CITIZEN

CITIZEN XML Print Service
JavaScript POS Print SDK
Programming Manual

For Ver. 1.03

CITIZEN SYSTEMS JAPAN CO., LTD.

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Date	Version	History
4/18/2017	1.02	Initial version
12/26/2017		Added CT-E651 to Supported Models, and modified the interface model numbers.
3/7/2019		Added CT-S751 and CT-S4500 to Supported Models.
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10/5/2021		Modified the explanation of the status code. (Page 12, 47-48)
11/21/2023		Added CT-S801III and CT-S801III to Supported Models. (Page 8) Added description of the RecLineWidth property. (Page 78)
8/20/2025		Added description of UTF-8 to Specifying Character Encoding. (pages 40, 76)

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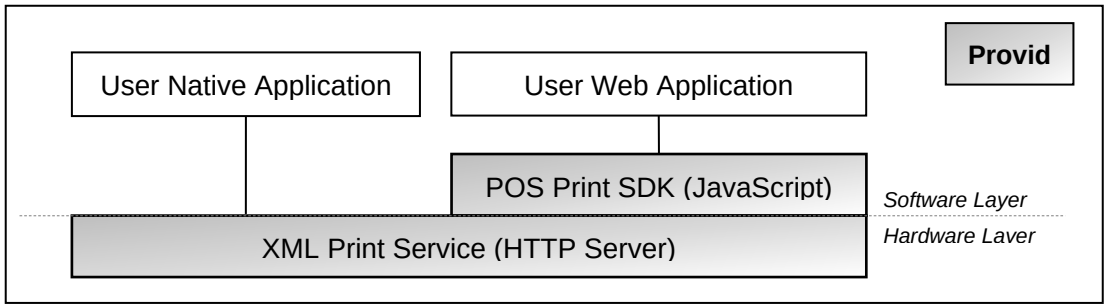
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1. Introduction

This document is a manual for programmers for CITIZEN XML Print Service.

1.1. System Overview

CITIZEN XML Print Service is provided to control a printer without a device driver in a multi-platform environment which is not operating system dependent.
Since the control method is HTTP (XML) based, a printer can be controlled easily from a Web service environment. Furthermore, CITIZEN JavaScript POS Print SDK is provided as a library for CITIZEN XML Print Service to print using JavaScript on the client side. The following shows a conceptual diagram of the provided service.

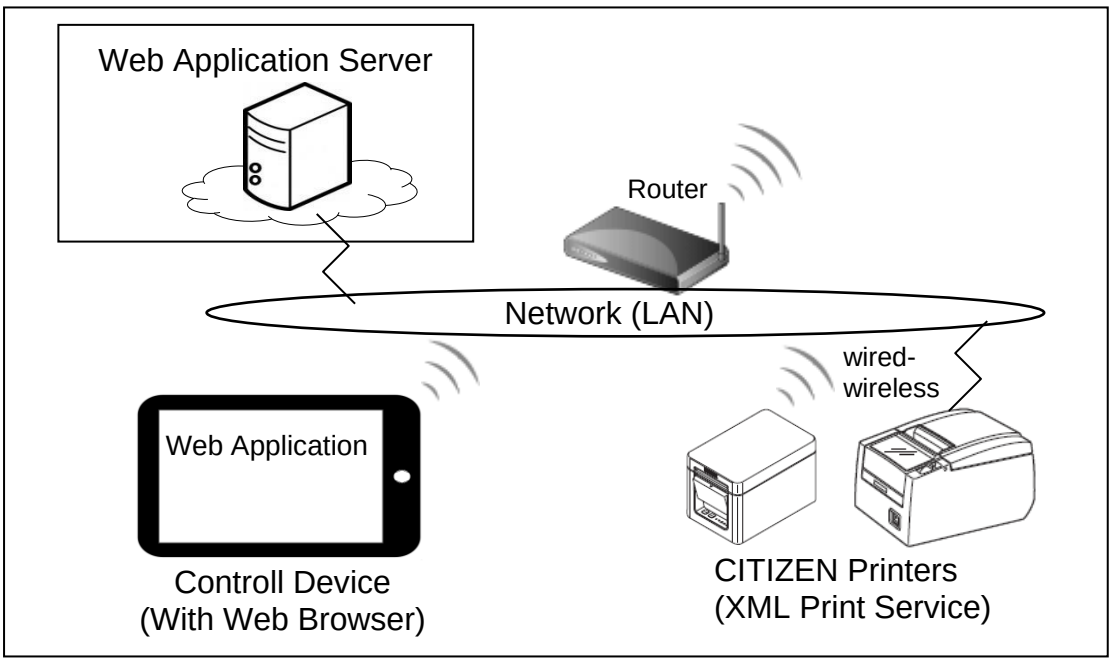


1.2. Scope of This Document

This document is intended to be a reference for developers of applications that use CITIZEN XML Print Service compatible printers.
For the control specifications for HTTP (XML) based printing, refer to "2. XML Print Service Messages," "3. Device Control Tags," and "4. XML Print Service Settings" in this document.
For the SDK specifications for printing from a Web service environment, refer to "5. CITIZEN JavaScript POS Print SDK".
For details on checking the operation of this service, refer to "6. CITIZEN XML Print Editor" and "7. Sample Programs."

1.3. System Configuration Example

The following shows a system configuration example for CITIZEN XML Print Service.



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1.4. Supported Models

The applicable models of this service and the corresponding interfaces for those models are as follows. For details on the functions of each model, refer to the instruction manual of the corresponding printer.

Applicable Model	Interface
CT-E601/651, CT-S251/751/4500	Wired LAN (model number: IF2-EFX1*, IF2-EFX2)
	Wired/Wireless LAN (model number: IF2-WFX3*, IF2-WFx5, IF2-WFx6)
CT-S601II/651II/801II/851II/801III/ 851III	Wired LAN (model number: IF1-EFX1*, IF1-EFX2)
	Wired/Wireless LAN (model number: IF1-WFX3*, IF1-WFx4, IF1-WFx6)

* Not available in HTTPS environment (only available in HTTP environment)

For the version number of this service, refer to "4.1.2. Service Status screen / XML Print". Usage and functions may differ depending on the version.

1.5. Printer Settings

Memory Switch Settings

The condition is that the memory switch settings of the printer are set as follows when this service is used.

CT-S251

MSW No.	Function	Setting	Setting value
1-5	CR Mode	OFF	Invalid
2-2	Auto Cutter	ON	Valid
2-4	Full Col Print	ON	WaitData
3-1	Resume Cttr Err	OFF	Valid
3-8	Resume Open Err	OFF	Close
4-8	Partial Only	OFF	Invalid
6-1	Act. for Driver	ON	Valid
7-6	DMA Control	Valid	-
9-1	Code Page	Katakana (*1)	-
9-2	Int' Char Set	Japan (*1)	-
9-3	Kanji	ON (*1)	-
9-4	JIS/Shift JIS	Shift JIS (*1)	-

CT-E601/651, CT-S601II/651II/801II/851II/801III/851III/751/4500

MSW No.	Function	Setting	Setting value
1-5	CR Mode	OFF	Invalid
2-2	Auto Cutter	ON	Valid
2-4	Full Col Print	ON	WaitData
3-1	Resume Cttr Err	OFF	Valid
3-8	Resume Open Err	OFF	Close
4-8	Partial Only	OFF	Invalid
6-1	Act. for Driver	ON	Valid
7-6	DMA Control	Valid	-
9-1	Code Page	Katakana (*1)	-
9-2	Int' Char Set	Japan (*1)	-
9-4	Multi-byte Char (*2)	SJIS: CP932	-

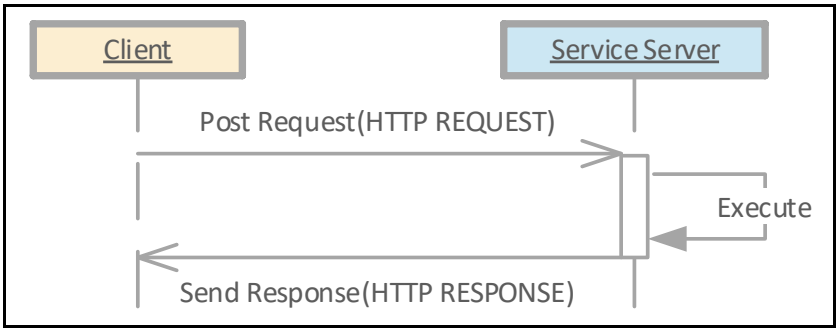
*1 MSW Nos. 9-1 to 9-4 are the settings for when using Japanese. Change these settings to match the operating environment.

*2 Multi-byte Char can be switched between Japanese, Chinese (Simplified Chinese), Korean (Hangul), and Taiwanese (Traditional Chinese). Change the setting to match the operating environment.

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2. XML Print Service Messages

The service user issues a request message as an HTTP request and then receives a response message from the service as an HTTP response as shown in the figure below. Request messages and response messages are defined in the "CitizenXML-Print.xsd" XML schema file.



2.1. Request Messages

Control of the device (printer) is performed in accordance with the request messages issued from clients.

2.1.1. Transmission Method and Message Structure

Send a SOAP message using the following method for a request message.

- HTTP URL: http(s)://[IP address of this service]/xmlprint
  * In the service version 2.0 and earlier, http://[IP address of this service]:8080
- HTTP method: POST
- HTTP header: Content-Type:text/xml; charset=UTF-8

The structure of a request message is as follows.

```
<?xml version="1.0" encoding="UTF-8"?>
<s:Envelope
 xmlns:s="http://schemas.xmlsoap.org/soap/envelope/">
 <s:Body>

  <POSPrinterRequest>
   <!-- Request ID -->
   <MessageID>a55f0b87-4bb1-94fb-a92b-dfa2913c4343</MessageID>
    <!-- Print text string -->
    <PrintText>
      <Data>PrintText\n</Data>
      <Alignment>Left</Alignment>
      <Attribute>0</Attribute>
      <TextSize>0</TextSize>
    </PrintText>
    <!-- Print image -->
    <PrintNVBitmap>
      <NvImageNumber>1</NvImageNumber>
    </PrintNVBitmap>
   <!-- Cut command -->
   <CutPaper>
    <Percentage>PartialPrefeed</Percentage>
   </CutPaper>
  </POSPrinterRequest>

 </s:Body>
</s:Envelope>
```

<POSPrinterRequest> Tag

2.1.2. POSPrinterRequest Tag

Insert the device control tag within the <POSPrinterRequest> tag in the request message for controlling the device. For details on the device control tags, refer to "3. Device Control Tags" in this document.

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2.2. Response Messages

The result of a request can be checked from the response message from this service.

2.2.1. Message Structure

The structure of a response message is as follows.

```
<?xml version="1.0" encoding="UTF-8"?>
<s:Envelope
 xmlns:s="http://schemas.xmlsoap.org/soap/envelope/">
 <s:Body>

  <POSPrinterResponse>
   <MessageID>c5349b7433ed-0123afbe</MessageID>
   <Response ResponseCode="OK">
    <RequestID>a55f0b87-4bb1-94fb-a92b-dfa2913c4343</RequestID>
   </Response>
  </POSPrinterResponse>

 </s:Body>
</s:Envelope>
```

<POSPrinterResponse> Tag

2.2.2. Acquiring the Request Result

The result of a request can be checked in the information within the <POSPrinterResponse> tag.

Item	Description
ResponseCode attribute	Stores the process result.
MessageID element	Stores the ID for identifying the response message.
RequestID element	Stores the message ID specified when the message was sent.
BusinessError element	Stores the error information when an error occurred.

Checking for Error Occurrence

Whether or not an error occurred can be checked by checking the value of the ResponseCode attribute of the Response element.

Code	Description
OK	Ended normally.
Rejected	Error occurred.

The following is an example of the Response element when the process ended normally.

```
<Response ResponseCode="OK">
  <RequestID>a55f0b87-4bb1-94fb-a92b-dfa2913c4343</RequestID>
</Response>
```

Checking Error Information

The cause of a result can be checked from the contents of the Code and Description elements in the BusinessError element within the Response element when an error occurs. For details, refer to "2.2.3 Error Codes" in this document.

The following is an example of the Response element when an error occurred.

```
<Response ResponseCode="Rejected">
  <RequestID>a55f0b87-4bb1-94fb-a92b-dfa2913c4343</RequestID>
  <BusinessError Severity="Error">
    <Code>EConnectOffline</Code>
    <Description>Connect:Failed to check the printer status after connecting to the
                 device.</Description>
  </BusinessError>
</Response>
```

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2.2.3. Error Codes

The error code, error description, and other detailed information are set in the BusinessError element in the Response element within a response message. The error codes used with this service are shown below.

Code	Description
RequestInvalid	Request information is invalid
EConnectNotFound	Unsupported model
EConnectOffline	Printer is not ready
EIllegal	Unsupported or invalid parameter
EOffline	Device is offline
EFailure	Process cannot be executed
ETimeout	Processing timeout
EptrCoverOpen	Cover open error
EptrRecEmpty	No paper error
EptrBadFormat	File format error
EptrTooBig	File size error

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2.3. Acquiring Device Status

To acquire the device status, use the GetDeviceInfo tag to specify a device information acquisition request.

Parameters

Attribute	Meaning	Settable range
Status	Status information flag	Add status information when "true" is specified.
PaperNearEmpty	Near empty status flag	Add near empty status when "true" is specified. * Available from the service version 2.0 or later.

An example of a request message is shown below.

```
<?xml version="1.0" encoding="UTF-8"?>
<s:Envelope xmlns:s="http://schemas.xmlsoap.org/soap/envelope/">
 <s:Body>
  <POSPrinterRequest>
   <!-- Device information acquisition request -->
   <GetDeviceInfo Status="true" PaperNearEmpty="true"/>
  </POSPrinterRequest>
 </s:Body>
</s:Envelope>
```

An example of a request message is shown below.

```
<?xml version="1.0" encoding="UTF-8"?>
<s:Envelope xmlns:s="http://schemas.xmlsoap.org/soap/envelope/">
 <s:Body>
  <POSPrinterResponse>
   <MessageID>5e60c4c2-c0a4-44a2-83ee-2984a1c620a0</MessageID>
   <Response ResponseCode="OK">
    <RequestID />
   </Response>
   <GetDeviceInfo>
    <Device Status="Online" PaperNearEmpty="false"/>
   </GetDeviceInfo>
  </POSPrinterResponse>
 </s:Body>
</s:Envelope>
```

<GetDeviceInfo> tag

A status code is used to store the contents of the device information in the Status attribute of the Device element of the response message.

Status code	Description
Online	State in which printing is possible (include paper near empty status)
StatusPaperEmpty	State in which no paper
StatusOffline	State in which printer is offline - Low voltage error - Print head hot - Cover open (other then during printing) - Feed by LF key - Waiting for a macro execution
StatusError	State in which printer error - System error - Hight voltage error - Cutter lock error - Cover open (during printing)

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3. Device Control Tags

3.1. Device Control Tag List

The device control tags that can be used with this service are shown below.

Function	Tag	Description
Message ID	<MessageID>	Specify this to enable the sender to identify the message.
Print text string	<PrintText>	Prints text string. The alignment, attribute, and size of a single text string can be specified.
	<PrintPaddingText>	Prints padding text string.
Print image	<PrintMemoryBitmap>	Prints image data.
	<SetNVBitmap>	Registers an image (logo) to the flash memory of the printer.
	<PrintNVBitmap>	Prints an image (logo) stored in the flash memory of the printer.
Print barcode	<PrintBarCode>	Prints a 1D barcode.
	<PrintPDF417>	Prints a PDF417 barcode.
	<PrintQRCode>	Prints a QR code.
	<PrintGS1DataBarStacked>	Prints a 2D GS1 DataBar barcode.
Cut paper	<CutPaper>	Cuts the paper.
Dot unit feeding	<UnitFeed>	Feeds using dot unit.
Mark feeding	<MarkFeed>	Supports label/black mark paper.
Open drawer	<OpenDrawer>	Opens a drawer connected to the printer.
Send command	<PrintData>	Sends a command to the printer.
Clear output data	<ClearOutput>	Clears the data being processed and the buffer of the printer.
Specify rotation direction	<RotatePrint>	Specifies start and end of rotation direction specification (180 degrees).
Page mode	<PageModePrint>	Specifies starting and printing of page mode.
	<ClearPrintArea>	Clears the print area of page mode.
	<SetPageModePrintArea>	Specifies the print area of page mode.
	<SetPageModePrintDirection>	Specifies the print direction of page mode.
	<SetPageModeHorizontalPosition>	Specifies the print position in the horizontal direction of page mode.
	<SetPageModeVerticalPosition>	Specifies the print position in the vertical direction of page mode.
Specify line spacing	<SetRecLineSpacing>	Specifies the line spacing.
Text print settings	<SetEncoding>	Specifies the encoding of the text strings to be sent to the printer.
	<SetCodePage>	Specifies the code page of the printer.
	<SeInternationalCharacterset>	Specifies the international character set of the printer.

