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• Reorient or relocate the receiving antenna.
• Increase the separation between the equipment and receiver.
• Connect the equipment into an outlet or circuit different from that to which the receiver is connected.
• Consult the dealer or an experienced radio/TV technician for help.

WARNING: Exposure to Radio Frequency radiation. To conform to FCC RF exposure requirements this device shall be used in accordance with the operating conditions and instructions listed in this manual.

NOTE: This unit was tested with shielded cables on the peripheral devices. Shielded cables must be used with the unit to insure compliance.

Changes or modifications to this unit not expressly approved by Zebra Technologies Corporation could void the user's authority to operate this equipment.
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This Class B digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.
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1. Manual Information

This iOS SDK manual contains the descriptions of the Library required for the applications program development.

1-1 Supported Platform & Development Environment

- Platform
  • iOS 3.13 or higher

- Development environment
  • XCode 3.2.6 or higher

1-2 Supported Platform & Supported Devices

Compatibilities of the following list of devices were verified. Besides the devices in the list, it is compatible with iPod touch second generation or later version.

• iPhone 3GS / 4G
• iPad / iPad2

1-3 Supported Properties List

<table>
<thead>
<tr>
<th>Method/Property</th>
<th>Mobile Printer (EM220II)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Version</td>
<td>O</td>
</tr>
<tr>
<td>delegate</td>
<td>O</td>
</tr>
<tr>
<td>Target</td>
<td>O</td>
</tr>
<tr>
<td>lookupDuration</td>
<td>O</td>
</tr>
<tr>
<td>lookupCount</td>
<td>O</td>
</tr>
<tr>
<td>alignment</td>
<td>O</td>
</tr>
<tr>
<td>attribute</td>
<td>O</td>
</tr>
<tr>
<td>textSize</td>
<td>X</td>
</tr>
<tr>
<td>characterSet</td>
<td>O</td>
</tr>
<tr>
<td>internationalCharacterSet</td>
<td>O</td>
</tr>
<tr>
<td>State</td>
<td>O</td>
</tr>
<tr>
<td>Power</td>
<td>O</td>
</tr>
<tr>
<td>AutoConnection</td>
<td>O</td>
</tr>
<tr>
<td>drawerPin</td>
<td>X</td>
</tr>
<tr>
<td>drawerOpenLevel</td>
<td>X</td>
</tr>
</tbody>
</table>
### 1-4 Supported Properties List

