

# **SICOM Shape DataProfiler**

User's Manual

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## I. Introduction

In addition to data in CARIS format, SICOM 3.2 (**S**patial **I**nformation **COM**ponents) can handle and display ESRI's shape data in its native format, i.e. without conversion. Most spatial information applications require careful compilation and artistic presentation of multiple layers of shape data. This task could be tedious and time-consuming. **SICOM ShapeDataProfiler** is a data preparation tool designed for SICOM developers'/ artists' effort to simplify this task.



Technically, SICOM will interpret multiple shape files and their presentations based on descriptions given in a text file with extension .saf (**S**patial **A**gent **F**ile). The .saf file provides a default view of spatial data for SDM (SICOM Display Module). **SICOM ShapeDataProfiler** provides developer an user friendly approach to creating a profile, .saf , for each application.

Before you start **SICOM ShapeDataProfiler**, make sure that all shape files to be included have same Datum. The Datum information will be needed when you create a .saf the first time. This practice will guarantee the spatial presentation of your data is cartographically correct. Although it is not necessary to have all you shape files under one directory, it is advisable to design a simple hierarchical database to organize these files.

## II. Sample Data

The sample data is a subset of data developed by MASSGIS, Commonwealth of Massachusetts. (<http://www.state.ma.us/mgis/>). All data are in ESRI's shape format. The Datum is Massachusetts State Plane. If you need more data and information, please visit MASSGIS website.

## III. Using SICOM ShapeDataProfiler

Clicking icon, , to start **SICOM ShapeDataProfiler**. This program is designed to provide you with a sequence of dialog boxes so that you don't have to memorize the procedural details. To return to the previous dialog box , please click  at the upper right corner. In this chapter, each dialog box will be discussed.

### III.1 RITI Data Profiler

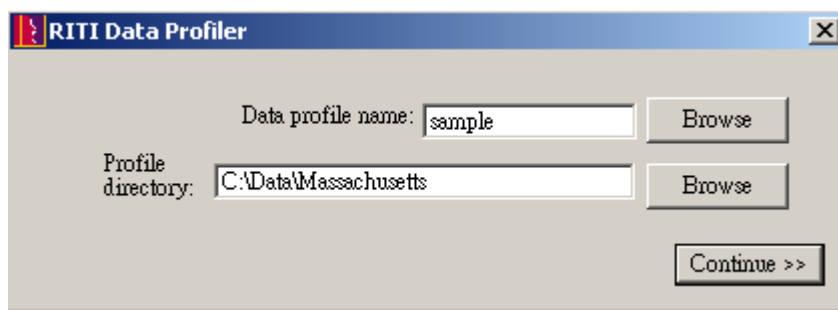


Fig. III.1-1 RITI Data Profiler Dialog boz

#### Data profile name

If you are working on an exiting profile, you could use **Browse** to find the file. Otherwise, complete **Profile directory** first, and then specify the name of profile (.saf file) without the file extension "saf".

### Profile directory

If you use **Browse** to identify an existing profile, this field will be filled automatically with the directory information for the chosen profile. Otherwise, type in or use **Browse** to fill in the directory information (only down to the folder containing the profile).

After you finish with this dialog box, click **continue**.

Example III-1:

As shown in Fig. III-2, the name of the profile is “sample”, and it is under the directory “C:\Data\Massachusetts”

## III. 2 Shapefile Map Parameters

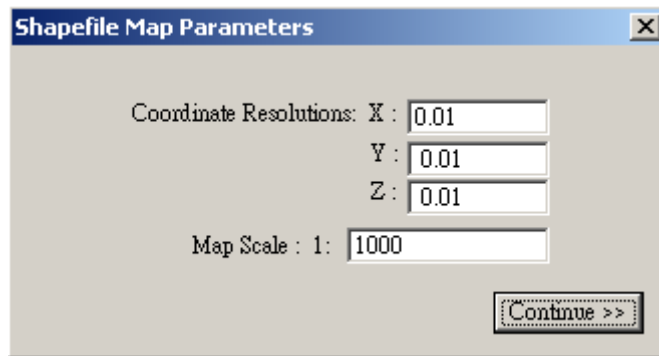


Fig. III.2-1

### Coordinate Resolutions

The unit is in meter. This represents the accuracy of your data. Mathematically, SDM will treat any numbers within this tolerance to be equal.