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3.2. Details of Print Control Tags

3.2.1. Message ID (MessageID Tag)

Value

Specify the request message ID.

Description

This tag is used to enable the sender to identify the message.
The specified request message ID is added to the <RequestID> tag of the response message. For details on response messages, refer to "2.2. Response Messages" in this document.

Usage example

```
<MessageID>12345678</MessageID>
```

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3.2.2. Printing Text String (PrintText Tag)

Parameters

The meanings and settable values of the parameters are as follows.

Element	Meaning	Settable range
Data	Text data	
Alignment	Text alignment	Left (-1): Left-aligned Center (-2): Center-aligned Right (-3): Right-aligned
Attribute	Text attribute	0: Normal font 1: Font B 2: Font C 8: Bold 64: Flip 128: Underline
TextSize	Text size	0: Width 1x 16: Width 2x 32: Width 3x 48: Width 4x 64: Width 5x 80: Width 6x 96: Width 7x 112: Width 8x 0: Height 1x 1: Height 2x 2: Height 3x 3: Height 4x 4: Height 5x 5: Height 6x 6: Height 7x 7: Height 8x

Description

This tag is used to specify the alignment, attribute, and size of text for printing text.
A combination of font B or font C, bold, flip, and underline can be specified for the text attribute. When combining them, specify a logical OR.
A combination of width and height can be specified for the text size. When combining them, specify a logical OR.

To print multi-byte characters (kanji, Chinese, Korean, etc.), you need to set the character by "Specifying Character Encoding" described later.

The center-aligned and right-aligned specifications for text alignment are ignored when in page mode.

Usage example

```
<PrintText>
  <Data>Print text data.\n</Data>
  <Alignment>Center</Alignment>
  <Attribute>136</Attribute>
  <TextSize>17</TextSize>
</PrintText>
```

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3.2.3. Printing Padding Text String (PrintPaddingText Tag)

Parameters

The meanings and settable values of the parameters are as follows.

Element	Meaning	Settable range
Data	Text data	
Attribute	Text attribute	0: Normal font 1: Font B 2: Font C 8: Bold 64: Flip 128: Underline
TextSize	Text size	0: Width 1x 16: Width 2x 32: Width 3x 48: Width 4x 64: Width 5x 80: Width 6x 96: Width 7x 112: Width 8x 0: Height 1x 1: Height 2x 2: Height 3x 3: Height 4x 4: Height 5x 5: Height 6x 6: Height 7x 7: Height 8x
Length	Length equivalent to half-width characters	From 1
Side	Padding side	Right (0): Side after text data Left (1): Side before text data

Description

This tag is used to specify the attribute, size, length equivalent to half-width characters, and padding side of text for printing text padded with space so that the text becomes a length equivalent to half-width characters.
A combination of font B or font C, bold, flip, and underline can be specified for the text attribute. When combining them, specify a logical OR.
A combination of width and height can be specified for the text size. When combining them, specify a logical OR.

The center-aligned and right-aligned specifications for text alignment are ignored when in page mode.
Please note that the length equivalent to half-width characters also includes data other than characters such as a line feed. Furthermore, if the text data is longer than the specified length, the data extending beyond that length is cut to print the text at the specified length.
When font B is specified for the text attribute, please note that the output length will not be constant if full-width characters and half width characters are mixed because the ratio of font sizes with full width and half width will not be 2:1.

Usage example

```
<PrintPaddingText>
  <Data>Text data</Data>
  <Attribute>0</Attribute>
  <TextSize>1</TextSize>
  <Length>20</Length>
  <Side>Right</Side>
</PrintPaddingText>
```

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3.2.4. Printing Image Data (PrintMemoryBitmap Tag)

Parameters

The meanings and settable values of the parameters are as follows.

Element	Meaning	Settable range
Data	Image data	Base64 encoded data
Alignment	Image alignment position	Left (-1): Left-aligned Center (-2): Center-aligned Right (-3): Right-aligned Value of 0 or above other than the above constants: Specify the distance from the left to start printing the bitmap.
Mode	Print mode	Mono(0): Monochrome (single color/1 bpp) Gray(1): Grayscale (4bpp) If the element is omitted, it is handled as Mono (0).

Description

This tag is used to specify the image data, alignment position, and print mode for printing an image.
The image data format that can be printed is Windows Bitmap.

The center-aligned and right-aligned specifications for the image alignment position are ignored when in page mode.
When the print mode is grayscale with rotation bitmap printing in rotated print mode, even if a numerical value of 1 or more is specified for the alignment position, it is ignored.

Usage example

```
<PrintMemoryBitmap>
  <Data>Qk3uCgAAAAAAD4AAAAoAAAACgEAAEwAAAABAAEAAAAAALAKAAAAAAAAAAA  ...
  ...Part omitted...
  ...  /////AAAD/////////////////////////////////////AAAA=</Data>
  <Alignment>Center</Alignment>
  <Mode>Mono</Mode>
</PrintMemoryBitmap>
```

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3.2.5. Registering NV Image (SetNVBitmap Tag)

Parameters

The meanings and settable values of the parameters are as follows.

Element	Meaning	Settable range
NvImageNumber	Number of image to be saved in the flash memory of the printer	1-20
Data	Image data	Base64 encoded data If the element is omitted, the logo of the image number is deleted.
Mode	Registration mode	Mono (0): Monochrome (single color/1 bpp) Gray (1): Grayscale (4bpp) If the element is omitted, it is handled as Mono (0).

Description

This tag specifies the image number, image data, and registration mode to save image data (logo) to the flash memory of the printer. The saved logo can be printed using the PrintNVBitmap tag.
The image data format that can be registered is Windows Bitmap.

If the element data is omitted, the logo of the image number specified with NvImageNumber is deleted.

Logo registration is also possible from the "POS Printer Utility" utility software for the printer.
The key codes in the utility software that correspond to the image numbers are as follows.

Image number	Key code (text string)
1	"01"
2	"02"
3	"03"
. . .	. . .
19	"19"
20	"20"

Using this tag frequently may lead to damage to the printer flash memory so use [10 times or less per day] as a guide.

Usage example

```
<SetNVBitmap>
  <NvImageNumber>1</NvImageNumber>
  <Data>Qk3uCgAAAAAAD4AAAAoAAAACgEAAEwAAAABAAEAAAAAAALAKAAAAAAAAAAA  ...
  ...Part omitted...
  ...  /////AAAD//////////////////////////////////////////AAAA=</Data>
  <Mode>Mono</Mode>
</SetNVBitmap>
```

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3.2.6. Printing Registered NV Image (PrintNVBitmap Tag)

Parameters

The meanings and settable values of the parameters are as follows.

Element	Meaning	Settable range
NvImageNumber	Number of image saved in the flash memory of the printer	1-20
Alignment	Image alignment position	Left (-1): Left-aligned Center (-2): Center-aligned Right (-3): Right-aligned Value of 0 or above other than the above constants: Specify the distance from the left to start printing the bitmap image. If the element is omitted, it is handled as Left (-1).

Description

This tag is used to print a registered image (logo) stored in the flash memory of the printer.
A registered image (logo) cannot be printed in rotated print mode.

A logo needs to be registered in advance to use this tag. Use the SetNVBitmap tag or the "POS Printer Utility" utility software for the printer to register a logo.
When using "POS Printer Utility," register the logo in key code mode. You need to register the logo by specifying a key code that matches the number of the image to be used. The key codes that correspond to the image numbers are as follows.

Image number	Key code (text string)
1	"01"
2	"02"
3	"03"
. . .	. . .
19	"19"
20	"20"

Usage example

```
<PrintNVBitmap>
  <NvImageNumber>1</NvImageNumber>
</PrintNVBitmap>
```

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3.2.7. Printing Barcode (PrintBarCode Tag)

Parameters

The meanings and settable values of the parameters are as follows.

Element	Meaning	Settable range
Data	Print data	
Symbology	Barcode type	Upca (101): UPC-A Upce (102): UPC-E Ean8 (103): EAN8(=JAN8) Ean13 (104): EAN13(=JAN13) Jan8 (105): JAN8(=EAN8) Jan13 (106): JAN13(=EAN13) Itf (107): Interleaved 2 of 5 Codabar (108): Codabar Code39 (109): Code 39 Code93 (110): Code 93 Code128 (111): Code 128 Gs1DataBar (131): GS1 DataBar Omnidirectional Gs1DataBarExpanded (132): GS1 DataBar Expanded Gs1DataBarTruncated (135): GS1 DataBar Truncated Gs1DataBarLimited (136): GS1 DataBar Limited
Height	Barcode height (in dots)	From 1
Width	Barcode width size (scale factor)	2 to 6
Alignment	Barcode alignment position	Left (-1): Left-aligned Center (-2): Center-aligned Right (-3): Right-aligned Value of 0 or above other than the above constants: Specify the distance from the left to start printing the barcode.
TextPosition	Visible code print position	None (0): Do not print Above (1): Above barcode Below (2): Below barcode

Description

This tag is used to print a 1D barcode.
For details on each parameter, refer to the command reference for each printer.

The center-aligned and right-aligned specifications for the barcode alignment position are ignored when in page mode.

Usage example

```
<PrintBarCode>
  <Data>1234</Data>
  <Symbology>Code39</Symbology>
  <Width>2</Width>
  <Height>64</Height>
  <Alignment>Center</Alignment>
  <TextPosition>Above</TextPosition>
</PrintBarCode>
```

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3.2.8. Printing PDF417 Barcode (PrintPDF417 Tag)

Parameters

The meanings and settable values of the parameters are as follows.

Element	Meaning	Settable range
Data	Print data	
Digits	Number of digits	0: Auto 1 to 30
Steps	Number of steps	0: Auto 3 to 90
ModuleWidth	Module width	2 to 8
StepHeight	Step height	2 to 8
EcLevel	Error correction level	Level0 (48): Level 0 Level1 (49): Level 1 Level2 (50): Level 2 Level3 (51): Level 3 Level4 (52): Level 4 Level5 (53): Level 5 Level6 (54): Level 6 Level7 (55): Level 7 Level8 (56): Level 8
Alignment	Barcode alignment position	Left (-1): Left-aligned Center (-2): Center-aligned Right (-3): Right-aligned Value of 0 or above other than the above constants: Specify the distance from the left to start printing the barcode.

Description

This tag is used to print a PDF417 barcode.
For details on each parameter, refer to the command reference for each printer.

The center-aligned and right-aligned specifications for the barcode alignment position are ignored when in page mode.

Usage example

```
<PrintPDF417>
  <Data>12345678901234567890123456789O</Data>
  <Digits>0</Digits>
  <Steps>0</Steps>
  <ModuleWidth>3</ModuleWidth>
  <StepHeight>3</StepHeight>
  <EcLevel>Level2</EcLevel>
  <Alignment>Center</Alignment>
</PrintPDF417>
```

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3.2.9. Printing QR Code (PrintQRCode Tag)

Parameters

The meanings and settable values of the parameters are as follows.

Element	Meaning	Settable range
Data	Print data	
ModuleSize	Module width	1 to 16
EcLevel	Error correction level	LevelL (48): Level L (7%) LevelM (49): Level M (15%) LevelQ (50): Level Q (25%) LevelH (51): Level H (30%)
Alignment	Barcode alignment position	Left (-1): Left-aligned Center (-2): Center-aligned Right (-3): Right-aligned Value of 0 or above other than the above constants: Specify the distance from the left to start printing the barcode.

Description

This tag is used to print a QR code.
For details on each parameter, refer to the command reference for each printer.

The center-aligned and right-aligned specifications for the barcode alignment position are ignored when in page mode.

Usage example

```
<PrintQRCode>
  <Data>12345678901234567890123456789O</Data>
  <ModuleSize>5</ModuleSize>
  <EcLevel>LevelM</EcLevel>
  <Alignment>Center</Alignment>
</PrintQRCode>
```

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3.2.10. Printing 2D GS1DataBar Barcode (PrintGS1DataBarStacked Tag)

Parameters

The meanings and settable values of the parameters are as follows.

Element	Meaning	Settable range
Data	Print data	
Symbology	Barcode type	Stacked (72): GS1 DataBar Stacked (2D) ExpandedStacked (73): GS1 DataBar Expanded Stacked (2D) StackedOmnidirectional (76): GS1 DataBar Stacked Omnidirectional (2D)
ModuleSize	Module width	2 to 8
MaxSize	Maximum width	106 to 39528
Alignment	Barcode alignment position	Left (-1): Left-aligned Center (-2): Center-aligned Right (-3): Right-aligned Value of 0 or above other than the above constants: Specify the distance from the left to start printing the barcode.

Description

This tag is used to print a 2D GS1 DataBar barcode.
For details on each parameter, refer to the command reference for each printer.

The center-aligned and right-aligned specifications for the barcode alignment position are ignored when in page mode.

Usage example

```
<PrintGS1DataBarStacked>
  <Data>0123456789012</Data>
  <Symbology>Stacked</Symbology>
  <ModuleSize>4</ModuleSize>
  <MaxSize>300</MaxSize>
  <Alignment>Left</Alignment>
</PrintGS1DataBarStacked>
```

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3.2.11. Cutting Paper (CutPaper Tag)

Parameters

The meanings and settable values of the parameters are as follows.

Element	Meaning	Settable range
	Cut type	Full (-1): Full cut Partial (-2): Partial cut FullPrefeed (-3): Full cut after feeding to cut position PartialPrefeed (-4): Partial cut after feeding to cut position 0, 100: Full cut 1 to 99: Partial cut

Description

This tag is used to cut paper.

Usage example

```
<CutPaper>
 <Percentage>PartialPrefeed</Percentage>
</CutPaper>
```

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3.2.12. Dot Unit Feeding (UnitFeed Tag)

Parameters

The meanings and settable values of the parameters are as follows.

Element	Meaning	Settable range
UfCount	Number of feeds (in dots)	From 0

Description

This tag is used to feed paper on a dot basis.

Usage example

```
<UnitFeed>
 <UfCount>200</UfCount>
</UnitFeed>
```

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3.2.13. Mark Feeding (MarkFeed Tag)

Parameters

The meanings and settable values of the parameters are as follows.

Element	Meaning	Settable range
Type	Type of handling of label paper/black mark paper	Cutter (2): Feed until above the cut position for auto cutter and then cut. NextTof (8): Feed until the print position at top of next paper.

Description

This tag is used for using label paper and black mark paper.
This tag can be used only with a printer that can use label paper and black mark paper.

Usage example

```
<MarkFeed>
 <Type>Cutter</Type>
</MarkFeed>
```

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3.2.14. Opening Drawer (OpenDrawer Tag)

Parameters

The meanings and settable values of the parameters are as follows.

Element	Meaning	Settable range
Drawer	Cash drawer number	Drawer1 (1): Drawer 1 Drawer2 (2): Drawer 2
PulseLength	Signal length	1 to 8 Specify a value x 100 ms for each of the off time and on time.

Description

This tag is used to open a cash drawer connected to the printer.
This tag can be used only with a printer to which a drawer can be connected

Usage Example

```
<OpenDrawer>
  <Drawer>Drawer1</Drawer>
  <PulseLength>1</PulseLength>
</OpenDrawer>
```

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3.2.15. Sending Command (PrintData Tag)

Parameters

The meanings and settable values of the parameters are as follows.

Element	Meaning	Settable range
Data	Data to send	

Description

This tag is used to send byte data as is to the printer.
When using this tag, you need to take care that it does not have an effect on the other tags.

Usage example

```
<!-- Sound buzzer (buzzer compatible printer is required) -->
<PrintData>
  <Data>\x1b\x1e</Data>
</PrintData>
```

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3.2.16. Clearing Output Data (ClearOutput Tag)

Parameters

None

Description

This tag is used to clear all sent data that is buffered with the PageModePrint tag. It sends a command to clear the data being printed on the printer at the same time.

