ZMotif™ SDK

Software Developer

Reference Manual

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1 Introduction

1.1 About this Manual

This manual contains information for software developers intending to write applications for Zebra ZMotif compatible card printers.

The ZMotif Application Programming Interface (ZAPI) and Software Development Kit (ZMotif SDK) provides functions to access Zebra ZMotif-based card printers and features.

ZAPI runs on the following Windows Operating Systems:

- Windows 7 (32- and 64-bit)
- Windows Server 2008 (32- and 64-bit)
- Windows 8 and 8.1 (32- and 64-bit)
- Windows 10 (32- and 64-bit)

1.2 Required Skills

- Experience in developing applications for the Microsoft Windows environment
- Experience in developing applications based on XML and XML schemas
- Experience in developing applications using dynamic link libraries (dll)
- Experience with Microsoft's Windows Graphics Device Interface (GDI)

1.3 ZMotif Overview Introduction

The ZMotif SDK facilitates the communication of data between a host computer and a Zebra color printer and to provide a solid framework to accommodate future development needs. It is a print job comprehending language that includes job control commands as well as commands to transfer data configure the printer and return information from the printer.

The ZMotif SDKis intended for use with “modern-architecture” printers that support multi-tasking with sufficient memory to buffer entire print jobs.

The ZMotif SDK is based on an extensible underlaying printer communication and job control mechanism. This low-level device-specific protocol separates out printer communication data flow, and the actual print job-specific data.

1.4 ZMotif SDK Architecture

ZMotif comprises two distinct independent layers:

1. ZMJ a ZMotif Job description protocol that sits above ZMC.
2. ZMC ZMotif real-time Communications protocol that handles commands to and responses from the target printer.

Most ZMC commands are concerned with housekeeping operations such as configuration control status reporting and error reporting. In fact only one of many ZMC commands Write Data calls on ZMJ to deliver specs and data for the job to be printed. The separation of “job” and “communications” portions of the language is important in three ways:

1. It meshes nicely with the printing architectures of popular operating systems;
2. It simplifies transactions over the communications interface;
3. It facilitates debugging.

1.5 The ZMJ layer

This layer contains all the commands a printer needs to complete the desired job which might be printing one or more single-sided or double-sided cards or receiving data such as graphics calibration tables fonts and firmware upgrades.

ZMJ is a small set of commands small because ZMJ itself serves mostly as a means of conveying information to the printer in the form of XML documents. For example a print job would begin with the ZMJ command named “Begin Job” consisting mostly of a “Job Control” XML document specifying how the card is to be printed and encoded.

The Job Control XML might be complete in itself containing all the data necessary to execute the job. Alternatively especially if the job includes graphics it will be augmented by one or more appended ZMJ "Send Graphic" commands each referencing a specific tag in the Job Control XML.

Unlike those of ZMC commands in ZMJ are not necessarily executed in real time. Jobs in ZMJ can be stored on disk or buffered internally within the printer and de-spooled at a later time for processing.

1.6 The ZMC layer

This layer sits on top of any bi-directional streaming communications channel such as USB or Ethernet. ZMC manages real-time communications tasks such as sending data and receiving error messages. One of ZMC’s tasks is transferring a ZMJ print job from the host to the printer (but note that to ZMC a print job is simply a data stream it doesn’t interact with in any way).

In addition to sending data and receiving error messages ZMC allows the printer to respond to requests for its status including media availability and any controllable parameters thus allowing the host to configure job specifications in the most appropriate way.

1.7 The Windows print job sequence

Assuming that the host is running a Zebra-provided Windows printer driver a typical sequence is the following:

A. The Windows application composes the document then sends it to the Windows printer driver.

B. The driver converts the document's description to a ZMJ print job package comprising at least two commands Begin Job and End Job. The driver also adds to the Job Control XML a ZMJ Job Identifier (a UUID or in a Windows environment a GUID).

Important • Specifications and data for the print job are contained in the Begin Job command the payload of which is an XML document known as the **Job Control XML**. The package may also contain within the Begin Job-End Job scope secondary ZMJ commands to convey information not included in the XML such as graphics.

C. The driver sends the print job package to the language monitor which buffers all the data between ZMJ Start Job and ZMJ End Job commands.

D. When notified by the printer that it is ready to receive the job the language monitor issues a ZMC Start Action command then delivers the job in one or more ZMC Write Data commands followed by a ZMC End Action command. This signifies that the job transfer has been completed at which time the printer should begin processing.

NOTE: On receiving a Start Action command from the language monitor the printer returns an Action ID number. This can be used together with the ZMJ Job Identifier and the Spooler Job ID number to uniquely identify the print job.

1.8 Multiple hosts in a network

Important • In an Ethernet network where the printer may be shared by multiple hosts, ZMotif SDK commands allow the printer to receive data from only one host at a time.

Additionally ZMotif SDK commands require that the printer must have received ALL of a print job from a given host before beginning to receive any part of the next print job either from that host or any other host.

2 Software Development Kit (SDK)

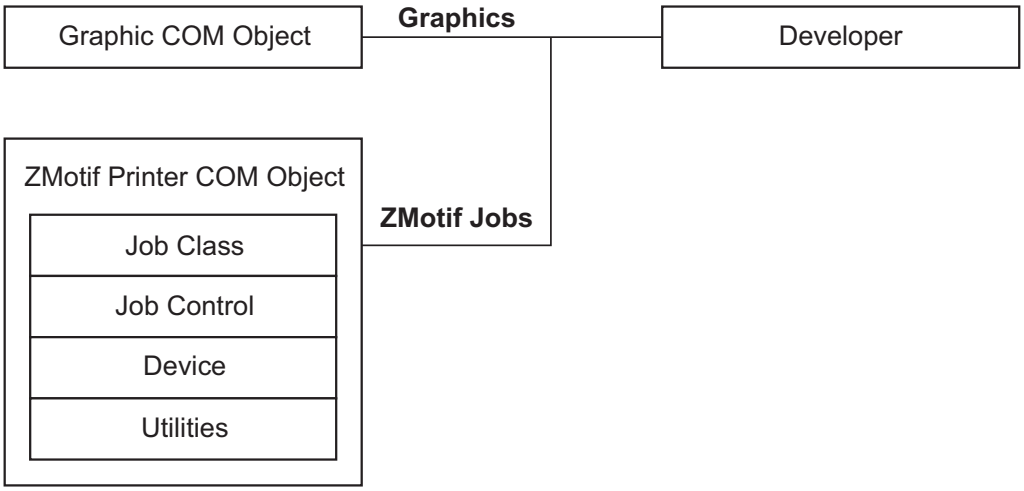
2.1 Introduction

The ZMotif Software Development Kit (SDK) provides developers a platform for designing applications for ZMotif compatible devices. It contains two registered COM objects: Graphics and ZMotif Printer.

The Graphics Object assists in the creation of ID Card bitmap images. It contains all of the basic methods necessary for creating ID Cards. The ZMotif Printer Object contains all of the methods necessary for creating ZMotif jobs and commands.

The ZMotif SDK does not require a printer driver to communicate with a ZMotif-supported device and it supports both USB and Ethernet connections.

2.2 SDK Diagram



3 Graphics COM Object

3.1 Properties

Integer	
TextContrast	gets/sets the contrast value for text
Interface	
Barcode	returns the Barcode interface
Enumeration	
ImageRotation	gets/sets image rotation used with DrawImage routines
MonochromeConversion	gets/sets the type of monochrome conversion to use
PrinterModel	gets/sets the printer model in use
TextRendering	gets/sets the text rendering methodology to use
String	
ColorProfile	gets/sets the color profile

3.2 Methods

3.2.1 GetSDKProductVersion

```
Description: Retrieves the product version of the SDK.

Syntax:      void GetSDKProductVersion( out string ProductVersion )

Parameters:  ProductVersion        [out]product version of SDK

Returns:     nothing
```

3.2.2 GetSDKVersion

```
Description: Retrieves the version of the SDK.

Syntax:      void GetSDKVersion(
                                out byte              major
                                out byte              minor
                                out byte              build
                                out byte              revision )

Parameters:  major                [out]major version number of SDK
             minor                [out]minor version number of SDK
             build                [out]build version number of SDK
             revision             [out]revision version number of SDK

Returns:     nothing
```

3.2.3 InitGraphics

```
Description: Creates a Windows device context and initializes a graphic buffer for
             storing graphic layers.

Syntax 1:    void InitGraphics(
                                int                   maxWidth
                                int                   maxHeight
                                ImageOrientationEnum  imgOrientation
                                RibbonTypeEnum        ribType )

Parameters:  maxWidth              [in ]maximum graphic buffer width
             maxHeight             [in ]maximum graphic buffer height
             imgOrientation        [in ]specifies if card image is portrait
                                    or landscape
             ribType               [in ]specifies a ribbon type

Returns:     nothing


Syntax 2:    void InitGraphics(
                                int                   maxWidth
                                int                   maxHeight
                                ImageOrientationEnum  imgOrientation
                                RibbonTypeEnum        ribType
                                int                   fillColor )

Parameters:  maxWidth              [in ]maximum graphic buffer width
             maxHeight             [in ]maximumgraphic buffer height
             imgOrientation        [in ]specifies if the card image is portrait
                                    or landscape
             ribType               [in ]specifies a ribbon type
             fillColor             [in ]identifies if there is a fill color (RGB)
                                    e.g. white = 0xFFFFFF no fill color = -1

Returns:     nothing

Note:        Setting maxWidth and maxHeight to 00 defaults the image size to match
             ID card dimensions 1024 x 648.
```

3.2.4 CloseGraphics

```
Description: Releases the device context valuethe graphic  buffer memory and
             the mutex.

Syntax:      void CloseGraphics( void )

Parameters:  nothing

Returns:     nothing

Note:        If the graphics SDK is instantiated CloseGraphics must be called as
             part of clean up or the mutex will not be released.
```

3.2.5 ClearGraphics

```
Description: Clears the graphic buffer.

Syntax:      void ClearGraphics( void )

Parameters:  nothing

Returns:     nothing
```

3.2.6 DrawImage

Description: Places an image in the graphic buffer.

Syntax 1: `void DrawImage(`

ref byte[]	imageData
ImagePositionEnum	position
int	imgWidth
int	imgHeight
float	opacity)

Parameters:		
	imageData	[in]image byte array
	position	[in]image position
	imgWidth	[in]image width in dots (300 dpi)
	imgHeight	[in]image height in dots (300 dpi)
	opacity	[in]image opacity level (0 to 100)

Returns: nothing

Syntax 2: `void DrawImage(`

ref byte[]	imageData
float	x
float	y
int	imgWidth
int	imgHeight
float	opacity)

Parameters:		
	imageData	[in]image byte array
	x	[in]x coordinate top left corner of the image
	y	[in]y coordinate top left corner of the image
	imgWidth	[in]image width in dots (300 dpi)
	imgHeight	[in]image height in dots (300 dpi)
	opacity	[in]image opacity level (0 to 100)

Returns: nothing

Syntax 3: `void DrawImage(`

ref byte[]	imageData
float	x
float	y
int	imgWidth
int	imgHeight
float	opacity
int	transparencyColorLow
int	transparencyColorHigh)

Parameters:		
	imageData	[in]image byte array
	x	[in]x coordinate top left corner of the image
	y	[in]y coordinate top left corner of the image
	imgWidth	[in]image width in dots (300 dpi)
	imgHeight	[in]image height in dots (300 dpi)
	opacity	[in]image opacity level (0 to 100)
	transparencyColorLow	[in]low color value starting transparent color
	transparencyColorHigh	[in]high color value ending transparent color

Returns: nothing

Note: All colors between transparencyColorLow and tranparencyColorHigh will be transparent.

Use *ImageFileToByteArray(filename)* to get imageData from a file.

3.2.7 DrawEllipse

```
Description: Draws an ellipse in the graphic buffer.

Syntax:      void DrawEllipse(
                                  float                 x
                                  float                 y
                                  float                 width
                                  float                 height
                                  float                 thickness
                                  int                   color )

Parameters:  x                     [in ]x position of top-left corner of rectangle
             y                     [in ]y position of top-left corner of rectangle
             width                 [in ]width of the ellipse in dots (300 dpi)
             heigth                [in ]height of the ellipse in dots (300 dpi)
             thickness             [in ]line thickness for the ellipse in dots
             color                 [in ]RGB color value

Returns:     nothing
```

3.2.8 DrawFillEllipse

```
Description: Draws a solid ellipse in the graphic buffer.

Syntax:      void DrawFillEllipse(
                                  float                 x
                                  float                 y
                                  float                 width
                                  float                 height
                                  int                   fillColor )

Parameters:  x                     [in ]x position of top-left corner of rectangle
             y                     [in ]y position of top-left corner of rectangle
             width                 [in ]width of the ellipse in dots (300 dpi)
             heigth                [in ]height of the ellipse in dots (300 dpi)
             fillColor             [in ]color of ellipse RGB color value

Returns:     nothing
```

3.2.9 DrawLine

```
Description: Draws a line in the graphic buffer.

Syntax:      void DrawLine(
                                float                 x1
                                float                 y1
                                float                 x2
                                float                 y2
                                int                   color
                                float                 thickness )

Parameters:  x1                  [in ]starting x position for the line
             y1                  [in ]starting y position for the line
             x2                  [in ]ending x position for the line
             y2                  [in ]ending y position for the line
             color               [in ]RGB color value
             thickness           [in ]line thickness

Returns:     nothing
```

3.2.10 DrawRectangle

```
Description: Draws a rectangle in the graphic buffer.

Syntax:      void DrawRectangle(
                                  float                 x
                                  float                 y
                                  float                 width
                                  float                 height
                                  float                 thickness
                                  int                   color )

Parameters:  x                     [in ]x position of top-left corner of rectangle
             y                     [in ]y position of top-left corner of rectangle
             width                 [in ]rectangle width in dots (300 dpi)
             height                [in ]rectangle height in dots (300 dpi)
             thickness             [in ]line thickness
             color                 [in ]RGB color value

Returns:     nothing
```

3.2.11 DrawFillRectangle

```
Description: Draws a solid rectangle in the graphic buffer.

Syntax:      void DrawFillRectangle(
                                    float                 x
                                    float                 y
                                    float                 width
                                    float                 height
                                    int                   fillColor )

Parameters:  x                     [in ]x position of top-left corner of rectangle
             y                     [in ]y position of top-left corner of rectangle
             width                 [in ]rectangle width in dots (300 dpi)
             height                [in ]rectangle height in dots (300 dpi)
             fillColor             [in ]color of rectangle RGB color value

Returns:     nothing
```

3.2.12 DrawFillRoundedRectangle

```
Description: Draws a solid rectangle with rounded corners in the graphic buffer.

Syntax: void DrawFillRoundedRectangle(
                                    float x
                                    float y
                                    float width
                                    float height
                                    float radius
                                    int fillColor )

Parameters: x                       [in ]x position of top-left corner of rectangle
            y                       [in ]y position of top-left corner of rectangle
            width                   [in ]rectangle width in dots (300 dpi)
            height                  [in ]rectangle height in dots (300 dpi)
            radius                  [in ]radius of the semi-circle formed by the
                                     rounded corners
            fillColor               [in ]color of rectangle RGB color value


Returns:    nothing

Sample:     float x = 10;
            float y = 10;
            float width = 10;
            float height = 10;
            float radius = 20;
            int fillColor = RGB(100 100 100);

            graphics.DrawFillRoundedRectangle(x y width height radius
                                    fillColor );
```

3.2.13 DrawRoundedRectangle

```
Description: Draws a rectangle with rounded corners in the graphic buffer.

Syntax: void DrawRoundedRectangle(
                                                        float x
                                                        float y
                                                        float width
                                                        float height
                                                        float radius
                                                        float thickness
                                                        int color )

Parameters: x                   [in ]x position of top-left corner of rectangle
            y                   [in ]y position of top-left corner of rectangle
            width               [in ]rectangle width in dots (300 dpi)
            height              [in ]rectangle height in dots (300 dpi)
            thickness           [in ]rectangle thickness in dots (300 dpi)
            color               [in ]color of rectangle RGB color value

Returns:    nothing

Sample:     float x = 10;
            float y = 10;
            float width = 10;
            float height = 10;
            float thickness = 20;
            int color = RGB(100 100 100);

            graphics.DrawRoundedRectangle(x y width height thickness color);
```

3.2.14 DrawTextRect

Description: Draws text in the graphic buffer within the specified rectangle.

Syntax 1:

```
void DrawTextRect(
                              float                 x
                              float                 y
                              float                 rectWidth
                              float                 rectHeight
                              TextAlignmentEnum     alignment
                              string                text
                              string                font
                              float                 fontSize
                              FontTypeEnum          fontStyle
                              int                   color )
```

Parameters:		
	x	[in]x position of top-left corner of rectangle
	y	[in]y position of top-left corner of rectangle
	rectWidth	[in]rectangle width in dots (300 dpi)
	rectHeight	[in]rectangle height in dots (300 dpi)
	alignment	[in]alignment within the rectangle
	text	[in]text data
	font	[in]font name
	fontSize	[in]font point size
	fontStyle	[in]font style
	color	[in]RGB value

Returns: nothing

Syntax 2:

```
void DrawTextRect(
                              float                 x
                              float                 y
                              float                 rectWidth
                              float                 rectHeight
                              float                 angle
                              TextAlignmentEnum     alignment
                              string                text
                              string                font
                              float                 fontSize
                              FontTypeEnum          fontStyle
                              int                   color )
```

Parameters:		
	x	[in]x position of top-left corner of rectangle
	y	[in]y position of top-left corner of rectangle
	rectWidth	[in]rectangle width in dots (300 dpi)
	rectHeight	[in]rectangle height in dots (300 dpi)
	angle	[in]text drawing angle
	alignment	[in]alignment within the rectangle
	text	[in]text data
	font	[in]font name
	fontSize	[in]font point size
	fontStyle	[in]font style
	color	[in]RGB value

Returns: nothing

3.2.15 DrawTextString

```
Description: Draws text in the graphic buffer.

Syntax 1:    void DrawTextString(
                                 float                x
                                 float                y
                                 string               text
                                 string               font
                                 float                fontSize
                                 FontTypeEnum         fontStyle
                                 int                  color )

Parameters:  x                    [in ]x position of top-left corner of text
             y                    [in ]y position of top-left corner of text
             text                 [in ]text data
             font                 [in ]font name
             fontSize             [in ]font point size
             fontStyle            [in ]font style
             color                [in ]RGB value

Returns:     nothing


Syntax 2:    void DrawTextString(
                                 float                x
                                 float                y
                                 float                angle
                                 TextAlignmentEnum    alignment
                                 string               text
                                 string               font
                                 float                fontSize
                                 FontTypeEnum         fontStyle
                                 int                  color )

Parameters:  x                    [in ]x position of top-left corner of text
             y                    [in ]y position of top-left corner of text
             angle                [in ]text drawing angle
             alignment            [in ]text alignment
             text                 [in ]text data
             font                 [in ]font name
             fontSize             [in ]font point size
             fontStyle            [in ]font style
             color                [in ]RGB value

Returns:     nothing
```

3.2.16 CreateBitmap

```
Description: Creates a bitmap image from graphic buffer.

Syntax:      byte[] CreateBitmap( out int dataLen )

Parameters:  dataLen               [out]image size in bytes

Returns:     Bitmap image byte array
```

3.2.17 ExtractBlackData

```
Description: Performs black data extraction on a given image.

Syntax:      void ExtractBlackData(
                                  ref byte[]            imageData
                                  ref byte[]            colorImg
                                  ref byte[]            blackImg )

Parameters:  imageData             [in ]given bitmap image's data
             colorImg              [out]given image's color data
             blackImg              [out]given image's black data

Returns:     nothing

Note:        If no black data is found in the given image the blackImg parameter
             will be null.
```

3.2.18 SetBlackExtractionLevels

```
Description: Provides a small amount of manipulation of the threshold which
             determines whether or not a specific pixel contains black data.


Syntax:      void SetBlackExtractionLevels(
                                int                   redLevel
                                int                   greenLevel
                                int                   blueLevel )

Parameters:  redlevel              [in ]red color threshold
             greenLevel            [in ]green color threshold
             blueLevel             [in ]blue color threshold

Returns:     nothing

Sample:      int redLevel = 25;
             int greenLevel = 25;
             int blueLevel = 25;
             graphics.SetBlackExtractionLevels(redLevel greenLevel blueLevel);
```

3.2.19 ApplyColorProfile

```
Description: Applies a color profile to an existing bitmap and returns a new bitmap
             created from the original bitmap and the applied profile.

Syntax:      byte[] ApplyColorProfile(
                                string              profilePath
                                byte[]              origImage )

Parameters:  profilePath         [in ]color profile to apply including path to
                                  file's location.
             origImage           [in ]byte array representing original image.

Returns:     Byte array representing the new image created from the application of
             the color profile and original image.

Note:        A color profile cannot be applied to a non-color image.
```

3.2.20 AdjustBrightness

```
Description: Adjusts image brightness in the graphic buffer.

Syntax:      void AdjustBrightness( float brightnessLevel )

Parameters:  brightnessLevel       [in ]percentage value {-100 to +100}

Returns:     nothing
```

3.2.21 AdjustColorScale

```
Description: Adjusts the RGB color scales in the graphic buffer.

Syntax:      void AdjustColorScale(
                                   float                 redLevel
                                   float                 greenLevel
                                   float                 blueLevel )

Parameters:  redLevel              [in ]red contrast level
             greenLevel            [in ]green contrast level
             blueLevel             [in ]blue contrast level

Returns:     nothing

Note:        Values are from -100 to +100.
```

3.2.22 AdjustContrast

```
Description: Adjusts image contrast for all colors in the graphic buffer.

Syntax:      void AdjustContrast( float contrastLevel )

Parameters:  contrastLevel          [in ]contrast level

Returns:     nothing

Note:        Values are from -100 to +100.
```

3.2.23 AdjustSaturation

```
Description: Adjusts image saturation in the graphic buffer.

Syntax:      void AdjustSaturation( float saturationLevel )

Parameters:  saturationLevel       [in ]image saturation level

Returns:     nothing

Note:        Values are from -100 to +100.
```

3.2.24 AdjustGamma

```
Description: Sets the gamma level for the image.

Syntax:      void AdjustGamma( int gammaLevel )

Parameters:  gammaLevel            [in ]new gamma level to be applied

Return:      nothing

Sample:      int gammaLevel = 100;

             graphics.AdjustGamma(gammaLevel);
```

3.2.25 ConvertToGrayScale

```
Description: Converts the color image in the graphic buffer to monochrome applying
             the same scale factor to each color.

Syntax:      void ConvertToGrayScale( float scaleFactor )

Parameters:  scaleFactor           [in ]scale factor; 0.1 to 1.0

Returns:     nothing


Description: Converts the color image in the graphic buffer to monochrome applying
             specific red green and blue scale factors.

Syntax:      void ConvertToGrayScale( float red float green float blue )

Parameters:  red                   [in ]red scale factor; 0.1 to 1.0
             green                 [in ]green scale factor; 0.1 to 1.0
             blue                  [in ]blue scale factor; 0.1 to 1.0

Returns:     nothing


Description: Creates a monochrome image from a color image.

Syntax:      void ConvertToGrayScale( byte[] imageData ref byte[] grData )


Parameters:  imageData             [in ]color image data to be converted
             grData                [out]monochrome image data created from
                                    color image

Returns:     nothing
```

3.2.26 RotateHue

```
Description: Rotate image color spectrum.

Syntax:      void RotateHue( float rotation )

Parameters:  rotation              [in ]degrees of rotation; 0 to 360

Returns:     nothing
```

3.2.27 CropImage

```
Description: Creates a cropped image from the supplied image.

Syntax:      void CropImage(
                                ref byte[]            imageData
                                int                   x
                                int                   y
                                int                   width
                                int                   height
                                ref byte[]            croppedImg)


Parameters:  imageData             [in ]image data to be cropped
             x                     [in ]x-coordinate of upper left corner of
                                    the cropped image
             y                     [in ]y-coordinate of upper left corner of
                                    the cropped image
             width                 [in ]width of cropped image in dots (300 dpi)
             height                [in ]height of cropped image in dots (300 dpi)
             croppedImg            [out]cropped image data

Returns:     nothing
```

3.2.28 SharpenImage

```
Description: Sharpens an image in the byte array.

Syntax:      void SharpenImage(
                                  ref byte[]            imageData
                                  int                   level )

Parameters:  imageData             [in ]array containing the image to sharpen
             level                 [in ]sharpening level; 0 to 100

Returns:     nothing
```

3.2.29 ImageFileToByteArray

```
Description  Creates an image byte array from file.

Syntax:      byte[] ImageFileToByteArray( string filename )

Parameters:  filename              [in ]name of the file that contains the image

Returns:     Byte array of image created from image file.
```

3.2.30 ImageFromByteArray

```
Description: Creates a bitmap from an image byte array.

Syntax:      Bitmap ImageFromByteArray( ref byte[] imageData )

Parameters:  imageDatabyte          [in ]byte array containing the image data

Returns:     Bitmap image created from image byte array.
```

3.2.31 IPictureFromByteArray

```
Description: Returns IPicture data from an image byte array.

Syntax:      object IPictureFromByteArray( ref byte[] imageData )

Parameters:  imageDatabyte          [in ]byte array containing the image data

Returns:     IPicture data from image byte array returned as an object.
```

