SMART Series

SMART-31S, SMART-31D, SMART-31R

User Manual



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Before returning any equipment for in-warranty or out of warranty repair, contact an IDP Reseller or an IDP Service Center for a Return Materials Authorization (RMA) number. Repack the equipment in the original packing material and mark the RMA number clearly on the outside of the box. For more information about RMA or IDP warranty statements, refer to the Warranty booklet on the quick install guide.

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1. Introduction

1.1 Printer outside features

For the user's convenience, SMART-31 status can be seen through LED and the printer can be controlled by LED button. It takes a power via the 24V adaptor provided with the printer. Using USB and Network port, it is communicated with the user's PC

The following shows the outside functional features found on the printer.



① **Top cover open button**

② **Fan**

③ **Input hopper**

④ **LED buttons**

⑤ **Output hopper**

Figure 1 SMART-31 front features



⑥ **Power switch**

⑦ **24V power connector**

⑧ **Network port**

In case there is no network option, it is closed.

⑨ **USB port**

Figure 2 SMART-31 rear features

There are three models in SMART-31 card printer series such as SMART-31S, SMART-31D, SMART-31R.

SMART-31S (Figure.3) is the standard card printer. It can be printed in single side with the encoding. This manual is prepared based on SMART-31S.

SMART-31D (Figure.4) has a flipper which can enable to print in both sides. SMART-31D can print the both side of the card with the encoding.

SMART-31R (Figure.5) is the rewritable card printer. It can rewrite on rewritable card in single side with encoding.



Figure 3 SMART-31S (Standard)



Figure 4 SMART-31D (Dual)



Figure 5 SMART-31R (Rewritable)

1.2 Printer inside features

In SMART printer, the ribbon is installed by a ribbon cartridge which can be used semi permanently. The following shows the inside functional features found on your SMART-31 printer.



Figure 6 SMART-31 Inside features

① Output hopper(Stacker)

Collect the printed card and/or encoded cards. Maximum 25 cards are loaded and the extra printed/encoded card is passed out. It can be withdrawed when pulling forward.

② Input hopper

Load the cards for printing. Maximum 40 cards are loaded when cover is closed; Maximum 80 cards are loaded when the cover is opened.

③ Ribbon cartridge

Install the ribbon and the disposable cleaning roller.

④ Thermal Print Head

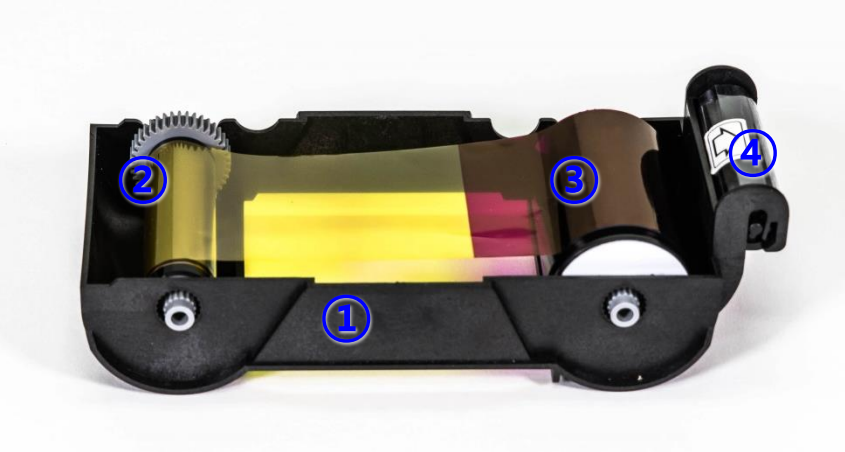
This enables the cards to be printed.
(Caution!**:** This is very hot after printing. Do not contact the surface of the Thermal Print Head with fingers or a sharp metal object to avoid degrading print quality or damaging printer head permanently.)

1.3 Ribbon cartridge features

SMART-31 printer uses the same ribbon cartridge as a SMART-30's.

(However, the ribbon for SMART-31 is incompatible with SMART-30's.

The color of gear part of the ribbon for SMART-31 is gray.)



① **Ribbon cartridge**

② **Take up parts**

③ **Supply parts**

④ **Disposable cleaning roller**

Figure 7 Ribbon cartridge features

① Ribbon cartridge

-. Install a ribbon and a disposable cleaning roller provided with the ribbon.

-. In the case of SMART-31 R model, a ribbon is not used, and a disposable cleaning roller is only installed and used.

-. This semi-permanent ribbon cartridge is a component of the printer. Printer does not operate if it is broken or damaged. In this case, please contact printer reseller.

② ③ Take up & Supply parts

-. Ribbon is wrapped to the supply parts as the Picture. It should be installed as the Figure.7

④ Disposable cleaning roller

-. It removes dust on the surface of card to improve print quality before the card is printed. It should be changed together with the ribbon.

-. After installing the disposable cleaning roller to the ribbon cartridge, peel off the protective film.

-. It is provided with the ribbon.

-. In the case of SMART-31 R model, you have to purchase the disposable cleaning roller from the reseller.

1.4 Display and Buttons

The status of SMART-31 is displayed on the Watchman program of the Windows tray.

The simple status of SMART-31 is displayed by color of LED. It is red when boot up.

It is changed to ‘System Ready’ if the printer is fine. It is change to ‘Printing’ when the printer is working. In case of sensing an error, it is changed to ‘Error’ status. Whenever the top cover is opened, the operation is stopped and the status is ‘Top Cover Open’.

2. Printer installation

2.1. Connecting a power and a USB cable

(1) SMART-31S / 31R

Connect the power and USB cable as the below picture. Please refer to the ‘Network Configuration’ if you use the LAN connection.



Figure 8 SMART-31S Connection of power and USB cable

(2) SMART-31D

Connect the power and USB cable after turning the printer on its side as the below picture. Please refer to the ‘Network Configuration’ if you use the LAN connection.



Figure 9 SMART-31D Connection of power and USB cable

2.2. Fitting the ribbon

Before printing, prepare the related items such as a card, a ribbon and a cleaning roller. In this section we invite you to know the proper method of installing the ribbon and the cleaning roller into the printer.

(1) Turn off the printer

(2) Open the printer top cover by pressing the top cover open button.



Figure 10 Top Cover open

(3) Take out the ribbon cartridge.



Figure 11 Take out the ribbon cartridge

(4) Install a ribbon into the ribbon cartridge as the right picture.



Figure 12 Loading the ribbon 1

(5) Insert the supply side of the ribbon to no.1 hole and press the opposite (no.2). Insert the take-up side of the ribbon same method to no.3 and no.4. After inserting, tighten the ribbon.

(Caution! If the ribbon is not tightened, a rolling up error might be happened.)

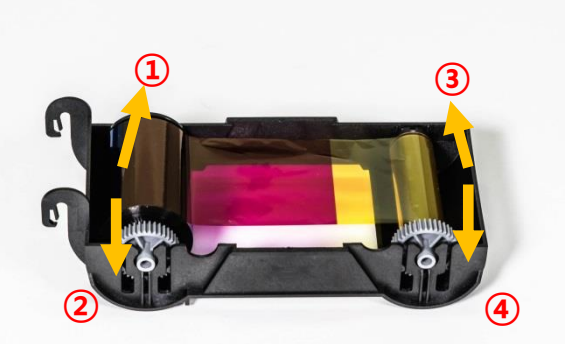


Figure 13 Loading the ribbon 2

(6) Install the disposable cleaning roller to the ribbon cartridge.



Figure 14 Installing the cleaning roller

(7) Peel the protective wrapper from the cleaning roller.

After removing the protective wrapper, the cleaning roller should be kept clean from fingerprints, dust and foreign substances to avoid contamination because it is adhesive.

(Caution! Do not use without peeling off the protective wrapper because the cleaning roller cannot perform its function.)



Figure 15 Peeling the protective wrapper

(8) Install the ribbon cartridge into the printer after installing the ribbon with a cleaning roller to the cartridge.



Figure 16 Installing the ribbon cartridge

(9) Close the top cover

(If it is not closed properly, check the installation state of the ribbon cartridge.)



Figure 17 Close Top Cover

2.3. Loading the cards

This section shows how to load the plastic cards.

(1) Open the input hopper cover. Release two screws, insert a card to use and fix screws after adjust the card thickness device. 0.4mm and 0.8 mm cards are supported.

(Caution! If the adjustment is not correct, it will make some error. Use the type of cards in the specification of this manual. Always keep the card surface clean state.)



Figure 18 Adjusting the card thickness Device

(2) To separate cards from each other, push a stack of cards back and forth to an angle about 45 degrees vertically.

(Static charge makes cards stuck with significant adhesive force. These cards must be physically separated from each other before inserted into the feeder. If not separated, feeding or printing problems may occur.)

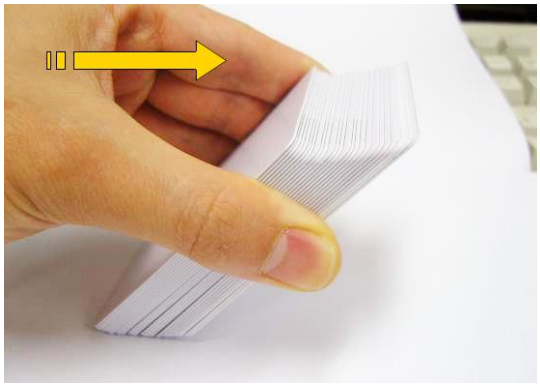


Figure 19 Preparing the card 1

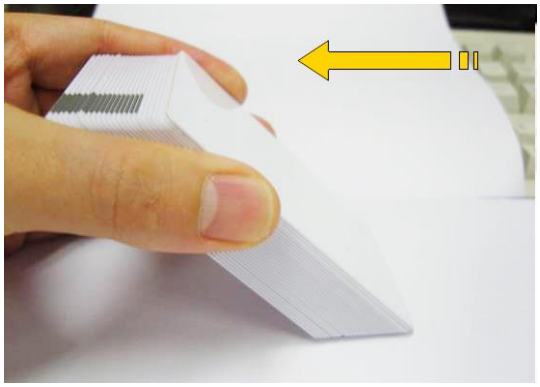


Figure 20 Preparing the card 2

(3) Stand the stack of cards vertically after separating

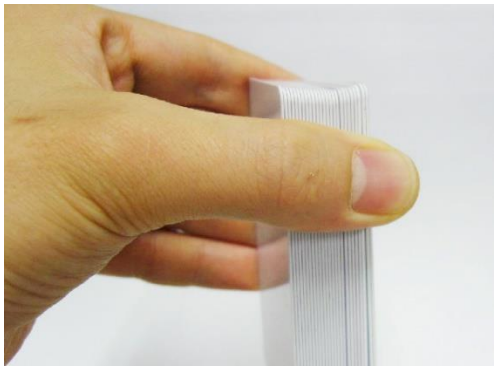


Figure 21 Loading the cards 1

(4) Load the cards on the input hopper properly and close the hopper cover.



Figure 22 Loading the cards 2

(5) When insert each one card, insert the card to the end as left picture

(Caution! If the printer has a lock device, a card can't be inserted one by one.)



Figure 23 Loading the cards 3



Figure 24 Loading the cards 4

2.4. The withdrawal of printed cards.

Printed cards are passed out to the stacker of front bottom side of SMART-31 printer.



Figure 25 SMART-31 Withdrawal a card

SMART-31's stacker can be divided as following image. so you can withdraw the printed cards easily.



Figure 26 SMART-31 Dividing a stacker

2.5. Driver installation (Windows 7 / 8 / 10)

(1) Please insert the installation CD.

Please choose language and click “Driver Install”.



Figure 27 Install Win7 driver 1

(2) When “User Account Control” window is opened, click “Yes”

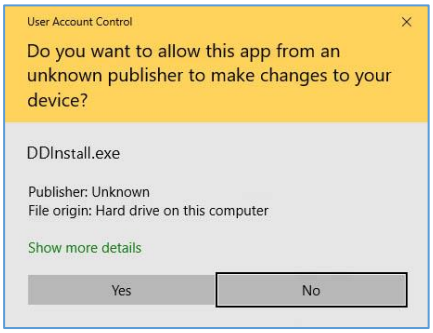


Figure 28 Install Win7 driver 2

(3) STEP 1:

Please turn off printer if it is connected to PC. Please click “Next”.
When you click “Next”, older driver will be removed automatically.

This process will take several minutes to remove older driver.

You can select the languages by selecting the combo box as shown on the left picture.

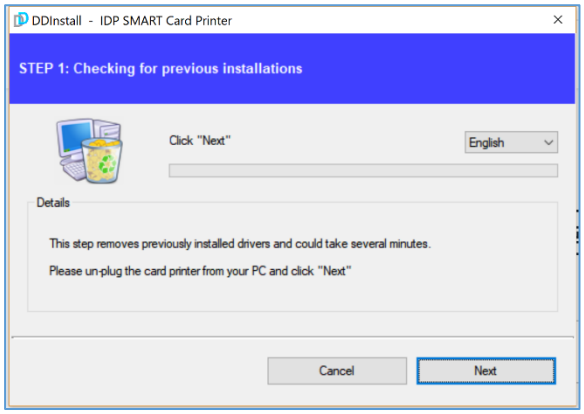


Figure 29 nstall Win7 driver 3

(4) STEP 2:

When you click “Next”, the driver installation will be ready.

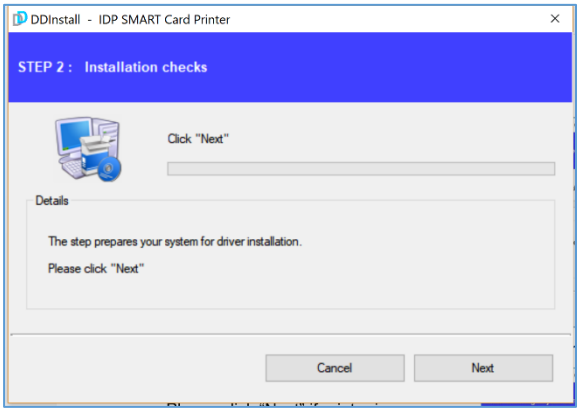


Figure 30 Install Win7 driver 6

(5) STEP 3: USB

Please click “Next” if printer is connected to USB only.

If you want to install the driver for a printer connected to network, please select the “TCP/IP Network port” and select the proper printer as step (7).

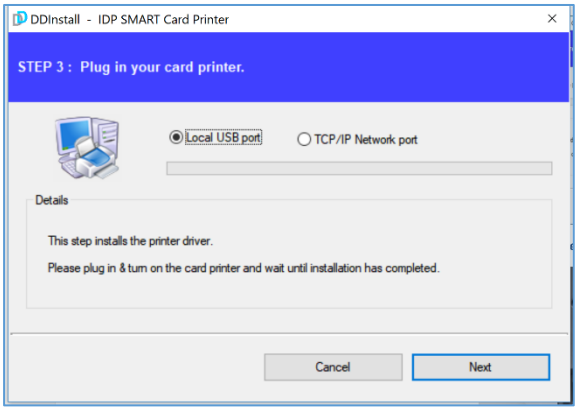


Figure 31 Install Win7 driver 8

(6) Please turn on the printer

(Network cable is not supplied. Please ask network administrator for more questions.)



Figure 32 Install Win7 driver 9

(7) STEP 3: Network

Please select the printer that you want to install in the list and click “OK”.

(If no printer comes out on the window, please check the connection.)

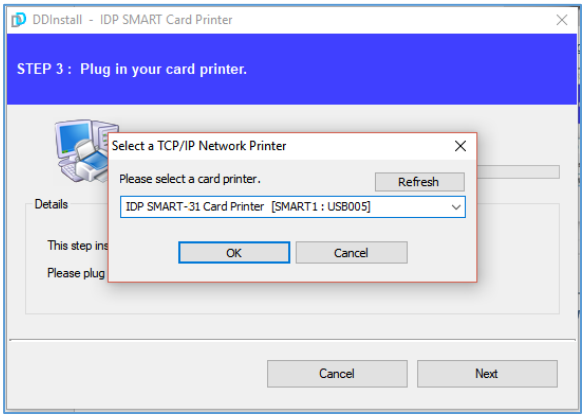


Figure 33 Install Win7 driver 10

(8) When driver installation is completed, please click “Close”

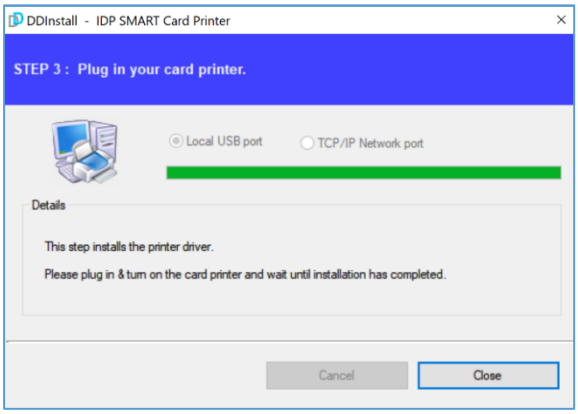


Figure 34 Install Win7 driver 11

(9) Please open “Devices and Printers” from “Hardware and Sound”. Please check if “IDP SMART-31 Card Printer” is created.

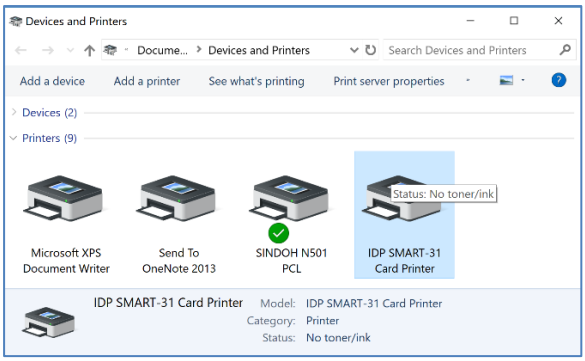


Figure 35 Install Win7 driver 12

(10) Please click the right mouse button after cursor is placed on “IDP SMART-31 Card Printer” icon. Click “Printer properties”.