<table>
<thead>
<tr>
<th>Method/Property</th>
<th>Mobile Printer (EM220II)</th>
</tr>
</thead>
<tbody>
<tr>
<td>getInstance</td>
<td>O</td>
</tr>
<tr>
<td>open</td>
<td>O</td>
</tr>
<tr>
<td>close</td>
<td>O</td>
</tr>
<tr>
<td>lookup</td>
<td>O</td>
</tr>
<tr>
<td>selectTarget</td>
<td>O</td>
</tr>
<tr>
<td>connect</td>
<td>O</td>
</tr>
<tr>
<td>disconnect</td>
<td>O</td>
</tr>
<tr>
<td>disconnectWithTimeout</td>
<td>O</td>
</tr>
<tr>
<td>isConnected</td>
<td>O</td>
</tr>
<tr>
<td>enableLSB</td>
<td>X</td>
</tr>
<tr>
<td>printText</td>
<td>O</td>
</tr>
<tr>
<td>printBox</td>
<td>O</td>
</tr>
<tr>
<td>lineFeed</td>
<td>O</td>
</tr>
<tr>
<td>nextPrintPos</td>
<td>O</td>
</tr>
<tr>
<td>printBarcode</td>
<td>O</td>
</tr>
<tr>
<td>printBitmap</td>
<td>O</td>
</tr>
<tr>
<td>checkPrinter</td>
<td>O</td>
</tr>
<tr>
<td>msrReadReady</td>
<td>O</td>
</tr>
<tr>
<td>msrReadCancel</td>
<td>O</td>
</tr>
<tr>
<td>msrReadCancelEx</td>
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</tr>
<tr>
<td>msrReadTrack</td>
<td>O</td>
</tr>
<tr>
<td>msrGetTrack</td>
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</tr>
<tr>
<td>msrReadFullTrack</td>
<td>O</td>
</tr>
<tr>
<td>directIO</td>
<td>O</td>
</tr>
<tr>
<td>icON</td>
<td>O</td>
</tr>
<tr>
<td>icOFF</td>
<td>O</td>
</tr>
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<td>icApdu</td>
<td>O</td>
</tr>
<tr>
<td>icGetStatus</td>
<td>O</td>
</tr>
<tr>
<td>nvImageList</td>
<td>O</td>
</tr>
<tr>
<td>downloadNVImage (Diffusion)</td>
<td>O</td>
</tr>
<tr>
<td>downloadNVImage (Normal)</td>
<td>O</td>
</tr>
<tr>
<td>printNVImage</td>
<td>O</td>
</tr>
<tr>
<td>removeNVImage</td>
<td>O</td>
</tr>
<tr>
<td>removeAllNVImages</td>
<td>O</td>
</tr>
<tr>
<td>openDrawer</td>
<td>X</td>
</tr>
<tr>
<td>isSupport_MSR</td>
<td>O</td>
</tr>
<tr>
<td>isSupport_IC</td>
<td>O</td>
</tr>
<tr>
<td>isSupport_Config</td>
<td>O</td>
</tr>
<tr>
<td>isSupport_CashDrawer</td>
<td>O</td>
</tr>
<tr>
<td>isSupport_LSB</td>
<td>O</td>
</tr>
<tr>
<td>isSupport_Barcode</td>
<td>O</td>
</tr>
<tr>
<td>getBarcodeSupportTable</td>
<td>O</td>
</tr>
</tbody>
</table>
2. Constant Definition

Constants used in the provided SDK are defined in the “BXCode.h” file.

2-1 Character Set

This defines the code page and the default value is set to BXL_CS_437.

Available Code Pages are as follows.

<table>
<thead>
<tr>
<th>Code</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BXL_CS_PC437</td>
<td>0</td>
<td>Code page PC437</td>
</tr>
<tr>
<td>BXL_CS_Katakana</td>
<td>1</td>
<td>Katakana</td>
</tr>
<tr>
<td>BXL_CS_PC850</td>
<td>2</td>
<td>Code page PC850</td>
</tr>
<tr>
<td>BXL_CS_PC860</td>
<td>3</td>
<td>Code page PC860</td>
</tr>
<tr>
<td>BXL_CS_PC863</td>
<td>4</td>
<td>Code page PC863</td>
</tr>
<tr>
<td>BXL_CS_PC865</td>
<td>5</td>
<td>Code page PC865</td>
</tr>
<tr>
<td>BXL_CS_WPC1252</td>
<td>16</td>
<td>Code page WPC1252</td>
</tr>
<tr>
<td>BXL_CS_PC866</td>
<td>17</td>
<td>Code page PC866</td>
</tr>
<tr>
<td>BXL_CS_PC852</td>
<td>18</td>
<td>Code page PC852</td>
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<tr>
<td>BXL_CS_PC858</td>
<td>19</td>
<td>Code page PC858</td>
</tr>
<tr>
<td>BXL_CS_PC864</td>
<td>22</td>
<td>Code page PC864</td>
</tr>
<tr>
<td>BXL_CS_THAI42</td>
<td>23</td>
<td>Code page THAI42</td>
</tr>
<tr>
<td>BXL_CS_WPC1253</td>
<td>24</td>
<td>Code page WPC1253</td>
</tr>
<tr>
<td>BXL_CS_WPC1254</td>
<td>25</td>
<td>Code page WPC1254</td>
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<tr>
<td>BXL_CS_WPC1257</td>
<td>26</td>
<td>Code page WPC1257</td>
</tr>
<tr>
<td>BXL_CS_Farsi</td>
<td>27</td>
<td>Code page Farsi</td>
</tr>
<tr>
<td>BXL_CS_WPC1251</td>
<td>28</td>
<td>Code page WPC1251</td>
</tr>
<tr>
<td>BXL_CS_PC737</td>
<td>29</td>
<td>Code page PC737</td>
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<tr>
<td>BXL_CS_PC775</td>
<td>30</td>
<td>Code page PC775</td>
</tr>
<tr>
<td>BXL_CS_THAI14</td>
<td>31</td>
<td>Code page THAI14</td>
</tr>
<tr>
<td>BXL_CS_PC862</td>
<td>33</td>
<td>Code page PC862</td>
</tr>
<tr>
<td>BXL_CS_PC855</td>
<td>36</td>
<td>Code page PC855</td>
</tr>
<tr>
<td>BXL_CS_PC857</td>
<td>37</td>
<td>Code page PC857</td>
</tr>
<tr>
<td>BXL_CS_PC928</td>
<td>38</td>
<td>Code page PC928</td>
</tr>
<tr>
<td>BXL_CS_THAI16</td>
<td>39</td>
<td>Code page THAI16</td>
</tr>
<tr>
<td>BXL_CS_WPC1256</td>
<td>40</td>
<td>Code page WPC1256</td>
</tr>
<tr>
<td>BXL_CS_USER</td>
<td>255</td>
<td>User set page</td>
</tr>
</tbody>
</table>
2-2 International Character Set

