# R&D SOFTWARE TECHNOTE

GWI CLithographPrinter interface for Evolis printers documentation

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# OVERVIEW

The current package is an implementation of the GWI's CLithographPrinter interface for Evolis printers. Supported platforms (with same code base) are :

- Windows
- Linux
- UOS
- Kylin
- Android

You will find below details on supported features and Android support of the present delivery.

# FEATURES

The present delivery doesn't support the following methods :

- Print_IcPowerOn()
- Print_IcPowerOff()
- Print_IcExchange()
- Print_IcPowerOn()
- Print_Dispense()

## Print_Open()

You can find below the details to connect to Evolis printers on each supported platforms.

### Windows

Evolis printers :

- pPort: "IP", pPortParam: The IP address to connect to (ex: "192.168.0.10").

Avansia printers :

- pPort: "IP", pPortParam: The IP address to connect to (ex: "192.168.0.10").
- pPort: "NISCA", pPortParam: The name of the printer (ex: "Evolis Avansia"). This requires to have the Avansia driver installed.

### Android

Evolis and Avansia printers :

- pPort: "IP", pPortParam: The IP address to connect to (ex: "192.168.0.10").
- pPort: "USB"(It is gonna select the first device that the system will see).

### Linux/UOS/Kylin

Evolis and Avansia printers :

- pPort: "IP", pPortParam: The IP address to connect to (ex: "192.168.0.10").
- pPort: "USB", pPortParam: The path to the USB device (ex: "/dev/usb/lp0").

## Print_GetVersion()

The format of the version that we return is : "Evolis_<MODEL>_<FIRMWARE-VERSION>".

## Mag encoding

For the time being, the library doesn't support detecting if the card has magnetic stripes or not. However, reading and writing to a magnetic card is supported.

Encoding format for each tracks is :

- Track 1: EVOLIS_MF_ISO1 (standard format for track 1)
- Track 2: EVOLIS_MF_ISO2 (standard format for track 2)
- Track 3: EVOLIS_MF_ISO3 (standard format for track 3)

The coercivity can be either auto, loco or hico.

The trackId argument is ignored as we read/write all tracks at a time.

/!\ Magnetic encoding is not yet supported for Avansia printers.

## Texts

We support adding text to the card. It can be use in two modes : Embedded font or custom font file.

```
virtual int Print_PrintText(long lTimeout, char* pText, int nAngle, float fxPos,  float fyPos, char* pFontName,
 int nFontSize, int nFontStyle, int nColor, char* pszRcCode) override;
```

### Using embedded font

Under the hood, we are using OpenCV to generate text on the image.

The argument nAngle can be use to rotate the text. If 0, no rotation will be made.

fxPos and fyPos are used to set text position on the card. X coordinate varies between 0 to 2048 pixels. Y coordinate varies between 0 and 1300 pixels.

Below is the different values that the pFontName argument accepts :

- SIMPLEX
- PLAIN
- DUPLEX
- COMPLEX
- TRIPLEX
- COMPLEX_SMALL
- SCRIPT_SIMPLEX
- SCRIPT_COMPLEX
- ITALIC

The resulting font size is made with the following formula : real_font_size = (OpenCV's base size x nFontSize + 1) px.

Here is a map of OpenCV's base size used to generate the real font size :

| Font | OpenCV's base size |
|---|---|
| SIMPLEX | 21 px |
| PLAIN | 9 px |
| DUPLEX | 21 px |

| | |
|---|---|
| COMPLEX | 21 px |
| TRIPLEX | 21 px |
| COMPLEX_SMALL | 13 px |
| SCRIPT_SIMPLEX | 21 px |
| SCRIPT_COMPLEX | 21 px |
| ITALIC | 21 px |

For example, for the font SIMPLEX and nFontSize = 10 the text height is (21 x 10 + 1) = 211px.

The argument nFontStyle set the thickness of the font.

The nColor arguments takes a integer value representing the text color in RGB (0xRRGGBB), example: 0xFF0000 for red color.

### Using custom font file

The argument nAngle can be use to rotate the text. If 0, no rotation will be made.

fxPos and fyPos are used to set text position on the card. X coordinate varies between 0 to 2048 pixels. Y coordinate varies between 0 and 1300 pixels.

