

SICOM DISPLAY MODULE (SDM3.2) STANDALONE

User's Manual













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I. What is Sicom Display Module (SDM)?

SICOM Display Module (SDM), a component of Spatial Information COMponents (SICOM), can be deployed as a stand-alone independent program (SDM) or as a server (referred to as SDM_Server) that provides GIS services to a client application (referred to as Client). The look and feel of SICOM Display Module can easily be modified by SDM Profiler (SP). To learn about SDM Profiler, please consult user manual, Profiler User's Manual.doc (RITI-SICOM3.2-TECH-005). This document concentrates on the Standalone SDM. SDM_Server is discussed in the SDM Developer Reference Manual (html documents)

The major change in the design of SICOM3.2 from previous versions is to designate SDM as a pure display and visualization spatial component. Two new auxiliary component groups are introduced: SICOM Tool and SICOM Manager. A SICOM Tool consists of modules designed for users to modify look and feel of the displayed spatial data and/or to measure direction and distance measurements. A SICOM Manager is designed to perform a collection of specific GIS functions such as collecting GPS tracks, managing routes, and etc. These Tools and Managers are configurable components to be included as specified by developers.

A new key feature of SDM 3.2 is the ability to display and manipulate ESRI's shape data. SICOM Data Profiler is an easy to use tool for developer to define a default look and feel of the spatial data for a given application. The output of SICOM Data Profile is a ASCII description file called Spatial Agent File (SAF) with extension .saf. This saf file is the input file for SDM3.2. Currently, SICOM Data Profiler is available only for ESRI's shape files (Shapedata document). To produce a SAF for CARIS data, one could use CARIS MapSmith.

This document describes the general usage of the standalone SDM3.2. The discussion also includes 6 SICOM tools - Layer Annotator, Layer Classifier, Layer Prioritizer, Feature Selector, Feature Modifier and Surveyor, and one SICOM Manager – Annotator.

II. Using SDM

Upon starting SDM, three possible configurations, shown as Figs, II.1, II.2 and II.3, may be presented. These configurations are preset by the SICOM Profiler. Fig. III.1 is a Microsoft SDI single document view without preloaded map file, while Fig. III.2 is the SDI view with a preloaded map file. Fig. III.3 presents a MDI multiple document view that cannot be preloaded and needs to be loaded by users.

At the lower right corner of each SDM view, a scale box shows the display scale of the map. Each document view consists of a working window and an overview window, if it is so configured by SDM Profiler. In addition, depending on the configured Profile file, the Working window may be moved, resized or minimized; the Overview window may also be moved, resized or minimized, within the working window. Except for **File**, **View** and **Help**¹, the availability of the remaining menu items on a given SDM view is optional depending on whether they are configured by SDM Profiler or SICOM Tool or SICOM manager are configured. Fig. III.3 shows all the menu items available on SDM 3.2. In the remaining section that follows, all menu items are discussed

¹ For clarity, bold faced Arial font is used to represent a menu item.