This defines the international character set and the default value is set to BXL_ICS_USA.

Available International Character Sets are as follows.

<table>
<thead>
<tr>
<th>Code</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BXL_ICS_USA</td>
<td>0</td>
<td>U.S.A.</td>
</tr>
<tr>
<td>BXL_ICS_FRANCE</td>
<td>1</td>
<td>France</td>
</tr>
<tr>
<td>BXL_ICS_GERMANY</td>
<td>2</td>
<td>Germany</td>
</tr>
<tr>
<td>BXL_ICS_UK</td>
<td>3</td>
<td>U.K.</td>
</tr>
<tr>
<td>BXL_ICS_DENMARK1</td>
<td>4</td>
<td>Denmark I</td>
</tr>
<tr>
<td>BXL_ICS_SWEDEN</td>
<td>5</td>
<td>Sweden</td>
</tr>
<tr>
<td>BXL_ICS_ITALY</td>
<td>6</td>
<td>Italy</td>
</tr>
<tr>
<td>BXL_ICS_SPAIN</td>
<td>7</td>
<td>Spain</td>
</tr>
<tr>
<td>BXL_ICS_NORWAY</td>
<td>9</td>
<td>Norway</td>
</tr>
<tr>
<td>BXL_ICS_DENMARK2</td>
<td>10</td>
<td>Denmark II</td>
</tr>
</tbody>
</table>

2-3 Barcode/Image/Text Alignment

This defines the bar code/image/text alignment and the value is set to BXL_ALIGNMENT_LEFT.

Available settings are as follows.

<table>
<thead>
<tr>
<th>Code</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BXL_ALIGNMENT_LEFT</td>
<td>0</td>
<td>Left align</td>
</tr>
<tr>
<td>BXL_ALIGNMENT_CENTER</td>
<td>1</td>
<td>Center align</td>
</tr>
<tr>
<td>BXL_ALIGNMENT_RIGHT</td>
<td>2</td>
<td>Right align</td>
</tr>
</tbody>
</table>

2-4 Text Size

This defines the settings for the text size, and horizontal and vertical ratio can be defined simultaneously with OR operation.

Available settings are as follows.