Usage example

```
<ClearOutput/>
```

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3.2.17. Specifying Rotation Direction (RotatePrint Tag)

Parameters

The meanings and settable values of the parameters are as follows.

Element	Meaning	Settable range
Rotation	Specify the rotation direction.	259: Start 180-degree rotated printing (i.e., inverted printing). 4096: Start rotated barcode printing. This value serves as a logical OR with respect to value for starting rotated printing above. 8192: Start rotated bitmap printing. This value serves as a logical OR with respect to value for starting rotated printing above. 1: End rotated printing.

Description

This tag is used to start or end rotated print mode.

If 259 is included in Rotation, the printer enters inverted print mode. The tags applicable to rotated print mode are as follows.

PrintText, PrintPaddingText

Furthermore, if 4096 or 8192 is included, the print data is also inverted then printed for the following tags.

PrintBarcode, PrintPDF417, PrintQRCode, PrintGS1DataBarStacked あるいは PrintMemoryBitmap

If Rotation is 1, the printer exits rotated print mode.

Usage example

```
<!-- Specify 180-degree rotation (including barcode and image) -->
<RotatePrint>
  <Rotation>12547</Rotation>
</RotatePrint>

<!-- Print data (text) -->
<PrintText>
  <Data>PrintText\n</Data>
  <Alignment>Left</Alignment>
  <Attribute>0</Attribute>
  <TextSize>0</TextSize>
</PrintText>

<!-- Print data (image) -->
<PrintMemoryBitmap>
  <Data>Qk3uCgAAAAAAD4AAAAoAAAACgEAAEwAAAABAAEAAAAAAALAKAAAAAAAAAAA  ...
  ...Part omitted...
  ...  /////AAAD//////////////////////////////////////////AAAA=</Data>
  <Alignment>Center</Alignment>
  <Mode>Mono</Mode>
</PrintMemoryBitmap>

<!-- Print data (barcode) -->
<PrintBarCode>
  <Data>1234</Data>
  <Symbology>Code39</Symbology>
  <Width>2</Width>
  <Height>64</Height>
  <Alignment>Center</Alignment>
```

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```
  <TextPosition>Above</TextPosition>
</PrintBarCode>

<!-- Cancel rotation specification -->
<RotatePrint>
  <Rotation>1</Rotation>
</RotatePrint>
```

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3.2.18. Specifying Start/End of Page Mode (PageModePrint Tag)

Parameters

The meanings and settable values of the parameters are as follows.

Element	Meaning	Settable range
Control	Page mode control	PageMode (1): Start page mode. Normal (3): Print the print data of the page mode print area, delete that print data, and end page mode. Cancel (4): Delete the print data of the page mode print area and then end page mode without printing anything.

Description

This tag is used to start or end page mode.
When PageMode is specified for Control, page mode starts. The print data is buffered for the tags called after that. The tags that can be used in page mode are as follows.

PrintText, PrintPaddingText, PrintMemoryBitmap, PrintBarCode, PrintPDF417, PrintQRCode, PrintGS1DataBarStacked

When Normal is specified for Control, page mode ends and the printer switches to the normal status. If there is buffered print data, it is printed. Buffered print data is not saved.

When Cancel is specified for Control, page mode ends and the printer switches to the normal status. Even if there is buffered print data, it is not printed and not saved.

When the PageModePrint tag is called, all of the print data in the page mode print area defined in PageModePrintArea is printed, and the paper is fed to the lower edge of the page mode print area.
If multiple page mode print areas are defined, all of the print data in each page mode print area is printed, and the paper is fed to the lower edge of the page mode print area that is placed lowest.
The whole page mode area is sent as one data.

Page mode is canceled by calling the ClearOutput tag. The buffered print line is also deleted.

Usage example

```
<!-- Set mode to page mode -->
<PageModePrint>
  <Control>PageMode</Control>
</PageModePrint>

<!-- Rotation direction setting in page mode -->
<SetPageModePrintDirection>
  <PageModePrintDirection>BottomToTop</PageModePrintDirection>
</SetPageModePrintDirection>

<!-- Print area setting -->
<SetPageModePrintArea>
  <PageModePrintArea>0,0,180,288</PageModePrintArea>
</SetPageModePrintArea>

<!-- Print start position setting -->
<SetPageModeHorizontalPosition>
  <PageModeHorizontalPosition>0</PageModeHorizontalPosition>
</SetPageModeHorizontalPosition>
<SetPageModeVerticalPosition>
  <PageModeVerticalPosition>0</PageModeVerticalPosition>
</SetPageModeVerticalPosition>
```

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```
<!-- Print data (text) -->
<PrintText>
  <Data>PrintText\n</Data>
  <Alignment>Left</Alignment>
  <Attribute>0</Attribute>
  <TextSize>0</TextSize>
</PrintText>

<!-- Print start position setting -->
<SetPageModeVerticalPosition>
  <PageModeVerticalPosition>34</PageModeVerticalPosition>
</SetPageModeVerticalPosition>

<!-- Print data (image) -->
<PrintMemoryBitmap>
  <Data>Qk3uCgAAAAAAD4AAAAoAAAACgEAAEwAAAABAAEAAAAAALAKAAAAAAAAAAA  ...
  ...Part omitted...
  ...  /////AAAD//////////////////////////////////////AAAA=</Data>
  <Alignment>Center</Alignment>
  <Mode>Mono</Mode>
</PrintMemoryBitmap>

<!-- Cancel page mode setting (print) -->
<PageModePrint>
  <Control>Normal</Control>
</PageModePrint>
```

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3.2.19. Clearing Page Mode Print Area (ClearPrintArea Tag)

Parameters

None

Description

This tag is used to clear the print data in the page mode print area defined in the PageModePrintArea properties.

Usage example

```
<ClearPrintArea/>
```

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3.2.20. Setting Page Mode Print Area (SetPageModePrintArea Tag)

Parameters

The meanings and settable values of the parameters are as follows.

Element	Meaning	Settable range
PageModePrintArea	Page mode print area	From 0, from 0, from 0, from 0

Description

This setting holds the page mode print area in dots. The size of the page mode print area cannot be larger than the page area.
This setting consists of only four ASCII numbers separated by commas, and cannot include space characters. It lists the horizontal direction coordinate of the start point, vertical direction coordinate of the start point, width in the horizontal direction, and height in the vertical direction in order.
Text that extends past the right edge of the page mode print area is printed on the next line. Text that extends past the bottom edge of the page mode print area is not printed.

For example, if the text string is "50,100,200,400," the coordinates of the page mode print area indicate a surrounding rectangle with a top left corner at 50,100 and a bottom right corner at 249,499.

This setting is initialized to "0,0,0,0" when the request message process starts.

Usage example

Refer to the usage example in "Page Mode Start/End Process."

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3.2.21. Setting Page Mode Print Direction (SetPageModePrintDirection Tag)

Parameters

The meanings and settable values of the parameters are as follows.

Element	Meaning	Settable range
PageModePrintDirection	Specify the direction of printing in the page mode print area.	LeftToRight (1): Print in the direction of left to right treating the top left corner of the page mode print area as the start point. This is the normal print direction. BottomToTop (2): Print in the direction of bottom to top treating the bottom left corner of the page mode print area as the start point. Print is rotated counterclockwise by 90 degrees. RightToLeft (3): Print in the direction of right to left treating the bottom right corner of the page mode print area as the start point. Print is rotated by 180 degrees. TopToBottom (4): Print in the direction of top to bottom treating the top right corner of the page mode print area as the start point. Print is rotated clockwise by 90 degrees.

Description

Changing this setting also changes the correction direction of the print start point indicated by PageModeHorizontalPosition and PageModeVerticalPosition.
Furthermore, a receipt or single-cut sheet combining text rotation directions can be printed by switching page mode print area.

This setting is initialized to LeftToRight when the request message process starts.

Usage example

Refer to the usage example in "Page Mode Start/End Process."

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3.2.22. Setting Page Mode Horizontal Direction Start Position (SetPageModeHorizontalPosition Tag)

Parameters

The meanings and settable values of the parameters are as follows.

Element	Meaning	Settable range
PageModeHorizontalPosition	Specify position to start printing in the horizontal direction in page mode print area.	From 0

Description

This setting holds the offset value to horizontally correct the print start position in the page mode print area in dots.
The horizontal direction refers to the same direction as the print direction set with PageModePrintDirection.
This setting is not the current position but the setting of the offset value of the horizontal direction specified last.

This setting is initialized to zero (0) when the request message process starts.

Usage example

Refer to the usage example in "Page Mode Start/End Process."

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3.2.23. Setting Page Mode Vertical Direction Start Position (SetPageModeVerticalPosition Tag)

Parameters

The meanings and settable values of the parameters are as follows.

Element	Meaning	Settable range
PageModeVerticalPosition	Specify position to start printing in the vertical direction in page mode print area.	From 0

Description

This setting holds the offset value to vertically correct the print start position in the page mode print area in dots.
The vertical direction is that in respect to the print direction set with PageModePrintDirection.
This setting is not the current position but the setting of the offset value of the vertical direction specified last.

This setting is initialized to zero (0) when the request message process starts.

Usage example

Refer to the usage example in "Page Mode Start/End Process."

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3.2.24. Setting Line Spacing (SetRecLineSpacing Tag)

Parameters

The meanings and settable values of the parameters are as follows.

Element	Meaning	Settable range
RecLineSpacing	Line spacing of normal text	From 0

Description

This setting holds the height of a print line of normal text as a value in dots. Specifically, it is a value in which both the height of the print line and space between lines are added.
Double-height characters may exceed this value depending on the current line spacing value. The space between lines is ignored in this case.

This setting is initialized to 34 when the request message process starts.

Usage example

```
<SetRecLineSpacing>
  <RecLineSpacing>24</RecLineSpacing>
</SetRecLineSpacing>
```

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3.2.25. Specifying Character Encoding (SetEncoding Tag)

Parameters

The meanings and settable values of the parameters are as follows.

Element	Meaning	Settable range
Encode	Specify character encoding.	SingleByteCharacter: 8-bit Character UTF-8_HalfWidthFont: UTF-8(Prior half width font) UTF-8, UTF-8_FullWidthFont: UTF-8(Prior full Width font) Japanese, Shift_JIS: Japanese (cp932, Shift_JIS-2004), katakana SimplifiedChinese, GB18030: Simplified Chinese Korean, EUC-KR: Korean TraditionalChinese, Big5: Traditional Chinese None: No conversion USA, cp437: Codepage PC437 Multilingual, cp850: Codepage PC850 Portuguese, cp860: Codepage PC860 CanadianFrench, cp863: Codepage PC863 Nordic, cp865: Codepage PC865 EasternEurope, cp852: Codepage PC852 Russian, cp866: Codepage PC866 Turkish, cp857: Codepage PC857 Arabic, cp864: Codepage PC864 WindowsCodepage, windows-1252: Windows code Thai, TIS-620: Thai Code11 1 Pass

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Description

This sets the character encoding for when sending text data in the following tags to the printer.
PrintText、PrintPaddingText
This setting is initialized to "SingleByteCharacter" when the request message process starts.

When other than "SingleByteCharacter", ”UTF-8”(”UTF-8_FullWidthFont”), or ”UTF-8_HalfWidthFont” is specified for Encode, set the code page to use on the printer as described in "Specifying Code Page" below before printing the text string.

The result of encoding text data may be that unintended characters are printed if the international character set specification is not correct when printing some character codes (0x23, 0x24, 0x40, 0x5B, 0x5C, 0x5E, 0x60, 0x7C, 0x7D, or 0x7E) with the printer. In such a case, specify the international character set of the printer in "Specifying International Character Set" below before printing.

When Encode is Japanese, SimplifiedChinese, Korean, or TraditionalChinese, the corresponding printer memory switch setting needs to be set in advance. Set the appropriate setting while referring to "1.5 Printer Settings."
However, printing will not be possible if the print text font is not installed in the printer.

Usage example

```
<SetEncoding>
  <Encode>Japanese</Encode>
</SetEncoding>

<PrintText>
  <Data>こんにちは\n</Data>
  <Alignment>Center</Alignment>
  <Attribute>136</Attribute>
  <TextSize>17</TextSize>
</PrintText>
```

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3.2.26. Specifying Code Page (SetCodePage Tag)

Parameters

The meanings and settable values of the parameters are as follows.

Element	Meaning	Settable range
CodePage	Specify code page.	0 to 255

Description

Set the code page of the printer. For details on the setting values, refer to the "ESC t" command in the command reference for each printer.

Usage example

```
<SetCodePage>
  <CodePage>1</CodePage>
</SetCodePage>
```

3.2.27. Specifying International Character Set (SetInternationalCharacterset Tag)

Parameters

The meanings and settable values of the parameters are as follows.

Element	Meaning	Settable range
Characterset	Specify international character set.	0 to 255

Description

Set the international character set of the printer. For details on the setting values, refer to the "ESC R" command in the command reference for each printer.

Usage example

```
<SetInternationalCharacterset>
  <Characterset>8</Characterset>
</SetInternationalCharacterset>
```

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4. XML Print Service Settings

This chapter describes how to set CITIZEN XML Print Service.

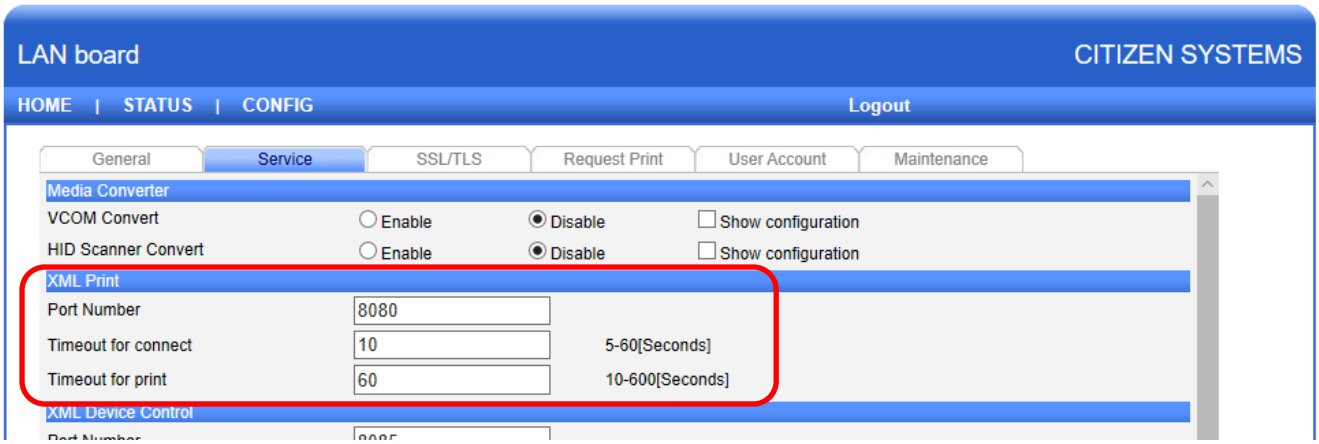
4.1. Web Manager

The settings for the printers can be changed by connecting from a Web browser to each printer. For details on the basic operations, refer to the interface board instruction manual of the printer.

This document describes the setting items of XML Print Service.

4.1.1. Service Setting Screen / XML Print

The settings of the service provided by the printer can be set in the Service screen.

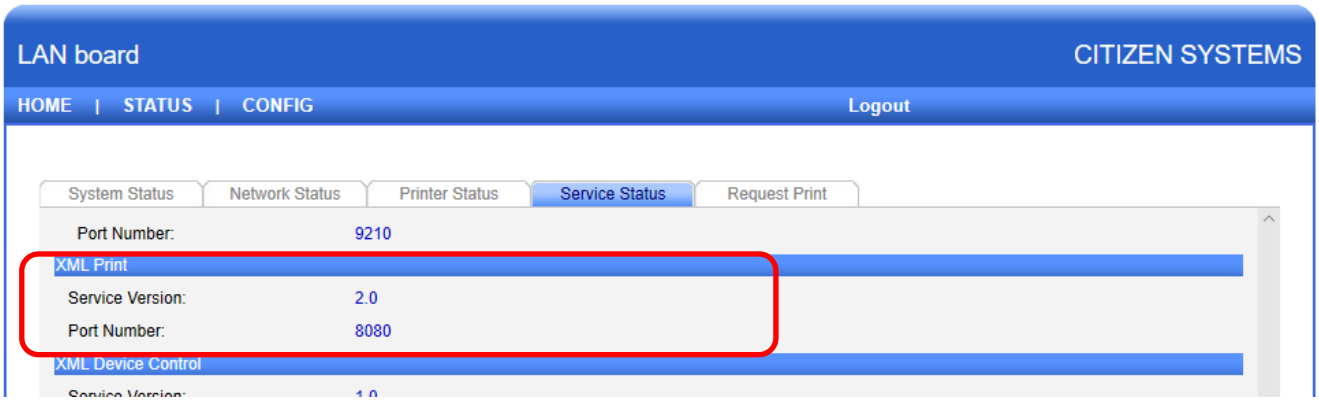


Item	Initial setting	Setting range	Description
Port Number	8080	1025 to 65535	Connection port number
Timeout for connect	10	5 to 60	Timeout time for waiting for printing to start
Timeout for print	60	10 to 600	Timeout time for waiting for the print process to complete

This screen is not displayed for a printer that is not supported by the XML Print Service. Use it for supported printers.