### Map Scale

this number has very little to do with the typical concept of scale. It will affect the size of text. 5000 is a good number to start with. If you feel the text is too big\small after you display the map, you could adjust it downward\upward accordingly.

After you finish with this dialog box, click **continue**.

## III.3 Coordinate System

The information on this page depends on the first three fields, **Coordinate System Type**, **Projection**, and **Ellipsoid**.

### Coordinate System Type

you could choose between geodetic (**LLDG**, Fig. III.3-1) or projected (**NEMR**, Fig. III.3-2) systems.

## LLDG

choose the appropriate ellipsoid from a large collection of ellipsoid listed in the pull-down window for you data.

## NEMR

depending on what type of projection you choose, you will need to fill in all required parameters. Fig.III.3-2 is for Massachusetts State Plane coordinate system, and Fig. III.4-3 is for Taiwan 2-degree TM coordinate system.

After you fill in all cartographic information on this dialog box, click **continue**. If there is no layer created yet, **Creat/Edit shape Layer** (Fig. III.5-1) dialog box appears. Otherwise, **Data Profile Layers** (Fig. III.4-1) dialog box appears.

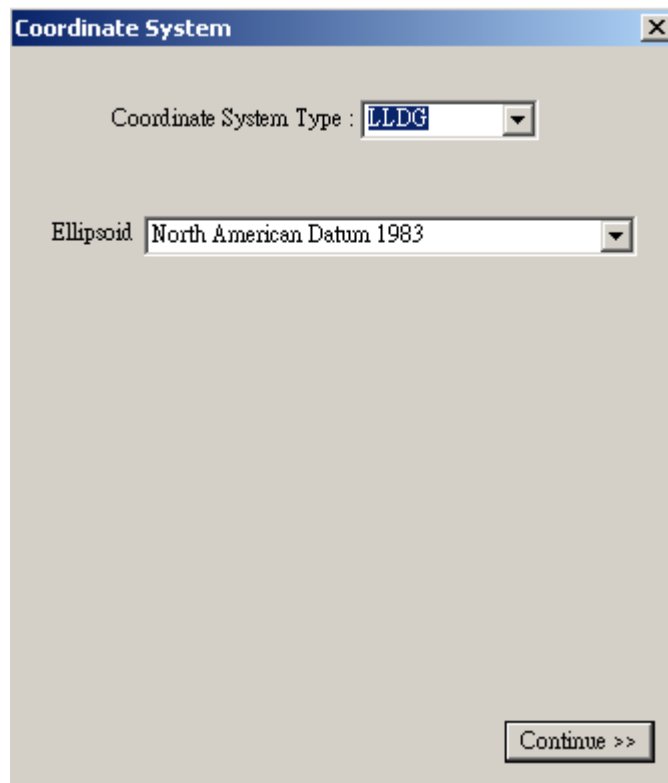


Fig. III.3-1 **LLDG** Coordinate System

**Coordinate System** [X]

Coordinate System Type : NEMR [v]

Projection : Lambert Conf. Conic [v]

Ellipsoid : North American Datum 1983 [v]

False Northing (meters) : 750000 [ ]

False Easting (meters) : 200000 [ ]

Scaling Latitude 1 (degrees) : 41-43-00.000N [ ]

Scaling Latitude 2 (degrees) : 42-41-00.000N [ ]

Origin of Longitude (degrees) : 71-30-00.000 W [ ]

Origin of Latitude (degrees) : 41-00-00.000N [ ]

[Continue >>]