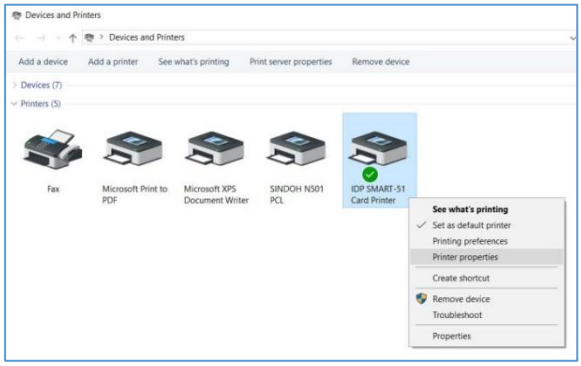


Figure 36 Install Win7 driver 13

(11) Please select “general” tab and click “Print test page” in “IDP SMART-31 Card Printer Properties” window.

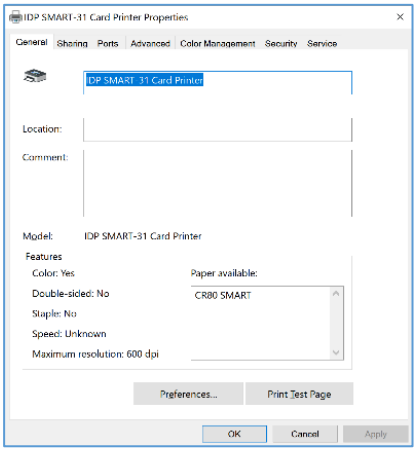


Figure 37 Install Win7 driver 14

(12) Please check test card if it is printed properly and click “Close” if a card is printed properly.

(If card is not printed or error comes out, please refer to “Trouble Shooting”.)

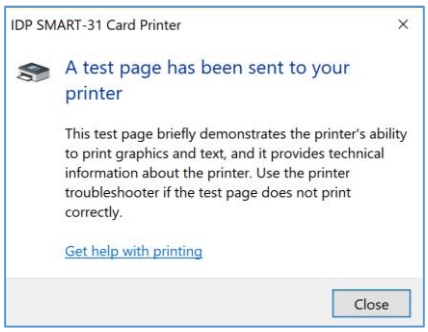


Figure 38 Install Win7 driver 15

3. Driver configuration

3.1. Printer Properties

To check printer properties, you need to open printer driver. Please open “Devices and Printers” and right-click “IDP SMART-31 Card Printer”.

Click “Printer Properties”.

(1) Printing Preferences

Please click “Preferences…” shown on the bottom of the left picture.

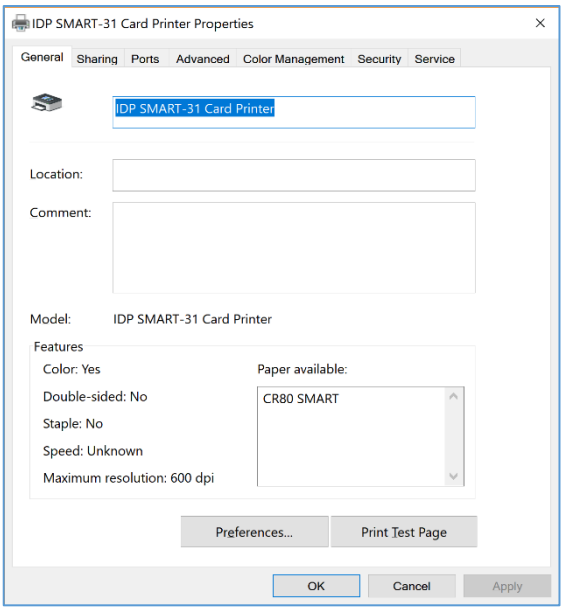


Figure 39 Printer properties

(2) Layout

- You can select either horizontal or vertical printing direction. To apply your selection, click “OK”.

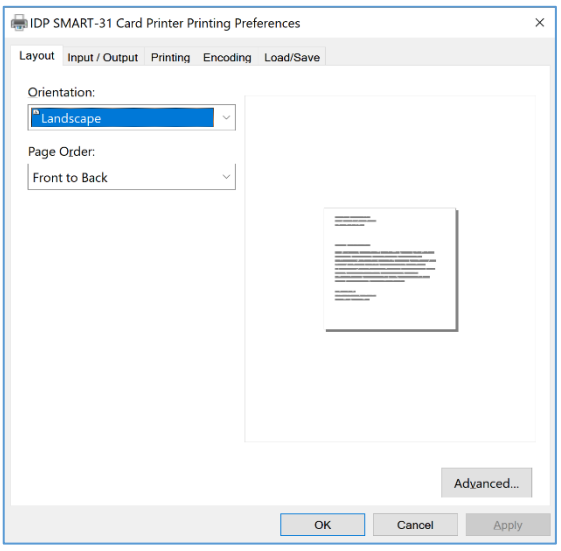


Figure 40 Layout

(3) Input / Output

[Supply Tray]

Supply : You can select “Auto” if SMART-31 has 1 input hopper. Please select the hopper if it has a multi hopper.

Tray : You can select “CR-80” because SMART-31 supports CR80 cards only.

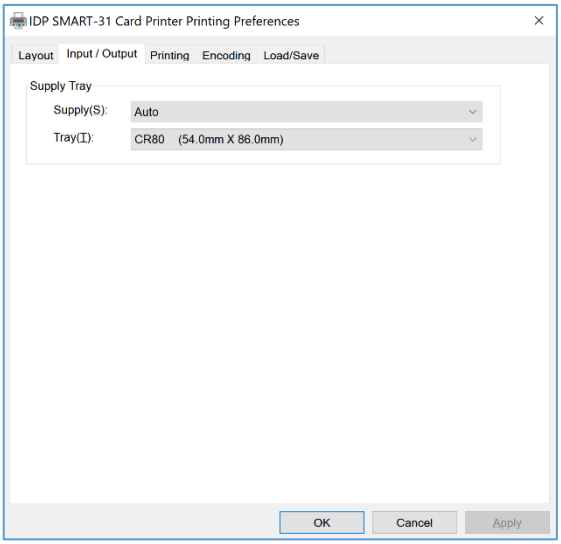


Figure 41 Input / Output

(4) Printing

Do Printing : You can select printing or not

[Print Side]

Side : Please select one side printing or both sides printing (It is possible only when you have a flipper.)

[Front / Back]

Color : You can select color or mono print.

Flip : You can flip an image

Media / Mask : You can indicate the area to print by using a predefined mask or user defined mask (white card, smartcard, Magnetic stripe card, etc.) on front or back side.

[Printing]

Ribbon : It shows the type of installed ribbon. You don’t need to select this option as SMART-31 recognizes ribbon automatically with RF Tag.

Speed : Set printing speed and quality

Mode : Set printing mode

Standard : Default print mode. Prints all area of printing

Partial : Partial print mode. It is printed

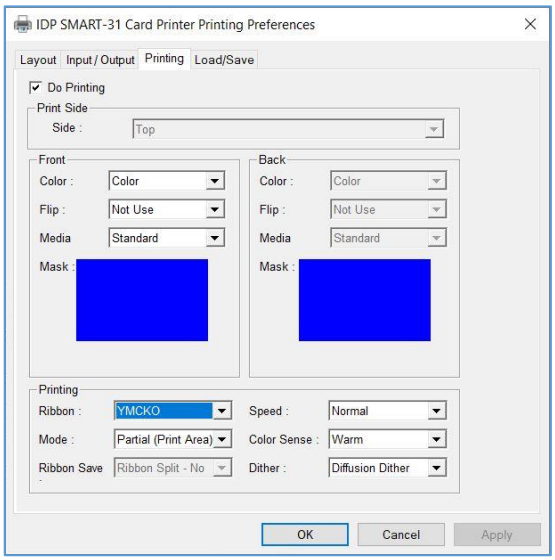


Figure 42 Printing

You can define a mask.

User defined mask uses BITMAP file (1012 X 636 pixels).

Blue (RGB(0,0,255)): Print and Overlay

Sky Blue (RGB(0,255,255)): Overlay only

Pink (RGB(255,0,255)): Print only

Yellow (RGB(255,255,0)): Florescent

partially for the print area only. Printing speed can be faster than standard mode.

Color Sense : Set print image's color sense.

Dither : There are 3 possible selections, Threshold, Random, and Diffusion Dither. It is performed with K and KO ribbon only. (Please select "Diffusion Dither" for high quality.)

Ribbon Save :

K ribbon Split : You can set the both sides (Front:YMCO, Back:K) to save color ribbon(YMCKO, HYMCKO, BYMCKO). It is only activated while printing both sides option is set.

(6) Encoding

This tap will be shown only when Magnetic encoder is installed.

Do Encoding : You can select encoding or not

Coercivity : You can select the coercivity to encode

Loco : 300, 600 Oe.

HiCo : 2760 Oe.

SpCo : 4000 Oe.

Auto : Defined automatically

Repeat Count : You can select the retry count to encoding when encoding is failed

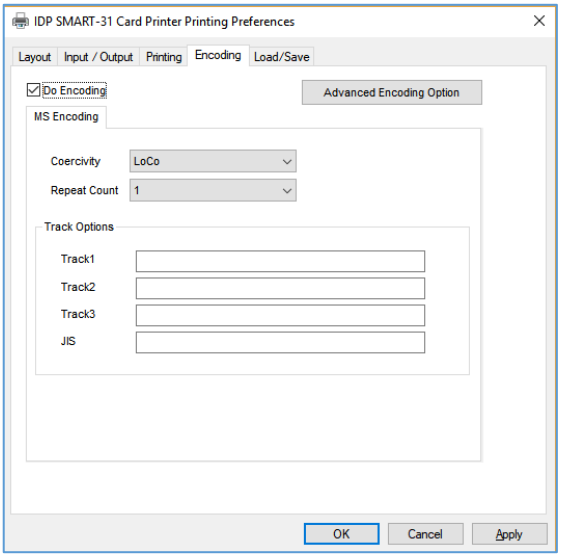


Figure 43 Encoding

(7) Encoding Advanced Option

Card Stripe Side : The location of magnetic stripe [Bottom / Top]

Before Flip : Do flipping before encoding [No / Yes]

After Flip : Do flipping after encoding [No / Yes]

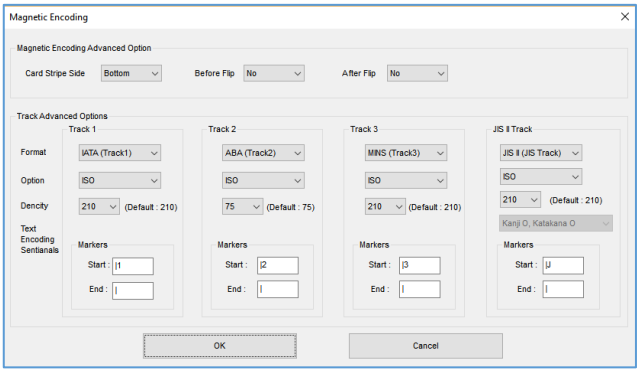


Figure 44 Magnetic Encoding Advanced Option

- **Track Advanced Options :**

Format : Encoding format (IATA, ABA, MINS, JISII, Bits Mode)

Track 1 : (default) IATA

Track 2 : (default) ABA

Track 3 : (default) MINS

JIS II Track : (default) JIS II

Density: MS encoding density (210, 75)

Text Encoding Sentinels : Start, End Marker for text magnetic encoding

Start : Start Marker

End : End Marker

3.2. Advanced Options

To change the detailed configuration, In the ‘Layout’ tab shown, Please click “Advanced…” shown on the bottom of the ‘Layout’ tab of the ‘Preferences’.

- **Reset Default Values:** Reset to default.

- **Color Correction:** You can correct gamma for colors. You need to use CardPrinterConfig to adjust color densities.
  - **Main [-100:100] :** Correct gamma for all panels
  - **Yellow [-100:100] :** Correct gamma for yellow panel
  - **Magenta [-100:100] :** Correct gamma for magenta panel
  - **Cyan [-100:100] :** Correct gamma for cyan panel
  - **Black [-100:100] :** Correct gamma for black panel
  - **Overlay [-100:100] :** Correct gamma for overlay panel

- **Position Processing:** Set criteria for resin black processing.
  - **Color [-32:32]:** to set the position of color panels
  - **Mono [-32:32]:** to set the position of resin or mono panel
  - **Overlay [-32:32]:** to set the position of overlay panel

- **Resin Black(K) Processing:** Set criteria for resin black processing.
  - **Text [0:100]:** to set density criteria for extracting black objects
  - **Dot [0:100]:** to set density criteria for extracting black dots
  - **Threshold [0:100]:** to set density criteria on dithering
  - **Dithering Degree [0:100]:** to set sharpness on dithering
  - **Resin Extraction:** You can set the method to extract resin black when you use design programs. (If you use the SmartID, you don’t need to select this option.) It will be set automatically.

- **Black Object:** to extract resin black automatically for text, line, box, circle, binary images, etc.
- **Black Text**: to extract resin black for text only
- **Black Dots**: to extract resin black for all of black
- **Black Dots only**: to extract resin black for all of black and not to print on color panels
- **Not Use**: not to extract resin black

- **Extra Controls :** Other options
  - **Fast Alignment [On/Off]:** to set the position of input card to the magnetic encoder or normal printing. If it is on, the printer can save the time to encode
  - **Rewritable Erase Density [0:100] :** to set Erase Density on Rewritable printer

- **Wait Option:**
  - **Wait at Internal Module Contactless Encoding Position [On/Off]:** to set whether to wait at the Internal RF encoder or not
    - **Card Side [Front/Back]:** to set the direction of card when waiting
    - **Wait Position [-100:100]:** to set the position of card to wait from the criteria position. Unit is 0.1mm
    - **Wait Time [0:1000]:** to set time to wait. Unit is second
  - **Wait at External Module Contactless Encoding Position [On/Off]:** to set whether to wait at the External RF encoder or not
    - **Card Side [Front/Back]:** to set the direction of card when waiting
    - **Wait Position [-100:100]:** to set the position of card to wait from the criteria position. Unit is 0.1mm
    - **Wait Time [0:1000]:** to set time to wait. Unit is second
  - **Wait at Internal Module Contact Encoding Position [On/Off]:** to set whether to wait at the Internal IC encoder or not
    - **Card Side [Front/Back]:** to set the direction of card when waiting

- **Wait Position [-100:100]:** to set the position of card to wait from the criteria position. Unit is 0.1mm
- **Wait Time [0:1000]:** to set time to wait. Unit is second

3.3. Other settings

(1) Sharing

You can share a printer with Sharing tab via Network.

Default is unchecked “Share this printer”.

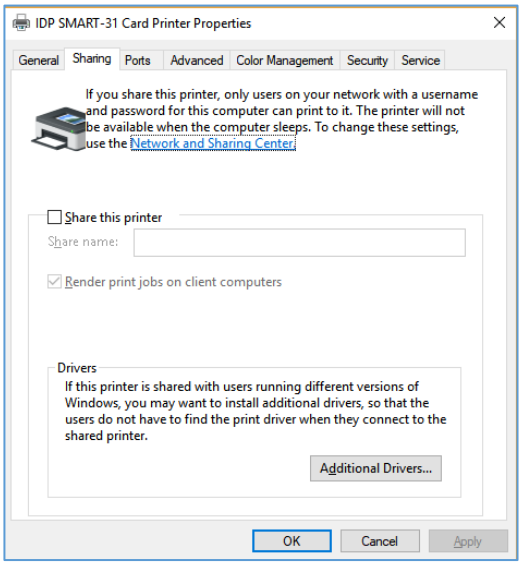


Figure 45 Printer sharing

(2) Ports

Port tab shows which port is connected with SMART-31. SMART-31 has connection with USB Virtual printer port as left picture because SMART-31 uses USB connected to PC.

(Caution! This port is selected automatically. It is recommended to maintain default.)

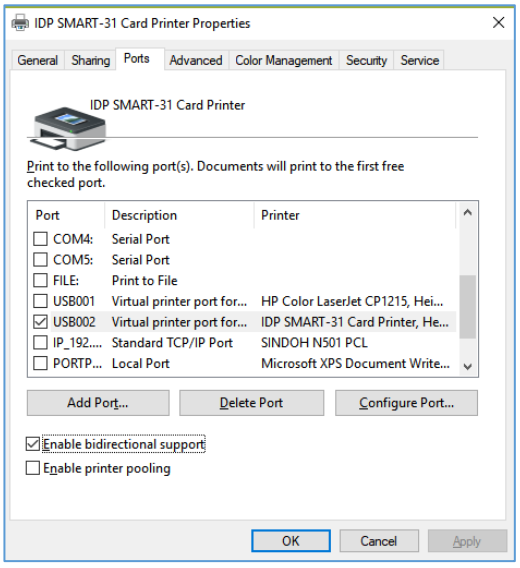


Figure 46 Ports

(3) Advanced

It is available for Working Time setting, Priority order, Spool print etc. in “Advanced” tab. “Advanced” setting follows MS Windows standard. If you want to change the setting, please refer to the Window manual.

(It is recommended to maintain default.)

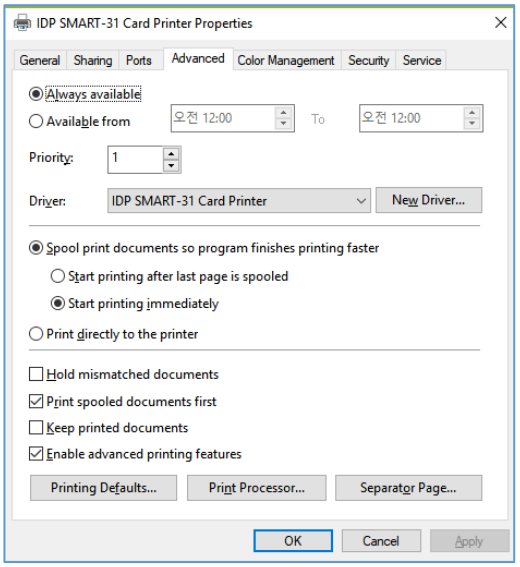


Figure 47 Advanced

(4) Color Management

In “Color management” tab, you can select color management profile fit to the printer.