<table>
<thead>
<tr>
<th>Code</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BXL_TS_0WIDTH</td>
<td>0</td>
<td>Set the ratio of horizontal width to X1</td>
</tr>
<tr>
<td>BXL_TS_1WIDTH</td>
<td>16</td>
<td>Set the ratio of horizontal width to X2</td>
</tr>
<tr>
<td>BXL_TS_2WIDTH</td>
<td>32</td>
<td>Set the ratio of horizontal width to X3</td>
</tr>
<tr>
<td>BXL_TS_3WIDTH</td>
<td>48</td>
<td>Set the ratio of horizontal width to X4</td>
</tr>
<tr>
<td>BXL_TS_4WIDTH</td>
<td>64</td>
<td>Set the ratio of horizontal width to X5</td>
</tr>
<tr>
<td>BXL_TS_5WIDTH</td>
<td>80</td>
<td>Set the ratio of horizontal width to X6</td>
</tr>
<tr>
<td>BXL_TS_6WIDTH</td>
<td>96</td>
<td>Set the ratio of horizontal width to X7</td>
</tr>
<tr>
<td>BXL_TS_7WIDTH</td>
<td>112</td>
<td>Set the ratio of horizontal width to X8</td>
</tr>
<tr>
<td>Code</td>
<td>Value</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------</td>
<td>-------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>BXL_TS_0HEIGHT</td>
<td>0</td>
<td>Set the ratio of vertical height to X1</td>
</tr>
<tr>
<td>BXL_TS_1HEIGHT</td>
<td>16</td>
<td>Set the ratio of vertical height to X2</td>
</tr>
<tr>
<td>BXL_TS_2HEIGHT</td>
<td>32</td>
<td>Set the ratio of vertical height to X3</td>
</tr>
<tr>
<td>BXL_TS_3HEIGHT</td>
<td>48</td>
<td>Set the ratio of vertical height to X4</td>
</tr>
<tr>
<td>BXL_TS_4HEIGHT</td>
<td>64</td>
<td>Set the ratio of vertical height to X5</td>
</tr>
<tr>
<td>BXL_TS_5HEIGHT</td>
<td>80</td>
<td>Set the ratio of vertical height to X6</td>
</tr>
<tr>
<td>BXL_TS_6HEIGHT</td>
<td>96</td>
<td>Set the ratio of vertical height to X7</td>
</tr>
<tr>
<td>BXL_TS_7HEIGHT</td>
<td>112</td>
<td>Set the ratio of vertical height to X8</td>
</tr>
</tbody>
</table>

2-5 Text Attribute

This is a text property and each property can be combined with OR operation.
Available settings are as follows.

<table>
<thead>
<tr>
<th>Code</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BXL_FT_DEFAULT</td>
<td>0</td>
<td>Default setting NOT BOLD, FONTA, NOT UNDERLINE, NOT REVERSE</td>
</tr>
<tr>
<td>BXL_FT_FONTB</td>
<td>1</td>
<td>Use FONTB</td>
</tr>
<tr>
<td>BXL_FT_FONTC</td>
<td>16</td>
<td>Use FONTC</td>
</tr>
<tr>
<td>BXL_FT_BOLD</td>
<td>2</td>
<td>Use Bold font</td>
</tr>
<tr>
<td>BXL_FT_UNDERLINE</td>
<td>4</td>
<td>Set Underline property</td>
</tr>
<tr>
<td>BXL_FT_REVERSE</td>
<td>8</td>
<td>Set Reverse property</td>
</tr>
<tr>
<td>BXL_ExFT_CHINA_FONTA</td>
<td>0</td>
<td>Only for Pepsi Cola project</td>
</tr>
<tr>
<td>BXL_ExFT_CHINA_FONTB</td>
<td>32</td>
<td></td>
</tr>
</tbody>
</table>

2-6 Bar Code Text Position

This is for setting the position where bar code data is printed.

Available settings are as follows.

<table>
<thead>
<tr>
<th>Code</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BXL_BC_TEXT_NONE</td>
<td>0</td>
<td>Do not print bar code data</td>
</tr>
<tr>
<td>BXL_BC_TEXT_ABOVE</td>
<td>1</td>
<td>Print bar code data above bar code</td>
</tr>
<tr>
<td>BXL_BC_TEXT_BELOW</td>
<td>2</td>
<td>Print bar code data below bar code</td>
</tr>
</tbody>
</table>
2-7 Bar Code Symbology

This defines the bar code type.

Available settings are as follows.