3.2.32 IntegerFromColor

```
Description: Gets the integer value for a selected system color.

Syntax:      int IntegerFromColor( Color color )

Parameters:  color                 [in ]system color

Returns:     Integer value which represents the system color object.
```

3.2.33 IntegerFromColorName

```
Description: Gets the integer value for a color.

Syntax:      int IntegerFromColorName( string colorName )

Parameters:  colorName              [in ]color name

Returns:     Integer value which represents the system color name.
```

3.2.34 LoadImageProfile

```
Description: Loads an image profile from a file.

Syntax:      void LoadImageProfile( string filename )

Parameters:  filename              [in ]profile file name and path

Returns:     nothing
```

3.2.35 SaveImageProfile

```
Descripton:   Saves an image profile to a file.

Syntax:       void SaveImageProfile( string filename )

Parameters:   filename              [in ]profile file name and path

Returns:      nothing
```

3.2.36 ExtractHalfPanelData

```
Description: Performs data extraction on a given image when using a
             half-panel ribbon.

Syntax:      void ExtractHalfPanelData(
                                PrinterModelTypeEnum   model,
                                ref byte[]             sourceImage,
                                ref byte[]             colorRegion,
                                ref byte[]             nonColorRegion)

Parameters:  Model               [in ]printer model to receive the extracted
                                  data; see Appendix B for enumeration values
             sourceImage         [out]bitmap image to perform extraction
             colorRegion         [out]bitmap containing the color data
             nonColorRegion      [out]bitmap containing the non-color data

Return:      Nothing
```

4 Barcode

4.1 Properties

Boolean

AddChecksum	gets/sets a flag which determines if achecksum must be generated and attached to the value to encode
AntiAlias	gets/sets a flag which determines if AntiAlias effect must be applied to all the texts in the barcode image
AutoSize	gets/sets a flag which determines if the barcode image is automatically resized to display its entire contents.
DisplayChecksum	gets/sets a flag which will display the barcode's checksum if set to true
DisplayCode	gets/sets a flag which determines if the value to encode will be displayed in the barcode image
DisplayStopStartChars	gets/sets a flag which determines if the start & stop characters must be displayed in the barcode image
HIBCFormattedHumanReadableText	gets/sets a flag which determines if the human readable text is formatted as specified by HIBC. (Zeros are displayed as Slashed-Zeros and space characters are displayed as underscores)
UseQuietZoneForText	gets/sets a flag which determines if the quiet zones are to be used for drawing text code and human readable text

Integer

BackColor	gets/sets the background color
BarColor	gets/sets the color of the barcode bars
BorderColor	gets/sets the barcode control border color
ForeColor	gets/sets the text color when rendering the code and human readable text
TextForeColor	gets/sets the text color when rendering the DisplayText property

Interface

AztecCodeProperties	returns the AztecCode symbology properties class
BarcodeMarginProperties	returns the BarcodeMargin interface
BearerBarProperties	returns the BearerBarProperties interface
CodabarProperties	returns the CodabarProperties interface
Code128Properties	returns the Code128Properties interface
Code16KProperties	returns the Code16KProperties interface
Code39And93Properties	returns the Code39 and 93Properties interface
DataMatrixProperties	returns the DataMatrix symbology properties interface
EanUpcProperties	returns the EAN/ UPC symbology properties interface
GS1DataBarAndRSSExpandedStackedProperties	returns the GS1 DataBar Expanded Stacked and RSS Expanded Stacked properties interface
Isbt128Properties	returns the Isbt128 properties interface
MaxiCodeProperties	returns the MaxiCode properties interface
MicroQRProperties	returns the MicroQR properties interface
MSIProperties	returns the MSI properties interface
Pdf417Properites	returns the PDF417 symbology properties interface
PharmacodeProperties	returns the Pharmacode symbology properties interface
PlanetProperties	returns the Planet symbology properties interface
PostalStateProperties	returns the PostalState symbology properties interface
PostnetProperties	returns the Postnet symbology properties interface
QRCodeProperties	returns the QRCode symbology properties interface
TelepenProperties	returns the Telepen properties interface
USPSProperties	returns the USPS properties interface

Double

BarcodeBottomMargin	gets/sets the margin below the barcode bars
BarcodeHeight	gets/sets the barcode image height (the AutoSize property must be set to false)
BarcodeTopMargin	gets/sets the height of the margin above the barcode bars
BarcodeWidth	gets/sets the barcode image width (the AutoSize property must be set to false)
BarHeight	gets/sets the height of the barcode bars
BarRatio	gets/sets the ratio of the difference between the width of the wide barcode bars and the width of the narrow barcode bars
BarWidth	gets/sets the width of the narrow barcode bars
BarWidthAdjustment	Sets/returns the width adjustment for the bars
BorderWidth	gets/sets the barcode image border width
QuiteZoneWidth	gets/sets the width of the quiet zone

String

DisplayHumanReadableText	gets/sets the value to encode as human readable text
DisplayText	gets/sets additional text to display in the barcode image in addition to the value to encode
ValueToEncode	gets/sets the value to be encoded

Enumeration

BarcodeType	gets/sets Barcode type
CodeAlignment	gets/sets the text alignment for the DisplayCode property
Rotation	gets/sets the rotation angle to apply to the barcode
TextAlignment	gets/sets the text alignment of the barcode image

Object

Font	gets/sets the font to use for rendering the code and human readable text
TextFont	gets/sets the font to use for rendering the DisplayText property

4.2 Methods

4.2.1 ClearBarcode

```
Description:  Resets all properties to their default values.

Syntax:       void ClearBarcode()

Parameters:   None

Returns:      nothing
```

4.2.2 DrawBarcode (3 overloaded methods)

Description 1: Draws the selected barcode symbology using barcode property values.

Syntax: `void DrawBarcode()`

Parameters: None

Returns: nothing

Description 2: Draws the selected barcode symbology into a user defined rectangle.

Syntax:

```
void DrawBarcode(
                        float                   x
                        float                   y
                        float                   width
                        float                   height
                        float                   scale )
```

Parameters:		
	x	[in]x position of top-left corner of rectangle
	y	[in]y position of top-left corner of rectangle
	width	[in]rectangle width in dots (300 dpi)
	height	[in]rectangle height in dots (300 dpi)
	scale	[in]scale value

Returns: nothing

Description 3: Draws the selected barcode symbology into a user defined rectangle.

Syntax:

```
void DrawBarcode(
                        float                   x
                        float                   y
                        float                   width
                        float                   height
                        RotationTypeEnum        rotation
                        string                  font
                        int                     fontSize
                        FontTypeEnum            fontStyle
                        float                   scale )
```

Parameters:		
	x	[in]x position of top-left corner of rectangle
	y	[in]y position of top-left corner of rectangle
	width	[in]rectangle width in dots (300 dpi)
	height	[in]rectangle height in dots (300 dpi)
	rotation	[in]rotation to apply to barcode (see enumerations in ***Appendix B***)
	font	[in]font type to use to render barcode
	fontStyle	[in]style of font (see enumerations in ***Appendix B***)
	scale	[in]scale value

Returns: nothing

4.2.3 DrawBarcodeToStream

```
Description: Draws a barcode to the selected stream.

Syntax:      void DrawBarcodeToStream( ref Stream stream )

Parameters:  stream            [in ] the stream to receive the barcode

Returns:     nothing

Sample:      System.IO.Stream stream = new System.IO.MemoryStream();

             graphics.Barcode.DrawBarcodeToSteam(ref stream);
```

5 Job

5.1 Properties

Boolean

EnableOCPReprint	gets/sets a flag indicating whether or not the printer's OCP will display a Reprint button
IsOpen	indicates if a connection to a device is active, read only
ReadResponse	sets/gets if a response is to be read after sending ZMC WriteData

Class

FileSystem	returns a FileSystem class object

Enumeration

EventLogLevel	gets/sets/EventLogTypeEnum - a value indicating the detail level of information to be logged

Float

EthernetOpenTimeout	sets/gets the time out value for opening an Ethernet connection

Interface

CustomMagSettings	returns the CustomMagSettings Interface
Device	returns the Device Interface
JobControl	returns the JobControl Interface
Laminator	returns the Laminator Interface
Utilities	returns the Utilities Interface

Short

HostTCPPort	sets/gets host's TCP/IP port address
HttpPort	gets/sets the host's HTTP port value

5.2 Methods

5.2.1 GetDriverName

```
Description: Retrieves the printer name from the printer driver.

Syntax:      string GetDriverName( string deviceName )

Parameters:  deviceName         [in ]serial number of ZXP Printer

Returns:     printer name being used by printer driver

Sample:      string DriverName = job.GetDriverName(deviceName);
```

5.2.2 Open

Description: Establishes a connection to a ZMotif device.

Syntax: short Open(string deviceName)

Parameters: deviceName [in]name of the ZMotif device

Returns: error code (see Appendix A)

Sample:

```
//USB Connection:
Job job = new Job();
try
{
    string deviceName = "06C102100019"; //printer serial number
    short alarm = job.Open(deviceName);
}
catch (Exception ex)
{
    string errMsg = ex.Message;
}

//Ethernet Connection:
Job job = new Job();
try
{
    string deviceName = "10.1.5.123"; //printer IP address
    short alarm = job.Open(deviceName);
}
catch (Exception ex)
{
    string errMsg = ex.Message;
}

//Printer driver installed/USB connection:
Job job = new Job();
try
{
    //printer driver name
    string deviceName = "Zebra ZXP Series 8 USB Card Printer";
    short alarm = job.Open(deviceName);
}
catch (Exception ex)
{
    string errMsg = ex.Message;
}

//Printer driver installed/Ethernet connection:
Job job = new Job();
try
{
    //printer driver name
    string deviceName = "Zebra ZXP Series 8 Network Card Printer";
    short alarm = job.Open(deviceName);
}
catch (Exception ex)
{
    string errMsg = ex.Message;
}
```

5.2.3 Close

Description: Closes the connection to a ZMotif Device.

Syntax: `void Close()`

Parameters: nothing

Returns: nothing

Sample:

```
try
{   if (job.IsOpen)
        job.Close();
}
catch (Exception ex)
{
    string errMsg = ex.Message;
}
finally //be sure to release the interface to avoid memory leaks
{
    do
    {
        Thread.Sleep(10);

    } while (Marshal.FinalReleaseComObject(job) > 0);
}
```

Note: As an alternative to calling it each time the Close method is called, the do-while loop can be called prior to the application shutting down to prevent memory leaks.

5.2.4 ClearGraphicsLayers

```
Description: Erases all graphic layers.

Syntax:      void ClearGraphicsLayers()

Parameters:  nothing

Returns:     nothing

Sample:      job.ClearGraphicsLayers();
```

5.2.5 BuildGraphicsLayers

```
Description: Builds a graphic image layer.

Syntax:      void BuildGraphicsLayers (
                                SideEnum                side,
                                PrintTypeEnum           printType,
                                int                     xOffset,
                                int                     yOffset,
                                int                     imgOpacity,
                                int                     fillColor,
                                GraphicTypeEnum         graphicType,
                                object                  graphicData )

Parameters:  side               [in]specifies the graphic layer's card side
             printType          [in]type of print to perform(see Appendix B
                                 for enumeration values)
             xOffset            [in]x offset
             yOffset            [in]y offset
             imgOpacity         [in]opacity value
             fillColor          [in]layer background fill color (RGB);
                                 -1 indicates no fill color
             graphicType        [in]image format (see Appendix B for
                                 enumeration values)
             graphicData        [in]image to import

Returns:     nothing

Note:        The first layer build will be the background, and the last layer
             will be the foreground.

Sample:      See sample for PrintGraphicsLayers or
             PrintGraphicsLayersWithMagData
```

5.2.6 BuildGraphicsLayersEx

Description: Builds a graphic image layer which includes controlling the ribbon panel movement direction, panel count for movement, and panel offset information. The layer can also be defined to overprint another image.

Syntax:
```
void BuildGraphicsLayersEx (
                        SideEnum                side,
                        PrintTypeEnum           printType,
                        int                     xOffset,
                        int                     yOffset,
                        int                     imgOpacity,
                        int                     fillColor,
                        PanelDiectionEnum       panelDirection,
                        PanelCountEnum          panelCount,
                        int                     panelOffset,
                        bool                    overprint,
                        GraphicTypeEnum         graphicType,
                        object                  graphicData )
```

Parameters:

side	[in]specifies the graphic layer's card side (see Appendix B for enumeration values)
printType	[in]type of print to perform(see Appendix B for enumeration values)
xOffset	[in]x offset
yOffset	[in]y offset
imgOpacity	[in]opacity value
fillColor	[in]layer background fill color (RGB); -1 indicates no fill color
panelDirection	[in]direction of ribbon panel movement: advance or reverse (see Appendix B for enumeration values)
panelCount	[in]number of panels to move for panel direction (see Appendix B for enumeration values)
panelOffset	[in]current panel
overprint	[in]determines if image should be printed over
graphicType	[in]image format (see Appendix B for enumeration values)
graphicData	[in]image to import

Returns: nothing

Note: The first layer build will be the background, and the last layer will be the foreground.

Sample:
```
job.BuildGraphicsLayersEx(SideEnum.Front,
                                    PrintTypeEnum.Color, 0, 0, 1, -1,
                                    PanelDirectionEnum.AdvancePanel,
                                    PanelCountEnum.OnePanel, 10,
                                    false, GraphicTypeEnum.BMP,
                                    graphicData);
```

5.2.7 PrintGraphicsLayers

Description: Prints all layers built by BuildGraphicsLayers.

Syntax:
```
void PrintGraphicsLayers(
                    int                 copies,
                    out int             actionID)
```

Parameters:

copies	[in] number of copies to print
actionID	[out]returned by a ZMotif device identifying a job's ID

Returns: nothing

Note: If the card's source and destination locations are not assigned for the current print job, the default locations FeederSourceEnum.CardFeeder, and DestinationTypeEnum.Eject will be assigned automatically for the card's source and destination locations respectively if no previous print job has been created. If a previous print job has been created, its source and destination locations will be used for the current print job.

Sample:
```
// Prints front and back side images
Job job = new Job();
try
{   byte[] bmpFront  = ImageToByteArray("Front.bmp");
    byte[] bmpBack  = ImageToByteArray("Back.bmp");
    job.Open(deviceName);
    job.BuildGraphicsLayers(SideEnum.Front, PrintTypeEnum.Color,
           0, 0, 0, GraphicTypeEnum.BMP, bmpFront);
    job.BuildGraphicsLayers(SideEnum.Back, PrintTypeEnum.MonoK,
           0, 0, 0, GraphicTypeEnum.BMP, bmpBack);
    int copies = 1;
    //assign the card's source and destination locations for
    //the print job:
    job.JobControl.FeederSource = FeederSourceEnum.CardFeeder;
    job.JobControl.Destination = DestinationTypeEnum.Eject;
    job.PrintGraphicsLayers(copies, out actionID);
    job.ClearGraphicsLayers();
    while(true)
    {   job.GetJobStatus(actionID, out uuidJob,
           out printingStatus,
           out errorCode, out copiesCompleted,
           out copiesRequested, out magStatus,
           out contactStatus,
           out contactlessStatus);
        if (printingStatus == "done_ok" ||
           printingStatus == "cleaning_up" ||
           printingStatus == "done_error" ||
           printingStatus == "cancelled_by_user" ||
           printingStatus == "cancelled_by_error) break;
    }
    if error status
        jobs can be aborted or retried
}
catch (Exception ex)
{ errMsg = ex.Message;
}
finally
{
job = null;
}
```

5.2.8 LoadJobConfigFile

```
Description:  Notifies the SDK to use the specified xml configuration document
              for the job.

Syntax:       LoadJobConfigFile( string configFilePath )

Parameters:   configFilePath     [in ] document containing configuration
                                  information

Returns:      none

Note:         The complete path to the configuration file must be supplied each
              time the file is to be used.

Sample:       job.LoadJobConfig(configFilePath);
```

5.2.9 TestPrint

Description: Sends a test image to a device.

Syntax:
```
void TestPrint(
                        byte                    testImage,
                        int                     copies,
                        bool                    doubleSide,
                        out int                 actionID )
```

Parameters:

testImagetest	[in] image number
copies	[in] number of tests
doubleSide	[in] identifies if test print is single-sided or dual-sided
actionID	[out]returned by a ZMotif device identifying a job's ID

Returns: nothing

Note: If the card's source and destination locations are not assigned for the current print job, the default locations FeederSourceEnum.CardFeeder, and DestinationTypeEnum.Eject will be assigned automatically for the card's source and destination locations respectively if no previous print job has been created. If a previous print job has been created, its source and destination locations will be used for the current print job.

Sample:
```
try
//assign the card's source and destination locations for
//the print job:
job.JobControl.FeederSource = FeederSourceEnum.CardFeeder;
job.JobControl.Destination = DestinationTypeEnum.Eject;
{   job.TestPrint(1, 1, true, out actionID);
    while(true)
    {   alarm = job.GetJobStatus(actionID, out uuidJob,
            out printingStatus, out errorCode,
            out copiesCompleted, out copiesRequested,
            out magStatus, out contactStatus,
            out contactlessStatus);
        if (printingStatus == "done_ok" ||
            printingStatus == "cleaning_up" ||
            printingStatus == "done_error" ||
            printingStatus == "cancelled_by_user" ||
            printingStatus == "cancelled_by_error) break;
    }
    if error status
        jobs can be aborted or retried
}
catch (Exception ex)
{   errMsg = ex.Message;
}
```

5.2.10 PrintGraphicsLayersWithMagData

```
Description: Encodes the magnetic data and prints the graphics layers.

Syntax:      void PrintGraphicsLayersWithMagData(
                                  int                     copies,
                                  string                  track1,
                                  string                  track2,
                                  string                  track3,
                                  out int                 actionID)

Parameters:  copies            [in ]number of copies to print and encode
             track1            [in ]null or "" indicates no data to encode
             track2            [in ]null or "" indicates no data to encode
             track3            [in ]null or "" indicates no data to encode
             actionID          [out]returned by a ZMotif device identifying
                                 a job's ID
Returns:     nothing

Note:        If the card's source and destination locations are not
             assigned for the current print job, the default locations
             FeederSourceEnum.CardFeeder, and DestinationTypeEnum.Eject
             will be assigned automatically for the card's source and
             destination locations respectively if no previous print job
             has been created. If a previous print job has been created,
             its source and destination locations will be used for the
             current print job.

Sample:      See next page
```

Sample:

```
// Prints front and back side images
Job job = new Job();
try
{   byte[] bmpFront  = ImageToByteArray("Front.bmp");
    byte[] bmpBack  = ImageToByteArray("Back.bmp");
    job.Open(deviceName);
    job.BuildGraphicsLayers(SideEnum.Front, PrintTypeEnum.Color,
        0, 0, 0, GraphicTypeEnum.BMP, bmpFront);
    job.BuildGraphicsLayers(SideEnum.Back, PrintTypeEnum.MonoK,
        0, 0, 0, GraphicTypeEnum.BMP, bmpBack);
    job.JobControl.MagConfiguration(SideEnum.Front,
        MagCoercivityEnum.HighCo, MagEncodingTypeEnum.ISO,
        MagDataFormatEnum.Ascii, true);
    int copies            = 1;
    string track1Data     = "ABCDEFGH";
    string track2Data     = "12345678";
    string track3Data     = "87654321";
    //assign the card's source and destination locations for
    //the print job:
    job.JobControl.FeederSource = FeederSourceEnum.CardFeeder;
    job.JobControl.Destination = DestinationTypeEnum.Eject;
    job.PrintGraphicsLayersWithMagData(copies, track1Data,
              track2Data, track3Data, out actionID);
    while(true)
    {   job.GetJobStatus(actionID, out uuidJob,
        out printingStatus, out errorCode, out copiesCompleted,
            out copiesRequested, out magStatus,
            out contactStatus, out contactlessStatus);
        if (printingStatus == "done_ok" ||
            printingStatus == "cleaning_up" ||
            printingStatus == "done_error" ||
            printingStatus == "cancelled_by_user" ||
            printingStatus == "cancelled_by_error ||
            magStatus.Contains("error")) break;
    }
    if error status
        jobs can be aborted or retried
}
catch (Exception ex)
{ string errMsg = ex.Message;
}
finally
{
job = null;
}
```

5.2.11 MagDataOnly

Description: Sends a magnetic encoding job, does not print.

Syntax:
```
void MagDataOnly(
                        int                     copies,
                        string                  track1,
                        string                  track2,
                        string                  track3,
                        out int                 actionID)
```

Parameters:

copies	[in]	number of cards to encode
track1	[in]	null or “” indicates no data to encode
track2	[in]	null or “” indicates no data to encode
track3	[in]	null or “” indicates no data to encode
actionID	[out]	returned by a ZMotif device identifying a job’s ID

Returns: nothing

Note: If the card’s source and destination locations are not assigned for the current print job, the default locations FeederSourceEnum.CardFeeder, and DestinationTypeEnum.Eject will be assigned automatically for the card’s source and destination locations respectively if no previous print job has been created. If a previous print job has been created, its source and destination locations will be used for the current print job.

Sample:
```
Job job = new Job();
try
{   job.Open(deviceName);
    //assign the card's source and destination locations for
    //the print job:
    job.JobControl.FeederSource = FeederSourceEnum.CardFeeder;
    job.JobControl.Destination = DestinationTypeEnum.Eject;
    job.MagDataOnly (1, "TRACK1DATA", "22222222", "33333333",
        out actionID);
    while (true)
    {   alarm = job.GetJobStatus(actionID, out uuidJob,
            out printingStatus, out errorCode,
            out copiesCompleted, out copiesRequested,
            out magStatus, out contactStatus,
            out contactlessStatus);
        if (printingStatus == "done_ok" ||
            printingStatus == "cleaning_up" ||
            printingStatus == "done_error" ||
            printingStatus == “cancelled_by_user” ||
            printingStatus == “cancelled_by_error ||
            magStatus.Contains(“error”) break;
    }
    if error status
        jobs can be aborted or retried
}
catch (Exception ex)
{   errMsg = ex.Message;
}
```

5.2.12 ReadMagData

Description: Reads one or more magnetic track.

Syntax:
```
void ReadMagData(
                        DataSourceEnum          tracksToRead,
                        out string              track1,
                        out string              track2,
                        out string              track3,
                        out int                 actionID);
```

Parameters:

tracksToRead	[in]number of track to read (see Appendix B for enumeration values)
track1	[out] Track 1 data
track2	[out] Track 2 data
track3	[out] Track 3 data
actionID	[out] returned by a ZMotif device identifying a job's ID

Returns: nothing

Note: If the card's source and destination locations are not assigned for the current print job, the default locations FeederSourceEnum.CardFeeder, and DestinationTypeEnum.Eject will be assigned automatically for the card's source and destination locations respectively if no previous print job has been created. If a previous print job has been created, its source and destination locations will be used for the current print job.

Sample:
```
Job job = new Job();
try
{   job.Open(deviceName);
    //assign the card's source and destination locations for
    //the print job:
    job.JobControl.FeederSource = FeederSourceEnum.CardFeeder;
    job.JobControl.Destination = DestinationTypeEnum.Eject;
    job.ReadMagData(DataSourceEnum.Track1Data |
        DataSourceEnum.Track2Data |
        DataSourceEnum.Track3Data,
        out track1, out track2, out track3, out actionID);
}
catch (Exception ex)
{   errMsg = ex.Message;
}
```

EIN Example: See next page

EIN Example: Here is the example code demonstrating how to work with EIN:

```
String Track1Data = "";
String Track3Data = "";
String EIN = "";
int actionID = 0;

//sets the EIN track number:
job.JobControl.DataSource = DataSourceEnum.Track2Data;

//read the EIN from track 2:
job.ReadMagData(DataSourceEnum.Track2Data, out Track1Data,
    out EIN, out Track3Data, out actionID);

//determine if EIN is correct:
if (EIN.Length > 0)
{
    //insert your logic here for making this determination
}
else //EIN not encoded on track 2
{
    //insert your logic here for processing empty EIN track
}
```

5.2.13 SmartCardDataOnly

Description: Starts a smart card encode job, does not print.

Syntax:
```
void SmartCardDataOnly(
                    int                 copies,
                    out int             actionID)
```

Parameters:

copies	[in] numner of cards to encode
actionID	[out] returned by a ZMotif device identifying a job's ID

Returns: nothing

Note 1: SmartCardDataOnly moves a card to the smart card encoding station and suspends the job; the job is either completed via the JobResume function or aborted via the JobAbort function.

Note 2: If the card's source and destination locations are not assigned for the current print job, the default locations FeederSourceEnum.CardFeeder, and DestinationTypeEnum.Eject will be assigned automatically for the card's source and destination locations respectively if no previous print job has been created. If a previous print job has been created, its source and destination locations will be used for the current print job.