SMART-31 uses color profile to express optimal color. The driver selects color profile automatically to fit each ribbon.

(It is recommended to maintain default.)

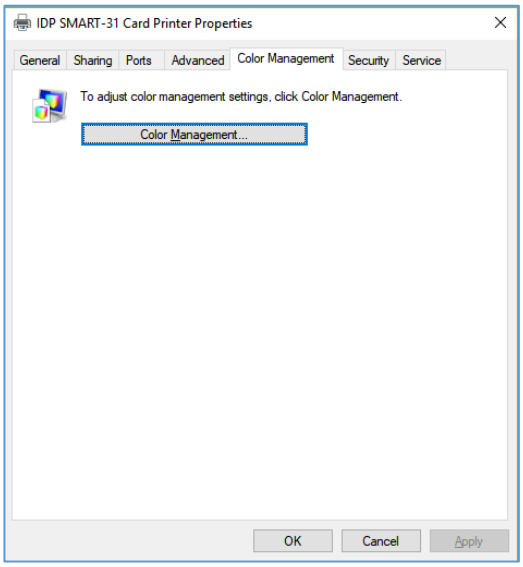


Figure 48 Color Management

(5) Security

You can set the permission to use a printer. Depend on the permission, the certain group or user can print, manage the printer/documents or not.

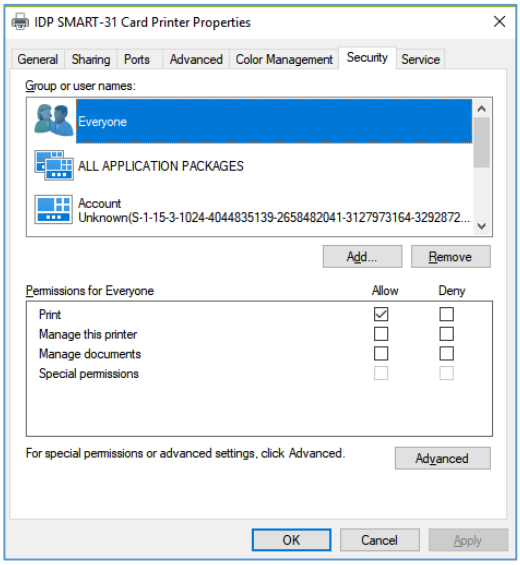


Figure 49 Security

(6) Service

You can recognize the modules to connect, printer serial, printer ID, driver version, firmware version, type of ribbon & balance and printer's status.

You can print the "technical support sheet" on a card to check printer's setup value.

To clean printer, please insert a cleaning card in a hopper and click "Clean Printer". For further details, please refer to "6.2. Cleaning Printer".

Please click "Config Printer" to change the printer settings. For further details, please refer to "4. Utilities".

Click the "Upgrade Firmware" to popped up the firmware upgrade window. For further details, please refer to "4.4 Firmware update"

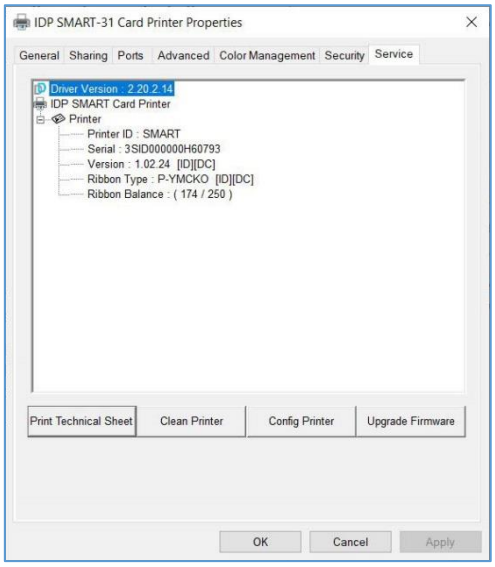


Figure 50 Service

4. Utilities

4.1. Card Printer Config

SMART-31 is produced with optimized setting. You need to adjust setting value if required or spare parts are replaced using CardPrinterConfig in our Installation CD.

You can adjust following settings with CardPrinterConfig.

(1) Run CardPrinterConfig

Password input window is displayed when you run this program. If you input the correct password, the recorded setup value will be shown and you can change values. The password is saved to SMART-31 printer. So if you use another PC with same printer, previous password is required to run this program. (Default password is none. Please press OK if you have not set password.)

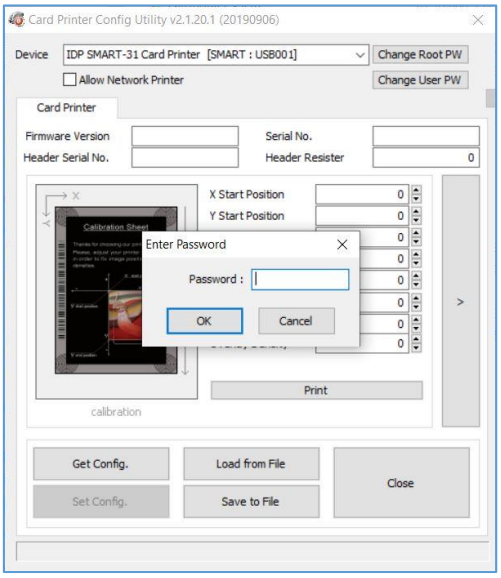


Figure 51 CardPrinterConfig Log-in

When you are successful to log-in, you can set values shown as left picture.

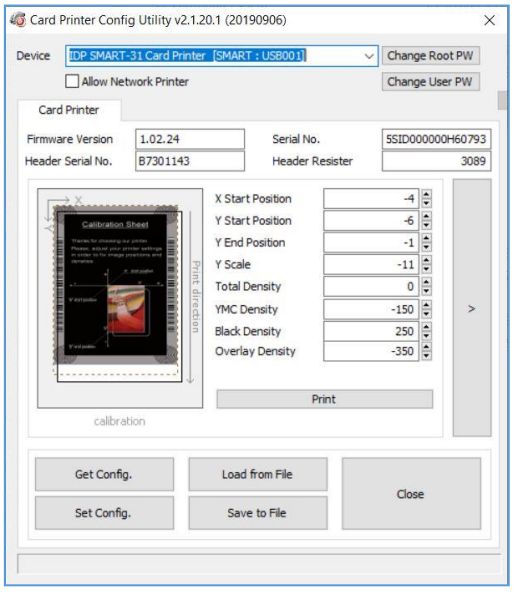


Figure 52 CardPrinterConfig start

(2) Card Printer Basic Setup

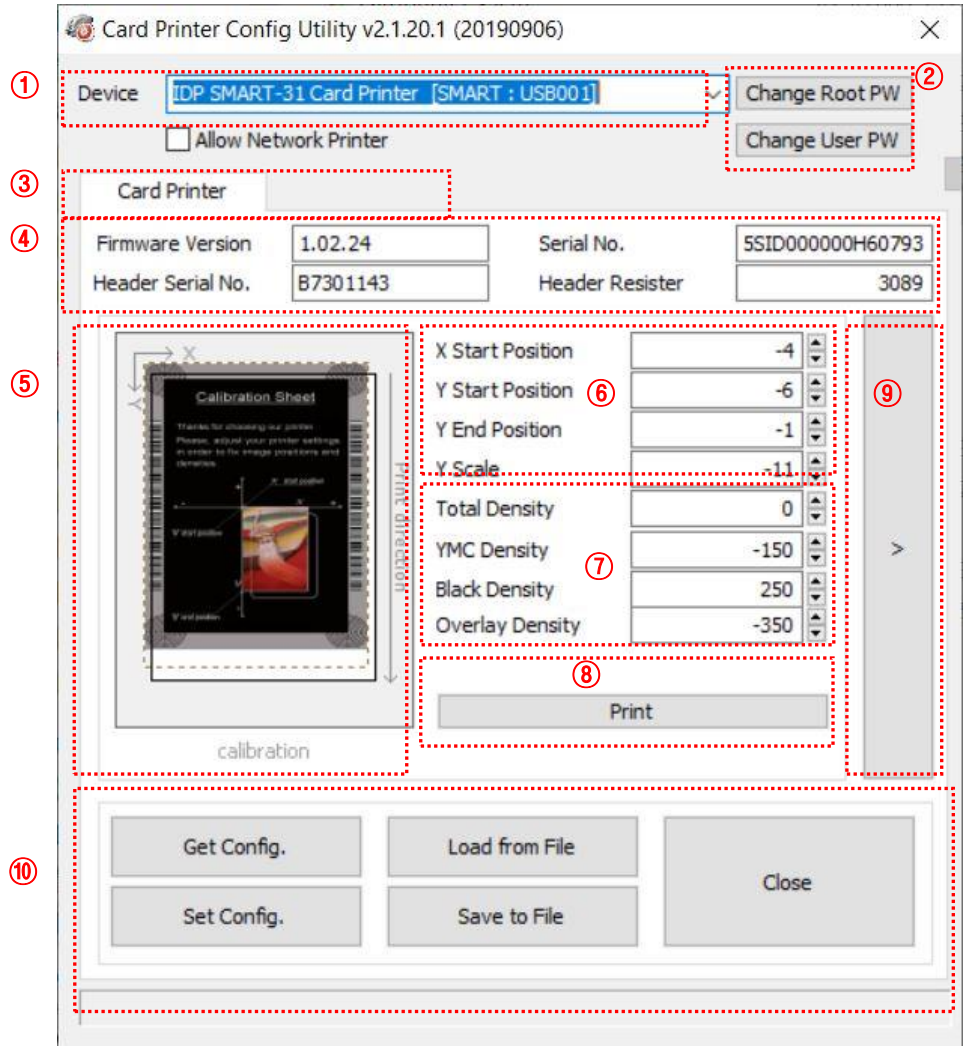


Figure 53 CardPrinterConfig – Card Printer Basic Setup

① To show connected printers

Device: You can select a printer using pull-down menu. “IDP SMART-31 Card Printer” is a name of printer. “SMART1” is printer ID, “USB005” is connected port. If you connect the Network printer, please check the “Allow Network Printer” and select in the pull-down menu.

② To set administrator password and user password.

Change Root PW: To set administrator (root) password. This password is used to verify user authority for CardPrinterConfig and User Authentication. Also it is required for User password management. (Please set password for security use.)

Change User PW: To set user password for User Authentication.

③ Click “Card Printer” tab.(If laminator or flipper is installed, you can setup laminator or flipper setting value by “Laminator” tab or “Flipper” tab..

④ To show firmware version, serial number of printer and serial number, resister & type of print head.

⑤ To show print area. It shows exaggeratingly for user convenience.

⑥ To set print area. Please set it properly to print on an entire card because SMART-31 is a direct thermal card printer. When you click “⑦ Print”, a card is printed as like “④ example”. Please set values properly that all circles of each corner are printed and blank spaces are 0.4mm ~ 0.5mm in the top and the bottom of a card. Please set values by following order.

X Start Position: Please set right and left properly by adjusting X position.

Y Start Position: Please set the start position of printed example image and blank space in the top is 0.4mm ~ 0.5mm.

Y End Position: Please set the end position of printed example image and blank space in the bottom is 0.4mm ~ 0.5mm. It is recommended to set bigger value for “Y scale” than default.

Y Scale: Please set to show circles in the bottom.

To set density. SMART-31 enables to set different density for each color, resin black and overlay. So, please set each density for high quality. Please optimize the quality by adjusting each value. To optimize, you repeatedly adjust the density and print a Calibration card and check the print state until you get the optimum.
If your printer is SMART-31 R model, please do not install ribbon. You can set density with Rewritable cards. Please adjust total density only.

Total Density: To set all of the density (Color, Black and Overlay) at one time.

If your printer is SMART-31 R model, when the density is too strong, you will have darker background color. (Background color may vary depending on card type.) When density is proper, texts and images are printed clearly and there is no background color. When density is too low, texts and images are printed dull.

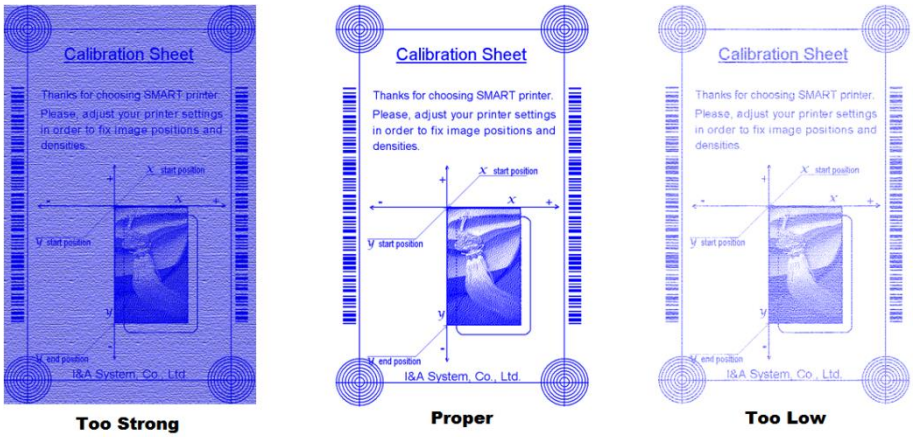


Figure 54 SMART-31 R density

YMC Density: To set color density. Please maximize YMC density as you can, which enables to express range of color and vivid images. If it is too strong, green or red marks are appeared. If it is too weak, the print quality will be dull.

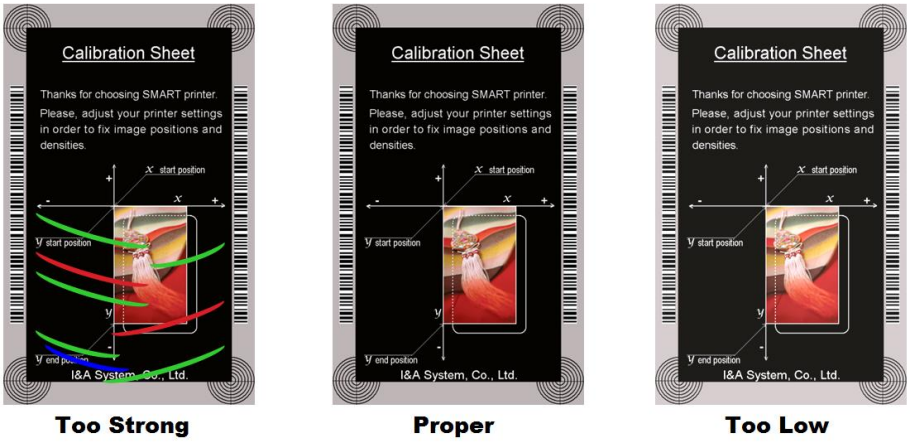


Figure 55 Color density

Black Density: To set resin black density. In the picture, barcode is printed to express density.

When density is too strong, barcode is printed too thick. When density is too weak, barcode is too thin. Please adjust resin black density to express clear barcode. Please refer to the following pictures.

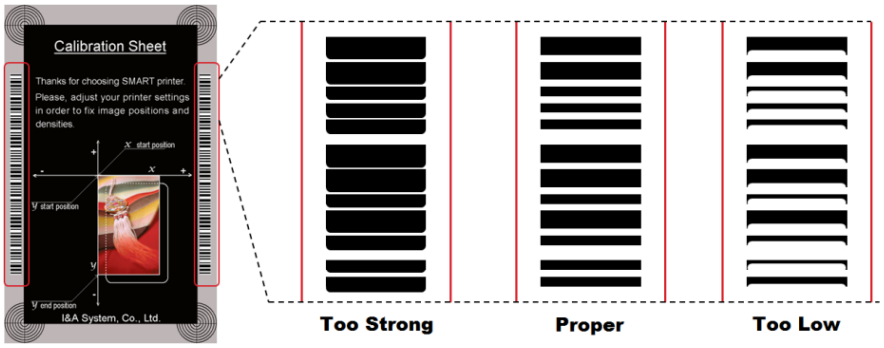


Figure 56 Resin Black density

Overlay Density: To set overlay density. Please set it when overlay is printed on surface regularly. If it is too strong, it is hazy and marks are appeared. If it is too weak, overlay panel is not printed edge areas. You can check it with printed card under the light.

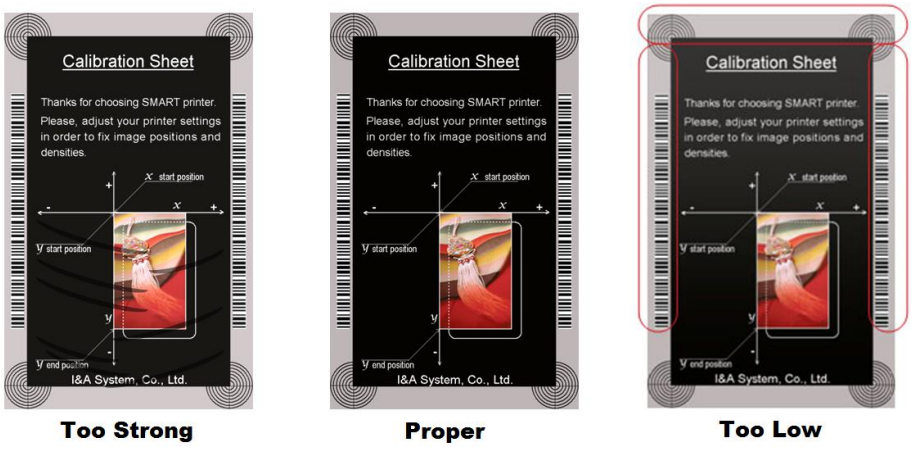


Figure 57 Overlay density

⑦ To print calibration card.

⑧ To show advanced Setup.

(It is recommended not to set advanced setup.)

⑨ To load or save values.

Get Config.: to get values from current printer

Set Config. : to set values to current printer

Load from File: to load values from file

Save to File : to save values to file

Close : to close CardPrinterConfig

(3) Card Printer Advanced Setup

You can set more values.