<table>
<thead>
<tr>
<th>Code</th>
<th>Value</th>
<th>Number of data</th>
<th>Range of data</th>
</tr>
</thead>
<tbody>
<tr>
<td>BXL_BCS_UPCA</td>
<td>101</td>
<td>11 &lt;= n &lt;= 12</td>
<td>48 &lt;= data &lt;= 57</td>
</tr>
<tr>
<td>BXL_BCS_UPCE</td>
<td>102</td>
<td>11 &lt;= n &lt;= 12</td>
<td>48 &lt;= data &lt;= 57</td>
</tr>
<tr>
<td>BXL_BCS_EAN13</td>
<td>103</td>
<td>12 &lt;= n &lt;= 13</td>
<td>48 &lt;= data &lt;= 47</td>
</tr>
<tr>
<td>BXL_BCS_JAN13</td>
<td>104</td>
<td>7 &lt;= n &lt;= 8</td>
<td>64 &lt;= data &lt;= 90</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>data = 32,36,37,43,45,46,47</td>
</tr>
<tr>
<td>BXL_BCS_EAN8</td>
<td>105</td>
<td>7 &lt;= n &lt;= 8</td>
<td>48 &lt;= data &lt;= 57</td>
</tr>
<tr>
<td>BXL_BCS_JAN8</td>
<td>106</td>
<td>7 &lt;= n &lt;= 8</td>
<td>48 &lt;= data &lt;= 57</td>
</tr>
<tr>
<td>BXL_BCS_Code39</td>
<td>107</td>
<td>1 &lt;= n &lt;= 255</td>
<td>48 &lt;= data &lt;= 57</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>data = 32,36,37,43,45,46,47</td>
</tr>
<tr>
<td>BXL_BCS_ITF</td>
<td>108</td>
<td>1 &lt;= n &lt;= 255</td>
<td>48 &lt;= data &lt;= 57</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(Even)</td>
</tr>
<tr>
<td>BXL_BCS_Codabar</td>
<td>109</td>
<td>1 &lt;= n &lt;= 255</td>
<td>48 &lt;= data &lt;= 57</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>data = 36,43,45,46,47,58</td>
</tr>
<tr>
<td>BXL_BCS_Code93</td>
<td>110</td>
<td>1 &lt;= n &lt;= 255</td>
<td>0 &lt;= data &lt;= 127</td>
</tr>
<tr>
<td>BXL_BCS_Code128</td>
<td>111</td>
<td>2 &lt;= n &lt;= 255</td>
<td>0 &lt;= data &lt;= 127</td>
</tr>
<tr>
<td>BXL_BCS_PDF417</td>
<td>200</td>
<td>2 &lt;= n &lt;= 928</td>
<td>0 &lt;= data &lt;= 255</td>
</tr>
<tr>
<td>BXL_BCS_QRCODE</td>
<td>202~203</td>
<td>2 &lt;= n &lt;= 928</td>
<td>0 &lt;= data &lt;= 255</td>
</tr>
<tr>
<td>BXL_BCS_DATAMATRIX</td>
<td>204</td>
<td>2 &lt;= n &lt;= 928</td>
<td>0 &lt;= data &lt;= 255</td>
</tr>
<tr>
<td>BXL_BCS_MAXICODE</td>
<td>205~6</td>
<td>2 &lt;= n &lt;= 928</td>
<td>0 &lt;= data &lt;= 255</td>
</tr>
</tbody>
</table>

2-8 Image Width

Set the width of image and valid range is 0~ max width.

Image is resized for the conditions according to the given conditions when the following values are set.

Available settings are as follows.

<table>
<thead>
<tr>
<th>Code</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BXL_WIDTH_FULL</td>
<td>-1</td>
<td>Value is set to max width and the image is resized to the full paper size</td>
</tr>
<tr>
<td>BXL_WIDTH_NONE</td>
<td>-2</td>
<td>Image is not resized</td>
</tr>
</tbody>
</table>
2-9 Power
This indicates the remaining battery capacity of the printer. It is read only and a change of battery status is automatically shown.

Support Device : Mobile Printer (EM220II)

The remaining battery capacity status values are as follows.