Fig. III.3-2 **NEMR** Coordinate system – Massachusetts State Plane

**Coordinate System** [X]

Coordinate System Type : NEMR [v]

Projection : Transverse Mercator [v]

Ellipsoid : Australian National Ellipsoid [v]

Central Meridian (degrees) : 121-00-00.000E [ ]

False Northing (meters) : 0 [ ]

False Easting (meters) : 250000 [ ]

Scaling Factor : 0.9999 [ ]

Origin of Longitude (degrees) : 0-00-00.000 W [ ]

Origin of Latitude (degrees) : 0-00-00.000N [ ]

[Continue >>]

Fig. III.3-3 **NEMR** coordinate system – Taiwan 2 –degree TM

### III.4 Data Profile Layers

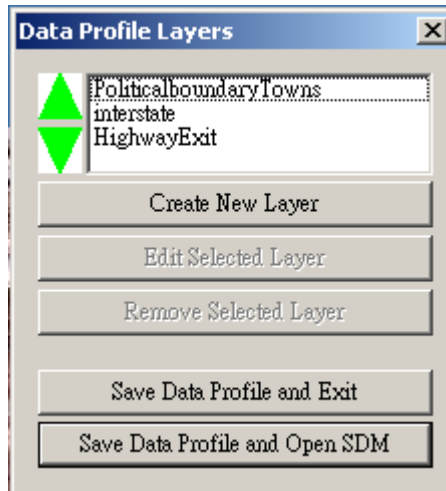


Fig. III.4-1 Data Profile Layers

The window on the top of this dialog box, referred to as priority window, shows all the defined layers. Layers are ordered in the order to be drawn, that is the layer at the top will be drawn first. Remember the layer drawn could be covered by the layer drawn later. To change the order, clicking the layer, use ▲ to move up that layer and use ▼ to move down.

#### **Create New Layer**

See Section III.5, when this button is clicked.

#### **Edit Selected Layer**

This button will become active, when a layer is chosen. See Section III.5, when this button is clicked.

#### **Removed Selected Layer**

This button will become active, when a layer is chosen. The chosen layer will be removed, when this button is clicked.

#### **Save Data Profile and Exit**

Save the edited data profile and exit the program.

#### **Save Data Profile and Open SDM**

Save the edited data profile and open SDM to display the profiled data. This provides an interactive editing capability.



### III.5 Create/Edit Shape Layer

Layer Name : PoliticalboundaryTowns

Layer Type : polygon

File Directory C:\Data\Massachusetts\town boundary wi Browse

Layer Visible

Display Scale

Minimum 0

Maximum -1

Color

R : 0 Set Color

G : 0

B : 0

Edit Display Attributes Set Layer Classification

Set Primary Key Set Layer Annotation

Continue >>

Fig. III.5-1 Create/Edit Shape Layer

#### Layer Name

Type in a name for this layer for creating a new layer. Otherwise, it will be shown automatically.

#### Layer Type

This field will be filled automatically by the system in the edit mode or after a shape file is selected in **File Directory**

#### File Directory

This field will be filled automatically by the system in the edit mode.

For new layer, type in or Use **Browse** to identify the directory path to a folder containing the desired shape file. If more than one file exists in that folder, a dialog box (Fig. Fig. III.5-2), **Select Shape/Image File**, appears for you to choose one single shape file. You could use the absolute path or relative path with respect the location of your .saf file. For example, if your .saf file is in the same folder, Massachusetts, as the folder, “town boundary with coast\townsp1” containing the shape file , then only directory information you will need is “town boundary with coast\townsp1”. Relative path is recommended so that data could easily be relocated.

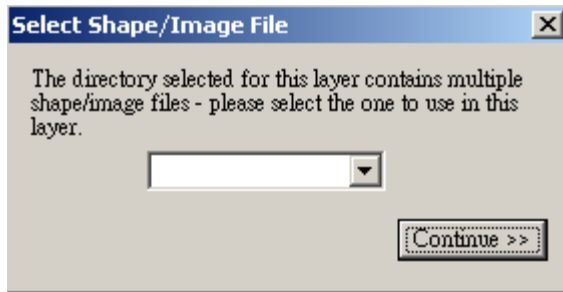


Fig. III.5-2 Select Shape/Image File

### Layer Visible

The layer will be visible, when this field is checked.

