

# **SMART IDesigner**

## **User Manual**



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# 1 Program Introduction

## 1.1 Overview

SMART IDesigner provides the best solution to make a membership card and an identification card. SMART IDesigner allows you to design and issue a desired card conveniently. It can be used easily with simple essential functions. Also, it is designed for advanced user to use a variety of detailed functions.

SMART IDesigner has two functions. One is to design a card. The other is to issue many cards based on internal database. Therefore, if you design a card with SMART IDesigner, the file is saved as project unit in the directory. Project setting file named as CSP, design file named as CSD, database file named as DB are saved in project directory and temporary files used in internal program are saved in Backup, CaptureFiles and ImageTmp under project directory.

SMART IDesigner has the follow features.

- Card designs for printing on CR-80 card are easily designed with images, texts and barcodes (1D, 2D).
- Desired panel objects (Color, Resin Black, Overlay and UV) can be set to be printed.
- In case of picture for portrait, the size and position of picture can be automatically adjusted to only show human face in defined box by recognizing human face in the portrait.
- Information can be inputted from various input devices such as camera and sign-pad by using Plugin.
- Magnetic card, contact smart card and contactless smart card can be encoded by using Plugin.
- Database can issue a large number of cards continuously.
- External data can be imported and internal data also can be exported.
- Several printers can issue cards at the same time.

SMART IDesigner is the program which is provided with SMART ID Card Printer. This can be used only with SMART ID Card Printer supplied by IDP Corp., Ltd.

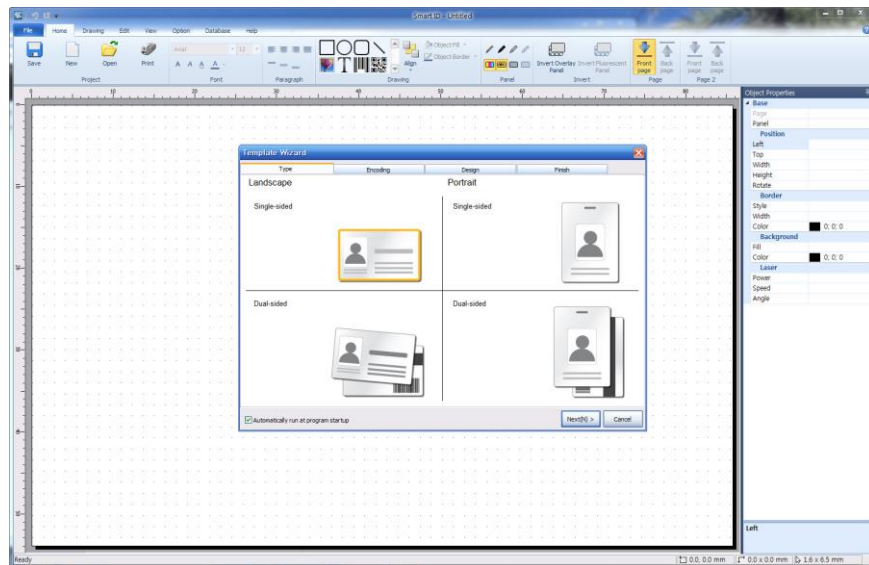
For the stable operation, Windows 7, 8.1 and 10, Pentium 1GHz with 1GB of RAM or higher are recommended.

This program is not for sale. It is only for the customers of SMART ID Card Printer. No part of this program may be reproduced and reused by any way without the permission or the prior written agreement of IDP Corp. Ltd. We have no liability for any problem through the dissemination. IDP Corp. Ltd. All rights reserved.

## 1.2 Program start

### 1.2.1 Use Template

The template wizard is displayed when running SMART IDesigner as the below picture. The user can select the predefined print type and other settings and start the design conveniently.

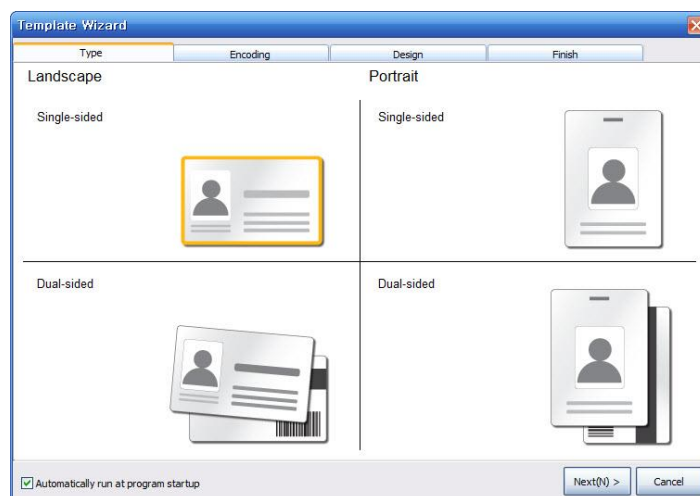


<Figure 1> Start SMART IDesigner

The template wizard is progressed as the below steps.

#### 1) Type

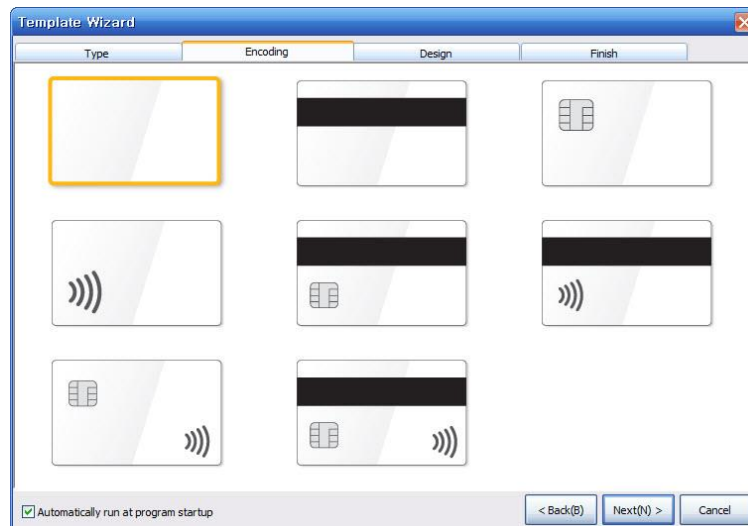
Select the orientation (landscape/Portrait) of a card and surface (Single-sided/Dual-sided) to print. Then click 'Next' button.



<Figure 2> Template Wizard – Type

## 2) Encoding

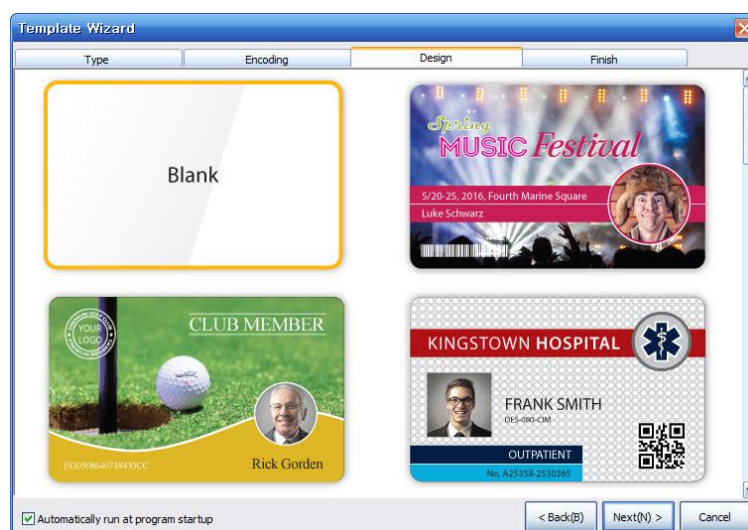
Select an encoding way into a card. SMART IDesigner can encode magnetic stripe, contact smart card, contactless smart card. For encoding, the selected encoder has to be installed in the printer and use the card that encoding is available.



<Figure 3> Template Wizard - Encoding

## 3) Design

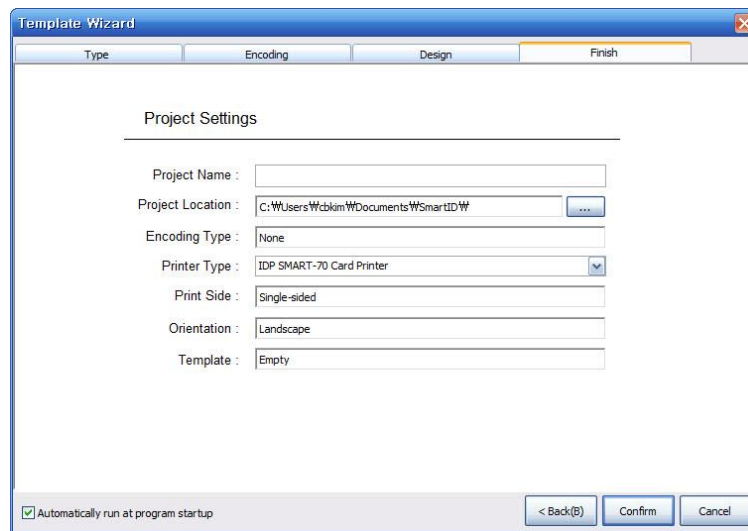
Select one of the predesigned image and project or 'Blank' card if the user wants his own design.



<Figure 4> Template Wizard – Design

#### 4) Finish (Create a project)

Input a Project name and select the location to save it, then click "Confirm" button.

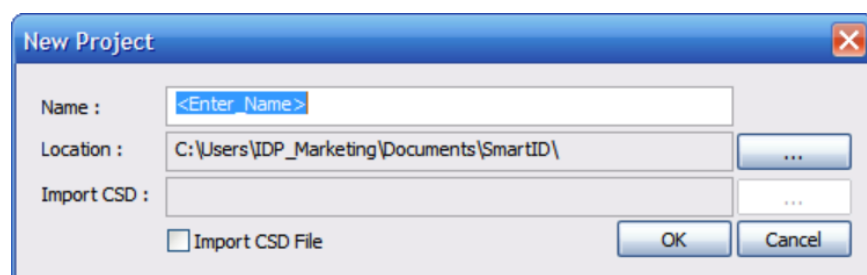


<Figure 5> Template Wizard - Finish

### 1.2.2 Create Project

The new project can be created by clicking 'New' on 'File' ribbon if the template wizard is not used.

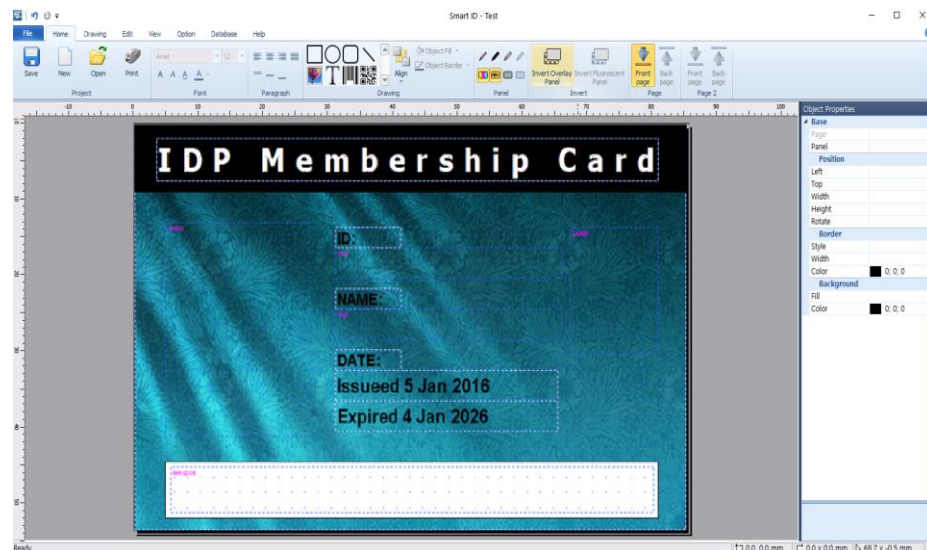
In figure1, when clicking "New" button, New Project window will be displayed like figure 6. In "New Project" window, after inputting the project name and selecting the directory to save the project, OK button is pressed. After creating a folder as project name in the appointed directory, SMART IDesigner saves the project setting file named as CSP, the design file named as CSD, the database file named as DB and temporary files for this project.



<Figure 6> New Project

### 1.2.3 Design

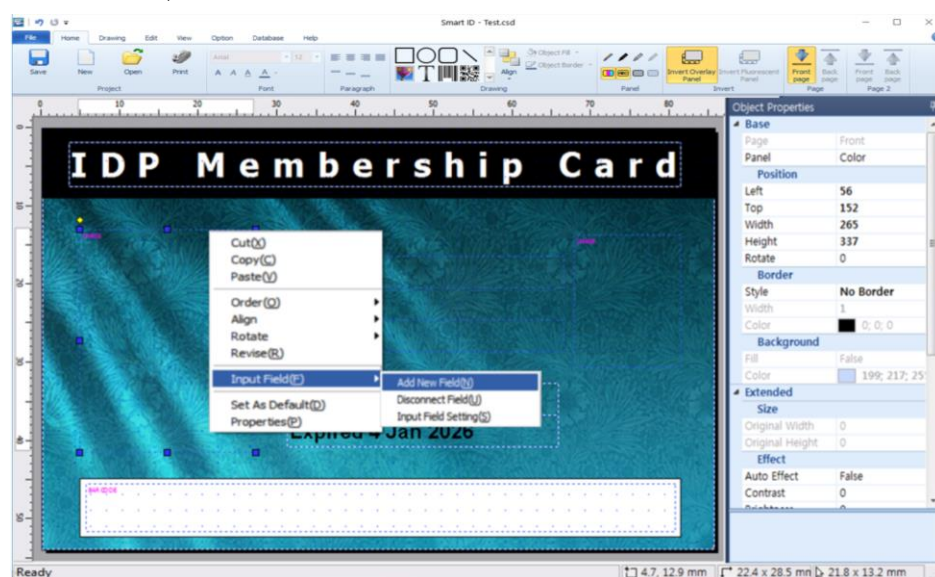
A card is designed with drawing objects like figure 3. Figure 3 shows that image, text and barcode are placed on the drawing area after drawing a background with black rectangle and image. Data is not entered in image, text and barcode marked as pink because they will be linked to database later.



<Figure 7> Card Design

### 1.2.4 Create Database Field

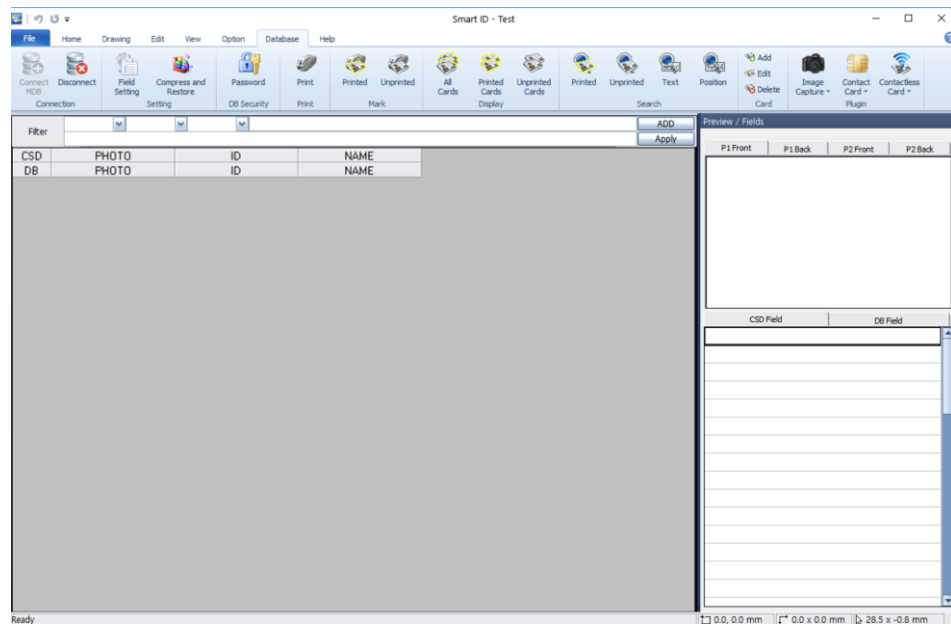
After clicking mouse right button on the object to link to database, field is created by clicking "Add New Field" like figure 4 or connected with the existed field. "PHOTO" is created as image field and "ID", "NAME" is created as text field to be linked to database.



<Figure 8> Create Card Database Field

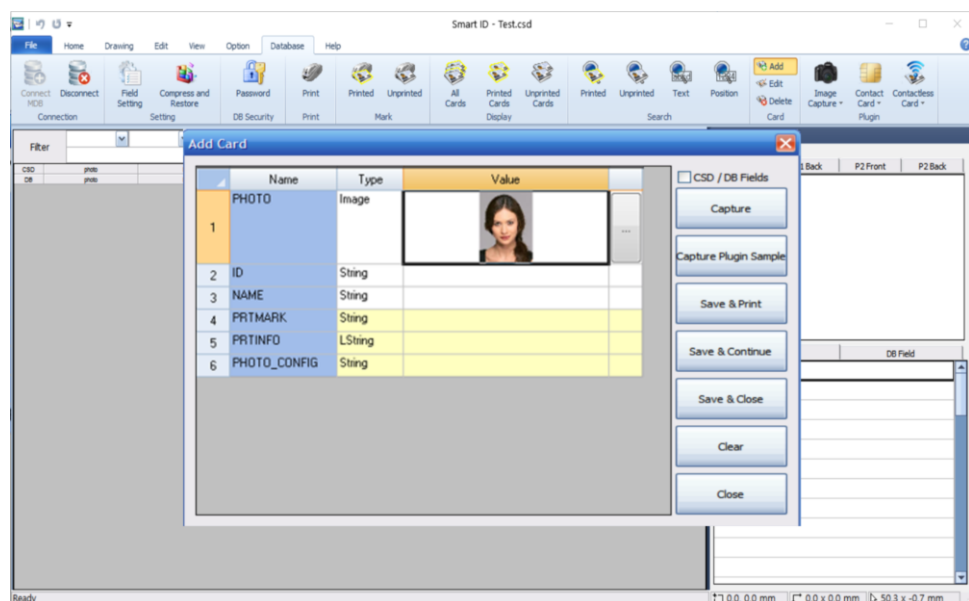
## 1.2.5 Data Input

When clicking "Database" Tab like figure 5, the input field defined previously is inputted and printed.



<Figure 9> Card Database

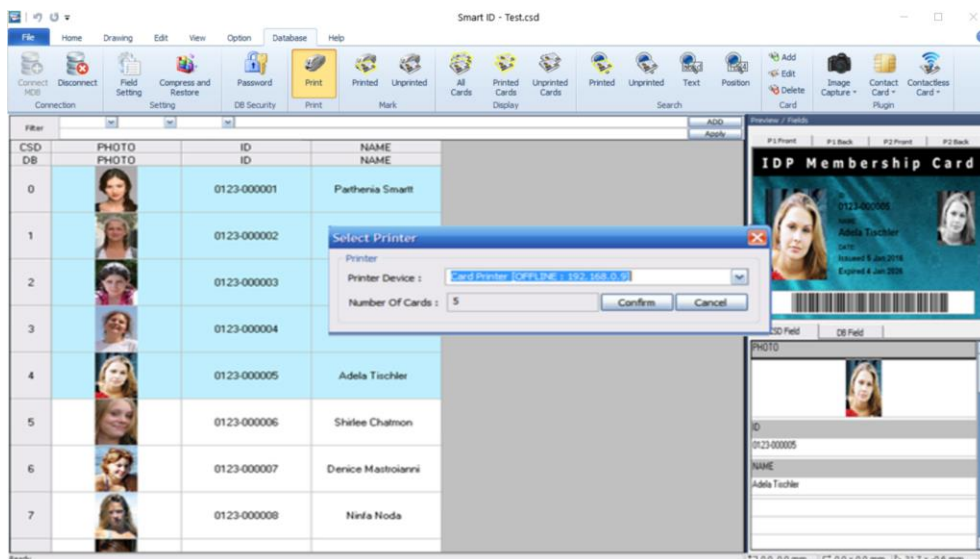
When clicking "Add" button in figure 5, window will be shown to input data like figure 6. When clicking "Save & Continue" button after entering required data, new card data can be inputted continuously.



<Figure 10> Card Data Input

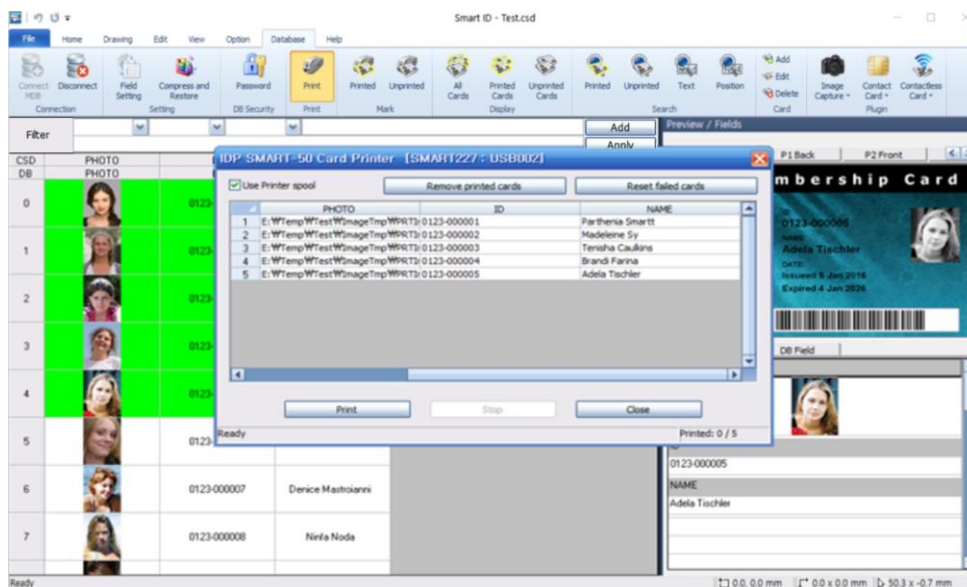
## 1.2.6 Card Issuing

When clicking "Print" button after selecting a card to be issued like figure 7(The color of selected card will be changed to sky-blue color.), the available printer is selected.



<Figure 11> Card Issuing Ready

When clicking "Print" button in Printer Spooler like figure 8, selected cards are issued continuously.

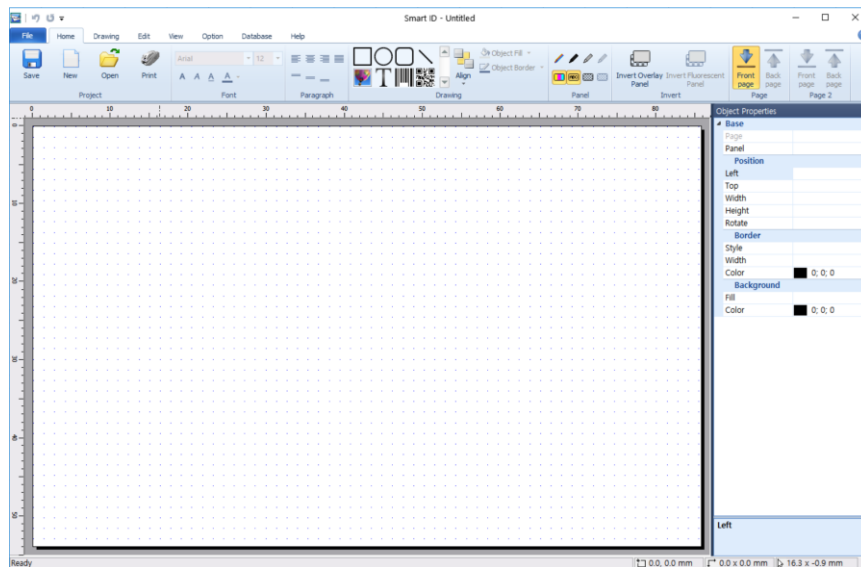


<Figure 12> Card Issuing

SMART IDesigner can issue cards at several printers at the same time. Under printing, other card can be selected and inserted to printing spooler or inserted to new printer spooler and printed.

