file with the Robinson parameters of the worldwest layer.  
*The Advanced Import dialog closes and the selected map file is imported. The file has been imported and reprojected to automatically align with the worldwest layer.*
11. Notice that in the Illustrator Layers palette there are now two layers, called '**usa**' and '**worldwest**'. Also in the MAP Views palette the MAP View in the Robinson projection now holds both the imported files.



### 3-x: ASSIGNING A PROJECTION PRIOR TO IMPORT

1. Start by creating a new illustrator page in portrait orientation.
2. Select **File > Import Map Data > Advanced...** to open the MAPublisher Advanced Import dialog.
3. Click the **Add** button to open the Import Map Data Source dialog.
4. Select **ESRI ArcInfo Generate** from the **Format** dropdown.
5. Click the **Browse** button to open the data source browser.
6. Locate and select the **ukrail.gen** file from the *Tutorial Data* folder and click **Open**.
7. Click **OK** in the Import Map Data Source dialog.  
*The dialog closes and the selected file appears in the file list in Row 1 of the MAPublisher Advanced Import window.*
8. With the **ukrail.gen** row selected, click the **Edit** button to return to the Import Map Data Source dialog.
9. In **Projection Category:** Choose **By geographical area - Europe** from the dropdown to display only European projections. Then choose **British National Grid (ORD SURV GB) (EPSG #27700)** in the projection list.
10. Click **OK** to return to the Advanced Import dialog.
11. In the **Destination MAP View** section, you can view the chosen coordinate system in the right hand panel.
12. Click **OK** to import the file in British National Grid.  
*The Advanced Import dialog closes and the selected map file is imported.*


### 3-xi: CHANGING A PROJECTION PRIOR TO IMPORT

You should read the section on the MAP View Editor in the User Guide before completing the following exercise.

1. Start by creating a new Illustrator page in portrait orientation.
2. Select **File > Import Map Data > Advanced...** to open the MAPublisher Advanced Import dialog.
3. Click the **Add** button to open the Import Map Data Source dialog.
4. Select **ESRI Shape** from the **Format** dropdown.
5. Click the **Browse** button to open the data source browser.
6. Locate and select the **ukpoly.shp** file from the *Tutorial Data* folder and click **Open**.
7. Click **OK** in the Import Map Data Source dialog as you do not need to specify a projection.  
*The dialog closes and the selected file appears in the file list in Row 1 of the MAPublisher Advanced Import window. Note that the Coordinate System of the ukpoly.shp file is currently Latitude/Longitude in Degree.*
8. In the **Destination MAP View** section click the **Create New** radio button, and then click **Editor**.  
*The MAP View Editor will open.*
9. The projection list will display all recently used projections, choose **British National Grid (ORD SURV GB) (EPSG #27700)**.  
*If you have just begun this tutorial choose Europe from the Projection Category: By geographical area dropdown to display only European projections. Then choose British National Grid (ORD SURV GB) (EPSG #27700) in the projection list.*  
Click **OK** to exit the MAP View Editor and return to the Advanced Import dialog.
7. In the **Destination MAP View** section, you can view the chosen coordinate system in the right hand panel.
8. Click **OK** to import the file in the British National Grid projection.  
*The Advanced Import dialog closes and the selected map file is imported.*

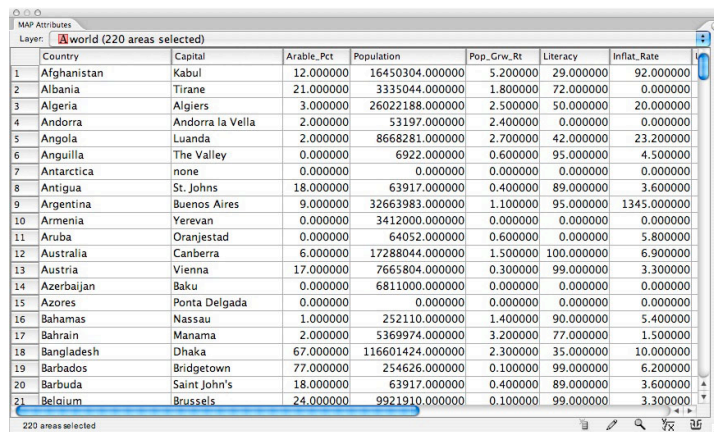
# Attributes and Georeferencing

## 4-i: DETERMINING THE COORDINATES OF A SPECIFIC LOCATION

1. Import any map file from the *Tutorial Data* folder.
2. Make sure the MAP Layer is selected in the Illustrator Layers palette, and click on the **MAP Location Tool**  button in the Adobe Illustrator toolbar to open the *Location* window.
3. Move the mouse cursor to the location whose geographic coordinates you wish to see.  
*The WX and WY fields will constantly be updated with the coordinates of the mouse cursor as you move the mouse around the map document. This tool also allows for the copying of coordinates.* Determine a location that you would like to generate coordinates for. Hold down the Shift key and click this location. Open a simple text editor, and then paste the coordinate values.

## 4-ii: VIEWING AND EDITING MAP ATTRIBUTES

1. Import the **world.mif** file from the *Tutorial Data* folder.
2. Select all or some of the map's features.
3. Select *Window > MAPublisher Palettes > MAP Attributes* to open the MAP Attributes Window. Check that the layer dropdown is set to '**world**'.
4. Double click inside a cell and type a new value. Proceed for a number of cells.  
*All attribute values including property attributes can be edited. MAPublisher creates some attributes which start with “#” they are also editable (they must be made visible first), however #Area, #Perimeter, #VertexCount and #Length can't be edited because they are properties of the geometry and can't be edited by changing attributes. Keep in mind that you must enter values that correspond with a column's type (i.e. only enter numbers into a column of type “Real” or “Integer”). The edits will automatically be maintained in the attribute table once entered.*
5. 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 as desired. Double clicking on a column separator will set the column width to the column attribute with the greatest amount of characters.
6. Attribute columns may also be sorted in ascending manner by clicking on the column heading.

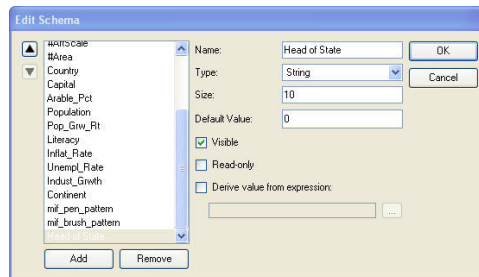


	Country	Capital	Arable_Pct	Population	Pop_Grw_Rt	Literacy	Inflat_Rate
1	Afghanistan	Kabul	12.000000	16450304.000000	5.200000	29.000000	92.000000
2	Albania	Tirane	21.000000	3335044.000000	1.800000	72.000000	0.000000
3	Algeria	Algiers	3.000000	26022188.000000	2.500000	50.000000	20.000000
4	Andorra	Andorra la Vella	2.000000	53197.000000	2.400000	0.000000	0.000000
5	Angola	Luanda	2.000000	8668281.000000	2.700000	42.000000	23.200000
6	Anguilla	The Valley	0.000000	6922.000000	0.600000	95.000000	4.500000
7	Antarctica	none	0.000000	0.000000	0.000000	0.000000	0.000000
8	Antigua	St. Johns	18.000000	63917.000000	0.400000	89.000000	3.600000
9	Argentina	Buenos Aires	9.000000	32663983.000000	1.100000	95.000000	1345.000000
10	Armenia	Yerevan	0.000000	3412000.000000	0.000000	0.000000	0.000000
11	Aruba	Oranjestad	0.000000	64052.000000	0.600000	0.000000	5.800000
12	Australia	Canberra	6.000000	17288044.000000	1.500000	100.000000	6.900000
13	Austria	Vienna	17.000000	7665804.000000	0.300000	99.000000	3.300000
14	Azerbaijan	Baku	0.000000	6811000.000000	0.000000	0.000000	0.000000
15	Azores	Ponta Delgada	0.000000	0.000000	0.000000	0.000000	0.000000
16	Bahamas	Nassau	1.000000	252110.000000	1.400000	90.000000	5.400000
17	Bahrain	Manama	2.000000	5369974.000000	3.200000	77.000000	1.500000
18	Bangladesh	Dhaka	67.000000	116601424.000000	2.300000	35.000000	10.000000
19	Barbados	Bridgetown	77.000000	254626.000000	0.100000	99.000000	6.200000
20	Barbuda	Saint John's	18.000000	63917.000000	0.400000	89.000000	3.600000
21	Belgium	Brussels	24.000000	9921910.000000	0.100000	99.000000	3.300000

Partial view of MAP Attributes Window displaying the attributes of the 'world' layer.

#### 4-iii: ADDING A NEW COLUMN TO A MAP ATTRIBUTE TABLE

1. Import the **world.mif** file from the *Tutorial Data* folder.
2. Select *Window > MAPublisher Palettes > MAP Attributes* to open the MAP Attributes window. The window displays the columns associated with the MAP Attribute records on the currently selected MAP Layer.
3. Click on the **New Column** icon at the bottom of the MAP Attribute palette. The Edit Schema window displays the columns associated with the Map Attribute table on the currently selected layer.
4. In the Name field, enter a column name, such as “Head\_of\_State”.  
*NOTE: Spaces are not accepted for column names, MAPublisher will insert a “\_” when a space is attempted to be input in a column name.*
5. Select **‘String’** from the Type listbox as this column will contain alpha values.
6. Set a width of 10 (this is the number of characters which can be displayed in the MAP Attributes window) and click **OK**.
7. Specify a default width value for the attribute column if desired.  
*This will populate each attribute in that column with the specified default value.*
8. Click **OK**.  
*The new column is created and can be given values in the MAP Attributes window.*



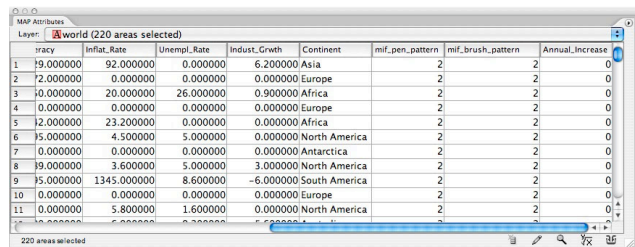
Edit Schema window before and after adding the ‘Head\_of\_State’ column.

#### 4-iv: CHANGING AN EXISTING COLUMN’S PROPERTIES

1. Open the **Edit Schema** window and click on the column name whose properties you wish to edit.
2. Change the Name, Default value fields as desired. You may also change the column type once it has been created ( for example should you wish to convert a type real column to a type integer column).
3. Leave the **Visible** option enabled and the **Read-only** and **Derive value from expression:** options disabled.
4. Click **OK**.  
*The column will now have a new name and width.*


## 4-v: EDITING THE VALUES OF A MAP COLUMN

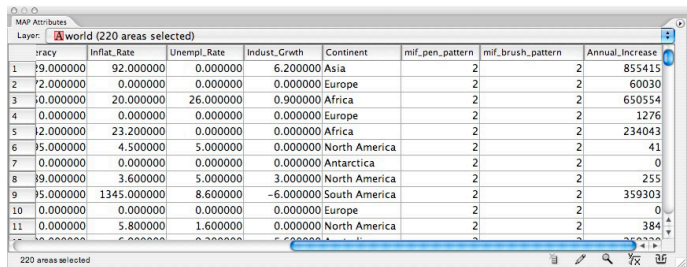
1. Import the **world.mif** file from the *Tutorial Data* folder.
2. Using the **Edit Schema filter**, add a new column, **"Annual\_Increase"**, to the **world attribute table**. Set the **Type** to **Integer**.



	tracy	Inflat_Rate	Unempl_Rate	Indust_Grwth	Continent	mif_pen_pattern	mif_brush_pattern	Annual_Increase
1	39.000000	92.000000	0.000000	6.200000	Asia	2	2	0
2	72.000000	0.000000	0.000000	0.000000	Europe	2	2	0
3	10.000000	20.000000	26.000000	0.900000	Africa	2	2	0
4	0.000000	0.000000	0.000000	0.000000	Europe	2	2	0
5	12.000000	23.200000	0.000000	0.000000	Africa	2	2	0
6	35.000000	4.500000	5.000000	0.000000	North America	2	2	0
7	0.000000	0.000000	0.000000	0.000000	Antarctica	2	2	0
8	39.000000	3.600000	5.000000	3.000000	North America	2	2	0
9	35.000000	1345.000000	8.600000	-6.000000	South America	2	2	0
10	0.000000	0.000000	0.000000	0.000000	Europe	2	2	0
11	0.000000	5.800000	1.600000	0.000000	North America	2	2	0

Creating a new MAP Column to hold new values.