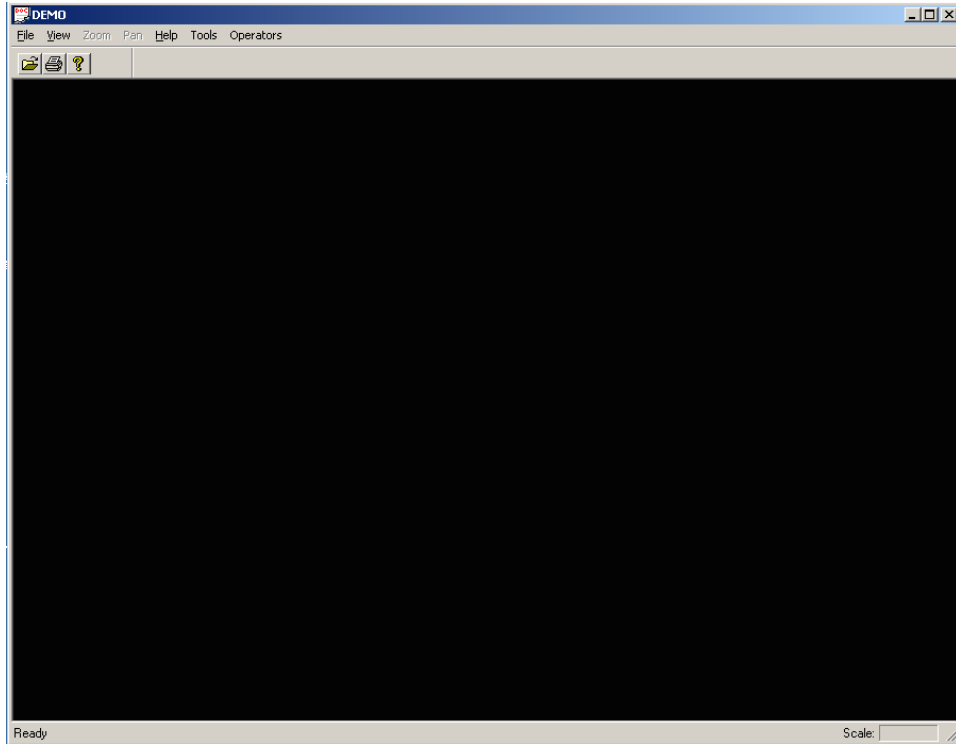


Fig. II.1 SDI view without preloaded file

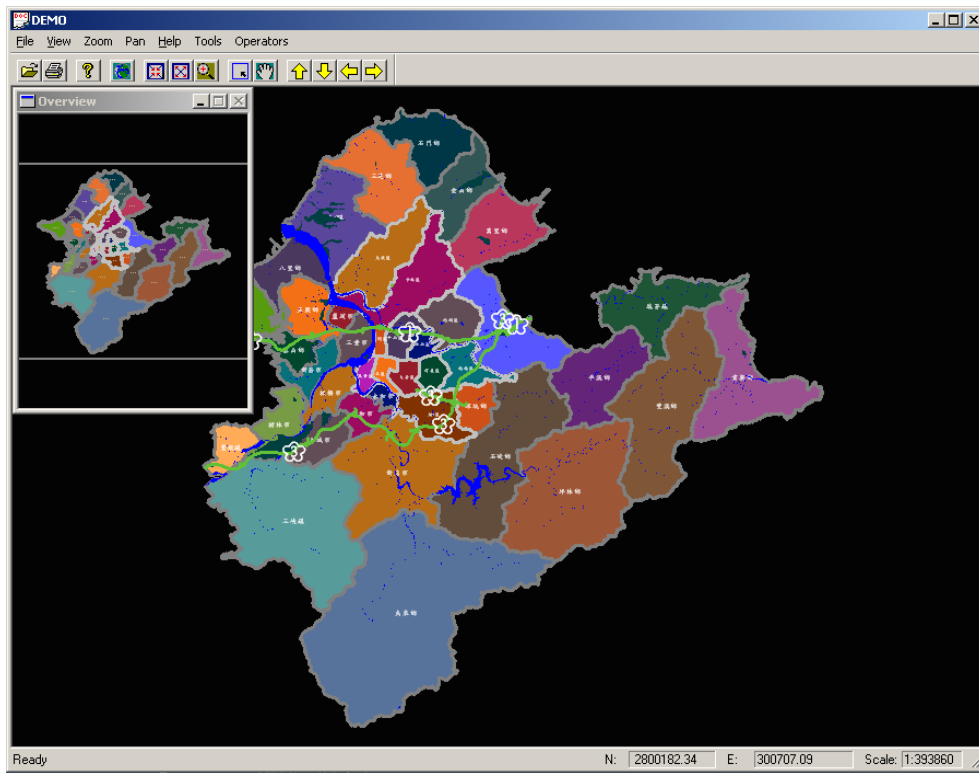


Fig. II.2 SDI view with a preloaded file

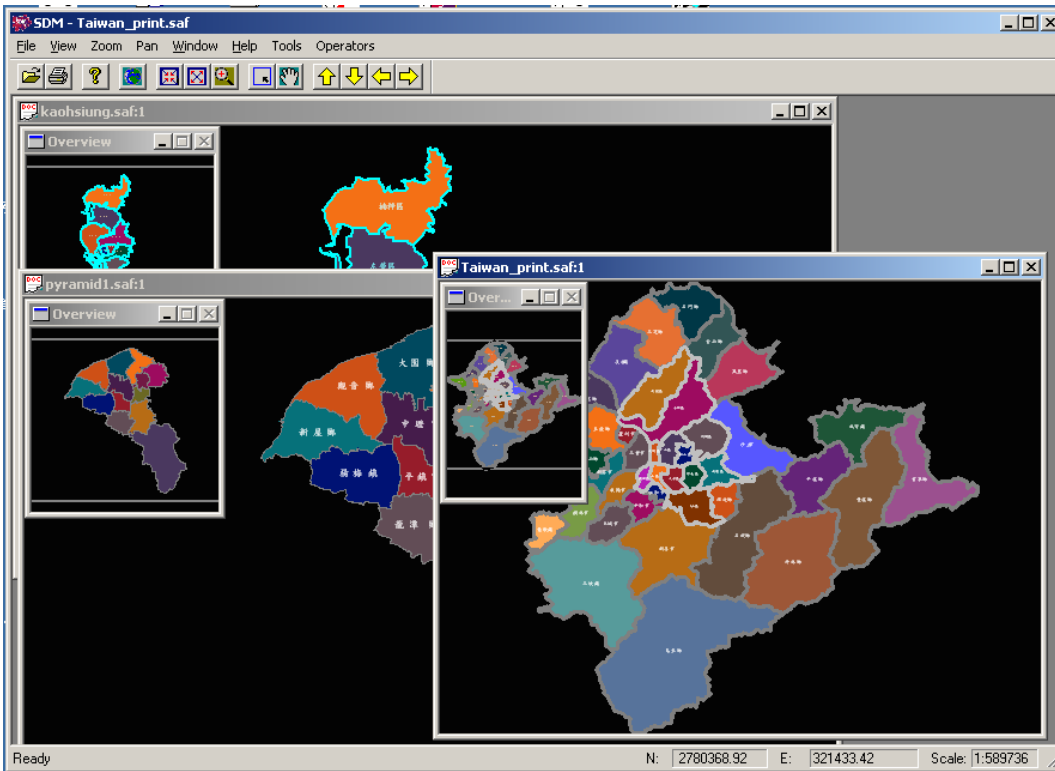


Fig. II.3 MDI view

File

Open 

to open a SAF.