## 2 Menu Tab Explanation

SMART IDesigner consists of menu tab, ribbon bar, drawing and properties area like figure 9.



<Figure 13> SMART IDesigner window

Menu consists of "File", "Home", "Drawing", "Edit", "View", "Option", "Database" and "Help". When clicking "Menu", the ribbon bar related to Menu will be shown.

When SMART IDesigner is run, "Home" ribbon bar will be shown basically like figure 9. There are essential tools in "Home" in order to use SMART IDesigner. For further information for each ribbon bar, please refer to the follow chapter.

Drawing area allows you to edit various objects such as rectangle, circle, line, image, text and barcode on the card with CR-80 (54mm x 86mm) size on the screen.

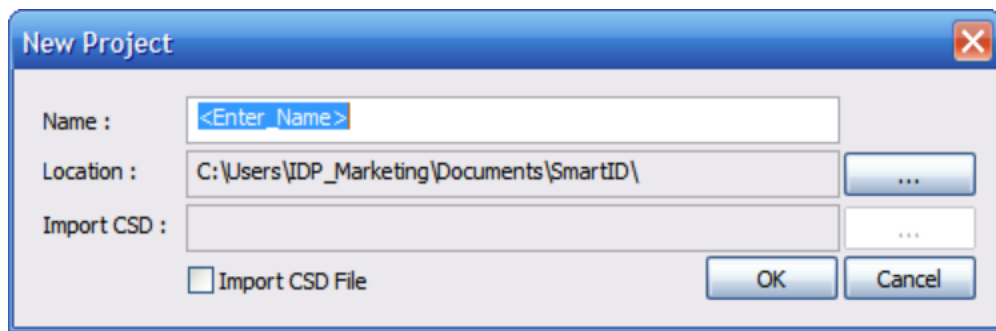
Properties area allows you to see the properties of selected objects in detail and edit conveniently.

## 2.1 File

### 2.1.1 New Project



SMART IDesigner manages several files in one directory as project unit because it manages database as well as design. Therefore project should be created to design a new card. When clicking "New" button, new project window will be shown like figure 10.



<Figure 14> New Project

"Name" is the name of project to be designed. After creating folder as "name", essential files are created. There are several files in project folder as follow.

Name. CSP: File which defines project configuration

Name. CSD: File including design data

Name. DB: File including database data

Name. MDB: File including database data in the previous version, Smart ID

Backup: Folder saving files for recovery when not saving under work

ImageTmp: Folder saving image temporarily under work

"Location" is a directory to place a project. The project is set a desired location.

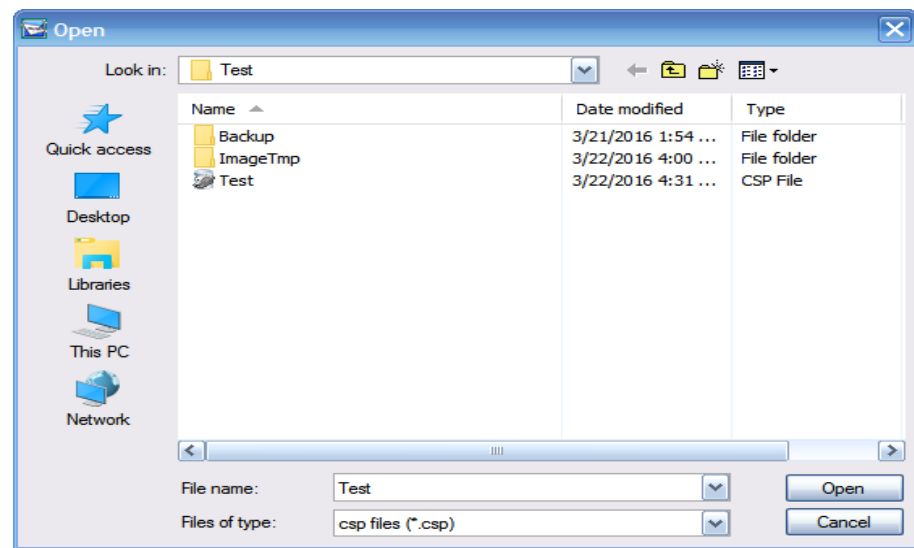
"Import CSD" allows you to use an existed file designed by SMART IDesigner. To use "Import CSD" function, checkbox for "Import CSD File" is marked and CSD file in your folder is set. When using "Import CSD", original CSD file is copied in new project and then used. When not using "Import CSD", there is no designed status.

It is time to ready to design. Place image, text, 1D barcode, 2D barcode, box, circle and line on the desired position. When using database, input field is connected by clicking mouse right button. Please refer to chapter 2 for further information.

### 2.1.2 Open



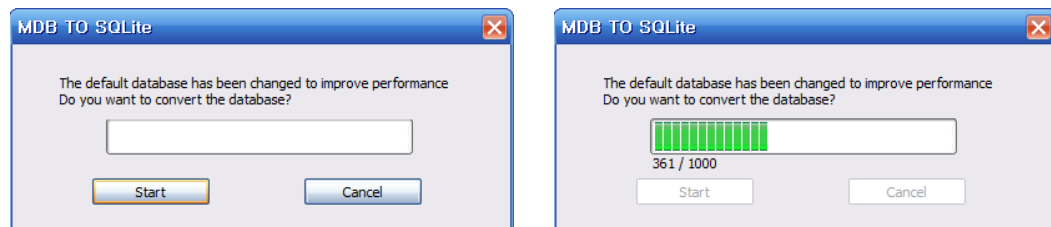
When clicking "Open" button, window will be shown to open a project or a design like figure 11. When clicking "Open" button, the desired file is selected.



<Figure 15> Open

When selecting a CSP file, all files for project in same directory is open. But, if a CSD file is selected, only design file is open. When opening the CSD file, new project will be saved later.

In case of the CSP file which is created in Smart ID, the MDB file is used as the database. When the CSP file of Smart ID is opened, the enhanced database, it can be converted to SQ List DB file.



<Figure 16> DB Format converting

### 2.1.3 Save



When clicking "Save" button, active project is saved. When starting with "New Project" or "Open CSP file", the project is saved in the appointed location automatically. When not creating project or using "Open CSD file", "New Project" window will be shown and saved as new project.

### 2.1.4 Save as



When clicking "Save as" button, active file will be saved with new name.

### 2.1.5 Print Setup



The properties for printing such as printing direction, ribbon option, etc. are set up. Refer to the printer driver manual for detailed information.

### 2.1.6 Print



When clicking "Print" button, design is printed by card printer. This printing is used to check the status of design. When printing a large number of cards through database, "Print" button of "Database" menu is used.

### 2.1.7 Database

"Database" is used to import external data or export data of project. SMART IDesigner can use data of DB or XLS type.

### 2.1.8 Recent Project

The list of the latest projects will be shown.

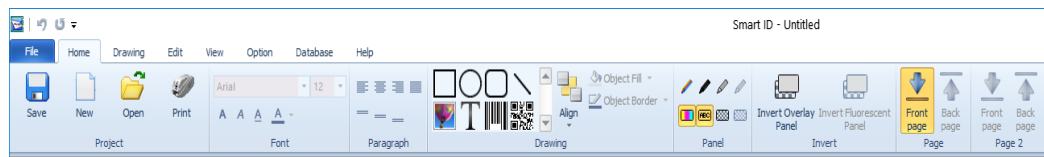
### 2.1.9 Exit



When clicking "Exit" button or [X] button of window, SMART IDesigner is closed. When there is a change in design or database, the question about whether saving a current project or not will be displayed.

## 2.2 Home

Home Tab has general functions for card design work like figure 12.



<Figure 17> Ribbon Bar – Home Tab

### 2.2.1 Save



Active project is saved. The project have CSD, CSP, DB files for SMART IDesigner program.

### 2.2.2 New Project



New project is begun. When creating a new project, directory to be saved is set by project name and directory.

### 2.2.3 Open



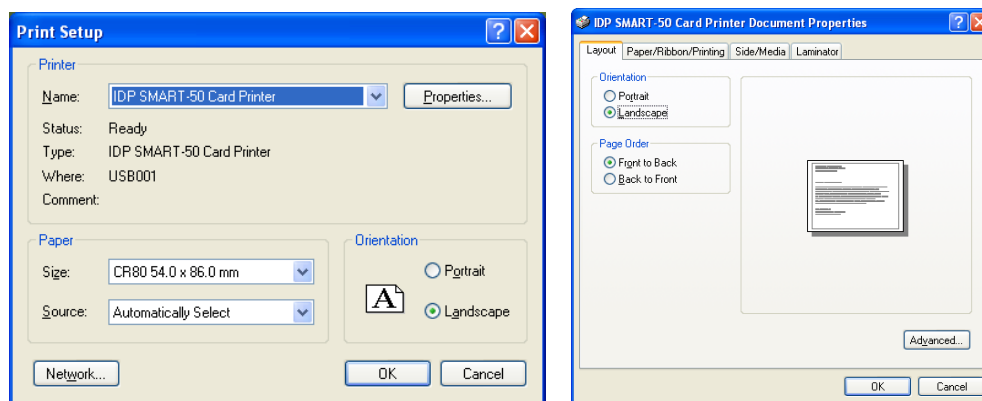
Project file (.CSP) or Design file (.CSD) is imported. When opening a CSP file, card can be issued promptly because design and database in project are open together. When opening a CSD file, data should be inputted after saving as project because only design is opened.

In case of the CSP file which is created in Smart ID, the MDB file is used as the database. When the CSP file of Smart ID is opened, the enhanced database, it can be converted to SQ List DB file.

### 2.2.4 Print



The design is printed by card printer.



<Figure 18> Print Setup

When clicking "Property" button in "Print" window, print option can be changed. When changing the property in "Print" window, the property can be applied for only current print card and not be saved. To change the print property permanently, "Print Property" of "File" tab should be pressed.

"Print" is used to check the design. When printing by linking to database, "Print" of "Database" tab should be pressed.

## 2.2.5 Font list



Select the font type or the barcode type. You can see all possible font types in Windows or all barcode lists supported in this program.

## 2.2.6 Font Size



Set the font size of text object or barcode object.

## 2.2.7 Bold



Make a bold font. It is activated when the text object is selected. Click the icon or press "Ctrl" key with "B" key to make font bold.

## 2.2.8 Italic

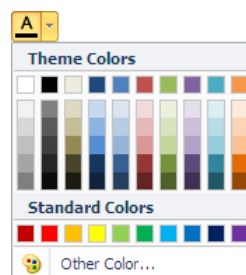
**A** Make an italic font. It is activated when the text object is selected. To make an italic effect, click the icon or press "Ctrl" with "I" key.

## 2.2.9 Underline

**A** Underline a font. It is activated when the text object is selected. To make an underline effect, click the icon or press "Ctrl" with "U" key.

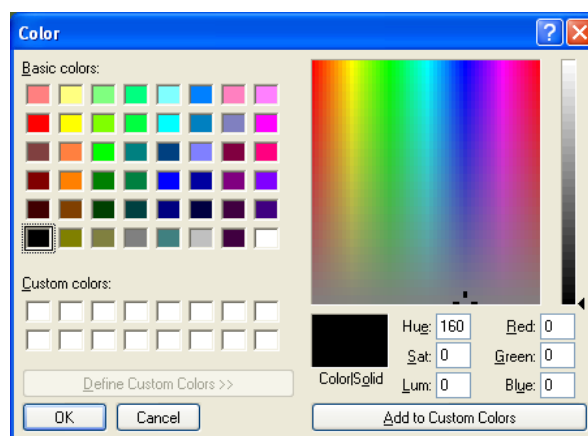
## 2.2.10 Font Color

**A** Set the font color of the text object or the barcode color of the barcode object. If click the left side of icon, the color is applied. If press the right downside arrow, you can see the color table as below. You can select the desired color to apply to the text object or barcode object.



<Figure 1> Color Picker Popup

To apply other color which is not shown in color table, click "Other color".



<Figure 19> Select Other Color

Select the specific color you want and click "OK" to apply. The icon's color will be changed.



### 2.2.11 Align Left



Text is aligned on the left side.

### 2.2.12 Align Center



Text is aligned on the center.

### 2.2.13 Align Right



Text is aligned on the right side.

### 2.2.14 Justify



Text is aligned on the same distance between the characters.

### 2.2.15 Align Top



Text is aligned on the top side.

### 2.2.16 Align Middle



Text is aligned on the middle.

### 2.2.17 Align Bottom



Text is aligned on the bottom side.

### 2.2.18 Rectangle Tool



Draw a rectangle. If you select this icon, the cursor will be changed to + shape.  
The object is set as color panel.

### 2.2.19 Round-Rectangle Tool



Draw a rounded rectangle. If you select this icon, the cursor will be changed to + shape. The object is set as color panel.

### 2.2.20 Ellipse Tool



Draw an oval. If you select this icon, the cursor will be changed to + shape. The object is set as color panel.

### 2.2.21 Line Tool



Draw a straight line. If you select this icon, the cursor will be changed to + shape. The object is set as color panel.

### 2.2.22 Text Tool



Make a text box. Input text when text input dialog box is open. The object is set as black panel.

### 2.2.23 Image Tool

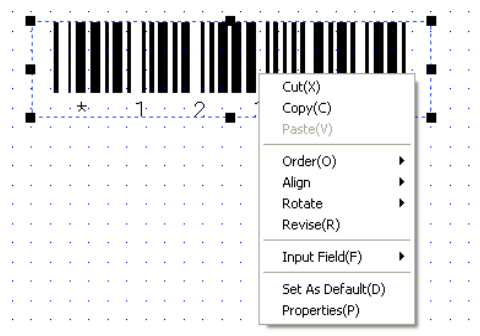


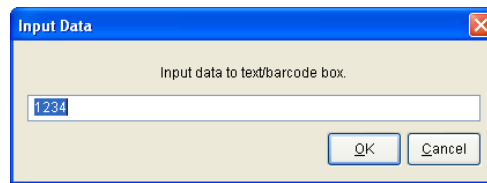
Insert an image. Select the image when the image selecting dialog box is open. The object is set as color panel.

### 2.2.24 1D Barcode Tool



Make a barcode. Input data when data input dialog box is open. The object is set as black panel. You can change the data using "Revise" as below after click the right button of the mouse.





&lt;Figure 20&gt; Revise Data

### 2.2.25 2D Barcode Tool

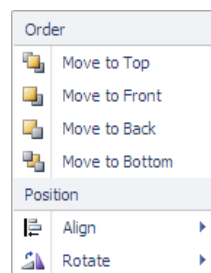


Make a 2D barcode. The method of data input is same as barcode.

### 2.2.26 Align



Click the Align button, popup menu is displayed as below.

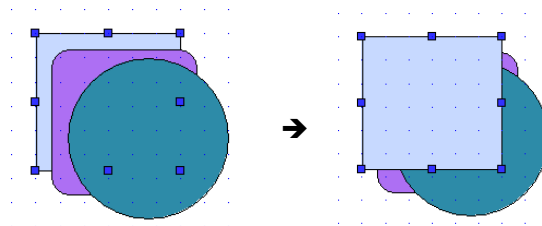


&lt;Figure 21&gt; Align Popup Menu

### 2.2.27 Align – Move to Top



Move the selected object to top.

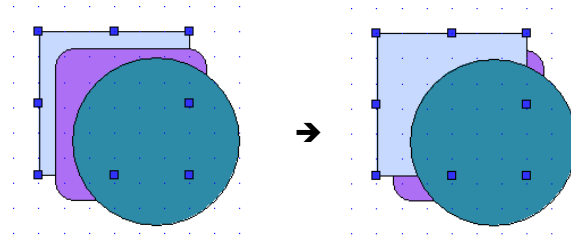


&lt;Figure 22&gt; Move the selected object to top

### 2.2.28 Align – Move to Front



Move the selected object to one step up.

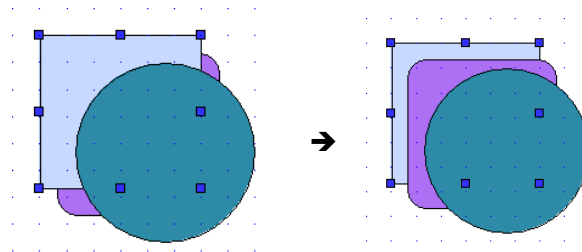


<Figure 23> Move the selected object to one step up

### 2.2.29 Align – Move to Back



Move the selected object to one step down.

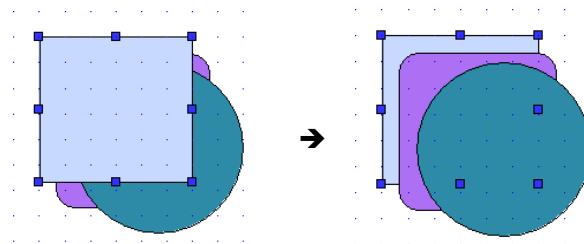


<Figure 24> Move the selected object to one step down

### 2.2.30 Align – Move to Back



Move the selected object to bottom.



<Figure 25> Move the selected object to bottom>

### 2.2.31 Align – Align – Left Align



Align the selected objects to the left of standard object.

### 2.2.32 Align – Align – Right Align



Align the selected objects to the right of standard object.

### 2.2.33 Align – Align – Top Align



Align the selected objects to the top of standard object.

### 2.2.34 Align – Align – Bottom Align



Align the selected objects to the bottom of standard object.

### 2.2.35 Align – Align – Align Same Width



Align the distance of the selected objects in horizontally same distance.

### 2.2.36 Align – Align – Align Same Height



Align the distance of the selected objects in vertically same distance.

### 2.2.37 Align – Align – Horizontal Center Align



Move the selected objects to the horizontal center.

### 2.2.38 Align – Align – Vertical Center Align



Move the selected objects to the vertical center.

### 2.2.39 Align – Align - Clockwise 90° Rotation



Rotate the selected objects 90 degree clockwise.

### 2.2.40 Align – Align – Counter-Clockwise 90° Rotation

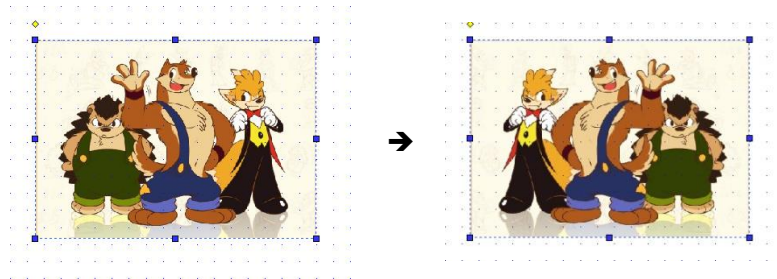


Rotate the selected objects 90 degree counterclockwise.

### 2.2.41 Align – Rotate – Horizontally Flip



Reverse the selected objects right and left.

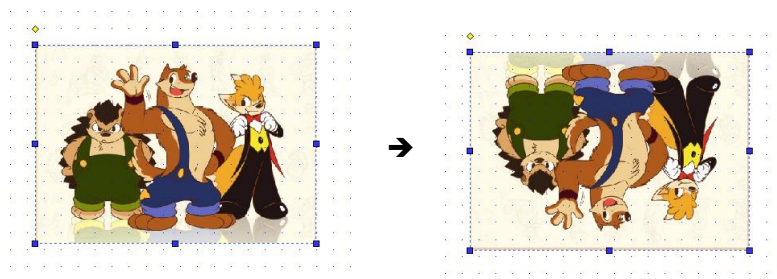


<Figure 26> Image Object – Flip Horizontally

### 2.2.42 Align – Rotate – Vertically Flip

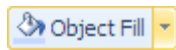


Reverse the selected objects upside down.



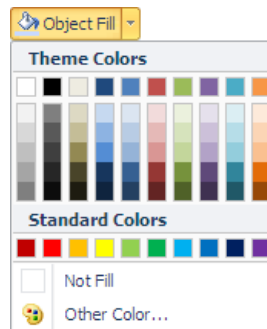
<Figure 27> Image Object – Flip Vertically

### 2.2.43 Object Fill



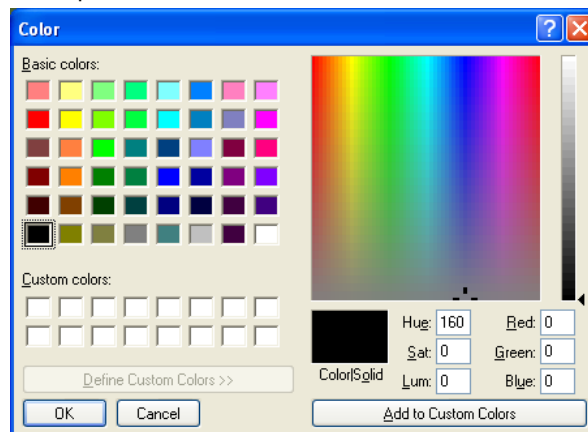
Set the background color of the selected object.

Click the left part of the button to apply the selected color. If click the right downside arrow, you can see the color table as below.



<Figure 28> Color Popup for Object Fill

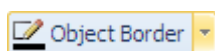
You can make background color transparent, click **Not Fill**. If there is no desired color, click **Other Color...** for the specific color.



<Figure 29> Select Other Color

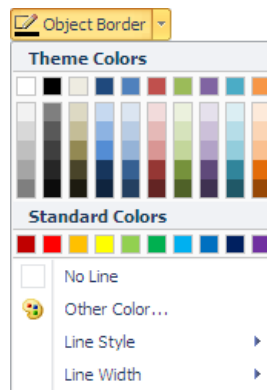
Click **OK** to apply it to background color after select the color.

### 2.2.44 Object Border



Set the outline color of the selected object.

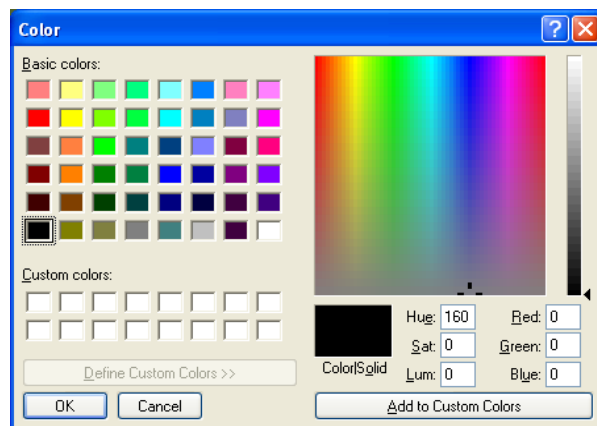
Click the left part of the button to apply the selected color. If you click the downside arrow of the icon, the color table will be displayed.



<Figure 30> Color Popup for Object Border

You can make outline color transparent, click **Not Fill**.

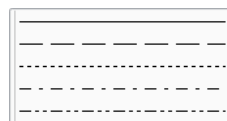
If there is no desired color, click **Other Color...** for the specific color.



<Figure 31> Select Other Color

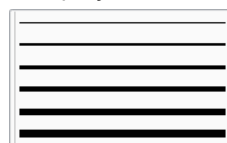
Click OK to apply it to background color after select the color.

**Line Style** changes the outline type of the object. If you move the cursor on the menu, the outline type list will be displayed. Select the outline type.



<Figure 32> Line Style Selection Popup Menu

**Line Width** changes the outline thickness of the object. If you move the cursor on the menu, the outline thickness list will be displayed. Select the outline thickness.

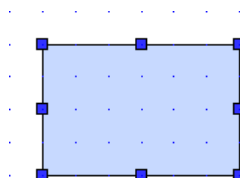


<Figure 33> Line Width Selection Popup Menu

### 2.2.45 Set as Color Panel



Set as color panel for the selected object. If the installed ribbon is not color ribbon, this icon will not be activated. When the object is set as color panel, the blue color is applied to the object.