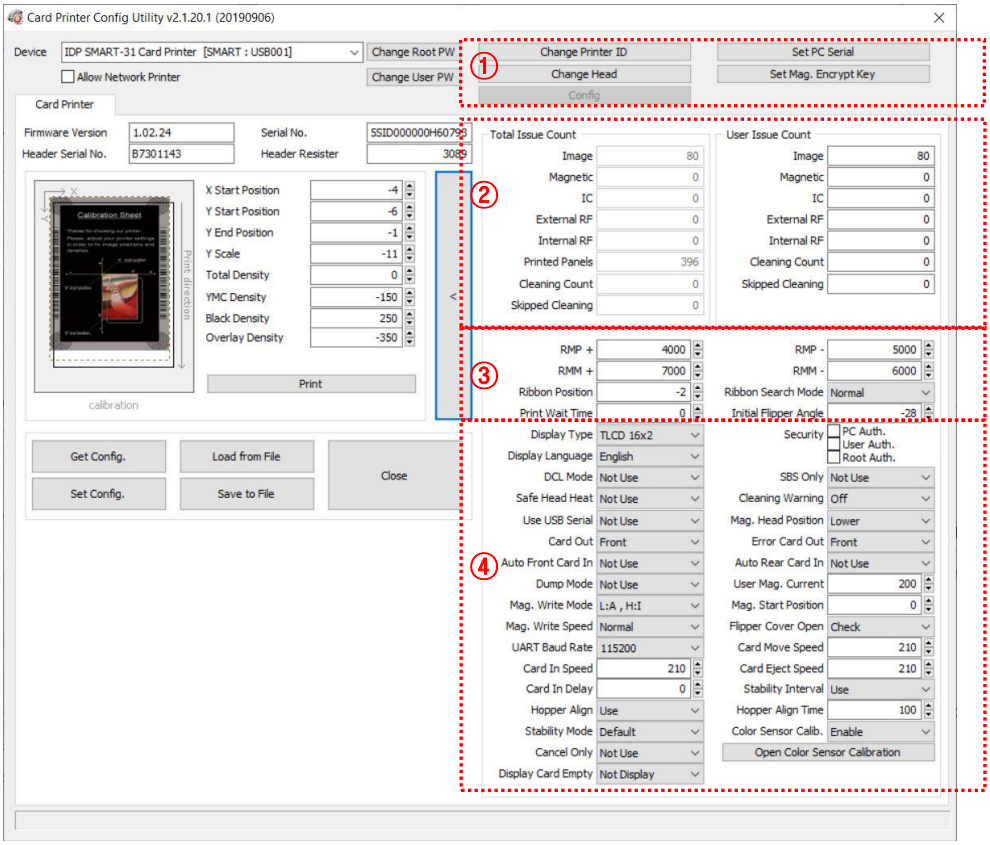


Figure 58 CardPrinterConfig – Card Printer Advanced Setup

① You can set Printer ID, PC serial, Print head and Magnetic encryption key.

Change Printer ID: When SMART-31 is used by SDK, you can set unique ID for SMART-31 printer regardless of whether it is connected by USB or what IP address is. It is useful to connect and use several printers. Default is “SMART”.

Set PC Serial: One of security function. You can use a printer with specific PC.

It is activated when you click “Set PC Serial” after “**PC Auth.**” of ④ is checked and rebooted. At that time, the specific information of used PC is saved to SMART-31 printer.

Change Head: When you replace thermal print head, you must change head information for optimal quality. Please change head serial number, resistor and type of head in the Change Head Dialog window after click “Change Head”.

Set Mag. Encrypt Key: One of security function. When you use SDK, you can encrypt magnetic stripe encoding data transmitted by USB. You can define and save the encryption key to SMART-31 using “Set Mag. Encrypt Key”.

② To show how many cards are issued with SMART-31 printer. “Total Issue Count” is the number of issued cards from factory shipment, “User Issue Count” is the number of issued cards from replacing head. When you replace a head, please initialize the number by ticking “Reset User Issue Count”.

③ To show ribbon motor management. SMART-31 recognizes ribbon color automatically and controls motor by ribbon remaining. “RMP+”, “RMP-“, “RMM+”, “RMM-“ are necessary variables to control ribbon motor. Please do not change values for them as it affects card quality.

RMP+: Set the ribbon motor’s max torque value while printing when the balance is max.

RMP- : Set the ribbon motor’s min torque value while printing when the balance is min.

RMM+: Set the ribbon motor’s max torque value while moving when the balance is max.

RMM- : Set the ribbon motor’s min torque value while moving when the balance is min.

Ribbon Position: Set the ribbon arrangement position

Ribbon Search Mode: Set the ribbon Search method

Print Wait Time: Set the time from lifting down the print head to starting print

Initial Flipper Angle: Set the angle of flipper when card is out if the ‘Card Out’ is ‘Back’

④ Please refer as below for other values.

Display Type: Set a type of LCD display module

UART Baud Rate: Set the speed of communication of Internal Serial port. It is used for the KIOSK model.

Security: There are several ways to set a security function for SMART-31.

PC Auth.: You can use a printer with specific PC. It is activated when you click “Set PC Serial”.

User/Root Auth.: You can set passwords for User and Administrator.

DCL Mode: When you use SDK and print cards with DCL mode, you don’t need to install printer device driver.

SBS Only: Please enable it when you issue cards with software programed by SDK. This option disables printer device driver.

Safe Head Heat: Set not to print if the print head is overheated.

Cleaning Warning: Set to show the ‘Do cleaning’ message periodically

Use USB Serial: When SMART-31 is connected to USB, it transmits the USB serial number to PC. Default is the same number used by all SMART-31. Please set this option when you use multiple SMART-31 printers connected to 1 PC via USB. It enables unique serial numbers for each USB.

Mag. Head Position: SMART-31 can install the magnetic encoder on upper/lower side of a card. You can set it depending on the position of encoder.

Card Out: Set the way to eject cards.

Error Card Out: Set the way to eject error cards.

Auto Front Card In: Set to input a card automatically if the front card-in sensor detects a card**.** It is used for the KIOSK model.

Auto Rear Card In: Set to input a card automatically if the rear card-in sensor detects a card. It is used for the KIOSK model.

Dump Mode: It records log data to inspect the operation of printer.

User Mag. Current: The default current value when the user selects to use the defined value when magnetic encoding

Mag. Write Mode: You can order the way how to encode magnetic stripe.

“L:A, H:I”: encodes 3 tracks at once for LoCo card and encodes at twice by dividing 1,3 and 2 track for HiCo card.

Magnetic Start Position: Set the start position of magnetic stripe when you encode.

Magnetic Write Speed: Set the speed of magnetic encoding.

Flipper Cover Open: Set whether to notify the “Flipper Cover Open” status when using the 31D printer.

Card In Speed: set the speed of inputting a card

Card Move Speed: set the speed of moving a card

Card Eject Speed: set the speed of ejecting a card

Card In Delay: Set the delay time after the card feed.

Stability Interval: Set the interval for printer operation stability.

Hopper Align: Set to USE when using Single Feeder Option.

Hopper Align Time: Set the time to rearrange the card. It is set in 1MS units.

Stability Mode: Set the control method for printer operation stability. When set to “Safe”, it slows down the speed however increases stability over “default”.

Color Sensor Calib: Set whether to use color panel recognition as the calibration value of the sensor. .

“Disable” is set to the default value.

“Enable” is set to the Open Color Sensor Calibration value.

Open Color Sensor Calibration: Measure the value of the color sensor.

Cancel Only: This function is not used in this model.

Display CardEmpty: This function is not used in this model.

Front Device: This function is not used in this model.

(4) Flipper Setup

This ‘Flipper’ tab is shown when the flipper option is installed.

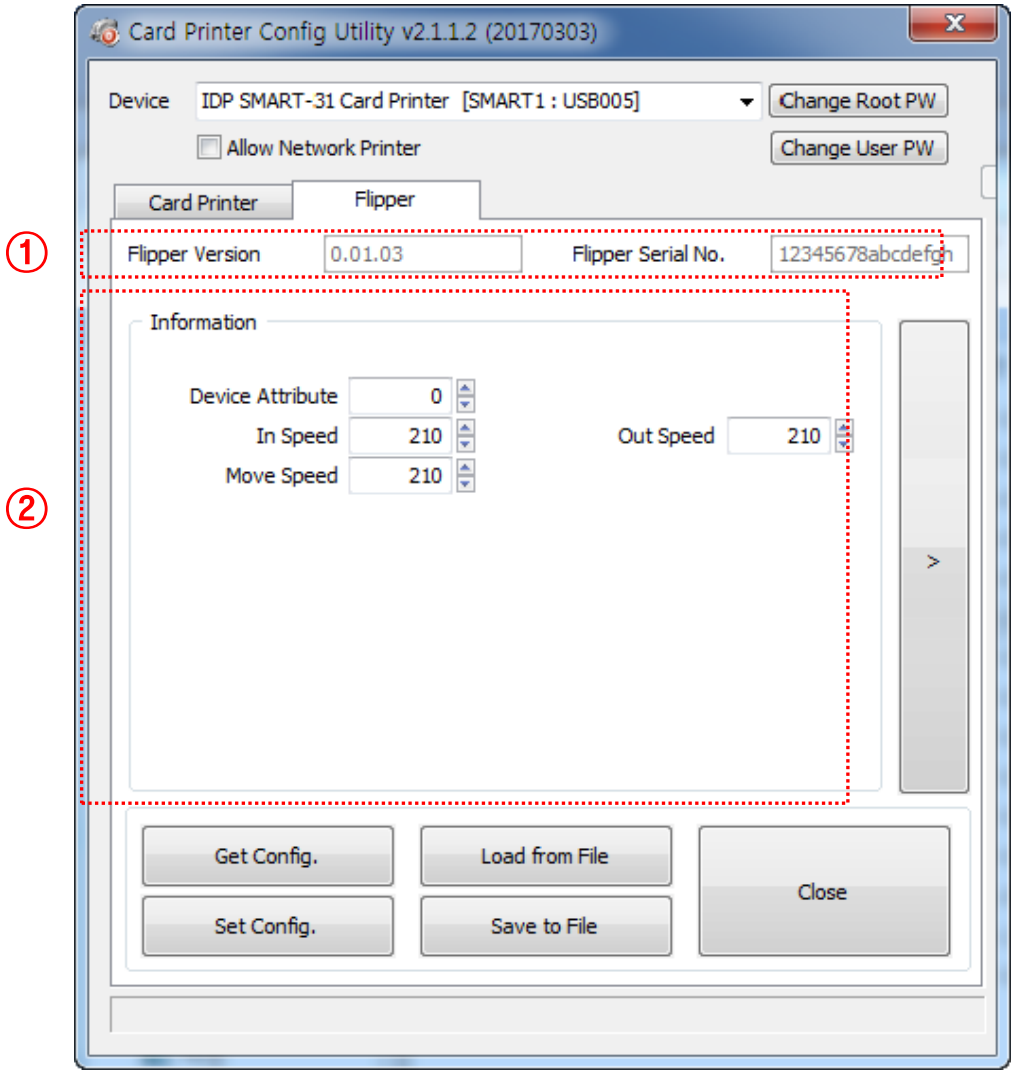


Figure 59 CardPrinterConfig – Flipper Setup

① To show installed flipper

Firmware version and serial number of flipper

② To set configuration of flipper

Device Attribute: Basic attribute of flipper

Card In Speed: Set the speed of inputting a card into a flipper

Cade Move Speed: Set the speed of moving a card in the flipper

Card Eject Speed: Set the speed of ejecting a card from the flipper

4.2. Network configuration

(1) Connecting network port

The printer which installed with network option has a port for network connection as shown in the left picture.

① **Power Switch**

② **Power Supply Connector**

③ **Network Port**

④ **USB Port**



Figure 60 Rear view of SMART-31 printer 1

Please connect network cable (RJ45) to a printer.

(Network cable is not supplied. Please ask network administrator for more questions.)



Figure 61 Rear view of SMART-31 printer 2

DHCP (Dynamic Host Configuration Protocol) which automatically assigns IP address to the SMART-31 network printer on the same network is default for IP configuration. If you don't have DHCP server, you need to set static IP.

Please run NetAdmin.exe in the SMART-31 installation CD to set or change network configuration.

(2) Network configuration

NetAdmin is run as the Pic.72 after turning on SMART-31 network printer.

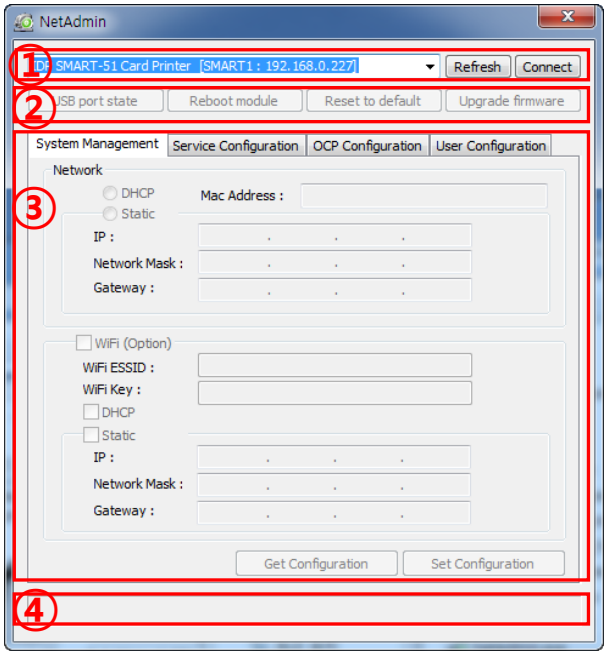


Figure 62 Running the NetAdmin

① Printer Connection Status
Searches local network, finds and shows available network printer.

② Network Module Management
Searches connected encoder on network module. Reboots, Resets network module. Firmware upgrade available

③ Printer Configuration
Sets detailed system configuration.

④ Network Information
Shows firmware version of network module

When no printer is connected to network, there is no printer shown on the box.

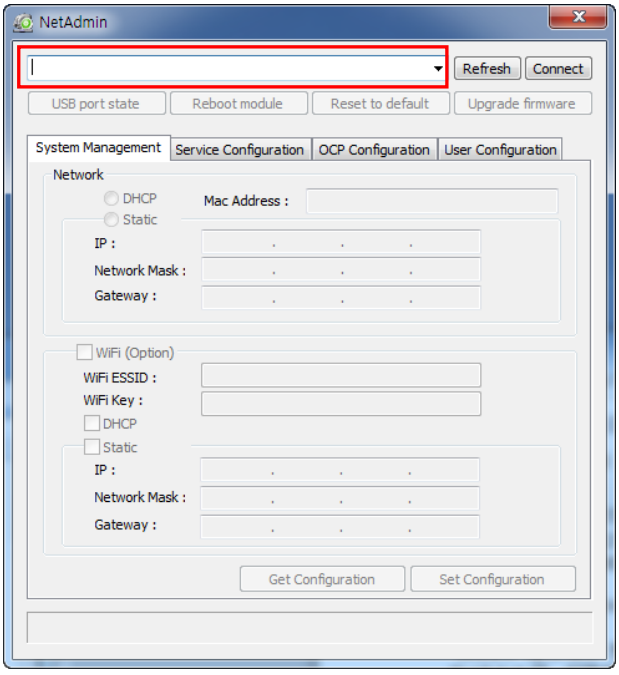


Figure 63 Network printer is not found

Please click “Refresh”.

If no printer shown, please check as below,

1. Please check the printer is turned on.
2. Please check network cable is connected to network hub and works properly (LED lamp blinking).
3. Please check if there is DHCP server in the local network. When DHCP server is not in your local network, you need to set Static IP.
4. If Static IP is used, please check the IP configuration. If another device uses same IP address, it doesn't work.

If you are unable to find printer in local network, please connect printer by USB. You can setup network by USB.

When you click Refresh, you can find a printer connected by USB as shown in the left picture..

- You don't need to install device driver for network configuration by USB. Please ignore messages related to device installation.
- You can change values of "System Management" only when you connect a printer by USB. Please connect a printer by network to use all of the functions of Netadmin.exe.

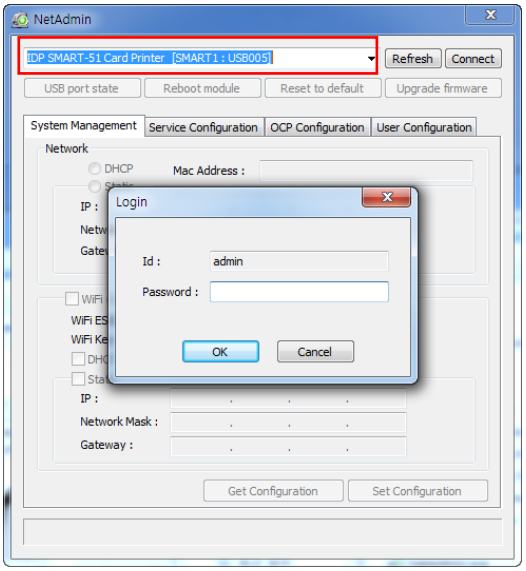


Figure 64 Connecting to USB port

Please select a proper printer and click "connect". Please enter password and click "OK".

Default password is "**admin**".

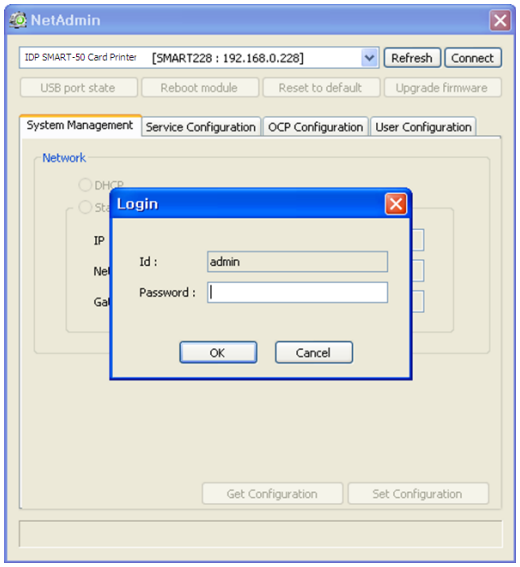


Figure 65 NetAdmin Log-in

“USB port state” shows USB device status connected on network module.