### Display Scale

Allows you to specify a range of scale on which the layer will be visible.

#### Minimum

the larger scale (1: scale1), fill in scale1

#### Maximum

the smaller scale (1: scale2), fill in scale2. “-1” to denote no upper limit, i.e. visible in all scales.

### Color

This will set the color of the graphic primitive, i.e. symbol color for “point”, line color for “line”, and filled color for polygon. Click **Set Color** to bring up the **color** dialog box, Fig. III.5.3-3. You could choose the color from the **Basic color** pallet, or from the extensive **color** dialog box (Fig. III.3-4) by clicking **Define Custom Color**.

After color is chosen, click **ok** to return to **Create/edit shape layer** dialog box. The R, G, B values for the chosen color will be displayed.



Fig. III.5-3 Color

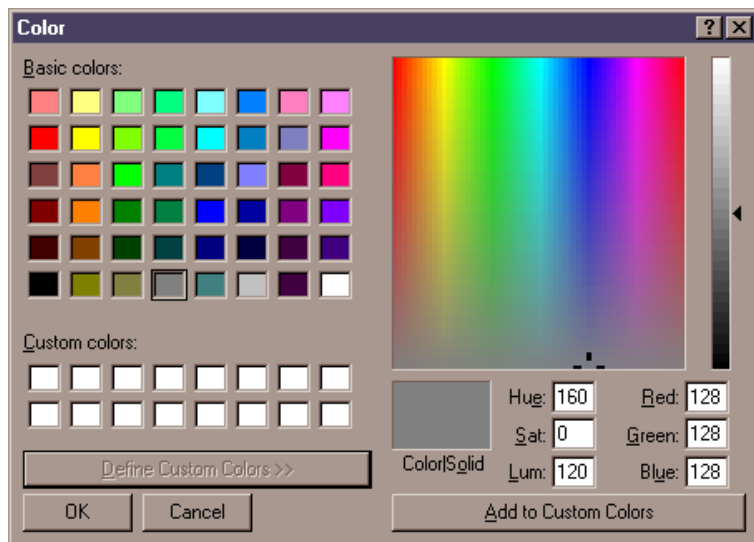


Fig. III.5-4 extensive color

### III.5.1 Edit Display Attributes

Click this button to bring up **Layer Display Attributes** dialog box . The information on this dialog box depends on the type of the graphic primitive.

#### III.5.1.1 For “polygon” primitive

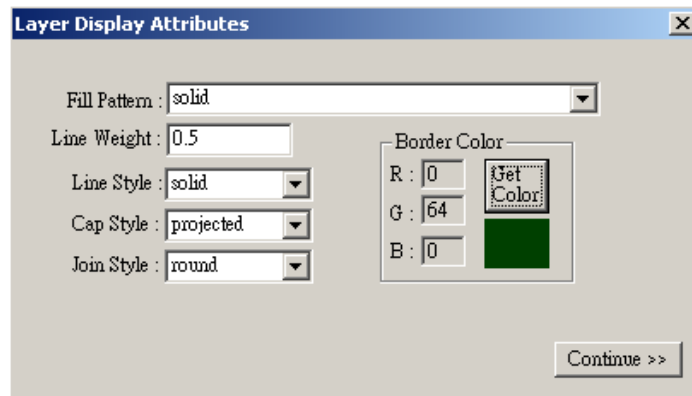


Fig. III.5.1-1 Layer Display Attributes

#### Fill Pattern

Click  to make your choice from a menu of filled patterns, “none”, “solid”, “backward diagonal lines”, “crossed pattern”, “diagonal crossed pattern”, “forward diagonal lines”, “horizontal lines”, and “vertical lines.”