3. Select the **'world'** layer in the Adobe Illustrator layers palette.
4. Select the countries for which you wish to calculate an annual population increase.
5. Select **Window > MAPublisher Palettes > Map Attributes** to open the MAP Attribute dialog.
6. Click on the **Edit Schema** button  and choose the "Annual\_Increase" column from the attribute column list
7. Enable the **Derive value from expression** option.
8. Click on the **Browse** button to open the **Edit Expression** dialog and expand the **Express Components**.
9. Start building the expression by making selections from the **Object** list in combination with clicking on the **Operator Buttons** available at the top of the dialog. Select the **'Population'** column by double clicking on it. (*the column gets inserted into the edit expression entry box*). Click the **'\*\*'** button and then the **'('** button. Using the **Options** list again, select the **'Pop\_Grw\_Rt'** column by double clicking on it in the list. Click **'/'** then enter **'100'** using your keyboard. Finally, click **'J'** to close the expression.
10. The expression in the Edit Expression box should now look like this: **Population \* (Pop\_Grw\_Rt / 100)**
11. When you receive the **Expression is Valid** message Click **OK**.
12. Click **OK** again in the Edit Schema dialog to complete the operation.  
*The selected features' attributes will be updated. Use the MAP Attributes window to view the changes.*



	tracy	Inflat_Rate	Unempl_Rate	Indust_Grwth	Continent	mif_pen_pattern	mif_brush_pattern	Annual_Increase
1	39.000000	92.000000	0.000000	6.200000	Asia	2	2	855415
2	72.000000	0.000000	0.000000	0.000000	Europe	2	2	60030
3	10.000000	20.000000	26.000000	0.900000	Africa	2	2	650554
4	0.000000	0.000000	0.000000	0.000000	Europe	2	2	1276
5	12.000000	23.200000	0.000000	0.000000	Africa	2	2	234043
6	35.000000	4.500000	5.000000	0.000000	North America	2	2	41
7	0.000000	0.000000	0.000000	0.000000	Antarctica	2	2	0
8	39.000000	3.600000	5.000000	3.000000	North America	2	2	255
9	35.000000	1345.000000	8.600000	-6.000000	South America	2	2	359303
10	0.000000	0.000000	0.000000	0.000000	Europe	2	2	0
11	0.000000	5.800000	1.600000	0.000000	North America	2	2	384

Using existing values to edit the values of a new MAP Column.

## 4-vi: MAKING A SELECTION WITH MAP SELECTION FILTERS

1. Import the **fcstreets.mif** file from the *Tutorial Data* folder. This is a line file depicting the major roads of Falls Church, Virginia.
2. Making sure the **fcstreets** layer is selected, go to *Window > MAPublisher Palettes > Selection Filters* to open the MAP Selection Filters dialog.
3. Click on the **Create New Selection Filter** button at the bottom of the palette or select the same option from the palette's options menu.
4. Enter '**Route number**' in the **Name** entry box.
5. Click on the **Browse** button then click the dropdown button to expand the Expression Components.
6. Double click on the **Number** column heading in the **Objects** under **fcstreets** so that it is entered into the expression entry box. Click on the '=' button and enter "**A25**" from your keyboard.  
*If you want to view the unique values of that attribute column click **display unique values**. Double clicking on a unique value will recognize the attribute as a string and enter quotations for you (along with the value).*
7. Click **OK**.
8. Click on the **Apply as New Selection** button to perform the selection.



Result of Select by Attribute for lines with a number value equal to A25.

## 4-vii: USING ADD TO CURRENT SELECTION TO ADD TO AN EXISTING SELECTION

1. Continue working with the **fcstreets.mif** file imported previously and select some of the road data.
2. Make sure the **fcstreets** layer is selected, then go to *Window > MAPublisher Palettes > Selection Filters*.
3. Select the previously created filter '**Route number**' from the list in the palette.
4. Now click on the **Add to Current Selection** button at the bottom of the palette.  
*The features that match the expression are added to the selection.*
5. Use the **Remove from Selection** and **Get Subset of Current Selection** options to experiment with other selection types.

## 4-viii: USING SELECTION FILTERS FOR ADVANCED SELECTIONS

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

1. Import the **world.mif** file from the Tutorial Data folder.
2. Making sure the **world layer** is selected, go to *Window > MAPublisher Palettes > Selection Filters* to open the MAP Selection Filters dialog.

3. Click on the **Create New Selection Filter** button at the bottom of the palette or select the same option from the palettes flyout menu.
4. Enter '**Population search**' in the **Name** entry box.
5. Click on the **Browse** button.
6. Now double click on the '**Continent**' column heading in the **Objects** list so that it is entered into the expression entry box.

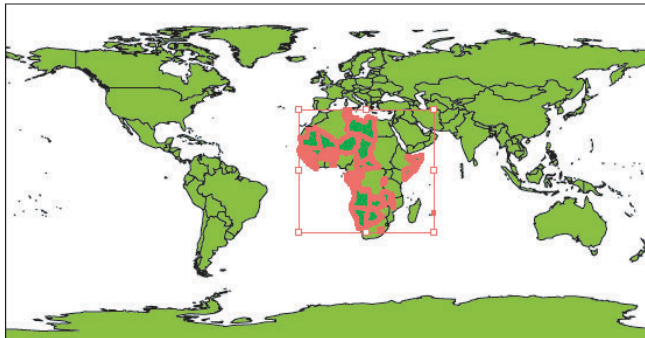
*You may view the unique records contained within that column by clicking on the "Display Unique Values" link in the Description field portion of the dialog.*

Continue with building the expression by clicking on the '=' button and entering "**Africa**" from your keyboard or selecting it from the unique values list. Click the '**AND**' button and then the '(' button. Using the **Options** list again, select the '**Population**' column by double clicking on it in the list. Click '>' then enter '**1000000**' using your keyboard. Click '**AND**' and then using the **Options** list once again, select the '**Population**' column by double clicking on it. Click '<' then enter '**10000000**' using your keyboard. Finally click ')' to close the expression.

The final expression should look like this:

**Continent = "Africa" AND ( Population > 1000000 AND Population < 10000000 )**

7. Click **OK**.
8. Click **OK** again.
9. Now click on the **Apply as New Selection** button to enable the selection. dropdowns active.



Result of Selection Filter showing African countries with 1-10 million inhabitants.

# MAP Views

## 5-i: THE CREATION OF MAP VIEWS VIA IMPORT

1. Import any file from the *Tutorial Data* folder.
2. Go to *Window > MAPublisher Palettes > MAP Views* to open the MAP Views palette.
3. A MAP View has been automatically created. It carries the same name of the imported file and holds the Illustrator layer(s) containing the map data. Each Illustrator layer comprising the MAP View is depicted with an icon that represents the feature type of the layer.

## 5-ii: IMPORTING A MAP VIEW FROM EXISTING MAPUBLISHER DOCUMENTS

1. Open **usa48.ai** from the *Tutorial Data* folder.
2. Open a new blank document.
3. Select the new document and open the Map View palette via *Window > MAPublisher Palettes > MAP Views*.
4. Click the *Options* arrow in the top right corner of the palette and select **Import Map View**.  
A list of map views will be available from any opened document containing Map Views.  
In this case only one Map View '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 any Map Layers in that Map View.

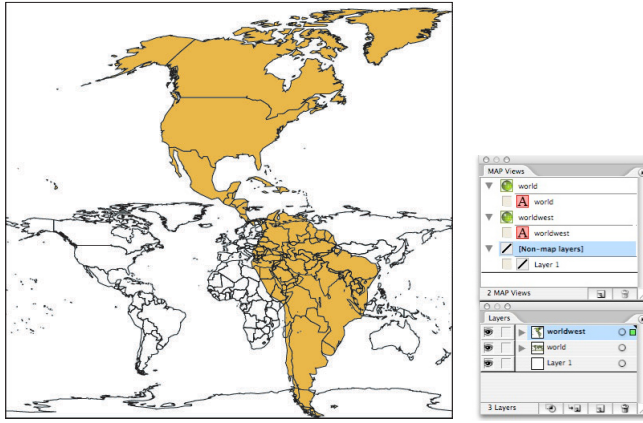
## 5-iii: DUPLICATING AND DELETING MAP VIEWS

1. Import any file from the *Tutorial Data* folder.
2. View the MAP Views palette (*Window > MAPublisher Palettes > MAP Views*).
3. Select the new MAP View by clicking on its name.
4. Click the *Options* arrow in the top right corner of the palette and select **Duplicate**.  
*A new MAP View entitled 'Copy of...' has been created, which at present does not contain any Illustrator layers.*
5. Select the MAP View you created in Step 4.
6. Click the *Options* arrow in the top right corner of the palette and select **Delete**.  
The MAP View entitled 'Copy of...' is deleted.
7. Note that you cannot delete a MAP View that contains one or more Illustrator layers. First you would need to drag these layers to another MAP View.

## 5-iv: REPROJECTING BY DRAGGING MAP LAYERS INTO ALTERNATE MAP VIEWS

1. Import the **world.mif** file from the *Tutorial Data* folder.
2. Import the **worldwest.shp** from the *Tutorial Data* folder.
3. You should now have two MAP Views created, one called '**world**', which is in Latitude/Longitude and holds the '**world**' layer, and the other called '**worldwest**', which is in Robinson projection, holding the '**worldwest**' layer.





'world' layer in Latitude/Longitude and 'worldwest' layer in Robinson projection.

4. In the MAP Views palette click on the **'worldwest'** layer and drag it into the **'world'** MAP View. *The 'worldwest' layer is instantly reprojected into Lat/Long projection and matches the page scaling of the 'world' layer. Drag it back to the 'worldwest' MAP View to restore it to Robinson.*



'world' and 'worldwest' layers both in Latitude/Longitude with matching page scaling.

## 5-v: DRAGGING NEW ILLUSTRATOR LAYERS INTO SIMILAR COORDINATE SYSTEMS

1. Repeat Tutorial 5-iv up to *Point 4*, where you have two layers in different projections in your document. Use the **Toggle Visibility** button in the Illustrator Layers palette to hide the **'world'** layer, therefore having only the **'worldwest'** layer visible.
2. Create a new Illustrator layer called **'Extras'**, and move it to the top of the layers hierarchy.
3. With the **'Extras'** selected in the Illustrator layers palette, roughly trace over some features that exist on the **'worldwest'** layer using Illustrator's drawing tools. As these new features will be polygons make sure that the elements are closed, so that the start and end points of the lines are coincident. Give your new polygons a red fill.
4. In the MAP Views palette click on the **'Extras'** layer and drag it into the **'worldwest'** MAP View.

5. In the **Undefined Layer** dialog, select **'Area'** from the **Feature Type** dropdown. Click **OK**.  
*The 'Extras' layer is moved to the matching coordinate system of the 'worldwest' MAP View.*
6. Repeat this exercise for other feature types if required.