<table>
<thead>
<tr>
<th>Code</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BXL_PWR_HIGH</td>
<td>0</td>
<td>Remaining battery capacity is 95%</td>
</tr>
<tr>
<td>BXL_PWR_MIDDLE</td>
<td>1</td>
<td>Remaining battery capacity is 85%</td>
</tr>
<tr>
<td>BXL_PWR_LOW</td>
<td>2</td>
<td>Remaining battery capacity is 50%</td>
</tr>
<tr>
<td>BXL_PWR_SMALL</td>
<td>3</td>
<td>Remaining battery capacity is 25%</td>
</tr>
<tr>
<td>BXL_PWR_NOT</td>
<td>4</td>
<td>Remaining battery capacity is less than 25%</td>
</tr>
</tbody>
</table>

2-10 State
This indicates the status of the printer. It is read only and the status of the printer is automatically shown when printer status is checked by calling the CheckPrinter function. Status values can be combined and each setting can be checked through bit operation.

Printer status settings are as follows.

<table>
<thead>
<tr>
<th>Code</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BXL_STS_NORMAL</td>
<td>0</td>
<td>Normal</td>
</tr>
<tr>
<td>BXL_STS_PAPEREMP</td>
<td>1</td>
<td>No paper</td>
</tr>
<tr>
<td>BXL_STS_CONVEROPEN</td>
<td>2</td>
<td>Printer cover open</td>
</tr>
<tr>
<td>BXL_STS_POWEROVER</td>
<td>4</td>
<td>Not enough remaining battery of printer</td>
</tr>
<tr>
<td>BXL_STS_MSR_READY</td>
<td>8</td>
<td>No printing MSR read only mode</td>
</tr>
<tr>
<td>BXL_STS_PRINTING</td>
<td>16</td>
<td>Printer is printing or receiving data</td>
</tr>
<tr>
<td>BXL_STS_ERROR</td>
<td>32</td>
<td>Error in communication with printer</td>
</tr>
<tr>
<td>BXL_STS_NOT_OPEN</td>
<td>64</td>
<td>Open method of BXPrinterControl was not called</td>
</tr>
<tr>
<td>BXL_STS_ERROR_OCCUR</td>
<td>128</td>
<td>Printer internal error</td>
</tr>
<tr>
<td>BXL_STS_NOT_CONNECTED</td>
<td>-1</td>
<td>Currently printer is not connected</td>
</tr>
</tbody>
</table>

2-11 Connection Control
This defines the type of printer connection.

Available settings are as follows.

<table>
<thead>
<tr>
<th>Code</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BXL_CONNECTIONMODE_AUTO</td>
<td>0</td>
<td>Automatic connect mode</td>
</tr>
<tr>
<td>BXL_CONNECTIONMODE_NOAUTO</td>
<td>100</td>
<td>Not automatic connect mode</td>
</tr>
</tbody>
</table>
2-12 Drawer kick-out connector pin

This defines the number of drawer kick-out connector pin.
Support Device: Only thermal printer, EM220II is not support.

Available settings are as follows.

<table>
<thead>
<tr>
<th>Code</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BXL_CASHDRAWER_PIN_2</td>
<td>0</td>
<td>Drawer kick-out connector pin 2</td>
</tr>
<tr>
<td>BXL_CASHDRAWER_PIN_5</td>
<td>1</td>
<td>Drawer kick-out connector pin 5</td>
</tr>
</tbody>
</table>

2-13 Drawer open level

This defines the type of cash drawer
Support Device: Only thermal printer, EM220II is not support.

Available settings are as follows.

<table>
<thead>
<tr>
<th>Code</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BXL_CASHDRAWER_OPENLEVEL_LOW</td>
<td>0</td>
<td>If Cash drawer is open, Drawer kick-out connector pin 3 is LOW</td>
</tr>
<tr>
<td>BXL_CASHDRAWER_OPENLEVEL_HIGH</td>
<td>1</td>
<td>If Cash drawer is open, Drawer kick-out connector pin 3 is HIGH</td>
</tr>
</tbody>
</table>

2-14 Model ID

This defines the type of printer.

Available settings are as follows.