#### Line Weight

Determine the thickness of the border of a polygon. The thickness of the line remains constant throughout all scales, i.e. non-scaleable line. This value could be floating. Since it is not directly correlated with a physical quantity, it is suggested to start with “1”. If the value sets to zero, the system will provide the minimal drawable thickness.

#### Line Style

Click  to choose the style of the line: dash, dot, none and solid. Choose “none”, if you don’t need the border.

#### Cap Style

Click  to choose the cap style: butt, projected, round

#### Join Style

Click  to choose the join style: bevel, miter, round

#### Border Color

Choose border color. See **Color**

Hit **continue** to go back to the **Create/Edit Shape Layer** dialog box.

### III.5.1.2 For “line” primitive

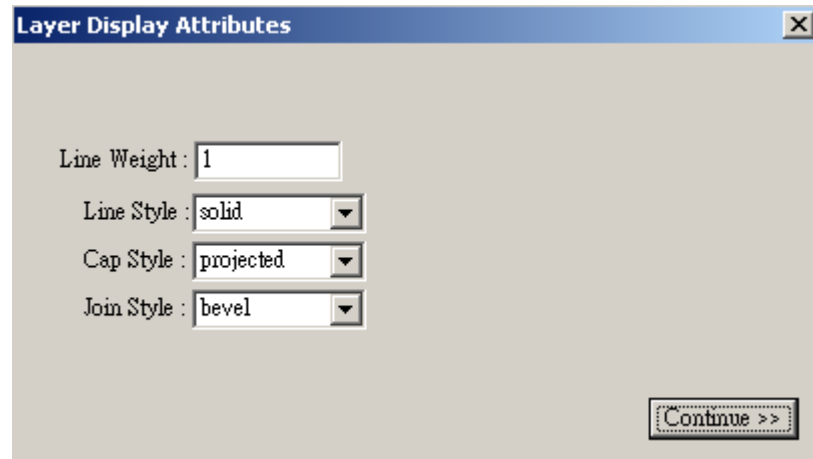


Fig. III.5.1-2 Layer Display Attributes – Line

#### Line Weight

Please refer to the For “polygon” primitive section.

#### Line Style

Please refer to the For “polygon” primitive section.

#### Cap Style

Please refer to the For “polygon” primitive section.

#### Join Style

Please refer to the For “polygon” primitive section.

### III.5.1.3 For “point” primitive

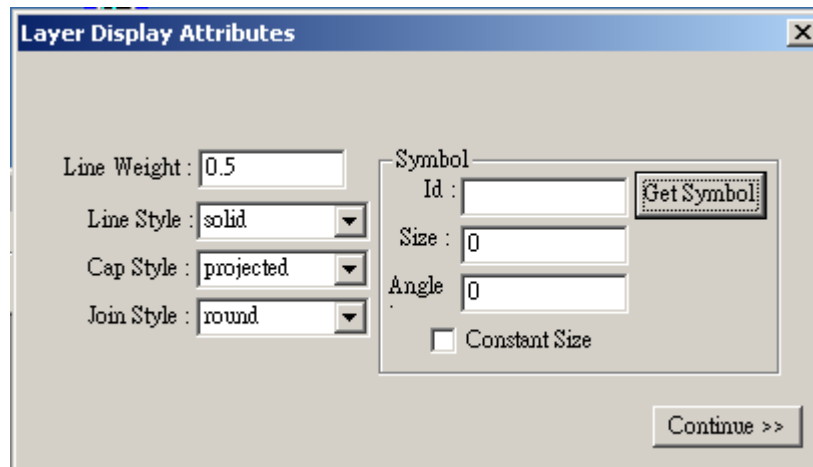


Fig. III.5.1-3 Layer Display Attributes –point

### Line Weight

Please refer to the **For “polygon” primitive** section. A default value will be given for a chosen symbol from **Get Symbol**.

### Line Style

Please refer to the **For “polygon” primitive** section.