## 5-vi: DRAGGING NEW ILLUSTRATOR LAYERS INTO DIFFERENT COORDINATE SYSTEMS

1. Repeat Tutorial 5-iv up to *Point 5*, where you have two different projections in your document, and the layers **'worldwest'** and **'Extras'** visible and placed in the **'worldwest'** MAP View
2. In the Illustrator layers palette, use the **Toggle Visibility** buttons to switch off the **'worldwest'** layer, and switch on the **'world'** layer.
3. In the MAP Views palette click on 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 reprojected from Robinson to Lat/Long and aligns with the data in the 'world' layer.*

## 5-vii: EDITING LAYER NAMES USING SEARCH & REPLACE

1. Import the **capeverde.e00** file from the *Tutorial Data* folder.
2. Open the Illustrator Layers palette. Note that there are 5 new layers as this e00 contains multiple feature types. Note that four of these layers contain the layer name **'PONET'**.
3. View the MAP Views palette (*Window > MAPublisher Palettes > MAP Views*). A MAP View has been automatically created, holding the 5 layers.
4. Click the *Options* arrow in the top right corner of the palette and select **Layer Name Search & Replace...**
5. In the **Find what:** field, enter **'PONET'**. In the **Replace with:** field, enter **'Cape Verde'**. Then click the **Replace All** button.  
*The text 'PONET' has been replaced with 'Cape Verde' in all applicable Illustrator layers.*

## 5-viii: MERGING MAP LAYERS

1. Using Simple Import, import the **worldeast** and **worldwest** shapefiles from the *Tutorial Data* folder.
2. Select all of the data in the document and open the MAP Attribute Window (*Window > MAPublisher Palettes > MAP Attributes*). Toggle between the layers using the **Layer** dropdown. As both layers are identical in terms of their attribute structures, it is possible to merge the layers together.
3. In the MAP Views palette shift-select the **'worldeast'** and **'worldwest'** layers so both are highlighted.
4. Click the **Options** arrow in the upper right corner of the dialog and select **Merge Layers**.
5. The two layers have been joined together to create a single layer holding all the attribute information. Change the name of the layer in the Illustrator layers palette if desired, and view the combined attribute table in the MAP Attributes Window.  
*Note: Locked layers can not be merged.*

## 5-ix: SPECIFYING A PROJECTION FOR AN IMPORTED FILE

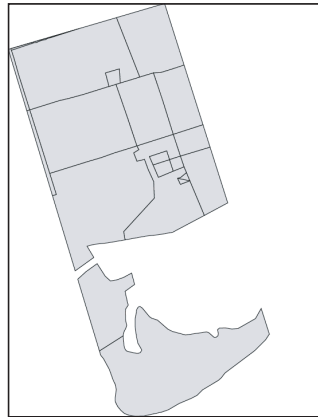
1. Using Simple Import, import the **ukrail.gen** file from the *Tutorial Data* folder. Do not specify a projection before you import the file.
2. Click on the '**ukrail**' MAP View in the MAP Views palette.
3. Go to *Options > Source Projection*.
4. Choose '**Europe**' from the **Projection Category** dropdown to display **by geographical area** then choose European projections. Then choose '**British National Grid (ORD SURV GB) (EPSG #27700)**' in the projection list.
5. Click **OK**.

*The source projection for the file is the British National Grid. Now that the MAP View has been assigned its coordinate system, you can subsequently reproject it.*

## 5-x: REPROJECTING USING THE MAP VIEW EDITOR

1. Open a new document with the size set to **Letter**, and the orientation set to **Portrait**.
2. Import the **fsatoronto.mif** file from the *Tutorial Data* folder. This file is in Generic Lat/Long projection.
3. In the MAP Views palette, click the '**fsatoronto**' MAP View and go to *Options > Edit "fsatoronto"...*  
*Alternatively you can double click the 'fsatoronto' MAP View.*
4. Change the name of the MAP View to '**Postalcode Zones**'.
5. In the **Projection Category** dropdown select '**UTM (NAD 83)**'.
6. In the **Projection List** select '**NAD 83 UTM, Zone 17 North, Meter**'. Click the **Details** button if you wish to see the parameters of this projection. Note that the **Preview Pane** displays how the new projection will be fitted onto the page.
7. Click **OK**.

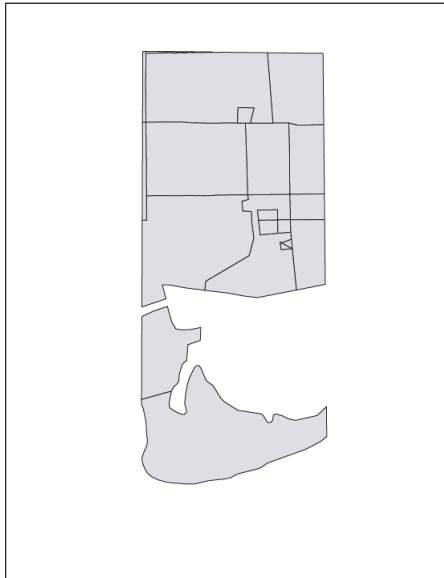
*The MAP View has been reprojected to 'Universal Transverse Mercator, Zone 17 North', in 'North American Datum 1983'. See the section on Projections and Datums in the User Guide for more information. The name of the MAP View has been changed to 'Postalcode Zones'.*



'fsatoronto' MAP View in Latitude/Longitude. 'fsatoronto' MAP View in UTM Projection.

## 5-xi: EDITING SCALE AND POSITIONING

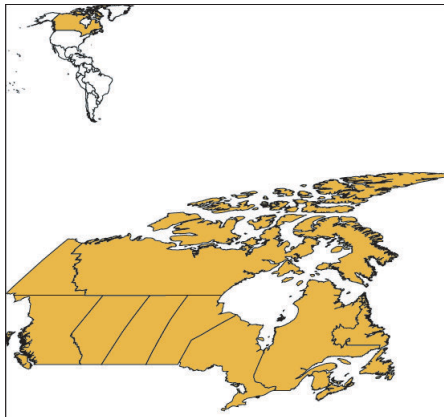
1. Repeat the previous tutorial, so that you have the Postalcode Zones MAP View in UTM.
2. In the MAP Views palette, click the '**Postalcode Zones**' MAP View and go to *Options > Edit "Postalcode Zones"...*  
*Alternatively you can double click the Postalcode Zones MAP View.*
3. Edit the Scale to **1:30,000** by entering '**30000**' in the **Scale** entry field.
4. There are 9 buttons in the *Alignment Control* graphic (LL Corner section). Click the **Central** button 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.*
5. Click **OK**.  
*The Postalcode Zones MAP View has been rescaled and repositioned in the centre of the page.*
6. In the MAP Views palette, double click the '**Postalcode Zones**' MAP View.  
*Alternatively you can go to Options > Edit "Postalcode Zones"...*
7. In the **Angle** field enter '**-17**' for an angle of rotation.  
*Alternatively use the clock hand in the graphic to achieve the rotation value of 343 degrees.*
8. 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.

## 5-xii: COPYING A PROJECTION FROM ONE LAYER TO ANOTHER

1. Open a new document with the size set to **Letter**, and the orientation set to **Landscape**.
2. Import the **worldwest.shp** file from the *Tutorial Data* folder. This file is in Robinson projection.
3. Select the **Canada** polygon and assign a fill colour to it.
4. In the MAP Views palette, double click the '**worldwest**' MAP View to open the MAP View Editor.
5. Edit the Scale to 1:250 million by entering '**250000000**' in the **Scale** entry field.
6. Click the **Align Top Left** button in the Alignment Control graphic (*LL Corner section*).  
*The Preview Pane shows the new data extents and the Page Anchor values have been automatically edited.*
7. Click **OK**.  
*The 'worldwest' MAP View has been rescaled and repositioned in the upper left corner of the page, hence providing a small locator map.*
8. Import the **canada.shp** file from the *Tutorial Data* folder. This file is imported in Lat/Long.
9. In the MAP Views palette, double click the '**canada**' MAP View to open the MAP View Editor.
10. Click the **Same As** checkbox, and click on the '**worldwest**' MAP View in the dropdown.  
*In the Projection List notice how Robinson is automatically selected. Click the Details button if you wish to see the parameters of this projection.*
11. Click the **Align Center** button in the Alignment Control graphic.  
*The Preview Pane shows the new data extents and the Page Anchor values have been automatically edited.*
12. Click **OK**.  
*The MAP View has been reprojected to match the projection of the 'worldwest' MAP View.*



'canada' MAP View in Robinson Projection, derived from the projection held in the 'worldwest' MAP View.

## 5-xiii: CREATING A NEW MAP VIEW

The following tutorial will provide a basic overview of assigning georeferencing information to existing Illustrator documents. Please see the section on 'Georeferencing an Adobe Illustrator File' in the User Guide for more notes on this subject.

1. Go to *File > Open*, and open the **toronto.ai** file from the *Tutorial Data* folder.  
This is a regular Illustrator document digitized in Generic Lat/Long. It contains two Illustrator layers containing area and line features, which do not contain any georeferencing or attribute information.
2. In the MAP Views palette notice there are two Illustrator layers that are in the **[Non-map layers]** section.
3. In the MAP Views palette click the *Options* arrow in the top right corner of the palette and select **New MAP View...** to open the MAP View Editor.
4. Specify a name for the MAP View. For this example call the MAP View **'Toronto'**.
5. Click the **Source Projection** button. The projection for this file is 'Generic Lat/Long'. Set the **Projection Category** to **'All Projections'** and scroll through the projection list and select **'Generic Lat/Long's, Degrees, -180 ==> +180'**. Then click **OK**.
7. The Scale for this file is 1:0.235123 (as the data is in Lat/Long, the scale value is in degrees) so enter **'0.235123'** in the **Scale** field.
8. Click **OK** in the MAP View Editor to apply the information to the new MAP View.
9. In the *MAP Views palette*, navigate to the *Options* pullout, and then click on **Specify Anchors**. This dialog will establish the tie-in point between Map Anchors (real world coordinates) and Page Anchors (coordinates in page units).
10. Set the *Map Anchors* to the value of a tie-in location. For this example use X = **'-79.5'** and Y = **'43.5'**.
11. 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 you are georeferencing).*
12. Click **OK** to exit the dialog and complete the parameters of the new MAP View.
13. In the MAP Views palette click on the **'Postalcode Zones'** layer and drag it into the **'Toronto'** MAP View.  
In the **Undefined Layer** dialog, select **'Area'** in the **Feature Type** dropdown and click **OK**.  
*The Postalcode Zones layer is moved to the specified coordinate system of the Toronto MAP View.*
14. Drag the **'Roads'** layer into the **'Toronto'** MAP View, specifying **'Line'** as the Feature Type in the **Undefined Layer** dialog.  
*Both Illustrator layers are now map layers, being in the specified coordinate system of the Toronto MAP View.*
15. (Optional). Click on the **'Postalcode Zones'** layer and select all the objects on this layer then open the MAP Attributes Window (*Window > MAPublisher Palettes > MAPublisher Attributes*)  
Click the New Column button on the bottom of the MAPublisher Attributes window. Change the new column name to **'Zone'**, the Type to **'String'** and the size to **'3'**. Select the southernmost polygon on this layer and open the MAP Attributes window. In the **'Zone'**, column enter **'MSJ'** and click **Apply**.  
*You can proceed in this manner to create attribute structures and enter values for both Illustrator layers.*
16. The file has now been fully georeferenced, and can therefore be exported to other GIS formats if required.  
With the addition of an attribute structure, you can fully utilize all of MAPublisher's functions.

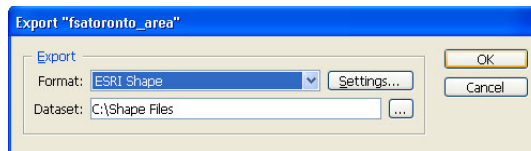
## 5-xiv: EXPORTING DATA TO GIS FORMATS

1. Using Simple Import, import both the **fsatoronto.mif** and **torontostreets.mif** files.
2. In the MAP Views palette, click on the '**fsatoronto**' layer, and go to *Options > Export 'fsatoronto'...*
3. In the Export dialog choose **ESRI Shape** from the format dropdown, and then click the **Browse** button. In the **Browse for Folder** dialog select a location for your exported file and click **OK**. The **Dataset** field will be populated with the path to this directory.