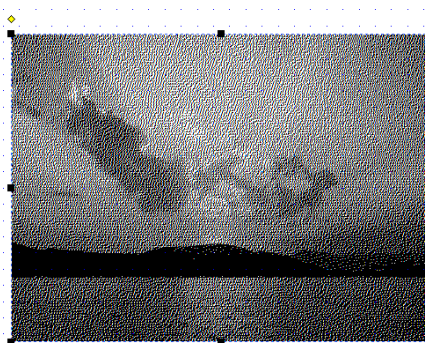


<Figure 34> Set as Color Panel

### 2.2.46 Set as Black Panel



Set as black panel for the selected object. Text and barcode are set as black panel at default. The background, outline and font will be changed to gray color. For the image object, the dithering effect will be applied. If the object is set as black panel, the square of outline will be black color.

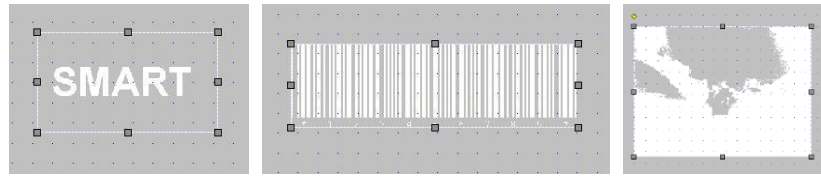


<Figure 35> Set as Black Panel

### 2.2.47 Set as Overlay Panel



If you click this icon after select the object, overlay will not be applied to that object. The Image, text and barcode are not overlaid if this icon is clicked. When the object is set as overlay panel, the square of outline will be changed to gray color.



&lt;Figure 36&gt; Overlay Panel Editing

### 2.2.48 Set as Rewritable Panel

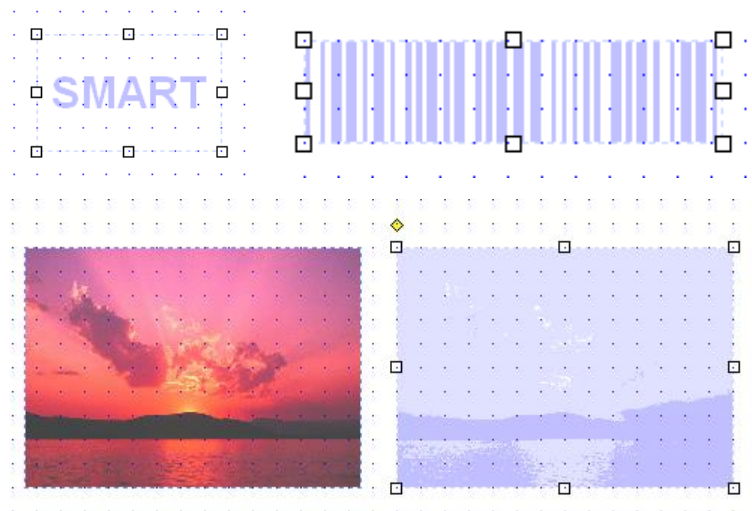


If you click this icon after selecting the object, rewrite function will be applied to that object. How to use re-writable panel is same as overlay panel. Re-writable panel will appear if the printer is re-writable printer instead of overlay panel. If it is not re-writable printer, it is not appeared. The dark area represents that is to be erased on a card. The bright area represents that is not to be erased on a card. If the whole parts of panel are dark, the front panel of a card will be erased, then re-written.

### 2.2.49 Set as Fluorescent Panel



If you click this icon after select the object, fluorescent will be applied to that object. The Image, text and barcode are fluoresced if this icon is clicked.



&lt;Figure 37&gt; Fluorescent Panel Editing

### 2.2.50 Display Color Panel



You can see all objects which are set as color panel.

### 2.2.51 Display Black Panel



You can see all objects which are set as black panel.

### 2.2.52 Display Overlay Panel



All overlay panels can be seen. The overlaid area will be displayed darker than not overlaid area.

### 2.2.53 Display Rewritable Panel



The object display on the screen is chosen by re-writable panel. If select the rewritable object display that represents part will be erased by dark. This icon will appear instead of overlay panel icon if the printer is re-writable printer.

### 2.2.54 Display Fluorescent Panel

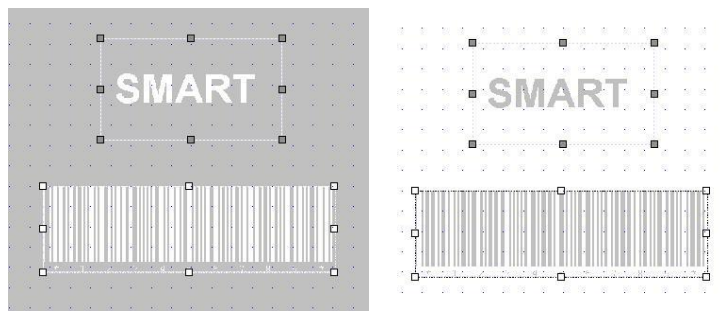


All fluorescent panels can be seen. The fluoresced area will be displayed more blue printed than not fluoresced area.

### 2.2.55 Invert Overlay Panel



Basically, overlay is supplied to all surface of card. In case of the text, drawing and image object, the contents will not be overlaid. If you want to reverse this, click this icon. Refer to the below example.



<Figure 38> Overlay Panel Reverse

### 2.2.56 Invert Fluorescent Panel



Basically, re-writable panel is set up to clear the front of card. In case of the text, 16 drawing and image object, the contents will not clear in the card. If you want to clear some part and printing, select "Invert re-writable panel" and select the given object in area. If select "Invert re-writable", it will set up to do not clear whole part of card. It will clear marked text, drawing and image object. This case will apply equally to Fluorescent panel.

### 2.2.57 Front Page



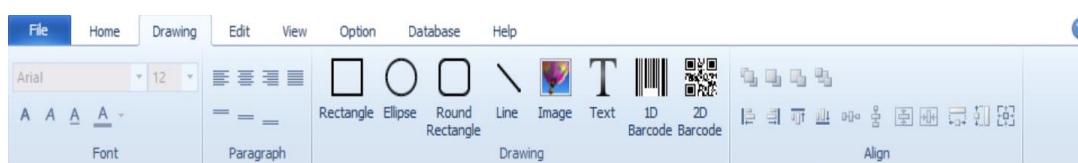
This Smart card printer can print the front side and back side. It can be set by the printer setup. The icon will be activated when the related side is under designing. "Page2" is activated when the Slave printer or the laser engraver is connected.

### 2.2.58 Back Page



You can design the back side of the card using this icon. It will be activated when the printing setup is both-side printing. "Page2" is activated when the Slave printer or the laser engraver is connected.

## 2.3 Drawing





### 2.3.1 Font list



Please refer to Chapter 2.2.5.

### 2.3.2 Font Size



Please refer to Chapter 2.2.6.

### 2.3.3 Bold



Please refer to Chapter 2.2.7

### 2.3.4 Italic



Please refer to Chapter 2.2.8.

### 2.3.5 Underline



Please refer to Chapter 2.2.9.

### 2.3.6 Font Color



Please refer to Chapter 2.2.10.

### 2.3.7 Align Left



Please refer to Chapter 2.2.11.

### 2.3.8 Align Center



Please refer to Chapter 2.2.12.

### **2.3.9 Align Right**



Please refer to Chapter 2.2.13.

### **2.3.10 Justify**



Please refer to Chapter 2.2.14.

### **2.3.11 Align Top**



Please refer to Chapter 2.2.15.

### **2.3.12 Align Middle**



Please refer to Chapter 2.2.16.

### **2.3.13 Align Bottom**



Please refer to Chapter 2.2.17.

### **2.3.14 Rectangle**



Please refer to Chapter 2.2.18.

### 2.3.15 Round Rectangle



Please refer to Chapter 2.2.19.

### 2.3.16 Ellipse



Please refer to Chapter 2.2.20.

### 2.3.17 Line



Please refer to Chapter 2.2.21.

### 2.3.18 Text



Please refer to Chapter 2.2.22.

### 2.3.19 Image



Please refer to Chapter 2.2.23.

### 2.3.20 1D Barcode



Please refer to Chapter 2.2.24.

### 2.3.21 2D Barcode



Please refer to Chapter 2.2.25.

### 2.3.22 Move to Top



Please refer to Chapter 2.2.27.

### 2.3.23 Move to Front



Please refer to Chapter 2.2.28.

### 2.3.24 Move to Back



Please refer to Chapter 2.2.29.

### 2.3.25 Move to Bottom



Please refer to Chapter 2.2.30.

### 2.3.26 Left Align



Please refer to Chapter 2.2.31.

### 2.3.27 Right Align



Please refer to Chapter 2.2.32.

### 2.3.28 Top Align



Please refer to Chapter 2.2.33.

### 2.3.29 Bottom Align



Please refer to Chapter 2.2.34.

### 2.3.30 Align Same Width



Please refer to Chapter 2.2.35.

### 2.3.31 Align Same Height



Please refer to Chapter 2.2.36.

### 2.3.32 Vertical Center Align



Please refer to Chapter 2.2.38.

### 2.3.33 Horizontally Center Align



Please refer to Chapter 2.2.37.

### 2.3.34 Same Width Adjustment



Change the width of the selected objects same as the standard object.

### 2.3.35 Same Height Adjustment



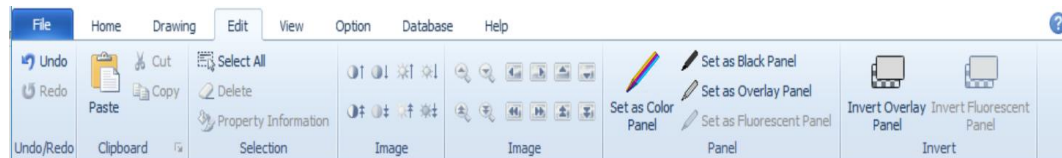
Change the height of the selected objects same as the standard object.

### 2.3.36 Same Size Adjustment



Change the size of selected objects same as the standard object.

## 2.4 Edit



### 2.4.1 Undo



Reverse the last command.

### 2.4.2 Redo



Reverse the action of the "Undo".

### 2.4.3 Paste



Paste the cut or copied object.

### 2.4.4 Cut



Remove the selection from the design and place it in the clipboard.

### 2.4.5 Copy



Copy the selected object in the clipboard.

## 2.4.6 Select All



Select all objects in active design.

## 2.4.7 Delete



Delete selected object.

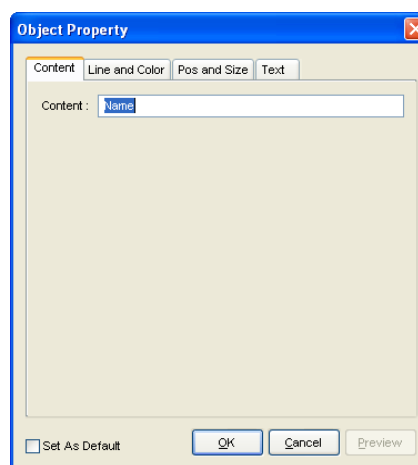
## 2.4.8 Object Property Information



Double-click on the selected object or press Alt+Enter key. A window will appear.

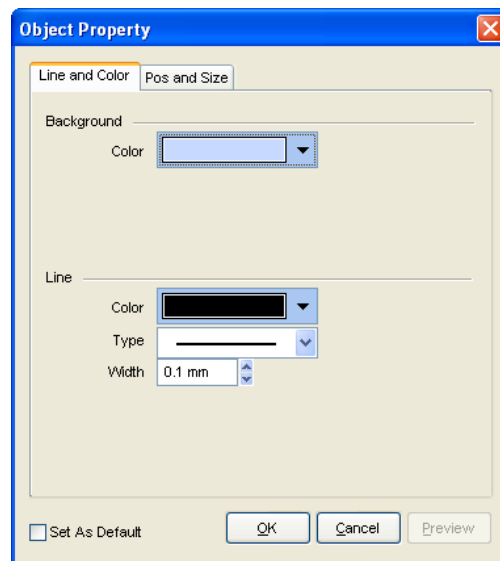
The contents of the object properties depend on the kind of selected object. To apply background color, line color, line type and line thickness to the new object created from now on, click the "Set the properties to the new object".

- **Content**



<Figure 39> Object Properties - Content

- **Line and Color**



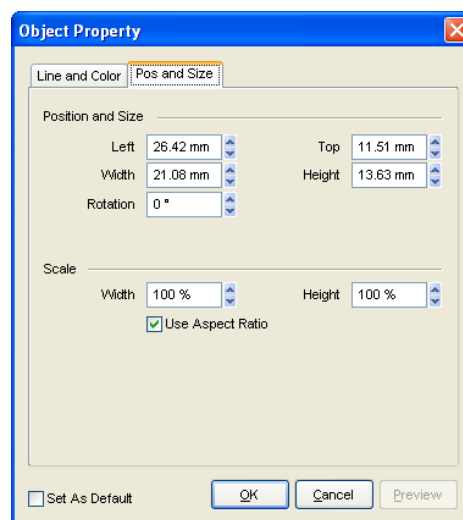
<Figure 40> Object Properties – Line and Color

- **Pos and Size**

In "Position and Size", "Horizontal" and "Vertical" mean the distance from the left-top to the object. "Width" and "Height" mean the width and height of the object.

In "Ratio", "Width" and "Height" are 100% at first because this property lets current object ratio 100% and can change ratio.

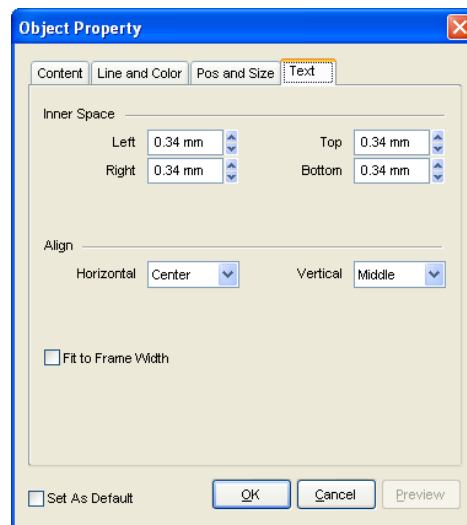
Checking "Fix the Ratio of Width and Height" keeps the same ratio. If you change the width, SMART IDesigner would change the height automatically with same rate.



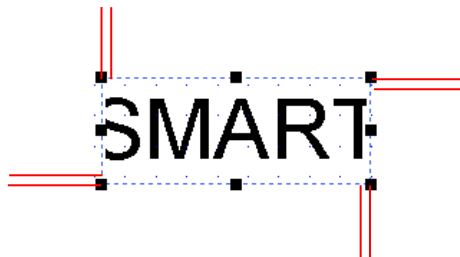
<Figure 41> Object Properties - Size

- **Text**

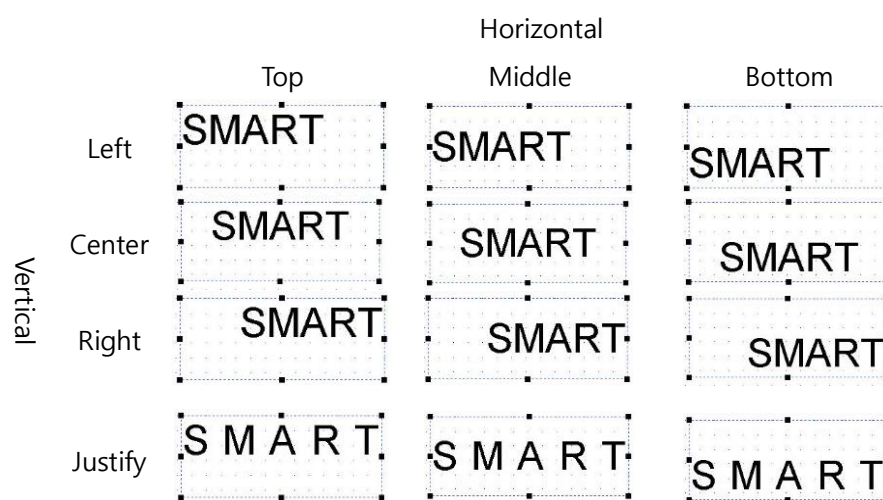
“Text Tab” appears when all selected objects are text ones. In “Inside Space”, you can control the size of spaces between the text and edge line of the text objects.



<Figure 42> Object Properties - Text



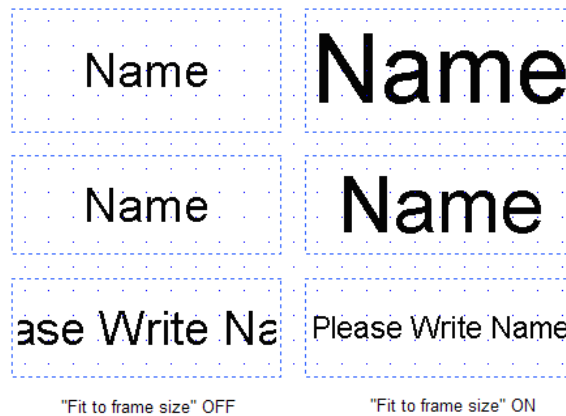
You can set the standard of text position in the frame with “Alignment” function. The ways of alignment are following.



<Figure 43> Each case of Align in Text Objects

"Fit to frame size"

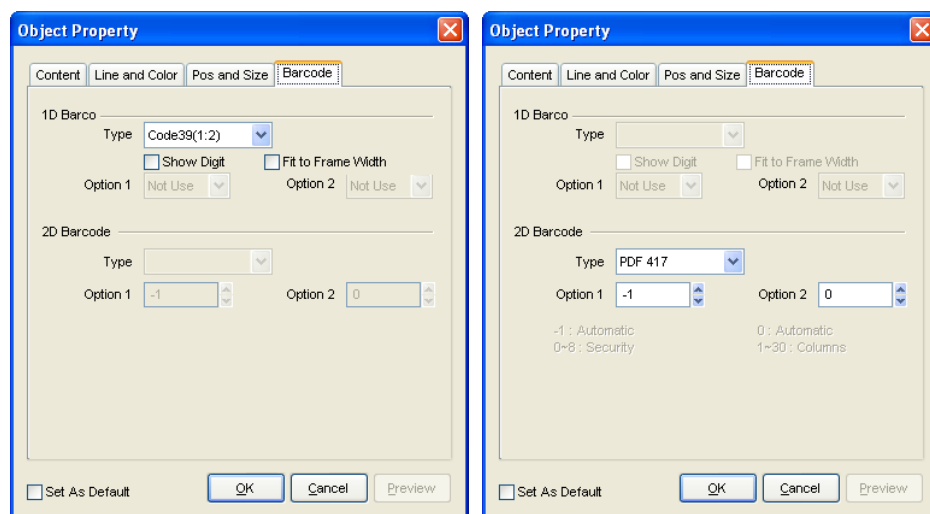
If the text is long enough to over the frame, "Fit to frame size" automatically changes the text size and font to fit to do not cut it off. If the text is shorter to fit the frame, it will automatically increase the size of text.



<Figure 44> Text Object Option – Fit to Frame Size

- **Barcode**

In "Barcode Tab" you can change the properties of barcode objects.



<Figure 45> Barcode Object Properties

"Type" shows the type of the barcode.

Checking "Show Digit" shows the number at the bottom of the barcode.

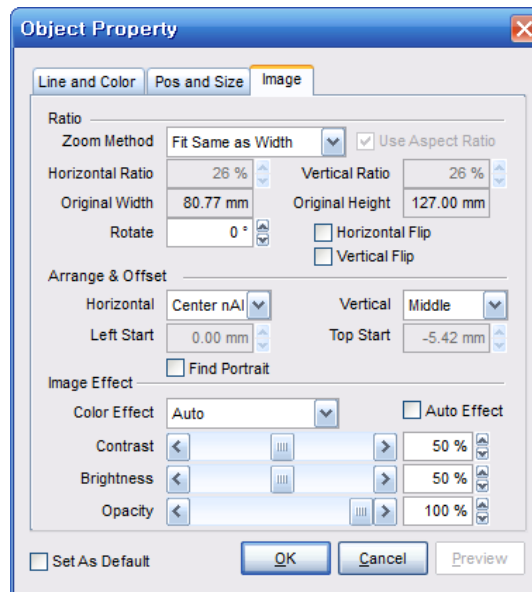


<Figure 46> Barcode Object – Show Digit

If "Fit to Frame size" is checked, it will automatically change the barcode size to fit to frame size.

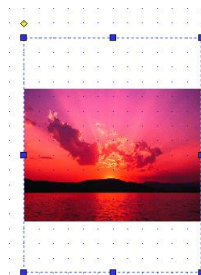
- **Image**

In "Image Tab", we can control the value of the image properties. "Enlargement Method" in "Ratio" sets the rule of enlargement or decrease image in the frame.



<Figure 47> Object Properties - Image

A. Fit same as width



The width of image becomes the same as the width of frame maintaining current ratio of width and height of the original image.

B. Fit same as height



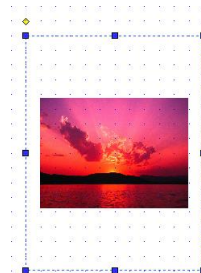
The height of image becomes the same as the height of frame maintaining current ratio of width and height of the original image.

## C. Fit size same as box size



The width and height of image become the same as the width and height of frame. The ratio of the width and height of the original image is ignored.

## D. User Setting



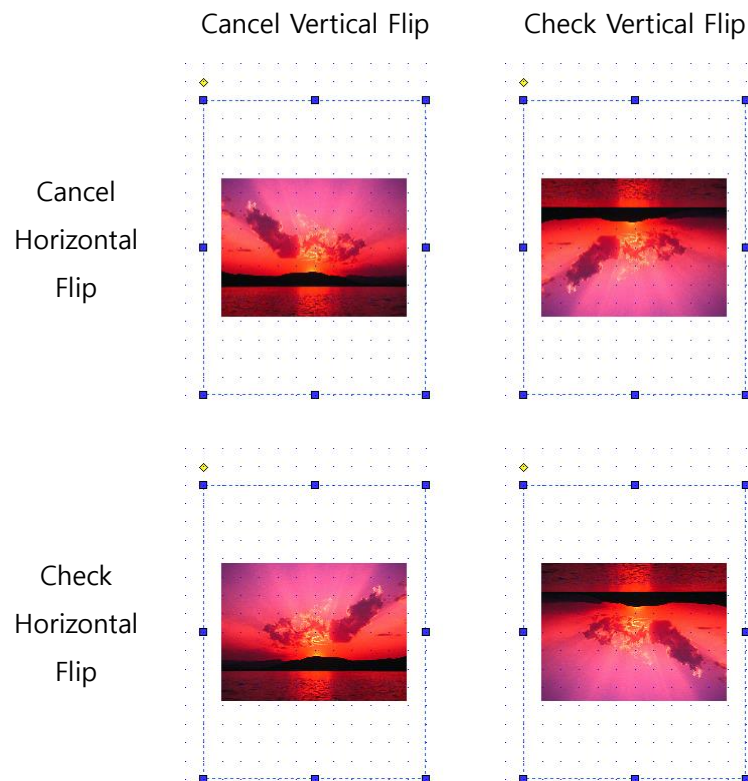
You can set the ratio of the width and height of the image without consideration of the ratio of image and frame.

In user setting, "Horizontal Ratio", "Vertical Ratio" are in active. You can change each value. If "Use aspect ratio" is checked, width and height will be changed at the same rate.

"Original Width" and "Original Height" represent the size of the original image. They will be used for references to change ratio.

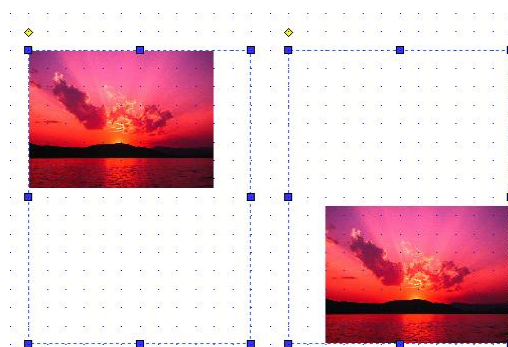
You can rotate the image with "Rotate". The unit for rotation is 90 degrees.

"Horizontal Flip" reverses the image right and left, and "Vertical Flip" turns image upside down.



<Figure 48> Image Object - Flip

In "Alignment and Offset", "Horizontal Alignment" and "Vertical Alignment" set the place of the image in the frame.