Close

to close a SAF

Redraw

to redraw the existing view to clear objects created temporarily.

Copy

to copy the current view on the active SDM window to the clipboard so that it can be pasted to another application, which supports “paste” from clipboard

Write Image

to write the current view on the active SDM window to a jpeg image. It will bring up a standard save dialog box to save this image

Print

Print the map shown in the active window. Clicking **Print**, bring up a print dialog box (Fig. II.4). As in most Microsoft window applications, the printer can be chosen and its properties' settings can be adjusted using the **Setup** button. In the **Options** box,

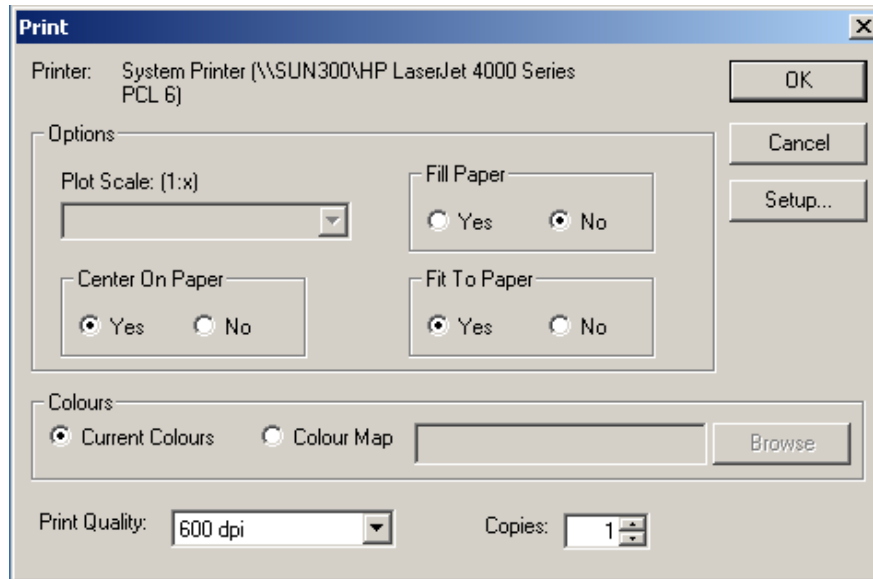


Fig. II.4 **Print**

Plot Scale

This window becomes active, when **No** on the **Fit To Paper** is checked. Select a scale from the pull-down window. If the desired scale is not shown, select any scale first. A **scale refinement** dialog box (Fig. II.5) will be presented, after you click **ok**. Type in the desired print scale.

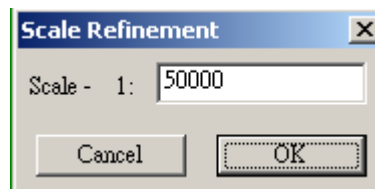


Fig. II.5 **Scale Refinement**

Fill Paper

If **Yes** is checked, prints the maximal extent of the map beyond the viewing window.

Fit To Paper

If **Yes** is checked, the entire content of the displayed window will be printed, i.e. WYSWYG

Center on Paper

If **Yes** is checked, printed map will be centered.

Use the **Colours** box to choose the default .col or specify a new .col. Set the print quality using **Print Quality**, and select the number of copies to print using **Copies**.

Print setup

A standard MS window print setup dialog box

Exit

exits the program

View

Toolbar

check to view the icons tool bar.

Status

check to view the status bar

Zoom

By Rectangle

Zooms to a rectangular area, defined by dragging the mouse on either the **overview** or **working windows**

Step In

Zoom in by 50%, i.e. display scale (1: display scale) is divided by 2.

Step Out

Zoom out by 50%, a percent, i.e., display scale (1: display scale) is multiplied by 2.

Set Scale

Type in a desired scale on the **Scale Refinement** dialog box (Fig. II.6), and click “ok” to zoom the view to the given scale.

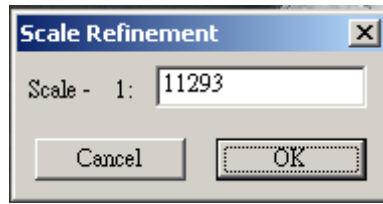


Fig. II.6 Scale Refinement

Reset 

Resets to the default view defined by SICOM Profiler

Pan

Center at a Click 

Pans to a new view centered at the position clicked by the user

Step North 

If selected, moves the view North by 50% of the extent of the present view

Step South 

If selected, moves the view South by 50% of the extent of the present view

Step East 

If selected, moves the view East by 50% of the extent of the present view

Step West 

If selected, moves the view West by 50% of the extent of the present view.