4.1.2. Service Status Screen / XML Print

The service version and setting information can be check in the Service Status screen.



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5. CITIZEN JavaScript POS Print SDK

CITIZEN JavaScript POS Print SDK is provided as a library for CITIZEN XML Print Service to print to a printer using JavaScript on the client side. It enables printing easily from Web applications using JavaScript.

5.1. Operating Environment

For a Web browser to be supported by this SDK, it needs to support HTML5.

5.2. Programming Guide

5.2.1. Placement of SDK File

CITIZEN JavaScript POS Print SDK is provided using JavaScript. To use the SDK, place "cxp-api.js" on the Web server. If the source code of the provided SDK is changed, correct operation may become no longer possible. Do not change the source code.

5.2.2. Program Configuration

To control a device, write the program in the HTML <script> tag on the Web page placed on the Web server. The program configuration is as follows.

```
<!DOCTYPE html>
<html>
<head>
  <meta charset="utf-8" />
  <title>CITIZEN JavaScript POS Print SDK Sample</title>
  <script type="text/javascript" src="cxp-api.js"></script>
  <script type="text/javascript">
    //Create object
    var cxp = new citizen.CXMLPrint();
    //Set response receive callback function
    cxp.OnReceive = function (res) {
      alert(res.ResponseCode);
    };
    //Set send error callback function
    cxp.OnError = function (res) {
      alert(res.status);
    };
    //Register device control process
    cxp.MessageID('12345678');
    cxp.PrintText('Hello, World!\n',cxp.ALIGN_CENTER,0,0);
    cxp.CutPaper(cxp.CUT_PARTIAL_PREFEED);
    //Execute sending
    cxp.Send('http://192.168.10.100:8080');
  </script>
</head>

<body>
      .
      .
</body>
</html>
```

Integrating SDK

Program text

5.2.3. Creating Object

The control of a device is performed with the CXMLPrint object. Generate the citizen.CXMLPrint instance first.

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5.2.4. Setting Response Receive Callback Function

The control result can be checked in the argument information of the function by setting a callback function in the OnReceive properties of this object.

Item	Description
ResponseCode	Stores the process result.
MessageID	Stores the ID for identifying the response message.
RequestID	Stores the message ID specified when the message was sent.
ErrorCode	Stores the error code when an error occurred.
Description	Stores the explanation when an error occurred.

An example of setting the response receive callback function is shown below.

```
//Set response receive callback function
cxp.OnReceive = function (res) {
  var msg;
  if(res.ResponseCode == 'OK'){
    msg = 'Print success!\n\n';
  }
  else{
    msg = 'Print failure!\n\n';
    msg += ' Code:' + res.ErrorCode + '\n';
    msg += ' Description:' + res.Description + '\n\n';
  }
  msg += ' RequestID:' + res. RequestID + '\n';
  alert(msg);
};
```

Checking for Error Occurrence

Whether or not an error occurred can be checked by checking the value of ResponseCode.

Code	Description
OK	Ended normally.
Rejected	Error occurred.

Checking Error Information

The cause of a result can be checked from the contents of the ErrorCode and Description elements stored when an error occurs.
The error codes used with this service are shown below.

Code	Description
RequestInvalid	Request information is invalid
EConnectNotFound	Unsupported model
EConnectOffline	Printer is not ready
EIllegal	Unsupported or invalid parameter
EOffline	Device is offline
EFailure	Process cannot be executed
ETimeout	Processing timeout
EptrCoverOpen	Cover open error
EptrRecEmpty	No paper error
EptrBadFormat	File format error
EptrTooBig	File size error

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5.2.5. Setting Send Error Callback Function

The error details can be checked in the argument information of the function by setting a callback function in the OnError properties of this object.
The status when an error occurs is stored in status, and the response details are stored in responseText.

An example of setting the send error callback function is shown below.

```
//Set send error callback function
cxp.OnError = function (res) {
  var msg = 'Send failure!\n\n';
  msg += ' status:' + res. status + '\n';
  msg += ' responseText:' + res. responseText + '\n';
  alert(msg);
};
```

5.2.6. Device Control Process

The device control process can be registered by calling the device control method with this object.
For details on the device control method, refer to "5.5. Details on Device Control Method" in this document.

An example of registering device control is shown below.

```
//Register device control process
//- Set request message ID -
cxp.MessageID('12345678');
// - Specifying printing -
cxp.PrintText('PrintText 1\n',cxp.ALIGN_CENTER,0,0);
cxp.PrintText('PrintText 2\n',cxp.ALIGN_CENTER,0,0);
cxp.PrintText('PrintText 3\n',cxp.ALIGN_CENTER,0,0);
cxp.CutPaper(cxp.CUT_PARTIAL_PREFEED);
```

5.2.7. Executing Sending

The print process is started by specifying the URL of XML Print Service and calling the Send function with this object. When the process ends, the set response receive callback function is called and the control result can be acquired. For details on acquiring control results, refer to "5.3.3 Setting Response Receive Callback Function" in this document.

The format of the specified URL is shown below.

http(s)://[IP address of this service]/xmlprint
* In the service version 2.0 and earlier, http://[IP address of this service]:8080

An example of specifying the executing of sending is shown below.

```
//Execute sending (for https)
cxp.Send('https://192.168.10.100/xmlprint');

//Execute sending (for http)
cxp.Send('http://192.168.10.100/xmlprint');

//Execute sending (for http of the service version 2.0 or earlier)
cxp.Send('http://192.168.10.100:8080');
```

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5.3. Acquiring Device Status

5.3.1. Device Information Acquisition Method

To acquire the device status, use the GetDeviceInfo method to specify a device information acquisition request.

Format

GetDeviceInfo (DeviceName, StatusFlag)
GetDeviceInfo (DeviceName, StatusFlag, PaperNearEmptyFlag)

Parameters

Value	Meaning	Settable range
DeviceName	Device name	Be sure to specify null for future expansion.
StatusFlag	Status information flag	Add status information when "true" is specified.
PaperNearEmptyFlag	Near empty state flag	Add near empty state when "true" is specified. * Available from the service version 2.0 or later.

5.3.2. Setting Response Receive Callback Function

The device information acquisition result can be checked in the argument information of the function by setting a callback function in the OnReceive properties of this object. An example of acquiring the device status is shown below.

```
//Create object
var cxp = new citizen.CXMLPrint();

//Set response receive callback function (check device information)
cxp.OnReceive = function (res) {
  var msg = 'GetDeviceInfo failure!\n';
  if(res.ResponseCode == 'OK'){
    if((res.DeviceInfo != null) && (0 < res.DeviceInfo.length)) {
      msg = "DeviceStatus: " + res.DeviceInfo[0].status + "\n";
      msg = msg + "PaperNearEmpty: " +
                  res.DeviceInfo[0].paperNearEmpty + "\n";
    }
  }
  alert(msg);
};

//Set send error callback function
cxp.OnError = function (res) {
  alert(res.status);
};

// Specify device information acquisition request
cxp.GetDeviceInfo(null, "true", "true");

//Execute sending
cxp.Send('http://192.168.10.100/xmlprint');
```

As for the contents of the device information, the status of the first element of the DeviceInfo array stores the status code indicating the device status, and the paperNearEmpty stores the near empty status.

The status codes stored in status are shown below.

Status code	Description
Online	State in which printing is possible (include paper near empty status)
StatusPaperEmpty	State in which no paper
StatusOffline	State in which printer is offline - Low voltage error

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	- Print head hot - Cover open (other then during printing) - Feed by LF key - Waiting for a macro execution
StatusError	State in which printer error - System error - Hight voltage error - Cutter lock error - Cover open (during printing)

The values stored in paperNearEnd are shown below.

Value	Description
false	The paper is not near empty.
true	The paper is near empty.

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5.4. Details of Device Control Method

The device control methods that can be used with this SDK are shown below.

Function	Method name	Description
Message ID	MessageID	Specify this to enable the sender to identify the message.
Print text string	PrintText	Prints text string. The alignment, attribute, and size of a single text string can be specified.
	PrintPaddingText	Prints padding text string.
Print image	PrintMemoryBitmap	Prints image data.
	PrintCanvas2DContext	Prints 2D context of HTML5 Canvas.
	PrintImage	Prints image object.
	SetNVBitmap	Registers an image (logo) to the flash memory of the printer.
	PrintNVBitmap	Prints an image (logo) stored in the flash memory of the printer.
Print barcode	PrintBarCode	Prints a 1D barcode.
	PrintPDF417	Prints a PDF417 barcode.
	PrintQRCode	Prints a QR code.
	PrintGS1DataBarStacked	Prints a 2D GS1 DataBar barcode.
Cut paper	CutPaper	Cuts the paper.
Dot unit feeding	UnitFeed	Feeds using dot unit.
Mark feeding	MarkFeed	Supports label/black mark paper.
Open drawer	OpenDrawer	Opens a drawer connected to the printer.
Send command	PrintData	Sends a command to the printer.
Clear output data	ClearOutput	Clears the data being processed and the buffer of the printer.
Specify rotation direction	RotatePrint	Specifies start and end of rotation direction specification (180 degrees).
Page mode	PageModePrint	Specifies starting and printing of page mode.
	ClearPrintArea	Clears the print area of page mode.
	SetPageModePrintArea	Specifies the print area of page mode.
	SetPageModePrintDirection	Specifies the print direction of page mode.
	SetPageModeHorizontalPosition	Specifies the print position in the horizontal direction of page mode.
	SetPageModeVerticalPosition	Specifies the print position in the vertical direction of page mode.
Specify line spacing	SetRecLineSpacing	Specifies the line spacing.
Text print settings	SetEncoding	Specifies the encoding of the text strings to be sent to the printer.
	SetCodePage	Specifies the code page of the printer.
	SeInternationalCharacterset	Specifies the international character set of the printer.
Specify unit	SetMapMode	Specifies the mapping mode.

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5.4.1. Message ID (MessageID)

Format

MessageID (ID)

Parameters

The meanings and settable values of the parameters are as follows.

Value	Meaning	Settable range
ID	Request message ID	

Description

This method is used to enable the sender to identify the message.
The specified request message ID is added to the RequestID parameter of the control result. For details on control results, refer to "5.4.2 Setting Response Receive Callback Function" in this document.

Usage example

```
cxp.MessageID( '12345678' );
```

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5.4.2. Printing Text String (PrintText)

Format

PrintText (Data, Alignment, Attribute, TextSize)

Parameters

The meanings and settable values of the parameters are as follows.

Value	Meaning	Settable range
Data	Text data	
Alignment	Text alignment	ALIGN_LEFT: Left-aligned ALIGN_CENTER: Center-aligned ALIGN_RIGHT: Right-aligned
Attribute	Text attribute	0: Normal font 1: Font B 2: Font C 8: Bold 64: Flip 128: Underline
TextSize	Text size	0: Width 1x 16: Width 2x 32: Width 3x 48: Width 4x 64: Width 5x 80: Width 6x 96: Width 7x 112: Width 8x 0: Height 1x 1: Height 2x 2: Height 3x 3: Height 4x 4: Height 5x 5: Height 6x 6: Height 7x 7: Height 8x

Description

This method is used to specify the alignment, attribute, and size of text for printing text.
A combination of font B or font C, bold, flip, and underline can be specified for the text attribute. When combining them, specify a logical OR.
A combination of width and height can be specified for the text size. When combining them, specify a logical OR.

To print multi-byte characters (kanji, Chinese, Korean, etc.), you need to set the character encoding by "Specifying Character Encoding" described later.

The center-aligned and right-aligned specifications for text alignment are ignored when in page mode.

Usage example

```
cxp.PrintText( 'Print text data.\n', cxp.ALIGN_CENTER, 136, 17 );
```

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5.4.3. Printing Padding Text String (PrintPaddingText)

Format

PrintPaddingText (Data, Attribute, TextSize, Length, Side)

Parameters

The meanings and settable values of the parameters are as follows.

Value	Meaning	Settable range
Data	Text data	
Attribute	Text attribute	0: Normal font 1: Font B 2: Font C 8: Bold 64: Flip 128: Underline
TextSize	Text size	0: Width 1x 16: Width 2x 32: Width 3x 48: Width 4x 64: Width 5x 80: Width 6x 96: Width 7x 112: Width 8x 0: Height 1x 1: Height 2x 2: Height 3x 3: Height 4x 4: Height 5x 5: Height 6x 6: Height 7x 7: Height 8x
Length	Length equivalent to half-width characters	From 1
Side	Padding side	SIDE_RIGHT: Side after text data SIDE_LEFT: Side before text data

Description

This method is used to specify the attribute, size, length equivalent to half-width characters, and padding side of text for printing text padded with space so that the text becomes a length equivalent to half-width characters.
A combination of font B or font C, bold, flip, and underline can be specified for the text attribute. When combining them, specify a logical OR.
A combination of width and height can be specified for the text size. When combining them, specify a logical OR.
The center-aligned and right-aligned specifications for text alignment are ignored when in page mode.

Please note that the length equivalent to half-width characters also includes data other than characters such as a line feed. Furthermore, if the text data is longer than the specified length, the data extending beyond that length is cut to print the text at the specified length.
When font B is specified for the text attribute, please note that the output length will not be constant if full-width characters and half width characters are mixed because the ratio of font sizes with full width and half width will not be 2:1.

Usage example

```
cxp.PrintPaddingText( 'Text data', 0, 1, 20, cxp.SIDE_RIGHT);
```

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5.4.4. Printing Image Data (PrintMemoryBitmap)

Format

PrintMemoryBitmap (Data, Width, Alignment)
PrintMemoryBitmap (Data, Width, Alignment, Mode)

Parameters

The meanings and settable values of the parameters are as follows.

Value	Meaning	Settable range
Data	Image data	Base64 encoded data
Width	Image print width	BM_ASIS: Print a bitmap with one bitmap pixel per dot of the printer. Be sure to specify BM_ASIS for future expansion.
Alignment	Image alignment position	ALIGN_LEFT: Left-aligned ALIGN_CENTER: Center-aligned ALIGN_RIGHT: Right-aligned Value of 0 or above other than the above constants: Specify the distance from the left to start printing the bitmap in the unit (default is dots) defined in the SetMapMode method.
Mode	Print mode	BM_MONO: Monochrome (single color/1 bpp) BM_GRAY: Grayscale (4bpp) When the argument is omitted, it is treated as BM_MONO.

Description

This method is used to specify the image data, print width, alignment position, and print mode for printing an image.
The image format that can be printed is Windows Bitmap.

The center-aligned and right-aligned specifications for the image alignment position are ignored when in page mode.
When the print mode is grayscale with rotation bitmap printing in rotated print mode, even if left-aligned, center-aligned, or right-aligned is specified for the image alignment position, it is ignored.

Usage example

```
cxp.PrintBitmap(
    'Qk3uCgAAAAAAD4AAAAoAAAACgEAAEwAAAABAAEAAAAAALAKAAAAAAAAAAA  ...
    ...Part omitted...
    ...  /////AAAD//////////////////////////////////////////AAAA=',
    cxp.BM_ASIS, cxp.ALIGN_CENTER );
```

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5.4.5. Printing Image Object (PrintImage)

Format

PrintImage (Image, Width, Alignment)
PrintImage (Image, Width, Alignment, Mode)

Parameters

The meanings and settable values of the parameters are as follows.