<Figure 49> Image Object - Align

"Image Effect" sets color, contrast and brightness of image "Color" sets the color of image. "Auto" keeps the original color of image. "Gray" removes colors in the original image, and changes it gray tone.

"Contrast" controls the contrast light and shade. 50% is the same status as original image. The rate is available from 0 to 100 percent. You can change the value with scroll bar or direct entry.

"Brightness" controls the degree of brightness. 50% is the same status as original image. The rate is available from 0 to 100 percent. You can change the value with scroll bar or direct entry.

"Opacity" is to adjust the transparency of image. 100% means an original image and the transparency of image can be adjusted from 0% to 100%. The transparency of image can be adjusted by the scroll bar and direct entry. The Opacity is to superimpose an image on another one or to adjust the transparency of an image.

"Auto Effect" is to adjust automatically the brightness of image by detecting the brightness information of image. When the Auto Effect is set, the Color Effect, Contrast and Brightness is deactivated and can't be adjusted by user.

#### 2.4.9 Contrast Up



Contrast up to the selected image object.

#### 2.4.10 Sharply Contrast Up



Sharply Contrast up to the selected image object.

#### 2.4.11 Contrast Down



Contrast down to the selected image object.

#### 2.4.12 Sharply Contrast Down



Sharply Contrast down to the selected image object.

#### 2.4.13 Brightness Up



Brightness up to the selected image object.

#### 2.4.14 Sharply Brightness Up



Sharply Brightness up to the selected image object.

#### 2.4.15 Brightness Down



Brightness down to the selected image object.

#### 2.4.16 Sharply Brightness Down



Sharply Brightness down to the selected image object.

#### 2.4.17 Zoom In



Zoom in the image.

#### 2.4.18 Sharply Zoom In



Sharply zoom in the image.

#### 2.4.19 Zoom Out



Zoom out the image.

#### 2.4.20 Sharply Zoom Out



Sharply zoom out the image.

#### 2.4.21 Move Left



Move the image to the left direction.

#### 2.4.22 Sharply Move Left



Sharply move the image to the left direction.

#### 2.4.23 Move Right



Move the image to the right direction.

#### 2.4.24 Sharply Move Right



Sharply move the image to the right direction.

#### 2.4.25 Move Up



Move the image to the upper direction.

#### 2.4.26 Sharply Move Up



Sharply move the image to the upper direction.

#### 2.4.27 Move Down



Move the image to the down direction.

#### 2.4.28 Sharply Move Down



Sharply move the image to the down direction.

### 2.4.29 Set as Color Panel



Please refer to Chapter 2.2.45.

### 2.4.30 Set as Black Panel



Please refer to Chapter 2.2.46.

### 2.4.31 Set as Overlay Panel



Please refer to Chapter 2.2.47.

### 2.4.32 Set as Rewritable Panel



Please refer to Chapter 2.2.48.

### 2.4.33 Set as Fluorescent Panel



Please refer to Chapter 2.2.49.

### 2.4.34 Invert Overlay Panel



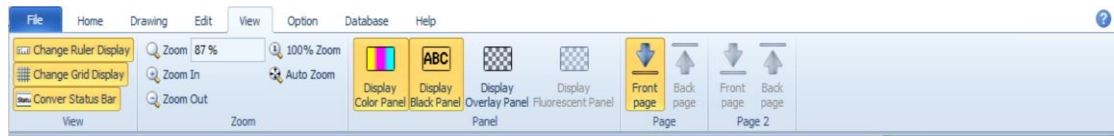
Please refer to Chapter 2.2.55.

### 2.4.35 Invert Fluorescent Panel



Please refer to Chapter 2.2.56.

## 2.5 View



### 2.5.1 Change Ruler Display



Select whether the display of Ruler or not.

### 2.5.2 Change Grid Display



Select whether the display of Grid dot is shown or not.

### 2.5.3 Convert Status Bar



Select whether the status bar is shown or not. Status bar shows the information of position of mouse cursor and explanation of ribbon bar.



: Consider all the selected objects as one. Display the starting point in unit of millimeter.



: Consider all the selected objects as one. Display the width and height in unit of millimeter.



: Display the current point of mouse cursor in unit of millimeter.

### 2.5.4 Zoom



Show the card size you input.

### 2.5.5 Zoom In



Zoom in the card layout.

### 2.5.6 Zoom Out



Zoom out the card layout.

### 2.5.7 100% Zoom



Show the original size design.

### 2.5.8 Auto Zoom



Fit the size of design panel to the window. As the window size changes, the rate of "Zoom In/Out" will be changed automatically.

### 2.5.9 Display Color Panel



You can see all objects which are set as color panel.

### 2.5.10 Display Black Panel



You can see all objects which are set as black panel.

### 2.5.11 Display Overlay Panel



All overlay panels can be seen. The overlaid area will be displayed darker than not overlaid area.

### 2.5.12 Display Rewritable Panel



The object display on the screen is chosen by re-writable panel. If select the re-writable object display that represents part will be erased by dark. This icon will appear instead of overlay panel icon if the printer is re-writable printer.

### 2.5.13 Display Fluorescent Panel



All fluorescent panels can be seen. The fluoresced area will be displayed more blue printed than not fluoresced area.

### 2.5.14 Front Page



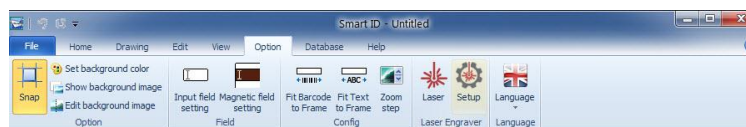
Please refer to Chapter 2.2.57.

### 2.5.15 Back Page



Please refer to Chapter 2.2.58.

## 2.6 Option



#### 2.6.1 Snap



Make cursor move at regular interval.

#### 2.6.2 Set background color



Select the default color for background. Different colors are available for the front and back sides.

### 2.6.3 Show background image



Click to print or not background image.

### 2.6.4 Edit background image

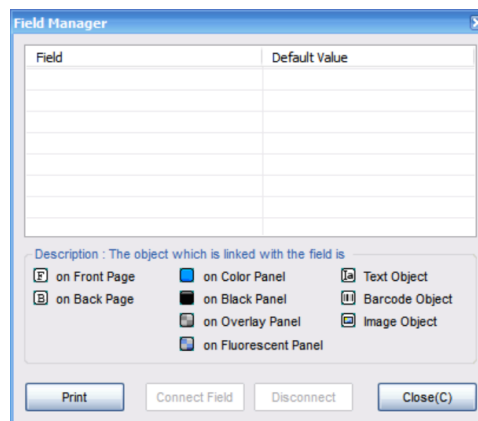


Edit the background image. To change from background image editing mode to normal editing mode, click "Edit Background Image" again, or click outside of background image. Only one image for one side is available and it could be printed.

### 2.6.5 Input field setting



This function is used for mass issuing like membership cards, student ID cards and national ID cards, etc. If you click this button, "Field Manager" window is displayed.

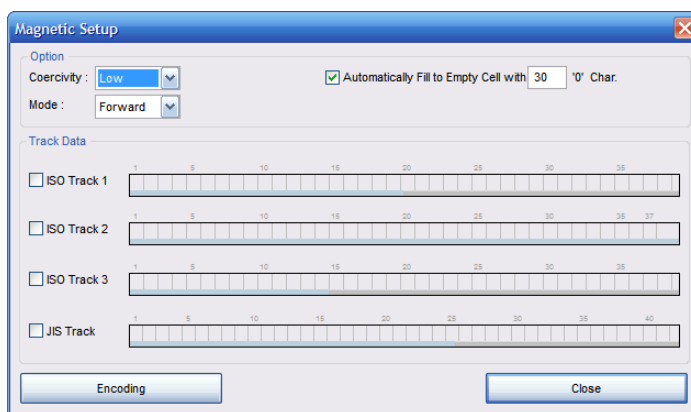


<Figure 50> Field Manager

## 2.6.6 Magnetic Field Setting



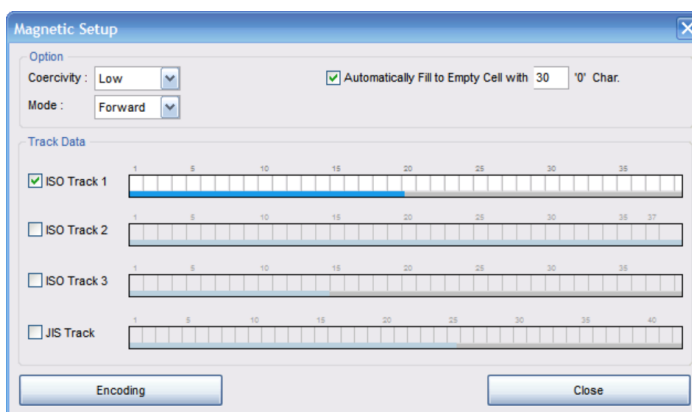
Set the field to encode Magnetic Stripe. If you click this button, "Magnetic Setup" window is displayed.



<Figure 51> Magnetic Setup

Select one option among "Forward", "Backward", "Bit mode".

In "Forward" mode, the data is recorded in magnetic stripe along with the card movement direction. It's usual recording method. In "Backward" mode, Magnetic stripe is on the front of card so that the data is recorded in reverse. In "Bit mode", magnetic encoding data would be recorded with bit format. To encode in Bit mode, the user can write specific data and it does not follow the standard of magnetic writing. Therefore, when the card encoded in Bit mode is read by reader, errors can be occurred.



<Figure 52> Magnetic Setting - Forward

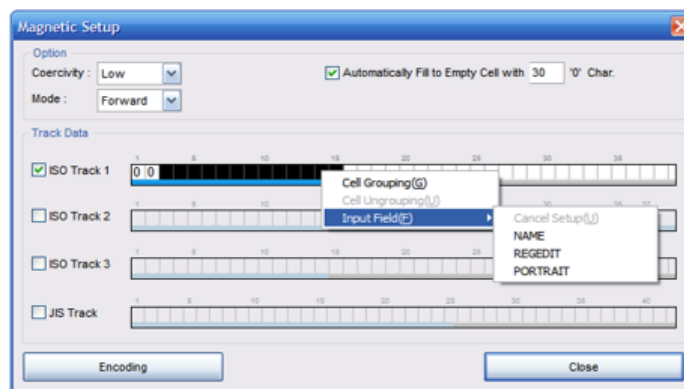
Select "ISO Track1" to use magnetic track No.1



<Figure 53> Input Area of Magnetic Track

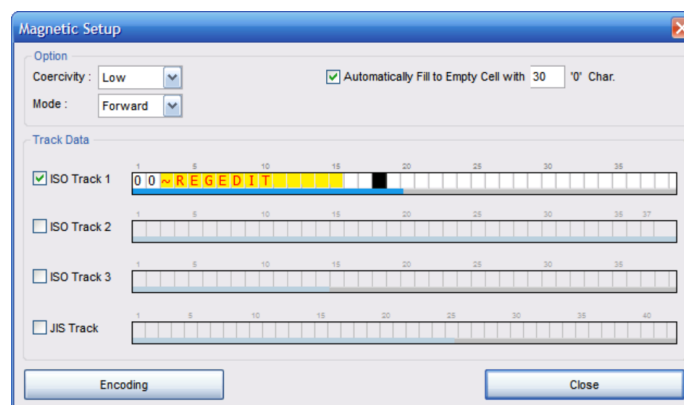
The white cells are the spaces for entering data. The blue bar at the bottom is scroll bar.

Black cell in the entering space is the active one. With keyboard, characters are entered in the cell. To link between magnetic track and field, select areas to enter value of the field by mouse drag and then click right button for pop-up menu.



<Figure 54> Magnetic Setting – Cell Group

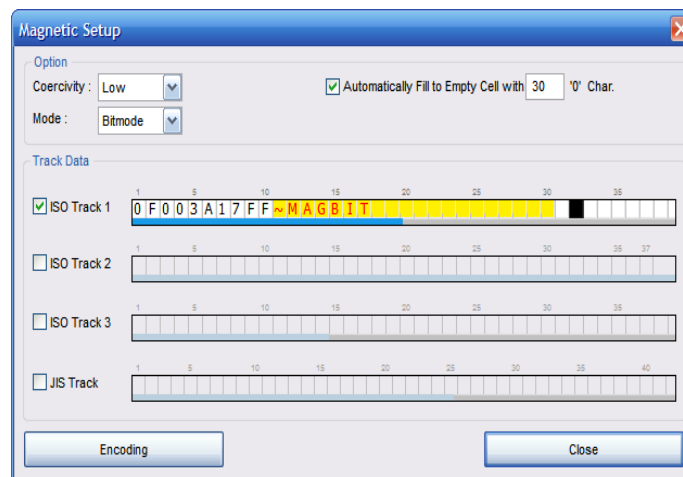
There is the list of current fields in the sub-menu of "Input Field". The selected cells are defined the area of selected field as you select one of the fields.



<Figure 55> Magnetic Setting - Input

To cancel the link, click right button for pop up menu, and click "Cancel Setup" or select cell and click "Delete" key.

To encode in Bit mode, set the track as Bit mode. If the track is set to Bit mode, the track information of previous Forward status is back-up and input field is changed to Bit mode field. In Bit mode, the user can input data as Hex-Decimal String and the field can be connected to "Input Field" and the data in Input field should be written as Hex-Decimal string, as well.



<Figure 56> Magnetic Setting – Bit Mode Input

This can be also applied to the other magnetic tracks.

## 2.6.7 Fit Barcode to Frame



If you click this button, it will automatically change the barcode size to fit to frame size.

## 2.6.8 Fit Text to Frame

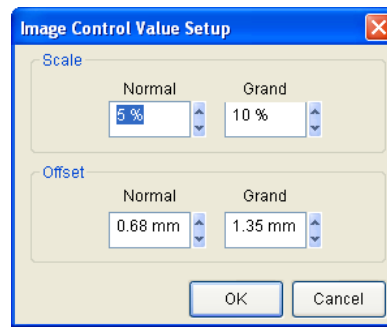


If you click this button, it will automatically change the text size to fit to frame size.

## 2.6.9 Zoom step



Set the change ratio for the image zoom up / down or image movement.

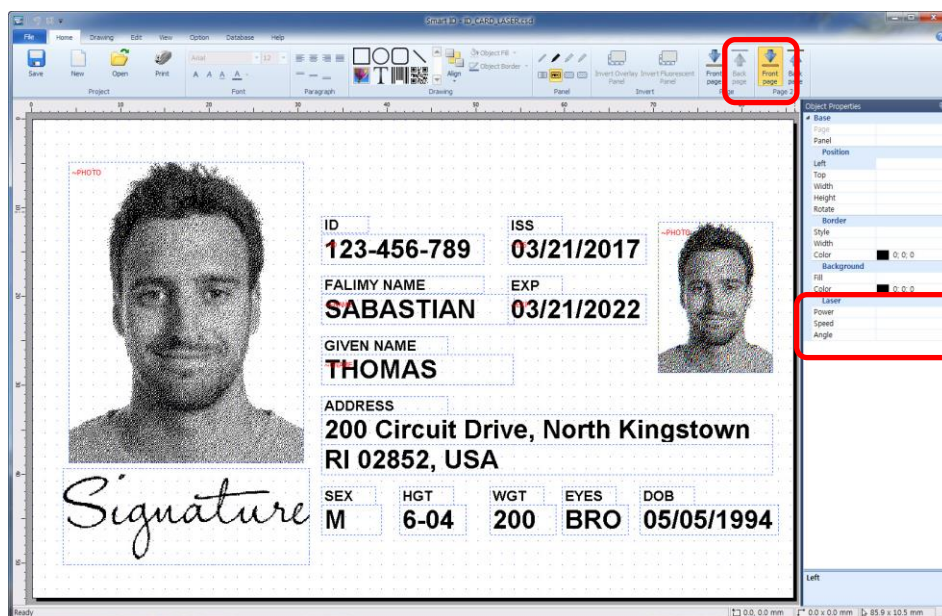


<Figure 57> Setup Image Control Value

## 2.6.10 Activate/Deactivate Laser Engraver



The Laser Engraver is used, click 'Laser' button to activate laser engraver. After activating, design engraving objects on page 2 like figure 65.



<Figure 58> Design engraving objects

, the strength of laser can be controlled by adjusting the properties of the objects in the below table.

Basically the laser engraver uses the default configuration values in the laser engraver. However, the user can configure the laser power, speed and angle on each object like figure 65. If it is not set, the object uses the default setting value.

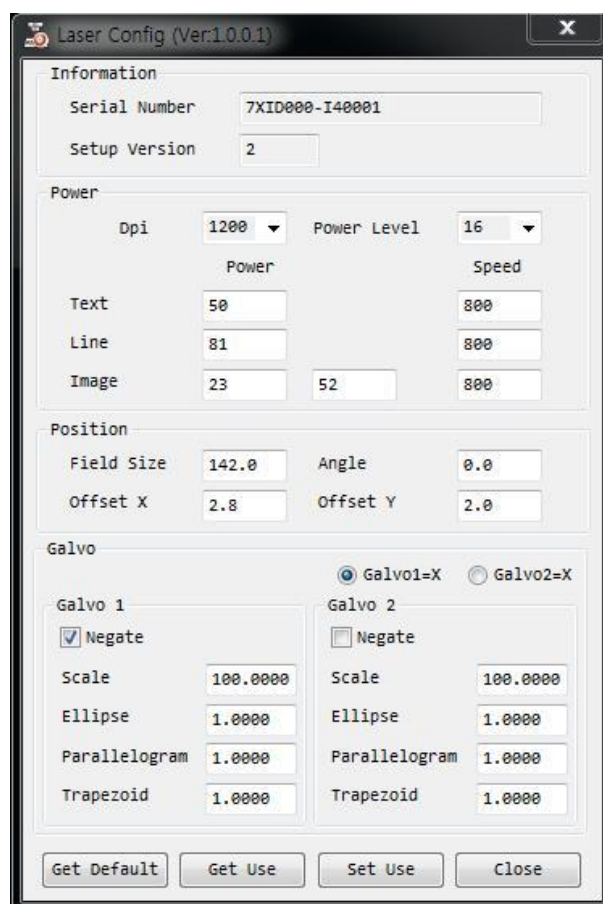
- Power : Set the power of laser. The range is 0~100, it is a percentage of the maximum value.
- Speed : The range is 0~1600 (mm/s), the speed of movement of the laser.

- Angle : To support MLI(Multiple Laser Image) or CLI(Changeable Laser Image) function, the card is rotated and engraved. SMART-70X can support CLI, WISE-LE can support MLI. The range is -40 ~ -20, 20 ~ 40.

## 2.6.11 Laser Engraver Setup



The default setting of the laser engraver is available. The values are saved in the laser engraver. The "Laser Config" window is displayed like figure 66 when clicking 'Laser Engraver setup' button.



<Figure 59> Laser Engraver Setup

**1) Information**

Serial Number	Show a serial number of Laser engraver
Setup Version	Show a version of configuration for Laser engraver

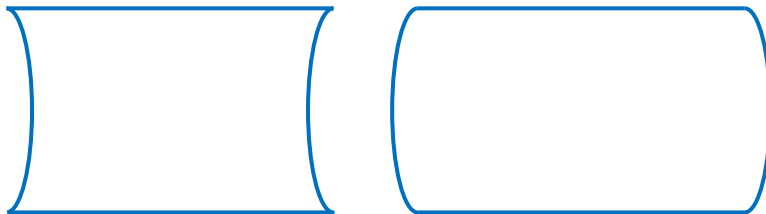
**2) Power**

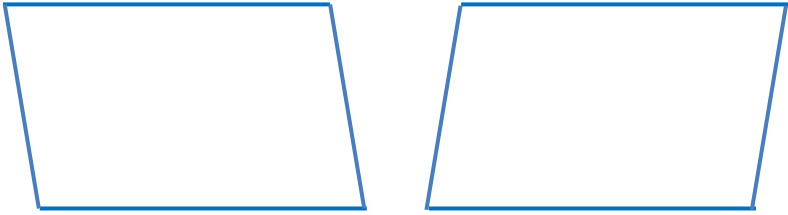
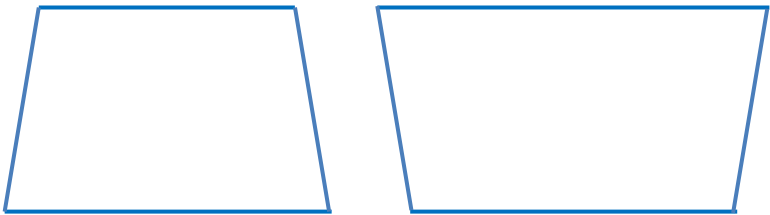
DPI	Select the resolution of laser engraving between 600 dpi / and 1200 dpi.
Power Level	<p>Set the power level of the laser.</p> <p>Range : 1~25</p> <ul style="list-style-type: none"> <li>• If the value is larger, the power level is bigger and engrave darker.</li> <li>• The below value as 'Text', 'Line', 'Image' is changed automatically if the power level is changed.</li> </ul>
Text	<p>Set the power and speed when the text or barcode is engraved.</p> <ul style="list-style-type: none"> <li>• Range of Power is 0~100, it is a percentage of the maximum value.</li> <li>• Range of Speed is 0~1600, the speed of movement of the laser.</li> </ul>
Line	<p>Set the power and speed when the line or figure is engraved.</p> <ul style="list-style-type: none"> <li>• Range of Power is 0~100, it is a percentage of the maximum value.</li> <li>• Range of Speed is 0~1600, the speed of movement of the laser.</li> </ul>
Image	<p>Set the power and speed when the portrait or logo is engraved. Image is expressed by gray level, the minimum and maximum value of power are set.</p> <ul style="list-style-type: none"> <li>• Range of Power is 0~100, it is a percentage of the maximum value.</li> <li>• Range of Speed is 0~1600, the speed of movement of the laser.</li> </ul>

### 3) Position

Field Size	<p>Set the maximum size for laser engraving.</p> <ul style="list-style-type: none"> <li>• Range of Field Size is 120~150, the unit is mm.</li> <li>• The size of the output is changed if Field Size is changed.</li> </ul>
Angle	<p>Set the rotation value for laser engraving.</p> <ul style="list-style-type: none"> <li>• Range of Angle is 0~360, the unit is degree.</li> <li>• The output is rotated as a value of Angle.</li> </ul>
Offset X	<p>Set position to the right and left properly.</p> <ul style="list-style-type: none"> <li>• Range of Offset X is -10~10, the unit is mm.</li> <li>• The position of output is changed by left or right depending on this value.</li> </ul>
Offset Y	<p>Set position to the up and down properly.</p> <ul style="list-style-type: none"> <li>• Range of Offset X is -10~10, the unit is mm.</li> <li>• The position of output is changed by up or down depending on this value.</li> </ul>

### 4) Galvo

Negate	Engrave after reflection of the image across a defined axis.
Scale	<p>Set the scale of the image for each axis.</p> <ul style="list-style-type: none"> <li>• Range of Scale is 0~100, the unit is a percentage (%).</li> </ul>
Ellipse	<p>Calibrate image result in the shape of an ellipse.</p> <ul style="list-style-type: none"> <li>• Range of Ellipse is 0.875~1.125.</li> <li>• The image is deformed depending on value of Ellipse as below.</li> </ul> 

Parallelogram	<p>Calibrate image result in the shape of a parallelogram.</p> <ul style="list-style-type: none"> <li>• Range of Parallelogram is 0.875~1.125.</li> <li>• The image is deformed depending on value of Parallelogram as below.</li> </ul> 
Trapezoid	<p>Calibrate image result in the shape of a trapezoid.</p> <ul style="list-style-type: none"> <li>• Range of Trapezoid is 0.875~1.125.</li> <li>• The image is deformed depending on value of Trapezoid as below.</li> </ul> 

## 5) Load / Save

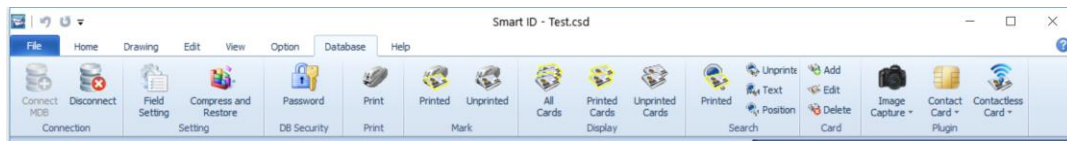
Load Default	Load factory configuration values in the memory of laser engraver. To apply it, click a 'Store' button.
Reload	Show the configuration values in the laser engraver.
Store	Save current values to the laser engraver.
Close	Exit a LaserConfig utility.