The '**fsatoronto**' layer has been exported to ESRI Shapefile with all attributes and georeferencing intact, and is ready to be used in software supporting this format.
4. Click **OK** to export. 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 User Guide.
5. In the MAP Views palette, click on the '**torontostreets**' layer, open the *MAP Attributes palette* and click the **Edit Schema** button. In the column list keep only 'Street','mif\_pen\_pattern' and '#Length' visible. (Select the other attributes from the column list and uncheck **Visible**.)
6. Go to *Options > Export 'torontostreets'...* In the Export dialog choose **MapInfo TAB** from the format dropdown. Then click the **Settings** button. Check the option for **Export visible attributes only**. Click **OK**.

This will keep only the visible attributes ('Street','mif\_pen\_pattern' and '#Length' columns in the exported data table).
7. Click the **Browse** button. In the **Browse for Folder** dialog select a location for your exported file and click **OK**. The **Dataset** field will be populated with the path to this directory.
8. Click **OK** to export. View the contents of the destination folder. Four new files have been 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**' layer has been exported to MapInfo TAB format with all attributes and georeferencing intact, and is ready to be used in software supporting this format.



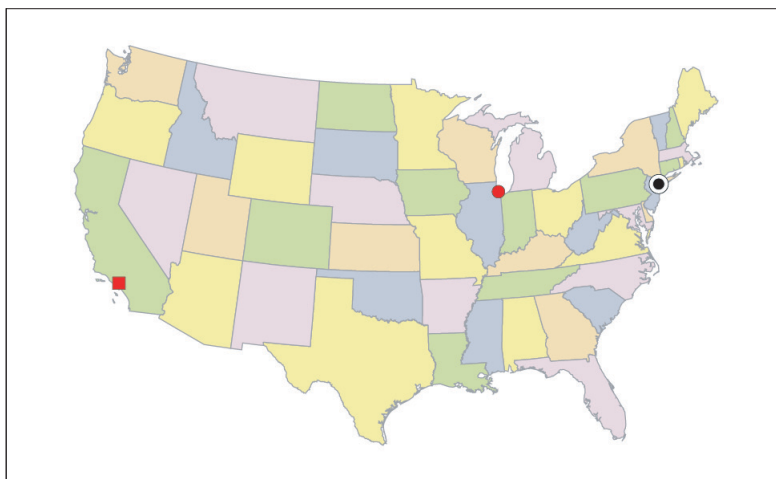
Export dialog prior to exporting the 'fsatoronto' layer.



# Plotting Points

## 6-i: PLOTTING POINTS IN DECIMAL DEGREE AND DMS FORMATS

1. Go to *File > Open*, and open the **usa48.ai** file 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 NAD27 Albers Equal Area.
2. Create a new Illustrator layer named '**cities**'.
3. In the MAP Views palette drag the '**cities**' layer into the '**usa**' MAP View. In the **Undefined Layer** dialog specify **Point** as the Feature Type.
4. Open the Illustrator **Symbols** palette (*Window > Symbols*).
5. Navigate to *Window > Symbol Libraries > Other Library...* and load the **MAP\_PointSymbols.ai** file from the *Program Files\Avenza\Mapublisher 7\Utilities\ Symbols* folder.
6. Choose a selection of city symbols in the **MAP\_PointSymbols** palette, and drag them into the Illustrator **Symbols** palette.
7. With the '**cities**' layer selected in the Illustrator layers palette, open the MAPublisher Point Plotter by going to *Window > MAPublisher Palettes > MAP Point Plotter*.
8. To plot a point for Los Angeles, enter **34.1151** in the **Latitude** entry field.  
Then enter **-118.4183** in the **Longitude** entry field.
9. Select a desired symbol from the **Symbol Selection**, leaving the **Scale** set at **100%**. Then click **Create**.  
*A point will be plotted at the location of Los Angeles (34.1151 Degrees North, by 118.4183 Degrees West).*
10. To plot a point for New York City, enter **40d41'14.0"N** in the **Latitude** entry field.  
Then enter **73d56'39.0"W** in the **Longitude** entry field.
11. Select an alternative symbol from the **Symbol Selection**, and change the **Scale** to **150%**. Then click **Create**.  
*A point will be plotted at the location of New York City (40 Degrees, 41 Minutes, 14 Seconds North, by 73 Degrees, 56 Minutes, 39 Seconds West).*
12. Plot a final point for Chicago. Its coordinates are **41d50'21"N (Lat)** by **87d41'18"W (Long)** in DMS format, or **41.8392 (Lat)** by **-87.6883 (Long)** in Decimal Degrees.

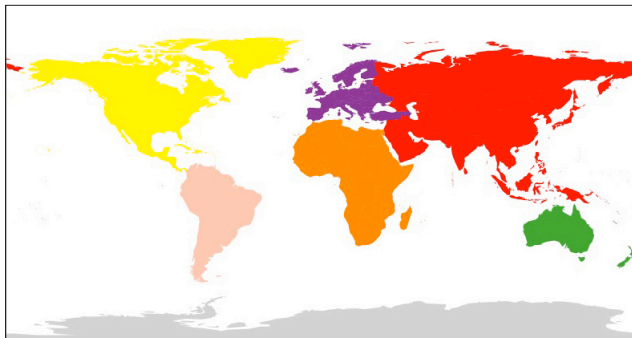


Results of using the MAPublisher Point Plotter to create points for Los Angeles, New York City and Chicago.

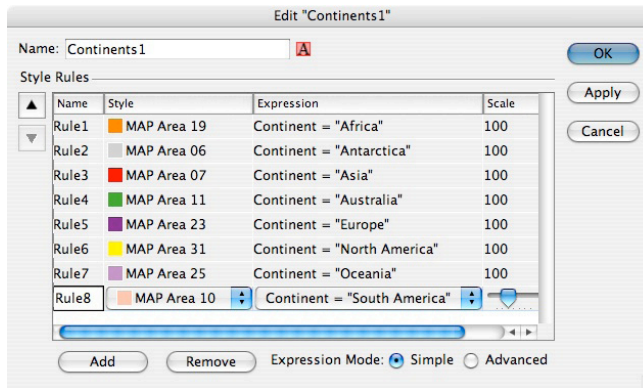
# Legends and Stylesheets

## 7-i: CREATING AN AREA STYLESHEET

1. In a new document, import the **world.mif** file from the *Tutorial Data* folder.
2. Open the Illustrator **Graphic Styles** palette (*Window > Graphic Styles* in Illustrator CS2).
3. Navigate to *Window > Open Graphics Style Library > Other Library...* and load the **MAP\_AreaStyles.ai** file from the *Utilities\ Graphic Styles* folder in the *Avenza* folder.
4. Select all the graphic styles in the **MAP\_AreaStyles** palette, and drag them into the Illustrator **Graphic Styles** palette.
5. Go to *Window > MAPublisher Palettes > MAP Stylesheets* to open the **MAP Stylesheets** palette.  
Note the new '**world**' layer has been automatically placed into a stylesheet of **None**.
6. Click the **Options** arrow in the top right corner of the palette and select **New MAP Stylesheet...**
7. In the **New Stylesheet** dialog type '**Continents1**' as the name, and set the feature type to **Area**. Click **OK**.
8. In the **MAP Stylesheets** palette, drag the '**world**' layer into the '**Continents1**' Stylesheet.
9. Click the '**Continents1**' Stylesheet and go to *Options > Edit "Continents1"...*  
*Alternatively you can double click the 'Continents1' Stylesheet.*
10. In the **Edit MAP Stylesheet** dialog, click the **Add** button.
11. Using the **Style** dropdown choose a colour for **Africa** from the styles you previously created.
12. Using the dropdown set the **Expression** column. *Keep the radio button set to Simple.* Using the dropdown menu set the attribute column to '**Continent**'. Use the equal sign for this expression. The **Value** column will populate with the contents of the '**Continent**' column. Select the **Value** to '**Africa**'.
13. Leave the **Scale** set at '**100%**'.
14. Repeat steps 10-14 for each of the subsequent continents. Note that you cannot use the same style more than once, as one style equals one legend entry.
15. When you have assigned a style to all of the continents, click the **Apply** button. If you are happy with the choices you have made click the **OK** button.  
*The styles specified have been applied to the map. The Styles you have used in the Graphic Styles palette, are now linked to the attribute values you specified.*
16. Save this file as it will be used again in Tutorial 7-iv.



Results of applying a MAP Stylesheet to the 'Continents' column of the 'world' layer.

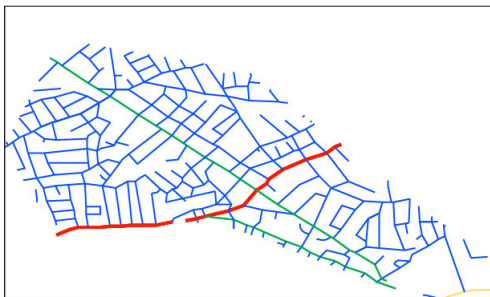


Associated MAP Stylesheet of the 'world' layer.

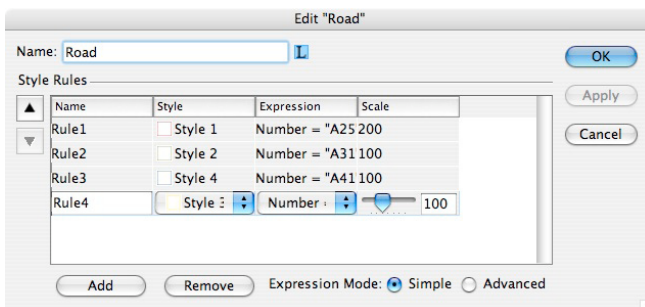
## 7-ii: CREATING A LINE STYLESHEET

1. In a new document, import the **fcstreets.mif** file from the *Tutorial Data* folder.
2. Open the Illustrator **Graphic Styles** palette (*Window > Graphic Styles* in Illustrator CS2).
3. Using Illustrator's Line Segment Tool, create your first legend item by drawing a line on the page. Assign it with a stroke weight of 2pt, a stroke colour of Red, and a fill of none. Drag this line into the **Graphic Styles** palette. Double click the Style and give this new style a name.
4. Change the colour of the line on the page to Green and drag this version into the Graphic Styles palette, again giving it a name. Repeat this to generate Yellow and Blue lines in the Styles palette. When you have all your new styles, delete the line you used to generate your styles.  
(You can change the order of our graphic styles within the Graphic Styles Palette similar to the Layers palette. This will provide useful when managing many graphic styles)
5. View the MAP Stylesheets palette (*Window > MAPublisher Palettes > MAP Stylesheets*). Note the new **'fcstreets'** layer has been automatically placed into a stylesheet of **None**.
6. Click the **Options** arrow in the top right corner of the palette and select **New MAP Stylesheet...**
7. In the **New Stylesheet** dialog type **'Road'** as the name, and set the feature type to **Line**. Click **OK**.
8. In the **MAP Stylesheets** palette, drag the **'fcstreets'** layer into the **'Road'** Stylesheet.
9. Double click the **'Road'** Stylesheet.  
Alternatively you can click the Road Stylesheet, and then go to *Options > Edit "Road"...*
10. In the **Edit MAP Stylesheet** dialog, click the **Add** button.
11. Using the **Style** dropdown choose the **Red** line from the styles you previously created.
12. Using the dropdown menu for the **Expression** column set the column to **'Number'**. Use the equal sign for an operator. The contents for the **'Number'** column will populate the **Value** dropdown.
13. Then set the **Value** to **'A25'**.
14. Change the **Scale** to **'200%'**.
15. Repeat steps 10-14 for each of the subsequent road numbers, making **A31 = Green**, **A41 = Blue**, and **A45 = Yellow**. For these three road types, leave each scale at **'100%'**. Note that you cannot use the same style more than once, as one style equals one legend entry.

16. When you have assigned a style to all of the lines, click the **OK** button.  
*The styles specified have been applied to the map. The Styles you have used in the Graphic Styles palette, are now linked to the attribute values you specified. Note that A25 now has a stroke weight of 4pt, as this legend entry was scaled to 200%.*
17. Save this file as it will be used again in Tutorial 7-v.



Results of applying a MAP Stylesheet to the 'Number' column of the 'fcstreets' layer.