Value	Meaning	Settable range
Image	Image object	
Width	Image print width	BM_ASIS: Print a bitmap with one bitmap pixel per dot of the printer. Value of 0 or above other than the above constants: Specify the bitmap width in the unit (default is dots) defined in the SetMapMode method.
Alignment	Image alignment position	ALIGN_LEFT: Left-aligned ALIGN_CENTER: Center-aligned ALIGN_RIGHT: Right-aligned Value of 0 or above other than the above constants: Specify the distance from the left to start printing the bitmap in the unit (default is dots) defined in the SetMapMode method.
Mode	Print mode	BM_MONO: Monochrome (single color/1 bpp) BM_GRAY: Grayscale (4bpp) When the argument is omitted, it is treated as BM_MONO.

Description

This method is used to specify the image object, print width, alignment position, and print mode for printing an image.

The center-aligned and right-aligned specifications for the image alignment position are ignored when in page mode.
When the print mode is grayscale with rotation bitmap printing in rotated print mode, even if left-aligned, center-aligned, or right-aligned is specified for the image alignment position, it is ignored.

For how to use the method, refer to Image Object Print Sample of JavaScript POS Print SDK

Usage example

```
var img = new Image();

//Image read process is omitted

cxp.PrintImage(img, cxp.BM_ASIS, cxp.ALIGN_CENTER, cxp.BM_MONO );
```

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5.4.6. Registering NV Image (SetNVBitmap)

Format

SetNVBitmap (NvImageNumber, Data, Mode)

Parameters

The meanings and settable values of the parameters are as follows.

Value	Meaning	Settable range
NvImageNumber	Number of image to be saved in the flash memory of the printer	1-20
Data	Image data	Base64 encoded data The logo of the image number is deleted when null is specified.
Mode	Registration mode	BM_MONO: Monochrome (single color/1 bpp) BM_GRAY: Grayscale (4bpp)

Description

This method specifies the image number, image data, and registration mode to save a bitmap image (logo) to the flash memory of the printer. The saved logo can be printed using the PrintNVBitmap method.
The image data format that can be registered is Windows Bitmap.

The logo of the image number specified with NvImageNumber is deleted when null is specified for Data.

Logo registration is also possible from the "POS Printer Utility" utility software for the printer.
The key codes in the utility software that correspond to the image numbers are as follows.

Image number	Key code (text string)
1	"01"
2	"02"
3	"03"
. . .	. . .
19	"19"
20	"20"

Using this method frequently may lead to damage to the printer flash memory so use [10 times or less per day] as a guide.

Usage example

```
cxp.SetNVBitmap(
    1,
    'Qk3uCgAAAAAAD4AAAAoAAAACgEAAEwAAAABAAEAAAAAAALAKAAAAAAAAAAA  ...
    ... .Part omitted...
    ...  /////AAAD/////////////////////////////////////////////AAAA=',
    cxp.BM_MONO );
```

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5.4.7. Printing Registered NV Image (PrintNVBitmap)

Format

PrintNVBitmap (NvImageNumber)
PrintNVBitmap (NvImageNumber, Alignment)

Parameters

The meanings and settable values of the parameters are as follows.

Value	Meaning	Settable range
NvImageNumber	Number of image saved in the flash memory of the printer	1-20
Alignment	Image alignment position	ALIGN_LEFT: Left-aligned ALIGN_CENTER: Center-aligned ALIGN_RIGHT: Right-aligned Value of 0 or above other than the above constants: Specify the distance from the left to start printing the bitmap in the unit (default is dots) defined in the SetMapMode method. When the argument is omitted, it is treated as ALIGN_LEFT.

Description

This method is used to print a registered image (logo) stored in the flash memory of the printer.
A registered image (logo) cannot be printed in rotated print mode.

A logo needs to be registered in advance to use this method. Use the SetNVBitmap method or the "POS Printer Utility" utility software for the printer to register a logo.
When using "POS Printer Utility," register the logo in key code mode. You need to register the logo by specifying a key code that matches the number of the image to be used. The key codes that correspond to the image numbers are as follows.

Image number	Key code (text string)
1	"01"
2	"02"
3	"03"
. . .	. . .
19	"19"
20	"20"

Usage example

```
cxp.PrintNVBitmap( 1 );
cxp.PrintNVBitmap( 1, ALIGN_CENTER ); //Center-aligned
```

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5.4.8. Printing Barcode (PrintBarCode)

Format

PrintBarCode (Data, Symbology, Height, Width, Alignment, TextPosition)

Parameters

The meanings and settable values of the parameters are as follows.

Value	Meaning	Settable range
Data	Print data	
Symbology	Barcode type	BCS_UPCA: UPC-A BCS_UPCE: UPC-E BCS_EAN8: EAN8(=JAN8) BCS_JAN8: JAN8(=EAN8) BCS_EAN13: EAN13(=JAN13) BCS_JAN13: JAN13(=EAN13) BCS_ITF: Interleaved 2 of 5 BCS_CODABAR: Codabar BCS_CODE39: Code 39 BCS_CODE93: Code 93 BCS_CODE128: Code 128 BCS_GS1DATABAR: GS1 DataBar Omnidirectional BCS_GS1DATABAR_E: GS1 DataBar Expanded BCS_GS1DATABAR_T: GS1 DataBar Truncated BCS_GS1DATABAR_L: GS1 DataBar Limited
Height	Barcode height (in dots)	1 to 255 (when unit is dots) Specify the barcode height in the unit (default is dots) defined in the SetMapMode method.
Width	Barcode width size (scale factor)	2 to 6 (when unit is dots) Specify the module width of the barcode in the unit (default is dots) defined in the SetMapMode method.
Alignment	Barcode alignment position	ALIGN_LEFT: Left-aligned ALIGN_CENTER: Center-aligned ALIGN_RIGHT: Right-aligned Value of 0 or above other than the above constants: Specify the distance from the left to start printing the barcode in the unit (default is dots) defined in the SetMapMode method.
TextPosition	Visible code print position	HRI_TEXT_NONE: Do not print HRI_TEXT_ABOVE: Above barcode HRI_TEXT_BELOW: Below barcode

Description

This method is used to print a 1D barcode.
For details on each parameter, refer to the command reference for each printer.

The center-aligned and right-aligned specifications for the barcode alignment position are ignored when in page mode.

Usage example

```
cxp.PrintBarCode( '123456789012', cxp.BCS_UPCA, 50, 2,
        cxp.ALIGN_LEFT, cxp.HRI_TEXT_ABOVE );
```

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5.4.9. Printing PDF417 Barcode (PrintPDF417)

Format

PrintPDF417 (Data, Digits, Steps, ModuleWidth, StepHeight, EcLevel, Alignment)

Parameters

The meanings and settable values of the parameters are as follows.

Value	Meaning	Settable range
Data	Print data	
Digits	Number of digits	0: Auto 1 to 30
Steps	Number of steps	0: Auto 3 to 90
ModuleWidth	Module width	2 to 8 (when unit is dots) Specify the module width of the barcode in the unit (default is dots) defined in the SetMapMode method.
StepHeight	Step height	2 to 8
EcLevel	Error correction level	PDF417_EC_LEVEL_0: Level 0 PDF417_EC_LEVEL_1: Level 1 PDF417_EC_LEVEL_2: Level 2 PDF417_EC_LEVEL_3: Level 3 PDF417_EC_LEVEL_4: Level 4 PDF417_EC_LEVEL_5: Level 5 PDF417_EC_LEVEL_6: Level 6 PDF417_EC_LEVEL_7: Level 7 PDF417_EC_LEVEL_8: Level 8
Alignment	Barcode alignment position	ALIGN_LEFT: Left-aligned ALIGN_CENTER: Center-aligned ALIGN_RIGHT: Right-aligned Value of 0 or above other than the above constants: Specify the distance from the left to start printing the barcode in the unit (default is dots) defined in the SetMapMode method.

Description

This method is used to print a PDF417 barcode.
For details on each parameter, refer to the command reference for each printer.

The center-aligned and right-aligned specifications for the barcode alignment position are ignored when in page mode.

Usage example

```
cxp.PrintPDF417('http://www.citizen-systems.co.jp/', 0, 0, 3, 3,
        cxp.PDF417_EC_LEVEL_0, cxp.ALIGN_LEFT );
```

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5.4.10. Printing QR Code (PrintQRCode)

Format

PrintQRCode (Data, ModuleSize, EcLevel, Alignment)

Parameters

The meanings and settable values of the parameters are as follows.

Value	Meaning	Settable range
Data	Print data	
ModuleSize	Module width	1 to 16 (when unit is dots) Specify the module width of the barcode in the unit (default is dots) defined in the SetMapMode method.
EcLevel	Error correction level	QRCODE_EC_LEVEL_L: Level L (7%) QRCODE_EC_LEVEL_M: Level M (15%) QRCODE_EC_LEVEL_Q: Level Q (25%) QRCODE_EC_LEVEL_H: Level H (30%)
Alignment	Barcode alignment position	ALIGN_LEFT: Left-aligned ALIGN_CENTER: Center-aligned ALIGN_RIGHT: Right-aligned Value of 0 or above other than the above constants: Specify the distance from the left to start printing the barcode in the unit (default is dots) defined in the SetMapMode method.

Description

This method is used to print a QR code.
For details on each parameter, refer to the command reference for each printer.

The center-aligned and right-aligned specifications for the barcode alignment position are ignored when in page mode.

Usage example

```
cxp.PrintQRCode('http://www.citizen-systems.co.jp/', 4,
        cxp.QRCODE_EC_LEVEL_L, cxp.ALIGN_LEFT );
```

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5.4.11. Printing 2D GS1 Data Bar (PrintGS1DataBarStacked)

Format

PrintGS1DataBarStacked (Data, Symbology, ModuleSize, MaxSize, Alignment)

Parameters

The meanings and settable values of the parameters are as follows.

Value	Meaning	Settable range
Data	Print data	
Symbology	Barcode type	BCS_GS1DATABAR_S: GS1 DataBar Stacked BCS_GS1DATABAR_E_S: GS1 DataBar Expanded Stacked BCS_GS1DATABAR_S_O: GS1 DataBar Stacked Omnidirectional
ModuleSize	Module width	2 to 8 (when unit is dots) Specify the module width of the barcode in the unit (default is dots) defined in the SetMapMode method.
MaxSize	Maximum width	106 to 39528 (when unit is dots) Specify the maximum width of the barcode in the unit (default is dots) defined in the SetMapMode method.
Alignment	Barcode alignment position	ALIGN_LEFT: Left-aligned ALIGN_CENTER: Center-aligned ALIGN_RIGHT: Right-aligned Value of 0 or above other than the above constants: Specify the distance from the left to start printing the barcode in the unit (default is dots) defined in the SetMapMode method.

Description

This method is used to print a 2D GS1 DataBar barcode.
For details on each parameter, refer to the command reference for each printer.

The center-aligned and right-aligned specifications for the barcode alignment position are ignored when in page mode.

Usage example

```
cxp.PrintGS1DataBarStacked('0123456789012', cxp.BCS_GS1DATABAR_S,
        4, 300, cxp.ALIGN_LEFT );
```

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5.4.12. Cutting Paper (CutPaper)

Format

CutPaper (Type)

Parameters

The meanings and settable values of the parameters are as follows.

Value	Meaning	Settable range
Type	Cut type	CUT_FULL: Full cut CUT_PARTIAL: Partial cut CUT_FULL_PREFEED: Full cut after feeding paper to cut position CUT_PARTIAL_PREFEED: Partial cut after feeding paper to cut position

Description

This method is used to cut paper.

Usage example

```
cxp.CutPaper( cxp.CUT_PARTIAL_PREFEED );
```

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5.4.13. Dot Unit Feeding (UnitFeed)

Format

UnitFeed (UfCount)

Parameters

The meanings and settable values of the parameters are as follows.

Value	Meaning	Settable range
UfCount	Number of feeds	From 0 Specify the number of feeds in the unit (default is dots) defined in the SetMapMode method.

Description

This method is used to feed paper in the defined unit (default is dots)

Usage example

```
cxp.UnitFeed( 200 );
```

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5.4.14. Mark Feeding (MarkFeed)

Format

MarkFeed (Type)

Parameters

The meanings and settable values of the parameters are as follows.

Value	Meaning	Settable range
Type	Type of handling of label paper/black mark paper	MF_TO_CUTTER: Feed until above the cut position for auto cutter and then cut. MF_TO_NEXT_TOF: Feed until the print position at top of next paper.

Description

This method is used for using label paper and black mark paper.
This method can be used only with a printer that can use label paper and black mark paper.

Usage example

```
cxp.MarkFeed( cxp.MF_TO_CUTTER );
```

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5.4.15. Opening Drawer (OpenDrawer)

Format

OpenDrawer (Drawer, PulseLength)

Parameters

The meanings and settable values of the parameters are as follows.

Value	Meaning	Settable range
Drawer	Cash drawer number	DRAWER_1: Drawer 1 DRAWER_2: Drawer 2
PulseLength	Signal length	1 to 8 Specify a value x 100 ms for each of the off time and on time.

Description

This method is used to open a cash drawer connected to the printer.
This method can be used only with a printer to which a drawer can be connected

Usage example

```
cxp.OpenDrawer( cxp.DRAWER_1, 1 );
```

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5.4.16. Sending Command (PrintData)

Format

PrintData (Data)

Parameters

The meanings and settable values of the parameters are as follows.

Value	Meaning	Settable range
Data	Data to send	

Description

This method is used to send byte data as is to the printer.
When using this method, you need to take care that it does not have an effect on the other functions.

Usage example

```
//Sound buzzer (buzzer compatible printer is required)
cxp.PrintData( '\x1b\x1e' );
```

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5.4.17. Clearing Output Data (ClearOutput)

Format

ClearOutput ()

Parameters

None

Description

This method is used to clear all sent data that is buffered with the PageModePrint method. It sends a command to clear the data being printed on the printer at the same time.

Usage example

```
cxp.ClearOutput();
```

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5.4.18. Specifying Rotation Direction (RotatePrint)

Format

RotatePrint (Rotation)

Parameters

The meanings and settable values of the parameters are as follows.

Value	Meaning	Settable range
Rotation	Specify the rotation direction.	259: Start 180-degree rotated printing (i.e., inverted printing). 4096: Start rotated barcode printing. This value serves as a logical OR with respect to value for starting rotated printing above. 8192: Start rotated bitmap printing. This value serves as a logical OR with respect to value for starting rotated printing above. 1: End rotated printing.

Description

This method is used to start or end rotated print mode.

If 259 is included in Rotation, the printer enters inverted print mode. The methods applicable to rotated print mode are as follows.

PrintText, PrintPaddingText

Furthermore, if 4096 or 8192 is included, the print data is also inverted then printed for the following methods.

PrintBarCode, PrintPDF417, PrintQRCode, PrintGS1DataBarStacked or PrintMemoryBitmap

If Rotation is 1, the printer exits rotated print mode.

Usage example

```
//Specify 180-degree rotation (including barcode and image)
cxp.RotatePrint( 12547 );

//Print data (text)
cxp.PrintText( 'Print text data.\n', cxp.ALIGN_LEFT, 0, 0 );
//Print data (image)
cxp.PrintBitmap(
    'Qk3uCgAAAAAAD4AAAAoAAAACgEAAEwAAAABAAEAAAAAALAKAAAAAAAAAAA  ...
    ...Part omitted...
    ...  /////AAAD/////////////////////////////////////////AAAA=',
    cxp.BM_ASIS, cxp.ALIGN_CENTER );
//Print data (barcode)
cxp.PrintBarCode( '1234', cxp.BCS_CODE39, 64, 2, cxp.ALIGN_CENTER,
                  cxp.HRI_TEXT_ABOVE );

//Cancel rotation specification
cxp.RotatePrint( 1 );
```

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5.4.19. Specifying Start/End of Page Mode (PageModePrint)

Format

PageModePrint (Control)

Parameters

The meanings and settable values of the parameters are as follows.

Value	Meaning	Settable range
Control	Page mode control	PM_PAGE_MODE: Start page mode. PM_NORMAL: Print the print data of the page mode print area, delete that print data, and end page mode. PM_CANCEL: Delete the print data of the page mode print area and then end page mode without printing anything.

Description

This method is used to start or end page mode.
When PM_PAGE_MODE is specified for Control, page mode starts. The print data is buffered for the functions called after that. The methods that can be used in page mode are as follows.

PrintText, PrintPaddingText, PrintMemoryBitmap, PrintBarCode, PrintPDF417, PrintQRCode, PrintGS1DataBarStacked

When PM_NORMAL is specified for Control, page mode ends and the printer switches to the normal status. If there is buffered print data, it is printed. Buffered print data is not saved.