- Network module has 4 USB ports.
- Network module supports PC/SC. When you install the encoders that support PC/SC on network module, you can recognize the status of encoders.

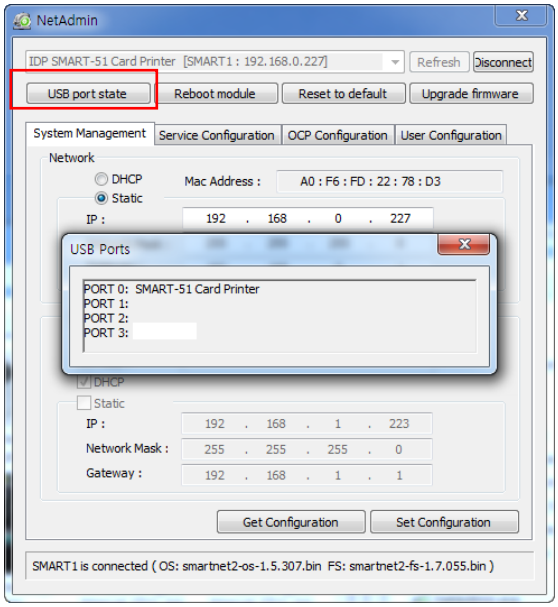


Figure 66 USB port state

“Reboot module” reboots network module.

- Please click “Yes” when pop-up window comes out for reboot.
- It takes 1 minute to reboot.
- Please click “Refresh” after reboot. When proper printer shown, please connect printer by clicking “Connect”.

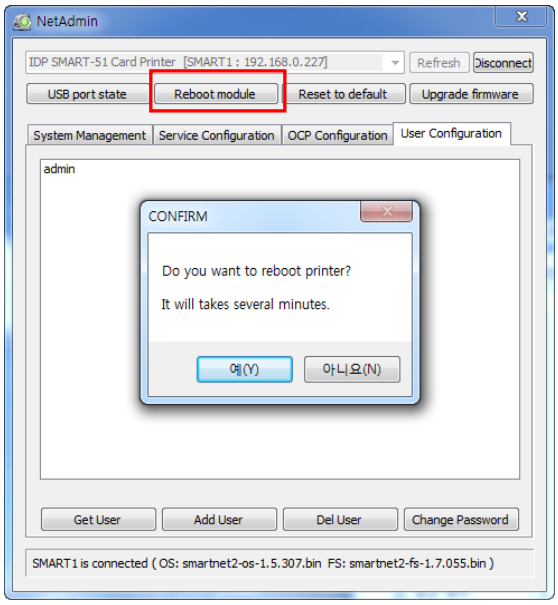


Figure 67 Rebooting the network module

“Reset to default” resets to default and reboot network module.

- Please click “Yes” when pop-up window comes out for reset.
- It takes 1 minute to reboot.
- Please click “Refresh” after reboot. When proper printer shown, please connect printer by clicking “Connect”.

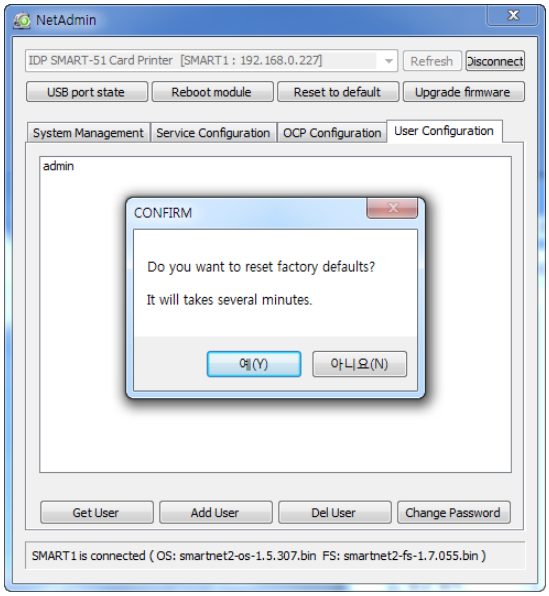


Figure 68 Reset to default

“Upgrade firmware” enables to upgrade firmware of network module.

- You can choose a firmware file.

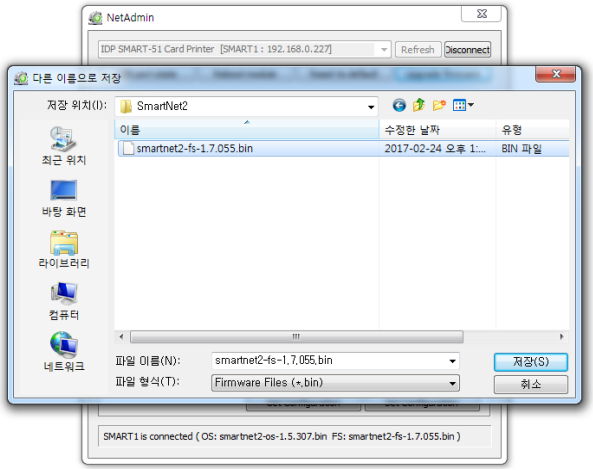


Figure 69 Upgrading the firmware 1

- Warning box will be shown during firmware upgrade for network module.
- It is recommended not to do other work during firmware upgrade for system reliability.
- Please do not turn off a printer until the upgrade is completed.

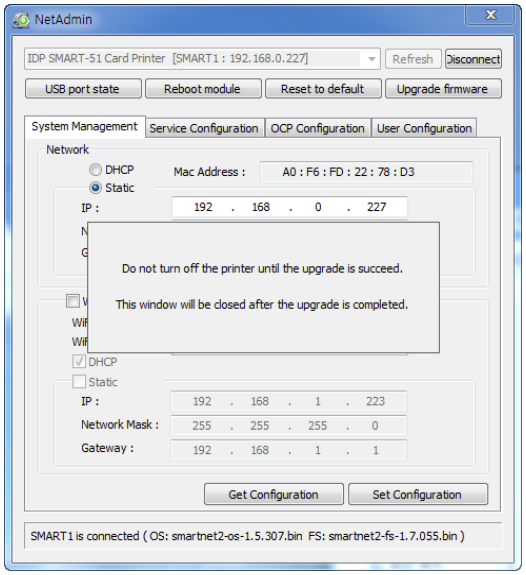


Figure 70 Upgrading the firmware 2

- When firmware upgrade is completed, pop-up comes out for reboot. Please click “Yes”.
- It takes 1 minute to reboot.
- Please click “Refresh” after reboot. When proper printer shown, please connect printer by clicking “Connect”.

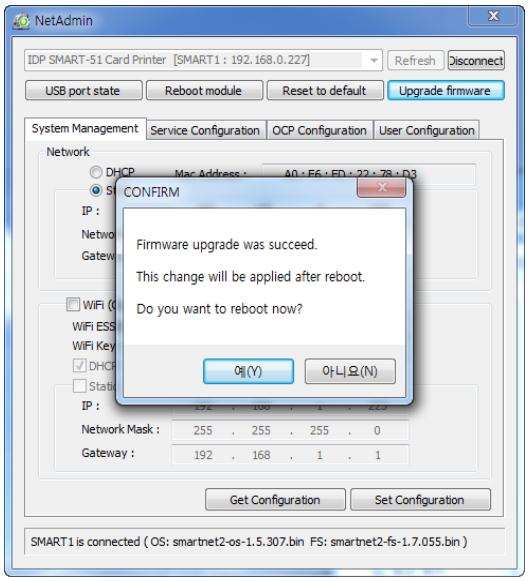


Figure 71 Upgrading the firmware 3

If you setup network automatically, please choose DHCP.

- Please select DHCP or Static.
- "**DHCP**" is default for SMART-31 printer.
- Please enter values for "IP", "Network Mask", and "Gateway". Click "Set Configuration".
- Static IP is recommended. DHCP server assigns IP address automatically but this IP address is temporary, so the IP address may be changed. In this case, the network error may occur in connecting to SMART-31 network printer.
- If you are not aware of static IP, please ask network administrator for Static IP.
- We recommend using Static IP because it is more stable for using SMART-31 network printer.

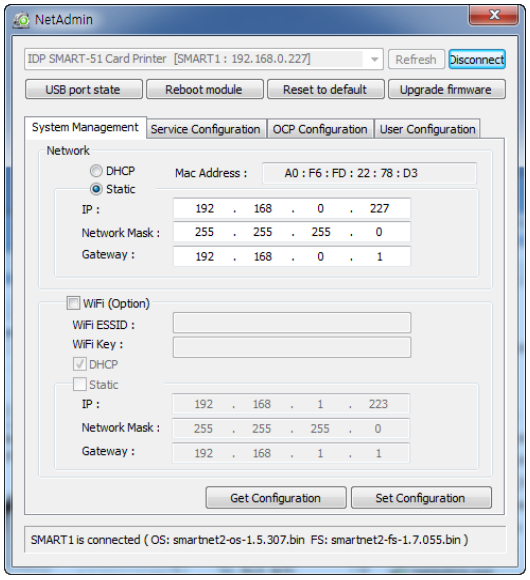


Figure 72 Dynamic IP configuration

Wireless Network Configuration

- For wireless network, the WIFI option should be installed in the Network Module
- Check "WiFi (Option)" button to activate it
- Enter the ESSID value in "WiFi ESSID" to access
- Enter the Key value in "WiFi Key"
- Set the IP address as the same way of LAN network
- Click "Set Configuration" to save the configuration value and reboot the printer

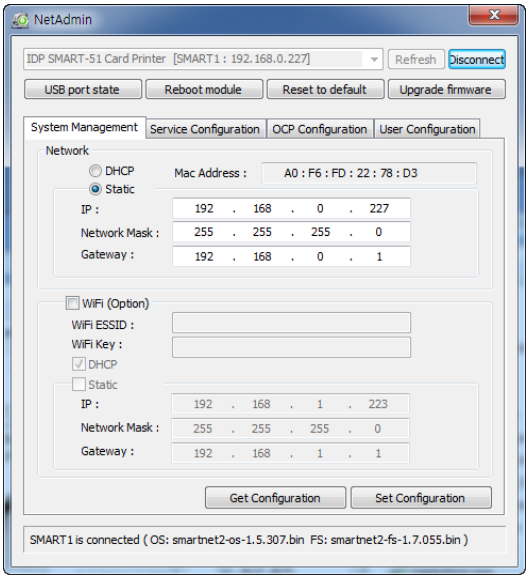


Figure 73 Static IP configuration

You can change Service Configuration.

- SMART-31 network printer provides 3 kinds of service (change “USB Spool”, “Network Spool” and “Network SDK”). You can select and change the service according to the need.
- In “Network SDK”, you can control the printer and print a card well, and the printer supports SSL (Secure Sockets Layer) and User Authentication for security.
- Please use default and ask technician for details.

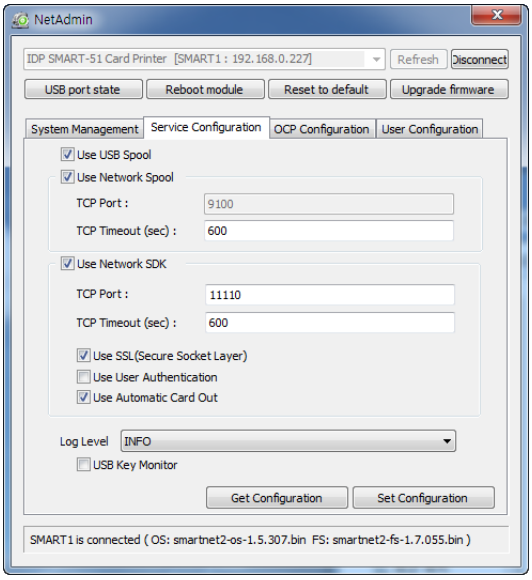


Figure 74 Network service configuration

You can use Open Card Print function.

- This function is for send commands and print through network card regardless of OS
- Click check box “Use OCP”
- “Use Terminal Emulation” is value for getting echo according to the commands through terminal. For security, it supports SSL and User Authentication.
- Please do not change default value except special case.

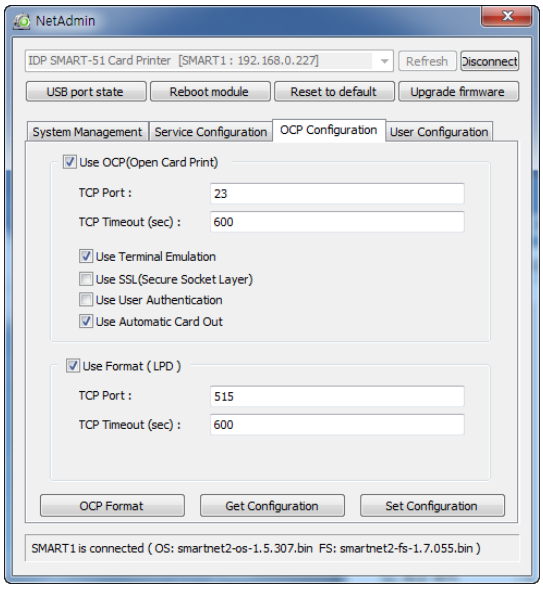


Figure 75 OCP configuration

You can add, change, delete User and change its password.

- “admin” is administrator and you can’t delete this account. Please don’t forget password for “admin”
- “Get User”: shows available users
- “Add User”: makes new user
- “Del User”: deletes selected user
- “Change Password”: changes password

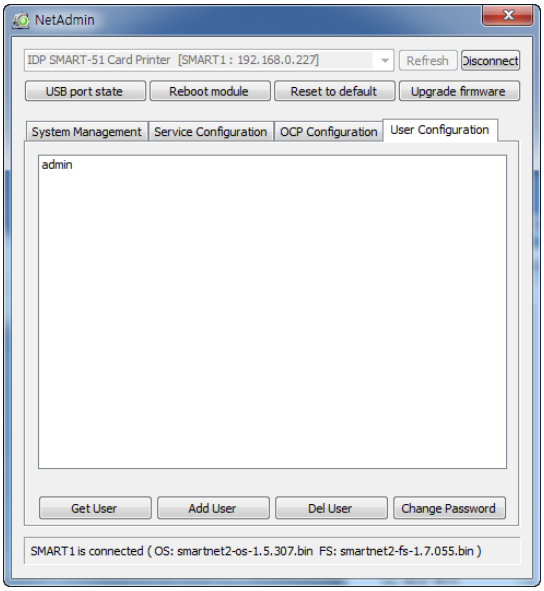


Figure 76 Network user configuration

4.3. Card Printer Test

Basically Card Printer use standard printer device so you can be used same as general paper printer. In the case of magnetic stripe, contact, contactless encoder option, you will need to install appropriate driver and operate individually. Encoding operation will be controlled by “CARD PRINTER SDK”. You can test all feature of printer by Card printer Test. Card Printer Test program is developed by using “SMART Printer SDK”

(1) CardPrinterTest

When CardPrinterTest is run, all function can be tested individually.

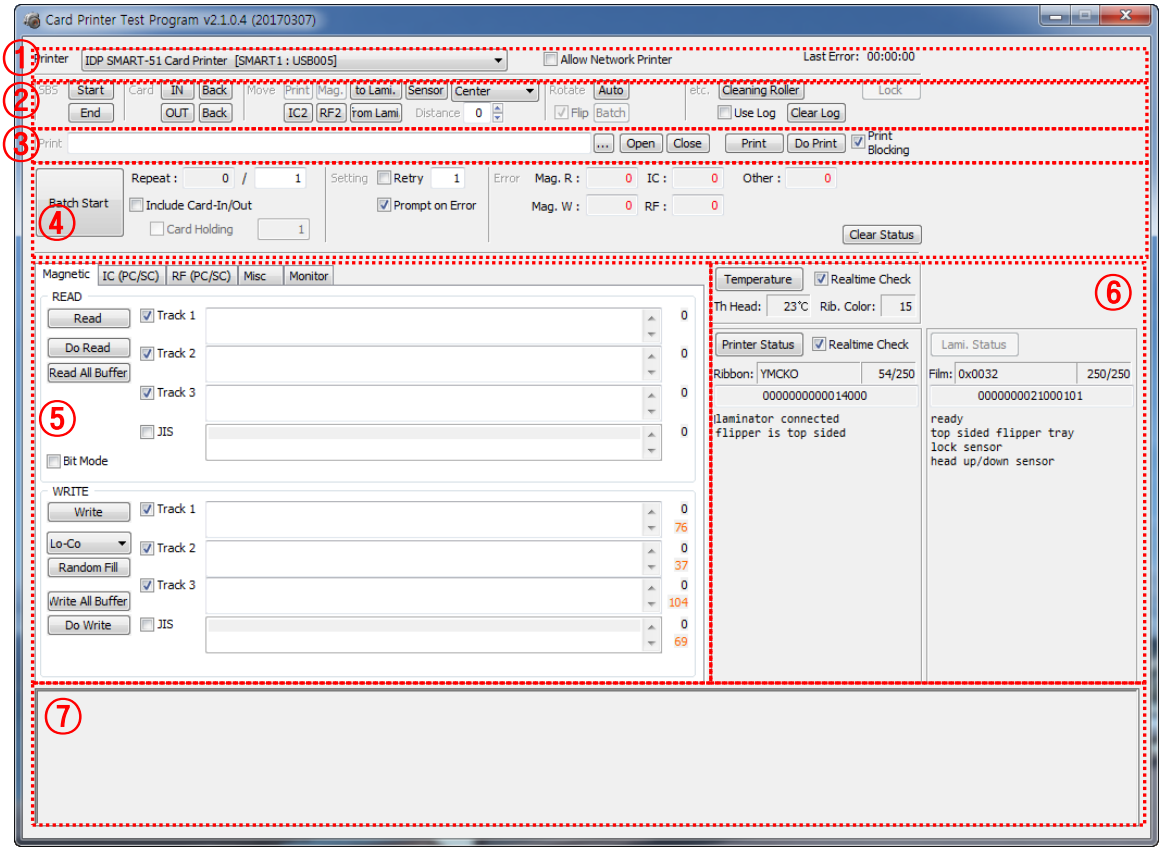


Figure 77 CardPrinterTest

① **Select Printer:** select printer to test. In the picture, “IDP SMART-31 Card Printer” is the Printer name, SMART1 is the Printer ID, and USB005 is the connected port.