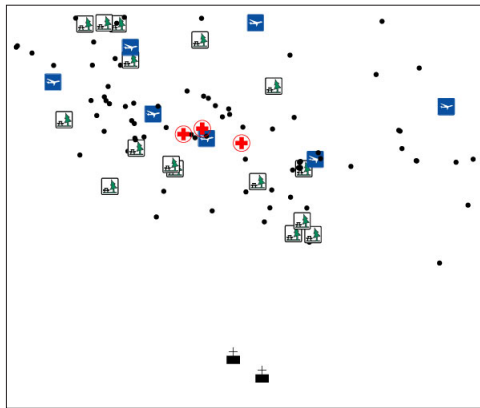


Associated MAP Stylesheet of the 'fcstreets' layer.

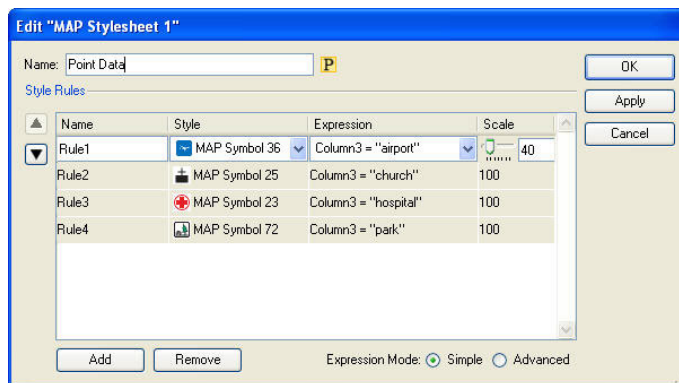
## 7-iii: CREATING A POINT STYLESHEET

1. Repeat Tutorial 3-vi (Importing Points).
2. Open the Illustrator **Symbols** palette (*Window > Symbols*).
3. Navigate to *Window > Symbol Libraries > Other Library...* and load the **MAP\_PointSymbols.ai** file from the *Utilities\ Symbols* folder.
4. Select all the symbols in the **MAP\_PointSymbols** palette, and drag them into the Illustrator **Symbols** palette.
5. View the MAP Stylesheets palette (*Window > MAPublisher Palettes > MAP Stylesheets*). Note the new **'azdeci\_point'** layer has been automatically placed into a stylesheet of **None**.
6. Click the **Options** arrow in the top right corner of the palette and select **New MAP Stylesheet...**
7. In the **New Stylesheet** dialog type **'Point Data'** as the name, and set the feature type to **Point**. Click **OK**.
8. In the **MAP Stylesheets** palette, drag the **'azdeci\_point'** layer into the **'Point Data'** Stylesheet.
9. Click the **'Point Data'** Stylesheet and go to *Options > Edit "Point Data"...*  
*Alternatively you can double click the 'Point Data' Stylesheet.*

10. In the **Edit MAP Stylesheet** dialog, click the **New** button.
11. Using the **Style** dropdown choose **'MAP Symbol 36'** from the symbols you have loaded.
12. Using the dropdown menu for the **Expression** column set the column to **'Column 3'**.  
Use the equal sign for an operator. The contents for the **'Column 3'** column will populate the **Value** dropdown.
13. Then set the **Value** to **'airport'**.
14. Change the **Scale** to **'40%'**.
15. Repeat steps 10-14 for the values **'church'**, **'hospital'** and **'park'**, choosing appropriate symbols for each.
16. When you have assigned the symbology you require, click the **OK** button.  
*The symbols specified have been applied to the map. The Symbols you have used in the Illustrator Symbols palette are now linked to the attribute values you specified.*



Partial view of applying a MAP Stylesheet to 'Column 3' of the 'azdeci\_point' layer.



Associated MAP Stylesheet of the 'azdeci\_point' layer.

## 7-iv: DUPLICATING STYLESHEETS

1. Repeat Tutorial 7-i (or open the file you saved at the end of Tutorial 7-i).
2. In the MAP Stylesheets palette, click the **'Continents1'** Stylesheet and go to *Options > Duplicate "Continents1"...*
3. Double click the **'Copy of Continents1'** Stylesheet
4. In the **Edit MAP Stylesheet** dialog, change the name of the stylesheet to **'Continents2'**.
5. Using the **Style** dropdowns change the colours used to represent the continents.
6. When you have assigned a different style to all of the continents, click the **OK** button.
7. Now you have two stylesheets relating to one Illustrator layer. In the **MAP Stylesheets** palette, drag the **'world\_area'** layer from the **'Continents1'** Stylesheet and into the **'Continents2'** Stylesheet.  
*The new styles specified have been applied to the map. Drag the 'world' layer back to 'Continents1' to restore the map to its previous colour scheme.*

## 7-v: EDITING STYLES TO CHANGE ATTRIBUTES

1. Repeat Tutorial 7-ii (or open the file you saved at the end of Tutorial 7-ii).
2. Using a **Selection Filter** via *Window > MAPublisher Palettes > MAP Selection Filter* create a new selection filter.
3. Select the browse Selection Filter option. Expand the expression components window. Add the **'Number'** column to the expression by double clicking it from the **'fcstreets'** objects list. Click the equal to operator. In the **Description** window click display unique values and double click **A45** to highlight it and drag to the **Expression** window. Notice the *type* in the column is a *string*. Therefore quotations must be inserted. The expression should read **Number="A45"** Click **OK**. This will select all lines on the **'fcstreets'** 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. Note that the colour of this line corresponds with the legend applied in Tutorial 7-ii.
4. Open the Illustrator Styles palette and with the line styles you created in Tutorial 7-ii, assign the **Blue** line style to this line.
5. Open the **MAP Attributes** window, to display the line attributes of the currently selected objects. Note that **'Wilson Blvd'** now has a **Number equal to A41**.  
*Simply changing a style currently used to represent another attribute in the Road stylesheet has changed the attributes of the selected line from A45 to A41.*

## 7-vi: CREATING A MAP STYLESHEET LEGEND

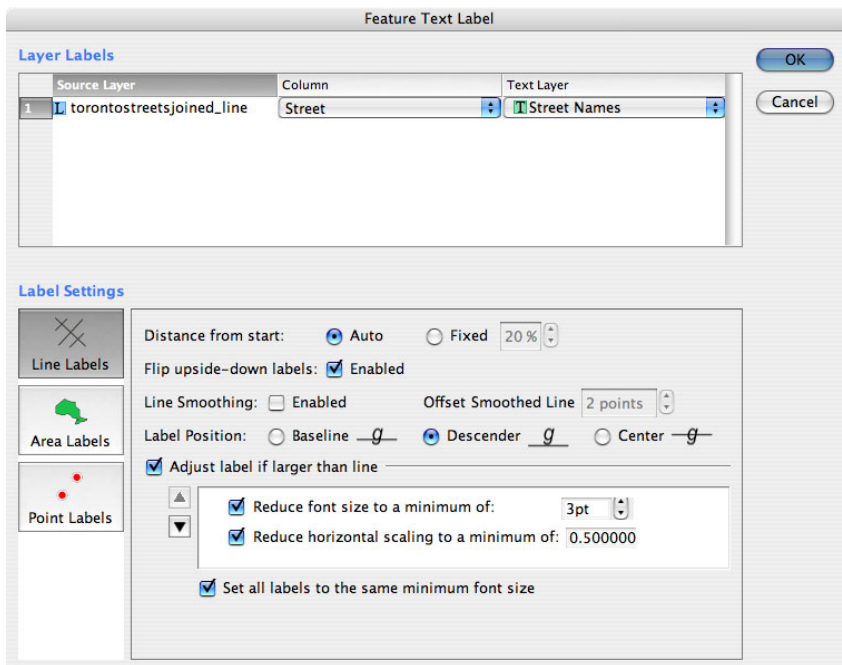
1. Repeat Tutorial 7-i (or open the file you saved at the end of Tutorial 7-i).
2. In Illustrator's Layer palette rename **'Layer 1'** to **'Legend'**.
3. Open the MAP View window drag the layer **'Legend'** into the **'world'** MAP View and assign it a **Legend** layer.
4. Select the type tool and choose a font you prefer, set the size to 10 pt.
5. In the MAP Stylesheets palette, click the **'Continents1'** Stylesheet and go to *Options > Create MAP Stylesheet Legend*. In target layer window and choose the **'Legend'** layer and click **OK**.  
The legend is created and positioned in the SW corner using the typeface chosen at 10 pts.  
*Stylesheet legends can be created from any stylesheet (area, line, point or text). Stylesheet legends display a symbol for the type of stylesheet used, the stylesheet rule's name and the expression used to create the rule.*  
*The MAP Stylesheet Legend can easily be edited, it is an Illustrator nested object.*

# Text Creation

## 8-i: GENERATING LABELS FOR A LINE LAYER USING FEATURE TEXT LABEL

1. Import the **torontostreetsjoined.mif** file from the Tutorial Data folder.
2. Create a new layer in your Illustrator Layers palette and name this layer **'Street Names'**. Then drag this new layer into the **'torontostreetsjoined'** MAP View, setting the feature type to **Text**.
3. Select a font and text size for the labels you want to create.
4. Click on the **'torontostreetsjoined'** MAP Layer in your Illustrator Layers palette, and select the features you wish to label. In this example simply select one or more of the streets that were just imported.
5. Go to **Filter > MAP Legend > Feature Text Label** to open the MAPublisher Feature Text dialog.
6. In the Text Dialog box you must first set the options for MAPublisher to determine the attributes that will be converted to text labels. The **Source Layer** list will show the Area, Point and/or Text layers currently containing selected data. For each layer, the **Column** dropdown(s) will be populated with the attribute structure of that layer. You must choose a column that holds the attributes you wish to label the data with. For this example, choose **'Street'**. This column contains the name of every street in the selected MAP Layer.
7. In the **Text Layer** dropdown(s), you must specify a Text layer that the labels will be output to. For this example choose the **'Street Names'** layer.
8. In label setting we 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 will place Line labels intelligently, depending on the curvature and length of the line string. Click the **Line Labels** button on the left to assign MAPublisher Line Label Settings.
9. The **Distance from Start** option will allow you to specify where along the line you would like the label. Lets choose **Auto** and let MAPublisher place the text at the midpoint for straight lines. For curved lines this will find the smoothest portion of the curved line closed to the midpoint.
10. By enabling **Flip upside-down labels** MAPublisher will automatically orient labels correctly, so lets leave this option enabled.
11. By checking the **Line Smoothing** option, MAPublisher will create a smoothed path for each text object in the selected Text layer, and place the text along this path at the specified **Offset** value. The labels can then be dragged and positioned at any position along a line. For this example leave it unchecked because the streets are very linear.
12. The **Label Position** option allows you to select the vertical position of the labels relative to the line. Three options are available for the vertical positioning of text labels: *Baseline*, *Descender*, and *Center*. Select **Descender** to place the labels on top of the generated text path.
13. Labels can be modified if they exceed the length of the line in the current default font size. First check the **Adjust label if larger than line** option 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** button. Checking the **Reduce font size** option will allow you to reduce the size of the font to a specified minimum size in points. We can select 3 for this exercise.
14. Checking **Reduce horizontal scaling** will allow text to be scaled down horizontally by the fraction specified. Leave this at 0.500000.
15. Feature Text Label also provides an additional option (not applicable in MAP Tagger). 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 by checking the **Set all labels to the same minimum font size** option.
16. Click **OK** and the labels appear for the selected map features.





Feature Text Label Dialog window settings for Line Feature.