### Cap Style

Please refer to the **For “polygon” primitive** section.

### Join Style

Please refer to the **For “polygon” primitive** section.

### Symbol

#### Id

Type in or use **Get Symbol** to get the desired CARIS symbol ID

#### Get Symbol

Bring up **Symbol Browser** dialog box (Fig. III.5.1-4), scroll down the symbol description window to choose (highlight) the desired symbol, and click **Select Displayed Symbol** to get back to **Layer Display Attributes** dialog box.

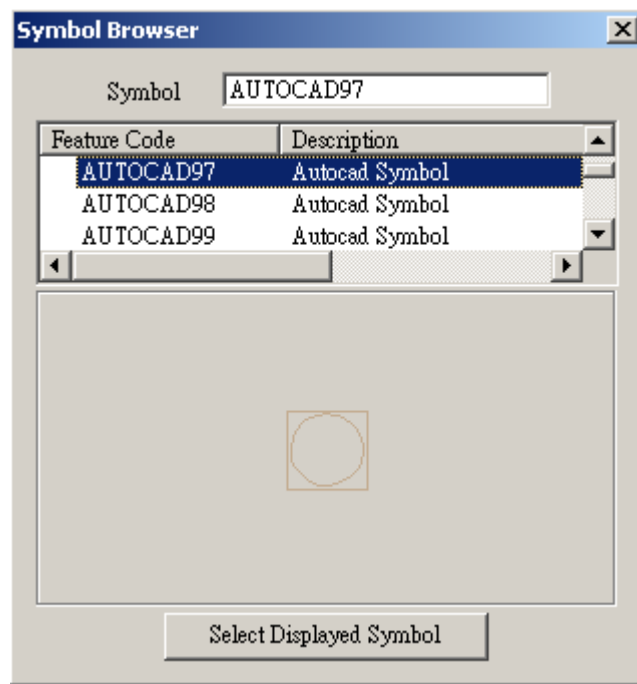


Fig. III.5.1-4 Symbol Browser

#### Size

Determine the size of the symbol.

#### Angle

Determine the orientation of the symbol. Enter the number in degree.

### Constant Size

If checked, the symbol will remain the same size throughout all scale. This option is not currently implemented.

## III.5.2 Set Layer Classification

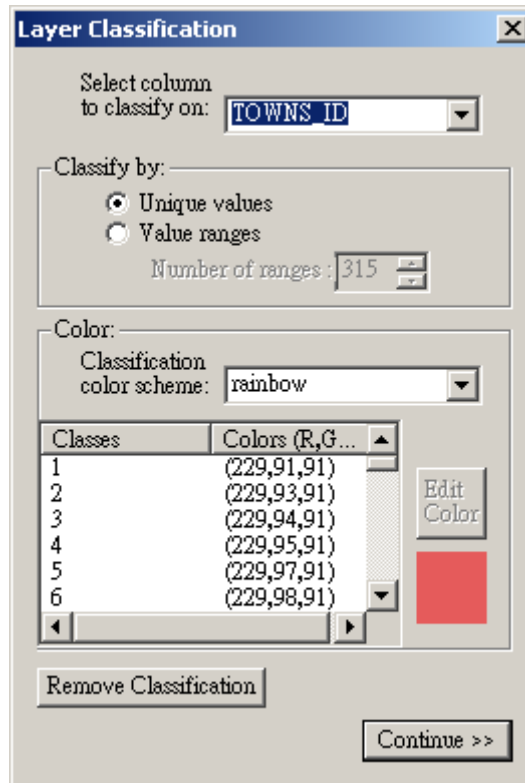



Fig. III.5.1-5

### Select column to classify

Click  to select an attribute, a column on the DBF file associated the shape layer, for classification. If **Unique values** on the section of the **Classify by** panel is checked, only columns with unique value will be available for selection.

### Classify by

#### Unique values

Classify the primitives for the given layer according to the unique value of the chosen attribute.