## 2.6.12 Language



Change language to use.

## 2.7 Database



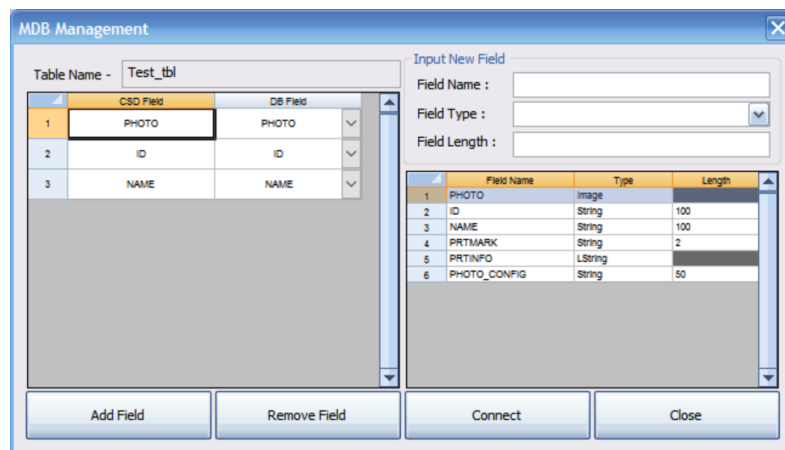
### 2.7.1 Connect DB



This button will be used to link the print field to DB Field manually. As occasion demands, the field can be added or deleted. Also, the print field can be linked to new field.

After clicking "Disconnect" button, when pressing "Connect DB", "DB Management" window will be displayed like figure 54. CSD Field is linked to DB Field on the left side of window and New Field can be created and deleted on the right side of window.

"Connect DB" is not used separately because SMART IDesigner creates DB Field and connects as same name when creating "Input Field".



<Figure 60> DB management window

### 2.7.2 Disconnect

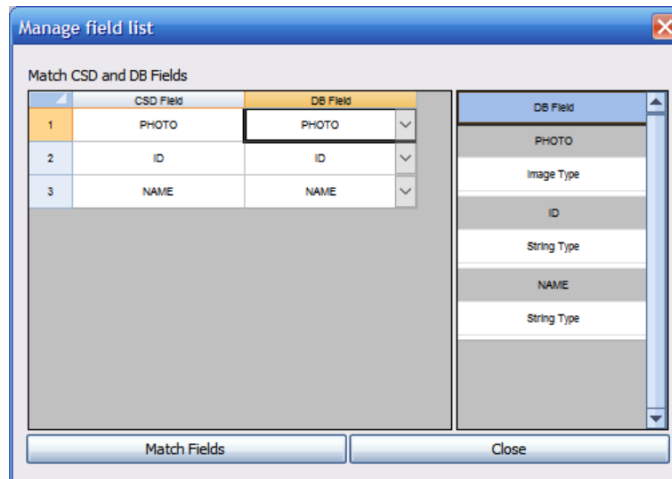


When changing the current activated field setting of DB, Input field and DB Field can be linked manually by clicking "Connect DB" button after pressing "Disconnect" button.

### 2.7.3 Field Setting



Field Setting is used when connecting input field to other field without adding or deleting field. It is same as connecting field on "Input field" window. When clicking "Field Setting", "Manage field list" window will be displayed like figure 55. In this window, DB field connected to input field is appointed.



<Figure 61> Manage field list window

### 2.7.4 Compress and Restore

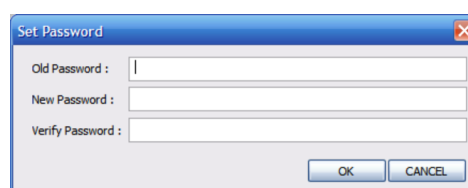


In case that database become huge or has abnormal symptom, "Compress and Restore" is used to compress and recover DB file.

### 2.7.5 Password

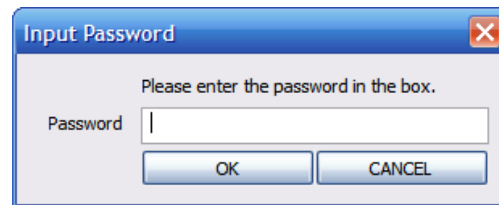


DB file can be open with password so that other person does not use database. When clicking "Password" button, the window to enter the password will be displayed as figure 56. When creating new project, new password and "OK" button are only used because there is no password.



<Figure 62> Set Password

If password is inputted in database, when opening a project, window will be displayed to enter password as figure 57. At that time, when entering the password, project will be open. To remove a password, only Old Password and "OK" button are used in the "Set Password" window.

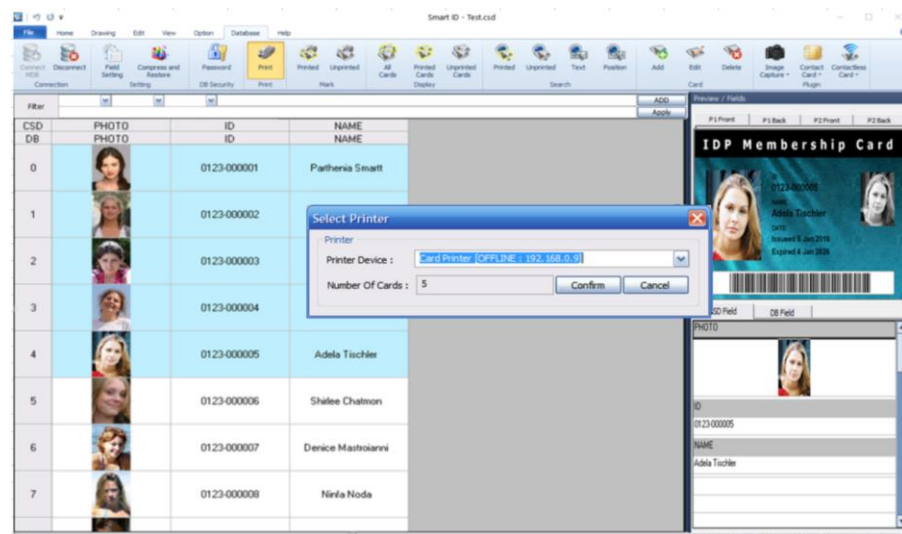


<Figure 63> Input Password

## 2.7.6 Print

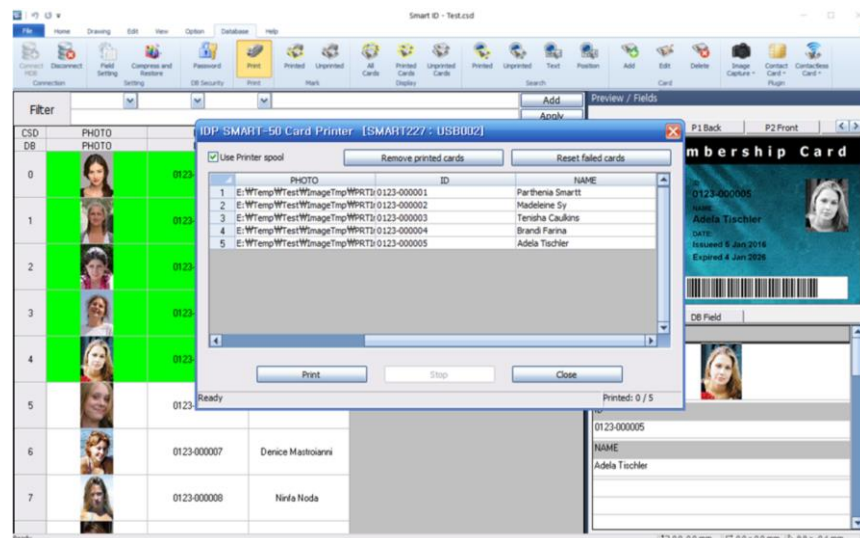


The card is printed by using data entered in database. In order to print, cards to be printed are selected and marked as sky-blue. Then "Select Printer" window will be displayed as figure 58 when clicking "Print" button.



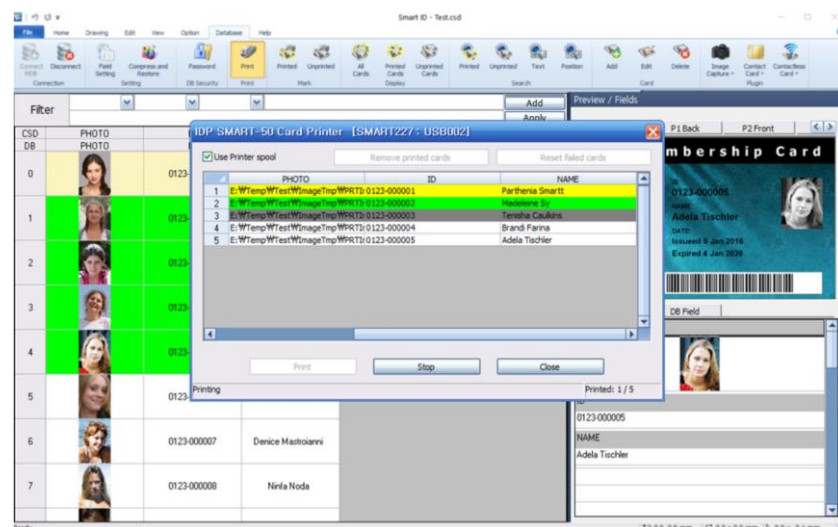
<Figure 64> Select Printer

After selecting the desired printer, when clicking "Confirm" button, printer spooler window will be displayed like figure 59. When clicking "Print" button in print spooler, reserved cards are printed sequentially.



<Figure 65> Printer Spooler

When printing the card, Yellow color means that printing is done. Green color means under printing. Gray color means that printing is ready. The card which finishes printing will be displayed in database with yellow color mark.



<Figure 66> Print Spooler Printing

SMART IDesigner can issue cards at several printers at the same time. For example, when there are two printers, the half of desired card are inserted to the first printer spooler and others are inserted to the second printer spooler.

### 2.7.7 Printed



This button changes selected card to printed card.

### 2.7.8 Unprinted



This button changes selected card to unprinted card.

### 2.7.9 All Cards



This button shows both printed card and unprinted card in database.

### 2.7.10 Printed Cards



This button shows only printed card in database.

### 2.7.11 Unprinted Cards



This button shows only unprinted card in database.

### 2.7.12 Printed Card Search



When clicking "Printed" button, cursor moves to the next printed card.

### 2.7.13 Unprinted Card Search



When clicking "Unprinted" button, cursor moves to the next unprinted card.

### 2.7.14 Text Search



When clicking "Text" button, "Search String" window will be displayed as figure 61.

When entering the desired text in "Search String" window and clicking "Search" button, cursor moves to the card including inputted string.

<Figure 67> Search String

### 2.7.15 Position Search



When clicking "Position" button, "Search Position" window will be displayed as figure 62.

When entering the desired location in "Search Position" window and clicking "Search" button, cursor moves to the designated location.

<Figure 68> Search Position

### 2.7.16 Add



When clicking "Add" button, "Add Card" window will be shown like figure 63 to

enter new card data. Enter each field data in "Add Card" window.

	Name	Type	Value
1	PHOTO	Image	
2	ID	String	
3	NAME	String	
4	PRTMARK	String	
5	PRTINFO	LString	
6	PHOTO_CONFIG	String	

<Figure 69> Add Card

### 2.7.17 Edit



When clicking "Edit" button, like figure 64, "Edit Card" window appears to modify the position of card. Data is modified on "Edit Card" window.

	Name	Type	Value
1	PHOTO	Image	
2	ID	String	0123-000001
3	NAME	String	Parthenia Smartt
4	PRTMARK	String	
5	PRTINFO	LString	
6	INDEX_CONFIG	String	

<Figure 70> Edit Card

### 2.7.18 Delete



When clicking "Delete" button, the selected card is deleted.

### 2.7.19 Image Capture



When clicking "Image Capture, Plugin to capture an image is selected. Please refer to appendix to create and use Plugin.

### 2.7.20 Contact Card



When clicking "Contact Card", Plugin to encode on contact card is selected. Please refer to appendix to create and use Plugin.

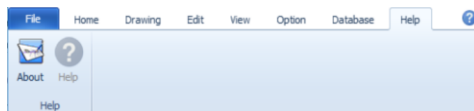
### 2.7.21 Contactless Card



When clicking "Contactless Card", Plugin to encode on contactless card is selected.

Please refer to appendix to create and use Plugin.

## 2.8 Help



### 2.8.1 About



When clicking this button, program version, information, etc. will be shown.



<Figure 71> About SMART IDesigner

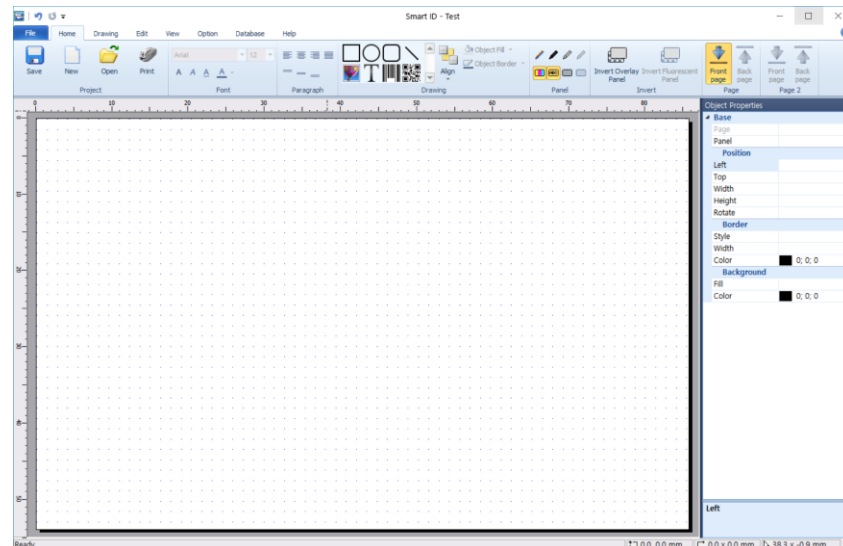
### 2.8.2 Help



When clicking this button, SMART IDesigner user manual will be open.

## 3 Card Design

### 3.1 Drawing




<Figure 72> Drawing Area

#### 3.1.1 Drawing Area

##### ● Selection Mode

##### 1. Object Selection

##### 1) Direct Selection

Move the cursor to the object and click when cursor is changed to .

##### 2) All Selection

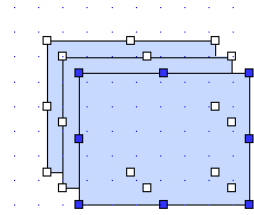
Drag the cursor with pressing the left button of the mouse from one point to the other point. All the objects in this area will be selected.

##### 3) Using "Mouse and Shift Key"

Click any object what you want to select with pressing Shift key.

##### ※ Standard Object

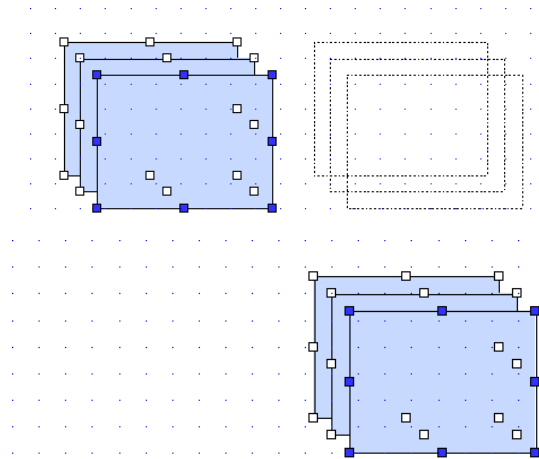
If you select more than one object, the colored dot outline as below will be the standard object for the movement, size adjustment and etc.



<Figure 73> Standard Objects

## 2. Movement of selected object

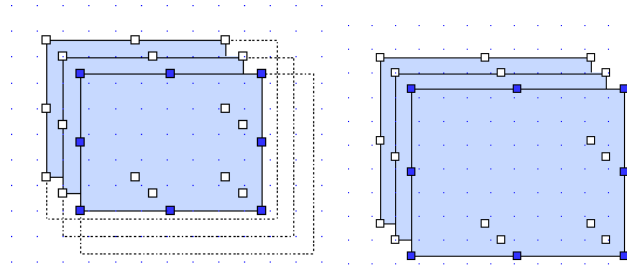
- 1) Using "Mouse" Put cursor on the object which you want to move and press left mouse button and drag.
- 2) Using "Mouse and arrow key" Select object and press the arrow key



<Figure 74> Move Objects

## 3. Size adjustment of the selected object

- 1) To change the object size, select the related object. -> When put the cursor near the edge of the object, the cursor changes to  $\leftrightarrow$   $\updownarrow$   $\nwarrow$   $\nearrow$ . -> Press the left mouse button and drag the mouse. You can adjust the object size.
- 2) If you adjust with "Mouse and Shift key", the width and length will be changed at the same ratio.
- 3) With "Ctrl" key, object is changed focusing to the center.



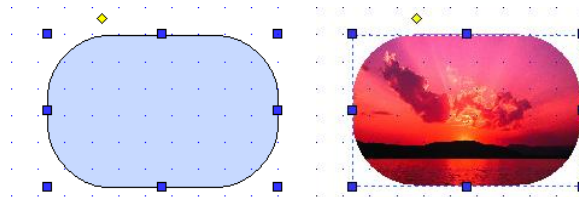
<Figure 75> Resize Objects

4. Copy the selected object using "Mouse and Keyboard"

To copy the object, drag it with pressing "Ctrl" key

5. To make round shape

In case the selected objects are rectangle, rounded rectangle or image object, there will be displayed the yellow diamond mark. This is control point. Put cursor on diamond, click left mouse button and move it left and right side. The round shape will be changed.



<Figure 76> Change Corner Rounding

- **Drawing Mode**


When you select Drawing tool, Mode is changed. Cursor is changed to  $\text{+}$ .

### 3.1.2 Ruler

It shows the position of selected object and cursor. You can show and hide "Change Ruler Display" button in View tab

### 3.1.3 Status Bar

It shows the explanation of ribbon bar in the position of cursor and coordinates of cursor.

 : Consider all the selected objects as one. Display the starting point in unit of millimeter

↔ : Consider all the selected objects as one. Display the width and height in unit of millimeter.

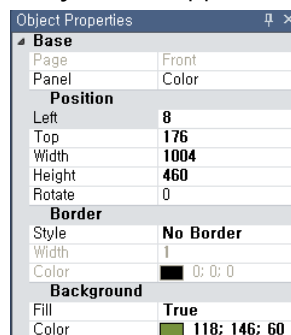
↖ : Display the current point of mouse cursor in unit of millimeter.

## 3.2 Object Properties

Properties Grid is “Object Properties” window on the right side of main window. You can see and modify the properties of selected object.

### 3.2.1 Base Category

It shows the information of position and color of object in Base Category. If several objects are selected and properties are different, the value is not displayed. If the value is modified in Properties Grid, selected objects are applied.



<Figure 77> Base Category

- Page  
It shows the page where selected object is. Read only.
- Panel  
It shows the panel which selected object is printed on.
- Position - Left  
It means the distance from the left side of background to the object.
- Position - Top  
It means the distance from the top side of background to the object.

- Position - Width  
It means the width of the object.
- Position - Height  
It means the Height of the object.
- Position - Rotate  
It shows the value of angle of the object. Unit is 90 degrees. You can select the value among 0, 90, 180, 270 degrees.
- Border - Style  
It shows the line style selected.
- Border - Width  
It shows the line width selected. If Style is "no border", you can't change the value.
- Border - Color  
It shows the line color selected. If Style is "no border", you can't change the value.
- Background - Fill  
It designates whether background color is filled or not.
- Background - Color  
It shows the background color. If "Background-Fill" is False, the value cannot be modified.

### 3.2.2 Extended Category – Round Rectangle

If the selected object is rounded rectangle, it shows the properties of rounded rectangle.



<Figure 78> Properties Grid – Extended Category – Round Rectangle Object

- Corner Round

It shows the value of edge in Rounded Rectangle. Unit is % and range is 1~100. If the value is 0, object shape is rectangle. If the value is 100, the short part of width or height is rounded without line.

### 3.2.3 Extended Category – Image

If the selected object is image, it shows the properties of image.

Extended	
Size	
Original Width	350
Original Height	350
Effect	
Auto Effect	False
Contrast	0
Brightness	0
Color Mode	Color
Zoom & Position	
Auto Portrait	False
Scaling	Fit to Width of Frame
Width Zoom	105.42 %
Height Zoom	105.42 %
Horz. Align	Center
Vert. Align	Middle
Inside Left Offset	0
Inside Top Offset	52
Etc.	
Corner Round	0
Field	

<Figure 79> Extended Category – Image

- Original Width

It shows the width size of the original image. Read only.

- Original Height

It shows the height size of the original image. Read only

- Auto Effect

It shows whether Auto Effect is applied or not. Auto Effect is the function to adjust the brightness and contrast in a picture automatically. If the value is true, brightness and contrast is adjusted properly. Default is false

- Contrast

It shows the value of Contrast. Range is -100 ~ 100. Default is 0. If the value is increased, image color changes primary color. If the value is decreased, image color changes gray color. If Auto Effect is True, this value is not applied. If you change this value when Auto Effect is True, the value is applied and Auto Effect

changes False.

- Brightness

It shows the value of Brightness. Range is -255 ~ 255. Default is 0. If the value is increased, image color changes white. If the value is decreased, image color changes black. If Auto Effect is True, this value is not applied. If you change this value when Auto Effect is True, the value is applied and Auto Effect changes False.

- Color Mode

It shows the mode of color. You can select Color and Grayscale. Default is Color. If Auto Effect is True, this value is not applied. If you change this value when Auto Effect is True, the value is applied and Auto Effect changes False.

- Auto Portrait

Auto Portrait is the function to find the face in the Image automatically. If the value is true, the image is focused on the face and adjusted the size and position properly. Default is false.

- Scaling

It shows the mode of zoom. If you set Auto Portrait, this value is changed to "User Set". Default is "Fit to Width of Frame".

- Width Zoom

It shows the ratio of width of the image.

- Height Zoom

It shows the ratio of height of the image.

- Horz. Zoom

It shows the mode of Horizontal alignment. If this value is "Left", image shows from the left side in the frame. If this value is "Right", image shows from the right side in the frame. If this value is "Center", image shows on the center in the frame. The value of "Inside Left Offset" depends on this value. Default is Center.

- Vert. Align

It shows the mode of Vertical alignment. If this value is "Top", image shows from the top side in the frame. If this value is "Bottom", image shows from the

bottom in the frame. If this value is "Middle", image shows on the middle in the frame. The value of "Inside Top Offset" depends on this value. Default is Middle.

- Inside Left Offset

It means the left offset value of start position of image in the frame.

- Inside Top Offset

It means the top offset value of start position of image in the frame.

- Corner Round

It shows the value of edge in image. Unit is % and range is 1~100. If the value is 0, object shape is rectangle. If the value is 100, the short part of width or height is rounded without line.

- Field

It shows the field connected to image. If field is already connected to other text or barcode when the field is changed, you can't connect that field.

### 3.2.4 Extended Category – Text

If the selected object is text, it shows the properties of text.

Extended	
Inner Space	
Inner Left Space	4
Inner Top Space	4
Inner Right Space	4
Inner Bottom Space	4
Align	
Horz. Align	Center
Vert. Align	Middle
Option	
Auto Size	No Options
Font	
Font	Arial; 12pt
Color	0: 0: 0
Data	
Text	1234
Field	

<Figure 80> Extended Category - Text

- Inner Left Space

It shows the value of inner left space of text in the frame.