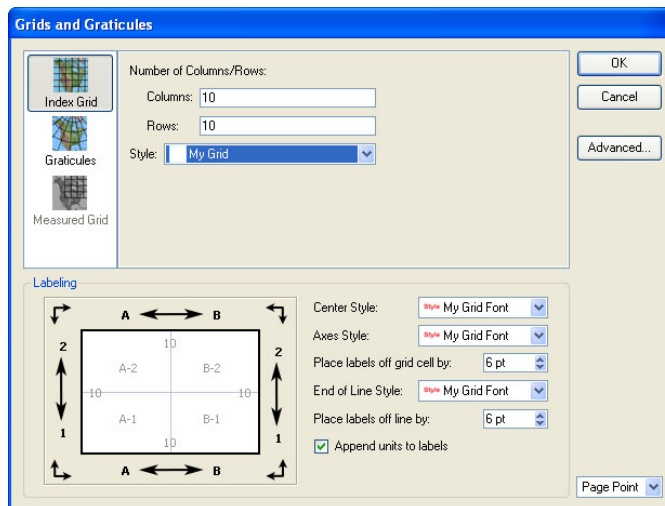
## 8-ii: GENERATING LABELS FOR AN AREA LAYER USING THE MAP TAGGER TOOL

1. Import the **fsatoronto.mif** file from the *Tutorial Data* folder.
2. Create a new layer in your Illustrator Layers palette and name this layer '**Zone Names**'. Then drag this new layer into the '**fsatoronto**' MAP View, setting the feature type to **Text**.
3. Select a font and text size for the labels you want to create.
4. Click on the **MAP Tagger Tool** button in the Adobe Illustrator Tools palette to open the Tagger Tool dialog.
5. Similar to the feature text label in the previous example, in the Text Dialog box you must first set the options for MAPublisher to determine the attributes that will be converted to labels. The **Source Layer** list will show the Area, Point and/or Text layers currently containing selected data.
6. For each layer, the **Column** dropdown(s) will be populated with the attribute structure of that layer. Set the **Column** dropdown list to whichever column you wish to draw the labels from. For this example, choose '**FSA**'. This column contains the name of every Postalcode Zone in the selected MAP Layer.
7. Set the text layer to output the labels to. For this example choose the '**Zone Names**' layer.
8. Click **OK**.
9. With the MAP Tagger icon, click on any feature you wish to label.

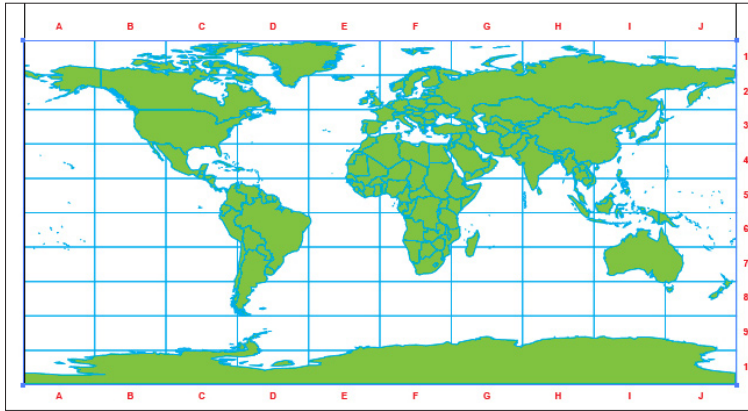
# Grids, Graticules & Indexes

## 9-i: CREATING AN INDEX GRID

1. Import the **world.mif** file from the *Tutorial Data* folder.
2. In your Illustrator layers palette, create a new layer called '**Grid**'. Drag this new layer into the '**world**' MAP View, specifying a Feature Type of **Legend**.
3. Define the visual parameters for the grid by drawing a rectangle with the colour fill to 'None' and choosing a stroke colour of Blue, drag it to your Graphics Palette and rename it '**My Grid**'. Open the Adobe Illustrator Character Styles Palette and create a new character style setting the font family, font style, size and character colour and name it '**My Grid Font**'.  
*If you are unfamiliar with this process please refer to your Adobe Illustrator Users Guide.*
4. Using the **MAP Location Tool** click an area just above Greenland to set the vertical extent of the grid.
5. Make sure that the layer you want to place the grid on is selected and unlocked and select **Filter > MAP Legend > Grid & Graticules** to open the MAPublisher Grid and Graticules dialog.
6. Select **Index Grid** if not already selected. Leave the **Number of Columns/Rows** as the default of '**10**'.
7. Select '**My Grid**' from the Style dropdown menu to set the style of grid.
8. In the **Labeling Options** the character style '**My Grid Font**' can be selected for Center, Axes and End of Line Styles. *Notice when the mouse hovers over each menu style the Labeling Box highlights the corresponding item.*
9. Leave **Place labels of grid cell** and **Place label off line by the default** of 6pt.
10. Click on the **Append units to Label** checkbox. *This will generate Index Labels along the axis you set for your map and ensure they are offset from the grid.*
11. For this exercise we will label just the axes, so in the Labeling Box select all the outer axes locations. Make this selection by clicking on the numbers in the lower left display. *When selected they will turn bold.*
12. Click **OK** to process the Index Grid based on the entered configuration.  
*A grid is placed on the map based on your specifications. Each cell carries an alphanumeric identifier. Grids can be edited by using the bounding box of the grid or select the grid and choose Edit Index Grid from the Object Menu.*
13. Save this file, as it will be used in step 9-iii: Creating an Index: Featured Based.



Index Grid dialog after configurations have been made.





A map of the world with an Index Grid.


## 9-ii: CREATING A GRATICULE

1. Create a new document in Portrait orientation. Import the **world.mif** file from the *Tutorial Data* folder.
2. In your Illustrator layers palette, create a new layer called '**Graticule**'. Drag this new layer into the '**world**' MAP View, specifying a Feature Type of **Legend**.
3. Draw a rectangle with no fill and a blue stroke of 1, drag this to the Graphic Palette and name it '**My Grid**'.
4. Make sure that the layer you want to place the grid on is selected and unlocked and select *Filter > MAP Legend > Grid and Graticules* to open the MAPublisher Grid and Graticules dialog.
5. Click the **Graticules** button. *Graticules can be plotted at specific lines of latitude and longitude.*
6. Enter '**0**' for the **Latitude to pass through** and '**0**' for the **Longitude to pass through**.  
*This will create a graticule that passes through the Prime Meridian and the Equator.*
7. Enter '**20**' for the **interval of Latitude** and '**20**' for the **interval of Longitude**.  
*This will create 20 degree interval for the graticules.*
8. Set the style to "**My Grid**" created earlier.
9. Using the Vertices slider will control the number of nodes to construct the graticule, for now leave the default setting. *Higher numbers should be used if graticules are curved.*
10. 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. An example of this would be there is no data in this graticule, or there is only a small portion of the graticule showing and it does not need to be labelled. For this exercise we will not need this option.
11. Set the labeling to label the Center which are the '**10**'s in the Label box.  
*They will turn bold when they will be labelled.*
12. Click **OK** to process the graticule based on the entered parameters.  
*A graticule is placed on the map based on your specifications.*

Grids and Graticules

 Index Grid

 Graticules

 Measured Grid

Latitude  
Pass through: 0 Interval: 20 °

Longitude  
Pass through: 0 Interval: 20 °

Style: My Grid

Vertices:

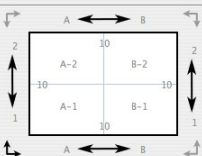
Don't label: ☐ First row ☐ First column ☐ Last row ☐ Last column

OK

Cancel

Advanced...

**Labeling**



Center Style: My Grid Font

Axes Style: My Grid Font

Place labels off grid cell by: 6 pt

End of Line Style: My Grid Font

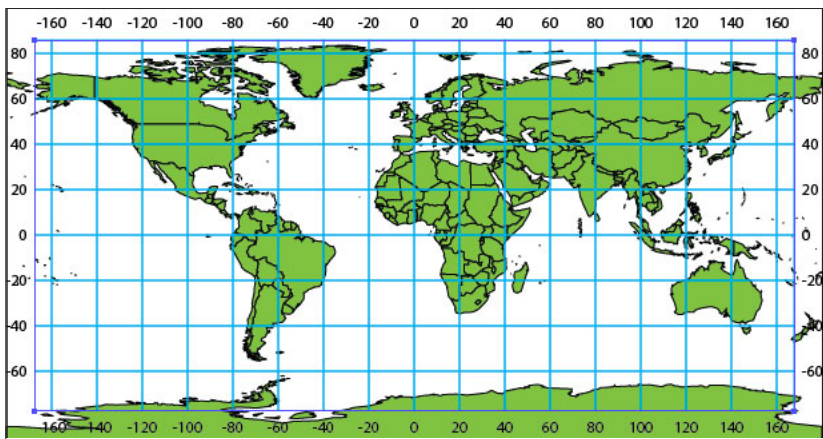
Place labels off line by: 6 pt

☐ Append units to labels

\*Degree\*

Tip: Edit an existing grid by selecting it, and clicking on the menu Object > Edit Grid.

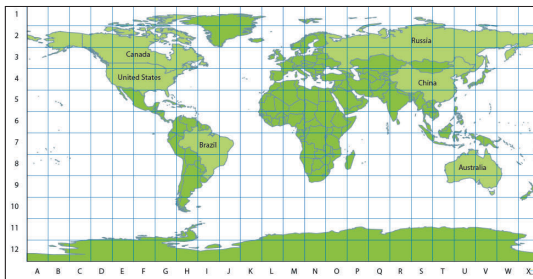
Graticule dialog after all values have been entered.



A map of the world with a graticule in 20 degree intervals  
with a graticule passing threw the Prime Meridian and the Equator.

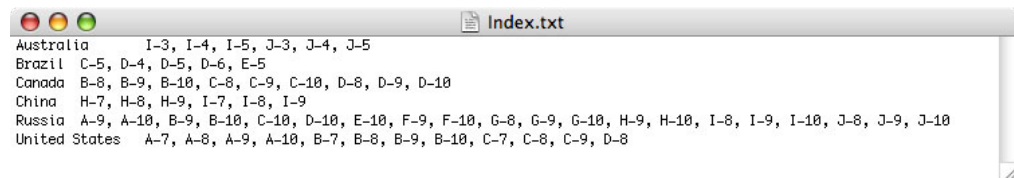
### 9-iii: CREATING AN INDEX: FEATURE BASED

1. Open the file you saved at the end of Grid and Graticules Tutorial 9-i.
2. In your Illustrator layers palette, create a new layer called **'Text'**. Drag this new layer into the **'world'** MAP View, specifying a Feature Type of **Text**.
3. Apply labels to several or all of the countries using Feature Text Label or the MAP Tagger Tool.
4. Select the **Grid** layer and then select the **Grid**.
5. Select **Filter > MAP Legend > Make Index** to open the Make Index dialog.
6. Select the radio button for **Make index based on label and matching feature position**.
7. Set the **Text Layer** dropdown list to **'Text'**. Set the **Grid Layer** dropdown list to **'Grid'**.
8. Click the **Features** radio button and set the **Layer** dropdown list to the vector layer that you labeled via Feature Text Label or the MAP Tagger Tool. For this example the layer you labeled is **'world'**.
9. In the **Attribute to Match** dropdown, select the attribute column you used to generate your text labels. This is the attribute column containing the map text.  
*Indexing by Feature will generate an index entry for every legend cell that the labeled map object occurs in.*
10. If desired, you can check the **Remove Duplicate Entries** box.  
*'Remove Duplicate Entries' will check instances where the two labels appear in the same grid cell, and subsequently index only unique text items.*
11. Set the **Entry Delimiter** to **Tabs**, and then **Sort Output File** by **Feature Label**.  
*The grid cell locator and feature name in the index file will be separated by a single TAB. The index will be sorted alphabetically by feature label.*
12. After all of the options have been set, click on the **Save As** button.
13. Name your index and click the **Save** button.  
*Both dialog boxes close and a text file is created based on the specifications entered in the Make Index dialog.*
14. The index you have just created may be inserted into your map document by creating an Adobe Illustrator text box and using the Place command (**File > Place**).



Left: A map of the world with a grid containing index labels and several counties labeled.

Below: Feature based index file viewed in TextEdit, sorted by feature label, delimited by TABs and with Duplicate entries removed. Entries and grid cells are sorted alphabetically.



## 9-iv: CREATING AN INDEX: TEXT BASED

1. Repeat steps 1-5 from Tutorial 9-iii.
2. Click the **Make index based on label position** radio button.  
*Indexing by label position will generate an index depicting only grid cells that contain a text label.*
3. If desired, you can check the **Remove Duplicate Entries** box.
4. Set the **Entry Delimiter** to **Commas**, and then **Sort Output File** by **Grid Cell**.  
*The grid cell locator and feature name in the index file will be separated by a single comma. The index will be sorted alpha-numerically by grid cell label.*
5. After all of the options have been set, click on the **Save As** button.
6. Name your index and click the **Save** button.  
*Both dialog boxes close and a text file is created based on the specifications entered in the Make Index dialog.*
7. The index you have just created may be inserted into your map document by creating an Adobe Illustrator text box and using the Place command (*File > Place*).