Reset 

Resets to the default view settings as defined by SICOM Profiler

Window

Cascade

Arrange multiple views in the window in the cascade mode.

Tile Horizontally

Arrange multiple views in the window in the horizontal tile mode.

Tile Vertically

Arrange multiple views in the window in the vertical tile mode.

Arrange Icons

Arrange all minimized view windows in good order.

Help

About SDM

About SDM version.

Manual

Electronic version of this document


Tool

Tool: Layer Annotator

This tool is designed for annotating a field of the DBF file accompanying the selected layer on the view.

Select Layer

Layer in Active View

Select a layer for annotation by moving cursor to  and pressing the left mouse key (Fig. II.7). click **OK** to bring up **Layer Annotator**.

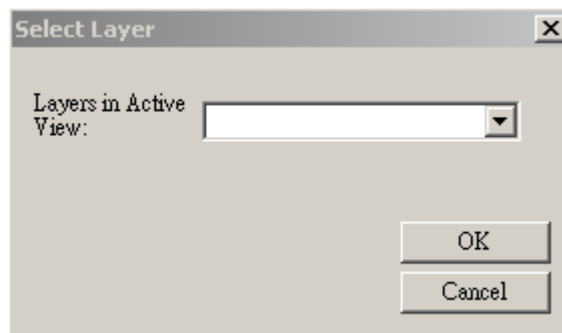


Fig.II.7 Select Layer

LayerAnnotator

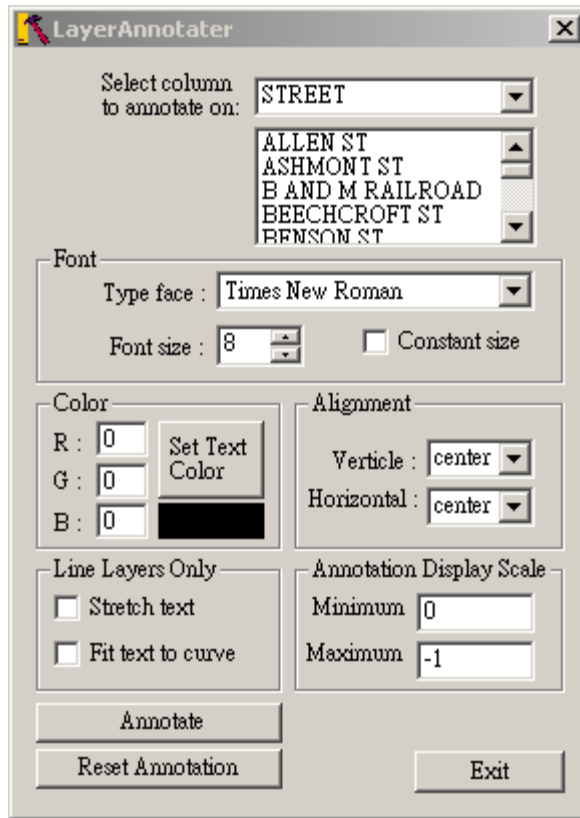




Fig. II.8 Layer Annotator

Select column to annotate on

Click  to select an attribute (a column of the DBF file that is associated with 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 is the value entered in the **shapefile Map Parameters** dialog box on SICOM Shape Data Profiler (shown on the SAF file, after the key word Map Scale:), 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

This allows you to set the text color. Click **Set Color** to bring up the **color** dialog box, Fig. III.5.3-3. You may choose the color from the **Basic color** palette, or from the extensive **color** dialog box (Fig. III.3-4) by clicking **Define Custom Color**.

After you've chosen your color, click **ok** to return to the **Layer Annotator**.



Fig II.9 Color

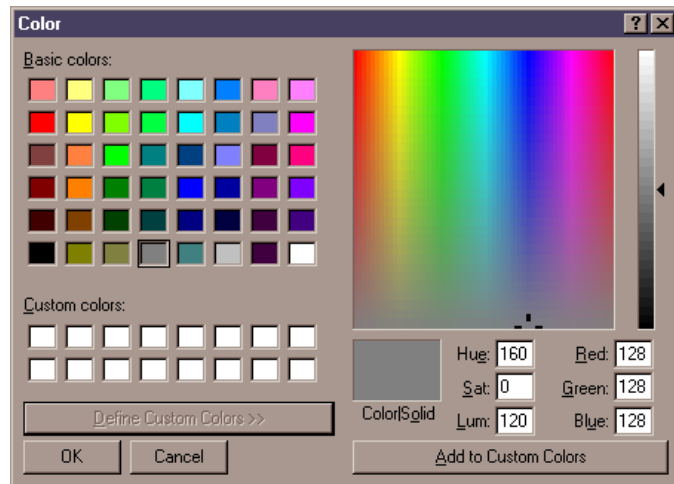


Fig. II.10 extensive color

Alignment

Verticle

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

Horizontal

Set text at the Center, left or right of the reference points or line.