- Inner Top Space

It shows the value of inner top space of text in the frame.

- Inner Right Space  
It shows the value of inner right space of text in the frame.
- Inner Bottom Space  
It shows the value of inner bottom space of text in the frame.
- Horz. Align  
It shows the mode of Horizontal alignment. If this value is "Left", text shows from the left side in the frame. If this value is "Right", text shows from the right side in the frame. If this value is "Center", text shows on the center in the frame. If this value is "Justify", text shows on the same distance between the characters. Default is Center.
- Vert. Align  
It shows the mode of Vertical alignment. If this value is "Top", text shows from the top side in the frame. If this value is "Bottom", text shows from the bottom in the frame. If this value is "Middle", text shows on the middle in the frame. Default is Middle.
- Auto Size  
It shows whether Auto Size is applied or not. If this value is True, text size will automatically change the size to fit to frame size.
- Font  
It shows the font type, style and size of text.
- Color  
It shows the font color of text.
- Text  
It shows the content of text.
- Field  
It shows the field connected to text. If field is already connected to other image when the field is changed, you can't connect that field.

### 3.2.5 Extended Category – Barcode

If the selected object is barcode, it shows the properties of barcode.

Extended	
<b>Barcode</b>	
Type	Code39(1:2)
Size	12
Color	0; 0; 0
<b>Parameter</b>	
Parameter 1	-1
Parameter 2	0
<b>Option</b>	
Show Digit	Not Show
Auto Size	Not Use
Start Code	Not Use
Stop Code	Not Use
<b>Data</b>	
Data	1234
Zip Code	
Field	

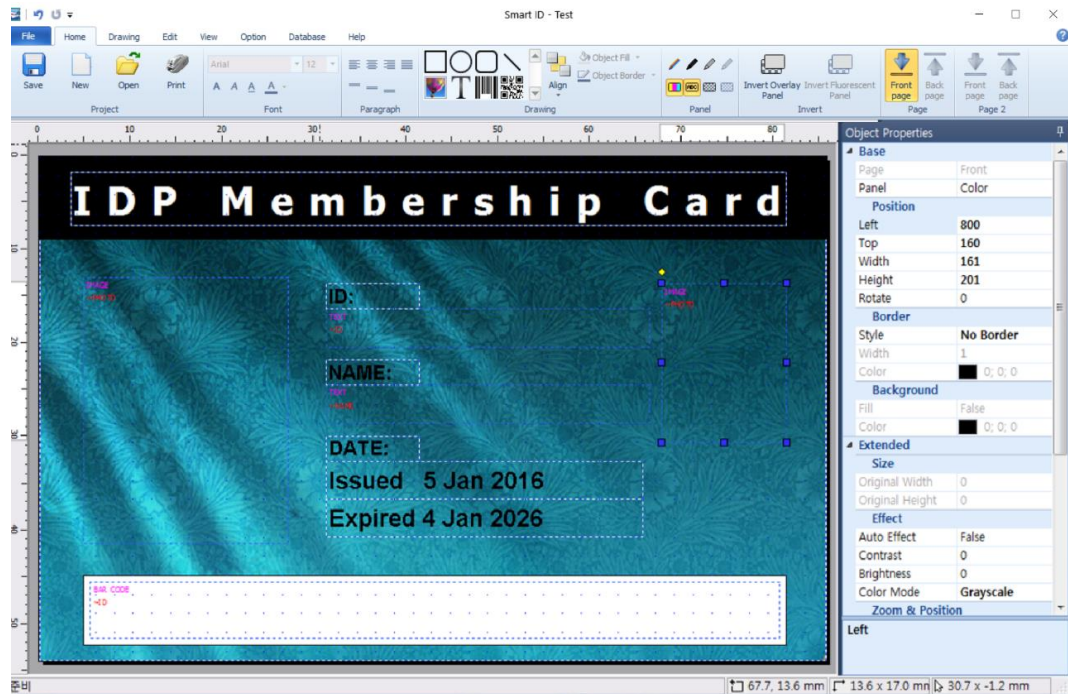
<Figure 81> Extended Category – Barcode

- **Type**  
It shows the type of barcode. If the barcode is 1D type, you can't change 2D barcode type. If the barcode is 2D type, you can't change 1D barcode type.
- **Size**  
It shows the size of barcode.
- **Color**  
It shows the color of barcode.
- **Parameter 1**  
It shows the value of "option 1" if the barcode type is 2D. It is inactivated if the barcode type is 1D. This means of value depends on 2D barcode type.
- **Parameter 2**  
It shows the value of "option 2" if the barcode type is 2D. It is inactivated if the barcode type is 1D. This means of value depends on 2D barcode type.
- **Show Digit**  
It shows whether text of barcode is shown or not. It is inactivated if the barcode type is 2D. If the value is changed to "Show", text is displayed on the bottom of barcode.

- Auto Size  
It shows whether Auto Size is applied or not. If this value is True, barcode size will automatically change the size to fit to frame size.
- Start Code  
It shows the "Start Code" if the barcode type is Codabar. It is inactivated if the barcode type is not Codabar.
- Stop Code  
It shows the "Stop Code" if the barcode type is Codabar. It is inactivated if the barcode type is not Codabar.
- Data  
It shows the data of barcode.
- Zip Code  
It shows the zip code if the barcode type is Maxicode. Max size is 15 characters.
- Field  
It shows the field connected to barcode. If field is already connected to other image when the field is changed, you can't connect that field.

### 3.3 Design Example

The figure 76 shows the membership card designed by SMART IDesigner.



<Figure 82> Design Example

This is the step to design the above card.

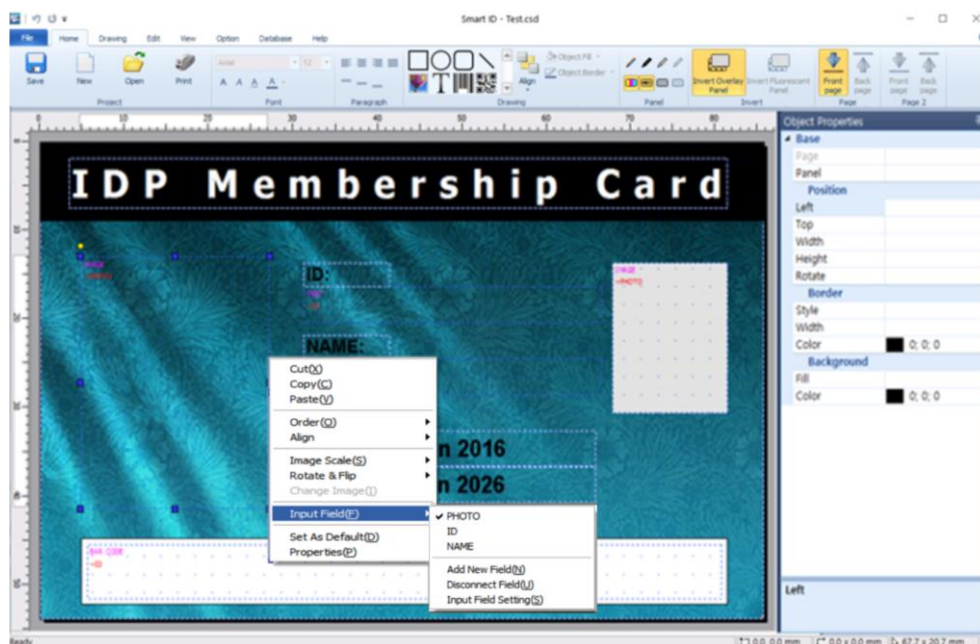
1. When clicking "New" button, new project is created.
2. Background image is placed on the whole card.
3. Black rectangle is placed on the upper side.
4. White text (IDP Membership Card) is placed on the upper black rectangle.
5. Image for color picture is placed on the left side.
6. Out of image properties, the value of "Auto Portrait" is changed to "True". If the value of "Auto Portrait" sets "True", the portrait in the inputted image is recognized automatically and placed with optimal size and position in the area.
7. After clicking mouse right button on image, when selecting "Input Field – Auto New Field" and entering "PHOTO" as field name, image for color picture is defined as database field.
8. Image for black and white picture is placed on the right side.
9. Out of image properties, the value of "Auto Portrait" is changed to "True".
10. Image for black and white picture is connected to "PHOTO" of database. After clicking mouse right button on image, "Input Field – PHOTO" is selected.

11. "ID:", "NAME:", "DATE:", "Issued 5 Jan 2016", "Expired 4 Jan 2026" are placed with black text.
12. Black text for ID is placed on the below "ID:"
13. After clicking mouse right button on text, when selecting "Input Field – Auto New Field" and entering "ID" as field name, text for ID is defined as database field.
14. Black text for NAME is placed on the below "NAME:"
15. After clicking mouse right button on text, when selecting "Input Field – Auto New Field" and entering "NAME" as field name, text for NAME is defined as database field.
16. White rectangle is placed on the bottom side for barcode.
17. Field for black barcode is placed.
18. When clicking mouse right button on barcode and selecting "Input field – ID", Barcode is connected to ID of database.

## 4 Continuous Issuing

### 4.1 Input Field

Continuous issuing is to issue a card while changing image, text and barcode. For this, object which changes data should be set as input field. To set Input Field, "Input Field" should be used by clicking mouse right button on object like the below figure.



<Figure 83> Input Field Menu

The upper side of "Input Field" menu shows input fields created before. The selected objects are linked to some input field. In figure 77, there are three fields such as "PHOTO", "ID", and "NAME". The selected image is linked to "PHOTO" field.

#### 4.1.1 Add New Field

"Add New Field" creates new field which is not existed in the list of "Input Field". New field is linked to the selected object. When entering field name in "Add New Field" window and clicking "OK" button, new field is created and linked to object.



<Figure 84> Add New Field

The object linked to input field indicates input field which is linked to type of object marked as red color on the upper left side of object. "~" mark before input field name indicates input field.

### 4.1.2 Connect Field

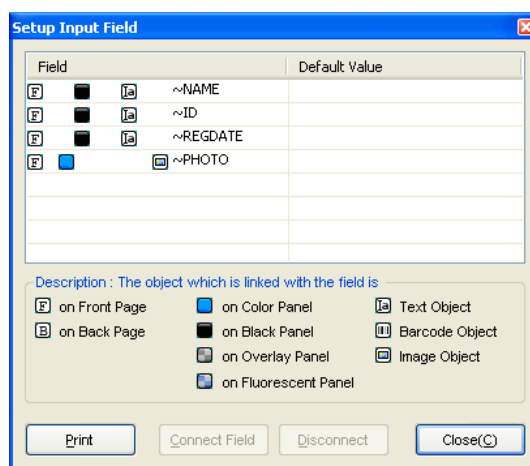
When clicking mouse right button and selecting input field on the list of "Input Field" menu, the selected object is linked to the existed input field.

### 4.1.3 Disconnect Field

"Disconnect Field" is to disconnect input field linked to selected object. When disconnecting setting, the input field on the upper left side of object will not be displayed.

### 4.1.4 Input Field Setting

When selecting "Input Field Setting" or clicking "Input field setting" button from Option Tab, "Field Manager" window will be shown like the figure 79. "Input field setting" is not used because only "Add New Field", "Connect Field" and "Disconnect Field" are used.



<Figure 85> Input Field Setting

To set input field name, open input field at first and enter the field name. Field name is capital letters always. After creating field name, double click the next column. In default Value column, enter subject, then click "Close" button. You have set basic field name.

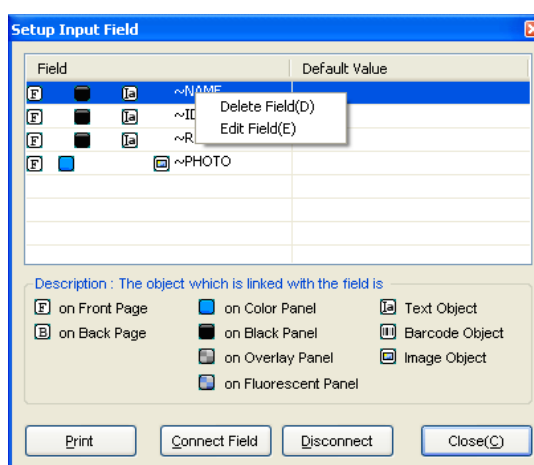
After field is created, field and object should be linked. All objects such as text, image,

barcode and magnetic track are available to link to field. Select a field in the field list and an object on the screen. Click "Connect field" to make connection between the field and the object. Then, the default value of the field is applied to the object.

Fields linked to text object and barcode object cannot be linked to image object. Because there should be image file name in the image objects. For the same reason, fields linked to image objects cannot be linked to text or barcode objects.

When image object is linked to field, "File Search" button is created in the default value column. Double click to enter the whole file path or click "Search" button to select image file.

Click "Disconnect" to disconnect link between field and objects. To delete or edit field, select the field and click right button. Two options will be shown.



<Figure 86> Delete or Revise Input Field

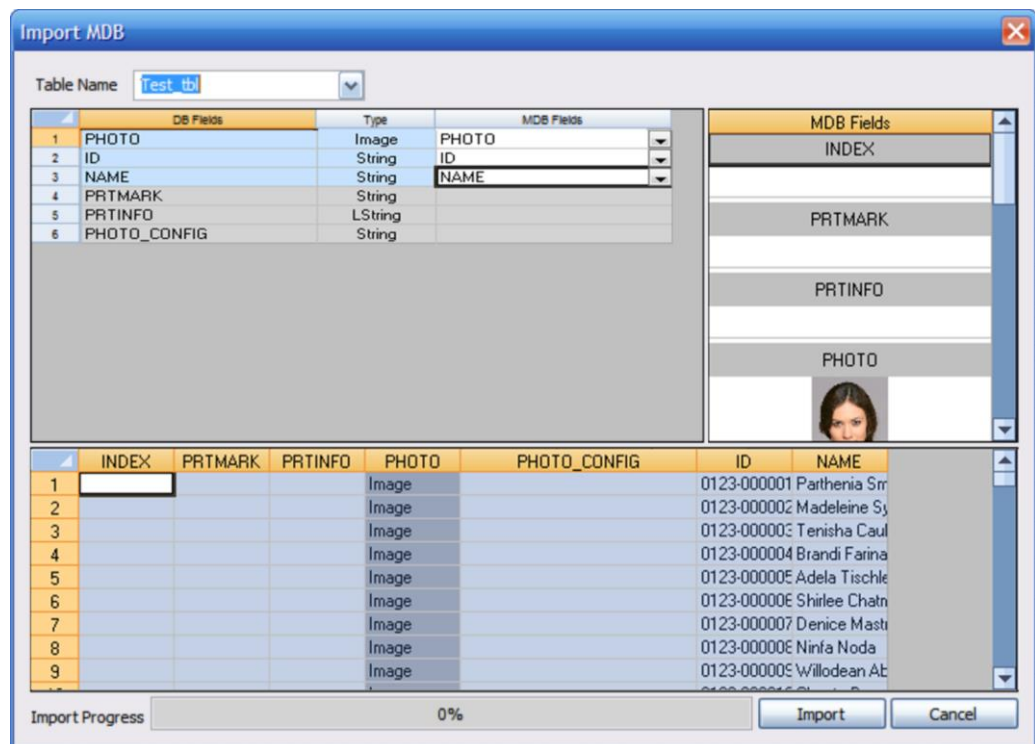
Click "Delete Field" to remove all link information about the selected field. Click "Edit Field" to change the value of the field. You can make activate a cell just double click to the cell what you want to change.

## 4.2 Import/Export Data

Although data for each card can be inputted in "Database", it is convenient to import data saved in file. Also, data in "Database" can be saved so that other program can use. SMART IDesigner can proceed data in DB and Excel. In order to import and export data, the desired work is chosen after selecting "Database" from "File" tab.

### 4.2.1 Import Data – DB

After clicking "Import From DB" button, when selecting DB file to be imported, "Import MDB" window will be shown like figure 81. The upper side of window shows the table to use in the imported DB. The left side of window shows the connection status between input field and imported DB. The right side of window shows the contents of selected record. The bottom side of window shows the contents of selected table of imported DB.



<Figure 87> Import MDB

After selecting field of DB file for Input Field (DB Fields) and choosing record to be imported, when clicking "Import" button, data of DB can be imported at a time.

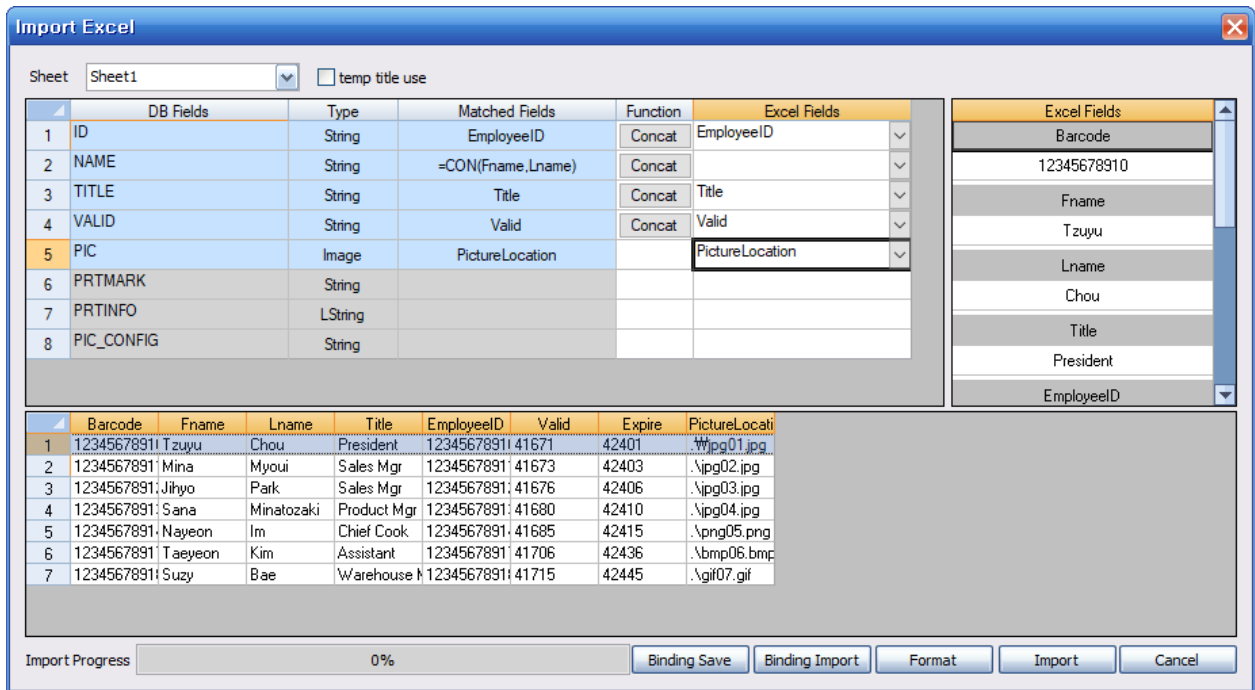
When "Import DB" is run, all records of first table are selected.

PRTMARK, PRTINFO, PHOTO\_CONFIG of "DB Fields" are used in an internal SMART IDesigner.

### 4.2.2 Import - Excel

After clicking "Import From EXCEL" button, when selecting XLS file to be imported, "Import EXCEL" window will be shown like figure 81.

The upper side of window shows the sheet used in imported file. The left side of window shows the connection status between input field and imported excel file. The right side of window shows the contents of selected record. The bottom side of window shows the contents of selected sheet of imported EXCEL.



<Figure 88> Import EXCEL

After selecting field of EXCEL file for Input Field (DB Fields) and choosing record to be imported, when clicking "Import" button, data of EXCEL file can be imported at a time.

When "Import EXCEL" is run, all records of first sheet are selected.

When using "Import EXCEL", image is recorded as file name and image file should be existed in appointed location. When importing a file with image property, SMART IDesigner opens image file and save it as binary type in database. Image file is not used after importing.

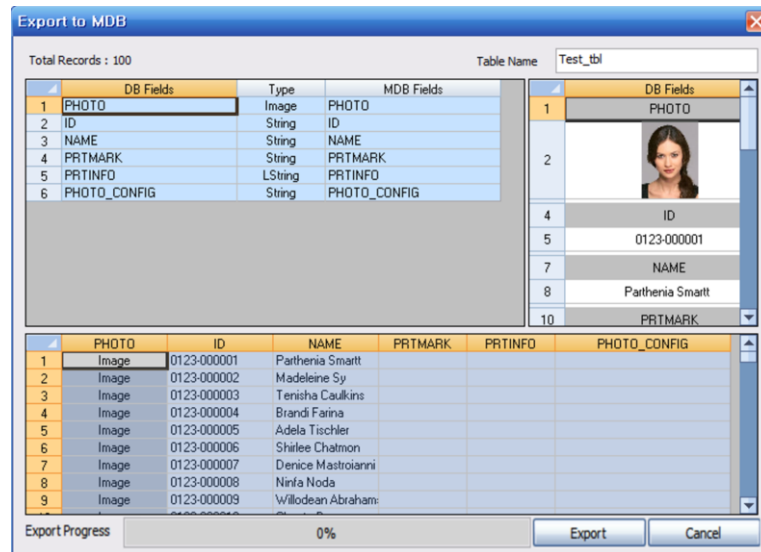
When "Binding Save" button is clicked after connecting input fields to EXCEL field, the information about connecting fields are saved as a file (.bnd). If the updated EXCEL file is imported next time, you can import that information by clicking 'Binding Import' button at once.

"Format" button can convert the date or time format of data to the locale format as the user wants.

### 4.2.3 Export - DB

"Export to DB" saves current activated project data in MDB file. When clicking "Export to DB" button, "Export to DB" window will be shown like figure 82.

The left side of window shows the connection status between input field and DB to be saved. The right side of window shows the contents of selected record. The bottom side of window shows the contents of project database to be saved.



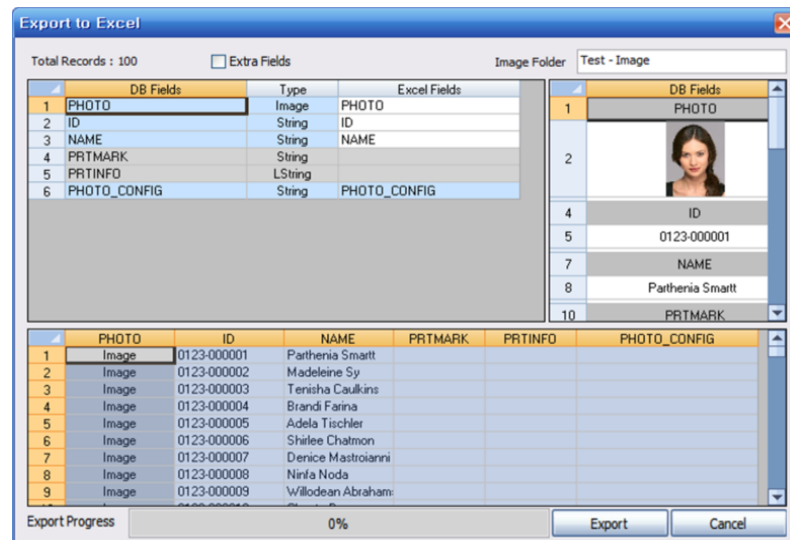
<Figure 89> Export to DB

When clicking "Export" button after selecting records, data of project database can be saved at a time. When "Export to DB" is run, all records of database are selected.

### 4.2.4 Export – Excel

"Export to EXCEL" saves current activated project data in EXCEL file. When clicking "Export to EXCEL" button, "Export to EXCEL" window will be shown like figure 84.

The left side of window shows the connection status between input field and EXCEL column to be saved. The right side of window shows the contents of selected record. The bottom side of window shows the contents of project database to be saved.



<Figure 90> Export to EXCEL

When clicking "Export" button after selecting records, data of project database can be saved at a time. When "Export to EXCEL" is run, all records of database are selected.

When using "Export to EXCEL", image is recorded as file name. It is saved as image file after new directory is created in the directory which saves excel file.