Text based index file viewed in TextEdit,  
sorted by grid cell label, and delimited by commas.

# Selection Statistics

## 10-i: MAKING SELECTIONS WITH SELSTATS

1. Import any map file from the *Tutorial Data* folder.
2. Make sure the MAP Layer is selected in the Illustrator Layers palette, and select a portion of the map's features.
3. Go to *Window > MAPublisher Statistics > SelStats* to open the SelStats window.  
*The total number of features and the number of features that are selected are displayed.*  
*Note: This tool will only function on MAP Layers.*
4. Click the **R** button.  
*The selections made in step 2 are reversed.*
5. Click the **Save** button, deselect all features, then click **Recall**.  
*All features that were selected in step 4 will be reselected.*
6. Deselect all features and make another random selection. **Click M OR**.  
*The selected set of features will now consist of both the saved features and the features you just selected.*
7. Deselect all features and make another random selection. **Click M AND**.  
*The selected set of features will now consist of the features that are common to the saved selection set and the selection you just made.*
8. Deselect all features and make another random selection. Click **M XOR**.  
*The selected set of features will now consist of the features that are not common to the saved selection set and the selection you just made.*

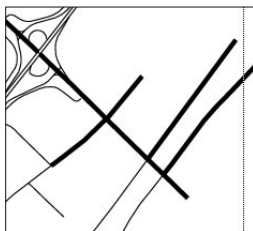


# Line Functions

## 11-i: BUFFERING LINES USING AN ENTERED VALUE

1. Import the ***burlroads.mif*** file from the *Tutorial Data* folder. *This file has no projection.*
2. Assign the **Source Projection** to **NAD83 UTM, Zone 17 North, Meter (EPSG #26917)**.
3. In the Illustrator Layers palette, create a new layer called '**Buffer Areas**'
4. In the MAP Views palette, drag this layer into the '**burlroads**' MAP View, specifying **Area** as the feature type.
5. Select a few lines to be buffered.
6. Go to **Filter > MAP Lines > Buffer Lines** to open the Buffer Lines dialog.
7. Click the **By Entered Value** radio button.
8. Enter '**25**' in the adjacent text box to represent a buffering value of 12.5 metres on either side of the selected road(s).
9. In the **Target Layer** dropdown, select the '**Buffer Areas**' layer.
10. Click **OK**.

*The lines that were selected for buffering have been overlayed with new area objects, representing a buffer created around the original lines of the specified width.*



Burlroads file with buffer objects applied.

## 11-ii: 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 'Keep Text Above Lines' option in Feature Text Label or the MAP Tagger Tool. Alternatively you can permanently correct any digitalizing irregularities by using the Flip Selected Lines function.

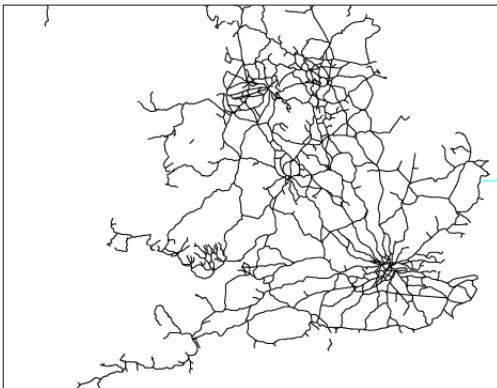
1. Import the ***torontostreetsjoined.mif*** file from the *Tutorial Data* folder.
2. Create a **Selection Filter**, to select the lines that have a value in the **Street** column equal to: '**COLLEGE ST or DUNDAS ST W**' the expression will read **STREET="COLLEGE ST" OR "DUNDAS ST W"** 'College Street' and 'Dundas Street West' will be selected.
3. Go to **Filter > MAP Lines > Flip Lines** to run the Flip Lines function.  
*The selected lines will have their beginning and end points switched. Any labels placed along these lines will now be oriented correctly.*
4. Use Feature Text Label or the MAP Tagger Tool to label these lines.  
*The selected lines are now labeled and the text is oriented above the lines irrespective settings made within these dialogs. The orientation of the lines is also permanently corrected.*

### 11-iii: JOINING LINES BASED ON ATTRIBUTE VALUE

1. Import the **torontostreets.mif** file from the *Tutorial Data* folder.
2. Go to **Filter > MAP Lines > Join Lines...** to open the MAPublisher Join Lines dialog.
3. Set the **Column** dropdown list to '**Street**' in order to join the lines by their street name value.
4. Enter a name in the **Output Layer** text box. This will be the name of the new layer containing the joined lines.  
For this example type in '**Joined Streets**'.
5. Enter '**0.0001**' in the **Proximity** text box.
6. Ensure the **Close Segment Gaps & Generate non-compound paths if lines have common endpoint** are unchecked.
7. Click **OK**.  
*A new layer is created wherein all the specified lines are joined based on the specifications set in the dialog.*

### 11-iv: SIMPLIFYING LINES

1. Create a new document with the document size set to 'Letter' and the orientation set to Portrait.
2. Repeat Tutorial 5-ix (Specifying a Projection for an Imported File).
3. Select all of the lines in the '**ukrail**' layer and go to **Filter > MAP Lines > Simplify Lines** to open the Simplify Lines dialog.
4. Check the **Map Units** radio button in the **Proximity** section of the dialog, set the Units to '**mile**' and specify a Proximity value of '**10**'.
5. Check the **Use Bezier Curves** option if you want the simplification process to incorporate Bezier curves.
6. Click **OK** to start the simplification process.  
*The selected lines are now simplified based on a proximity value of 10 miles.*



Partial view of the 'ukrail' layer before and after implementing Simplify Lines.

## 11-v: JOINING POINTS

1. Via Simple Import, import the **torontostreetsjoined.mif** and **torontopoints.mif** files. After import, ensure the **'torontopoints'** layer is at the top of the layers hierarchy in the Illustrator Layers palette.
2. Select all the imported points and open the MAP Attributes window. Note that the **'ID'** column contains four unique attributes, 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.
3. Deselect all the points. Then access the Join Points dialog by navigating to *Filter > MAP Lines > Join Points*.
4. As there is only one point layer in the document, and there are no points selected, leave the **Input Layer** section at its default settings.
5. In the **Output Layer** section, specify a name for the layer that will contain the joined points. Do not check the **Close Paths** option.
6. In the **Group By** section, select the **'ID'** attribute column, as this contains the unique attributes that we want to use to join similar points together.
7. In the **Sort By** section, click on the **'AreaNumber'** attribute column, then click the **Add** button.
8. In the **Sort By** section, click on the **'LineNumber'** attribute column, then click the **Add** button.
9. Select the **'LineNumber'** column in the **Sort Order** section, then click the **Up** button. This will specify that we want to the **'LineNumber'** column to be used as the primary column when determining the ordering of points in the chain. The **'AreaNumber'** column will be used as the secondary sorting column, if any points in the primary column contain matching values.
10. Click the **OK** button.

*All the points are joined based on the entered parameters. A new Line layer has been created which contains the 4 new line strings. The lines represent two subway lines, the mainline rail track, and the perimeter of a small park.*
11. Select the four lines on the new Line layer and open the MAP Attributes windows. Note that a column named **'ID'** has been created, which contains the values in the **'Group By'** column.
12. Note that the small segment with the attribute **'P43'** is the outline of a park area. However, this segment should be closed. Therefore delete this line string.
13. Click on the **'torontopoints'** layer in the Illustrator Layers palette. Then, using Select By Attribute, select all the points with an **'ID'** which is **'Equal to' 'P43'**.
14. With these points selected, reopen the Join Points dialog.
15. Specify **Selected Points** in the **Input Layer** section.
16. In the **Output Layer** section, specify a name for the layer that will contain the joined points. This time, check the **Close Paths** option.
17. Repeat Steps 7-9.
18. Click the **OK** button.

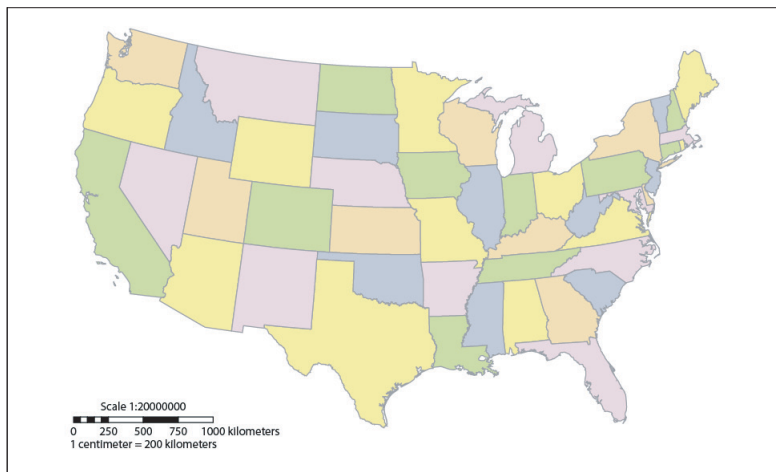
*The selected points are joined based on the entered parameters. A new Area layer has been created which contains the polygon. The area represents the perimeter of a small park.*



# Scale Bars and North Arrows

## 12-i: CREATING A SCALE BAR

1. Go to *File > Open*, and open the **usa48.ai** file from the Tutorial Data folder.
2. Create a new Illustrator layer and rename it '**Scale Bar**'.
3. In the MAP Views palette, drag the '**Scale Bar**' layer to the '**usa**' MAP View, setting the Feature Type to **Legend**.
4. Set your desired font and font size using the Illustrator Character palette. For this example use an 8 pt font.
5. Open the MAPublisher Scale Bar filter by going to *Filter > MAP Legend > Scale Bar*.
6. Choose a desired scale bar style using the Previous and Next buttons.
7. Set the **Advanced Options** as follows:
8. Set the Units dropdown list to '**Kilometer**'.
9. Enter a Label Interval of '**250**' kilometers.
10. Set the **Number of Labeled Intervals** to '**4**'.
11. Depending on the Scale Bar you have chosen, you can also select the **Number of horizontal lines** to use in the plotted Scale Bar. *These settings will create a scale bar that equates cms on the page to kms on the map and that is 0.2 cm high.*
12. Set the **Number of Intervals to Subdivide** to '**1**', and the **Number of Sub-intervals** to '**5**'.  
*These settings will create a scale bar that represents a total distance of 1000 km, has 4 main cells each representing 250 km and where the first cell is further divided into 5 smaller cells.*
13. Set the **Label Options** as follows:
14. Select the **Display Scale** value as above
15. Select the **Display page to map units ratio** checkbox.
16. Set the **Page Units** dropdown list to '**Centimeter**'.
17. Select the **Display units to right of last interval label** checkbox. *These settings will create a scale bar with caption labels placed accordingly.*
18. Click **OK** to create the scale bar. The Scale Bar will be placed on the page according to the defined settings.



Usa48.ai file with a MAPublisher generated Scale Bar.