Annotation Display Scale

Allows you to specify a range of scales in which the annotation will be visible.

Minimum

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

Maximum

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

Line layers only

Stretch text

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

Fit text to curve

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

Remove Annotation

Removes the annotation.

Tool : Layer Classifier

This tool is designed for user to classify a chosen layer according to an attribute on the accompanying DBF file.

Select Layer

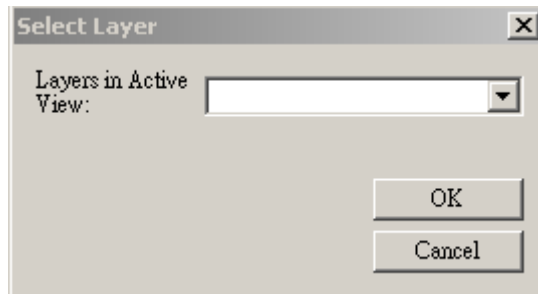



Fig. II.11 Slect Layer

Layer in Active View

Select a layer for annotation by moving cursor to  and pressing the left mouse key (Fig. II.11). click **OK** to bring up **Classify Layer** (Fig. II.12)

Classify Layer

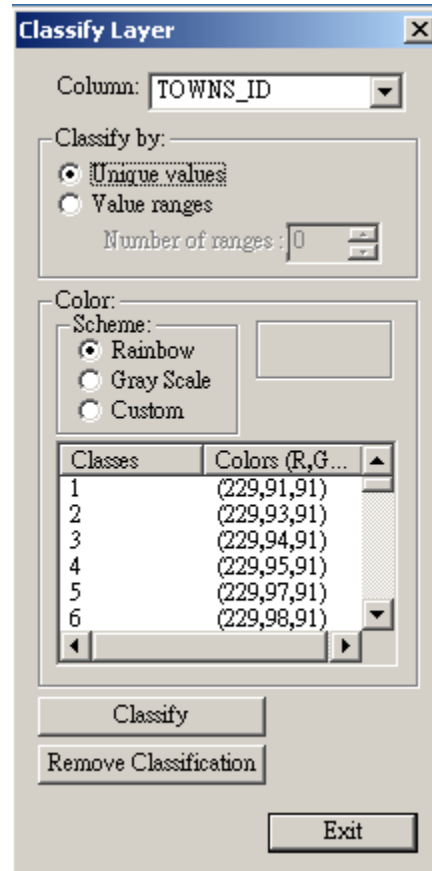



Fig. II.12 Classifier Layer

Column

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

Classify by

Unique values

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

Value ranges

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

Color**scheme**

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

Remove classification

Removes the classification

Classify



Apply classification

Tool : Layer Prioritizer

This tool is designed for user to modify the display priority of layers

Layer Visibility

This window shows the list of geo-registered data (layers) for this application. The layer is visible, if the box next to it is checked.

Highlight the layer and use  to move the layer up and down. The layers are arranged in the order of drawing on the view, i.e. the layer drawn before could be covered by the layer drawn later. Clicking the **Apply** button to redisplay the view with the new choice. To quit, click **Cancel** or  at the upper right corner

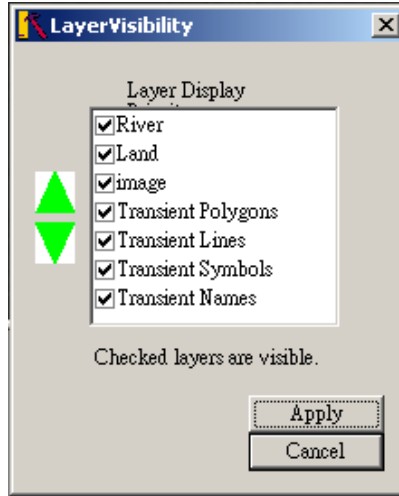


Fig. II.13 LayerVisibility

Tool: Feature Selector

This tool is designed for user to inquiry information regarding a feature

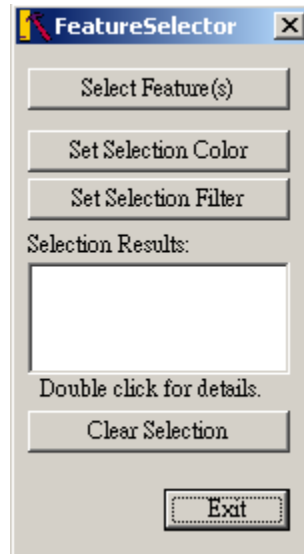


Fig. 14 FeatureSelector

Set Selection Color

Bring up the standard color dialog box to choose color to highlight selected feature (fig. II.15).