Sample: See next page

Sample:

```
Job job = new Job();
try
{   job.Open(deviceName);
    job.JobControl.SmartCardConfiguration(SideEnum.Front,
        SmartCardTypeEnum.Contact, true);
    //assign the card's source and destination locations for
    //the print job:
    job.JobControl.FeederSource = FeederSourceEnum.CardFeeder;
    job.JobControl.Destination = DestinationTypeEnum.Eject;
    job.SmartCardDataOnly(1, out actionID);
    while (true)
    {   alarm = job.GetJobStatus(actionID, out uuidJob,
            out printingStatus, out errorCode,
            out copiesCompleted, out copiesRequested,
            out magStatus, out contactStatus,
            out contactlessStatus);
        if (contactStatus == "at_station")
            break;
    }

    // PC/SC smart card code goes here
    // pseudocode example
    if smart card encoding is successful
        job.JobResume();
    else
        jobs can be aborted, job.JobAbort(),
        or retried, job.JobRetry()

    while (true)
    {   alarm = job.GetJobStatus(actionID, out uuidJob,
            out printingStatus, out errorCode,
            out copiesCompleted, out copiesRequested,
            out magStatus, out contactStatus,
            out contactlessStatus);
        if (printingStatus == "done_ok" ||
            printingStatus == "cleaning_up" ||
            printingStatus == "done_error" ||
            printingStatus == "cancelled_by_user" ||
            printingStatus == "cancelled_by_error) break;
    }
    if error status
        jobs can be aborted or retried
}
catch (Exception ex)
{   errMsg = ex.Message;
}
```

5.2.14 GetJobList

Description: Gets a list of the pending jobs.

Syntax: `short GetJobList( out object jobList )`

Parameters:

jobList	[out]string array contains "actionID, uuid, status"

Example:

```
"ActionID: 13, UUID: 86b8d6bc-66f8-4758-acd9-7a3036901094,
    Status: done"
"ActionID: 14, UUID: 593839fc-f889-44d0-8df4-1ee0880695f9,
    Status: in_progress"
```

Returns: error code (see Appendix A)

Sample:

```
try
{   object objJobList = null;
    alarm = job.GetJobList(out objJobList);
    if (objJobList != null)
    {   Array array      = (Array)objPrinterList;
        string[] jobList = new string[array.GetLength(0)];
        for (int i = 0; i < array.GetLength(0); i++)
            jobList[i] = (string)array.GetValue(i);
    }
}
catch (Exception ex)
{   errMsg = ex.Message;
}
```

5.2.15 GetJobStatus

```
Description: Gets job status.

Syntax: short GetJobStatus(
                                int                     actionID,
                                out string              uuidJob,
                                out bool                readyForNextJob,
                                out string              printingStatus,
                                out string              cardPosition,
                                out int                 errorCode,
                                out int                 copiesCompleted,
                                out int                 copiesRequested,
                                out string              magStatus,
                                out string              contactStatus,
                                out string              contactlessStatus)

Parameters:  actionID           [in ]job's Action ID
             uuidJob            [out]job's UUID
             readyForNextJob    [out] indicates whether or not the printer can
                                 accept a new job
                                 true = can accept new job
                                 false = cannot accept new job
             printingStatus     [out]present job status
             cardPosition       [out]card's current position in printer
             errorCode          [out]error code
             copiesCompleted    [out]number of copies complete
             copiesRequested    [out]number of copies requested
             magStatus          [out]magnetic encoding status
             contactStatus      [out]contact encoding status
             contactlessStatus  [out]contactless encoding status
```

- printingStatus:

```
          "initializing",      "receiving",         "receive_ok",
          "receive_error",     "receive_offline",    "parsed",
          "in_progress",       "done_ok",            "done_error",
          "cancelled_by_user", "cancelled_by_error", "cleaning_up",
```

- cardPosition:

```
          "not_in_printer",    "held",               "ejecting_eject",
          "ejecting_reject",   "ejecting_feeder"     "laminate_insert",
```

- magStatus:

```
          "encoding",          "verifying",          "reading",
          "read_error",        "read_ein_error",     "write_error",
          "retrace_error"
```

- contactStatus:

```
          "at_station",        "encoding",          "smart_encode_error",
          "contact_error"
```

- contactlessStatus:

```
          "at_station",        "encoding",          "smart_encode_error",
          "contactless_error"
```

```
Returns:     error code (see Appendix A)

Sample:      See next page
```

Sample 1:

```
while (true)
{   alarm = job.GetJobStatus(actionID, out uuidJob,
        out printingStatus, out errorCode, out copiesCompleted,
        out copiesRequested, out magStatus, out contactStatus,
        out contactlessStatus);
if ( … check status condition …)
    break;
}
```

Sample 2:

```
Short alarm = job.GetJobStatus(actionID, out uuidJob,
    out printingStatus, out cardPosition, out errorCode,
    out copiesCompleted, out copiesRequested, out magStatus,
    out contactStatus, out contactlessStatus );
```

5.2.16 GetJobStatusEx

```
Description: Gets job status.

Syntax: short GetJobStatus(
                                int                     actionID,
                                out string              uuidJob,
                                out bool                readyForNextJob,
                                out string              printingStatus,
                                out string              cardPosition,
                                out int                 errorCode,
                                out int                 copiesCompleted,
                                out int                 copiesRequested,
                                out string              Status,
                                out string              contactStatus,
                                out string              contactlessStatus)

Parameters:  actionID           [in ]job's Action ID
             uuidJob            [out]job's UUID
             readyForNextJob    [out] indicates whether or not the printer can
                                 accept a new job
                                 true = can accept new job
                                 false = cannot accept new job
             printingStatus     [out]present job status
             cardPosition       [out]card's current position in printer
             errorCode          [out]error code
             copiesCompleted    [out]number of copies complete
             copiesRequested    [out]number of copies requested
             magStatus          [out]magnetic encoding status
             contactStatus      [out]contact encoding status
             contactlessStatus  [out]contactless encoding status
```

- printingStatus:

```
          "initializing",      "receiving",            "receive_ok",
          "receive_error",     "receive_offline",      "parsed",
          "in_progress",       "done_ok",              "done_error",
          "cancelled_by_user", "cancelled_by_error",   "cleaning_up",
```

- cardPosition:

```
          "not_in_printer",    "held",                 "ejecting_eject",
          "ejecting_reject",   "ejecting_feeder",      "laminate_insert"
```

- Status:

```
          "encoding",          "verifying",            "reading",
          "read_error",        "read_ein_error",       "write_error",
          "retrace_error"
```

- contactStatus:

```
          "at_station",        "encoding",
          "contact_error"      "smart_encode_error",
```

- contactlessStatus:

```
          "at_station",        "encoding",
          "contactless_error"  "smart_encode_error",
```

```
Returns:     error code (see Appendix A)

Sample:      See next page
```

Sample 1:

```
while (true)
{
    alarm = job.GetJobStatus(actionID, out uuidJob,
                                       out readyForNextJob,
                                       out printingStatus,
                                       out errorCode,
                                       out copiesCompleted,
                                       out copiesRequested,
                                       out magStatus,
                                       out contactStatus,
                                       out contactlessStatus);
if ( … check status condition …)
       break;
}
```

5.2.17 JobAbort

```
Description:  Aborts a suspended job.

Syntax:       void JobAbort( boolean reject, out short alarm)

Parameters:   reject            [in ]rejects a card if true
              alarm             [out]error code (see Appendix A)

Returns:      nothing

Sample:       job.JobAbort(true, out alarm);
```

5.2.18 JobCancel

```
Description: Cancels a pending job.

Syntax:      void JobCancel( int actionID )

Parameters:  actionID          [in ]a job's identifier

Returns:     nothing

Note:        actionID = 0 cancels all jobs

Sample:      job.JobCancel ( actionID ) ;
```

5.2.19 JobReprint

```
Description:  Reprints the last job.

Syntax:       void JobReprint( int copies )

Parameters:   copies             [in ]number of copies to reprint

Returns:      nothing

Sample:       job.JobReprint ( copies );
```

5.2.20 JobResume

```
Description:  Resumes a suspended job.

Syntax:       void JobResume()

Parameters:   nothing

Returns:      nothing

Sample:       job.JobResume();
```

5.2.21 JobRetry

```
Description: Retries a suspended job.

Syntax:      void JobRetry()

Parameters:  nothing

Returns:     nothing

Sample:      job.JobRetry();
```

5.2.22 SmartCardRetry

```
Description: Retries the last smart operation.

Syntax:      void SmartCardRetry(
                                 SmartCardTypeEnum       scType )

Parameters:  scType             [in ]Smart Card Type (see Appendix B for
                                 enumeration values)

Returns:     nothing

Sample:      job.SmartCardRetry(scType);
```

5.2.23 ClearError

```
Description:  Clears an error on a ZMotif device.

Syntax:       short ClearError()

Parameters:   nothing

Returns:      error code (see Appendix A)

Sample:       alarm = job.ClearError();
```

5.2.24 Reset

```
Description:  Orders a printer to perform a reset.

Syntax:       short Reset(
                                ResetTypeEnum           resetType )

Parameters:   resetType         [in ]full or warm (see Appendix B for
                                 enumeration values)

Returns:      error code (see Appendix A)

Sample:       alarm = job.Reset(ResetTypeEnum.Full);
```

5.2.25 GetPrinters

Description: Gets a list of available printers connected via USB or Ethernet.

Syntax:
```
void GetPrinters(
                    ConnectionTypeEnum      conType,
                    out object              printerList )
```

Parameters:
```
conType            [in ]connection type to search (see Appendix B
for enumeration values)
printerList        [out]printer list, string array
```

Returns: nothing

Note: In case of an Ethernet connected printer, the printer name will be followed by a comma and its corresponding IP Address (“Zebra Printer Name, 10.1.4.82”)

Sample:
```
job = new Job();
try
{   object objPrinterList = null;
    job.GetPrinters(ConnectionTypeEnum.USB, out objPrinterList);
    if (objPrinterList != null)
    {   Array array      = (Array)objPrinterList;
        string[] prnList = new string[array.GetLength(0)];
        for (int i = 0; i < array.GetLength(0); i++)
            prnList[i] = (string)array.GetValue(i);
    }
}
catch (Exception ex)
{   string errMsg = ex.Message;
}
job = null;
```

5.2.26 GetBroadcastConfiguration

```
Description: Gets Ethernet broadcasting configuration.

Syntax:      void GetBroadcastConfiguration(
                                 out int                 retries,
                                 out float               timeout,
                                 out int                 maxDevices )

Parameters:  retries             [out]number of times to broadcast
             timeout             [out]timeout in seconds
             maxDevices          [out]max number of devices allowed

Returns:     nothing

Sample:      job.GetBroadcastConfiguration(out retries, out timeout,
                 out maxDevices);
```

5.2.27 SetBroadcastConfiguration

```
Description: Sets Ethernet broadcasting configuration.

Syntax:      void SetBroadcastConfiguration(
                                int                     retries,
                                float                   timeout,
                                int                     maxDevices )

Parameters:  retries           [in ]number of times to broadcast
             timeout           [in ]timeout in seconds
             maxDevices        [in ]max number of devices allowed

Returns:     nothing

Sample:      job.SetBroadcastConfiguration(retries, timeout, maxDevices);
```

5.2.28 ReserveDevice

```
Description: Reserves a device, used in shared environments.

Syntax:      short ReserveDevice(
                                 ReservationTypeEnum     reservationType,
                                 out int                 reservationToken)

Parameters:  reservationType    [in ]immediate or pending (see Appendix B for
                                 enumeration values)
             reservationToken   [out]reservation status

Returns:     error code (see Appendix A)

Sample:      alarm = job.ReserveDevice(ReservationTypeEnum.ImmediateSession,
                 out reservationToken);
```

5.2.29 GetReservationStatus

```
Description: Resturns the status of a reservation request.

Syntax:      void GetReservationStatus(
                                  int                    reservationToken,
                                  out bool               sessionGranted )

Parameters:  reservationToken   [in ]reservation token for request status
             sessionGranted     [out]flag indicating reservation status:
                                 true = reservation granted for token
                                 false = reservation not granted for token

Returns:     error code (see Appendix A)
```

5.2.30 IsDeviceInSession

```
Description:  Indicates if a device is in session.

Syntax:       short IsDeviceInSession(
                                  int                     reservationToken,
                                  out boolean             inSession )

Parameters:   reservationToken   [in ]reservation status
              inSessionif        [out]true, device is in session

Returns:      error code (see Appendix A)

Sample:       alarm = job.IsDeviceInSession(reservationToken, out inSession);
```

5.2.31 ReleaseDevice

```
Description: Releases a reserved device.

Syntax:      short ReleaseDevice( int reservationToken )

Parameters:  reservationToken   [in ]reservation status

Returns:     error code (see Appendix A)

Sample:      alarm = job.ReleaseDevice(reservationToken);
```

5.2.32 GetSDKVersion

```
Description: Gets the SDK version.

Syntax:      void GetSDKVersion(
                              out byte                major,
                              out byte                minor,
                              out byte                build,
                              out byte                revision )

Parameters:  major             [out]major number of SDK version
             minor             [out]minor number of SDK version
             build             [out]build number of SDK version
             revision          [out]revision number of SDK version

Returns:     nothing

Sample:      job.GetSDKVersion( out major, out minor, out build,
                 out revision );
```

5.2.33 GetSDKProductVersion

```
Description:  Gets the SDK product version, adheres to Zebra versioning
              standards.

Syntax:       void GetSDKProductVersion( out string productVersion )

Parameters:   productVersion     [out]product version string

Returns:      nothing

Sample:       string productVersion = string.Empty;
              job.GetSDKProductVersion( out productVersion );
```

5.2.34 EjectCard

Description: Sends card from internal hold position to eject bin.

Syntax: EjectCard()

Parameters: nothing

Returns: error code (see Appendix A)

Sample: Short Alarm = Job.EjectCard();

5.2.35 RejectCard

```
Description:  Sends card from internal hold position to reject bin.

Syntax:       RejectCard()

Parameters:   nothing

Returns:      error code (see Appendix A)

Sample:       Short Alarm = Job.RejectCard();
```

5.2.36 ReturnCardToFeeder

Description: Sends card from internal hold position to feeder location.

Syntax: ReturnCardToFeeder()

Parameters: nothing

Returns: error code (see Appendix A)

Sample: Short Alarm = Job.ReturnCardToFeeder();

5.2.37 PositionCard

Description: Moves card from current location to the specified destination.

Syntax: PositionCard(out int actionID)

Parameters:

actionID	[out]returned by a ZMotif device identifying a job's ID

Returns: error code (see Appendix A)

Sample 1:

```
Short Alarm = Job.PositionCard(out actionID);
```

Note: The card's current location is defined by the JobControl.FeederSource attribute. The specified destination is defined by the JobControl.Destination attribute. These two parameters must be set prior to calling PositionCard.

The following sample code demonstrates how to move a card from the Card Feeder Hopper to the Eject Bin:

Sample 2:

```
//define the card's current location and specified destination:
Job.JobControl.FeederSource = FeederSourceEnum.CardFeeder
Job.JobControl.Destination = DestinationTypeEnum.Eject;

//move the card from the card feeder to the eject bin:
int actionID = 0;
short alarm = Job.PositionCard(out actionID);
```

5.2.38 ReadBarcodeData

```
Description: Reads a pre-printed barcode from a card and returns the data.

Syntax:      short SendCommand(
                          out string              barcodeType,
                          out string              barcodeData,
                          out int                 actionID)

Parameters:  barcodeType       [out] type of barcode printed on the card
             barcodeData       [out] data read from the barcode
             actionID          [out] job identifier associated with the
                                barcode read operation

Return:      Error code - See Appendix A

Sample:      string barcodeType = string.Empty;
             string barcodeData = string.Empty;
             int actionID = 0;

             short alarm = job.ReadBarcodeData(out barcodeType,
                               out barcodeData, out actionID);
```

6 Job Control

6.1 Properties

Boolean	
DeleteAfter	gets / sets if a job is to be deleted on completion
EnableOCPReprint	gets/sets a flag to enable/disable the printer's OCP panel's reprint button
MagVerification	gets / sets verification after magnetic encoding
Enumeration	
DataSource	gets / sets DataSourceEnum
Destination	gets / sets DestinationTypeEnum
FeederSource	gets / sets FeederSourceEnum
OrientationBack	gets / sets OrientationEnum
OrientationFront	gets / sets OrientationEnum
PrintOptimizationMode	gets / sets the PrintOptimizationModeEnum for ZXP Series 9 Printers
RotationBack	gets / sets RotationEnum
RotationFront	gets / sets RotationEnum
SharpnessLevelBack	gets / sets SharpnessLevelEnum
SharpnessLevelFront	gets / sets SharpnessLevelEnum
MagCoercivity	gets / sets MagCoercivityEnum
MagDataTrk1Format	gets / sets the magnetic data format for track 1
MagDataTrk2Format	gets / sets the magnetic data format for track 2
MagDataTrk3Format	gets / sets the magnetic data format for track 3
MagEncodeSide	gets / sets SideEnum
MagEncodingType	gets / sets MagEncodingTypeEnum
Integer	
CardThickness	gets / sets card thickness in mils default is 30
Interface	
CustomMagSettings	returns the CustomMagSettings Interface (see **Section 8**)

Short ColorPreheatLevel	gets /sets the preheat level value for color printing
KPreheatLevelBack	gets /sets the preheat level value for k panel printing on the back-side of a card
KPreheatLevelFront	gets /sets the preheat level value for k panel printing on the front-side of a card
String CardType	gets / sets card type name; default is “PVC” (refer to **Section 6.2.7** for a list of available card types)PassPhrase sets the pass phrase in use by the printer refer to Toolbox Manual for details regarding the assignment of passphrase host authentication key and data encryption key to the printer)

6.2 Methods

6.2.1 JobConfiguration

```
Description: Sets job properties.

Syntax:      void JobConfiguration (
                                FeederSourceEnum        feeder
                                string                  cardType
                                int                     cardThickness
                                DataSourceEnum          dataSrc
                                boolean                 deleteJob )

Parameters:  feeder             [in ]sets property FeederSource
             cardTypesets       [in ]property CardType
             cardThickness      [in ]sets property CardThickness
             dataSrc            [in ]sets property DataSource
             deleteJob          [in ]sets property DeleteAfter

Returns:     nothing

Sample:      job.JobControl.JobConfiguration(feeder cardType cardThickness
                 dataSrc deleteJob);
```

6.2.2 SideConfiguration

```
Description: Sets side configuration properties.

Syntax:      void SideConfiguration (
                                SideEnum                side
                                OrientationEnum         imgOrientation
                                RotationEnum            imgRotation
                                SharpnessLevelEnum      imgSharpness )

Parameters:  side               [in ]front back
             imgOrientation     [in ]landscape portrait
             imgRotation        [in ]0 180
             imgSharpness       [in ]sets the image sharpness in the device

Returns:     nothing

Sample:      job.JobControl.SideConfiguration(side imgOrientation
                    imgRotation imgSharpness);
```

6.2.3 MagConfiguration

```
Description: Sets magnetic encoding properties.

Syntax:      void MagConfiguration (
                                SideEnum                side
                                MagCoercivityEnum       coercivity
                                MagEncodingTypeEnum     encodingType
                                MagDataFormatEnum       format
                                boolean                 verify )

Parameters:  side               [in ]front back
             coercivity         [in ]sets property MagCoercivity
             encodingType       [in ]sets property MagEncodingType
             format             [in ]sets property MagDataFormat
             verify             [in ]indicates if verify after encoding

Returns:     nothing

Sample:      job.JobControl.MagConfiguration(side coercivity encodingType
                 format verify);
```

6.2.4 SmartCardConfiguration

```
Description: Indicates if smart card encoding is part of a job.

Syntax:      void SmartCardConfiguration (
                                  SideEnum                side
                                  SmartCardTypeEnum       smartCardType
                                  boolean                 program )

Parameters:  side                [in ]side the smart card chip is on
             smartCardType       [in ]type of smart card
             program             [in ]true indicates that the job will suspend
                                  for smart card encoding

Returns:     nothing

Sample:      job.JobControl.SmartCardConfiguration(side smartCardType
                 program);
```

6.2.5 ConfigureDataEncryption

```
Description: Sets what will be encrypted.

Syntax:      void ConfigureDataEncryption (
                                EncryptionTypeEnum      encryptionType
                                boolean                 encJobControl
                                boolean                 encGraphics )

Parameters:  encryptionType     [in ]sets the type of encryption
             encJobControl      [in ]identifies if the job control is to
                                 be encrypted
             encGraphics        [in ]identifies if the graphic image is to
                                 be encrypted

Returns:     nothing

Sample:      job.JobControl.ConfigureDataEncryption(EncryptionTypeEnum.AES
                 false false);
```

6.2.6 GetDataEncryptionConfiguration

```
Description: Gets what will be encrypted.

Syntax:      void GetDataEncryptionConfiguration (
                                 out EncryptionTypeEnum   encryptionType
                                 out boolean              encJobControl
                                 out boolean              encGraphics )

Parameters:  encryptionType     [out]type of encryption
             encJobControl      [out]identifies if the job control is to
                                 be encrypted
             encGraphics        [out]identifies if the graphic image is to
                                 be encrypted

Returns:     nothing

Sample:      job.JobControl.GetDataEncryptionConfiguration (out
                 encryptionType encJobControl encGraphics);
```

6.2.7 GetAvailableCardTypes

Note • This Method applies to ZXP Series 8 Printers only.

```
Description: Gets a list of supported card types.

Syntax:      void GetAvailableCardTypes ( out object cardTypes )

Parameters:  cardTypes          [out]array of card types returned as an object

Returns:     nothing

Sample:      try
             {   job.JobControl.GetAvailableCardTypes(out objCardTypes);
                 if (objCardTypest != null)
                 {   Array array      = (Array)objCardTypes;
                     string[] cardTypes = new string[array.GetLength(0)];
                     for (int i = 0; i < array.GetLength(0); i++)
                         cardTypes[i] = (string)array.GetValue(i);
                 }
             }
             catch (Exception ex)
             {   errMsg = ex.Message;
             }
```

6.2.8 GetCardTypeInformation

```
Description: Gets information on a card type.

Syntax:      void GetCardTypeInformation (
                                  string                  cardType
                                  out string              xmlCardData )

Parameters:  cardTypes          [in ]card type
             xmlCardData        [out]XML file containing card
                                 information for the card type selected

Returns:     nothing

Sample:      job.JobControl.GetCardTypeInformation(cardType
                 out xmlCardData);
```

6.2.9 IntegerFromColorName

```
Description: Gets the integer value for a color.

Syntax:      int IntegerFromColorName( string colorName )

Parameters:  colorName          [in ]color name

Returns:     integer value which represents the color name's color value
```

6.2.10 SetKPanelOptimization

```
Description:  Sets the K panel optimization for the front or back panel.

Syntax:       void SetKPanelOptimization ( SideEnum side )

Parameters:   side              [in ]K panel side for optimization (see
                                 Appendix B for enumeration values)

Returns:      nothing

Sample:       job.JobControl.SetKPanelOptimization(SideEnum.Front)
```

6.2.11 KPanelOverwrite

```
Description: Enables k panel overwrite on a side of a card.

Syntax:      void KPanelOverwrite(
                                  SideEnum                side
                                  bool                    Enabled );

Parameters:  side              [in ]the side of the card to enable/disable
                                the k-panel overwrite (see Appendix B for
                                enumeration values)

             Enabled           [in ]flag indicating whether or not k-panel
                                overwrite is enabled
                                true = k-panel overwrite enabled
                                false = k-panel overwrite disabled

Returns:     none

Sample:      //enable k-panel overwrite feature for the front-side of a card:
             SideEnum side = SideEnum.Front;
             bool Enabled = true;
             job.JobControl.KPanelOverwrite(side Enabled);
```

6.2.12 SetMonoConvType

Description: Defines the type of monochrome conversion to be performed for the designated side of a card.

Syntax:
```
void SetMonoConvType(
                    SideEnum                side
                    MonoConvTypeEnum        convType);
```

Parameters:

side	[in]the side of the card to enable/disable the k-panel overwrite (see ***Appendix B*** for enumeration values)
convType	[in]the type of monochrome conversion to be used (see ***Appendix B*** for enumeration values)

Returns: error code (see ***Appendix A***)

Sample:
```
//enable monochrome conversion for the back-side of a card:
SideEnum side = SideEnum.Back;

//barcode to be converted
MonoConvTypeEnuml convType = MonoConvTypeEnum.MonoBarcode;

job.JobControl.SetMonoConvType(side convType);
```

7 Device

7.1 Properties

Boolean

AuthenticationEnabled	indicates if authentication is active read only
EncryptionEnabled	indicates if encryption is active read only
HasBarcode	returns true if the printer configuration includes a barcode readermodule.
HasLaminator	indicates if printer configuration includes a laminator read only
IsPrinterLocked	indicates if printer is locked (true = locked false = unlocked)
SNMPEnabled	enables/disables the SNMP protocol on the printer

Byte

LCDContrast	sets the LCD display value

Enumerations

ActiveLUTTable	returns the LUT table type that is currently in use by the printer
ErrorControlLevel	sets/gets the ErrorControlLevelEnum
EventLogLevel	gets / sets the level of logging used for the event log entries
ImageTransferType	gets the TransferTypeEnum
OCPLanguage	sets/gets the OCPLanguageEnum
PrintCapability	gets the TransferTypeEnum
StandbyTimeout	sets/gets the StandbyTimeoutEnum
USBSpeed	sets/gets the USBSpeedEnum

Integer

CleanWarningThreshold	sets/gets the threshold value which will trigger the printer to display the clean printer message on the OCP.
HeadResistance	sets the head resistance default = 0
ParamChgCounter	gets the number of times parameters have been changed
SmartCardOffset	sets the smart card x offset position value is set during production
USBReadTimeout	assigns the timeout value for reading data from the USB port
USBWriteTimeout	assigns the timeout value for writing data to the USB port

Object

PrinterEncryptionKey	gets /sets the encryption key to be used
PrinterLockKey	assigns the key for the printer's lock command (must be 32-byte hexadecimal value)

Short

HttpPort	gets / sets the port number used for HTTP

String

PrinterType	gets the type of printer read only
WirelessMACAddress	gets /sets the host’s MAC Address for wireless access

7.2 Methods

7.2.1 GetPrinterStatus

Description: Gets printer status.