<table>
<thead>
<tr>
<th>Code</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BXL_MODEL_ID_EM220II</td>
<td>0x12001002</td>
<td>EM220II</td>
</tr>
</tbody>
</table>

2-15 Connection Class

When the method named 'didFindPrinter' is called, This value is updated to connectionClass in BXPrinter class

Refer to 6-2-3 didFindPrinter

<table>
<thead>
<tr>
<th>Code</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BXL_CONNECTIONCLASS_WIFI</td>
<td>0x0000</td>
<td>WIFI Connection</td>
</tr>
<tr>
<td>BXL_CONNECTIONCLASS_Ethernet</td>
<td>0x0001</td>
<td>Ethernet Connection</td>
</tr>
<tr>
<td>BXL_CONNECTIONCLASS_BT</td>
<td>0x0002</td>
<td>Bluetooth Connection</td>
</tr>
</tbody>
</table>
### 2-16 Result Code

<table>
<thead>
<tr>
<th>Code DEFINE</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BXL_SUCCESS</td>
<td>0</td>
<td>Success</td>
</tr>
<tr>
<td>BXL_NOT_CONNECTED</td>
<td>-1</td>
<td>Printer is not connected</td>
</tr>
<tr>
<td>BXL_NOT_OPENED</td>
<td>101</td>
<td>SDK is not open</td>
</tr>
<tr>
<td>BXL_STATUS_ERROR</td>
<td>103</td>
<td>Error in status check</td>
</tr>
<tr>
<td>BXL_CONNECT_ERROR</td>
<td>105</td>
<td>Connection failure</td>
</tr>
<tr>
<td>BXL_NOT_SUPPORT</td>
<td>107</td>
<td>Not supported</td>
</tr>
<tr>
<td>BXL_BAD_ARGUMENT</td>
<td>108</td>
<td>Wrong function arguments</td>
</tr>
<tr>
<td>BXL_BUFFER_ERROR</td>
<td>109</td>
<td>Error in MSR buffer</td>
</tr>
<tr>
<td>BXL_NOT_CONNECTED</td>
<td>110</td>
<td>Printer is not connected</td>
</tr>
<tr>
<td>BXL_RGBA_ERROR</td>
<td>111</td>
<td>Error while converting image file to RGBA data</td>
</tr>
<tr>
<td>BXL_MEMORY_ERROR</td>
<td>112</td>
<td>Memory allocation failure</td>
</tr>
<tr>
<td>BXL_TOO_LARGE_IMAGE</td>
<td>113</td>
<td>Size of image file is too big while downloading image to NV area</td>
</tr>
<tr>
<td>BXL_NOT_SUPPORT_DEVICE</td>
<td>114</td>
<td>The printer device does not support</td>
</tr>
<tr>
<td>BXL_READ_ERROR</td>
<td>301</td>
<td>Failure in data reception</td>
</tr>
<tr>
<td>BXL_WRITE_ERROR</td>
<td>300</td>
<td>Failure in data transmission</td>
</tr>
<tr>
<td>BXL_BITMAPLOAD_ERROR</td>
<td>400</td>
<td>Fail to read image file</td>
</tr>
<tr>
<td>BXL_BC_DATA_ERROR</td>
<td>500</td>
<td>Error in bar code data</td>
</tr>
<tr>
<td>BXL_BC_NOT_SUPPORT</td>
<td>501</td>
<td>Unsupported bar code type</td>
</tr>
<tr>
<td>BXLMSR_NOTREADY</td>
<td>602</td>
<td>Not MSR READY state</td>
</tr>
<tr>
<td>BXLMSR_FAILEDMODE</td>
<td>601</td>
<td>Not automatic read mode</td>
</tr>
<tr>
<td>BXLMSR_DATAEMPTY</td>
<td>603</td>
<td>No data read from MSR</td>
</tr>
<tr>
<td>1001H</td>
<td></td>
<td>Unknown command</td>
</tr>
<tr>
<td>1002H</td>
<td></td>
<td>Command cannot be executed</td>
</tr>
<tr>
<td>1003H</td>
<td></td>
<td>Incorrect number of arguments</td>
</tr>
<tr>
<td>1004H</td>
<td></td>
<td>First byte of unknown command of invalid command</td>
</tr>
<tr>
<td>1005H</td>
<td></td>
<td>Response time out</td>
</tr>
<tr>
<td>1010H</td>
<td></td>
<td>Response error due to card reset, or first byte of response is not valid</td>
</tr>
<tr>
<td>1012H</td>
<td></td>