The pFontName argument takes a pathname to a .ttf file.

The argument nFontStyle is ignored in this case.

The nColor arguments takes a integer value representing the text color in RGB (0xRRGGBB), example: 0xFF0000 for red color.

## Barcodes

We use the libzint to generate barcodes. Thus, we can add support for any of the barcodes supported by libzint. The current supported types added to the CLithographPrinter implementation are :

- c39
- c128
- qrCode

## Extra commands

### cardInsertion (only for Avansisa printers)

The extra command “cardInsertion” is here to give to developers a way to choose the moment when the card is inserted in the printer. It must be called after Print_StartPrint() and only if it returned with value 2.

The input tray (see “setInputTray” command) must be configured on “MANUALNCMD” for this to work. “MANUALNCMD” is the default value of the input tray.

```
LPVOID reply;
char   ec[5];
int    r;
```

```
r = lp->Print_StartPrint(TIMEOUT * 4, ec);
if (r == 2) { // MANUALNCMD enabled and printer waiting for card.
    printf("> Please insert a card...\n"); fflush(stdout);
    r = lp->Print_ExtraCommand(TIMEOUT, (char*) "cardInsertion",
            nullptr, reply, ec);
    printf("> Card insertion: %d\n", r);
}
```

Print_ExtraCommand() will return 0 on success, 1 otherwise.

## getPrintingMode (only for Avansisa printers)

getPrintingMode command can be use to get printing mode of the current printer.

This command must be set after Print_InitPrint() function.

```
LPVOID reply = NULL;
LPVOID input = NULL;
char   ec[5];

lp->Print_ExtraCommand(TIMEOUT, (char*) "getPrintingMode", input, reply, ec);
```

Avansia printers will return the following values :

DUPLEX

Only duplex printing is available on Avansia

## setCardOrientation

setCardOrientation command can be use to configure card orientation.

This command must be set after Print_InitPrint() function.

```
LPVOID reply;
char   ec[5];

lp->Print_ExtraCommand(TIMEOUT, (char*) "setCardOrientation", (char*) "LANDSCAPE_CC90", reply, ec);
```

Evolis printers accepts the following values :

LANDSCAPE_CC90

Landscape orientation

PORTRAIT

Portrait orientation

## setCardSideEject (only for Avansisa printers)

setCardSideEject command can be use to configure which side of the card is up when ejecting.

```
LPVOID reply;
char   ec[5];

lp->Print_ExtraCommand(0, (char*) "setCardSideEject", "FRONT_SIDE_UP", reply, ec);
```

Avansia printers accepts the following values :

FRONT_SIDE_UP

The front side of the card will be up.

FRONT_SIDE_DOWN

The back side of the card will be up.

## setOutputTray / setErrorTray

setOutputTray and setErrorTray are extra commands to configure, respectively, card ejection and rejection modes. Both commands takes one argument which describe the ejection mode to use.

```
LPVOID reply;
char   ec[5];

lp->Print_ExtraCommand(0, (char*) "setOutputTray", "STD_STANDBY", reply, ec);
lp->Print_ExtraCommand(0, (char*) "setErrorTray", "ERR", reply, ec);
```

Modes for Avansia printers:

STD
: Card is ejected at left side.

STD_STANDBY
: Card is ejected at left side when eject command is received.

ERR
: Card is ejected at right side.

ERR_STANDBY
: Card is ejected at right side when eject command is received.

Modes for Elypso printers:

MANUAL
: Card by card ejection mode.

ERR
: Card will be ejected in the rejection tray.

EJECT
: Eject the card without waiting.

## setInputTray

setInputTray is an extra command to configure card insertion mode. It takes one argument which describe the insertion mode to use.

```
LPVOID reply;
char   ec[5];

lp->Print_ExtraCommand(0, (char*) "setInputTray", "FEEDER", reply, ec);
```

Modes for Avansia printers:

FEEDER
: Card is taken from the top feeder.

MANUALNCMD
: Card is taken from right side when insert command is received. The insertion command will only work in printing job.

Modes for Elypso printers:

MANUAL
: The card insertion will be made card by card.