Syntax:
```
short GetPrinterStatus (
                        out string              status
                        out int                 error
                        out int                 jobsPending
                        out int                 jobsActive
                        out int                 jobsComplete
                        out int                 jobErrors
                        out int                 jobsTotal
                        out int                 nextActionID )
```

Parameters:

status	[out]status message
error	[out]error code value
jobsPending	[out]number of jobs in the printer's queue
jobsActive	[out]number of active jobs
jobsComplete	[out]number of jobs completed
jobErrors	[out]number of job errors
jobsTotaltotal	[out]number of jobs processed
nextActionID	[out]next job's action ID

Status: "initializing" "idle" "xfer_rollers_heating" "standby" "printing" "printing_heating" "alarm_handling" "offline" "canceling" "temp_out_of_range" "mag_ops" "contact_ops" "contactless_ops" "config_data" "job_data" "diagnostic_mode" "xfer_rollers_cooling" "printing_cooling" "insert_card"

Returns: error code (see ***Appendix A***)

Sample:
```
alarm = job.Device.GetPrinterStatus(out status out error
    out jobsPending out jobsActive out jobsCompleted
    out jobErrors out jobsTotal out nextActionID);
```

7.2.2 ResumeFromStandby

```
Description: Resumes operations after a printer is in standby mode.

Syntax:      void ResumeFromStandBy ( void )

Parameters:  nothing

Returns:     nothing
```

7.2.3 GetCapabilities

```
Description: Gets the capabilities xml document.

Syntax:      short GetCapabilities (
                          CapabilitiesReportTypeEnum  reportType
                          out string                  xmlCapabilities )

Parameters:  reportType         [in ]general or media
             xmlCapabilities    [out]document containing device capability
                                 information

Returns:     error code (see Appendix A)

Note:        See Appendix C Section C.1 for an example of an XML Capabilities
             Document.

Sample:      alarm = job.Device.GetCapabilities(CapabilitiesReportTypeEnum.
                 General out xmlCapabilities);
```

7.2.4 GetConfiguration

Description: Gets the xml configuration document.

Syntax: short GetConfiguration (out string xmlConfig)

Parameters: xmlConfig [out]document containing configuration information

Returns: error code (see ***Appendix A***)

Note: See Appendix C ***Section C.3*** for an example of an XML Configuration Document.

Sample: alarm = job.Device.GetConfiguration(out xmlConfig);

7.2.5 SetConfiguration

Description: Updates the xml configuration document.

Syntax: short SetConfiguration (string xmlConfig)

Parameters: xmlConfig [in]document containing configuration information

Returns: error code (see ***Appendix A***)

Note: See Appendix C ***Section C.3*** for an example of an XML Configuration Document.

Sample:

```
alarm = job.Device.SetConfiguration( xmlConfig);
```

7.2.6 GetCustomCardConfiguration

```
Description: Gets the XML custom card configuration document.

Syntax:      short GetCustomCardConfiguration (
                                  byte                    cardNumber
                                  out string              xmlCardConfig )

Parameters:  cardNumber         [in ]custom card number
             xmlCardConfig      [out]document containing the custom card
                                 configuration information

Returns:     error code (see Appendix A)

Note 1:      See Appendix C Section C.2 for an example of an XML Card
             Configuration Document.

Note 2:      The custom card number can only be 1 or 2; this corresponds to
             Custom Card 1 and Custom Card 2 respectively.

Sample:      alarm = job.Device.GetCustomCardConfiguration(cardNumber
                 out xmlCardConfig);
```

7.2.7 SetCustomCardConfiguration

Description: Sets custom card configuration.

Syntax: short SetCustomCardConfiguration (string xmlCardConfig)

Parameters: xmlCardConfig [in]document specifying custom card configuration information

Returns: error code (see ***Appendix A***)

Note: See Appendix C ***Section C.2*** for an example of an XML Custom Card Configuration Document.

Sample:
```
alarm = job.Device.SetCustomCardConfiguration(xmlCardConfig);
```

7.2.8 GetAvailableMemory

```
Description: Gets available device memory size.

Syntax:      short GetAvailableMemory (
                                  MemorySourceEnum        memType
                                  out int                 memSize )

Parameters:  memType           [in ]RAM Flash
             emSize            [out]byte count of free memory

Returns:     error code (see Appendix A)

Sample:      alarm = job.Device.GetAvailableMemory(MemorySourceEnum.MemRAM
                 out memSize);
```

7.2.9 GetDeviceInfo

Description: Gets device information.

```
Syntax:      short GetDeviceInfo (
                                  out string              vendor
                                  out string              model
                                  out string              serialNumber
                                  out string              MAC
                                  out string              headSerialNumber
                                  out string              oemCode
                                  out string              fwVersion
                                  out string              mediaVersion
                                  out string              heaterVersion
                                  out string              zmotifVersion )
```

Parameters:		
	vendor	[out]vendor name
	model	[out]model number
	serialNumber	[out]serial number
	MAC	[out]MAC address
	headSerialNumber	[out]print head serial number
	oemCode	[out]OEM model number
	fwVersion	[out]firmware version
	mediaVersion	[out]media version
	heaterVersion	[out]heater version
	zmotifVersion	[out]ZMotif version number

Returns: error code (see ***Appendix A***)

```
Sample:      alarm = job.Device.GetDeviceInfo(out vendor out model
                 out serialNumber out MAC headSerialNumber
                 out oemCode out fwVersion out mediaVersion
                 out heaterVersion out zmotifVersion);
```

7.2.10 GetFilmParams

Note • This Method applies to ZXP Series 8 Printers only.

```
Description: Gets film information.

Syntax:      short GetFilmParams (
                                 out int                 type
                                 out string              partNumber
                                 out string              description
                                 out string              oemCode
                                 out int                 initialSize
                                 out int                 panelsRemaining )

Parameters:  type               [out]film type
             partNumber         [out]film part number
             description        [out]description of the film
             oemCode            [out]OEM part number
             initialSize        [out]total number of panels
             panelsRemaining    [out]number of panels remaining

Retruns:     error code (see Appendix A)

Sample:      alarm = job.Device.GetFilmParams(out type out partNumber
                 out description out oemCode out initialSize
                 out panelsRemaining);
```

7.2.11 GetLog

```
Description: Gets XML log data.

Syntax:      short GetLog (
                                LogTypeEnum             logType
                                boolean                 clear
                                out string              xmlLog )

Parameters:  logType            [in ]type of log
             clear              [in ]if true clears log after reading
             xmlLog             [out]document containing log information

Returns:     error code (see Appendix A)

Note:        Logs are maintained across power cycles.

Buffer requirements:
             LogTypeEnum.Errors: bufferSize ≥ 2048 bytes
             LogTypeEnum.Cleaning | LogTypeEnum.Service: bufferSize ≥ 256
             bytes
             LogTypeEnum.Events: bufferSize ≥ 65535 bytes

Sample:      alarm = job.Device.GetLog(LogTypeEnum.Events clear
                 out xmlLog);
```

7.2.12 GetMagneticEncoderConfiguration

```
Description: Gets magnetic encoder configuration.

Syntax:      void GetMagneticEncoderConfiguration (
                                  out string              headType
                                  out string              stripeLocation )

Parameters:  headType          [out]type of magnetic head
             stripeLocation    [out]“top” or “bottom”

Returns:     nothing

Sample:      job.Device.GetMagneticEncoderConfiguration(out headType
                 out stripeLocation);
```

7.2.13 GetMagStartSentinelOffset

```
Description: Returns the offset value of the start sentinel for a
             specific magnetic track.

Syntax:      short GetMagStartSentinelOffset(
                                MagTrackNumberEnum      trkNumber
                                out short               offset )

Parameters:  trkNumber          [in ]the magnetic track (see Appendix B
                                 for details)
             offset             [out]start sentinel offset for the
                                 magnetic track

Returns:     error code (see Appendix A)

Sample:      MagTrackNumberEnum trkNumber = MagTrackNumberEnum.MagTrack1;
             short offset = 0;
             job.Device.GetMagStartSentinelOffset(trkNumber, out offset);
```

7.2.14 SetMagStartSentinelOffset

```
Description:  Sets the offset value of the start sentinel for a specific
              magnetic track.

Syntax:       short SetMagStartSentinelOffset(
                                  MagTrackNumberEnum      trkNumber
                                  short                   offset )

Parameters:   trkNumber           [in ]the magnetic track (see Appendix B
                                   for details)
              offset              [in ]start sentinel offset for the
                                   magnetic track

Returns:      error code (see Appendix A)

Sample:       MagTrackNumberEnum trackNumber = MagTrackNumberEnum.MagTrack1;
              short offset = 10;
              job.Device.SetMagStartSentinelOffset(trackNumber, offset);
```

7.2.15 GetNetworkParams

```
Description: Gets network parameters.

Syntax:      short GetNetworkParams (
                                 out string              MAC
                                 out string              ipAddress
                                 out string              subMask
                                 out string              gateway
                                 out boolean             dhcpEnabled )

Parameters:  MAC                 [out]MAC address
             ipAddress           [out]TCP/IP address
             subMask             [out]submask address
             gateway             [out]gateway address
             dhcpEnabled         [out]indicates if dhpc is enabled or not

Returns:     error code (see Appendix A)

Sample:      alarm = job.Device.GetNetworkParams(out MAC out ipAddress
                 out subMask out gateway out dhcpEnabled);
```

7.2.16 SetNetworkParams

```
Description:  Sets network parameters.

Syntax:       short SetNetworkParams (
                                string                  ipAddress
                                string                  subMask
                                string                  gateway
                                BoolTypeEnum            dhcpEnabled )

Parameters:   ipAddress         [in ]network IP address for the device
              subMask           [in ]network submask address for the device
              gateway           [in ]gateway address for the device
              dhcpEnabled       [in ]BoolTypeEnum.NoChange BoolTypeEnum.False
                                 BoolTypeEnum.True

Returns:      error code (see Appendix A)

Note:         Any of the arguments can be null; if null property is not set.

Sample:       alarm = job.Device.SetNetworkParams(ipAddress subMask gateway
                  BoolTypeEnum.NoChange);
```

7.2.17 GetPanelPowerLevels

```
Description: Gets the panel power levels.

Syntax:      short GetPanelPowerLevels (
                              out byte                yellowPanel
                              out byte                magentaPanel
                              out byte                cyanPanel
                              out byte                kResinFront
                              out byte                kResinBack
                              out byte                kDye
                              out byte                overlayPanel
                              out byte                uvFront
                              out byte                uvBack )

Parameters:  yellowPanel       [out]yellow panel level
             magentaPanel      [out]magenta panel level
             cyanPanel         [out]cyan panel level
             kResinFront       [out]front monochrome panel level
             kResinBack        [out]back monochrome panel level
             kDye              [out]monochrome dye level
             overlayPanel      [out]overlay panel level
             uvFront           [out]front UV panel level
             uvBack            [out]back UV panel level

Returns:     error code (see Appendix A)

Sample:      alarm = job.Device.GetPanelPowerLevels(out yellowPanel
                 out magentaPanel out cyanPanel out kResinFront
                 out kResinBack out kDye out overlay out uvFront
                 out uvBack);
```

7.2.18 GetPanelPowerLevelsEx

```
Description: Returns the panel power levels.

Syntax:      short GetPanelPowerLevelsEx (
                              out byte                yellowPanel
                              out byte                magentaPanel
                              out byte                cyanPanel
                              out byte                kResinFront
                              out byte                kResinBack
                              out byte                kDye
                              out byte                overlayPanel
                              out byte                uvFront
                              out byte                uvBack
                              out byte                inhibitPanel
                              out byte                helperPanel )

Parameters:  yellowPanel       [out]yellow panel level
             magentaPanel      [out]magenta panel level
             cyanPanel         [out]cyan panel level
             kResinFront       [out]front monochrome panel level
             kResinBack        [out]back monochrome panel level
             kDye              [out]monochrome dye level
             overlayPanel      [out]overlayPanel level
             uvFront           [out]front UV panel level
             uvBack            [out]back UV panel level
             inhibtPanel       [out]inhibitPanel level
             helperPanel       [out]helperPanel level

Returns:     error code (see Appendix A)

Sample:      alarm = job.Device.GetPanelPowerLevelsEx(out yellowPanel
                 out magentaPanel out cyanPanel out kResinFront
                 out kResinBack out kDye out overlayPanel out uvFront
                 out uvBack  out inhibitPanel out helperPanel);
```

7.2.19 SetPanelPowerLevels

```
Description: Sets the panel power levels.

Syntax:      short SetPanelPowerLevels(
                                byte                    yellowPanel
                                byte                    magentaPanel
                                byte                    cyanPanel
                                byte                    kResinFront
                                byte                    kResinBack
                                byte                    kDye
                                byte                    overlayPanel
                                byte                    uvFront
                                byte                    uvBack )

Parameters:  yellowPanel        [in ]yellow panel level
             magenta Panel      [in ]magenta panel level
             cyanPanel          [in ]cyan panel level
             kResinFront        [in ]front monochrome panel level
             kResinBack         [in ]back monochrome panel level
             kDye               [in ]monochrome dye level
             overlayPanel       [in ]overlay panel level
             uvFront            [in ]front UV panel level
             uvBack             [in ]back UV panel level

Returns:     error code (see Appendix A)

Note:        Power levels are between 0 to 255.

Sample:      alarm = job.Device.SetPanelPowerLevels(yellowPanel
                magentaPanel cyanPanel kResinFront kResinBack kDye
                overlay uvFront uvBack);
```

7.2.20 SetPanelPowerLevelsEx

```
Description: Sets the panel power levels.

Syntax:      short SetPanelPowerLevelsEx (
                                byte                    yellowPanel
                                byte                    magentaPanel
                                byte                    cyanPanel
                                byte                    kResinFront
                                byte                    kResinBack
                                byte                    kDye
                                byte                    overlayPanel
                                byte                    uvFront
                                byte                    uvBack
                                byte                    inhibitPanel
                                byte                    helperPanel )

Parameters:  yellowPanel        [in ]yellow panel level
             magentaPanel       [in ]magenta panel level
             cyanPanel          [in ]cyan panel level
             kResinFront        [in ]front monochrome panel level
             kResinBack         [in ]back monochrome panel level
             kDye               [in ]monochrome dye level
             overlayPanel       [in ]overlay panel level
             uvFront            [in ]front UV panel level
             uvBack             [in ]back UV panel level
             inhibtPanel        [in ]inhibitPanel level
             helperPanel        [in ]helperPanel level

Returns:     error code (see Appendix A)

Sample:      alarm = job.Device.SetPanelPowerLevelsEx(yellowPanel
                 agentaPanel cyanPanel kResinFront kResinBack kDye
                 overlayPanel uvFront uvBack inhibitPanel helperPanel);
```

7.2.21 GetRejectCardCount

Description: Returns the number of cards currently in the reject bin and the total number of cards that have been sent to the printer reject bin.

Syntax:
```
short GetRejectCardCount(
                    out int                 cardsInBin
                    out int                 cardsRejected)
```

Parameters:

cardsInBin	[out]the number of cards currently in the reject bin
cardsRejected	[out]the total number of cards sent to the reject bin

Returns: error code (see ***Appendix A***)

Sample:
```
int cardsInBin = 0; int cardsRejected = 0;
    short alarm = job.Device.GetRejectCardCount(out cardsInBin
    out cardsRejected );
```

7.2.22 ClearRejectBinCount

Description: Sets the counter for the number of cards currently in the reject bin to zero

Syntax: `short ClearRejectBinCount()`

Parameters: none

Returns: error code (see ***Appendix A***)

Sample:
```
short alarm = job.Device.ClearRejectBinCount();
```

7.2.23 GetRibbonParams

```
Description: Gets ribbon information.

Syntax:      short GetRibbonParams (
                                 out int                 type
                                 out string              partNumber
                                 out string              description
                                 out string              oemCode
                                 out int                 initialSize
                                 out int                 panelsRemaining )

Parameters:  type               [out]type of ribbon
             partNumber         [out]ribbon part number
             description        [out]description of the ribbon
             oemCode            [out]OEM part number
             initialSize        [out]total number of panels
             panelsRemaining    [out]unused number of panels

Returns:     error code (see Appendix A)

Sample:      alarm = job.Device.GetRibbonParams(out type out partNumber
                 out description out oemCode out initialSize
                 out panelsRemaining);
```

7.2.24 GetSensorStates

Note • Any reference to “film” applies to ZXP Series 8 Printers only.

```
Description: Gets device sensor states.

Syntax:      short GetSensorStates( out object sensorStates )

Parameters:  sensorStates      [out]string array which contains the sensor
                                states returned as an object

Example:     "FilmTakeupEncoder: unknown"    "RibbonTakeupEncoder: unknown"
             "RibbonPayoutEncoder: unknown"  "DoorOpen: no"
             "CardEdgeBlocked: no"           "TricolorState: k_front_panel"
             "HeadCamBlocked: yes"           "FilmStripe1Blocked: no"
             "FilmStripe2Blocked: no"        "CardFeederBlocked: yes"
             "TricolorError: 0"

Returns:     error code (see Appendix A)

Sample:      try
             {   object objSensorStates = null;
                 alarm = job.Device.GetSensorStates(out objSensorStates);
                 if (objSensorStates != null)
                 {   Array    array              = (Array)objSensorStates;
                     string[] sensorStates = new string[array.GetLength(0)];
                     for (int i = 0; i < array.GetLength(0); i++)
                     {   sensorStates[i] = (string)array.GetValue(i);
                         if (i == 0)
                             sensorState = sensorStates[i];
                     }
                 }
             }
             catch (Exception ex)
             {   errMsg = ex.Message;
             }
```

7.2.25 GetSensorValues

Description: Gets device sensor values.

Syntax: short GetSensorValues (out object sensorValues)

Parameters: sensorValues [out]string array which contains the sensor values returned as an object

Example:

```
"Voltage24: 24.150000"          "VoltageAC: 110"
"VoltageRaw: 744"               "MagTrack1: 516"
"MagTrack2: 516"                "MagTrack3: 515"
"PrintheadTemperature: 38"      "MagHeadType: 1001"
"RibbonBEMF: 515"               "TricolorAny: 971"
"TricolorRed: 864"              "TricolorGreen: 873"
"TricolorBlue: 977"             "TopTransferTemperature: 185"
"BottomTransferTemperature: 76"
```

Returns: error code (see ***Appendix A***)

Sample:

```
try
{   object objSensorValues = null;
    alarm = job.Device.GetSensorValues(out objSensorValues);
    if (objSensorValues != null)
    {   Array   array               = (Array)objSensorValues;
        string[] sensorValues = new string[array.GetLength(0)];
        for (int i = 0; i < array.GetLength(0); i++)
        {   sensorValues[i] = (string)array.GetValue(i);
            if (i == 0)
                sensorValue = sensorValues[i];
        }
    }
}
catch (Exception ex)
{   errMsg = ex.Message;
}
```

7.2.26 GetSmartCardConfiguration

```
Description: Gets smart card configuration.

Syntax:      void GetSmartCardConfiguration(
                                out string              commChannel
                                out string              scContact
                                out string              scContactless )

Parameters:  commChannel        [out]communication channel to communicate
                                 with the smart card encoder
             scContact          [out]type of contact encoder
             scContactless      [out]type of contactless encoder

Returns:     nothing

Sample:      job.Device.GetSmartCardConfiguration(out commChannel
                 out scContact out scContactless);
```

7.2.27 GetStatusMessageString

```
Description:  Returns a status message string for a specific alarm or
              error code.

Syntax:       string GetStatusMessageString ( short statusCode )

Parameters:   statusCode         [in ]alarm or error code

Returns:      description of alarm or error code (see Appendix A)

Sample:       message = job.Device.GetStatusMessageString(statusCode);
```

7.2.28 GetTotalCardCount

```
Description: Gets the total card count since last reset (secure action reset).

Syntax:      short GetTotalCardCount ( out int cardCount )

Parameters:  cardCounttotal     [out]number of cards printed since last reset

Returns:     error code (see Appendix A)

Sample:      alarm = job.Device.GetTotalCardCount(out cardCount);
```

7.2.29 GetTransferTempOffsets

```
Description: Gets the heater temperature settings.

Syntax:      short GetTransferTempOffsets (
                                  out int                 topSnglOffset
                                  out int                 topDblOffset
                                  out int                 botDblOffset )

Parameters:  topSnglOffset      [out]top roller single side printing offset
                                 from manufacturing temperature setting
             topDblOffset       [out]top roller double side printing offset
                                 from manufacturing temperature setting
             botDblOffset       [out]bottom roller double side printing
                                 offset from manufacturing temperature setting

Returns:     error code (see Appendix A)

Sample:      alarm = job.Device.GetTransferTempOffsets(out topSnglOffset
                 out topDblOffset out botDblOffset);
```

7.2.30 SetTransferTempOffsets

```
Description: Sets the heater temperatures.

Syntax:      short SetTransferTempOffsets (
                                int                     topSnglOffset
                                int                     topDblOffset
                                int                     botDblOffset )

Parameters:  topSnglOffset     [in ]top roller single side printing offset
                                from manufacturing temperature setting
             topDblOffset      [in ]top roller double side printing offset
                                from manufacturing temperature setting
             botDblOffset      [in ]bottom roller double side printing
                                offset from manufacturing temperature setting

Returns:     error code (see Appendix A)

Sample:      alarm = job.Device.SetTransferTempOffsets(topSnglOffset
                botSnglOffset topDblOffset botDblOffset);
```

7.2.31 GetDisplayedOCPMessage

```
Description:  Retrieves the current OCP display.

Syntax:       void GetDisplayedOCPMessage ( out string ocpMessage )

Parameters:   ocpMessage         [out ]text currently being displayed returned
                                  as xml document

Returns:      nothing

Sample:       job.Device.GetDisplayedOCPMessage(out ocpMessage);
```

Example:

```
<?xml version="1.0" encoding="ISO-8859-1" ?>
<displayed_message>
    <text line="0"  reverse="no"  underline="no"  double="yes"  toggle="no"  >ALARM             </text>
    <text line="3"  reverse="no"  underline="no"  double="no"   toggle="no"  >OUT OF CARDS      </text>
    <text line="4"  reverse="no"  underline="no"  double="no"   toggle="no"  >ERROR CODE = 4001 </text>
    <text line="6"  reverse="no"  underline="no"  double="no"   toggle="no"  > MENU INFO RETRY  </text>
</displayed_message>
```

7.2.32 BuildOCPMessage

```
Description: Builds a line specific OCP message.

Syntax:      void BuildOCPMessage (
                              byte                    lineNumber
                              string                  message
                              boolean                 underline
                              boolean                 reverse
                              boolean                 blinkmode
                              boolean                 doubleSize )

Parameters:  lineNumber       [in ]OCP line number ( 1 - 7 )
             message          [in ]text to be displayed
             underline        [in ]if text is to be underlined
             reverse          [in ]if text is to be displayed in
                               reverse mode
             blinkmode        [in ]                   false = display
             continuous text
                                                       true = display
             blinking text
             doubleSize       [in ]if text is be be displayed double size

Returns:     nothing

Sample:      job.Device.BuildOCPMessage(lineNumber message underline
                 reverse toggle doubleSize);
```

7.2.33 ClearOCPMessage

```
Description: Clears the OCP message panel.

Syntax:      short ClearOCPMessage ( boolean ocpLock )

Parameters:  ocpLock           [in ]true: freezes the display and disables
                                the buttons
                               [in ]false: allows display updates and
                                enables the buttons

Returns:     error code (see Appendix A)

Sample:      alarm = job.Device.ClearOCPMessage(ocpLock);
```

7.2.34 DisplayOCPMessage

```
Description:  Displays the message on the printer's OCP display (built by
              function BuildOCPMessage).

Syntax:       short DisplayOCPMessage ( boolean ocpLock )

Parameters:   ocpLock            [in ]true: freezes the display and disables
                                  the buttons
                                 [in ]false: allows display updates and
                                  enables the buttons

Returns:      error code (see Appendix A)

Note:         After locking the OCP it is necessary to unlock it with
              ClearOCPMessage()

Sample:       alarm = job.Device.DisplayOCPMessage(ocpLock);
```

7.2.35 SelectOCPButton

```
Description:  Allows a button on the printer's OCP display to be pressed
              via the SDK.

Syntax:       short SelectOCPButton ( OCPButtonEnum button )

Parameters:   button            [in ]OCP button to be pressed.
                                Possible choices:

              OCPButtonEnum.LeftButton

              OCPButtonEnum.MiddleButton

              OCPButtonEnum.RightButton

Returns:      error code (see Appendix A)

Sample:       alarm = job.Device.SelectOCPButton (OCPButton.LeftButton);
```

7.2.36 GetCleaningIntervals

```
Description: Gets the cleaning intervals for the paths.

Syntax:      void GetCleaningIntervals (
                                 out int                 feederPath
                                 out int                 atmPath
                                 out int                 transferPath )

Parameters:  feederPath         [out]cleaning intervals for feeder path
             atmPath            [out]cleaning interval for ATM path
             transferPath       [out]cleaning interval for transfer path

Returns:     nothing

Sample:      job.Device.GetCleaningIntervals(out feederPath out atmPath
                 out transferPath);
```

7.2.37 SetCleaningIntervals

```
Description: Sets the paths cleaning intervals.

Syntax:      short SetCleaningIntervals (
                                int                     feederPath
                                int                     atmPath
                                int                     transferPath )

Parameters:  feederPath         [in ]cleaning intervals for feeder path
             atmPath            [in ]cleaning interval for ATM path
             transferPath       [in ]cleaning interval for transfer path

Returns:     error code (see Appendix A)

Sample:      alarm = job.Device.SetCleaningIntervals(feederPath atmPath
                 transferPath);
```

7.2.38 UpgradeFirmware

```
Description: Upgrades MCB HCB MAB firmware.

Syntax:      void UpgradeFirmware ( string firmwareFile )

Parameters:  firmwareFile      [in ]path and filename for the firmware

Returns:     nothing

Sample:      job.Device.UpgradeFirmware( firmwareFile )

Note:        Firmware is a binary file.
```

7.2.39 LockPrinter

```
Description: Sends lock command to printer (financial configuration only).

Syntax:      short LockPrinter ( )

Parameters:  none

Returns:     error code (see Appendix A)

Sample:      short alarm = job.Device.LockPrinter();
```

7.2.40 UnlockPrinter

```
Description: Sends unlock command to printer (financial configuration only).

Syntax:      short UnlockPrinter ( int timeout )

Parameters:  timeout           [in ]number of seconds the printer will
                                remain unlocked after command is issued
                                with printer lid not physically opened.

Note:        Minimum number of seconds = 15
             Maximum number of seconds = 600

             If a command is issued and the printer is not opened the printer
             will automatically relock itself after timeout has transpired.

Returns:     error code (see Appendix A)

Sample:      short alarm = job.Device.UnlockPrinter(timeout);
```

7.2.41 GetNVMEMData

Description: Returns the printer's current non-volatile memory data as an xml document.