#### Value ranges

Classify the primitives for the given layer according to classes defined by the chosen classes in the **Number of ranges**.

## Color

### Classification color scheme

Choose a color scheme: Rainbow, grayscale, custom. If “custom” is chosen, you could modify the color of each class by clicking **Edit Color**.

### Remove classification

Remove the classification

## III.5.3 Set Layer Annotation

Depending on the type of graphic primitives, **Set Layer Annotation** will bring **Layer Annotation** dialog boxes as shown in Fig. III.5.1-6 and Fig. III.5.1-7.

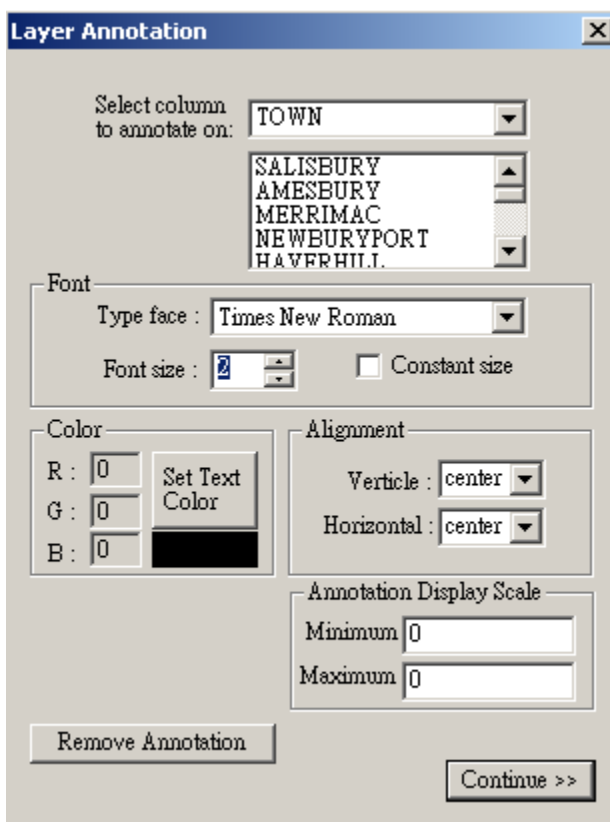


Fig. III.5.1-6 Layer Annotation –point and polygon

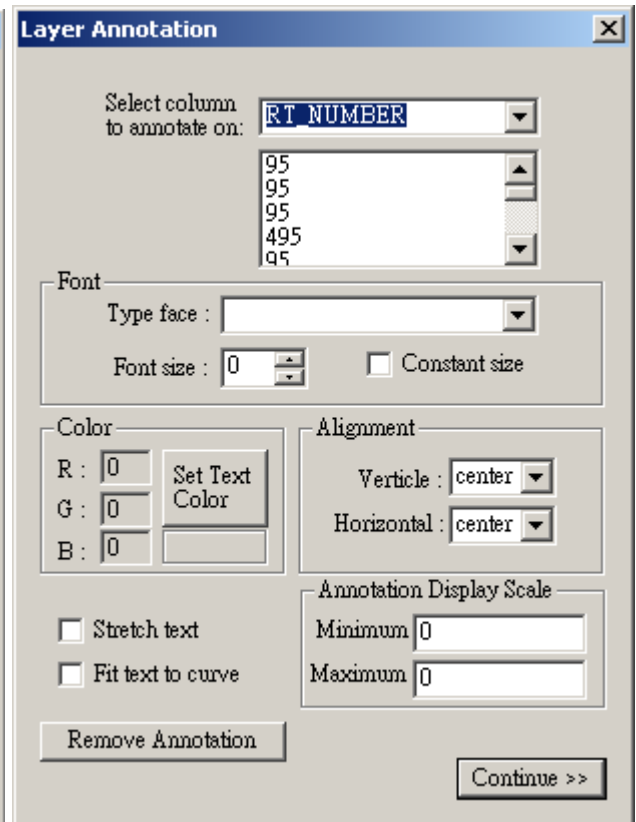




Fig. III.5.1-7 Layer Annotation –line

### Select column to annotate on

Click  to select an attribute, a column on the DBF file associated the shape layer, for annotation.