When PM_CANCEL is specified for Control, page mode ends and the printer switches to the normal status. Even if there is buffered print data, it is not printed and not saved.

When the PageModePrint method is called, all of the print data in the page mode print area defined in PageModePrintArea is printed, and the paper is fed to the lower edge of the page mode print area.
If multiple page mode print areas are defined, all of the print data in each page mode print area is printed, and the paper is fed to the lower edge of the page mode print area that is placed lowest.
The whole page mode area is sent as one data.

Page mode is canceled by calling the ClearOutput method. The buffered print line is also deleted.

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Usage example

```
//Set mode to page mode
cxp.PageModePrint( cxp.PM_PAGE_MODE );

//Rotation direction setting in page mode
cxp.SetPageModePrintDirection( cxp.PD_BOTTOM_TO_TOP );

//Print area setting
cxp.SetPageModePrintArea( '0,0,180,288' );

//Print start position setting//
cxp.SetPageModeHorizontalPosition( 0 );
cxp.SetPageModeVerticalPosition( 0 );

//Print data (text)
cxp.PrintText( 'Print text data.\n', cxp.ALIGN_LEFT, 0, 0 );

//Print start position setting//
cxp.SetPageModeVerticalPosition( 34 );

//Print data (image)
cxp.PrintBitmap(
  'Qk3uCgAAAAAAD4AAAAoAAAACgEAAEwAAAABAAEAAAAAALAKAAAAAAAAAAA  ...
  ...Part omitted...
  ...  /////AAAD////////////////////////////////////AAAA=',
  cxp.BM_ASIS, cxp.ALIGN_CENTER );

//Cancel page mode setting (print)
cxp.PageModePrint( cxp.PM_NORMAL );
```

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5.4.20. Clearing Page Mode Print Area (ClearPrintArea)

Format

ClearPrintArea ()

Parameters

None

Description

This method is used to clear the print data in the page mode print area defined in the PageModePrintArea properties.

Usage example

```
cxp.ClearPrintArea();
```

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5.4.21. Setting Page Mode Print Area (SetPageModePrintArea)

Format

SetPageModePrintArea (PageModePrintArea)

Parameters

The meanings and settable values of the parameters are as follows.

Value	Meaning	Settable range
PageModePrintArea	Page mode print area	From 0, from 0, from 0, from 0

Description

This setting holds the page mode print area in the unit (default is dots) defined in the SetMapMode method.
The size of the page mode print area cannot be larger than the page area.
This setting consists of only four ASCII numbers separated by commas, and cannot include space characters. It lists the horizontal direction coordinate of the start point, vertical direction coordinate of the start point, width in the horizontal direction, and height in the vertical direction in order.
Text that extends past the right edge of the page mode print area is printed on the next line. Text that extends past the bottom edge of the page mode print area is not printed.

For example, if the text string is "50,100,200,400," the coordinates of the page mode print area indicate a surrounding rectangle with a top left corner at 50,100 and a bottom right corner at 249,499.

This setting is initialized to "0,0,0,0" when the CXMLPrint object is created.

Usage example

Refer to the usage example in "Page Mode Start/End Process."

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5.4.22. Setting Page Mode Print Direction (SetPageModePrintDirection)

Format

SetPageModePrintDirection (PageModePrintDirection)

Parameters

The meanings and settable values of the parameters are as follows.

Value	Meaning	Settable range
PageModePrintDirection	Specify the direction of printing in the page mode print area.	PD_LEFT_TO_RIGHT: Print in the direction of left to right treating the top left corner of the page mode print area as the start point. This is the normal print direction. PD_BOTTOM_TO_TOP: Print in the direction of bottom to top treating the bottom left corner of the page mode print area as the start point. Print is rotated counterclockwise by 90 degrees. PD_RIGHT_TO_LEFT: Print in the direction of right to left treating the bottom right corner of the page mode print area as the start point. Print is rotated by 180 degrees. PD_TOP_TO_BOTTOM: Print in the direction of top to bottom treating the top right corner of the page mode print area as the start point. Print is rotated clockwise by 90 degrees.

Description

Changing this setting also changes the correction direction of the print start point indicated by PageModeHorizontalPosition and PageModeVerticalPosition.
Furthermore, a receipt or single-cut sheet combining text rotation directions can be printed by switching page mode print area.

This setting is initialized to "PD_LEFT_TO_RIGHT" when the CXMLPrint object is created.

Usage example

Refer to the usage example in "Page Mode Start/End Process."

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5.4.23. Setting Page Mode Horizontal Direction Start Position (SetPageModeHorizontalPosition)

Format

SetPageModeHorizontalPosition (PageModeHorizontalPosition)

Parameters

The meanings and settable values of the parameters are as follows.

Value	Meaning	Settable range
PageModeHorizontalPosition	Specify position to start printing in the horizontal direction in page mode print area.	From 0

Description

This setting holds the offset value to horizontally correct the print start position in the page mode print area in the unit (default is dots) defined in the SetMapMode method.
The horizontal direction refers to the same direction as the print direction set with PageModePrintDirection.
This setting is not the current position but the setting of the offset value of the horizontal direction specified last.

This setting is initialized to zero (0) when the CXMLPrint object is created.

Usage example

Refer to the usage example in "Page Mode Start/End Process."

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5.4.24. Setting Page Mode Vertical Direction Start Position (SetPageModeVerticalPosition)

Format

SetPageModeVerticalPosition (PageModeVerticalPosition)

Parameters

The meanings and settable values of the parameters are as follows.

Value	Meaning	Settable range
PageModeVerticalPosition	Specify position to start printing in the vertical direction in page mode print area.	From 0

Description

This setting holds the offset value to vertically correct the print start position in the page mode print area in the unit (default is dots) defined in the SetMapMode method.
The vertical direction is that in respect to the print direction set with PageModePrintDirection.
This setting is not the current position but the setting of the offset value of the vertical direction specified last.

This setting is initialized to zero (0) when the CXMLPrint object is created.

Usage example

Refer to the usage example in "Page Mode Start/End Process."

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5.4.25. Setting Line Spacing (SetRecLineSpacing)

Format

SetRecLineSpacing (RecLineSpacing)

Parameters

The meanings and settable values of the parameters are as follows.

Value	Meaning	Settable range
RecLineSpacing	Line spacing of normal text	From 0

Description

This setting holds the height of a print line of normal text in the unit (default is dots) defined in the SetMapMode method. Specifically, it is a value in which both the height of the print line and space between lines are added.
Double-height characters may exceed this value depending on the current line spacing value. The space between lines is ignored in this case.

This setting is initialized to 34 when the CXMLPrint object is created.

Usage example

```
cxp.SetRecLineSpacing( 24 );
```

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5.4.26. Specifying Character Encoding (SetEncoding)

Format

SetEncoding (Encode)

Parameters

The meanings and settable values of the parameters are as follows.

Value	Meaning	Settable range
Encode	Specify character encoding.	SingleByteCharacter: 8-bit Character UTF-8_HalfWidthFont: UTF-8(Prior half width font) UTF-8, UTF-8_FullWidthFont: UTF-8(Prior full Width font) Japanese, Shift_JIS: Japanese (cp932, Shift_JIS-2004), katakana SimplifiedChinese, GB18030: Simplified Chinese Korean, EUC-KR: Korean TraditionalChinese, Big5: Traditional Chinese For settings other than the above, refer to the Encode element in 3.2.25. Specifying Character Encoding (SetEncoding Tag).

Description

This sets the character encoding for when sending text data of the following functions to the printer.
PrintText、PrintPaddingText
This setting is initialized to "SingleByteCharacter" when the CXMLPrint object is created.

When other than "SingleByteCharacter", ”UTF-8”(”UTF-8_FullWidthFont”), or ”UTF-8_HalfWidthFont” is specified for Encode, set the code page to use on the printer as described in "Specifying Code Page" below before printing the text string.

The result of encoding text data may be that unintended characters are printed if the international character set specification is not correct when printing some character codes (0x23, 0x24, 0x40, 0x5B, 0x5C, 0x5E, 0x60, 0x7C, 0x7D, or 0x7E) with the printer. In such a case, specify the international character set of the printer in "Specifying International Character Set" below before printing.

When Encode is Japanese, SimplifiedChinese, Korean, or TraditionalChinese, the corresponding printer memory switch setting may need to be set. Set the appropriate setting while referring to "1.5 Printer Settings."
However, printing will not be possible if the font of the text the printer is attempting to print is not installed in the printer.

Usage example

```
// Print Single-Byte Chracters
cxp.SetEncoding( 'SingleByteCharacter' );
cxp.PrintText( 'Hello\n', cxp.ALIGN_LEFT, 0, 0 );
cxp.PrintText( 'здравствуйте\n', cxp.ALIGN_LEFT, 0, 0 ); // Russian
cxp.PrintText( 'α©Ω∞£\n', cxp.ALIGN_LEFT, 0, 0 ); // Halfwidth Symbol

// Print Japanese
cxp.SetEncoding( 'Japanese' );
cxp.PrintText( 'こんにちは\n', cxp.ALIGN_LEFT, 0, 0 );
cxp.PrintText( 'α©Ω∞£\n', cxp.ALIGN_LEFT, 0, 0 ); // Fullwidth Symbol
```

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```
// Print UTF-8
cxp.SetEncoding( 'UTF-8' );
cxp.PrintText( 'こんにちは\n', cxp.ALIGN_LEFT, 0, 0 );
cxp.PrintText( '안녕하세요\n', cxp.ALIGN_LEFT, 0, 0 );
cxp.PrintText( '你好\n', cxp.ALIGN_LEFT, 0, 0 );
```

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5.4.27. Specifying Code Page (SetCodePage)

Format

SetCodePage (CodePage)

Parameters

The meanings and settable values of the parameters are as follows.

Value	Meaning	Settable range
CodePage	Specify code page.	0 to 255

Description

This settings is used to set the code page of the printer. For details on the setting values, refer to the "ESC t" command in the command reference for each printer.

Usage example

```
cxp.SetCodePage( 1 ); // for Japanese

cxp.SetEncoding( 'Japanese' );
cxp.PrintText( 'ｺﾝﾆﾁﾊ\n', cxp.ALIGN_LEFT, 0, 0 ); // Halfwidth Katakana
```

5.4.28. Specifying International Character Set (SetInternationalCharacterset)

Format

SetInternationalCharacterset (Characterset)

Parameters

The meanings and settable values of the parameters are as follows.

Value	Meaning	Settable range
Characterset	Specify international character set.	0 to 255

Description

This setting is used to set the international character set of the printer. For details on the setting values, refer to the "ESC R" command in the command reference for each printer.

Usage example

```
cxp.SetInternationalCharacterset( 8 ); // for Japanese
cxp.PrintText( 'TOTAL \\10,935\n', cxp.ALIGN_LEFT, 0, 0 ); // YEN

cxp.SetInternationalCharacterset( 13 ); // for Korean
cxp.PrintText( 'TOTAL ₩123,827\n', cxp.ALIGN_LEFT, 0, 0 ); // WON
```

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5.4.29. Setting Line Width (SetRecLineWidth)

Format

SetRecLineWidth (RecLineWidth)

Parameters

The meanings and settable values of the parameters are as follows.

Value	Meaning	Settable range
RecLineWidht	Paper width	From 0

Description

This setting holds the paper width in the unit (default is dots) defined in the SetMapMode method. The set value will be used as the paper width in Layout SDK.

This setting is initialized to 573 when the CXMLPrint object is created.

Usage example

```
// 2 inch width (unit dot)
cxp.SetRecLineSpacing( 420 );

// 4 inch width (unit dot)
cxp.SetRecLineSpacing( 832 );
```

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5.4.30. Specifying Mapping Mode (SetMapMode)

Format

SetMapMode (MapMode)

Parameters

The meanings and settable values of the parameters are as follows.

Value	Meaning	Settable range
MapMode	Specify mapping mode of printer	MM_DOTS: Dot width of POS printer MM_TWIPS: 1/1440 of 1 inch MM_ENGLISH: 0.001 inch MM_METRIC: 0.01 mm

Description

If this setting is changed, the unit for the scale that indicates the line height and line spacing used in other methods will change. The arguments and values of the affected methods are listed below.

alignment of PrintMemoryBitmap method
alignment of PrintCanvas2DContext method
height, width, and alignment of PrintBarcode method
moduleWidth and alignment of PrintPDF417 method
moduleSize and alignment of PrintQRCode method
moduleSize, maxSize, and alignment of PrintGS1DataBarStacked method
ufCount of UnitFeed method
Setting values of SetPageModePrintArea method
Setting values of SetPageModeHorizontalPosition method
Setting values of SetPageModeVerticalPosition method
Setting values of SetRecLineSpacing method

This setting is initialized to MM_DOTS when the CXMLPrint object is created.

Usage example

```
cxp.SetMapMode( cxp.MM_DOTS );
cxp.UnitFeed( 200 );                    //Paper fed by 200 dots
cxp.SetMapMode( cxp.MM_METRIC );
cxp.UnitFeed( 2500 );                   //Paper fed by 25 mm
```

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5.5. SDK Settings/Other Functions

The following are provided for SDK settings and other functions. They can be used even if a control device cannot be used.

Function name	Description
GetVersionCode	Acquires the SDK version number.
GetVersionName	Acquires the SDK version text string.

5.5.1. Acquiring SDK Version Number (GetVersionCode)

Format
GetVersionCode ()

Return value
Version number: Number

Parameters
None

Description
Acquires the SDK version number as a numerical value (when Ver.1.23: 123).

Usage example

```
var vno = cxp.GetVersionCode();
alert("SDK Version:" + vno/100);
```

5.5.2. Acquiring SDK Version Text String (GetVersionName)

Format
GetVersionName ()

Return value
Version text string: String

Parameters
None

Description
Acquires the SDK version as a text string.

Usage example