## 12-ii: CREATING A NORTH ARROW

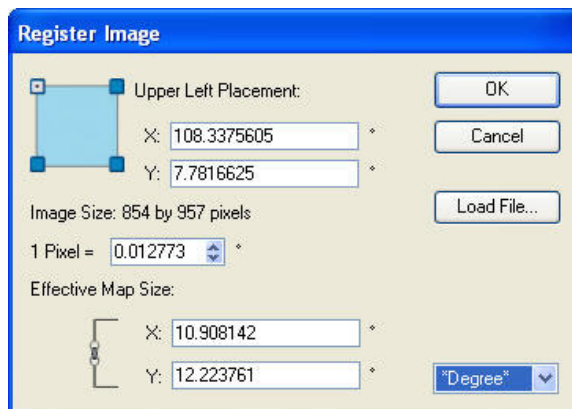
1. Import any map file from the *Tutorial Data* folder.
2. Create a new Illustrator layer and rename it '**North Arrow**'.
3. In the MAP Views palette, drag the '**North Arrow**' layer into the specified MAP View, setting the Feature Type to **Legend**.
4. Make sure your '**North Arrow**' layer is the active layer and using the type tool create the letter '**N**'. With the type selected go to *Filter > MAP Legend > Create North Arrow*. The type is now a North Arrow. *North Arrows can be created from any art object in Illustrator including symbols and characters. Note that the North Arrow created is added to the Symbols Palette.\**
5. Open the MAP View of the imported file and adjust the **Angle** to **45**.
6. Click the **OK** button.  
*The North Arrow will be orientated according to the MAP View it is place in. Therefore any changes made to the Projection or Angle of the MAP View containing the North Arrow will correspond correctly.*

*\* Sample North Arrow designs have been included on your MAPublisher CD or with your download. Go to Window > Goodies > Illustrator Utilities > Symbols folder to find the 'MAP\_NorthArrows.ai' file. For downloaded copies the Symbols folder is located at Program Files > Avenza > MAPublisher 7 > Utilities > Symbols. Drag the required symbol onto your Legend layer and then execute the Create North Arrow filter. On creation the North Arrow will be added to the Illustrator Symbols palette and the coordinate system of the host MAP View will be used to align the North Arrow correctly.*

# Working with Images

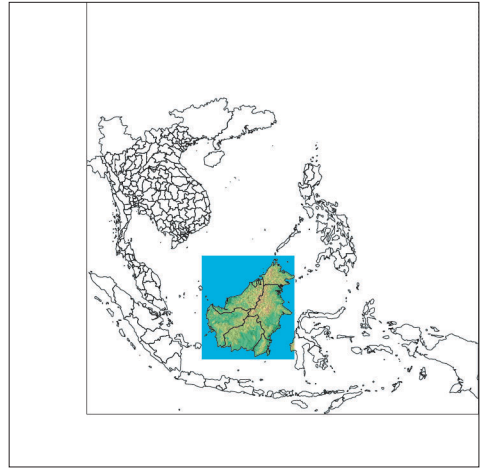
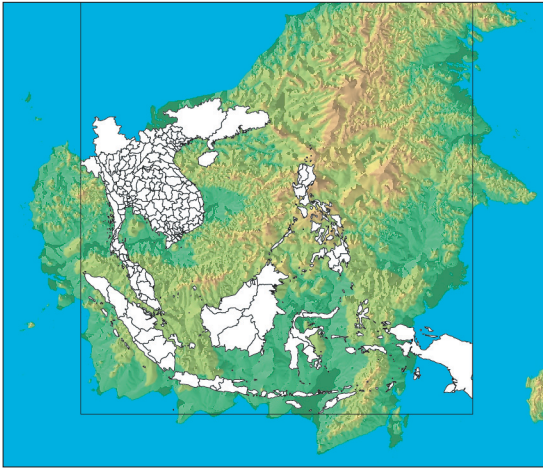
## 13-i: REGISTERING AN IMAGE WITH A REFERENCE FILE

1. Import the **southchinasea.shp** file from the *Tutorial Data* folder. After the file imports, give the polygons a fill of 'None'.
2. Create a new Illustrator layer called '**Image**' in the Illustrator Layers palette.
3. In the MAP Views palette drag this layer into the '**southchinasea**' MAP View. As this new MAP Layer will be holding the image only, you can assign any feature type when you drag.
4. Make sure the new '**Image**' layer is highlighted in the Illustrator Layers palette and select *File > Place*.
5. Select the sample raster image file, **borneo.tif**, from the *Tutorial Data* folder.
6. Click **Place** to bring the file into your Adobe Illustrator workspace.  
*The raster image is brought in at a default position and scale in the centre of the screen.*
7. With the image selected, go to *Filter > MAP Images > Register Image* to open the Register Image dialog.
8. Click on the **Load File** button and select **borneo.tfw** from the *Tutorial Data* folder.  
*The fields are all updated to reflect the data contained in the reference info file.*
9. Click **OK**.  
*The image is registered to the selected layer.*



Register Image dialog with the parameters of borneo.tfw.





Left: Location of borneo.tif after the image has been placed.  
 Right: Location of borneo.tif after the image has been registered with MAPublisher.

## 13-ii: REGISTERING AN IMAGE WITHOUT A REFERENCE FILE

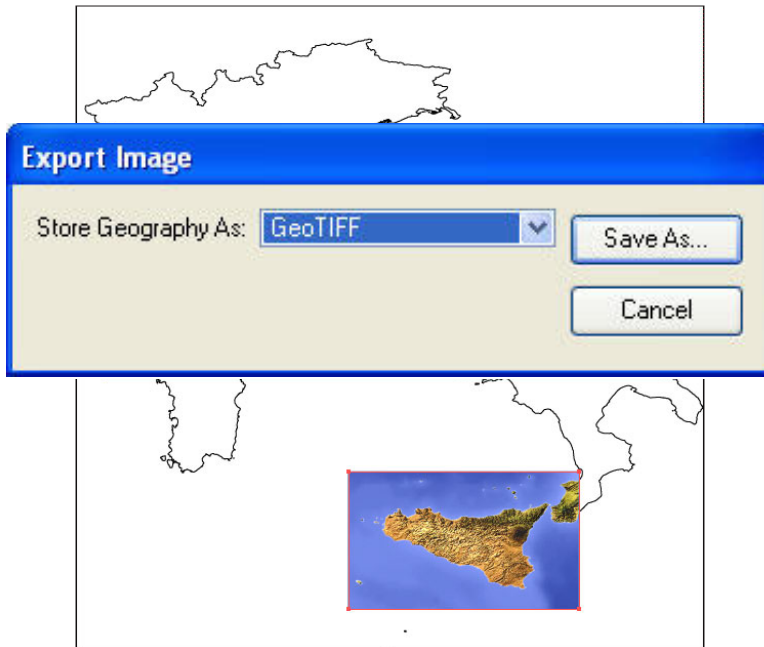
1. Import the ***southchinasea.shp*** file from the *Tutorial Data* folder.
2. Create a new Illustrator layer called '**Image**' in the Illustrator Layers palette.
3. In the MAP Views palette drag this layer into the '**southchinasea**' MAP View. As this new MAP Layer will be holding the image only, you can assign any feature type when you drag.
4. Make sure the new '**Image**' layer is highlighted in the Illustrator Layers palette and select **File > Place**.
5. Select the sample raster image file, ***borneo.tif***, from the *Tutorial Data* folder.
6. Click **Place** to bring the file into your Adobe Illustrator workspace.  
*The raster image is brought in at a default position and scale in the centre of the screen.*
7. With the image selected, go to **Filter > MAP Images > Register Image** to open the Register Image dialog.
8. One of the four corners of the image will be what MAPublisher will use as your image's anchor point (**Upper Left Placement, Lower Left Placement, Upper Right Placement or Lower Right Placement**).
9. Click the **Upper Left Placement** and enter the values into the placement X and Y textboxes.  
**X= 108.337561, Y= 7.781662**
10. Enter '**0.012773**' for the **Pixel Size**.
11. Click **OK**.  
*The image is registered to the selected layer.*

### 13-iii: EXPORTING A PLACED IMAGE AS A GEOREFERENCED RASTER FILE

1. Import the **italy.mif** file from the *Tutorial Data* folder.
2. Apply a fill of None to the data and change the stroke colour to red with a line weight of 0.25 pt.
3. Create a new Illustrator layer called '**Image**' in the Illustrator Layers palette, and move the Image layer below the '**italy**' layer in the layers hierarchy.
4. In the MAP Views palette drag the '**Image**' layer into the '**italy**' MAP View. As this new MAP Layer will be holding the image only, you can assign any feature type when you drag.
5. Make sure the new '**Image**' layer is highlighted in the Illustrator Layers palette and select **File > Place**.
6. Select the sample raster image file, **sicily.tif**, from the *Tutorial Data* folder.
7. Click **Place** to bring the file into your Adobe Illustrator workspace.  
*The image of the Italian island of Sicily is brought in at a default position and scale in the centre of the screen.*
8. Manually drag the image until it fits inside the guide box around the vector outline of Sicily. Use Illustrator's Scaling tools to resize the image if desired.
9. Set the colour mode in which you wish to export the image. If a change is necessary it can be done using the **File > Document Color Mode** menu option.
10. With the image selected, go to **Filter > MAP Images > Export Image** to open the Export Image dialog.
11. Select the desired georeferencing output format from the **Store Geography As:** as dropdown menu. For this example use '**GeoTiff**'.

*Note: It is advisable to leave the Export Image settings at the default values when exporting.*

12. Click **Save as** to name the exported image, choose the export directory, and complete the operation.  
*The image of Sicily has been exported as a GeoTiff file using the coordinate system of the Image layer.*



Export Image dialog with parameters set for the export of sicily.tif.



# Working with Tables

## 14-i: IMPORTING A TABLE

1. Import the **fsatoronto.mif** file from the *Tutorial Data* folder.
2. Open the MAP Attributes window and select the option menu.
3. Select **Import Table**.
4. Click the **Browse** button in the Source Filename and select the **avginc.csv** file from the *Tutorial Data* folder.
5. Click the checkbox to enable **First line contains column names**.
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'**. The Matching Column dropdown menu will contain matching columns in the *Target Layer* choose **'FSA'**.
6. Click **OK**.  
*The imported table will be joined with the attribute table. To view the changes, open the MAP Attributes window and select some or all of the map's features. Note that the additional match column has been appended with a "1" after the name. (This differentiates the column from the original FSA column in the map attribute table).*

# Drawing with MAPublisher

## 15-i: CREATING SHAPES WITH SPECIFIC MAP DIMENSIONS

1. Create a new document. Import the **torontostreets.mif** file from the *Tutorial Data* folder.
2. Reproject the **'torontostreets'** MAP View to **'NAD 83 UTM, Zone 17 North, Meter'** (see *Tutorial 5-ix*).
3. In your Illustrator layers palette, create a new layer called **'Buildings'**. Drag this new layer into the **'torontostreets'** MAP View, specifying a Feature Type of **Area**.
4. With the **torontostreets** layer selected in your Layers palette, create and apply a new *Selection Filter* (*Tutorial 4-vi*) to select **'COLLEGE ST'** & **'BAY ST'**. The exact expression you should use for this is as follows:  
**STREET="COLLEGE ST" OR STREET="BAY ST"**
5. Zoom in to the intersection of these streets. A recommended zoom level is 600%.
6. In this exercise we will construct an imaginary building at precise map dimensions. Therefore select the **'Buildings'** layer in the Layers palette, then click the **MAP Area (Box)**  button in the Illustrator Toolbar.
7. Using the crosshair for this tool, single click on one of the corners of the intersection of the two selected streets. This will open the **Add Area** dialog.
8. As the MAP View is now in UTM, the units displayed in this dialog are in Metres. Key **'50'** into the **Width** field. Enter **'30'** into the **Height** field. Check the **Center area on click** option. *These parameters will create a rectangle 50 x 30 metres. The centre of the polygon will be at the point you clicked to open the 'Add Area' dialog.*
9. Click **OK** to exit the dialog and plot the imaginary building.
10. Use Illustrator's tools to move the building and rotate it as desired. Then give the polygon a fill colour.
11. 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.
12. Select the **MAP Area (Ellipse)**  button from the main Illustrator Toolbar. Click on the centre of the building. Enter **'1000'** x **'1000'** for the **Width** and **Height** and use the **Center area on click** option again. Click **OK**.
13. 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.
14. The company is planning to construct another grocery store in the same area, and wishes to determine if this new store (Store B) will take any business away from its original store (Store A).
15. Use a *Select Filter* (*Tutorial 4-vi*) to select **'BEVERLEY ST'** and **'QUEEN ST W'**.
16. Repeat steps 6-12 for this second building.



Using the MAP Area tools to create polygons and 'spheres of influence'.