## 4.3 Card Management

### 4.3.1 Add Card

Click "Add" button in "Database" tab. Then "Add Card" window which you can input new card data will be displayed as figure 85. Enter each field data on "Add Card" windows.

	Name	Type	Value
1	PHOTO	Image	
2	ID	String	
3	NAME	String	
4	PRTMARK	String	
5	PRTINFO	LString	
6	PHOTO_CONFIG	String	

<Figure 91> Add Card

You can use image field by importing saved picture. Also you can get image field through camera at once. When clicking "Capture" button, image is captured at once. When using the specified device like sign-pad, Plugin is created and image is imported. Please refer to the appendix for creating and usage of Plugin.

When clicking "Save & Print" button, card is printed after saving an inputted card in database. When issuing a card and saving at once, this button can be used.

When clicking "Save & Continue" button, next card is ready to be inputted after saving an inputted card in database.


When clicking "Save & Close" button, "Add Card" is finished after saving the inputted card in database.

When clicking "Clear" button, inputted data is changed to blank.

When clicking "Close" button, "Add Card" window is finished.

### 4.3.2 Edit Card

When clicking "Edit" button in "Database" tab after selecting the card to be modified, "Edit Card" window will be displayed to modify card that cursor indicates as figure 86. Data is modified on "Edit Card" window.

	Name	Type	Value
1	PHOTO	Image	
2	ID	String	0123-000001
3	NAME	String	Parthenia Smartt
4	PRIMARK	String	
5	PRINFO	LString	
6	INDEX_CONFIG	String	

<Figure 92> Edit Card

When clicking "Save & Print" button, a card is printed after saving the modified card in database.

When clicking "Save & Next" button, next card is ready to be edited after saving the modified card in database.

When clicking "Save & Close" button, "Edit Card" is finished after saving the modified card in database.

### 4.3.3 Delete Card

When clicking "Delete" button after selecting cards in "Database", selected card is deleted.

### 4.3.4 Process Sequential Number

When the sequential number is needed to be printed on cards continuously, the follow format is entered in the input area.

**=SEQ(*format*, *start\_number*, *end\_number*, *increment*)**

- **format** : This is a string that is a similar structure like printf() function in C language. For example, when "Serial: %d" is written, the number is printed behind "Serial: ". %d

means the position to print a number. One number can be written between % and d such as %-9d and %9d. At this time, %-9d means that data is fully written from the left side after preparing the space of 9 digits and %9d represents that data is fully written from the right side after preparing the space of 9 digits.

- ***start\_number*** : This is the first number of sequential numbers.
- ***end\_number*** : This is the last number of sequential numbers.
- ***increment*** : This is the increased number from the first number to the last number.

For example, when =SEQ("Serial: %d", 10000, 10010, 1) is inputted, 11 cards are printed from "Serial: 10000" to "Serial: 10010" as below.

Serial: 10000  
 Serial: 10001  
 Serial: 10002  
 Serial: 10003  
 Serial: 10004  
 Serial: 10005  
 Serial: 10006  
 Serial: 10007  
 Serial: 10008  
 Serial: 10009  
 Serial: 10010

#### 4.3.5 Edit Image

The image which is connected on Image fields can be modified. You can edit image size and location easily using this function.



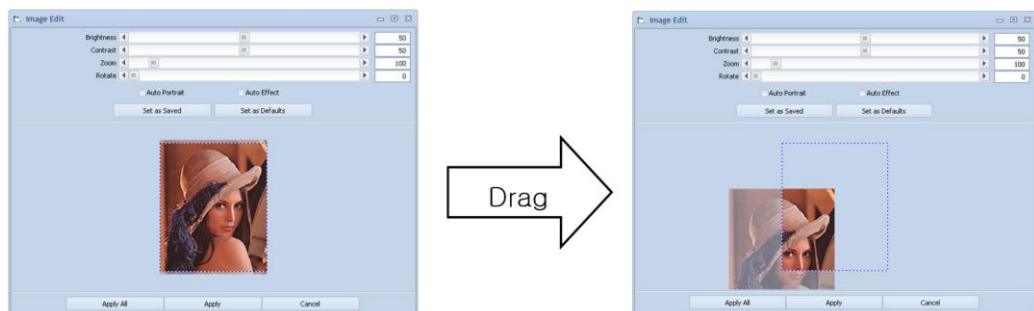
<Figure 93> Image Editing Window

Double-click a point of indicated field in **preview screen** on the right side, then "Image Edit" window will be displayed. Or double-clicking **image field** on "CSD fields" on the bottom will be the same.

When "Image Edit" window be displayed, the amount of changes is displayed as percentage and values. Blue dotted line on the center is the size of image field and the size is reduced according to the size of "Image Edit" window. To modify the location of an image, you can use left button of mouse by Drag and Drop.

In "Image Edit" window, there are many simple and useful tools for editing images.

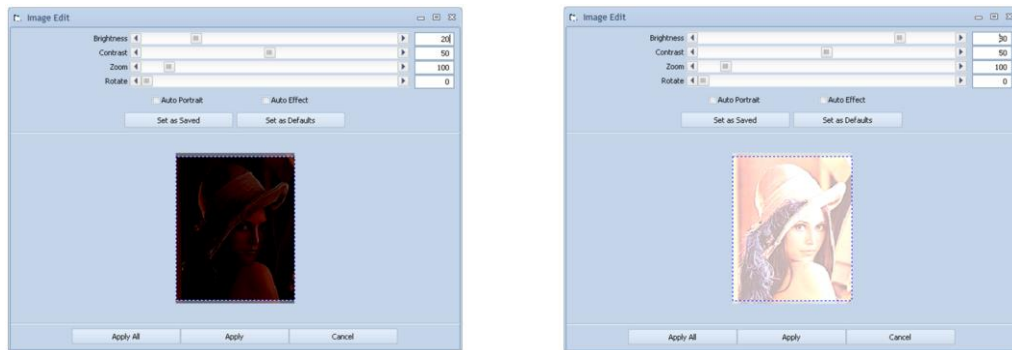
**Brightness, Contrast, Zoom** and **Rotate** functions are included from the top



<Figure 94> Edit Image Location

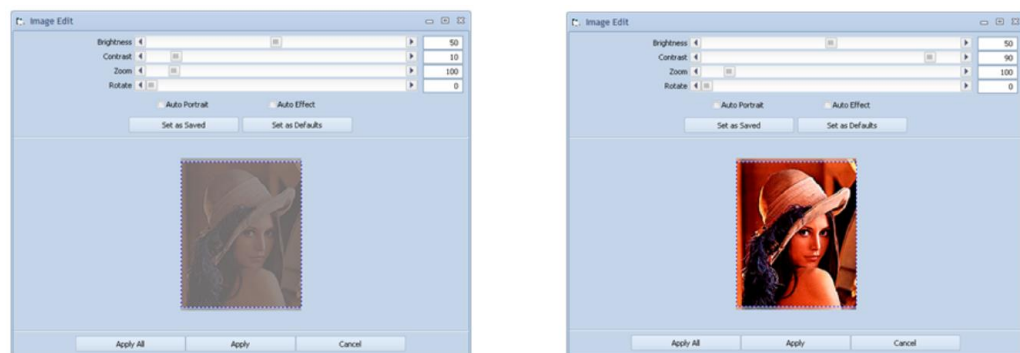
If brightness value is near to "0", image will be darker.

If it is near to "100" image will be shown brighter.



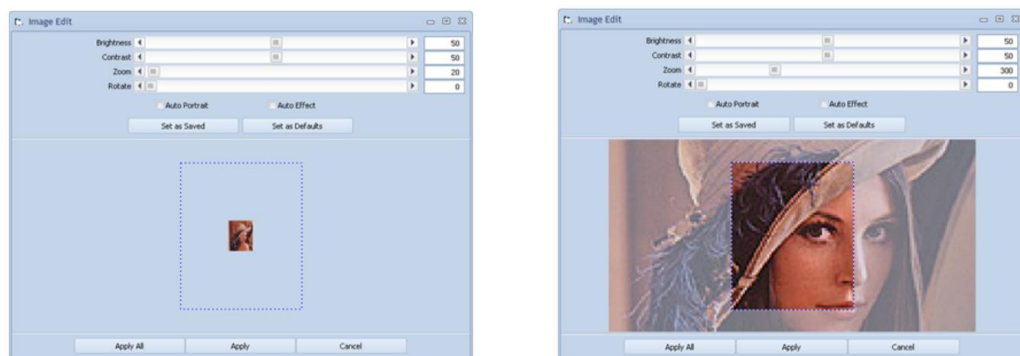
<Figure 95> Edit Brightness

If contrast value is close to "0" then image will be more blur, on the contrary, if it is close to "100" then the image will be shaper.



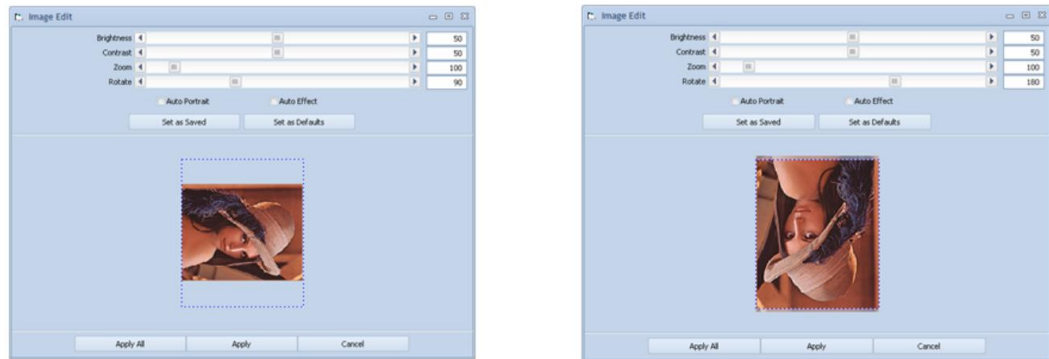
<Figure 96> Edit Contrast

It is possible to resize an image by zoom function.

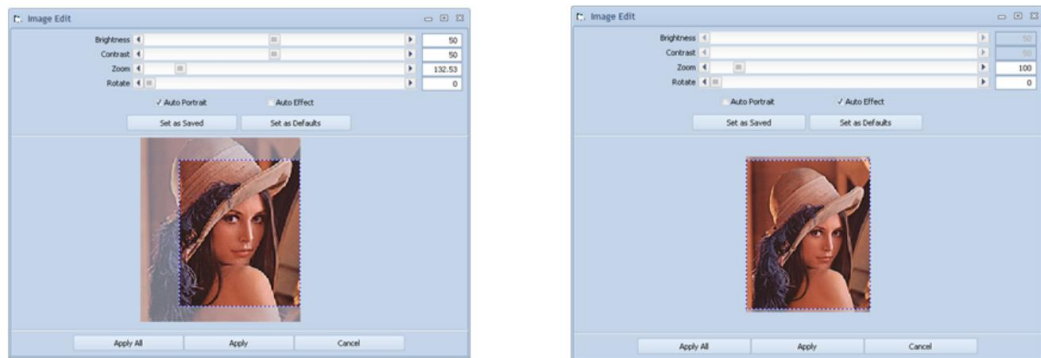


<Figure 97> Zoom in / Zoom out

Image can be rotated by 90, 180, 270, 360 degrees through rotate function.



<Figure 98> Image Rotation



<Figure 99> Auto Portrait / Auto Effect

To change brightness, contrast, zoom (minimize, maximize), rotator, move a scroll bar or input **value** in edit box, and press **Enter** key.

You can input zoom value until second minority. (0.xx).

Auto Portrait is the function to find the face in the Image automatically.

Click Auto Portrait check box, then the image is focused on the face and adjusts the size and position properly.

Auto Effect is the function to adjust the brightness and contrast in a picture automatically. Click Auto Effect check box, then brightness and contrast is adjusted properly.

To restore the default value, click Set as Saved button.

To turn back to the original CSD image file, click Set as Default button.

To save the changed setting value and close window, click Apply button.

To save and apply the changed setting value to all selected data and close window, click Apply All button. It will be take some time depend on the data volume.

To close without saving changed setting value, Click Cancel button.

If click **Apply** or **Apply All** button, you can see modified image on preview.

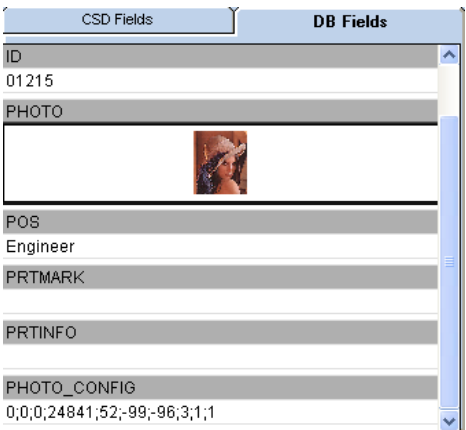


<Figure 100> Before Image Edit



<Figure 101> After Image Edit

When you modify the image, modified value will be set as Figure 96.



<Figure 102> Information of Edit Image

4.3.6 Card Search

If you want to display to specified data in the screen from lots of data, you can use "Filter Bar".



<Figure 103> Filter Bar

First section defines the connecting method of conditional option, if there are more than two conditions, it will define the relations of two conditions.

AND     The earlier condition and new input condition are satisfied both of them.

OR       The earlier condition of new input condition is satisfied.

Second section is for selecting registered field name.

Third section defines to range do condition value.

=        The data is equal to condition value  
 like     The data is including to condition value  
 >       The data is larger than condition value  
 <       The data is smaller than condition value  
 <>     The data is different from condition value

Fourth section is for inputting condition value.

If you click "Add" button, it changes set value to conditional formula and display next line.

To create more than two "IF" formula , you can click "Add" button and after setting second conditional formula you can click "Add" button again.

If you click "Apply" button, the results of searching will be displayed from database by conditional formula.

For example, if you want to find data which includes "Der", you can find it as Figure 97.

Filter	NAME	like	Doe	Add
	NAME like '%Doe%'			Apply

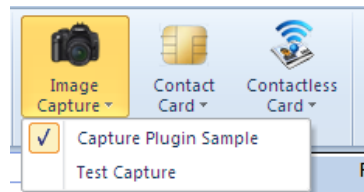
<Figure 104> Filter bar – Create Conditional Formula

## Plugins

Select Plugin lists and Plugin you are going to use.

### 4.3.7 Image Capture

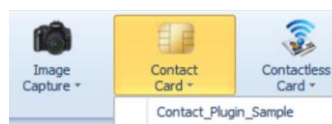
The plugins those are available to capture images are displayed as low level of menu and you can select plugins for "Add" and "Edit".



<Figure 105> Select Capture Plugins

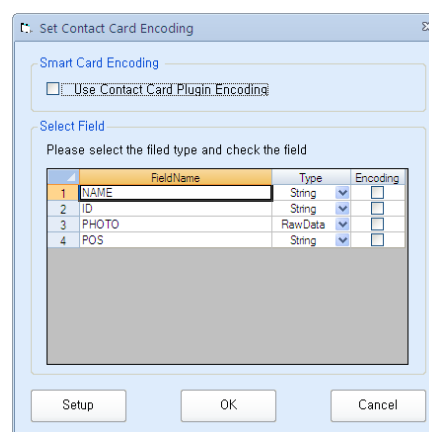
### 4.3.8 Contact Card

The plugins those are available to encode contact card are displayed as low level of menu and you can select plugins for "Add" and "Edit".



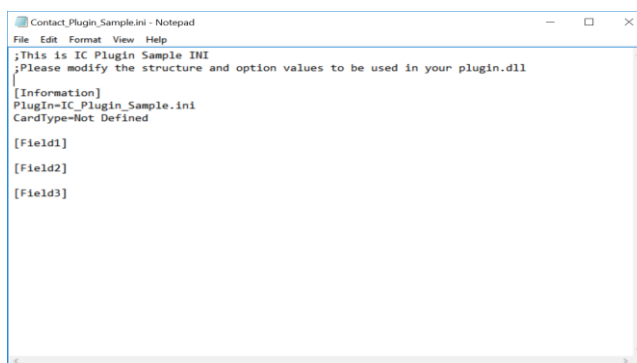
<Figure 106> Select Contact Plugins

If you select plugin and click, "Set Contact Card Encoding" window is displayed.



<Figure 107> Contact Plugins Options

To use contact card encoding, click **Use Contact Card Plugin Encoding** check box. Click **Encoding** check box in field to encode. If you click **Setup** button, "Contact\_Plugin\_Sample.ini" file is open.

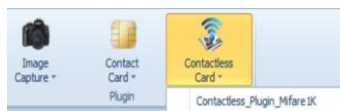


<Figure 108> Contact Plugins INI Setup

You can configure options of contact card encoding field. Now only sample is provided in contact card encoding, so field is empty. For further information, please refer to Appendix.

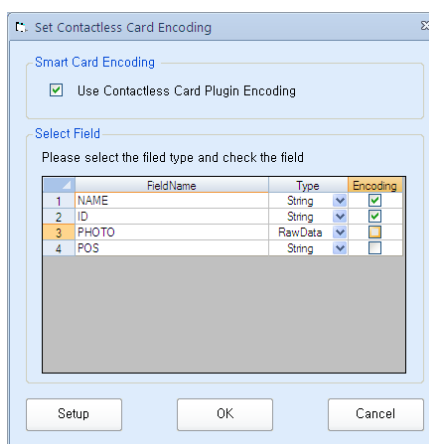
### 4.3.9 Contactless Card

The plugins those are available to encode contactless card are displayed as low level of menu and you can select plugins for "Add" and "Edit".



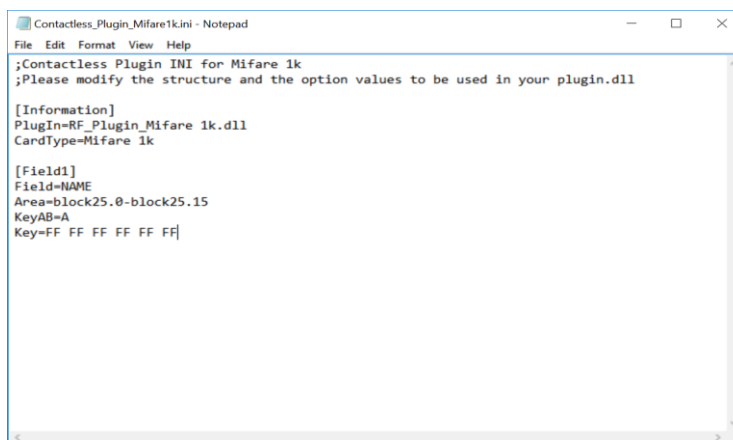
<Figure 109> Select Contactless Plugins

If you select plugin and click, "Set Contactless Card Encoding" window is displayed.



<Figure 110> Contactless Plugins Option

To use contactless card encoding, click **Use Contactless Card Plugin Encoding** check box. Click **Encoding** check box in field to encode. If you click **Setup** button, "Contactless\_Plugin\_Mifare1k.ini" file is open.



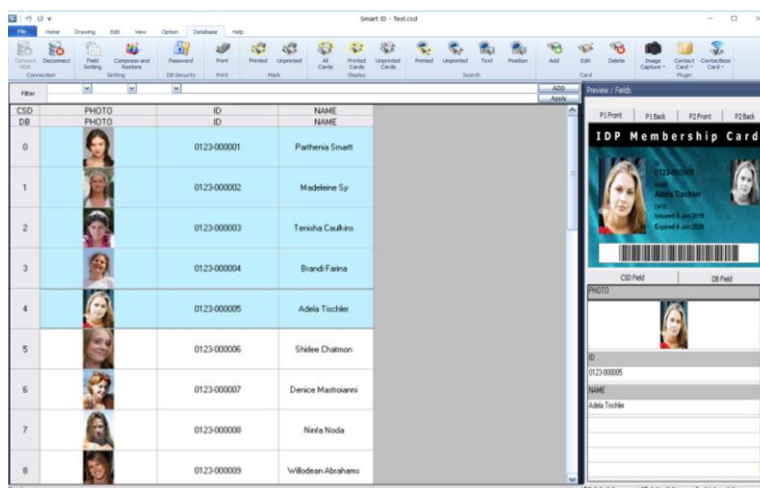
<Figure 111> Contactless Plugins INI Setup

You can configure options of contactless card encoding field. Now only Mifare 1K is provided in contactless card encoding. For further information, please refer to Appendix 1.

## 4.4 Card Issuing

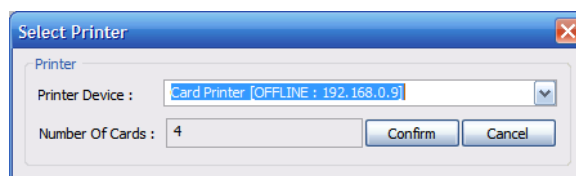


To print the selected data, choose cards that you are going to print and click "Print" button.



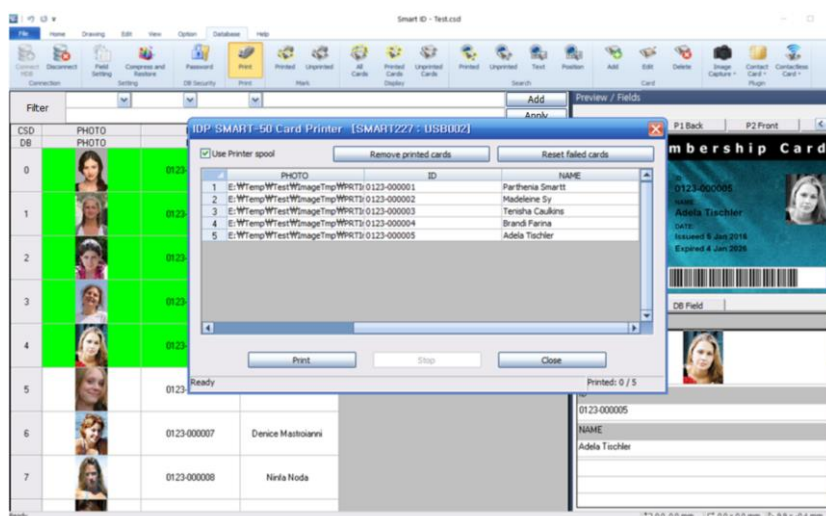
<Figure 112> Select Card for Printing

Figure 113 shows available printer which is connected PC or network



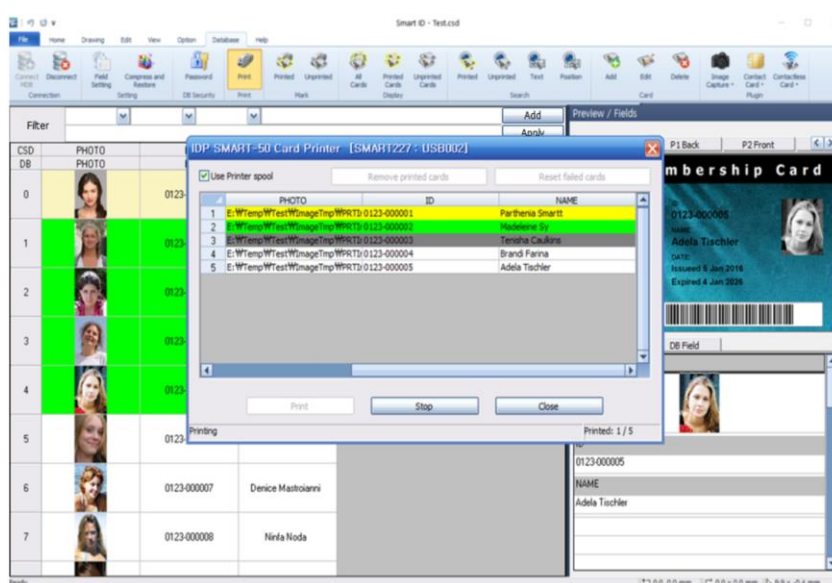
<Figure 113> Select Printer

The printers which have a word "USB" on the lists are connected to PC directly. The printers which names start with IP address are connected to network. Choose a printer and click Confirm button.



<Figure 114> Print Spooler

Figure 109 shows printer spooler window. Click Print button, then all data on the lists will be printed.