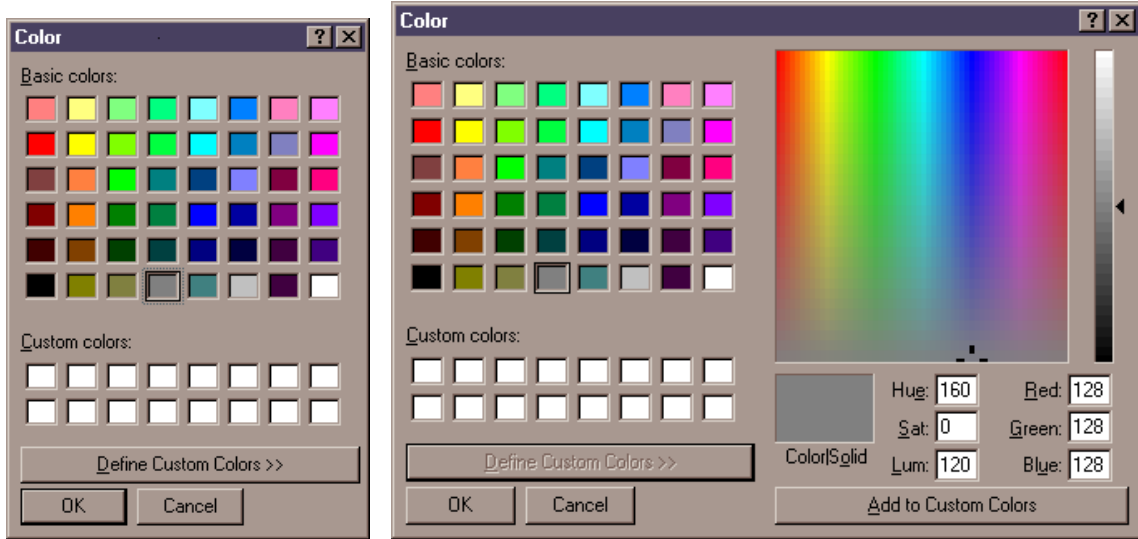


Fig. 15 Color dialog box

Set Selection Filter

Set conditions on the type of features to be selected to reduce the scope of search (Fig. 16).

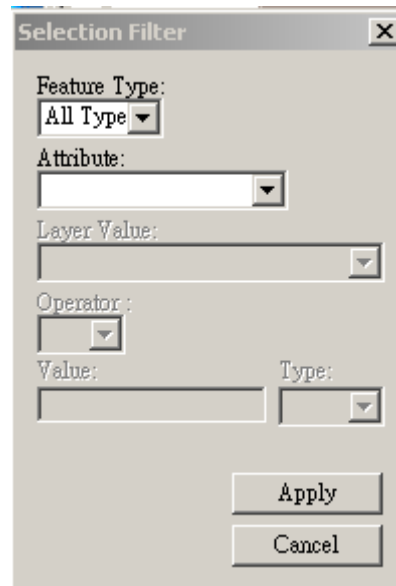


Fig. II.16 Selection Filter

Feature Type

Choose one of five types of geometric features, Image, Polygon, Lines, Symbols, and Labels, or all types for selection.

Attribute

Choose one of 5 feature attributes, CARIS Key, Feature Code, Source ID, Layer Name and Layer Name Attribute (DEF field ame) for selection

Layer Value

Only become active when Layer Name or Layer Name Attribute of “Attribute” is chosen. Choose a layer or a specific attribute of a layer.

Operator

Only become active when “Layer Name:Attribute” is chosen. One of 5 operators, =, != (not equal), >, <, >=, or <= can be chosen to set Layer Attribute value

Value

Only become active when “Layer Name:Attribute” is chosen. Set an attribute value.

Type

Only become active when “Layer Name:Attribute” is chosen. Set the value type, string, integer or real.

Choose “**Apply**” to return to **FeatureSelector**

Select Feature(s)

You have 15 seconds to click the mouse at a location or drag a square (while you press on the left key) region. All the features satisfying the conditions set by the features will be highlighted and shown on **Selection Results**

Selection Results

Double Click the specific feature to bring up the dialog regarding the feature. Note that “no key” means there is no unique key for the feature.

Clear Selection

Clear selection

Tool: Feature Modifier

This tool is designed for user to change the position or color of the transient lines and labels (name) created on the current view. It is often that the labels created for contours are not properly placed. The user could use this tool to reposition the label.

If there are no transient features on the view, you will get a warning message dialog box (Fig II.18).