Note: This function is intended to be used as the data back-up operation of a back-up-and-restore operation only. The information returned is encrypted.

Syntax: short GetNVMEMData(out string xmlNVMemData)

Parameters: xmlNVMemData [out]xml xml document containing the non-volatile memory data

Returns: error code (see ***Appendix A***)

Sample:
```
string xmlNVMemData = string.Empty;
job.Device.GetNVMEMData(out xmlNVMemData);
```

7.2.42 SetNVMEMData

Description: Restores the printer's non-volatile memory data.

Note: This function is intended to be used as the data restore operation of a back-up-and-restore operation only. The non-volatile memory data restored will be in the form of an xml document which was created using the GetNVMEMData function call.

Syntax: short SetNVMEMData(string xmlNVMemData)

Parameters: xmlNVMemData [in]xml document containing the non-volatile memory data

Returns: error code (see ***Appendix A***)

Sample:
```
string xmlNVMemData => xml document retrieved using GetNVMEMData
short alarm = job.Device.SetNVMEMData(xmlNVMemData);
```

7.2.43 GetWirelessStatus

Description: Returns the status of the printer's wireless configuration.

Syntax: short GetWirelessStatus(out object wirelessStatus);

Parameters: wirelessStatus [out]20 element string array containing the wireless status

Returns: error code (see ***Appendix A***)

Sample:

```
object wirelessStatus = null;
ArrayList lstWirelessStatus = null;
job.Device.GetWirelessStatus(out wirelessStatus);

//convert the object to an array:
lstWirelessStatus = ArrayList.Adapter((string[])wirelessStatus);

//example data:
[0]  "State: connected"
[1] "SSID: CPS_DEMO"
[2] "Channel: 6"
[3] "ReceiveSignalStrength: -52"
[4] "SignalToNoiseRatio: 34"
[5] "NoiseFloor: -86"
[6] "Security: wpa2"
[7] "Crypto: ccmp"
[8] "Rate: 5"
[9] "BytesReceived: 65686"
[10]"UnicastPacketsReceived: 1123"
[11]"NonUnicastPacketsReceived: 0"
[12]"DiscardedPacketsReceived: 0"
[13]"ReceiveErrors: 0"
[14]"BytesSent: 11369"
[15]"UnicastPacketsSent: 60"
[16]"NonUnicastPacketsSent: 0"
[17]"DiscardedPacketsSent: 0"
[18]"SendErrors: 0"
[19]"LinkLost: 8"
```

7.2.44 GetWirelessRadioStatus

```
Description:  Returns the status of the printer's wireless radio configuration.

Syntax:       short GetWirelessRadioStatus( out object radioStatus );

Parameters:   radioStatus        [out] 17 element string array containing the
                                  radio status

Returns:      error code (see Appendix A)

Sample:       object radioStatus = null;
              ArrayList lstRadioStatus = null;

              job.Device.GetWirelessRadioStatus(out radioStatus);


              //convert the object to an array:
              lstRadioStatus = ArrayList.Adapter((string[])radioStatus);

              //example data:
              lstRadioStatus [0]"MulticastTXFrame: 38"
              lstRadioStatus [1]"Failed: 0"
              lstRadioStatus [2]"Retry: 5"
              lstRadioStatus [3]"MultiRetry: 4"
              lstRadioStatus [4]"FrameDuplicate: 3"
              lstRadioStatus [5]"RTSSuccess: 0"
              lstRadioStatus [6]"RTSFailure: 0"
              lstRadioStatus [7]"ACKFailure: 18"
              lstRadioStatus [8]"RxFrag: 11578"
              lstRadioStatus [9]"MulticastRxFrame: 11510"
              lstRadioStatus [10]"FrameCheckSeqError: 3349"
              lstRadioStatus [11]"TxFrame: 54"
              lstRadioStatus [12]"TxSuccessRate: 100"
              lstRadioStatus [13]"TxRetryRate: 9"
              lstRadioStatus [14]"RxSuccessRate: 77"
              lstRadioStatus [15]"RxDuplicateRate: 0"
              lstRadioStatus [16]"RTSSuccessRate: 0"
```

7.2.45 GetWirelessParams

Description: Returns the current state of printer's wireless parameters.

```
Syntax:      short GetWirelessParams(
                        out bool                            SNMPEnabled
                        out bool                            dhcpEnabled
                        out string                          ipAddress
                        out string                          subMask
                       out string                           gateway
                        out bool                            radioEnabled
                        out WirelessSecurityTypeEnum        wirelessSecurity
                        out WirelessCryptoEnum              wirelessCrypto
                        out string                          SSID
                        out string                          bSSID
                        out byte                            channel );
```

```
Parameters:  SNMPEnabled        [out]indicates whether or not SNMP protocol
                                 is enabled:
                                  true – SNMP enabled
                                  false – SNMP disabled
             DHCPEnabled        [out]indicates whether or not DHCP protocol
                                 is enabled:
                                  true – DHCP enabled
                                  false – DHCP disabled
             ipAddress          [out]the printer's ip address
             submask            [out]the subnet mask in use
             gateway            [out]the gateway in use
             radioEnabled[out]indicates whether or not the radio is enabled
                                  true – radio enabled
                                  false – radio disabled
             wirelessSecurity  [out]the type of wireless security in use
                                (see Appendix B for details)
             wirelessCrypto   [out]the type of encryption in use
                                (see Appendix B for details)
             SSID              [out]the service set identifier
             bSSID             [out]the basic service set identifier
             channel           [out]the type of channel in use
```

Returns: error code (see ***Appendix A***)

Sample: See next page

Sample:

```
try
{
    bool SNMPEnabled  = false;
    bool dhcpEnabled  = false;
    bool radioEnabled = false;

byte channel = 0;

string ipAddress  = string.Empty;
string subMask    = string.Empty;
string gateway    = string.Empty;
string SSID       = string.Emtpy;
string bSSID      = string.Empty;

WirelessSecurityTypeEnum wirelessSecurity =
                                    WirelessSecurityTypeEnum.Open;
WirelessCryptoEnum wirelessCrypto = WirelessCryptoEnum.NoCrypto;
short alarm = job.Device.GetWirelessParams(
                                          out SNMPEnabled
                                          out dhcpEnabled
                                          out ipAddress
                                          out subMask
                                          out gateway
                                          out radioEnabled
                                          out wirelessSecurity
                                          out wirelessCrypto
                                          out SSID
                                          out bSSID
                                          out channel );

}
catch (Exception ex)
{
    //handle exception
}
```

7.2.46 SetWirelessParams

Description: Sets the state of printer's wireless parameters.

```
Syntax: short SetWirelessParams(
                    bool                                SNMPEnabled
                    bool                                DHCPEnabled
                    string                              ipAddress
                    string                              subMask
                    string                              gateway
                    bool                                radioEnabled
                    WirelessSecurityTypeEnum            wirelessSecurity
                    WirelessCryptoEnum                  wirelessCrypto
                    string                              ssid
                    string                              bssid
                    byte                                channel);
```

Parameters:		
	SNMPEnabled	[in]indicates whether or not SNMP protocol is enabled true – SNMP enabled false – SNMP disabled
	DHCPEnabled	[in]indicates whether or not DHCP protocol is enabled true – DHCP enabled false – DHCP disabled
	ipAddress	[in]the printer's ip address
	submask	[in]the subnet mask in use
	gateway	[in]the default gateway in use
	radioEnabled	[in]indicates whether or not the radio is enabled true – radio enabled false – radio disabled
	wirelessSecurity	[in]the type of wireless security in use (see ***Appendix B*** for details)
	wirelessCrypto	[in]the type of encryption in use (see ***Appendix B*** for details)
	ssid	[in]the service set identifier
	bssid	[in]the basic service set identifier
	channel	[in]the wireless channel in use

Returns: error code (see ***Appendix A***)

Sample: See next page.

Sample:

```
BoolTypeEnum SNMPEnabled = BoolTypeEnum.True_BT;
BoolTypeEnum DHCPEnabled = BoolTypeEnum.True_BT;
string IPAddress = "100.100.100.100";
string Submask = "255.255.255.0";
string Gateway = "100.100.100.1";
BoolTypeEnum radioEnabled = BoolTypeEnum.True_BT;
WirelessSecurityTypeEnum wirelessSecurity =
WirelessSecurityTypeEnum.Open;
WirelessCryptoTypeEnum wirelessCrypto =
WirelessCryptoTypeEnum.NoCrypto;
string ssid = "DEMO_NETWORK";
string bssid = "10:8c:cf:10:df:7a";
object wirelesskey = keyVal;
byte channel = 0;

job.Device.SetWirelessParams(SNMPEnabled, DHCPEnabled,
                             IPAddress, Submask, Gateway,
                             radioEnabled, wirelessSecurity,
                             wirelessCrypto, ssid, bssid,
                             wirelessKey, channel);
```

7.2.47 ScanWirelessAccessPoints

```
Description: Returns the access points discovered in an XML document.

Syntax:      short ScanWirelessAcessPoints(
                              int                    scanIterations
                              out string             xmlAccessPoints);

Parameters:  scanIterations    [in ]number of iterations to use for scanning
             xmlAccessPoints   [out]XML document containing the access points
                                discovered

Returns: error code (see Appendix A)

Sample:      int scanIterations = 1;
             short alarm = job.Device.ScanWirelessAccessPoints(
                                                 int scanIterations
                                                 out string xmlAccessPoints);

Sample:      int scanIterations = 2;
             string xmlAccessPoints = string.Empty;

             job.Device.ScanWirelessAccessPoints(scanIterations,
                                                  out xmlAccessPoints);


//example xml document
<?xml version="1.0" encoding="UTF-8" ?>
<AccessPoints>
    <AccessPoint>
        <SSID>CPS_DEMO</SSID>
        <BSSID>10:8c:cf:10:d6:1a</BSSID>
        <Selected>no</Selected>
        <Channel>1</Channel>
        <Privacy>1</Privacy>
        <SignalStrength>62</SignalStrength>
        <Infrastructure>true</Infrastructure>
        <Security>WPA2</Security>
        <Encryption>CCMP</Encryption>
        <MaxDataRate>54</MaxDataRate>
    </AccessPoint>
    <AccessPoint>
        <SSID>ConfigRoom</SSID>
        <BSSID>00:24:d2:46:7b:27</BSSID>
        <Selected>no</Selected>
        <Channel>1</Channel>
        <Privacy>1</Privacy>
        <SignalStrength>47</SignalStrength>
        <Infrastructure>true</Infrastructure>
        <Security>WPA_WPA2</Security>
        <Encryption>TKIP_CCMP</Encryption>
        <MaxDataRate>54</MaxDataRate>
    </AccessPoint>
```

7.2.48 GetCalibrationTableData

```
Description: Returns the selected calibration table's data.

Syntax:      short GetCalibrationTableData(
                                  CalibrationTableEnum    table,
                                  out string              xmlCalibrationData)

Parameters:  table              [in ]type of calibration table being retrieved
                                 See Appendix B for enumeration values
             xmlCalibrationData [out]calibration data returned in xml format

Return:      Error code - See Appendix A

Sample:      string xmlCalibrationData = string.Empty;
             short alarm = job.Device.GetCalibrationTableData(
                                  CalibrationTableEnum.LUT1Default,
                                  out xmlCalibrationData);
```

7.2.49 GetCalibrationTableNames

```
Description: Returns the default and installed calibration table names.

Syntax:      short GetCalibrationTableNames(
                                 out object              defaultTableNames,
                                 out object              installedTableNames)

Parameters:  defaultTableNames   [out]string array of default table names
                                   returned as an object
             installedTableNames [out]string array of installed table names
                                   returned as an object

Sample:      object defaultTableNames = null;
             object installedTableNames = null;
             short alarm = job.Device.GetCalibrationTableNames(
                           out defaultTableNames, out installedTableNames);
             if(alarm == 0)//success
             {
                 string[] defaultNames = (string[])defaultTableNames;
                 string[] installedNames = (string[])installedTableNames;
             }
```

7.2.50 GetClock

```
Description: Returns the printer's current system clock value.

Syntax:      short GetClock(
                                out byte                month,
                                out byte                day,
                                out int                 year,
                                out byte                hour,
                                out byte                minute)

Parameters:  month               [out] current month
             day                 [out] current day
             year                [out] current year
             hour                [out] current hour
             minute              [out] current minute

Return:      Error code - See Appendix A

Sample:      byte month = 0;
             byte day = 0;
             int year = 0;
             byte hour = 0;
             byte minute = 0;
             short alarm = job.Device.GetClock(out month, out day, out year,
                                               out hour,out minute);
```

7.2.51 GetI2CErrorStats

```
Description: Returns the current I2C error statistics.

Syntax:      short GetI2CErrorStats(out string xmlErrorStats)

Parameters:  xmlErrorStats      [out]current I2C error statistics returned
                                 in xml format

Return:      Error code - See Appendix A

Sample:      string xmlErrorStats = string.Empty;
             short alarm = job.Device.GetI2CErrorStats(out xmlErrorStats);
```

7.2.52 LoadCalibrationTableData

Description: Installs a calibration table's data.

Syntax: short GetCalibrationTableData(string xmlCalibrationData)

Parameters: xmlCalibrationData [in] calibration table data in xml format

Return: Error code - See ***Appendix A***

Sample:

```
string xmlCalibrationData;//pre-defined table data
short alarm = job.Device.LoadCalibrationTableData(xmlCalibrationData);
```

7.2.53 SetClock

```
Description: Assigns the printer's current system clock value.

Syntax:      short SetClock(
                                byte                    month,
                                byte                    day,
                                int                     year,
                                byte                    hour,
                                byte                    minute)

Parameters:  month               [in ]current month
             day                 [in ]current day
             year                [in ]current year
             hour                [in ]current hour
             minute              [in ]current minute

Return:      Error code - See Appendix A

Sample:

byte month = 1; //January
byte day = 20;
int year = 2014;
byte hour = 13; //24 hour format
byte minute = 10;
short alarm = job.Device.SetClock(month, day, year, hour, minute);
```

8 Custom Mag Settings

Note • This class is accessed through JobControl Namespace.

8.1 Properties

N/A

8.2 Methods

8.2.1 GetMagTrackBitsPerChar

```
Description: Returns the number of bits used per character for the specified
             magnetic track.


Syntax:      void GetMagTrackBitsPerChar(
                                  MagTrackNumberEnum      trkNumber
                                  out byte                bitsPerChar)

Parameters:  trkNumber          [in ]the magnetic track (see Appendix B
                                 for details)
             bitsPerChar        [out]the number of bits per char for the
                                 magnetic track
Returns:     none

Sample:      //get the number of bits per char for magnetic track No 1:

             MagTrackNumberEnum trkNumber = MagTrackNumberEnum.MagTrack1;

             byte bitsPerChar = 0;

             job.JobControl.CustomMagSettings.GetMagTrackBitsPerChar(
                                              trkNumber out bitsPerChar);
```

8.2.2 GetMagTrackDataParity

```
Description: Returns the type of data parity in use for the magnetic
             track specified.

Syntax:      void GetMagTrackDataParity(
                                MagTrackNumberEnum          trkNumber
                                out MagDataCharParityEnum   dataParity);

Parameters:  trkNumber          [in ]the magnetic track (see Appendix B
                                 for details)
             dataParity         [out]the type of data parity in use(see
                                 Appendix B for details)
Returns:     none

Sample:      //get the parity for magnetic track No 1:

             MagTrackNumberEnum trkNumber = MagTrackNumberEnum.MagTrack1;

             MagDataCharParityEnum dataParity = MagDataCharParityEnum.Odd;

             job.JobControl.CustomMagSettings.GetMagTrackDataParity(
                                          trkNumber out dataParity);
```

8.2.3 GetMagTrackDensity

```
Description: Returns the density for the magnetic track specified.

Syntax:      void GetMagTrackDensity(
                                  MagTrackNumberEnum      trkNumber
                                  out int                 density);

Parameters:  trkNumber          [in ]the magnetic track (see Appendix B
                                 for details)
             density            [out]the density of the track

Returns:     none

Sample:      //get the track density for magnetic track No 1:

             MagTrackNumberEnum trkNumber = MagTrackNumberEnum.MagTrack1;

             int density = 0;

             job.JobControl.CustomMagSettings.GetMagTrackDensity(
                                              trkNumber out density);
```

8.2.4 GetMagTrackSentinelFormat

```
Description: Returns the current sentinel format and the current start and
             stop sentinels for the magnetic track specified.

Syntax: void GetMagTrackSentinelFormat(
                                MagTrackNumberEnum      trkNumber
                                out MagDataFormatEnum   format
                                out string              start
                                out string              end);

Parameters:  trkNumber          [in ]the magnetic track (see Appendix B
                                 for details)
             format             [out]the sentinel format for the specified
                                 track (see Appendix B for details)
             start              [out]the start sentinel for the specified
                                 track
             stop               [out]the end sentinel for the specified track

Returns:     None

Sample:      //get the sentinel format start and stop sentinels for magnetic
             track No 1:

             MagTrackNumberEnum trkNumber = MagTrackNumberEnum.MagTrack1;

             MagDataFormatEnum format = MagDataFormatEnum.Ascii;

             string start = string.Empty;
             string end   = string.Empty;

             job.JobControl.CustomMagSettings.GetMagTrackSentinelFormat(
                             trkNumber out format out start out end);
```

8.2.5 SetMagTrackBitsPerChar

```
Description:  Sets the number of bits used per character for the specified
              magnetic track.

Syntax:       void SetMagTrackBitsPerChar(
                                  MagTrackNumberEnum      trkNumber
                                  byte                    bitsPerChar)

Parameters:   trkNumber           [in ]the magnetic track (see Appendix B
                                   for details)
              bitsPerChar         [in ]the number of bits per char for the
                                   magnetic track

Returns:      none

Sample:       //set the number of bits per character to 8 for magnetic
              track No 1:

              MagTrackNumberEnum trkNumber = MagTrackNumberEnum.MagTrack1;

              byte bitsPerChar = 8;

              job.JobControl.CustomMagSettings.SetMagTrackBitsPerChar(
                                           trkNumber bitsPerChar);
```

8.2.6 SetMagTrackDataParity

```
Description:  Sets the type of data parity in use for the magnetic
              track specified.

Syntax:       void SetMagTrackDataParity(
                                  MagTrackNumberEnum      trkNumber
                                  MagDataCharParityEnum   dataParity);

Parameters:   trkNumber           [in ]the magnetic track (see Appendix B
                                   for details)
              dataParity          [in ]the type of data parity to use (see
                                   Appendix B for details)

Returns:      none

Sample:       //set odd parity for magnetic track No 1:

              MagTrackNumberEnum trkNumber = MagTrackNumberEnum.MagTrack1;

              MagDataCharParityEnum dataParity = MagDataCharParityEnum.Odd;

              job.JobControl.CustomMagSettings.SetMagTrackDataParity(
                                           trkNumber dataParity);
```

8.2.7 SetMagTrackDensity

```
Description: Sets the density for the magnetic track specified.

Syntax:      void SetMagTrackDensity(
                                MagTrackNumberEnum      trkNumber
                                int                     density);

Parameters:  trkNumber          [in ]the magnetic track (see Appendix B
                                 for details)
             density            [in ]the density of the track

Returns: none

Sample:      //set the track density for magnetic track No 1:

             MagTrackNumberEnum trkNumber = MagTrackNumberEnum.MagTrack1;

             int density = 8;

             job.JobControl.CustomMagSettings.SetMagTrackDensity(
                                          trkNumber density);
```

8.2.8 SetMagTrackSentinelFormat

```
Description: Sets the current sentinel format and the current start and stop
             sentinels for the magnetic track specified.

Syntax:      void SetMagTrackSentinelFormat(
                                MagTrackNumberEnum      trkNumber
                                MagDataFormatEnum       format
                                string                  start
                                string                  end);

Parameters:  trkNumber          [in ]the magnetic track (see Appendix B
                                 for details)
             format             [in ]the sentinel format for the
                                 specified track (see Appendix B for details)
             start              [in ]the start sentinel for the specified
                                 track
             end                [in ]the end sentinel for the specified track

Returns:     none

Sample:      //set the sentinel format to ascii the start sentinel to < and
             the stop sentinel to > for magnetic track No 1:

             MagTrackNumberEnum trkNumber = MagTrackNumberEnum.MagTrack1;

             MagDataFormatEnum format = MagDataFormatEnum.Ascii;
             string start = "<";
             string end   = ">";

             job.JobControl.CustomMagSettings.SetMagTrackSentinelFormat(
                                              trkNumber format start end);
```

9 Laminator

9.1 Methods

9.1.1 CalibrateLaminate

```
Description: Calibrates the laminate.

Syntax:      short CalibrateLaminate ( )

Parameters:  none

Returns:     error code (see Appendix A)

Sample:      alarm = job.Laminator.CalibrateLaminate();
```

9.1.2 RestoreDefaultConfiguration

```
Description: Resets the laminator to its default configuration.

Syntax:      short RestoreDefaultConfiguration ( )

Parameters:  none

Returns:     error code (see Appendix A)

Sample:      alarm = job.Laminator.RestoreDefaultConfiguration();
```

9.1.3 SaveParameters

```
Description: Saves the laminator's current configuration.

Syntax:      short SaveParameters()

Parameters:  none

Returns:     error code (see Appendix A)

Sample:      alarm = job.Laminator.SaveParameters();
```

9.1.4 GetLaminateParams

```
Description: Returns the laminate's parameters.

Syntax:      short GetLaminateParams (
                                bool                    topLaminate
                                out int                 type
                                out string              partNumber
                                out string              description
                                out string              oem
                                out int                 initialSize
                                out int                 panelsRemaining )

Parameters:  topLaminate        [in ]true = return top laminate parameters
                                 false = return bottom laminate parameters
             type               [out]type of laminate
             partNumber         [out]laminate part number
             description        [out]description of laminate type
             oem                [out]laminate OEM code
             initialSize        [out]initial size of laminate
             panelsRemaining    [out]number of panels remaining

Returns:     error code (see Appendix A)

Sample:      alarm = job.Laminator.GetLaminateParams(topLaminate out type
                 out partNumber out description out oem out initialSize
                 out panelsRemaining);
```

9.1.5 GetLaminatorStatus

Description: Returns the laminator's current status.

```
Syntax:       short GetLaminatorStatus (
                                  out string              status
                                  out int                 errorCode
                                  out int                 jobsPending
                                  out int                 jobsActive
                                  out int                 jobsComplete
                                  out int                 jobErrors
                                  out int                 jobsTotal
                                  out int                 nextActionID )
```

Parameters:		
	status	[out]laminator status
	errorCode	[out]error code (see Appendix A)
	jobsPending	[out]number of pending jobs
	jobsActive	[out]number of active jobs
	jobsComplete	[out]number of completed jobs
	jobErrors	[out]number of jobs with errors
	jobsTotal	[out]total number of jobs
	nextActionID	[out]action ID of next job