## setInvertFaces (only for Avansisa printers)

setInvertFaces command can be use to configure inversion of faces at printing.

This command also invert card side eject.

```
LPVOID reply;
char   ec[5];

lp->Print_ExtraCommand(TIMEOUT, (char*) "setInvertFaces", (char*) "true", reply, ec);
```

Evolis printers accepts the following values :

true
: Print front face on back of the card and back face on front of the card

false
: Print front face on front of the card and back face on back of the card

## setLogPath

The extra command "setLogPath" is here to give to developers a way to access internal log outputs. Log messages are written to the the given path.

The code below shows how to enable log messages :

```
LPVOID reply;
char   ec[5];

lp->Print_ExtraCommand(0, (char*) "setLogPath", (char*) "/tmp/printer.log", reply, ec);
```

Print_ExtraCommand() will return 0 on success, 1 otherwise.

You can disable log messages with :

```
LPVOID reply;
char   ec[5];

lp->Print_ExtraCommand(0, (char*) "setLogPath", NULL, reply, ec);
```

## setNonPrintingAreas (only for Avansisa printers)

setNonPrintingAreas command can be use to configure non printing areas (5 areas maximum).

This command is only available for YMCKI ribbons.

This command must be set after Print_InitPrint() function.

An area is defined with the coordinate of its top-left (x0, y0) corner and its bottom-right corner (x1, y1).

Coordinates of an area are seperated by 'x' and areas are seperated by ':'.

Examples of valid areas:

- 1 area : 300x550x900x800
- 2 areas : 300x550x900x800:200x250x800x700
- etc...

```
LPVOID reply;
char   ec[5];

lp->Print_ExtraCommand(TIMEOUT, (char*) "setNonPrintingAreas", (char*) "300x550x900x800", reply, ec);
```

## setPageRotate180

setPageRotate180 command can be use to configure page rotation at 180°.

This command must be set after Print_InitPrint() function.

```
LPVOID reply;
char   ec[5];

lp->Print_ExtraCommand(TIMEOUT, (char*) "setPageRotate180", (char*) "ON", reply, ec);
```

Evolis printers accepts the following values :

ON
Rotation of the page at 180°

OFF
No page rotation

# ANDROID SUPPORT

Android is supported but **image processing** features (texts, barcodes, printing .png/.jpg files) is **NOT** supported. We can provide binaries for the following ABIs, the minSdkVersion is 24 :

- armeabi-v7a
- arm64-v8a
- x86
- x86_64

## Extra commands

### setAndroidContext

setAndroidContext command can be use to set the Android context

This command must be set before Print_Open() function.

```
LPVOID reply;
char ec[5];

QAndroidJniObject androidCtx = QtAndroid::androidContext();

lp->Print_ExtraCommand(TIMEOUT, (char*) "setAndroidContext", (jobject) androidCtx.object(), reply, ec);
```

### setJavaNativeInterface

setJavaNativeInterface command can be use to set the Android environment

This command must be set before Print_Open() function.

```
LPVOID reply;
char ec[5];

QAndroidJniEnvironment jniEnv;

lp->Print_ExtraCommand(TIMEOUT,(char*) "setJavaNativeInterface", (JNIEnv*) jniEnv, reply, ec);
```

# REVISION HISTORY

| Date | Version | Comment |
|---|---|---|
| 2021/06/18 | 1.7 | EvoTest replaced by GWI-LP-TEST-TOOL. |
| 2021/06/02 | 1.6 | Add documentation for the Elypso printers. |
| 2021/03/29 | 1.5 | Add documentation for the test application evotest. |
| 2021/03/12 | 1.4 | Add extra commands (getPrintingMode, setCardOrientation, setInvertFaces, setNonPrintingAreas, setPageOrientation).<br>Add details on Print_PrintText() and Print_PrintBarcode(). |
| 2021/02/26 | 1.3 | Add extra commands to configure card in/out/err. |
| 2021/01/20 | 1.2 | Add details on Print_Open() arguments. |
| 2021/01/05 | 1.1 | Add extra command "setLogEnabled". |
| 2020/11/20 | 1.0 | First version. |