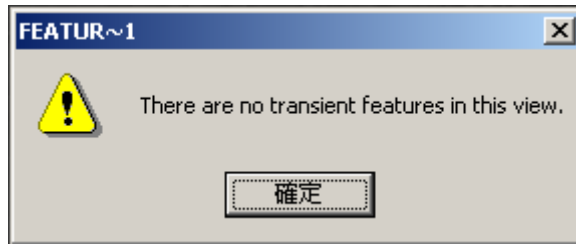


Fig. II.18 No transient features Error

FeatureModifier

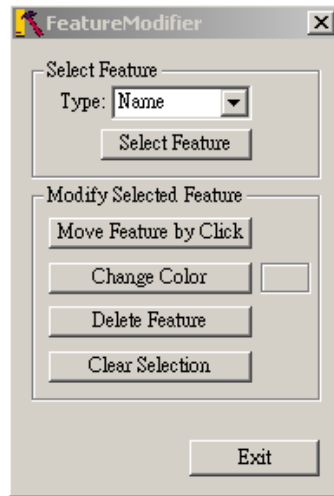



Fig. II.19 FeatureModifier

Select Feature

Type

Type of graphic primitives, “Name” or “Line”

Select Feature

Click this button, you have 30 seconds to select a transient feature on the active view. To select a transient, put the cursor on the line feature or at the upper left corner of the name feature, and press the left mouse key. The mouse symbol changes to . Releasing the left key, the color of the selected feature will change to red.

Modifying Selected Feature

Move Feature by Click

Click this button, and move your cursor to a new location. Clicking the new location will move the selected feature to this new location.

Change color

Click this button to bring up the color dialog box (Fig. II.20) to change the color of selected feature

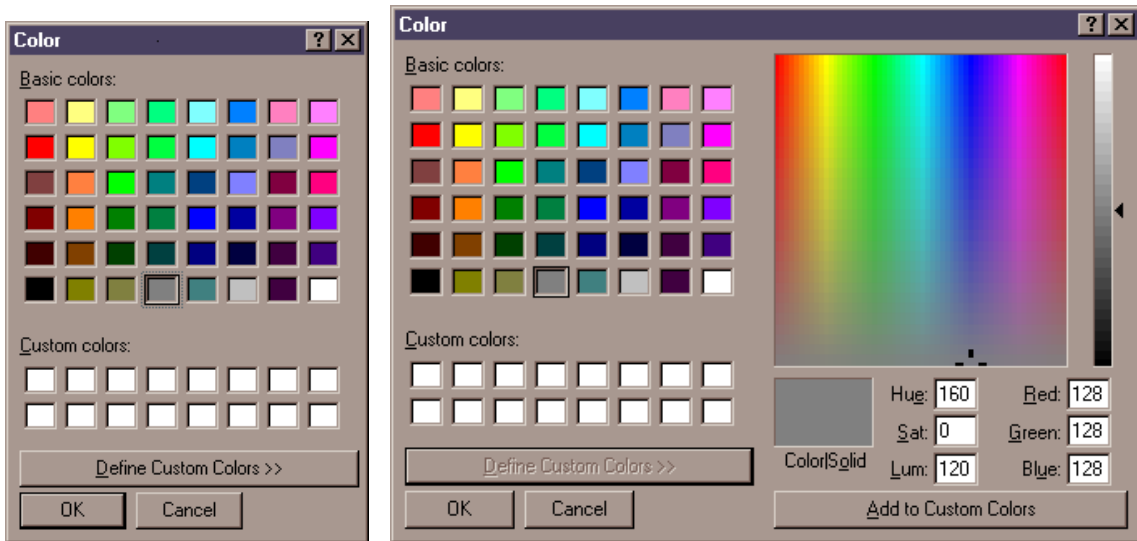


Fig. II.20 Color dialog box

Delete Feature

Delete selected feature

Clear Selection

Clear the selected feature.

Tool: Surveyor

This tool is designed for user to measure distance between two points and the bearing. Depending on whether map is on geodetic coordinate system or a projected coordinate system, **Surveyor** dialog box is shown on Fig. II.21 or II.22, respectively.