<Figure 115> Printing

The white background means the data which is ready to print. The green color means under printing. After finish the printing, the color will be changed to yellow. If there is an error during the printing, it will be changed to red color.

Even though it is under printing, you can add more data to print. Also, SMART IDesigner can issue cards at several printers at the same time. For example, when there are two printers, the halves of desired card are inserted to the first printer spooler and others are inserted to the second printer spooler.

# APPENDIX

## 1 Plugin

Other functions besides basic functions in SMART IDesigner are supported as Plugin type.

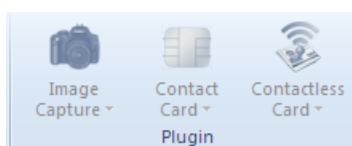
If you make a file according to SMART IDesigner plugin regulation, the plugin can be used in SMART IDesigner.

### 1.1 Plugin Registration

You can use any name for plugin file but the extension type should be ".dll"

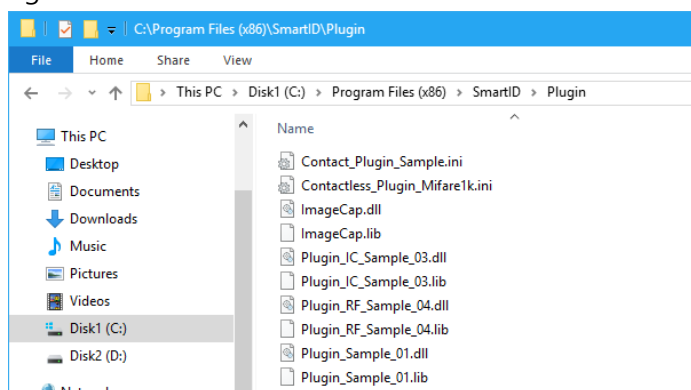
If you copy plugin files in "C:\Program Files (x86)\SmartID\Plugin" folder where SMART IDesigner is installed in, and restart SMART IDesigner, you can use the plugin in SMART IDesigner program.

If there is no plugin in "Plugin" folder, plugin buttons are inactivated.

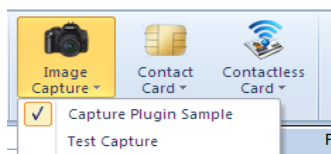


<Figure 116> No plugin.dll

After copying plugin files like Figure 111 and restart SMART IDesigner, the plugins are registered automatically and plugin buttons are activated.



<Figure 117> Copy of Plugins



<Figure 118> Plugin Auto-Registration

## 1.2 Plugin Development

You can develop plugins as "DLL" type.

There are some regulations for developing plugin and you must follow the regulations.

### 1.2.1 Plugin Functions

Plugin must include below functions.

```
int WINAPI GetPluginInfo(SPI_INFO * pInfo)
int WINAPI StartPlugin(HANDLE hDone, SPI_VDATA* pInput, int nSize)
int WINAPI EndPlugin(SPI_VDATA* pOutput, int nSize)
```

The below is the explanation of each function.

#### ① GetPluginInfo()

This function gets plugin information.

int WINAPI GetPluginInfo(SPI_INFO * pInfo)	
Imports plugin information	
Parameter	<b>* pInfo</b> Structure pointer for the information of plugin. Please see the explanation of <b>SPI_INFO</b> below.
Return	0 : Success Others : Fail

#### ② StartPlugin()

This function begins plugin action.

int WINAPI StartPlugin(HANDLE hDone, SPI_VDATA* pInput, int nSize)	
Begins plugin action.	
Parameter	<b>hDone</b> An event handler for alarming to SMART IDesigner after image capture is done. If bUseEvent of SPI_INFO is false, <i>hDone</i> will be NULL and there is no event after capture is done. But all the capture process should be done in SPI_Start function.

<p>If bUseEvent of SPI_INFO is true and Plugin action is done, you should generate an event using <i>hDone</i> handle.</p> <p>Generate an event like below code.</p> <pre> ::SetEvent( hDone ); </pre> <p>If calling EndPlugin(), this function is finished though Plugin action is in progress.</p> <p><b><i>*pInput</i></b> A pointer of data to get from SMART IDesigner</p> <p><b><i>nSize</i></b> Size of structure of SPI_VDATA to get from SMART IDesigner</p>	
Return	<p>0 : Success</p> <p>Others : Fail</p>

### ③ EndPlugin()

This function finishes plugin action.

int WINAPI EndPlugin(SPI_VDATA* pOutput, int nSize)	
<p>Finishes plugin action.</p> <p>Please end plugin process in this function.</p>	
Parameter	<p><b><i>*pOutput</i></b> A pointer of SPI_VDATA to send to SMART IDesigner when plugin action is finished.</p> <p><b><i>nSize</i></b> Size of structure of SPI_VDATA to send to SMART IDesigner</p>
Return	<p>0 : Success</p> <p>Others : Fail</p>

## 1.2.2 Plugin Structure

### ① SPI\_INFO

This structure shows the information of plugin.

```
typedef struct
{
    WCHAR    szName[64];    // The name of plugin
    WCHAR    szDesc[256];   // The description of plugin
    int      nClassId;      // Class information of plugin
    BOOL     bUseEvent;     // Check if event handle use or not
    int      nTimeOut;      // Timeout of plugin
    BYTE     reserved[56];
} SPI_INFO;
```

Shows the information of plugin

**szName** is plugin's name. Please be careful of overlapping between this and other names.

2 Byte Wide String (Unicode), MAX size is 64 characters including NULL.

**szDesc** is the brief information of plugin.

2 Byte Wide String (Unicode), MAX size is 256 characters including NULL.

**nClassId** means class-code which plugin belongs to.

```
#define SPI_CLASS_UNKNOWN          0xFFFFFFFF
#define SPI_CLASS_IMAGEACQUISITION 0x00000001
#define SPI_CLASS_CONTACT_CARD    0x00000010
#define SPI_CLASS_CONTACTLESS_CARD 0x00000100
```

SPI\_CLASS\_IMAGEACQUISITION is the class code of plugins to get image from camera, sign-pad and etc. SPI\_CLASS\_CONTACT\_CARD, \_CONTACTLESS\_CARD are the class code of plugins to encode contact card or contactless card with PC/SC protocol.

**bUseEvent** sets whether event handler to alarm that plugin action is done is used or not. If the value is TRUE, StartPlugin() can get event handler. If it is FALSE,

plugin action should be done in StartPlugin function.

**nTimeOut** finishes plugin action by calling EndPlugin() when it receives no response during the setting time after calling StartPlugin(). If bUseEvent is FALSE, input this value 0. If it is TRUE, input this value in seconds.

**reserved** is not available now. Fill it with 0.

## ② SPI\_VDATA

SPI\_VDATA is the variable size structure that plugin function and SMART IDesigner sends and gets. The input/output data of this structure depends on the class of plugin.

Please see the explanation of class of plugin below.

```
typedef struct
{
    int    nVersion;    // Version of SPI_VDATA
    int    nTotalSize;  // Total size of structure includes header and data
    int    nFields;     // number of fields
    SPI_VDATA_VFIELD  field[nFields];
} SPI_VDATA;
```

the variable size structure that plugin function

**nVersion** is the version of SPI\_VDATA. Now version is 1.

**nTotalSize** is the total size of structure includes header and data. Be careful because it depends on size of SPI\_VDATA\_VFIELD.

**nFields** means the number of fields. It depends on the input/output state of nClassID of plugin. SPI\_VDATA\_VFIELD is defined variably according to nFields value.

**field[nFields]** is the SPI\_VDATA\_VFIELD structure of field information. Please see the explanation of structure below.

```
typedef struct
{
```

<b>WCHAR</b>	<b>szName[32];</b>	// Name of Field
<b>int</b>	<b>nType;</b>	// Type of Field
<b>int</b>	<b>nSize;</b>	// size of Field
<b>BYTE</b>	<b>value[nSize];</b>	// Field Data to input
<b>} SPI_VDATA_VFIELD;</b>		

the variable size structure of field information declared in SPI\_VDATA.

**szName** is the name of field.  
2 Byte Wide String (Unicode), MAX size is 32 characters including NULL.

**nType** is defined by data type depends on field value.

```
#define SPI_FIELD_DATATYPE_INT 1 // Integer
#define SPI_FIELD_DATATYPE_STRING 2 // 2Byte Wide String #define
SPI_FIELD_DATATYPE_RAW 3 // Raw data
```

**nSize** is the size of field (Byte). It is depends on field type.

<b>nType</b>	<b>nSize</b>
SPI_FIELD_DATATYPE_INT	4
SPI_FIELD_DATATYPE_STRING	Size of string including 2Byte NULL
SPI_FIELD_DATATYPE_RAW	Size of Raw data

**value** is data of field. If nType is SPI\_FIELD\_DATATYPE\_STRING, 2Byte Wide String (Unicode) including NULL.

### 1.2.3 Plugin Class

There are 3 plugin classes which are SPI\_CLASS\_IMAGEACQUISITION, SPI\_CLASS\_CONTACT\_CARD and SPI\_CLASS\_CONTACTLESS\_CARD now. More classess will be added in the future.

The variable structure SPI\_VDATA depends on Class type.

#### ① SPI\_CLASS\_IMAGEACQUISITION

If nClassId is SPI\_CLASS\_IMAGEACQUISITION, the pointer \*pInput and \*pOutput is defined as below.

**[\*pInput]**

There is no field data to get from SMART IDesigner in SPI\_CLASS\_IMAGE ACQUISITION. The value is NULL in StartPlugin() function.

**[\*pOutput]**

EndPlugin() function send the path of captured image to SMART IDesigner. You should input the path and data of captured image in \*pOutput.

SPI_VDATA		*pOutput
nVersion		1
nTotalSize		Total size of SPI_DATA
nFields		1
field[0]	szName	L"ImageCap"
	nType	SPI_FIELD_DATATYPE_STRING
	nSize	Size of value including NULL
	value	Path of captured image + (NULL)

Input 1 which is SPI\_VDATA version now in nVersion.

Input the total size of SPI\_DATA including version information.

Input 1 in nFields because the path of captured image is used as one field.

Input Wide String L"ImageCap" including NULL in field[0].szName.

Input SPI\_FIELD\_DATATYPE\_STRING in field[0].nType because the path of captured image is string type.

Input the size of value including NULL(2Byte).

Input the path of captured image in field[0].value.

Then it can send the data about captured image to SMART IDesigner by \*pOutput pointer.

For example, if the path of captured image is "C:\image.bmp", SPI\_VDATA \*pOutput is as below.

SPI_VDATA		*pOutput
nVersion		1
nTotalSize		110
nFields		1
field[0]	szName	L"ImageCap"
	nType	SPI_FIELD_DATATYPE_STRING
	nSize	26

	<b>value</b>	L"C:\Windows\image.bmp"
--	--------------	-------------------------

The Pseudo code of plugin with SPI\_CLASS\_IMAGEACQUISITION is as below.

### [Pseudocode]

```

int WINAPI GetPluginInfo(SPI_INFO* pInfo)
{
    //Input the information of Plugin
    pInfo->szName = L"Capture plugin";
    pInfo->nClassid = SPI_CLASS_IMAGEACQUISITION;
    pInfo->nTimeOut = 0;
    pInfo->bUseEvent = false;
    return nres;
}

int WINAPI StartPlugin(HANDLE evtDone, SPI_VDATA* pInput, int nSize)
{
    //Capture Image and Save the path of image
    GetCaptureImage();
    SaveImagePath();
    return nres;
}

int WINAPI EndPlugin(SPI_VDATA* pOutput, int nSize)
{
    //Stop Thread in progress and Return the path of image
    pOutput->nVersion = 1;
    pOutput->nField = 1;
    wcsncpy(pOutput->field[0].szName[0], szImageName, 64);
    pOutput->field[0].nType = SPI_FIELD_DATATYPE_STRING;
    pOutput->field[0].nSize = wcslen(szImagePath) + 2;
    memcpy(pOutput->field[0].value, szImagePath, pOutput->field[0].nSize);
    pOutput->nTotalSize = 12 + 72 + pOutput->field[0].nSize;
    return nres;
}

```

}

② SPI\_CLASS\_CONTACT\_CARD, SPI\_CLASS\_CONTACTLESS\_CARD

If nClassId is SPI\_CLASS\_CONTACT\_CARD / SPI\_CLASS\_CONTACTLESS\_CARD, the pointer \*pInput and \*pOutput is defined as below.

### [\*pInput]

You can get the data about Smart Card encoding in SMART IDesigner through \*pInput.

SPI_VDATA		*pInput
nVersion		1
nTotalSize		Total size of SPI_VDATA
nFields		1 + k
field[0]	szName	Name of Smart Card Reader
	nType	SPI_FIELD_DATATYPE_RAW
	nSize	4
	value	Function Pointer of Transmit() function
field[1]	szName	Name of 1st Field
	nType	Type of 1st Field
	nSize	Size of 1st Field
	value	Data of 1st Field
field[2]		2nd Field
field[3]		3rd Field
.....		.....
field[k]		kth Field

Input 1 which is SPI\_VDATA version now in nVersion.

Input the total size of SPI\_DATA including version information.

Input the name of Smart Card Reader and Function pointer of Transmit() function (4Byte) in 1<sup>st</sup> Field.

If nClassId is SPI\_CLASS\_CONTACT\_CARD, function pointer should be indicated SmartComm\_ICTransmit() function of SDK. If nClassId is SPI\_CLASS\_CONTACTLESS\_CARD, function pointer should be indicated SmartComm\_RFTransmit() function of SDK.

For example, this function pointer is used like below code.

//Definition

```
typedef int (*PFN)(int , DWORD , BYTE* , DWORD* , BYTE* );
```

//Usage in the function

PFN TransmitAPDU;

TransmitAPDU = \*(PFN\*)(theApp.pVData->field[0].value);

TransmitAPDU ( DEV\_INTERNALRF, nlencmd, btCmd, dwlenrcv, btRcv);

For further information, please refer to Smart SDK manual.

And refer to source code in this plugin in **"Program FilesWIDPWSmart WPluginSample"** after SMART IDesigner installation.

The field data to get from SMART IDesigner begins field[1].

Input the name of 1<sup>st</sup> field in field[1].szName.

Input the type of 1<sup>st</sup> field in field[1].nType.

Input the size of 1<sup>st</sup> field in field[1].nSize.

Input the field data to get from SMART IDesigner in field[1].value.

If there are more than 2 fields from SMART IDesigner, 2<sup>nd</sup> field data is entered in field[2].

In this way, k numbers of fields are entered and send to plugin function through \*pInput pointer.

For example, consider that you do Contactless Card Encoding.

nClassId is SPI\_CLASS\_CONTACTLESS\_CARD, Smart Card Reader is "OMNIKEY CardMan 5X21-CL 0", the number of the field to get from SMART IDesigner is 1, name of field is "Name" and value is "John".

SPI\_VDATA is as below.

SPI_VDATA		*pInput
nVersion		1
nTotalSize		170
nFields		2
field[0]	szName	L"OMNIKEY CardMan 5X21-CL 0"
	nType	SPI_FIELD_DATATYPE_RAWDATA
	nSize	4
	value	4bytes Function pointer
field[1]	szName	"Name"
	nType	SPI_FIELD_DATATYPE_STRING
	nSize	10
	value	"John"

[\*pOutput]

There is no field data to send to SMART IDesigner in Contact/Contactless card encoding. The value is NULL in EndPlugin() function.

The Pseudo code of plugin with SPI\_CLASS\_CONTACT\_CARD, SPI\_CLASS\_CONTACTLESS\_CARD is as below.

### [Pseudocode]

```
typedef int (*PFN)(int , DWORD , BYTE* , DWORD* , BYTE* );
```

```
int WINAPI GetPluginInfo(SPI_INFO* pInfo)
```

```
{
    //input the information of Plugin
    pInfo->szName = L"Plugin Smart Card";
    pInfo->nClassid = SPI_CLASS_CONTACTLESS_CARD;
    pInfo->nTimeOut = 0;
    pInfo->bUseEvent = false;
    return nres;
}
```

```
int WINAPI StartPlugin(HANDLE evtDone, SPI_VDATA* pInput, int nSize)
```

```
{
    //Read the field information from SmartDB and INI information
    ReadSetupFile();
    //Get the Function Pointer of Transmit()
    PFN TransmitAPDU;
    TransmitAPDU = *(PFN*)( pInput->field[0].value);

    //Authentication and ReadWrite
    BYTE comdbuf[] = L"....."; // Define APDU Command
    TransmitAPDU(DEV_INTERNALRF, nlencmd, comdbuf, dwlenrcv, btRcv);
    // Repeat Transmit APDU to read/write smart card
    return nres;
}
```

```
int WINAPI EndPlugin(SPI_VDATA* pOutput, int nSize)
```

```

{
    //Stop Thread in progress and quit plugin
    TerminateCapThread();
    return nres;
}

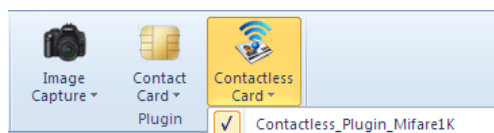
```

### 1.3 Usage of RF\_Plugin\_Mifare1k.dll

SMART IDesigner provides plugin DLL of SPI\_CLASS\_CONTACTLESS\_CARD for encoding Mifare1K of contactless card encoding. Please set the fields to encode in SMART IDesigner and input the information of encoding Mifare.

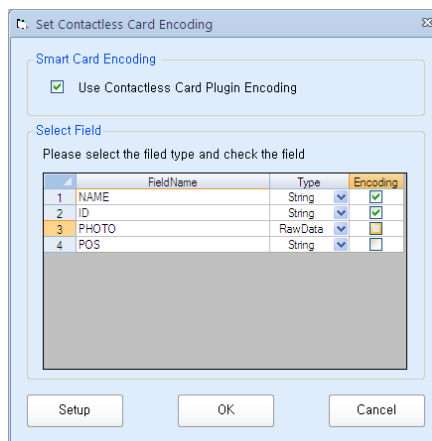
#### 1.3.1 SMART IDesigner Configuration

Click **Contactless card** button in **Database** tab, select **Contactless \_Plugin\_Mifare1K**.



<Figure 119> Plugin Selection

Then "Set Contactless Card Encoding" window is displayed.



<Figure 120> Set Plugin option

To use contactless card encoding, click **Use Contactless Card Plugin Encoding** check box. Click **Encoding** check box in field to encode.

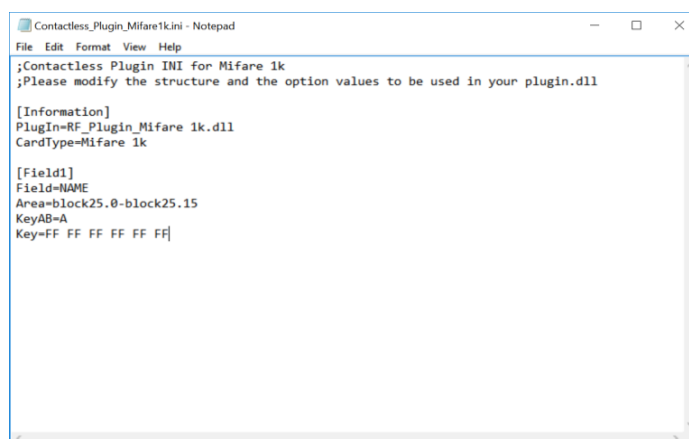
In above Figure, NAME and ID fields are checked, so \*pInput data of SPI\_VDATA is as below.

SPI_VDATA		*pInput
nVersion		1
nTotalSize		256
nFields		3
field[0]	szName	L"OMNIKEY CardMan 5X21-CL 0"
	nType	SPI_FIELD_DATATYPE_RAWDATA
	nSize	4
	value	4bytes Function pointer
field[1]	szName	"NAME"
	nType	SPI_FIELD_DATATYPE_STRING
	nSize	10
	value	"John"
field[2]	szName	"ID"
	nType	SPI_FIELD_DATATYPE_STRING
	nSize	14
	value	L"201302"

### 1.3.2 INI File Configuration

Next, edit INI file to set the configuration to encode Mifare card.

If you click **Setup** button, "Contactless\_Plugin\_Mifare1k.ini" file is open.



```

Contactless_Plugin_Mifare1k.ini - Notepad
File Edit Format View Help
;Contactless Plugin INI for Mifare 1k
;Please modify the structure and the option values to be used in your plugin.dll

[Information]
Plugin=RF_Plugin_Mifare 1k.dll
CardType=Mifare 1k

[Field1]
Field=NAME
Area=block25.0-block25.15
KeyAB=A
Key=FF FF FF FF FF FF

[Field2]
Field=ID
Area=block25.0-block25.15
KeyAB=A
Key=FF FF FF FF FF FF

```

<Figure 121> INI Plugin Configuration

Basically, Contactless\_Plugin\_Mifare1k.ini file is defined as below.

Contactless_Plugin_Mifare1K.ini
<p><b>[Information]</b></p> <p><b>PlugIn=RF_Plugin_Mifare1k.dll</b></p> <p><b>CardType=Mifare1k</b></p> <p><b>[Field1]</b></p> <p><b>Field=NAME</b></p> <p><b>Area=block25.0-block25.15</b></p> <p><b>KeyAB=A</b></p> <p><b>Key=FF FF FF FF FF FF</b></p>
<p>Configuration value for encoding in DLL. You can edit it for your purposes.</p> <p><b>[Information]</b> is the information of plugin.</p> <p><b>PlugIn</b> means the dll file to use this ini file.</p> <p><b>CardType</b> is the type of card to encode.</p> <p><b>[Field#]</b> is the paragraph to define the information of field to encoding. You can make it as many fields as encoding.</p> <p><b>Field</b> should be entered as the name of field to get from SMART IDesigner. For example, if Field=NAME is defined, DLL file matches the string "NAME" in INI file with the string "NAME" to get from SMART IDesigner, field[i].szName, then use the same data to encode.</p> <p><b>Area</b> is the information of position to encode in Smart Card. In this case, it is defined by block on Mifare1k DLL. "block25.0-block25.15" means that encoded block is 25<sup>th</sup> block and it encodes from 0<sup>th</sup> Byte to 15<sup>th</sup> Byte of 25<sup>th</sup> block. You can define "block25" instead. It is analyzed by RF_Plugin_Mifare1k.dll. Also if it needs several block to encode, you can use more block like "block25-block26".</p> <p>This RF_Plugin_Mifare1k.dll is for Mifare1K card to encode only. Mifare1K don't allow encoding in 0<sup>th</sup> block and every 4<sup>th</sup> block (3, 7, 11, 15....). If user sets "Area=block3", it encodes next block (4<sup>th</sup> block) automatically because RF_Plugin_Mifare1k.dll analyzes the syntax.</p> <p><b>KeyAB</b> defines Key Side whether to use A of Key or B of Key.</p> <p><b>Key</b> means the value of Key to load Key Side defined KeyAB. 6 Byte, Hex String.</p>

### 1.3.3 Data Encoding

In this sample Contactless\_Plugin\_Mifare1K.INI in 1.3.2 and predefined \*pInput of SPI\_VDATA in 1.3.1, only 1<sup>st</sup> field will be encoded because only [Field1] section is defined in INI file. DLL encodes "John", the data of field[1].value of \*pInput to match "Field=NAME" with. Area is defined from 0<sup>th</sup> Byte to 15<sup>th</sup> Byte of 25<sup>th</sup> block.

block 25	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Data	J		o		h		n									

In above table, the size of real encoded data is 10 Bytes because it is Unicode and includes NULL. It is encoded from 0<sup>th</sup> Byte to 9<sup>th</sup> Byte of 25<sup>th</sup> block. However user defined Area to 15<sup>th</sup> Byte, NULL is filled from 10<sup>th</sup> Byte to 15<sup>th</sup> Byte.

And data of field[2] in \*pInput of SPI\_VDATA is not encoded because only [Field1] section is defined in INI file.

Refer to source code in "C:\Program Files (x86)\SmartID\PluginSample" folder after SMART IDesigner installation.

## Revision Record

[illegible]