Returns: error code (see Appendix A)

```
Sample:       alarm = job.Laminator.GetLaminatorStatus(out status
                  out errorCode out jobsPending out jobsActive
                  out jobsComplete out jobErrors out jobsTotal
                  out nextActionID);
```

9.1.6 GetBottomLaminateOffsets

```
Description: Returns the bottom laminate's x offset and temperature offset.

Syntax:      short GetBottomLaminateOffsets (
                                  out int                 xOffset
                                  out int                 temperatureOffset )

Parameters:  xOffset            [out]x offset of bottom laminate
             temperatureOffset  [out]temperature offset of bottom laminate

Returns:     error code (see Appendix A)

Sample:      alarm = job.Laminator.GetBottomLaminateOffsets(out xOffset
                 out temperatureOffset);
```

9.1.7 SetBottomLaminateOffsets

```
Description:  Sets the bottom laminate's x offset and temperature offset.

Syntax:       short SetBottomLaminateOffsets (
                                int                     xOffset
                                int                     temperatureOffset )

Parameters:   xOffset           [in ]x offset of bottom laminate
              temperatureOffset [in ]temperature offset of bottom laminate

Returns:      error code (see Appendix A)

Sample:       alarm = job.Laminator.SetBottomLaminateOffsets(xOffset
                  temperatureOffset);
```

9.1.8 GetTopLaminateOffsets

```
Description: Returns the top laminate's x offset and temperature offset.

Syntax:      short GetTopLaminateOffsets (
                                  out int                 xOffset
                                  out int                 temperatureOffset )

Parameters:  xOffset           [out]x offset of top laminate
             temperatureOffset [out]temperature offset of top laminate

Returns:     error code (see Appendix A)

Sample:      alarm = job.Laminator.GetTopLaminateOffsets(out xOffset
                 out temperatureOffset);
```

9.1.9 SetTopLaminateOffsets

```
Description: Sets the top laminate's x offset and temperature offset.

Syntax:      short SetTopLaminateOffsets (
                                  int                    xOffset
                                  int                    temperatureOffset )

Parameters:  xOffset            [in ]x offset of top laminate
             temperatureOffset  [in ]temperature offset of top laminate

Returns:     error code (see Appendix A)

Sample:      alarm = job.Laminator.SetTopLaminateOffsets(xOffset
                 temperatureOffset);
```

9.1.10 GetLaminationSpeedOffsets

```
Description: Returns the lamination speed offsets.

Syntax:      short GetLaminationSpeedOffsets (
                                  out int                 lamination
                                  out int                 passthru )

Parameters:  lamination         [out]lamination speed offset
             passthru           [out]pass through speed offset

Returns:     error code (see Appendix A)

Sample:      alarm = job.Laminator.GetLaminatinationSpeedOffsets(
                 out lamination out passthru);
```

9.1.11 SetLaminationSpeedOffsets

```
Description: Sets the lamination speed offsets.

Syntax:      short SetLaminationSpeedOffsets (
                                  int                     lamination
                                  int                     passthru )

Parameters:  lamination         [in ]lamination speed offset
             passthru           [in ]pass through speed offset

Returns:     error code (see Appendix A)

Sample:      alarm = job.Laminator.SetLaminatinationSpeedOffsets(
                 lamination passthru);
```

9.1.12 GetLaminatorOffsets

```
Description: Returns the patch length and coarse x offset.

Syntax:      short GetLaminatorOffsets (
                                 out int                 patchLen
                                 out int                 coarseXOffset )

Parameters:  patchLen          [out]patch length
             coarseXOffset     [out]coarse x offset

Returns:     error code (see Appendix A)

Sample:      alarm = job.Laminator.GetLaminatorOffsets(out patchLen
                 out coarseXOffset);
```

9.1.13 SetLaminatorOffsets

```
Description: Sets the patch length and coarse x offset.

Syntax:      short SetLaminatorOffsets (
                                  int                    patchLen
                                  int                    coarseXOffset )

Parameters:  patchLen          [in ]patch length
             coarseXOffset     [in ]coarse x offset

Returns:     error code (see Appendix A)

Sample:      alarm = job.Laminator.SetLaminatorOffsets(patchLen
                 coarseXOffset);
```

9.1.14 GetLaminatorSensorStates

```
Description: Returns the states of the laminator's sensors.

Syntax:      short GetLaminatorSensorStates(
                                  out object              sensorStates )

Parameters:  sensorStates      [out]sensors' states

Examples:    Sensor & example state
                 [0] "EntryBlocked: no"
                 [1] "StagingBlocked: no"
                 [2] "ExitBlocked: no"
                 [3] "DoorOpen: no"

Returns:     error code (see Appendix A)

Sample:      object objSensorStates = null;

             alarm = job.Laminator.GetLaminatorSensorStates(
                 out objSensorStates );

             if (objSensorStates != null)
             {
                 Array array = (Array)objSensorStates;
                 string[] sensorStates = new string[array.GetLength(0)];
                 for (int i = 0; i < array.GetLength(0); i++)
                 {
                     sensorStates[i] = (string)array.GetValue(i);
                     if (i == 0) //EntryBlocked
                         sensorState = sensorStates[i];
                 }
             }
```

9.1.15 GetLaminatorSensorValues

Description: Returns the values of the laminator's sensors.

Syntax: `short GetLaminatorSensorValues ( out object sensorValues )`

Parameters:

sensorValues	[out]	sensors' values

Examples: Sensor & example value

```
[0] "VoltageAC: 110"
[1] "TopMediaRaw: 1003"
[2] "BottomMediaRaw: 1004"
[3] "TopTemperature: 43"
[4] "BottomTemperature: 47"
```

Returns: error code (see Appendix A)

Sample:

```
object objSensorValues = null;

alarm = job.Laminator.GetLaminatorSensorValues(
    out objSensorValues);

if (objSensorValues != null)
{
    Array array = (Array)objSensorValues;
    string[] sensorValues = new string[array.GetLength(0)];
    for (int i = 0; i < array.GetLength(0); i++)
    {
        sensorValues[i] = (string)array.GetValue(i);
        if (i == 0) //VoltageAC
            sensorValue = sensorValues[i];
    }
}
```

9.1.16 GetLaminatorCardCount

```
Description:  Returns the number of cards laminated and the number of
              cards processed.

Syntax:       short GetLaminatorCardCount (
                                  out int                 cardsLaminated
                                  out int                 cardsProcessed )

Parameters:   cardsLaminated     [out]number of cards laminated
              cardsProcessed     [out]number of cards processed

Returns:      error code (see Appendix A)


Sample:       alarm = job.Laminator.GetLaminatorCardCount(out cardsLaminated
                  out cardsProcessed);
```

9.1.17 GetLaminatorInfo

```
Description:  Returns the laminator's serial number firmware version and
              media version.

Syntax:       short GetLaminatorInfo (
                                  out string              serialNumber
                                  out string              firmwareVersion
                                  out string              mediaVersion )

Parameters:   serialNumber       [out]laminator serial number
              firmwareVersion    [out]laminator firmware version
              mediaVersion       [out]laminator media version

Returns:      error code (see Appendix A)

Sample:       alarm = job.Laminator.GetLaminatorInfo(out serialNumber
                  out firmwareVersion out mediaVersion);
```

9.1.18 LoadParameters

```
Description: Loads the laminator's current configuration into RAM.

Syntax:      short LoadParameters()

Parameters:  none

Returns:     error code (see Appendix A)

Sample:      alarm = job.laminator.LoadParameters();
```

9.1.19 GetOdometerValues

Description: Returns the values of the laminator's odometers.

Syntax: short GetOdometerValues(out object odometerValues)

Parameters: odometerValues [out] odometer values

Examples: Odometer example values – Times measured in seconds

[0] "TotalUpTime: 212824"
[1] "TopBulbOnTime: 8835"
[2] "BottomBulbOnTime: 8584"

Returns: error code (see Appendix A)

Sample:

```
object objOdometerValues = null;

alarm = job.Laminator.GetOdometerValues(out objOdometerValues);

if (objOdometerValues!= null) {
        Array array = (Array)
objOdometerValues;
        string[] odometerValues = new
string[array.GetLength(0)];
        for (int i = 0; i < array.GetLength(0); i++)
{
                    odometerValues[i] =
        (string)array.GetValue(i);
        }
}
```

10 Utilities

10.1 Methods

10.1.1 ByteArrayToVariantArray

```
Description: Creates a variant array type from a byte array type.

Syntax:      void job.Utilities.ByteArrayToVariantArray (
                                  object                  byteArray
                                  out object              variantArray )

Parameters:  byteArray          [in ]byte array to be converted
             variantArray       [out]variant array created from byte array

Returns:     nothing

Sample:      job.Utilities.ByteArrayToVariantArray(byteArray
                 out variantArray);
```

10.1.2 BytePtrToVariantArray

```
Description: Creates a variant array type from a byte pointer type.

Syntax:      object job.Utilities.BytePtrToVariantArray (
                                  ref byte               bytePtr
                                  int                    byteCount )

Parameters:  bytePtr           [in ]pointer to byte array
             byteCount         [in ]number of bytes in the byte array

Returns:     variantArray created

Sample:      object variantArray = job.Utilities.BytePtrToVariantArray
                 (byteArray byteCount);
```

10.1.3 IntArrayToVariantArray

```
Description: Creates a variant array type from an integer array type.

Syntax:      void job.Utilities.IntArrayToVariantArray (
                                  object                  intArray
                                  out object              variantArray )

Parameters:  intArray          [in ]integer array to be converted
             variantArray      [out]variant array created from integer array

Returns:     nothing

Sample:      job.Utilities.IntArrayToVariantArray(intArray
                 out variantArray);
```

10.1.4 LongArrayToVariantArray

```
Description: Creates a variant array type from a long array type.

Syntax:      void job.Utilities.LongArrayToVariantArray (
                                object                  longArray
                                out object              variantArray )

Parameters:  longArray          [in ]long array to be converted
             variantArray       [out]variant array created from long array

Returns:     nothing

Sample:      job.Utilities.LongArrayToVariantArray(longArray
                 out variantArray);
```

10.1.5 VariantArrayToByteArray

```
Description: Creates a byte array type from a variant array type.

Syntax:      void job.Utilities.VariantArrayToByteArray (
                                  object                 variantArray
                                  out object             byteArray )

Parameters:  variantArray       [in ]variant array to be converted
             byteArray          [out]byte array created from variant array

Returns:     nothing

Sample:      job.Utilities.VariantArrayToByteArray (variantArray
                 out  byteArray);
```

10.1.6 VariantArrayToIntArray

```
Description: Creates an integer array type from a variant array type.

Syntax:      void job.Utilities.VariantArrayToIntArray (
                                  object                 variantArray
                                  out object             intArray )

Parameters:  variantArray       [in ]variant array to be converted
             intArray           [out]integer array created from variant array

Returns:     nothing

Sample:      job.Utilities.VariantArrayToIntArray (variantArray
                 out  intArray)
```

10.1.7 VariantArrayToLongArray

```
Description: Creates a long array type from a variant array type.

Syntax:      void job.Utilities.VariantArrayToLongArray (
                                  object                 variantArray
                                  out object             longArray )

Parameters:  variantArray       [in ]variant array to be converted
             longArray          [out]long array created from variant array

Returns:     nothing

Sample:      job.Utilities.VariantArrayToLongArray (variantArray
                 out longArray);
```

Appendix A
Error Codes

A.1 Introduction

This appendix lists error codes error messages and descriptions for all error messages that may appear when running applications created with the SDK for Zebra Card Printers.

A.2 Errors and Alarms

A.2.1 Errors

Errors are thrown exceptions generated by an SDK function. Errors are captured by the try catch syntax.

```
try
{
    short alarmValue = SDK functions
}
catch (COMException comEx)   // to capture COM exceptions
{
    int comErr = comEx.ErrorCode & 0xff;
}
catch (Exception ex)         // to capture other function exception
{
    string exMessage = ex.Message;
}
```

A.2.2 Alarms

Alarms are generated by a ZMotif device and captured by the SDK functions. They are typically mechanical card movement ribbon and film alerts. Alarms are independent of ZMotif jobs and indicate if it is safe to proceed to the next job. They are returned as numbers.

```
short alarmValue = SDK Funtion ( … )

if ( alarmValue not equal 0 )
    errMsg = job.Device.GetStatusMessageString(alarmValue);
else
    proceed to next job
```

A.3 Error Codes and Descriptions

CODE	DESCRIPTION
00000 - 00999 system errors or events	
00000	No error
00001	Printer powering up
00002	Boot region integrity error
00003	Program region integrity error
00004	Watchdog timer error
00005	Incompatible firmware upgrade attempted
00006	EP diagnostic mode error
00007	Firmware upgrade failed
00008	Critical error
01000 - 01999 ZMJ errors	
01001	Invalid command
01002	Command processing error
01003	Job Control XML parse error
01004	Job already open
01005	Invalid job ID
01006	Invalid ZMotif version
01007	Number of requested copies out-of-range
01008	Command identifier 'ZBR1' not found
01009	No XML data received
01010	No job type received
01011	Unknown job type received
01012	Data decryption error
01013	No magnetic encoder installed
02000 - 02999 imaging errors	
02001	Image to print area error
02002	Print to media area error
02003	Font render error
02004	Drawing render error
02005	Invalid image processing data
02006	Error receiving IPD
02007	Error sending IPD to job scheduler
02008	Received incomplete image data
02009	Image processing aborted
03000 - 03999 host & communication errors, mostly ZMC	
03001	Printer offline
03002	Printer busy

CODE	DESCRIPTION
03003	Invalid ZMC command
03004	Invalid ZMC sub-command
03005	Invalid ZMC parameter (1)
03006	Invalid ZMC parameter (2)
03007	Invalid ZMC parameter (3)
03008	Command processing error
03009	Response too large for host
03010	Host write occured when host read expected
03011	Host read occured when host write expected
03012	Data less than specified in header
03013	Data more than specified in header
03014	Communication synch error
03015	End Action error
03016	Cancel Action error
03017	No Start Action
03018	Start Action already called
03019	Job data error
03020	Memory-pool allocation error
03021	XML parse error
03022	Invalid payload length
03023	HMAC missing
03024	Invalid payload content
03025	Device reservation failed
04000 - 04999 media errors (card, laminate, retransfer film, paper, etc)	
04001	Out of cards
04002	Invalid card type
04003	Card jam
04004	Reserved
04005	Reserved
04006	Reserved
04007	Reserved
04008	Reserved
04009	Reserved
04010	Out of retransfer media
04011	Invalid retransfer media
04012	Retransfer media jam
04013	Retransfer media motion error
04014	Card not detected
04015	Insert card timeout
04016	Card feeder is empty
04017	Invalid retransfer media

CODE	DESCRIPTION
05000 - 05999 donor errors (ribbon)	
05001	Out of ribbon
05002	Invalid ribbon
05003	Ribbon jam
05004	Ribbon motion error
05005	Ribbon ADC error
05006	Ribbon BEMF error
05007	Ribbon color detection error
05008	Invalid ribbon
06000 - 06999 memory/storage errors (RAM, NVMEM, external flash drive, etc)	
06001	Out of RAM
06002	Out of external flash
06003	Out of internal flash
06004	Out of NVM
06005	Data store error
06006	Data delete error
06007	Font store error
06008	Font delete error
06009	Program FPGA failure
06010	Erase FPGA failure
06011	Program EP failure
06012	Erase EP failure
06013	Program IP failure
06014	Erase IP failure
06015	Pool allocation error
06016	Pool de-allocation error
06017	NVM EP communication error
06018	NVM CRC error
06019	NVM access error
06020	NVM initialization error
06021	NVM backup error
06022	NVM restore error
06023	NVM open or close error
06024	NVM program backup error
06025	NVM erase backup error
07000 - 07999 engine errors (feed, flip, head, doors, etc.)	
07001	Card feed error
07002	Card cleaning error
07003	Printhead cable disconnected
07004	Card eject error
07005	Printhead temperature too high

CODE	DESCRIPTION
07006	Printhead temperature too low
07007	Protocol error
07008	Door open
07009	Invalid EP script
07010	Printhead CAM home error
07011	Transfer rollers temperature too high
07012	Transfer rollers temperature too low
07013	Motor voltage range error
07014	EP script processing error
07015	Mag retrace error
07016	Card transfer error
07017	Card reject error
07018	SmartCard positioning error
07019	EP script content error
07020	EP script transmission error
07021	Print path initialization error
07022	Flipper initialization error
07023	SmartCard cam error
07024	Options module card jam
07025	Print path card jam
07026	Flipper card jam
07027	Media drawer open
07028	Feeder door open
07029	Flipper move failure
07030	Reserved
07031	Reserved
07032	ATM card jam
07033	Reserved
07034	Reject bin full
07035	Magnetic encoder card jam
07036	Print path card jam
07037	Print synchronization card jam
07038	Print entrance card jam
07039	Print exit card jam
07040	Flipper initialization error
07041	Printhead initialization error
07042	Print path initialization error
07043	Options module initialization error
07044	SmartCard initialization error
08000 - 08999 OCP errors	
08001	Unresponsive
08002	Transmit error

CODE	DESCRIPTION
09000 - 09999	encoding errors, magnetic stripe
09001	Read error
09002	Write verification error
09003	Receive error
09004	No magnetic stripe detected
10000 - 10999	encoding errors, smartcard contact
10001	Read error
10002	Write verification error
11000 - 11999	encoding errors, smartcard contactless
11001	Read error
11002	Write verification error
12000 - 12999	USB errors
12001	Locked
12002	Open failed
12003	Handle error
12004	Message short
12005	Message error
12006	Payload pending
12007	Payload too big
12008	Restart
12009	Synchronization error
13000 - 13999	job management and processing errors
13001	Create job error
13002	Queue error
13003	Action ID not found
13004	Insufficient memory available to accept job
13005	EP Processing error
13006	Job cancelled
13007	Job aborted
13008	Job buffer full
14000 - 14999	halogen control board errors
14001	Control board missing
14002	Bulb error
14003	Sensor error
14004	Bootloader mode - firmware reload may be required

CODE	DESCRIPTION
15000 - 15999	media authentication board (MAB) errors
15001	Control board missing
15002	Bootloader mode - firmware reload may be required
16000 - 16999	security-related errors
16001	Invalid passkey
16002	Invalid crypto key
16003	Authentication failed
16004	Invalid printer data
16005	Invalid HMAC
16006	Unsupported action
17000 - 17499	laminator board faults
17001	Missing laminator
17002	Initialization error
17003	Unknown error
17004	Media authentication board missing
17005	Top laminate feed error
17006	Bottom laminate feed error
17007	Top laminate registration error
17008	Staging error
17009	Early card jam
17010	Mid card jam
17011	Late card jam
17012	Poll timeout
17013	Top heater error - power off printer and correct problem
17014	Bottom heater error - power off printer and correct problem
17015	Top heater over temperature - power off printer and correct problem
17016	Bottom heater over temperature - power off printer and correct problem
17017	Top cutter stall - power off printer and correct problem
17018	Bottom cutter stall - power off printer and correct problem
17019	Top cutter failure - power off printer and correct problem
17020	Bottom cutter failure - power off printer and correct problem
17021	Top sensor failure - Power off printer and correct problem
17022	Bottom sensor failure - Power off printer and correct problem
17023	Fan failure - Power off printer and correct problem
17024	EEPROM corrupt
17025	Reserved
17026	Out of top and bottom laminate
17027	Out of top laminate
17028	Out of bottom laminate
17029	Invalid top laminate
17030	Invalid bottom laminate

CODE	DESCRIPTION
17031	Bottom laminate registration error
17032	Remove top laminate
17033	Remove bottom laminate
17034	Remove top and bottom laminate
17035	Reserved
17036	Reserved
17037	Reserved
17038	Door open
17039	Reserved
17040	Initializing
17041	Bootloader mode - firmware reload may be required
17042	MAB Bootloader mode - firmware reload may be required
18000 - 18999 wired network (ethernet) errors	
18001	Open failed
19000 - 19999 wireless network (WiFi) errors	
19001	Open failed
19002	Access point missing
19003	Link lost
19004	Incompatible configuration
19005	Association failed
19006	Connection failed
65000 SDK+ errors	
65001	Device not open
65002	Device already open
65003	Device not available
65004	Device not responding
65005	Bad ZMC response signature
65006	Bad ZMC Command echo
65007	Insufficient data received from device
65008	Invalid argument
65009	Path to XML element not found
65010	Parse error
65011	Empty/Invalid Data Structure
65012	Buffer overflow
65013	SmartCard Encoder not available
65014	Encryption error
65015	Job status error
65016	Dual sided printing not supported
65017	Unable to obtain exclusive access to device
65018	Device in session with another host

CODE	DESCRIPTION
65019	Invalid device for requested operation
65020	Passphrase or security key required for requested operation
65021	Memory allocation error
65022	No devices found
65023	Disconnect error
65024	WiFi not available
65025	Invalid media for requested operation
65026	Requested operation timed out

Appendix B
SDK Enumerations

B.1 Graphic Enums

FontTypeEnum
- Bold
- Italic
- Regular
- Strikeout
- Underline

ImageOrientationEnum
- Landscape
- Portrait

ImagePositionEnum
- Centered
- LowerLeft
- LowerRight
- UpperLeft
- UpperRight

MonochromeConversion
- Diffusion
- HalfTone_6x6
- HalfTone_8x8
- None

NetworkIPVersion
- IPv4
- IPv6

PrinterModelTypeEnum
- ZXPSeries3
- ZXPSeries7
- ZXPSeries8

RibbonTypeEnum
- Color
- GrayDye
- GrayUV
- Inhibit
- Monok_NoPanels
- MonoK
- MonoUV
- Overlay

RotationTypeEnum
- Rotate180FlipXY
- RotateNoneFlipNone
- Rotate270FlipXY
- Rotate90FlipNone
- Rotate180FlipNone
- RotateNoneFlipXY
- Rotate270FlipNone
- Rotate90FlipXY
- Rotate180FlipY
- RotateNoneFlipX
- Rotate90FlipX
- Rotate270FlipY
- RotateNoneFlipY
- Rotate180FlipX
- Rotate90FlipY
- Rotate270FlipX

TextAlignmentEnum
- Near
- Center
- Far

TextRenderingEnum
- AntiAlias
- AnitAliasGridFit
- ClearTypeGridFit
- SingleBitPerPixel
- SingleBitPerPixelGridFit

B.2 Job Enums

BoolTypeEnum
- False_BT
- True_BT
- NoChange

CalibrationRoutineEnum
- AutoSetDefaults
- CardCenterPosition
- CardToHeaterRoller
- CardToTransfer
- CardTransferToCenter
- ContactPosition
- MagPosition
- RibbonDamping
- RibbonTorque
- Tricolor

CalibrationTableEnum
- LUT1Default
- LUT1Installed
- LUT2Default
- LUT2Installed
- LUTsDefault
- LUTsInstalled

CalibrationTypeEnum
- Calc
- HighTorque
- LowTorque

CapabilitiesReportTypeEnum
- General
- MediaType

CleanPathTypeEnum
- FeederPath
- ATMPath
- TransferPath

ComponentTypeEnum
- ContactProbe
- PrintHead
- TransferRollers

ConnectionTypeEnum
- All
- Ethernet
- USB

DataSourceEnum
- NoData
- Track1Data
- Track2Data
- Track3Data

DestinationTypeEnum
- Eject
- Feeder
- Reject

EMailAttachmentsEnum
- Configuration
- ErrorLog
- EventsLog
- GeneralStatus
- NoAttachments

EncryptionTypeEnum
- AES
- NoEncryption

ErrorControlLevelEnum
- EC_High
- EC_Medium
- EC_None

EventLogTypeEnum
- AlarmEvents
- ErrorAlarmEvents
- ErrorEvents
- NoEvents

FanTypeEnum
- PrintheadFan
- TransferCardFan
- TransferRollerFan

FeederSourceEnum
- ATMSlot
- CardFeeder

GraphicTypeEnum
- BluePlane
- BMP
- GrayPlane
- GreenPlane
- MonoPlane
- NA
- RedPlane

LogTypeEnum
- CleanEvents
- Errors
- Events
- Service

MagCoercivityEnum
- HighCo
- LowCo

MagDataCharParityEnum
- Even
- Odd

MagDataFormatEnum
- ASCII
- Hex

MagEncodingTypeEnum
- AAMVA
- Ballys
- ISO
- JIS
- VingCard

MagTrackNumberEnum
- MagTrack1
- MagTrack2
- MagTrack3

MediaTypeEnum
- ColorRibbon

MemorySourceEnum
- MemFlash
- MemExternal
- MemRAM

MonoConvTypeEnum
- MonoBarcode
- MonoDiffusion
- MonoHalftone
- MonoText

NetworkIPVersion
- IPv4
- IPv6

OrientationEnum
- Landscape
- Portrait

PanelTypeEnum
- Black
- Cyan
- Magenta
- UV
- Yellow

PrintOptimizationModeEnum
- Quality
- Speed

PrintTypeEnum
- Color
- GrayDye
- GrayUV
- Inhibit
- Monok_NoPanels
- MonoK
- MonoUV
- Overlay