② **Control :** To execute each step to test

③ **Print:** Print test with CSD file which is designed by Smart ID program.

④ **Batch Start:** Repeat selected encoding test by "⑤ Encoding"

⑤ **Encoding:** Encode Magnetic Stripe, Contact Card, Contactless Card

⑥ **Printer Status:** Check printer status.

⑦ **Message:** Description of status by log.

(2) Select printer and control

When you execute CardPrinterTest, it will search connected printers by USB and Network automatically and SMART-31 printer connected to USB has higher priority. Other printers could be selected by pull-down menu. You can test all function with connected printer.

. Control is consisted by SBS(Step by Step), Move, Rotate, Etc. section and you can control printer by each step.

- **SBS**

  SBS is to operate SMART-31 printer in SBS(Step-By-Step) mode which you can control the printer using commands. In SBS mode, after printing data transmission, printing a card will be run only by clicking "DoPrint". It is the main difference between NORMAL mode and SBS mode. When you click "Start", SMART-31 is operated in SBS mode, and existing spooled data will be eliminated. To exit SBS mode, click "Stop".

- **Card**

  Card is to bring a card into printer and eject a card. "In" is to move a card from input hopper to printer and "Out" is to move a card from printer to output hopper. In case the flipper is installed, "Back" ejects a card to the back side.

- **Move**

  Move is to move a card to specific position in the inside of printer. "Print" is to move a card to the printing position, and "Mag." is to the magnetic encoding position, and "IC" is to the contact smartcard encoding position, and "RF" is to the contactless smartcard encoding position. "To Rotator" is to move a card from printer to flipper and "From Rotator" is to move a card from flipper to printer. "from In" is to move a card from the card in sensor to

where you define position, and “from Out” is to move a card from the card out sensor to where you define position.

- **Rotate**

  Rotator is to flip over a card in the printer installed flipper. “Auto” is to move a card from printer to flipper and flip over a card and move a card to the printing position automatically. “Batch” is to repeat “Auto” as many times as the number of set. “To Bottom” is to turn to the backside of card and “To Top” is to turn to the front side of card.

- **Etc**

  “Cleaning Roller” is to clean the roller by cleaning card automatically. “Use Log” is to display log in message space.

(3) Print

Print can be done through the CSD file which is designed by Smart Design program. Following the steps in this section.

1. Click **“…”** button and select the CSD file.

2. Click **“Open”** button to prepare CSD file to print.

3. Click **“Print”** Button to move print data to spool. In the NORMAL mode, Click “Print” button to print a card, but in the SBS mode, “Print” button to transmit a printing data from PC to printer and wait for printing. Therefore, you must click “DoPrint” to print in SBS mode. This function is for detail control of printer.
4. Click **“Close”** button to close CSD file.

(4) Batch

Batch is to repeat encoding/decoding test continuously. In the Repeat, you input the number of repeat and click “Batch Start”, then the test is run as many times as the number of set. When you check **“Include Card In/Out”**, each time the printer bring a card from input hopper and perform an encoding test and eject the card. But if not, encoding test will be done only by one card. At that time, if there is no card in the printer, the printer bring a card into the printer from input hopper and repeat the encoding test on the card, and if there is a card in the printer, the encoding test is performed on the card repeatedly. **“Card Holding”** is activated when “Include Card In/Out” is ticked. When “Card Holding” is ticked and the repeat number is set, the printer repeats the encoding test as many times as the number of set in the “Card Holding” without ejection. When it is completed, the printer ejects the card and brings a new card into the printer and starts testing.

In the Setting, **“Retry”** is to retry the encoding test when the error occurred. **“Prompt on Error**” is to display Pop up Message when the error occurred. If not, Error number will be counted without message. The number of error is displayed at Error section**.**

(5) Encoding

Magnetic: Magnet Stripe Encoding

“Read” is to read and display the data from magnetic stripe card. It is composed of “Do Read” and “Read All Buffer” and runs “Do Read” and “Read All Buffer” sequentially.

“Do Read” is to read the data from magnetic stripe card and store the data in the buffer.

“Read All Buffer” is to transmit the date stored in the buffer to PC. If the track number is ticked, the data of the ticked track is only transmitted to PC.

“Write” is to write the data to the magnetic stripe. It is composed of “Write All Buffer” and “Do Write” and runs “Write All Buffer” and “Do Write” sequentially.

“Write All Buffer” is to transmit the data to the buffer.

“Do Write” is to write the data stored in the buffer to the magnetic stripe of card. You can choose the magnetic foil type (LoCo or HiCo) and the track of magnetic stripe. **“Random Fill”** is to create a random magnetic encoding data for testing.

Batch process repeats the following steps sequentially, **Card “IN” → Move “Mag” → Magnetic “Random Fill” → Magnetic “Write” → Magnetic “Read” → Card “OUT”**.

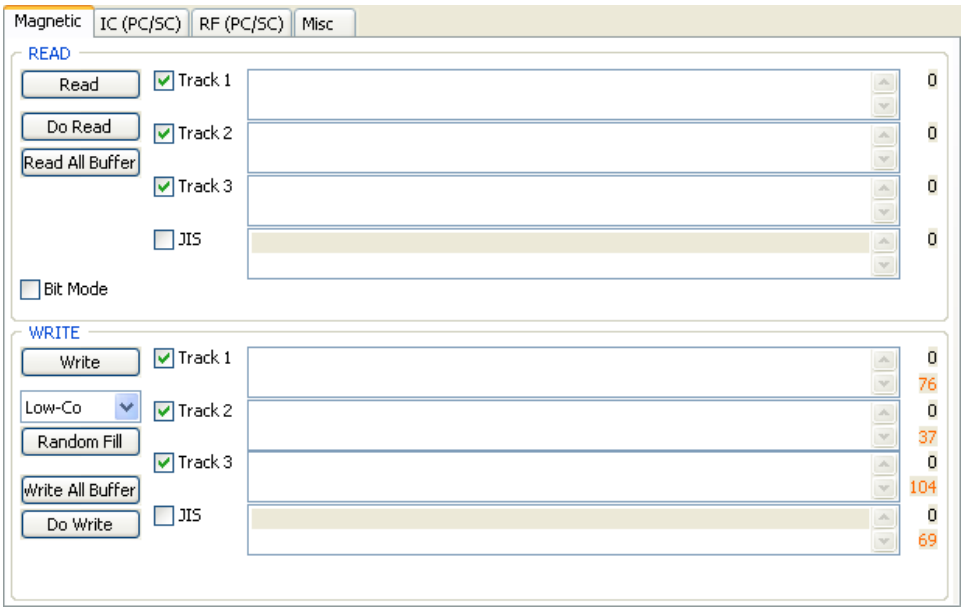


Figure 78 Magnetic stripe encoding

IC(PC/SC) : Contact Smartcard Encoding

In SMART-31 printer, a contact smartcard encoder can be installed and SMART-31 printer supports the contact smartcard encoder in the printer inside. “IC(PC/SC)” is to test a contact smartcard encoding.

“ICH Contact” is to bring the encoder head into contact with the IC chip of smartcard physically.

“ICH Discontact” is to separate the encoder head from the IC chip of smartcard physically**.**

“Init” is to recognize and display the installed contact smartcard reader**.** The recognized encoder will be displayed at the pull down control.

“Contact” is to contact with the smartcard electrically and initialize.

“Reset” is to finish the function electrically. After “Contact”, you can run “Get ATR”, “Read”, “Write” and “Clear”.

“Get ATR” is to read the ATR data.

“Read” and **“Write”** are to read and write the defined data (Name, Address and Phone). These could not be applied to all cards.

“Clear” is to clear the displayed data (ATR, Name, Address and Phone).

In case the data is read and written using APDU, Read/Write can be done by APDU commands.

“Load APDU” is to read the stored APDU commands.

“Save APDU” is to save the displayed APDU commands.

“Clear APDU” is to clear the APDU section.

“Send APDU” is to run the APDU commands.

Batch process repeats the following steps sequentially, **Card “IN” → Move “IC” → IC “ICH Contact” → IC “Init” → IC “Contact” → IC “Reset” → IC “ICH Dis-contact” → Card “OUT”.**

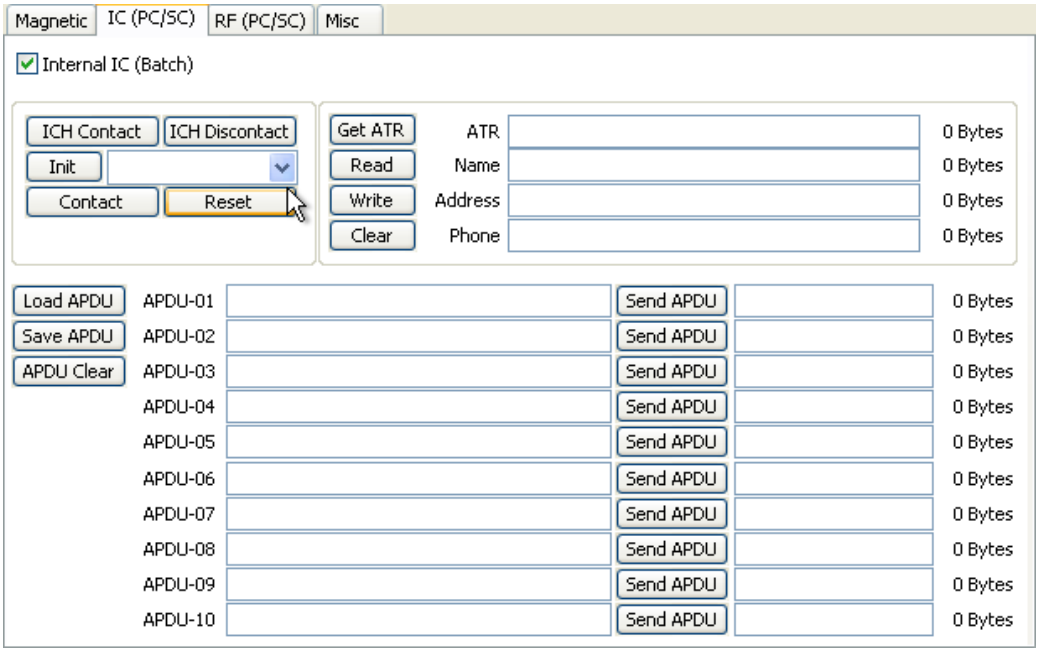


Figure 79 Contact smartcard encoding

RF(PC/SC) : Contactless Smartcard Encoding

In SMART-31 printer, a contactless smartcard encoder can be installed and SMART-31 printer has the internal and external contactless smartcard encoder. RF(PC/SC) is to read and write the contactless smartcard. Using internal encoder, the printer brings a card into the printer from input hopper and encodes a smartcard. Using external encoder, after putting a card on the top cover, you can encode because the antenna installed under the top cover is used. Therefore, “Batch” is applied only to the internal contactless smartcard encoding.

“Contact” is to contact with the contactless smartcard electrically and initialize.

“Reset” is to finish the function electrically. After “Contact”, you can run “Read”, “Write” and “Clear”.

“Get UID” is for getting Chip Serial Number(CSN)

“Read” and **“Write”** are to read and write the defined data (Name, Address and Phone). These could not be applied to all cards.

“Clear” is to clear the displayed data (ATR, Name, Address and Phone).

In case the data is read and written using APDU, Read/Write can be done by APDU commands.

“Load APDU” is to read the stored APDU commands.

“Save APDU” is to save the displayed APDU commands.

“Clear APDU” is to clear the APDU section.

“Send APDU” is to run the APDU commands.

Batch process repeats the following steps sequentially, **Card “IN” → Move “RF” → RF “Connect” → Get UID→ RF “Discontact” → Card “OUT”**

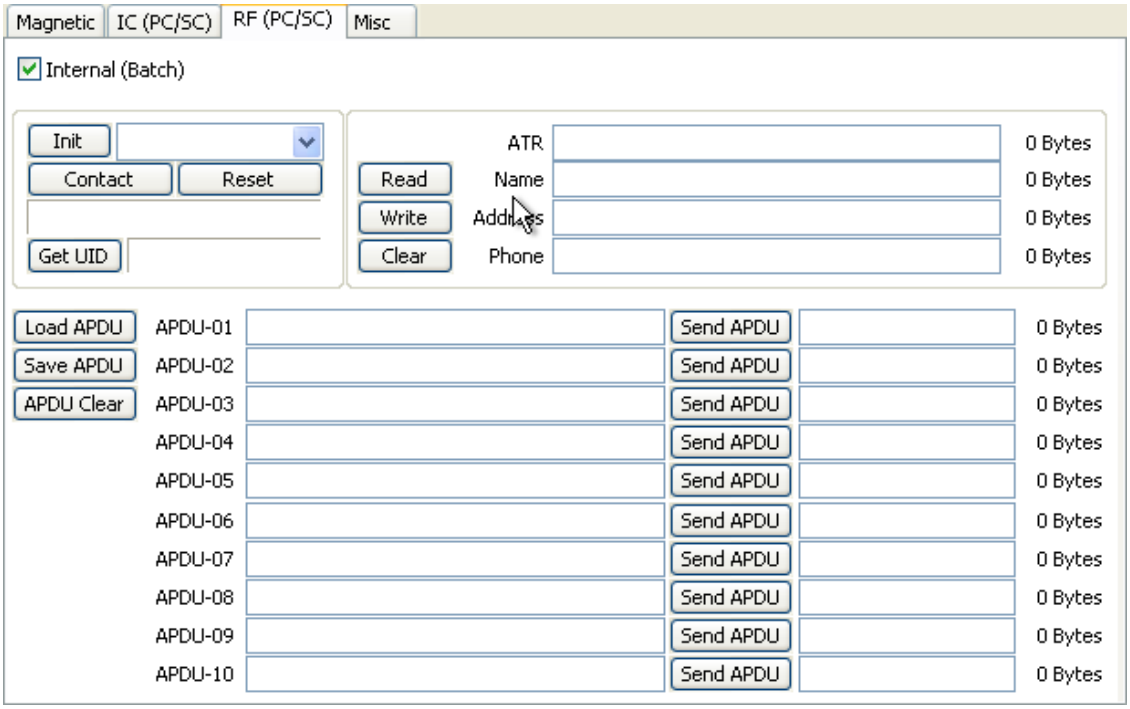


Figure 80 Contactless smartcard encoding

(6) Printer status

“Get Temperature” is to get and display the temperature of Thermal Print Head. When the “Realtime Check” is ticked, it displays the current temperature of Thermal Print Head in real time.

“Get Status” is to get and display the printer status.

Please refer to the ‘SMART SDK manual’ for the status code.

4.4. Firmware update

When you run the CardPrinterFirmware, you can see the pop-up window.

(1) CardPrinterFirmware Menu

Device: Select the local printer that you want to upgrade.

Card Printer / Flipper / Laminator: Select the device you want upgrade.

Device Version: Displays the current firmware version of selected printer.

Binary File: Click “Browse” button and select new firmware file to update.

Manual Update: It is used when you want to update manually.

Update: Updates automatically. In generally, we recommend updating automatically.

Close: Exit.

Color Sensor Calibration : To re-adjust the measured value of the color sensor.

Message : It displays information of updating.

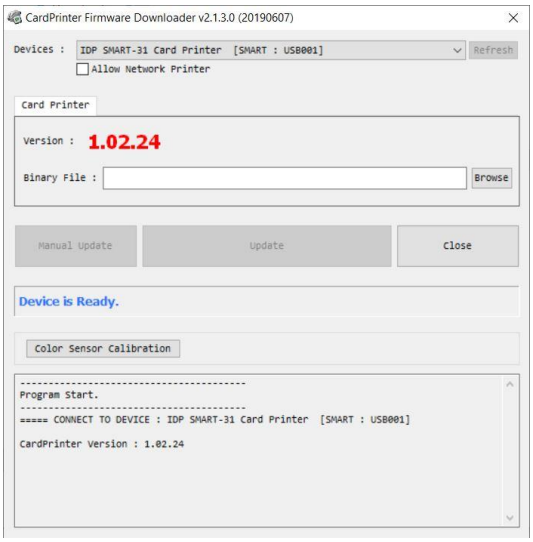


Figure 81 Run CardPrinterFirmware

(2) Ready for Firmware Update

- Select the printer to update the firmware on the ‘Device’ list.
- Select the device to update the firmware among Printer/Flipper/Laminator tab. The Flipper and Laminator tab is shown if that option is installed only.
- Click “Browse” and select the new firmware

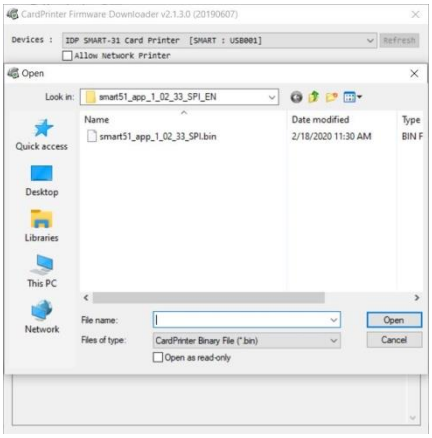


Figure 82 Select Firmware

(3) Firmware Update

- Click “Update” button to upgrade automatically, then the printer is upgraded after rebooting.
- In case there are some problems in the automatic upgrade, you click “Manual Update” and can see the pop-up widow as below picture. It shows procedure of manual upgrade. You can upgrade manually according to this procedure.

(Caution: Please do not close upgrade dialog box until it is completed successfully and do not turn off the printer.)



Figure 83 Update Firmware

5. Optional device driver installation

In SMART-31 printer, you can install the optional devices that encode contact smartcard or contactless smartcard. If your purchased SMART-31 printer has optional devices, you should also install the smart card reader drivers.

5.1. Contact smartcard reader

In SMART-31 printer, you can install the two types of optional devices which are contact smartcard reader. If you have one or more smartcard reader devices on your printer, you should install the smartcard device driver as in the following, and connect SMART-31 printer to your PC.