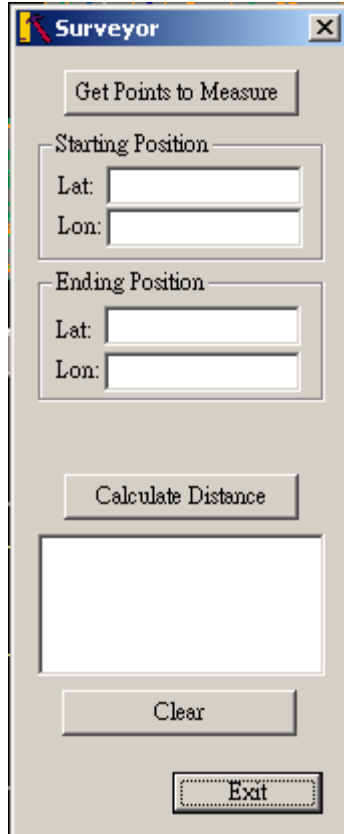


Fig. II.21 Surveyor – Geodetic

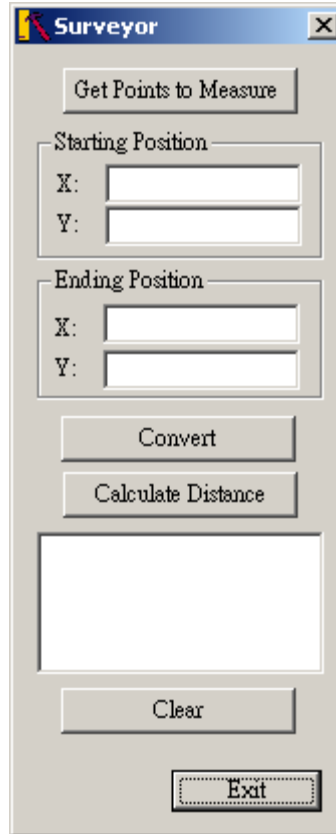


Fig. II.22 Surveyor – projected

Get Points to Measure

Click two locations or click one and drag the line to choose the second point (Fig. II.22). Coordinate values are shown on **Starting Position** and **Ending Position**.

Convert

Only become active, if the map is on projected coordinate system. Click on **Convert** the geodetic coordinates are shown on the blank window below (Fig. 11.23)

Calculate Distance

Calculated distance and Bearing are shown on the blank window below (Fig. II.24)

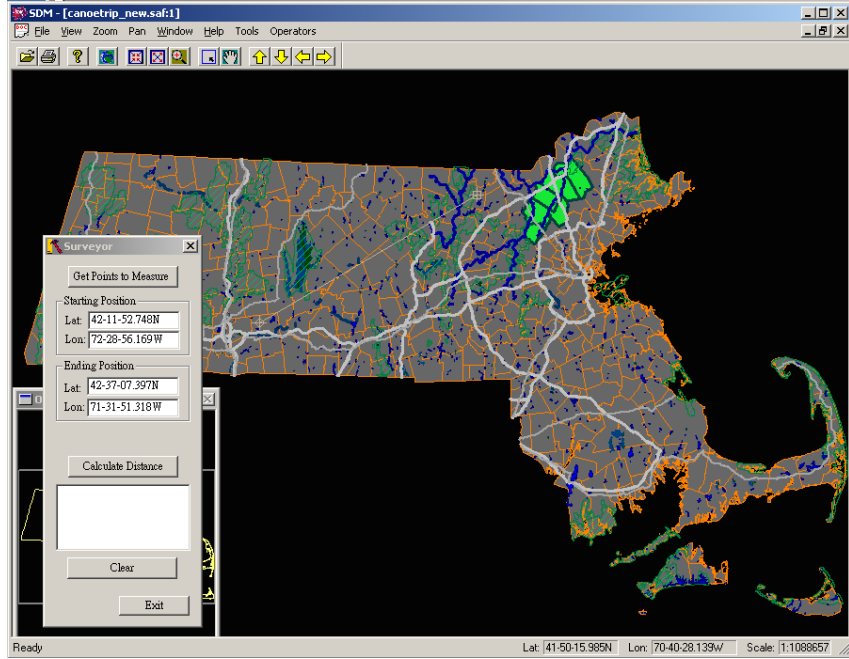


Fig. II. 22 Measurement

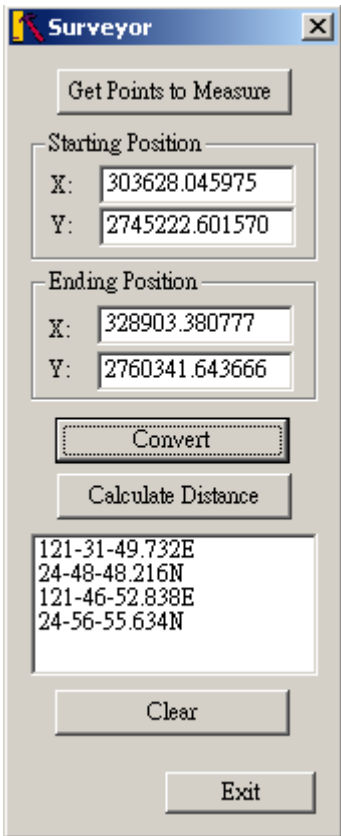


Fig. II.23 Surveyor

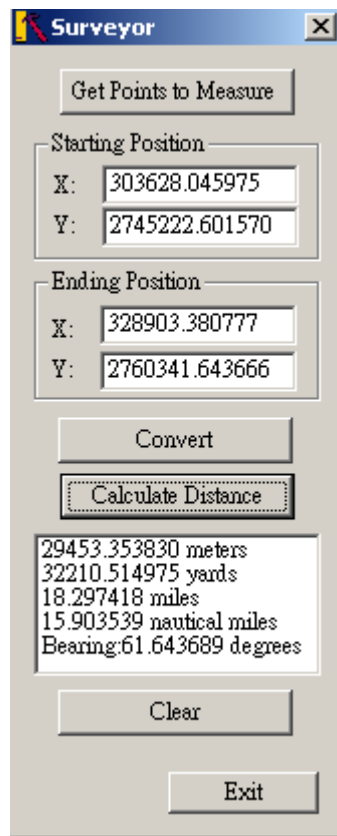


Fig. 24 Calculated Distance