ReservationTypeEnum
- PendingSession
- ImmediateSession

ResetTypeEnum
- Warm
- Full

RFFieldTypeEnum
- RFContactless
- RFLaminate
- RFRibbon

RotationEnum
- Rotate_0
- Rotate_180

SharpnessLevelEnum
- Off
- Low
- Normal
- High

SideEnum
- Back
- Front

SmartCardCommChannelEnum
- SC_Ethernet
- SC_USB

SmartCardTypeEnum
- Contact
- iClass
- FeliCa
- Legic
- MIFARE
- None
- Prox
- UHF

StandbyTimeoutEnum
- FourHours
- Never
- OneHour
- ThirtyMinutes
- TwoHours

SystemTypeEnum
- CardTransport
- PrinterMechanism
- RetransferFilm

TransferTypeEnum
- dualSided
- SingleSided

TransportTypeEnum
- ATMToCenter
- CamToX
- CamToY
- CenterToOutput
- CenterToReject
- CenterToTransfer
- HopperToCenter
- HopperToContact
- HopperToContactless

USBSpeedEnum
- FullSpeed
- HighSpeed

WirelessCryptoTypeEnum
- CCMP
- NoCrypto
- RC4
- TKIP

WirelessSecurityTypeEnum
- Open
- WEP104
- WEP40
- WPA
- WPA2

Appendix C
XML Documents

C.1 Capabilities

```
<?xml version="1.0" encoding="UTF-8" ?>
<capabilities>
	<!--Printer-to-device ports printer acting as host e.g. USB (host mode) for
	external flash drive; Serial for internal smartcard encoder modules-->
	<host_ports>
		<host_port>
			<port_id>0</port_id>
			<type>usb_2_0</type>
		</host_port>

		<host_port>
			<port_id>1</port_id>
			<type>usb_2_0</type>
		</host_port>

		<host_port>
			<port_id>2</port_id>
			<type>usb_2_0</type>
		</host_port>

		<host_port>
			<port_id>3</port_id>
			<type>usb_2_0</type>
		</host_port>

		<host_port>
			<port_id>4</port_id>
			<type>serial</type>
		</host_port>
	</host_ports>

	<!--Host-to-printer ports printer acting as device-->
	<device_ports>
		<device_port>
			<port_id>0</port_id>
			<type>usb_2_0</type>
		</device_port>
```

```
        <device_port>
                <port_id>1</port_id>
                <type>ethernet_10_100_1G</type>
        </device_port>

        <device_port>
                <port_id>2</port_id>
                <type>802.11_b_g</type>
        </device_port>
</device_ports>

<!--Software interfaces used by host applications-->
<software_interfaces>
        <software_interface>
                <protocol>snmp</protocol>
                <transport>udp</transport>
                <port>161</port>
        </software_interface>

        <software_interface>
                <protocol>snmp_trap</protocol>
                <transport>udp</transport>
                <port>162</port>
        </software_interface>

        <software_interface>
                <protocol>http</protocol>
                <transport>tcp</transport>
                <port>80</port>
        </software_interface>

        <software_interface>
                <protocol>zmotif</protocol>
                <transport>tcp</transport>
                <port>9100</port>
        </software_interface>

        <software_interface>
                <protocol>zmotif</protocol>
                <transport>tcp</transport>
                <port>9099</port>
        </software_interface>

        <software_interface>
                <protocol>zmotif</protocol>
                <transport>usb_2_0</transport>
                <port></port>
        </software_interface>
</software_interfaces>

<!--This section specifies the supported languages for the Operator Control Panel.-->
<ocp_languages>
        <ocp_language>
                <type>0</type>
                <name>English</name>
        </ocp_language>

        <ocp_language>
                <type>1</type>
                <name>French</name>
        </ocp_language>
```

```
        <ocp_language>
                <type>2</type>
                <name>Spanish</name>
        </ocp_language>

        <ocp_language>
                <type>3</type>
                <name>German</name>
        </ocp_language>

        <ocp_language>
                <type>4</type>
                <name>Portuguese</name>
        </ocp_language>

        <ocp_language>
                <type>5</type>
                <name>Italian</name>
        </ocp_language>
</ocp_languages>

<!--This section specifies the supported image sharpening levels.-->
<image_sharpening_levels>
        <image_sharpening_level>off</image_sharpening_level>
        <image_sharpening_level>normal</image_sharpening_level>
        <image_sharpening_level>high</image_sharpening_level>
</image_sharpening_levels>

<!--Passkey protection implies host authentication and data encryption.-->
<security>
        <passkey_protection>no</passkey_protection>
        <encryption_algorithm>none</encryption_algorithm>
</security>

<!--All memory values specified in kilobytes.-->
<memory>
        <ram>65536</ram>
        <flash>16384</flash>
</memory>

<!--Supported graphic formats for images.-->
<graphic_formats>
        <graphic_format>bmp</graphic_format>
        <graphic_format>raw</graphic_format>
</graphic_formats>

<!--List of all stored templates graphics text and barcode fonts available
including temporary downloads-->
<fonts>
        <font>
                <name>dejavu</name>
                <scalable>yes</scalable>
                <style>regular</style>
        </font>

        <font>
                <name>dejavu</name>
                <scalable>yes</scalable>
                <style>bold</style>
        </font>
```

```
        <font>
                <name>dejavu</name>
                <scalable>yes</scalable>
                <style>italic</style>
        </font>
</fonts>

<templates>
        <template>
                <name>usb0:\tmplates\tmplt_01.xml</name>
        </template>

        <template>
                <name>usb0:\tmplates\tmplt_02.xml</name>
        </template>
</templates>

<graphics>
        <graphic>
                <name>usb0:\images\corplogo.bmp</name>
        </graphic>

        <graphic>
                <name>usb0:\images\visitext.bmp</name>
        </graphic>

        <graphic>
                <location>flash</location>
                <name>iffound.bmp</name>
        </graphic>
</graphics>

<print_system>retransfer</print_system>
<print_type>2_side</print_type>

<!--ATM-style card input refers to a single card bypass feed.-->
<media_path>
        <atm>yes</atm>
        <magazine_capacity>100</magazine_capacity>
</media_path>

<!--Image size (in pixels) and resolution (in pixels per inch) information.-->
<image>
        <logical_page>
                <length>1024</length>
                <width>648</width>
        </logical_page>

        <physical_page>
                <length>1012</length>
                <width>638</width>
        </physical_page>

        <print_resolution>300</print_resolution>
</image>

<!--The following mag section specifies only the physical installation. Formatting
is defined at the ZMJ job level. Mag head types are ISO & JIS possibly others.-->
<mag_encoder>iso</mag_encoder>
<mag_stripe>back</mag_stripe>
```

```
        <!--The following smart card encoding section specifies only the physical
        installation of the internal encoding module.-->
        <internal_encoder>
                <comms_channel>usb_2_0</comms_channel>
                <contact_encoding>yes</contact_encoding>
                <contactless_encoder>none</contactless_encoder>
        </internal_encoder>

        <!--List of all barcodes that can be natively rendered by the printer.-->
        <barcodes>
                <barcode>code_39</barcode>
                <barcode>code_128b</barcode>
                <barcode>code_128c</barcode>
                <barcode>standard_2of5</barcode>
                <barcode>interleaved_2of5</barcode>
                <barcode>upc_a</barcode>
                <barcode>ean_8</barcode>
                <barcode>ean_13</barcode>
        </barcodes>
</capabilities>
```

C.2 Card Configurations

C.2.1 Example 1

```
<configuration>
<cards>
<card>
	<!--General card information for custom card types.-->
	<!--All card thickness values are specified in mils.-->
	<information>
		<type>0</type>
		<zebra_part_number>Custom 1</zebra_part_number>
		<description>Custom 1</description>
		<thickness>30</thickness>
		<mag_stripe>no</mag_stripe>
		<coercivity/>
		<contact_encode>no</contact_encode>
		<non_contact_encode>no</non_contact_encode>
	</information>
	<!--Temperature settings for single-sided and double-sided transfers.-->
	<!--All temperatures and offsets are specified in Celsius.-->
	<transfer_temps>
		<top_single min="0" max="220">185</top_single>
		<top_double min="0" max="220">175</top_double>
		<bot_double min="0" max="220">165</bot_double>
	</transfer_temps>
	<!--Input and output speed settings for single-sided and double-sided transfers.-->
	<!--All transfer speeds are specified in inches per second.-->
	<transfer_speeds>
		<input_single min="1.00" max="8.00">1.50</input_single>
		<output_single min="1.00" max="8.00">1.75</output_single>
		<input_double min="1.00" max="8.00">1.50</input_double>
		<output_double min="1.00" max="8.00">1.75</output_double>
	</transfer_speeds>
	<!--Calibration table associated with the card type.-->
	<cal_table min="1" max="2">1</cal_table>
</card>
</cards>
</configuration>
```

C.2.2 Example 2

```
<configuration>
<cards>
<card>
       <!--General card information for custom card types.-->
       <!--All card thickness values are specified in mils.-->
       <information>
              <type>1</type>
              <zebra_part_number>Custom 2</zebra_part_number>
              <description>Custom 2</description>
              <thickness>30</thickness>
              <mag_stripe>no</mag_stripe>
              <coercivity/>
              <contact_encode>no</contact_encode>
              <non_contact_encode>no</non_contact_encode>
       </information>
       <!--Temperature settings for single-sided and double-sided transfers.-->
       <!--All temperatures and offsets are specified in Celsius.-->
       <transfer_temps>
              <top_single min="0" max="220">185</top_single>
              <top_double min="0" max="220">175</top_double>
              <bot_double min="0" max="220">165</bot_double>
       </transfer_temps>
       <!--Input and output speed settings for single-sided and double-sided transfers.-->
       <!--All transfer speeds are specified in inches per second.-->
       <transfer_speeds>
              <input_single min="1.00" max="8.00">1.50</input_single>
              <output_single min="1.00" max="8.00">1.75</output_single>
              <input_double min="1.00" max="8.00">1.50</input_double>
              <output_double min="1.00" max="8.00">1.75</output_double>
       </transfer_speeds>
       <!--Calibration table associated with the card type.-->
       <cal_table min="1" max="2">1</cal_table>
</card>
</cards>
</configuration>
```

C.3 Configuration

```
<?xml version="1.0" encoding="UTF-8" ?>
<configuration>
	<!--Ethernet MAC address-->
	<physical_address>00:00:00:00:00:00</physical_address>

	<!--Current wired Ethernet settings-->
	<ethernet>
		<dhcp>enabled</dhcp>
		<ip_address>0.0.0.0</ip_address>
		<subnet_mask>0.0.0.0</subnet_mask>
		<gateway>0.0.0.0</gateway>
	</ethernet>

	<!--Current OCP language selection-->
	<ocp_language>
		<type>0</type>
		<name>English</name>
	</ocp_language>

	<!--Current usage counter values since last reset-->
	<usage_counters>
		<num_cards_printed>1526</num_cards_printed>
		<num_lines_printed>946728</num_lines_printed>
	</usage_counters>

	<!--Current standby timer setting in minutes.-->
	<!--A values of 0 indicates that the printer will never enter standby.-->
	<!--Values from   1 to  30  result in a timeout of  30 minutes.-->
	<!--Values from  31 to  60  result in a timeout of  60 minutes or 1 hour.-->
	<!--Values from  61 to 120  result in a timeout of 120 minutes or 2 hours.-->
	<!--Values greater than 120 result in a timeout of 480 minutes or 8 hours.-->
	<standby_timeout>60</standby_timeout>

	<!--User-settable imaging parameters-->
	<imaging_parameters>
		<!--Printhead resistance in ohms and color panel power adjustments.-->
		<printhead_resistance min="2975" max="4025">3500</printhead_resistance>

		<!--Manufacturing power adjustments are percentages of the pre-determined
		fixed energy value assigned to each color panel.-->
		<!--As the value goes up the density of that color panel will increase; and
		as the value goes down the density of that color panel will decrease.-->
		<!--If relative power levels for each color panel are adjusted individually
		by differing amounts the color balance of full color images will change.-->
		<mfg_power_adjustments>
			<yellow min="50" max="150">100</yellow>
			<magenta min="50" max="150">100</magenta>
			<cyan min="50" max="150">100</cyan>
			<k-resin_front min="50" max="150">100</k-resin_front>
			<k-resin_back min="50" max="150">100</k-resin_back>
			<k-dye min="50" max="150">100</k-dye>
			<overlay min="50" max="150">100</overlay>
			<uv_front min="50" max="150">100</uv_front>
			<uv_back min="50" max="150">100</uv_back>
		</mfg_power_adjustments>
```

```
        <!--User power adjustments are percentages of the values established by
        the above manufacturing power adjustments.-->
        <user_power_adjustments>
                <yellow min="90" max="110">100</yellow>
                <magenta min="90" max="110">100</magenta>
                <cyan min="90" max="110">100</cyan>
                <k-resin_front min="90" max="110">100</k-resin_front>
                <k-resin_back min="90" max="110">100</k-resin_back>
                <k-dye min="90" max="110">100</k-dye>
                <overlay min="90" max="110">100</overlay>
                <uv_front min="90" max="110">100</uv_front>
                <uv_back min="90" max="110">100</uv_back>
        </user_power_adjustments>
</imaging_parameters>

<!--Current tri-color sensor values as determined by tri-color sensor calibration-->
<!--These values are not directly user-settable.-->
<tricolor_settings>
        <red>-28</red>
        <green>-47</green>
        <blue>0</blue>
</tricolor_settings>

<!--Current DC ribbon motor settings-->
<!--Units for each setting are as follows:-->
<!--    S0 in RPM-->
<!--    K0 in mA settable by user or via ribbon motor torque calibration-->
<!--    Kb in mA-min2/rev2-->
<!--    Ka in mA-min/rev-->
<!--    M0 in mA/in-lb settable by user or via ribbon motor torque calibration-->
<!--    Mb in mA-min2/in-lb-rev2-->
<!--    Ma in mA-min/in-lb-rev-->
<!--    VtoI in mA/V not user-settable-->
<ribbon_motor_parameters>
        <takeup_motor>
                <S0 min="5.00 " max="50.00">33.3000</S0>
                <K0 min="30.00" max="150.00">71.6600</K0>
                <Kb min="-1.50" max="1.50 ">0.5080</Kb>
                <Ka min="-0.10" max="0.10 ">-0.0077</Ka>
                <M0 min="50.00" max="300.00">171.5200</M0>
                <Mb min="-1.00" max="1.00 ">0.1750</Mb>
                <Ma min="-0.10" max="0.10 ">-0.0049</Ma>
                <VtoI>66.80</VtoI>
        </takeup_motor>
</ribbon_motor_parameters>

<!--Current ribbon registration setting in millimeters-->
<ribbon_sensor_offset min="1" max="12">6</ribbon_sensor_offset>

<!--Current back EMF potentiometer setting as determined by ribbon damping
calibration. Provides the analog voltage that maps to the speed of the motor.-->
<!--Valid range of values from 2 to 120. This value is not directly user-settable.-->
<bemf_potentiometer>61</bemf_potentiometer>

<!--Mechanical adjustment parameters-->
<!--All parameters in mils except film_print_x_offset which is in dots.-->
<mech_adjustments>
        <!--Steps from sensor to print in X and Y direction-->
        <film_print_x_offset min="-50" max="50">3</film_print_x_offset>
        <film_print_y_offset min="-100" max="100">0</film_print_y_offset>
```

```
        <!--Steps from sensor to transfer-->
        <film_transfer_start_offset
               min="0" max="200">100
        </film_transfer_start_offset>

        <!--Steps from the card detect sensor to the card in center of card the
        transport in the X direction-->
        <card_center_x_offset min="-150" max="150">55</card_center_x_offset>

        <!--Steps from the card detect sensor to the card at the mag encode start
        in the X direction-->
        <card_mag_x_offset min="-150" max="150">-60</card_mag_x_offset>

        <!--Steps from the card detect sensor to the card at the smart card encode
        in the X direction-->
        <card_smart_card_x_offset min="-300" max="300">0</card_smart_card_x_offset>

        <!--Steps from the card detect sensor to the card in center of the transport
        in the Y direction-->
        <card_center_y_offset min="-300" max="300">-160</card_center_y_offset>

        <!--Steps from card detect to transfer start in Y direction-->
        <card_transfer_start_y_offset
               min="0" max="300">143
        </card_transfer_start_y_offset>

        <!--Steps from card detect to transfer end in Y direction-->
        <card_transfer_end_y_offset
               min="0" max="1000">283
        </card_transfer_end_y_offset>

        <!--Steps from transfer start to transfer roller in Y direction-->
        <card_transfer_roll_y_offset
               min="0" max="1000">333
        </card_transfer_roll_y_offset>
</mech_adjustments>

<!--Media information as read from the RFID tags resident on the media rolls-->
<media_info>
        <!--Ribbon information-->
        <ribbon>
               <type>101</type>
               <zebra_part_number>800133-480</zebra_part_number>
               <description>YMCKK</description>
               <oem_country>ELTR</oem_country>
               <initial_size>510</initial_size>
               <panels_remaining>393</panels_remaining>
        </ribbon>

        <!--Film information-->
        <film>
               <type>104</type>
               <zebra_part_number>800133-600</zebra_part_number>
               <description>Standard</description>
               <oem_country>ELTR</oem_country>
               <initial_size>1250</initial_size>
               <panels_remaining>1160</panels_remaining>
        </film>
</media_info>
```

```
<!--Current settings for custom card types.-->
<cards>
	<card>
		<!--General card information for custom card types.-->
		<!--All card thickness values are specified in mils.-->
		<information>
			<type>0</type>
			<zebra_part_number>Custom 1</zebra_part_number>
			<description>Custom 1</description>
			<thickness>30</thickness>
			<mag_stripe>no</mag_stripe>
			<coercivity></coercivity>
			<contact_encode>no</contact_encode>
			<non_contact_encode>no</non_contact_encode>
		</information>

		<!--Temp settings for single-sided and double-sided transfers.-->
		<!--All temperatures and offsets are specified in Celsius.-->
		<transfer_temps>
			<top_single min="0" max="220">185</top_single>
			<top_double min="0" max="220">175</top_double>
			<bot_double min="0" max="220">165</bot_double>
		</transfer_temps>

		<!--Input and output speed settings for single-sided and
		double-sided transfers.-->
		<!--All transfer speeds are specified in inches per second.-->
		<transfer_speeds>
			<input_single min="1.00" max="8.00">1.50</input_single>
			<output_single min="1.00" max="8.00">1.75</output_single>
			<input_double min="1.00" max="8.00">1.50</input_double>
			<output_double min="1.00" max="8.00">1.75</output_double>
		</transfer_speeds>

		<!--Calibration table associated with the card type.-->
		<cal_table min="1" max="2">1</cal_table>
	</card>

	<card>
		<!--General card information for custom card types.-->
		<!--All card thickness values are specified in mils.-->
		<information>
			<type>1</type>
			<zebra_part_number>Custom 2</zebra_part_number>
			<description>Custom 2</description>
			<thickness>30</thickness>
			<mag_stripe>no</mag_stripe>
			<coercivity></coercivity>
			<contact_encode>no</contact_encode>
			<non_contact_encode>no</non_contact_encode>
		</information>

		<!--Temp settings for single-sided and double-sided transfers.-->
		<!--All temperatures and offsets are specified in Celsius.-->
		<transfer_temps>
			<top_single min="0" max="220">185</top_single>
			<top_double min="0" max="220">175</top_double>
			<bot_double min="0" max="220">165</bot_double>
		</transfer_temps>

		<!--Input and output speed settings for single-sided and
		double-sided transfers.-->
```

```
                        <!--All transfer speeds are specified in inches per second.-->
                        <transfer_speeds>
                               <input_single min="1.00" max="8.00">1.50</input_single>
                               <output_single min="1.00" max="8.00">1.75</output_single>
                               <input_double min="1.00" max="8.00">1.50</input_double>
                               <output_double min="1.00" max="8.00">1.75</output_double>
                        </transfer_speeds>

                        <!--Calibration table associated with the card type.-->
                        <cal_table min="1" max="2">1</cal_table>
                </card>
        </cards>

        <!--Image transfer settings-->
        <!--Most transfer settings are not user-settable. Transfer settings are dependent
        on the card type specified in the print job with the exception of temperature
        offset values. The non-settable values are for factory default only.-->
        <transfer_settings>
                <!--Default transfer type: dual-sided or single-sided.-->
                <transfer_type>single</transfer_type>

                <!--Default start-up temperature settings and offsets for single-sided and
               double-sided transfers.-->
                <!--All temperatures and offsets are specified in Celsius.-->
                <transfer_temps>
                        <top_single min="0" max="220">185</top_single>
                        <top_double min="0" max="220">175</top_double>
                        <bot_double min="0" max="220">165</bot_double>

                        <!--Temperature offsets are user-settable and can be applied to
                        all transfer temperatures for non-custom cards.-->
                        <top_single_offset min="-10" max="10">0</top_single_offset>
                        <top_double_offset min="-10" max="10">0</top_double_offset>
                        <bot_double_offset min="-10" max="10">0</bot_double_offset>
                </transfer_temps>

                <!--Default start-up input and output speed settings for single-sided and
               double-sided transfers. Transfer speeds are specified in inches per second.-->
                <transfer_speeds>
                        <input_single min="1.00" max="8.00">1.50</input_single>
                        <output_single min="1.00" max="8.00">1.75</output_single>
                        <input_double min="1.00" max="8.00">1.50</input_double>
                        <output_double min="1.00" max="8.00">1.75</output_double>
                </transfer_speeds>
        </transfer_settings>

        <!--LCD contrast-->
        <lcd_contrast min="1" max="63">32</lcd_contrast>

        <!--Cleaning thresholds-->
        <cleaning_thresholds>
                <x_direction_card_path min="100" max="5000">4999</x_direction_card_path>
                <y_direction_card_path min="100" max="5000">4999</y_direction_card_path>
                <transfer_rollers min="100" max="20000">19999</transfer_rollers>
        </cleaning_thresholds>

        <!--The following smart card encoding section specifies only the physical
        installation of the internal encoding module.-->
        <internal_encoder>
                <comms_channel>usb</comms_channel>
                <contact_encoding>yes</contact_encoding>
                <contactless_encoder>none</contactless_encoder>
        </internal_encoder>
</configuration>
```

C.4 Logs

C.4.1 CleaningLog.xml: Cleaning History

This is the Cleaning History Record of the 32 most recent cleaning events by card count since new or since card count reset if applicable. The log is maintained in a circular buffer; when filled the latest entry replaces the oldest.

```
<number> = the count of cleaning events 1 is first event and incrementing to the last event
<cards> = total number of cards which have been printed at the time the cleaning took place
```

```
<?xml version="1.0" encoding="UTF-8" ?>
- <get_log_cleaning_history>
  - <cleaning>
      <number>1</number>
      <cards>5805</cards>
    </cleaning>
  - <cleaning>
      <number>2</number>
      <cards>5805</cards>
    </cleaning>
  - <cleaning>
      <number>3</number>
      <cards>5805</cards>
    </cleaning>
  - <cleaning>
      <number>4</number>
      <cards>5805</cards>
    </cleaning>
  - <cleaning>
      <number>5</number>
      <cards>6757</cards>
    </cleaning>
  - <cleaning>
      <number>6</number>
      <cards>6757</cards>
    </cleaning>
  - <cleaning>
      <number>7</number>
      <cards>6757</cards>
    </cleaning>
  - <cleaning>
      <number>8</number>
      <cards>6962</cards>
    </cleaning>
  - <cleaning>
      <number>9</number>
      <cards>7064</cards>
    </cleaning>
  - <cleaning>
      <number>10</number>
      <cards>7064</cards>
    </cleaning>
  - <cleaning>
      <number>11</number>
      <cards>7064</cards>
    </cleaning>
  - <cleaning>
      <number>12</number>
      <cards>7064</cards>
    </cleaning>
</get_log_cleaning_history>
```

C.4.2 ErrorLog.xml: Error History

This is the Error History Record of the 32 most recent error events tabulated in XML form. The log is maintained in a circular buffer; when filled the latest entry replaces the oldest. See Appendix A for the list of error codes.

```
<number> = the count of errors 1 is the first error and incrementing to the last error
<code> = the actual error code which caused the error to be logged
<cards> = total number of cards which have been printed at the time the error occurred
<print_lines> = total number of lines printed by the printer at the time the error occurred
```

```
<?xml version="1.0" encoding="UTF-8" ?>
- <get_log_error_history>
  - <error>
      <number>1</number>
      <code>3009</code>
      <cards>7875</cards>
      <print_lines>11290104</print_lines>
    </error>
  - <error>
      <number>2</number>
      <code>3009</code>
      <cards>7875</cards>
      <print_lines>11290104</print_lines>
    </error>
  - <error>
      <number>3</number>
      <code>3009</code>
      <cards>7875</cards>
      <print_lines>11290104</print_lines>
    </error>
  - <error>
      <number>4</number>
      <code>3009</code>
      <cards>7875</cards>
      <print_lines>11290104</print_lines>
    </error>
  - <error>
      <number>5</number>
      <code>3009</code>
      <cards>7875</cards>
      <print_lines>11290104</print_lines>
    </error>
  - <error>
      <number>6</number>
      <code>3009</code>
      <cards>7875</cards>
      <print_lines>11290104</print_lines>
    </error>
  - <error>
      <number>7</number>
      <code>3009</code>
      <cards>7875</cards>
      <print_lines>11290104</print_lines>
    </error>
  - <error>
      <number>8</number>
      <code>3009</code>
      <cards>7875</cards>
      <print_lines>11290104</print_lines>
    </error>
</get_log_error_history>
```