(1) Run the smartcard driver installer

Insert the smartcard installation CD and find “\Options\Gemalto PC Twin” directory on your CD. Find the right directory which is installed OS version on your PC, and run the installer. You can see the smartcard reader driver installation window as the Pic.125. And click “Next”.



Figure 84 Contact smartcard reader driver installation

(2) License agreement

The license agreement window is shown. Check at the agreement and click “Next”.

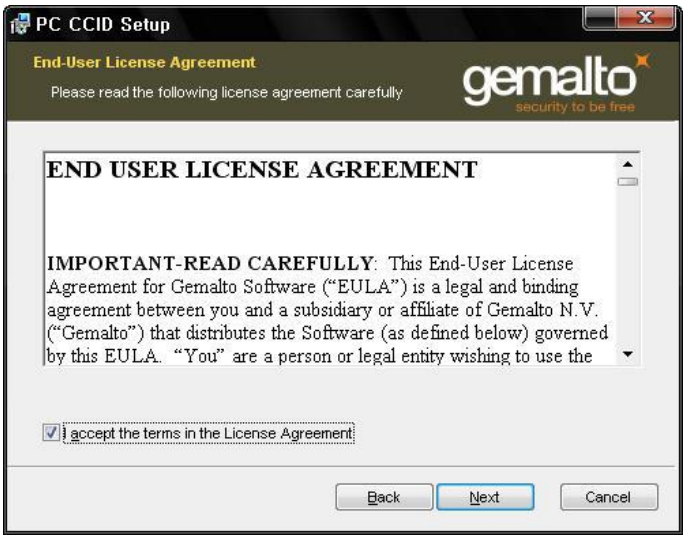


Figure 85 License agreement

(3) Installation

The installation message is shown as the picture. Click “Install” to install driver.



Figure 86 Installing the contact smartcard reader driver

(4) Complete installation

When the installation is completed, the window is shown. Click the “Finish” to complete the installation steps.



Figure 87 Completing the smartcard reader driver installation

5.2. Contactless smartcard reader

In SMART-31 printer, you can install the two types of smartcard reader which are internal contactless smartcard reader and external contactless smartcard reader. If you have one or more contactless smartcard reader devices on your printer, you should install the contactless smartcard device driver as in the following, and connect SMART-31 printer to your PC.

(1) Connect SMART-31 printer to PC

When you connect the printer to PC and turn on the printer, you can see the “Found New Hardware Wizard” as the picture, then Check “No, not that time” and Click “Next” to continue.



Figure 88 Found New Hardware Wizard

(2) Choose the installation method

At the window as the picture, select “Install from a list or specific location” and click “Next”.

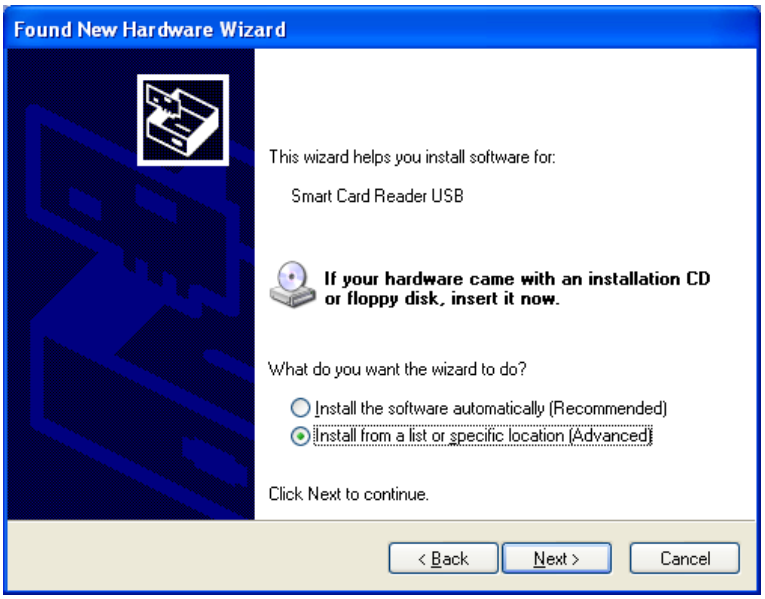


Figure 89 Installation method selection

(3) Driver location

Insert the smartcard installation CD and find “\Options\ Omnikey 5121” directory on your CD. Find the right directory which is installed OS version on your PC, and select the directory as the picture, and click “Next”.

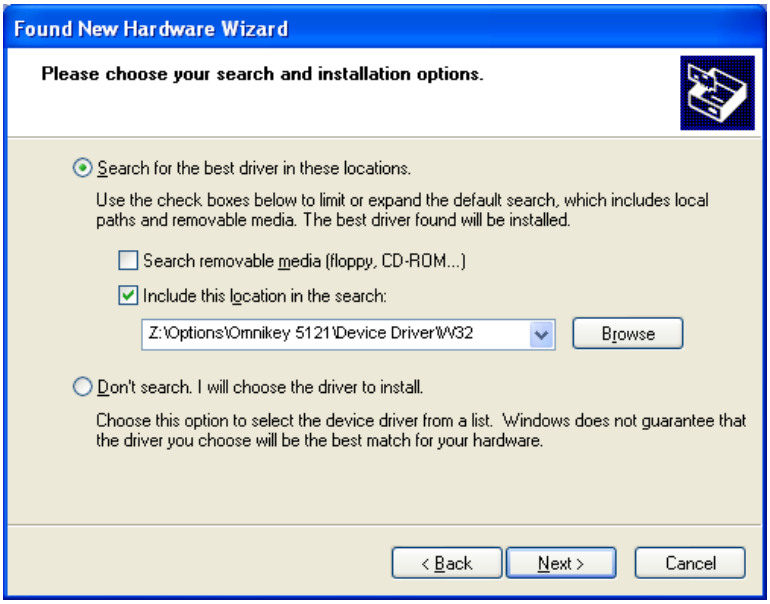


Figure 90 Driver location

(4) Complete installation

When the installation is completed, the window as the Pic121 is shown, click “Finish” to complete the installation steps.

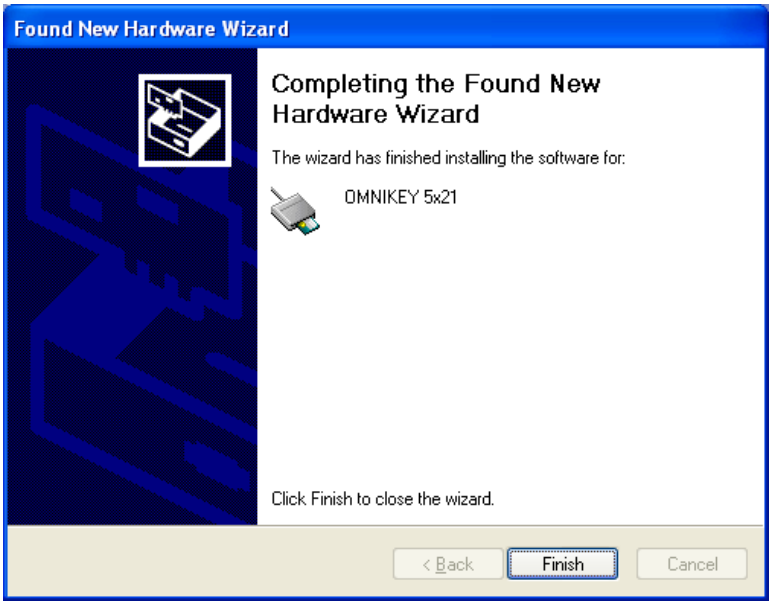


Figure 91 Completing the driver installation

6. Troubleshooting

6.1. Error Message

SMART-31 printer shows the error message in the LCD display when it occurs. Click the Left button to retry or the right button to cancel an operation.

The following shows the error message on your Smart Printer. For checking a status of printer, please use a CardPrinterTest or CardPrinterDiagnostics in the Utilities folder of Install CD.

No	LCD Message	Description and Countermeasures
1	Card In Error	Fail to move a card from the hopper to the printer inside. -. Check the card thickness and adjust the card thickness control lever -. Check cards are stuck because of static electricity -. Clean Hopper roller and cleaning roller
2	CardMove Int Err	Fail to move a card in the printer. -. Remove a card if the ribbon is attached -. Check the rollers and cards, and clean them if they are polluted -. Check the operating state of the card feeding rollers and sensors
3	CardMove Ext Err	Fail to move a card between printer and other module(flipper/laminator) -. Check the rollers and cards, and clean them if they are polluted -. Check the operating state of the card feeding rollers and sensors
4	Card Out Error	Fail to discharge a card after printing, encoding or laminating. -. Remove a card if the ribbon is attached -. Check the rollers and cards, and clean them if they are polluted -. Check the operating state of the card feeding rollers and sensors
5	TPH UpDown Error	The Head Up/Down Motor or Sensor don't work correctly in printing or booting up -. Check the operating state of the Head Up/Down Motor and Sensor. -. Check the status of the mirror sticker in the Head Up/Down Gear.
6	IC UpDown Error	The IC Head Up/Down Motor or Sensor don't work correctly in printing, encoding or booting up.

		-. Check the state of the Cable between a module and a main board -. Check the operating state of the IC Motor
7	Ribbon Seek Err	The printer can't search the ribbon panel in printing or booting up -. Check the operating state of the Ribbon Motor -. Check the operating state of the ribbon encoder sensor and gears -. Check and clean the Color In/Out Sensor -. Check the operating state of the color in/out Sensor
8	Ribbon Move Err	The printer can't wind the ribbon in printing or booting up. -. Check the operating state of the Ribbon Motor -. Check the operating state of the ribbon encoder sensor and gears
9	MAG R/W Error	Fail to read or write the magnetic stripe. -. Check the surface and direction of magnetic card -. Check the coercivity of magnetic card and encoding configuration -. Check the rollers, encoder and cards, and clean them if they are polluted
10	MAG T1 Error	Fail to read a track 1 of the magnetic stripe. -. Check the surface and direction of magnetic card -. Check the coercivity of magnetic card and encoding configuration -. Check the rollers, encoder and cards, and clean them if they are polluted
11	MAG T2 Error	Fail to read a track 2 of the magnetic stripe. -. Check the surface and direction of magnetic card -. Check the coercivity of magnetic card and encoding configuration -. Check the rollers, encoder and cards, and clean them if they are polluted
12	MAG T3 Error	Fail to read a track 3 of the magnetic stripe. -. Check the surface and direction of magnetic card -. Check the coercivity of magnetic card and encoding configuration -. Check the rollers, encoder and cards, and clean them if they are polluted
13	Printing Error	Error occurs while printing -. Check a card is jammed -. Check usage of a genuine ribbon and cards

		-. Check the rollers, encoders and cards, and clean them if they are polluted
14	Init Error	Error occurs while initializing -. Check the status of installation of ribbon and laminating film -. Check the laminator turning on if the laminator is installed
15	DeviceCon Error	Fail to communicate between a printer and a flipper/laminator -. Check the laminator turning on if the laminator is installed -. Check a cable between a printer and a flipper/laminator
16	Lami Error	Error occurs while laminating -. Remove a card after opening a laminator top cover -. Check usage of a genuine laminating film and cards
17	Flipper Error	Error occurs while operating a flipper -. Remove a card after opening a flipper cover -. Check the card size
18	Ribbon Zero	All ribbons are used -. Install the new ribbon after purchasing it in the place of purchase
19	RibbonNotFound	Ribbon is not installed or not searched -. Install a ribbon if not -. Check usage of a genuine ribbon
20	TPH Not Found	Thermal Print Head is not installed or not recognized -. Check the print head installation -. Contact the place of purchase
21	TPH Over Heat	Thermal Print Head is overheated -. Lower the temperature when the temperature of circumstance is too high -. Take a stop for 10 minutes and print again. -. Contact the place of purchase if this message is shown regularly
22	Invalid Data	Error occurs when the abnormal printing data is transmitted. -. Replace the USB cable USB -. Change the USB port in the PC -. Reinstall the printer driver

23	Wrong Password	The password is not correct -. Input the correct password -. Contact the place of purchase if you forget the password
24	SetCommandFail	Failed to execute a command of the printer -. Replace the USB cable USB -. Change the USB port in the PC -. Turn off/on the printer
25	Spool Full	The printing data is full in the spooler -. This message disappear after printing all data to send -. Turn off/on the printer if the spool data is full without printing

6.2. Cleaning the printer

To maintain the best condition of SMART-31 printer, you must clean the printer periodically. If you use the exclusive long cleaning card as the picture, you can clean the printer easily. For purchase the exclusive long cleaning card, ask to SMART-31 printer provider.



Figure 92 Exclusive long cleaning card for SMART-31 printer

If the exclusive long cleaning card is ready, click the “Clean Printer” in the service tab of SMART-31 printer driver. After click, Clean Printer program to clean the printer is run.

Or, you can set the Cleaning Mode with LCD buttons by pushing both buttons for 5 seconds after opening the top cover.

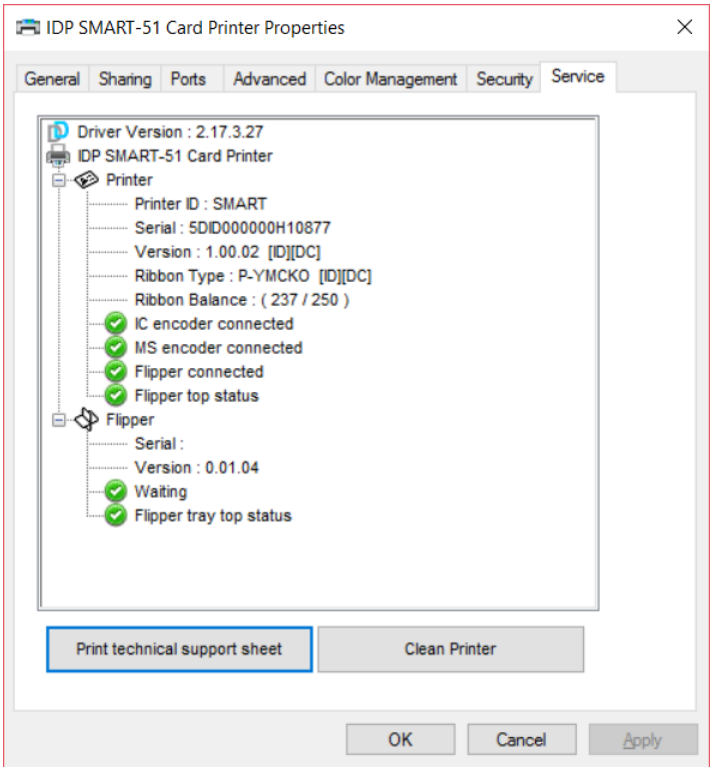


Figure 93 Printer cleaning start

Step 1. Connect the SMART-31 printer to PC and turn it on, and prepare the exclusive long cleaning card.

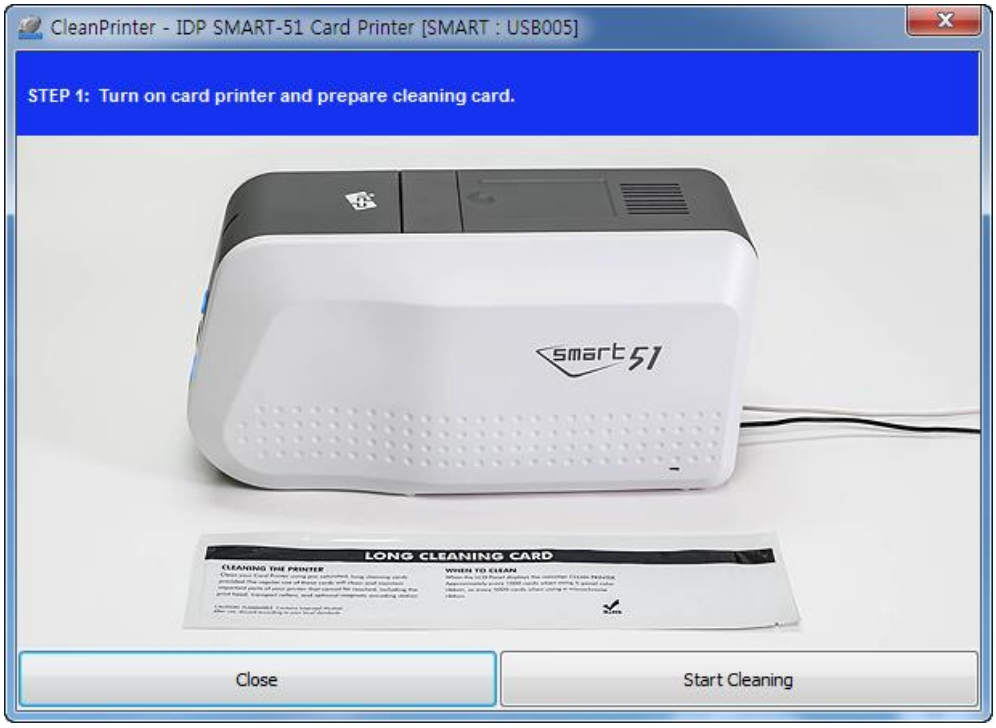


Figure 94 Printer cleaning Step 1

Step 2. Open the hopper and top cover and remove the card and ribbon cartridge.



Figure 95 Printer cleaning Step 2

Step 3. Insert the exclusive long cleaning card into the printer through input hopper. When the exclusive long cleaning card is inserted to the cleaning roller, it will be move automatically. It is normal that the exclusive long cleaning card is inserted to the ends and rollers are moving to clean.



Figure 96 Printer cleaning Step 3

Step 4. Close the top cover to clean the Thermal Print Head and the printing roller. When the top cover is closed, cleaning card will be moving back and forth to clean.



Figure 97 Printer cleaning Step 4

Step 5. Wait until the cleaning is completed. When the cleaning is completed, the exclusive long cleaning card will be ejected automatically as the picture.



Figure 98 Printer cleaning Step 5

Step 6. Remove the exclusive long cleaning card and install ribbon cartridge into the printer.