```
var vname = cxp.GetVersionName();
alert("SDK Version:" + vname);
```

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6. CITIZEN XML Print Editor

CITIZEN XML Print Editor allows you to easily create the API Code of CITIZEN JavaScript POS Print SDK and XML Code of CITIZEN XML Print Service, and check the print operation of printers. Please make use of it for developing your Web applications.

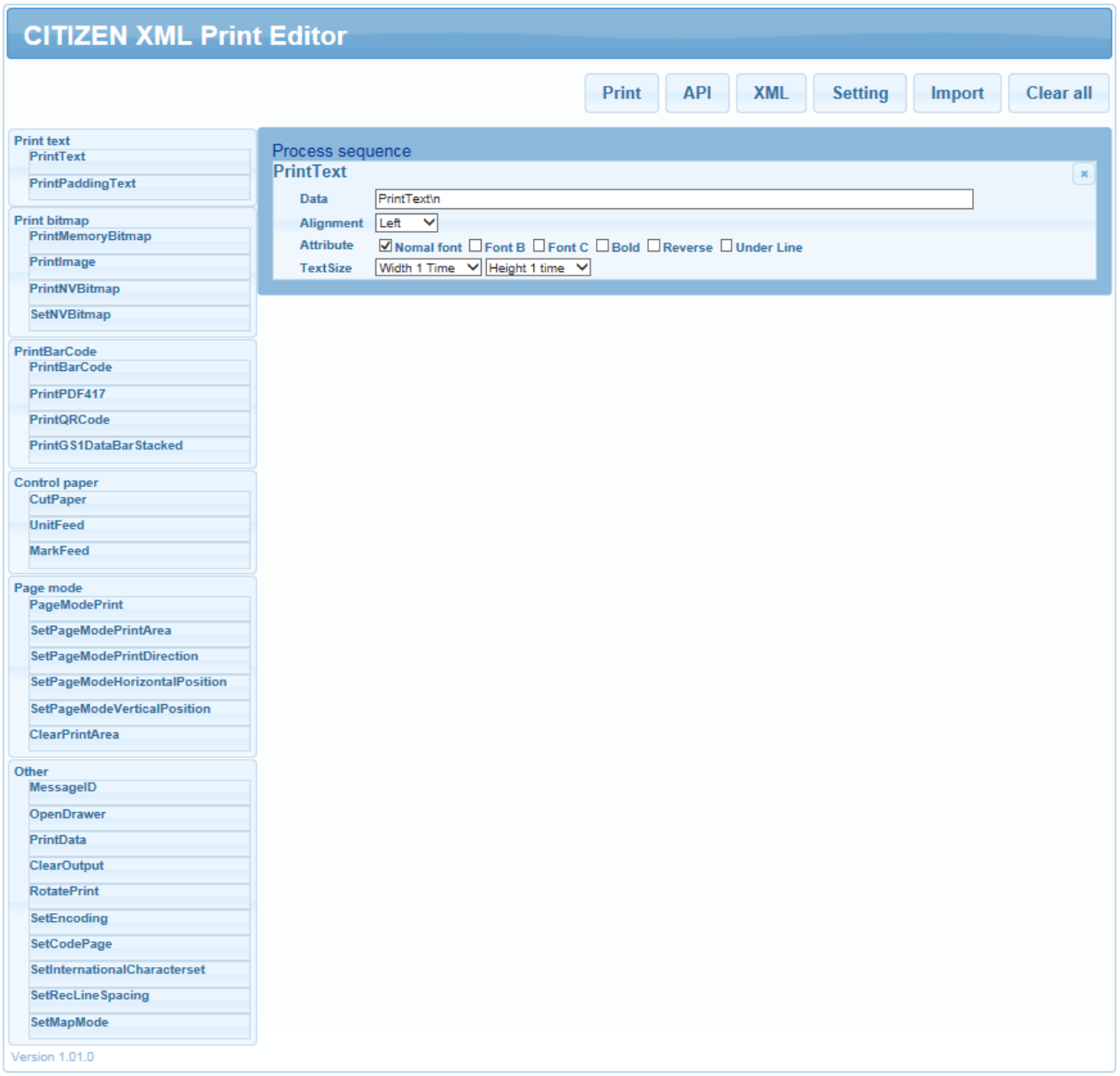
This editor is placed in the cxmlp-editor folder of the provided files. If necessary, place and use it on a server or client.

6.1. Operating Environment

For a Web browser to be supported by this editor, it needs to support HTML5.

6.2. Starting

Start the Web browser and access CITIZEN XML Print Editor.

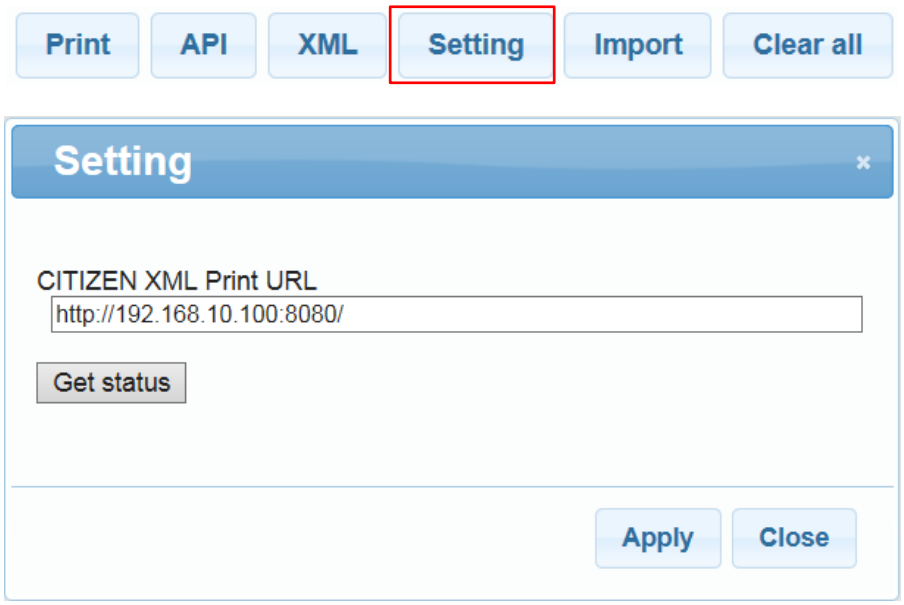


The version of the editor is displayed at the bottom left of the screen. The version of the editor in this document is 1.01

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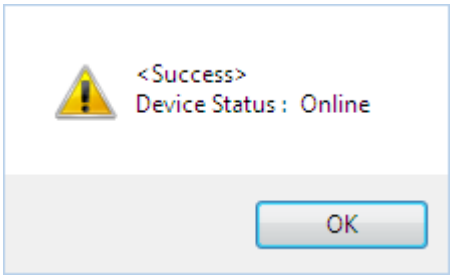
6.3. Setting

Click the Setting button at the top of the screen. Set the URL for sending a request message of the CITIZEN XML Print Service to be used.
http://[IP address of service]:8080



Click the Apply button to apply the setting.

Clicking the Get Status button to display the device status in a pop-up screen like the following.



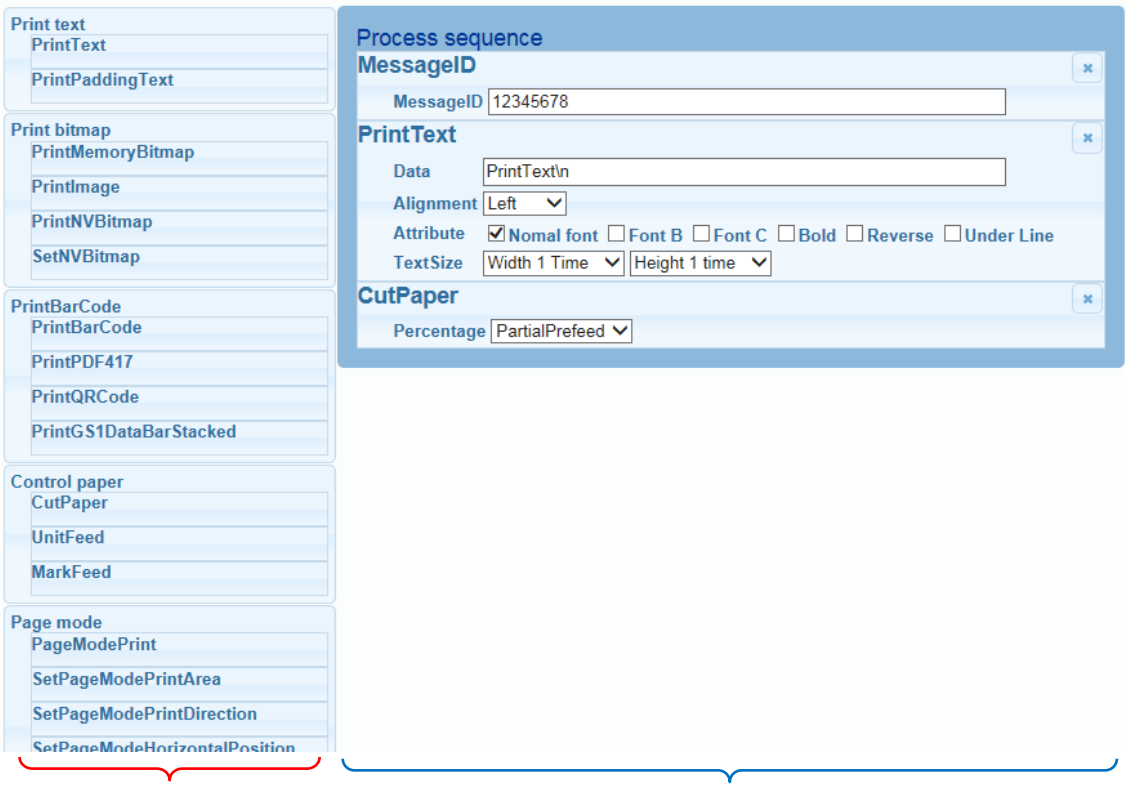
For details on the statuses, refer to "2.3. Acquiring Device Status" in this document.

Printing is not possible unless the status is "Online." If the status is not "Online," check the device status (cover open, no paper, cutter error, etc.).

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6.4. Editing Process Sequence

Edit the request message process sequence in the center of the screen.

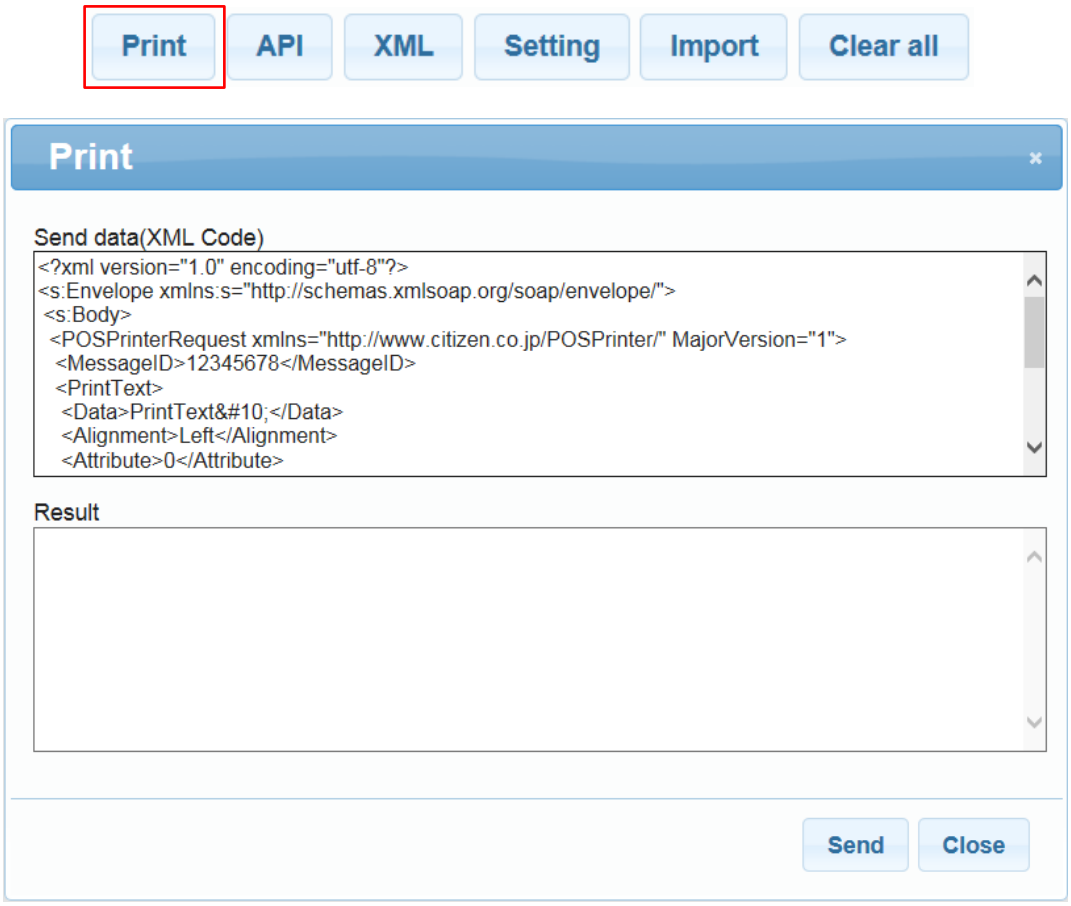


Item	Description
Function selection area	Displays the print control functions that can be used. Click a function to add it to the end of the process sequence area or drag a function to insert it in any location in the process sequence area.
Process sequence area	Displays the print control functions (process sequence) that are being edited. Added functions can be swapped by dragging. To delete a function, click the "X" button at the top right of the function.
Delete All	To delete all of the process sequence being edited, click the Delete All button at the top of the startup screen.

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6.5. Printing

Click the Print button at the top of the screen. A request message is sent to CITIZEN XML Print Service to perform a test print.

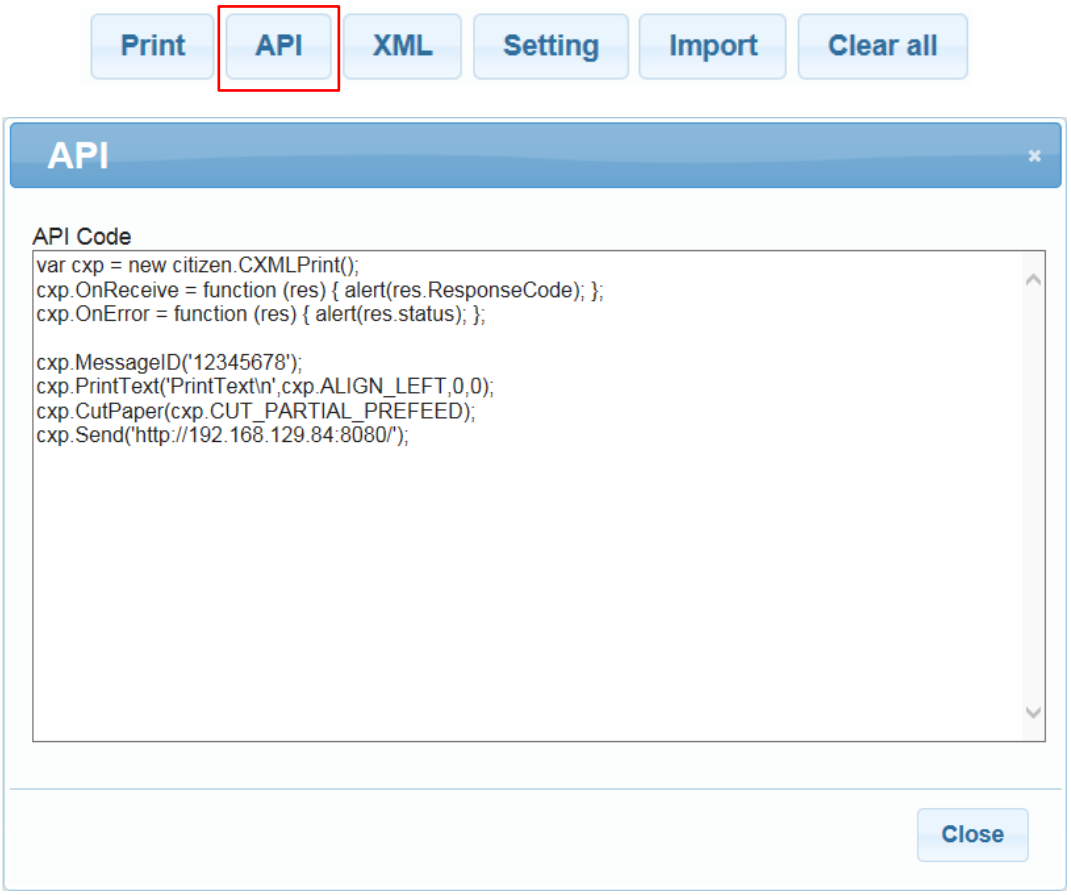


The content created by editing the process sequence is displayed as data in XML format in the Data (XML Code) to Send area.
Check the send data content and then click the Send button.
To close the Print window, click the Close button.

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6.6. API

Click the API button at the top of the screen. API Code of CITIZEN JavaScript POS Print SDK is displayed.

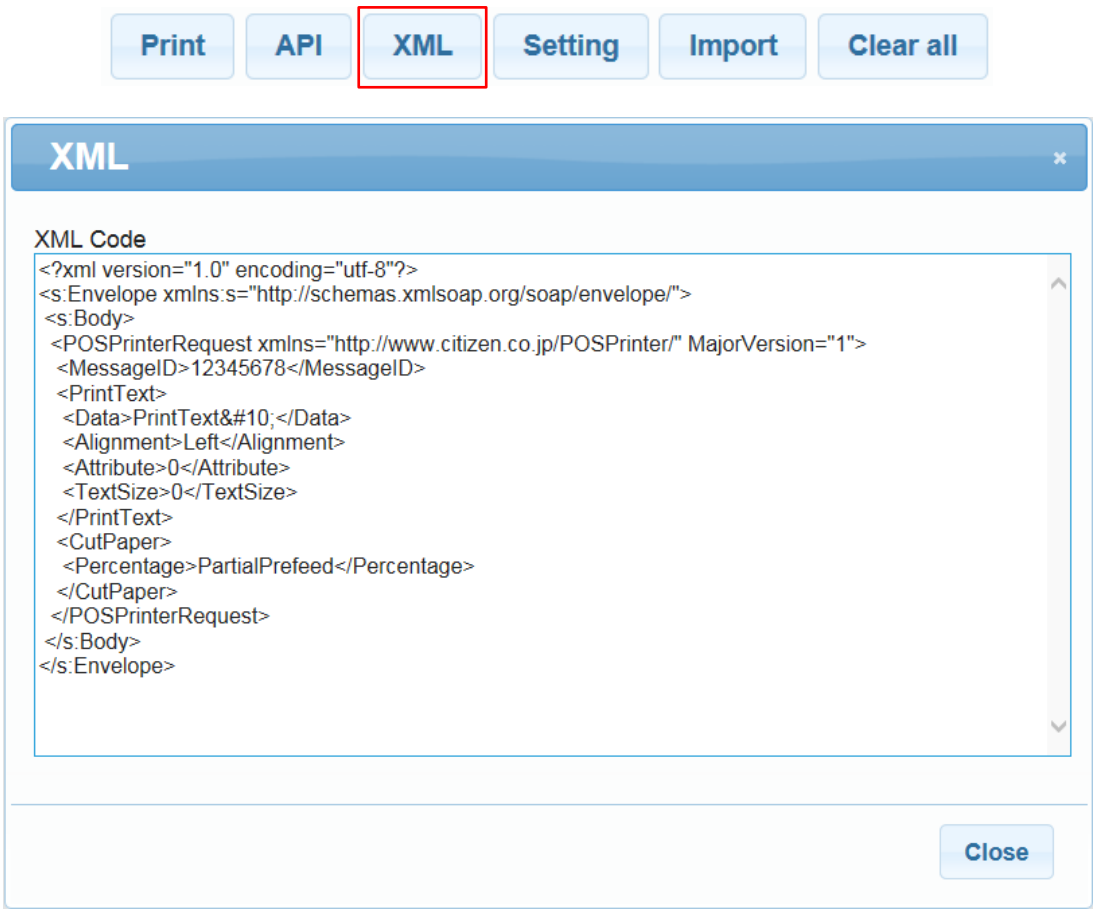


The content created by editing the process sequence is displayed as JavaScript API source code in the API Code area. For details on the API, refer to "5. CITIZEN JavaScript POS Print SDK" in this document.
To use the source code in a Web application, copy the text in the API Code area.
To close the API window, click the Close button.

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6.7. XML

Click the XML button at the top of the screen. XML Code of CITIZEN XML Print Service is displayed.

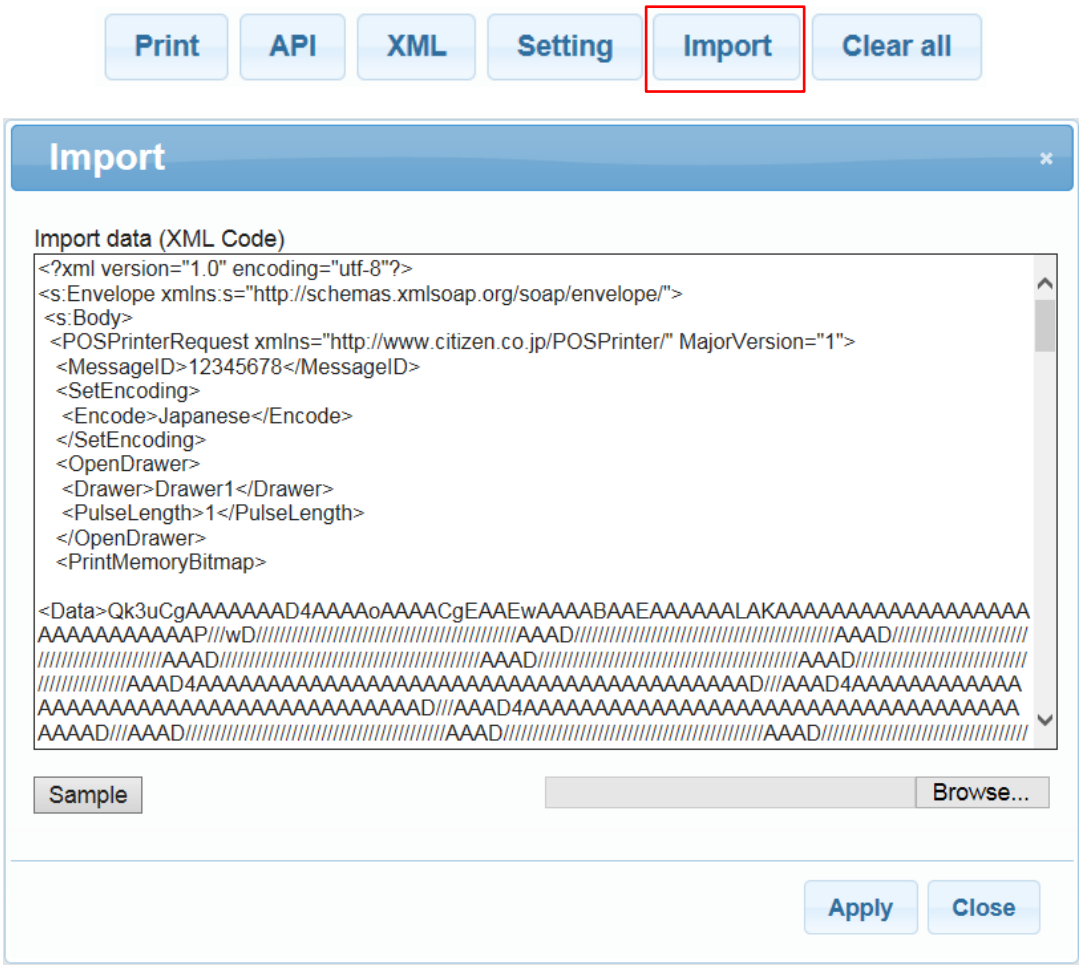


The content created by editing the process sequence is displayed as XML document code in the XML Code area.
To use the code in a Web application, copy the text in the XML Code area.
XML document code can be used with the import function of this editor. If necessary, copy the text in the XML Code area and use a text editor or other software to save it to a file in UTF-8 format. For details on the import function, refer to "6.8. Importing" in this document.
To close the XML window, click the Close button.

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6.8. Importing

This editor can import XML document code saved in advance and reedit the process sequence. Click the Import button at the top of the screen.



Paste the XML document code to be imported into the Data (XML Code) to Import area or click the Browse button and select a file to import.