C.4.3 EventLog.xml: Event History

This is the Event History Record of the most recent 2000 changes in the printer's status including all error conditions no matter what their severity. The log is maintained in a circular 65536 byte buffer; when filled the latest entry replaces the oldest.

```
<number> = the count of events 1 is the first event and incrementing to the last event
<cards> =  total number of cards which have been printed at the time the event occurred
<description> = description of the event
```

```
<?xml version="1.0" encoding="UTF-8" ?>
- <get_log_event_history>
  - <event>
      <number>1</number>
      <cards>7593</cards>
      <description>Out of cards</description>
    </event>
  - <event>
      <number>2</number>
      <cards>7593</cards>
      <description>Replenished cards</description>
    </event>
  - <event>
      <number>3</number>
      <cards>7593</cards>
      <description>Out of cards</description>
    </event>
  - <event>
      <number>4</number>
      <cards>7593</cards>
      <description>Replenished cards</description>
    </event>
  - <event>
      <number>5</number>
      <cards>7593</cards>
      <description>Out of cards</description>
    </event>
  - <event>
      <number>6</number>
      <cards>7593</cards>
      <description>Replenished cards</description>
    </event>
  - <event>
      <number>7</number>
      <cards>7593</cards>
      <description>Out of cards</description>
    </event>
  - <event>
      <number>8</number>
      <cards>7593</cards>
      <description>Replenished cards</description>
    </event>
  - <event>
      <number>9</number>
      <cards>7593</cards>
      <description>Out of cards</description>
    </event>
  - <event>
      <number>10</number>
      <cards>7593</cards>
      <description>Replenished cards</description>
    </event>
  <get_log_event_history>
```

Appendix D
Sample Code

D.1 List

D.2 Inhibit Panel Printing

D.2.1 ZMotif Printer SDK Sample Code

This example shows how to add the Inhibit Image built by the Graphics SDK (see Section D.2.2) to the Print Job.

```
private byte[] BuildFrontInhibitImage(byte[] InhibitFrontImage
                    float ImageXOffset float ImageYOffset
                    int ImageWidth int ImageHeight
                    out String errMsg)
{
    errMsg = "";
    try
    {
        byte[] bmpFrontImage = null;

        if (InhibitFrontImage != null)
        {
            // use ZMotifGraphics SDK to build the inhibit image:

            bmpFrontImage = BuildInhibitImage(InhibitFrontImage
                ZMotifGraphics.ImageOrientationEnum.Landscape
                XOffset YOffset ImageWidth ImageHeight
                out errMsg);

            if (bmpFrontImage != null)
        {
                // add inhibit image to print job:

                _job.BuildGraphicsLayers(SideEnum.Front
                                PrintTypeEnum.Inhibit
                                (int)ImageXOffset
                                (int)ImageYOffset
                                0 -1 GraphicTypeEnum.BMP
                                bmpFrontImage);

                return bmpFrontImage;
            }
        }
    }
    catch(Exception ex)
    {
        errMsg = ex.Message;
    }
    return null;
}
```

D.2.2 ZMotifGraphics SDK Sample Code

This example shows how to build the Inhibit Image in the Graphics Buffer.

```
private byte[] BuildInhibitImage(byte[] InhibtImage
                  ZMotifGraphics.ImageOrientationEnum ImageOrientation
                  float xPos float yPos
                  int imageWidth int imageHeight
                  out String errMsg)
{
    ZMotifGraphics graphics = null;
    try
    {
        errMsg = "";

        int dataLen = 0;
        byte[] TheImage = null;
        graphics = new ZMotifGraphics();

        ZMotifGraphics.RibbonTypeEnum RibbonType =
                  ZMotifGraphics.RibbonTypeEnum.Inhibit;

        graphics.InitGraphics(0 0 ImageOrientation RibbonType);

        graphics.DrawImage(ref InhibtImage xPos yPos
               imageWidth imageHeight 0);

        if (InhibtImage != null)
            TheImage = graphics.CreateBitmap(out dataLen);

        return TheImage;

    }
    catch (Exception ex)
    {
        errMsg = ex.Message;
    }
    finally
    {
        graphics.ClearGraphics();
        graphics = null;
    }
    return null;
}
```

D.3 Card Movement

D.3.1 Move Card to Hold Position

This example demonstrates how to move a card from the Card Feeder to the internal hold position and to determine when card has arrived at hold position.

```
private void MoveCardToHoldPosition()
{
    try
    {
        int actionID = 0;
        string errMsg = "";
        short alarm = 0;

        FeederSourceEnum JobSourceLocation =
                        FeederSourceEnum.CardFeeder;
        DestinationTypeEnum JobDestinationLocation =
                        DestinationTypeEnum.Hold;

        if (!OpenConnectionToPrinter())
        {
            LogAppend("Failed to open connection to printer");
            return;
        }

        // move the card to the hold position see Section D.3.2:
        alarm = PositionCard(JobSourceLocation
                        JobDestinationLocation
                        out actionID out errMsg);

        if( (alarm != 0) && (alarm != OUT_OF_CARDS) )
        {
            MessageBox.Show("PositionCard returned alarm = " +
            Convert.ToString(alarm));
        }
        else
        {
            // poll printer for job status see Section D.4:
            if (!WaitForJobToComplete(actionID out errMsg))
            {
                MessageBox.Show(errMsg);
            }
        }
    }
    catch (Exception ex)
    {
        MessageBox.Show("ActionID = " + actionID + " Exception: " +
        ex.Message);
    }
    finally
    {
        CloseConnectionToPrinter();
    }
}
```

D.3.2 Move Card to Pre-Defined Position

This example moves the card from its current location to a pre-defined destination.

```
public short PositionCard(FeederSourceEnum currentLocation
                      DestinationTypeEnum destinationLocation
                      out int actionID out String errMsg)
{
errMsg = "";
    actionID = 0;
    short alarm = 0;
    try
    {
        Job.JobControl.FeederSource = currentLocation;
        Job.JobControl.Destination = destinationLocation;

        alarm = Job.PositionCard(out actionID);

        return alarm;
    }
    catch (Exception ex)
    {
        errMsg = ex.Message;
    }
    return -1;
}
```

D.4 Track Current Job to Completion

This function determines when a job has completed or failed.

```
// The function periodically polls the printer for job status.
// If the printer returns a job status of "done_ok" this indicates
// successful job completion.
// If the job fails an error string will be returned.

private Boolean WaitForJobToComplete(int actionID out string errMsg)
{
    Boolean bSuccess = false;
    errMsg = "";

    try
    {
        const int MAX_LOOPS = 60;

        int copiesCompleted = 0
            copiesRequested = 0
            alarm = 0
            errorCode = 0;

        string contactStatus = ""
            contactlessStatus = ""
            magStatus = ""
            jobStatus = ""
            cardPosition = ""
            uuidJob = "";

        int loops;
        for (loops = 0; loops < MAX_LOOPS; loops++)
        {
            alarm = Job.GetJobStatus(actionID out uuidJob
                        out jobStatus
                        out cardPosition
                        out errorCode
                        out copiesCompleted
                        out copiesRequested
                        out magStatus
                        out contactStatus
                        out contactlessStatus);

            if (jobStatus == "done_ok") // job completed successfully
            {
                bSuccess = true;
                break;
            }
            else if (jobStatus.ToLower().Contains("error")) // job failed
            {
                errMsg = jobStatus;
                break;
            }
            Thread.Sleep(500);
        }

        if (loops >= MAX_LOOPS)
            errMsg = "Job timed out";
    }
    catch (Exception ex)
    {
        bSuccess = false;
        errMsg = ex.Message;
    }
    return bSuccess;
}
```

D.5 Set Printer Error Recovery Mode

This section demonstrates how to set the printer's error recovery mode to each of the three possible levels: none medium and high.

D.5.1 Set Printer Error Recovery Mode to NONE

This function sets the printer error recovery mode to none. In this mode the printer will *not* attempt to retry a print job following resolution of an error.

None should be chosen if error recovery is to be performed at the application level.

```
private bool SetErrorLevelToNone(string deviceName out string errMsg)
{
    bool result = false;
    errMsg = "";

    try
    {
        job.Open(deviceName);
        job.Device.ErrorControlLevel = ErrorControlLevelEnum.EC_None;
        result = true;
    }
    catch (Exception ex)
    {
        result = false;
        errMsg = ex.Message;
    }
    finally
    {
      job.Close();
    }
    return result;
}
```

D.5.2 Set Printer Error Recovery Mode to MEDIUM

This function sets the printer error recovery mode to medium. In this mode the printer will automatically retry a print job following resolution of an error.

Medium should be chosen if multiple jobs are to be sent to the printer at the same time.

```
private bool SetErrorLevelToMedium(string deviceName out string errMsg)
{
    bool result = false;
    errMsg = "";

    try
    {
        job.Open(deviceName);
        job.Device.ErrorControlLevel = ErrorControlLevelEnum.EC_Medium;
        result = true;
    }
    catch (Exception ex)
    {
        result = false;
        errMsg = ex.Message;
    }
    finally
    {
        job.Close();
    }
    return result;
}
```

D.5.3 Set Printer Error Recovery Mode to HIGH

This function sets the printer error recovery mode to high. In this mode the printer will automatically retry a print job following resolution of an error.

High should be chosen if jobs are to be sent to the printer one-at-a-time. In high mode the printer must successfully complete the current job before attempting another job.

```
private bool SetErrorLevelToHigh(string deviceName out string errMsg)
{
    bool result = false;
    errMsg = "";

    try
    {
        job.Open(deviceName);
        job.Device.ErrorControlLevel = ErrorControlLevelEnum.EC_High;
        result = true;
    }
    catch (Exception ex)
    {
        result = false;
        errMsg = ex.Message;
    }
    finally
    {
        job.Close();
    }
    return result;
}
```

D.6 Apply a Color Profile

The following code demonstrates how to build an image with a color profile.

```
private byte[] BuildImageWithColorProfile(byte[] image
                  ZMotifGraphics.ImageOrientationEnum ImageOrientation
                  ZMotifGraphics.RibbonTypeEnum RibbonType
                  String colorProfile out String errMsg)
{
    try
    {
        errMsg = "";

        int dataLen = 0;
        byte[] TheImage = null;

        _graphics.InitGraphics(0 0 ImageOrientation RibbonType);

        if (RibbonType == ZMotifGraphics.RibbonTypeEnum.Color)
            _graphics.ColorProfile = colorProfile;
        else
            _graphics.ColorProfile = string.Empty;

        _graphics.DrawImage(ref image
            ZMotifGraphics.ImagePositionEnum.Centered 1100 700 0);

        if (image != null)
            TheImage = _graphics.CreateBitmap(out dataLen);

        return TheImage;
    }
    catch (Exception ex)
    {
        errMsg = ex.Message;
    }
    finally
    {
        _graphics.ClearGraphics();
        _graphics.ColorProfile = string.Empty;
    }
    return null;
}
```

Appendix E
Page Size & Orientation Conventions

E.1 Page and image specifications

There is no single definition of “page” and “image orientation” applicable across the spectrum of printers. Portrait to one printer is landscape to another. Likewise image orientation is arbitrary depending on the application delivering the image to the printer driver. Yet a third factor is the printer driver’s ability to override the application’s definition of wide vs. tall landscape vs. portrait.

The best that can be hoped for in a general purpose ZMotif SDK is a consistent unambiguous definition of two fundamental concepts: the **physical** page and the **logical** page. In ZMotif, image **orientation** is related solely to the logical page.

E.2 Physical page

In ZMotif the physical page is defined differently for roll fed and sheet fed printers. (ID card printers are in the same category as sheet fed printers.) There is no “natural” orientation of the physical page. This depends on the printer itself the currently loaded media choices and the media selected at the printer driver level.

The length of a physical page is defined as its longer dimension the axis along which the longest print line can potentially be applied regardless of image orientation. For a roll-fed printer, this is along the length of the roll; for a sheet-fed printer, it is the longer dimension of the paper, film, or ID card. Width is the dimension 90 degrees to the length.

E.3 Logical page

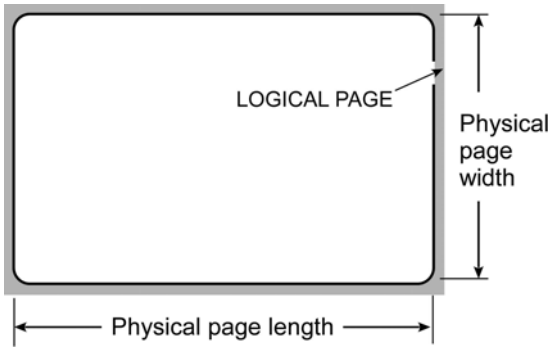
The logical page is the basic “page” concept supported by ZMotif. It is the area that the host assumes to be available for printing based on the media specified.

In ZMotif the orientations and sizes of logical page and physical page are not automatically correlated so some form of image manipulation may be necessary to achieve the desired relationship between the two.

The location of a mag encoding head in an ID card printer for instance usually dictates the orientation of cards in the input hopper; if the head faces up the cards must be loaded with mag stripes down. This may in turn require the image to rotated 180° so that it prints appropriately relative to the stripe. Be aware that rotation in this sense means rotation of the entire bitmap (and therefore the logical page) in the printer driver see "Printer conventions" below. It has nothing to do with positioning – and possible rotation – of individual components in the application responsible for composing the bitmap.

It is up to the system developer to decide which image manipulation functions will be handled by the host and which will be assigned to the printer. Examples of host functions are: Rotation of the image to fit the physical page reported by the printer; Nesting multiple small logical pages in a single physical page; Tiling a single large logical page over two or more physical pages.

One function that is routinely left to the printer is cropping an over-size logical page to fit the printable area of the physical page. An exception to this is possible in the special case of full-bleed (“edge-to-edge”) printers that can have a logical page equal to or larger than the physical page. In the full-bleed example below the physical page is a CR-80 size ID card.



Full bleed logical page vs. physical page

E.4 Logical page size and orientation

Dimensions of the logical page are specified in X and Y pixels. The origin of the X and Y axes is at the upper left corner of the logical page as shown in the following illustrations. The ***extents*** of X and Y values define the orientation of the logical page and thus the image content – landscape if the X extent is greater than Y portrait if less than Y.

Orientation of the logical page landscape or portrait is the ***same as the viewing orientation*** intended for the printed product – landscape for a team photo portrait for a chimney. This does ***not*** imply that the image content of (say) a landscape logical page has to be wider than it is tall although that will often be the case.

One instance where the "wider/taller" convention may not apply is the photo image for a driver license. This could be sent to the printer as a separate entity in which case it would be both smaller than the logical page ***and*** differently oriented. (Alternatively – and most likely – the photo image could simply be pre-rotated in the card-composing application then placed in a full-page landscape bitmap containing the entire front side image of the license.)

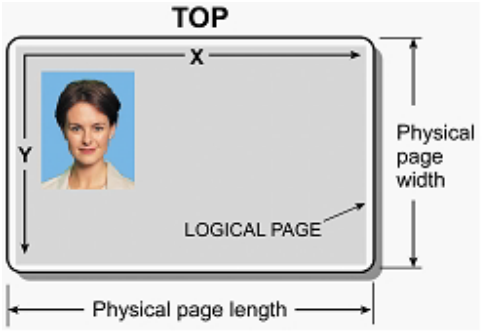


Photo ID card Landscape logical page

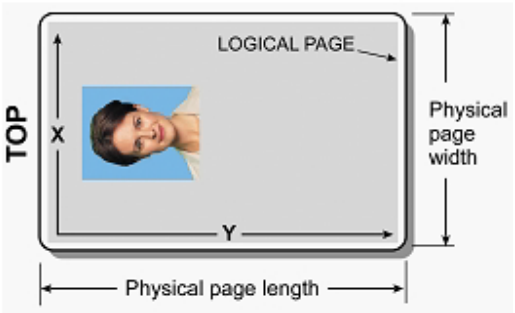
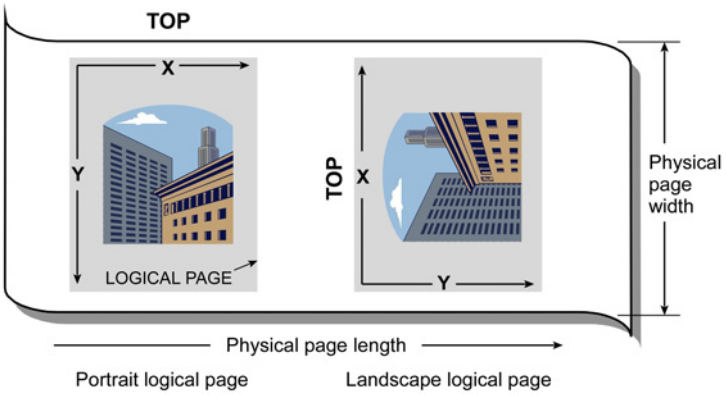
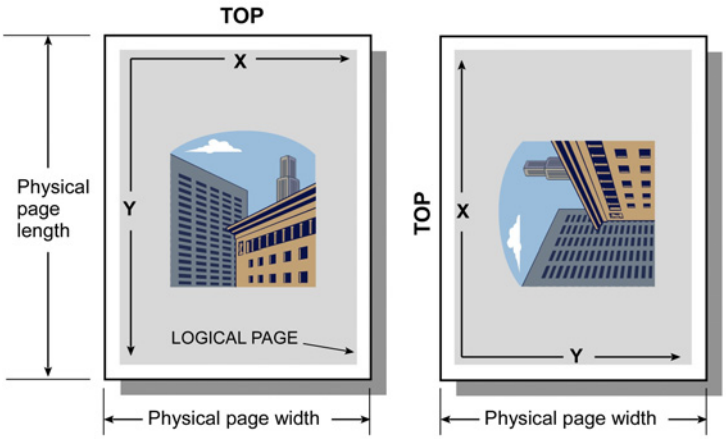


Photo ID card Portrait logical page



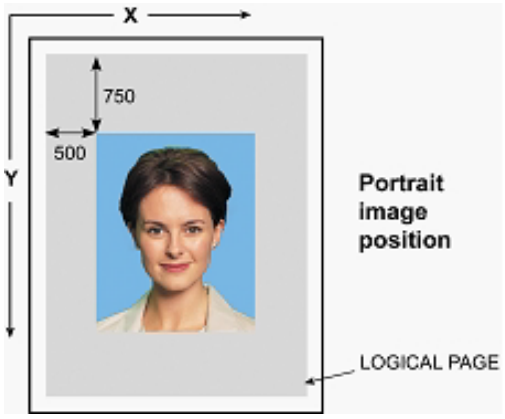
Roll fed media



Sheet fed media

E.5 Image position

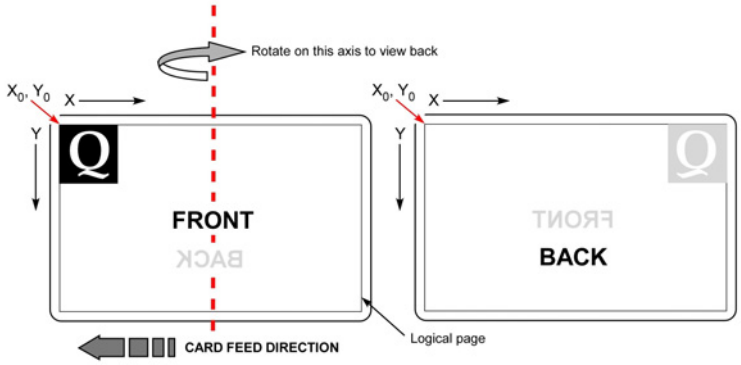
Image position is specified as the offset of the upper left corner of the image after rotation (if any) relative to the upper left corner of the logical page. Offset is measured in X and Y pixels.



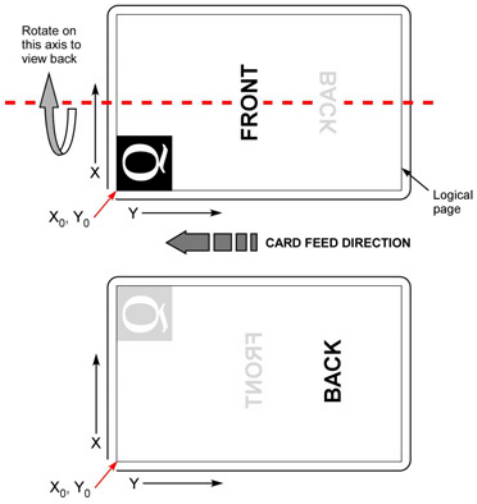
E.6 Printer conventions

Card motion through Zmotif compliant printers is typically right to left viewed from the front of the printer. The logical page origin (X_0 Y_0) is at the top left corner for a landscape card and bottom left for a portrait. This applies whether the card exits the printer face up or face down. The printers are configured so that the as-viewed page origin of front and back sides is in exactly the same location provided the convention shown below is observed.

Portrait card viewing convention – Rotate the card about its long axis to view the back side with the origin at bottom left.



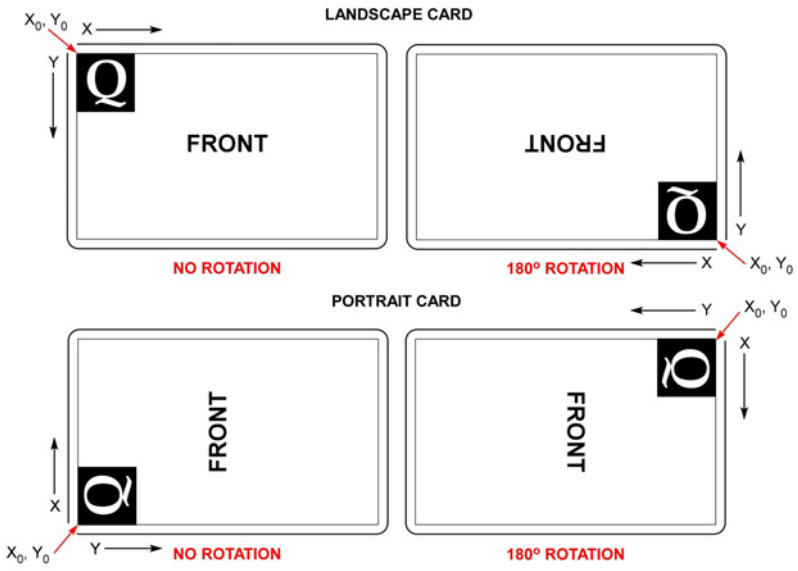
Landscape card viewing convention – Rotate the card about its short axis to view the back side with the origin at top left.



E.7 Image rotation

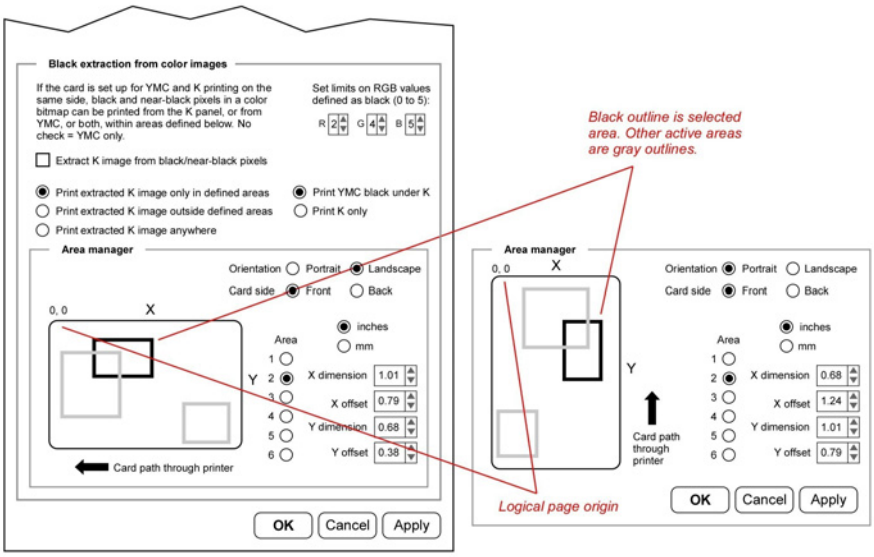
Zmotif compliant printers allow the printed image to be rotated 180 degrees relative to the physical card. Rotation can be applied to both landscape and portrait formats and may be independently applied to front and back sides of the card.

As illustrated below rotation has the effect of shifting the origin of the logical page to the diametrically opposite corner. This is a source of confusion that may be avoided by always visualizing the image composition to be referenced to the "normal" un-rotated page origin. Think of rotation as an override affecting all elements of the composition including those rendered in the printer (which may themselves have been individually rotated to achieve some local effect)..



Rotation affects the entire image – It is an override used to position the printed image relative to a magnetic stripe or other physical feature or to allow more convenient viewing.

The top-left 0 0 convention also applies to the "black extraction" capability available in some printer drivers. Black-extraction exclusion zones are referenced to the un-rotated page origin see below



Black extraction If the printer driver allows for black extraction exclusion zones as here these will always be referenced to the un-rotated logical page.