### Font

#### Type face

Click  to select font

#### Font size

If **constant** is not checked, the size of the font on the view,  $S_v$  is equal to  $D * (\text{Map Scale}) / (\text{Display\_Scale} * 1000)$  meters, where  $D$  (in meter) is the

chosen **Font size**, Map Scale chosen on **shapefile Map Parameters** dialog box, and (Display Scale) is the view scale (1: Map\_Scale) on the monitor.

Otherwise, the size of the font, S, is equal to D/1000, on the monitor throughout all display scales.

### **Color**

See **Color** on **Create/Edit Shape Layer** (Section III.5)

### **Alignment**

#### **Verticle**

Center, bottom and top of the reference point or line, where centroid for the polygon and the location of the point.

#### **Horizontal**

Center, left and right of the reference points or line.

### **Annotation Display Scale**

Specify a range of scale on which the annotation will be visible.

#### **Minimum**

the larger scale (1: scale1), fill in scale1

#### **Maximum**

the smaller scale (1: scale2), fill in scale2. “-1” to denote no upper limit, i.e. visible in all scales.

### **Stretch text**

This only applies to “line” primitive. If checked, the text will be stretched to the length of the line.

### **Fit text to curve**

This only applies to “line” primitive. If checked, the text will fit the curve of a line.

### **Remove Annotation**

Remove the annotation.

## **III.5.4 Set Primary Key**

This is designed to speed up query by identifying a column of the DBF file with a unique value for each graphic primitive (each row). If there is no column with unique value, a warning dialog boxes appear (Fig. III.5.1-7, -8). You could click **ok** to continue. Otherwise, **Set Primary Key** (Fig. III.5.1-9) dialog box appears.





Fig. III.5.1-7 Warning message

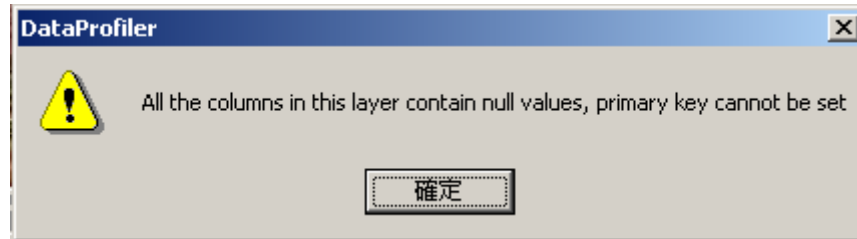


Fig. III.5.1-8 Warning message

#### Select column for Primary Key

Select a column for primary key.

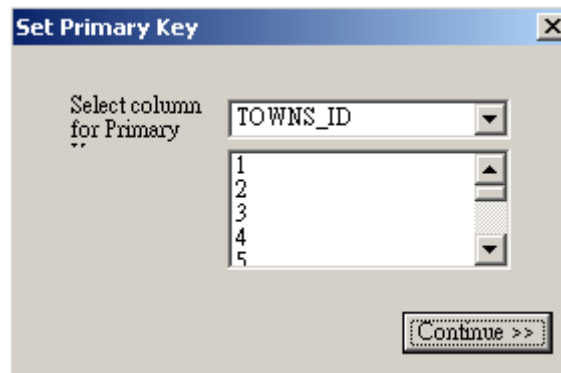


Fig. III.5.1-9 Set Primary Key

#### IV. Contacting RITI

Should you encounter any difficulties while running SICOM DataProfiler, please contact us:

E-mail: [ritisales@riti.com](mailto:ritisales@riti.com),  
Fax: 781 942 2161  
Address: 274 Main Street, Suite 302,  
Reading, MA 01867 USA

Our technical and customer service people will respond to you immediately once your report is received.