If you click the Receipt Sample button, you can paste a provided receipt sample XML document.
To execute the import, click the Apply button.
To end the process without executing the import, click the Close button.

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7. Sample Programs

The following shows how to use the sample programs of CITIZEN XML Print Service.
The sample programs consist of the following.

Folder name	Description
cxmlp-demo	Order entry system sample
cxmlp-api	XML-Print API samples
cxmlp-Canvas2DContext	XML-Print API Canvas 2D context print sample
cxmlp-ImageObject	XML-Print API image object print sample

Cautions on using the sample programs are given below.

- Some sample programs are optimized to the paper width of 80 mm so the data may not be printed with the correct layout with a print width less than that.
- For a printer that cannot print with a paper width of 80 mm, the data will be printed with the correct layout using the reduced printing setting of the printer memory switches (however, the print resolution will be reduced).
  The setting for supported printers is shown below.

CT-S251W

MSW No.	Function	Setting
8-5	Reduced Char V/H	Any/75%

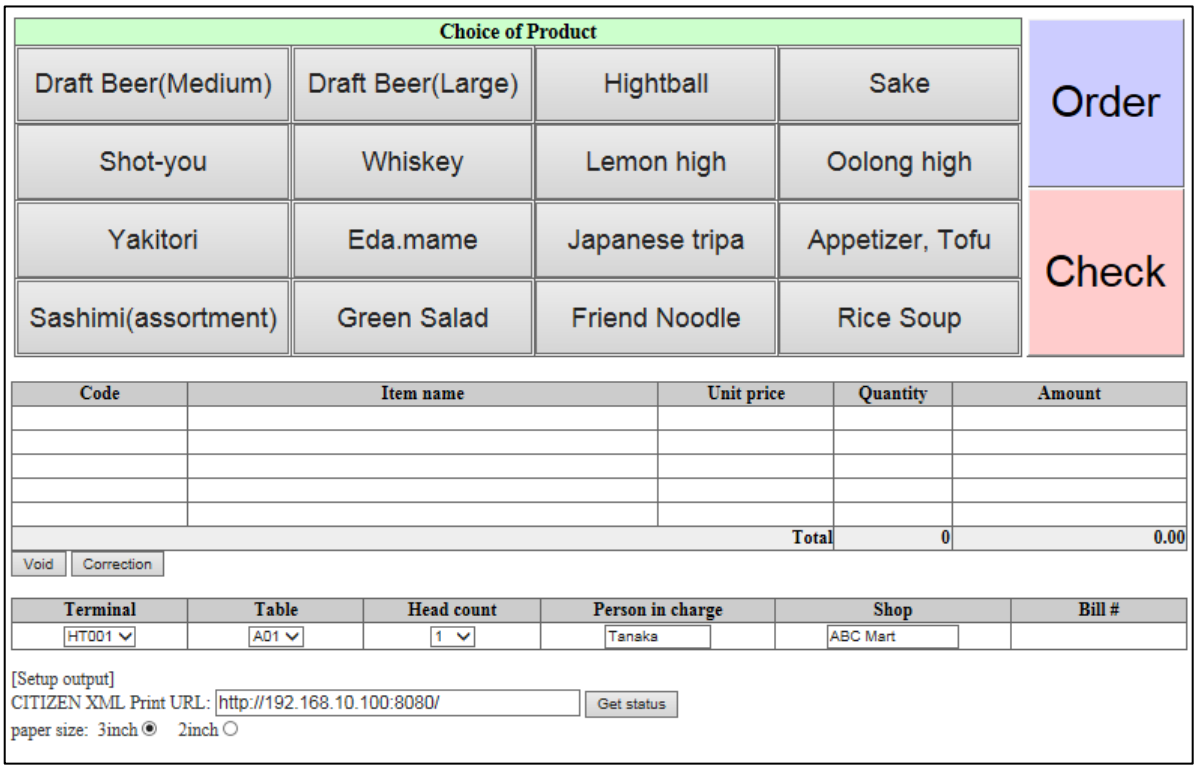
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7.1. Order Entry System Sample

This sample program is for printing a food and drink order slip and cash register receipt by entering the ordered food and drinks from a Web application.

7.1.1. Starting Sample Program

Start the Web browser and access the URL for the location where the sample is placed. When the sample program is run, the following screen appears.



Set the URL of the printer to which to send request messages in the output destination setting URL field at the bottom of the screen.
For the paper, select the size that matches the width of the paper used by the printer.

7.1.2. Registering Order

Select the food or drink to be registered with a product selection button.
A quantity dialog box appears. Specify the quantity.
The order is registered to the table.
There is no limit to the number of orders.
The last registered order can be deleted with the Cancel One button.
All orders can be deleted with the Cancel All button.

7.1.3. Printing Food and Drink Order Slip

Press the Order button.
The food and drink order slip is printed to the printer set in the output destination setting.

7.1.4. Printing Cash Register Receipt

Press the Payment button.
The cash register receipt is printed to the printer set in the output destination setting.

7.1.5. Acquiring Printer Status

Press the Get Status button.

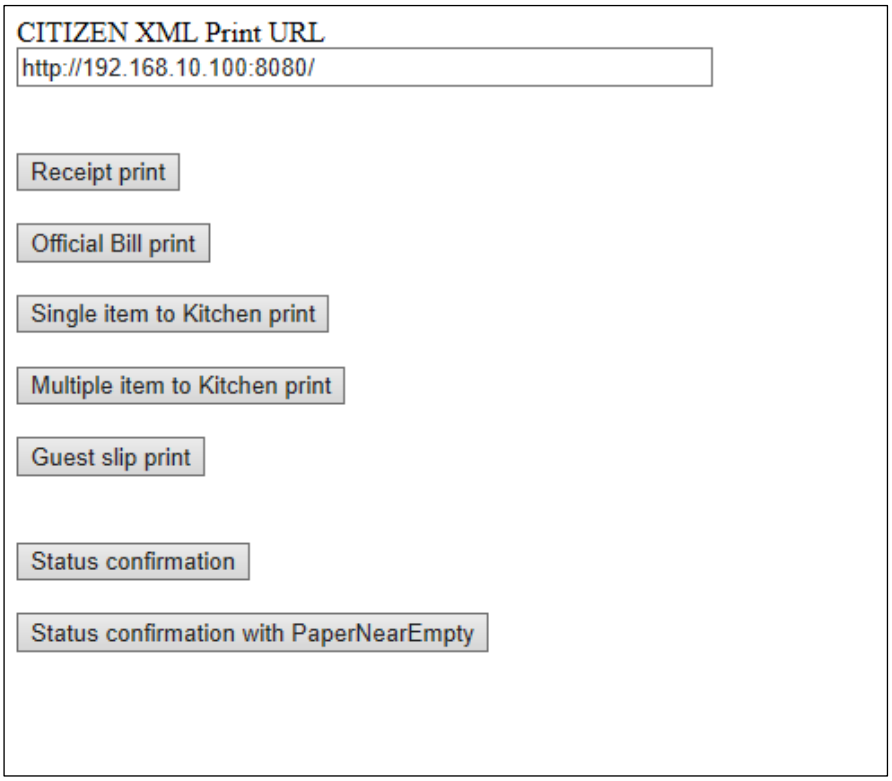
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The status of the printer set in the output destination setting is displayed.
For details on the statuses, refer to "5.4. Acquiring Device Status" in this document.

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7.2. JavaScript POS Print SDK Samples

Start the Web browser and access the URL for the location where the sample is placed. When the sample program is run, the following screen appears.



Set the URL of the printer to which to send request messages in the URL field at the top of the screen. When a button in the center of the screen is pressed, the corresponding sample program is run.

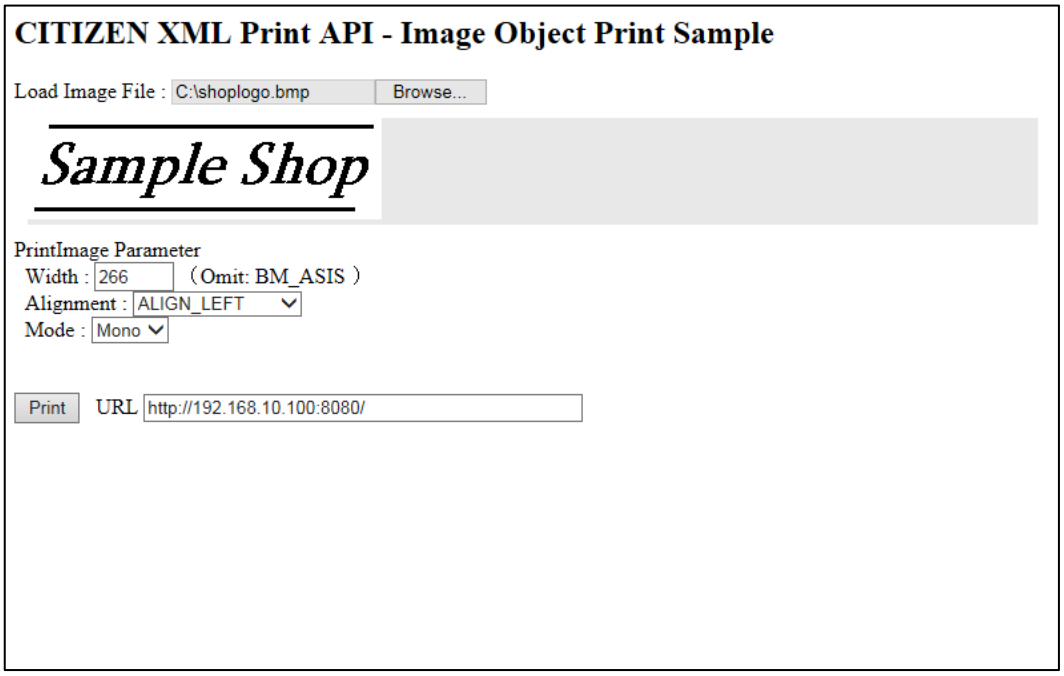
The following describes each sample program.

Item	Description
Print receipt	Receipt print sample
Receipt for tax	Receipt for tax print sample
Print food and drink order single product slip	Food and drink order single-product slip print sample
Print food and drink order multiple-product slip	Food and drink order multiple-product slip print sample
Print guest slip	Guest slip print sample
Check status	Printer status check sample
Check status with PaperNearEmpty	Printer status check sample (Including near empty information)

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7.3. JavaScript POS Print SDK - Image Object Print Sample

This sample uses the PrintImage method.
Start the Web browser and access the URL for the location where the sample is placed. When the sample program is run, the following screen appears.



Press the Browse button and select an image file. The image file is read and then displayed in the center of the screen.
To change the print conditions, change each parameter in the center of the screen.
Set the URL of the printer to which to send request messages in the URL field at the bottom of the screen.
Press the Print button to print the read file.

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