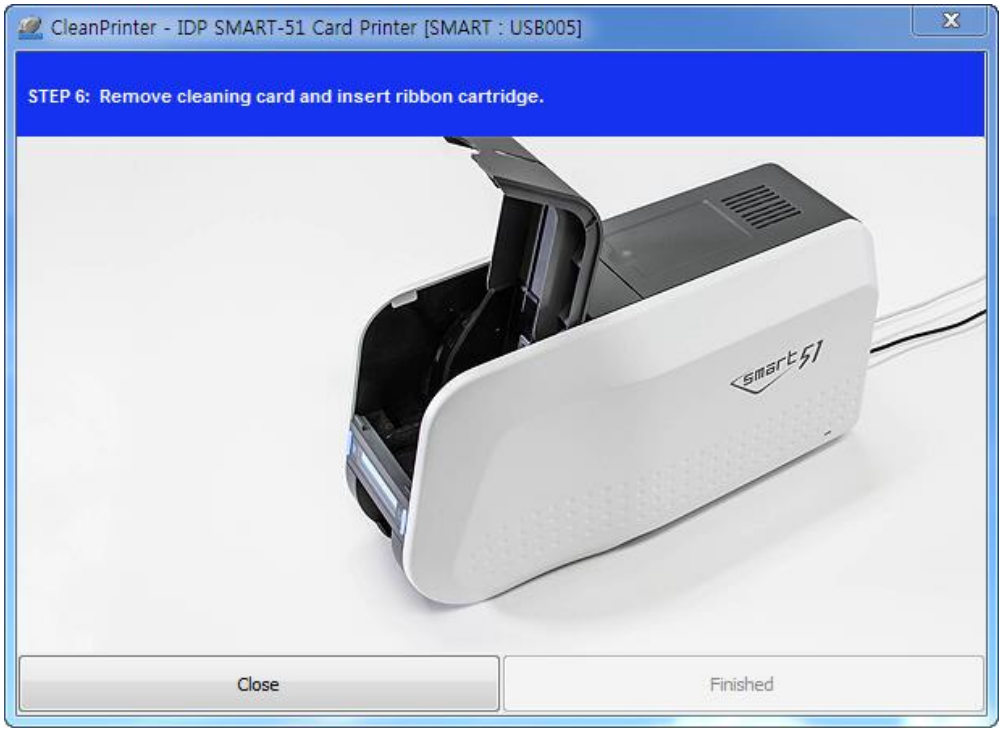


Figure 99 Printer cleaning Step 6

6.3 TPH (Thermal Print Head) replacement

1. Check the serial number and the resistance of new Thermal Print Head as the Picture.

TPH type: A = KEE, B = KPE

Serial No.: see the red box.

TPH resistance: see the green box.

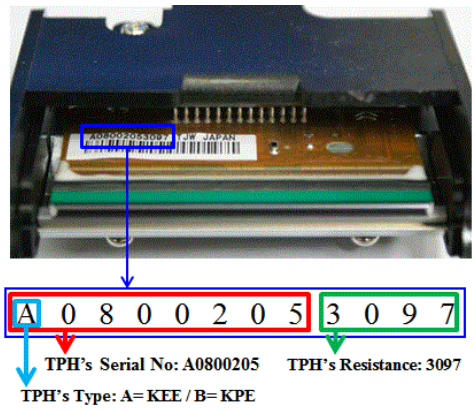


Figure 100 Thermal Print Head

2. Set up the new Print Head's configuration using CardPrinterConfig program.

Step1: Run 'CardPrinterConfig' in Utilities of the installation CD and click expansion button.

Step2: Click "Change Head" in the extended setup.

Step3: Input the Print Head's Serial No., Resistance and Type (choose KEE or KPE) on the Print Head's label, and click "OK".

Step4: Click "Set Config" to set the new Print Head's configuration.

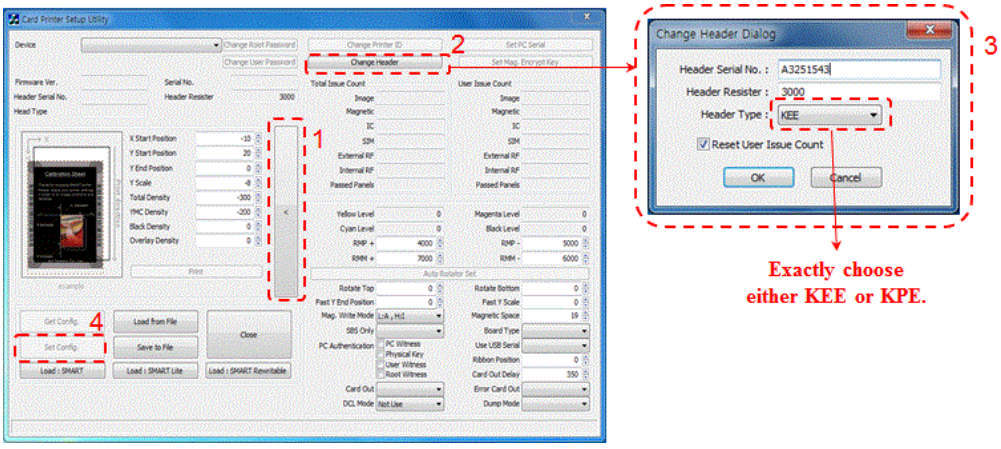


Figure 101 Print head setup

4. Replacing the new Print Head

Step1: Remove the old Print Head from the top cover.

(1) Turn off the printer and open the top cover.

(2) Hold the Print Head and press the locked hook, then the Print Head is disconnected..

(3) Disconnect the Print Head from print head wire carefully.

(Caution: Print Head is possible to HOT.)

Step2: Installing the new Print Head

(1) Connect new Print Head to the print head wire.

(2). Put the new Print Head on the Shift and pull it up until be locked..

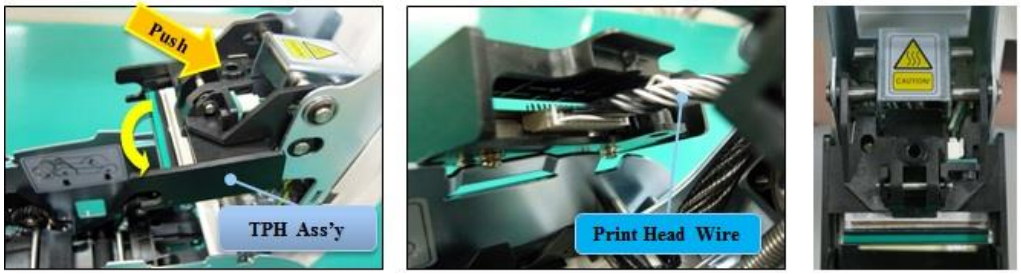


Figure 102 Print head replacement

5. Setup the print position and the color density.

After installing the new Print Head, you must reset the print position and the color density using CardPrinterConfig utility. Refer to “4.1.2 Default setting”

6. Calibration of Print Head Angle

To get the best print quality, the Print Head should be located vertically with card surface.

If print quality has the problem, it could be caused by print head angle.

Through Adjusting print head angle by screw (red mark in the right picture), you could make good quality of print.

(Use the appropriate screw driver to adjust, and turn the screw by 90

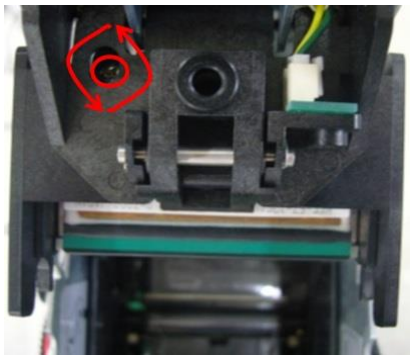


Figure 103 Print head angle

degrees at a time.)

6.4. Card movement

6.4.1. Cards can’t enter into the printer from input hopper.

- **Non-standard cards or bad cards.**
  Change the cards. You can use only ISO CR-80 card (54mm x 86mm).
- **Card thickness control lever is set improperly.**
  Regulate the card thickness control lever to fit the current card thickness.
- **Bad card array.**
  Array the cards again and put them on input hopper as section 2.4 in this manual.
- **Cards have static and moisture.**
  Remove the moisture or static**.**

6.4.2. Card Transfer Error occurs when the ribbon is coiled around the transfer roller or the printing roller.

Open the top cover and remove the card and the coiled ribbon from SMART-31 printer using front LED buttons. If this problem occurred frequently, check the below things.

- **Non-standard cards or bad cards.**
  Change the cards. You can use only ISO CR-80 card (54mm x 86mm).
- **The transfer roller or the printing roller is contaminated with the dust and dirt**

  Remove the dust and dirt with the cleaning kit as section 6.2
- **Wrong printing position setting.**
  Please contact the local supplier
- **When operating temperature and humidity is out of the acceptable operating limit of the printer.**
  Adjust the operating environment of the printer.

6.4.3. An Error occurs while the card is being transferred.

First of all, check the Error message at LCD display.

Open the top cover and remove the card by LED buttons.

If this problem occurs frequently, check the followings.

- **Non-standard cards or bad cards.**
  Change the cards. You can use only ISO CR-80 card (54mm x 86mm).
- **Printer setting is changed or is not proper.**
  Please contact the local supplier.
- **The transfer roller or the printing roller is contaminated with the dust and dirt.**

  Remove the dust and dirt with the cleaning kit as section 6.1.
- **The card surface is contaminated with the dust and dirt.**

  Check the card surface and remove the dust and dirt and try again. If this problem occurs again, retry with new card.

6.5. Printing quality

6.5.1. Not printed or wrong colors printed spot.

- **The card surface is contaminated with the dust and dirt.**
  After checking the card, change it to another card**.**
- **The cleaning roller is contaminated with the dust and dirt.**
  Check the cleaning roller. If there is much dust, change the cleaning roller to the new one.
- **Much dust in the printer.**
  Clean the inside of the printer with the cleaning kit.

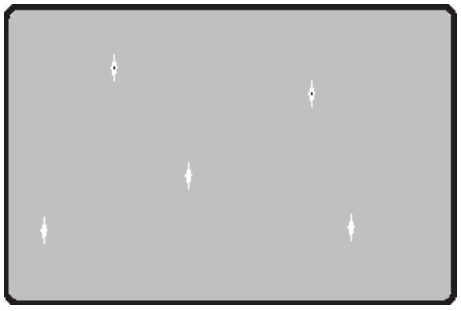


Figure 104 Printing quality trouble 1

6.5.2. Not printed horizontal line.

- **The ribbon cartridge is installed improperly.**
  Check the ribbon cartridge installation state and whether the ribbon has wrinkles.
- **The printer head is contaminated with the dust and dirt.**



Figure 105 Printing quality trouble 2

Clean the printer head with cleaning kit.

- **The printer head is damaged.**
  Please contact the local supplier to replace the printer head.

6.5.3. Unclear or not uniform print.

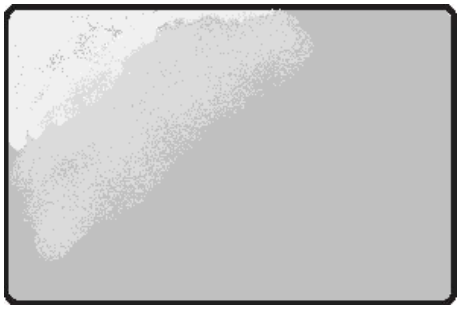


Figure 106 Printing quality trouble 3

- **Uneven or bad card surface.**
  Change the card.
- **Too high or low setting of the color density.**
  Please contact the local supplier. The color density default of your printer needs to be changed.
- **The printer head is contaminated with the dust and dirt.**
  Clean the printer head with cleaning kit.

6.5.4. Not aligned color print.

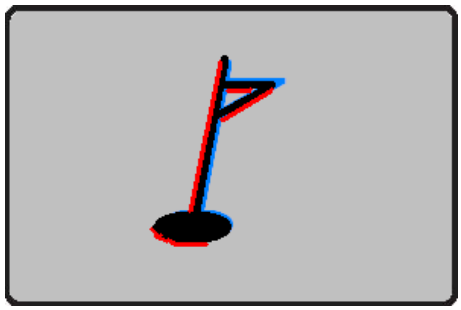


Figure 107 Printing quality trouble 4

- **Non-standard cards or bad cards.**
  Change the cards. You can use only ISO CR-80 card (54mm x 86mm).
- **Uneven or bad card surface.**
  Change the card.
- **The transfer roller or printing roller is contaminated with the dust and dirt.**

  Clean the rollers with the cleaning kit as section 6.1.
- **Worn-out printer.**
  Please contact the local supplier.

6.5.5. Unplanned color print.



- **Non-standard cards or bad cards.**
  Change the cards. You can use only ISO CR-80 card (54mm x 86mm).

- **Uneven or bad card surface.**
  Change the card.
- **The transfer roller or printing roller is contaminated with the dust and dirt.**

  Clean the rollers with the cleaning kit as section 6.1.

Figure 108 Printing quality trouble 5

- **Worn-out printer.**
  Please contact the local supplier.

6.6. Magnetic stripe encoding

6.6.1. Magnetic encoding error.

- **The magnetic head is contaminated with the dust and dirt.**

  Clean the magnetic head with the cleaning kit.
- **The magnetic encoding data is not transmitted or the wrong data is transmitted.**
  Check the setting of the program and the driver and the magnetic encoding data you transmitted.
- **The card is not magnetic card, or inserting direction is wrong.**
  Change the card or the direction.
- **Bad magnetic stripes on the card.**
  Change the card.

6.7. General operation

6.7.1. Ribbon snapped during printing.

Open the top cover and take out the cartridge. After putting the snapped pieces on together, install the cartridge again. Check the followings if this kind of problem occur frequently**.**

- **Non-standard cards or bad cards.**
  Change the cards. You can use only ISO CR-80 card (54mm x 86mm).
- **Too high or low setting of the color density.**
  Please contact the local supplier. The color density default of your printer needs to be changed.

6.7.2. Watchman Message “Ribbon Not Found”

Open the Top Cover and check the status of ribbon installation. If it occurs frequently, check the followings.

- **Not genuine ribbon.**
  Change to the genuine ribbon.
- **Ribbon is consumed.**
  Printing is not possible if ribbon is used up. Change the ribbon.
- **Snapped ribbon.**
  Open the top cover and take out the cartridge. After putting the snapped pieces on together, install the cartridge again.

6.7.3. Printer doesn’t operate even if the printing data has been transmitted. Check the following.

- **Printer power off.**
  Check the power. Turn on the printer power.
  Check the printer adaptor whether it is connected with a socket and the printer.
- **Bad power adaptor.**

  Please contact the local supplier for replacement of the adaptor.
- **The printer driver is “Offline”.**

  Change the printer driver to “Online”.
- **The printer’s USB cable is disconnected or the connection is bad.**
  Check the cable’s connection between PC and the printer.
  If not good, make the USB cable connection again.
- **Bad USB cable.**
  Change the USB cable.
- **The printing is operated with another printer driver.**
  Select the correct SMART-31 printer driver again.
- **Wrong USB port setting of the printer driver.**
  Check the port setting of the printer driver and change the port setting.
- **No ribbon in the printer or error occurred.**
  Install ribbon in the printer or resolve the error.
- **Too long power or USB cable (more than 1.5M).**
  Use the cable provided with the printer.
- **PC’s USB port is down:**

  Reboot your PC.

7. Specification

Model		SMART-31S	SMART-31D	SMART-31R
Printing	Print Type	Dye-Sublimation		Thermal Transfer
	Print Area	Edge to Edge		
	Resolution	300dpi		
	Dual Side Printing	Option (with Flipper)	Yes	No
Card	Card Feeding	Automatic		
	Card Size	ISO CR80		
	Card Thickness	0.38mm (15mil), 1.0mm (40mil)		
	Card Type	PVC, PET, Composite PVC		Rewritable Thermochromics Material
Printing Speed	Monochrome	5 sec./card (720 cards/hour)		Max. 12 sec./card (300 cards/hour)
	YMCKO	Max. 23 sec./card (156 cards/hour)		–
	YMCKOK	–	Max. 29 sec./card (124 cards/hour)	–
Capacity	Input Hopper	80 Cards		
	Output Hopper	25 Cards		
System	Memory	64MB RAM		
	Control Panel	1 LED Button		
	Supported Platforms	MS Windows 7/ 8/ 10, Mac OS, Linux		
	Communication	USB, Ethernet (Option)		
	Power Supply	Free Voltage (AC 100/220V, 50~60Hz)		
	Power Consumption	48		
	Temp. / Humidity	15~35℃ / 35~70%		
Dimensions	Millimeter (WxLxH)	172 x 377 x 190	172x 472 x 190	172 x 377 x 190
	Inch (WxLxH)	6.8 x 14.8 x 7.5	6.8 x 18.6 x 7.5	6.8 x 14.8 x 7.5
Weight	Kg / Lbs	3.4 / 7.5	4.2 / 9.5	3.4 / 7.5
Encoding Options	Magnetic	ISO 7811 (Track I, II, III Read/ Write, HiCo/ LoCo), JIS II		
	Contact	ISO 7816 (ID-1)		
	Contactless	MIFARE, ISO 14443 (Type A/ B), ISO 15693, DESFIRE, iCLASS		
Certifications		CB, CE, FCC, KC, CCC		

Specifications and availability may change without notice.

- **RFID(13.56MHz) Usage**

  The RFID Tag is used for the security and the recognition of the ribbon. To get the optimized printing quality on the printed card, the genuine ribbon of IDP should be used to print cards by using SMART printer. SMART printer can recognize the genuine ribbon by reading the encoded information on the RFID Tag of the ribbons. To support user's various requirements for printing cards appropriately, many kinds of ribbons should be provided and SMART printer should distinguish the type of installed ribbon. To distinguish the installed ribbon type correctly, SMART printer reads the encoded information on the RFID Tag of the ribbons. According to the installed ribbon type and the ribbon supplier, the printer driver of SMART printer can select the color profile and create the printing data.

FCC Information

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

FCC notification to users

This equipment has been tested and found to comply with the limits for a CLASS B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference, the user is encouraged to try to correct the interference by consulting with a dealer or an experienced technician for technical assistance.

Any changes or modifications to the equipment not expressly approved by the party responsible for compliance could void user's authority to operate the equipment.