<td>Message limit is exceeded. Maximum is 254 bytes, and card data is 248 bytes</td>
</tr>
<tr>
<td>1013H</td>
<td></td>
<td>Error in reading bytes from asynchronous routine</td>
</tr>
<tr>
<td>1015H</td>
<td></td>
<td>Card mode is terminated</td>
</tr>
<tr>
<td>101BH</td>
<td></td>
<td>Card mode command needs to be transmitted</td>
</tr>
<tr>
<td>101DH</td>
<td></td>
<td>Transmission of command with incorrect arguments</td>
</tr>
<tr>
<td>10A0H</td>
<td></td>
<td>Error in card reset response (unknown protocol or TA1 byte recognition error), unsupported card, no card response value for card reset</td>
</tr>
<tr>
<td>10A1H</td>
<td></td>
<td>Card protocol error (T=0/T=1)</td>
</tr>
<tr>
<td>10A2H</td>
<td></td>
<td>Time out due to no card response</td>
</tr>
<tr>
<td>10A3H</td>
<td></td>
<td>Parity error</td>
</tr>
<tr>
<td>10A4H</td>
<td></td>
<td>Card has aborted chaining (T=1)</td>
</tr>
<tr>
<td>10A5H</td>
<td></td>
<td>Reader has aborted chaining (T=2)</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>--------</td>
<td>----------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>10A6H</td>
<td>Successful execution of IC module and RESYNCH</td>
<td></td>
</tr>
<tr>
<td>10A7H</td>
<td>PPS error</td>
<td></td>
</tr>
<tr>
<td>10A8H</td>
<td>IC module has already been set to IC CARD mode</td>
<td></td>
</tr>
<tr>
<td>10B0H</td>
<td>PC link command is not supported</td>
<td></td>
</tr>
<tr>
<td>10E4H</td>
<td>The card has just sent an invalid “Procedure byte”</td>
<td></td>
</tr>
<tr>
<td>10E5H</td>
<td>The card has interrupted an exchange</td>
<td></td>
</tr>
<tr>
<td>10E7H</td>
<td>Card returns an error</td>
<td></td>
</tr>
<tr>
<td>10F7H</td>
<td>Card is removed while executing a command</td>
<td></td>
</tr>
<tr>
<td>10F8H</td>
<td>Card is not useable because it is electrically damaged</td>
<td></td>
</tr>
<tr>
<td>10FBH</td>
<td>Card recognition failure or car entry failure</td>
<td></td>
</tr>
</tbody>
</table>
3. BXBarcode Class Reference

<table>
<thead>
<tr>
<th>Inherits from</th>
<th>NSObject</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confirms to</td>
<td></td>
</tr>
<tr>
<td>Framework</td>
<td>BXPrinter.a</td>
</tr>
<tr>
<td>[Availability]</td>
<td>iOS 3.1.3 and later</td>
</tr>
<tr>
<td>Declared</td>
<td>BXBarcodeInfo.h</td>
</tr>
</tbody>
</table>

3-1 Overview
BXBarcode class is an object that contains information about which barcode types are supported for each printer to control.

3-2 Properties

3-2-1 barNumber
Barcode Define Number

@property int barNumber

[Discussion]
Printer name is saved automatically by collecting information from the connected printer.

[Availability]
SDK 1.0.0 and later

3-2-2 name
Barcode Name

@property(readwrite) NSString * address

[Discussion]
Printer name is saved automatically by collecting information from the connected printer.

[Availability]
SDK 1.0.0 and later

3-2-3 support
The availability of the barcode.

@property BOOL support

[Discussion]
Printer name is saved automatically by collecting information from the connected printer.

[Availability]
SDK 1.0.0 and later
4. BXPrinter Class Reference

<table>
<thead>
<tr>
<th>Inherits from</th>
<th>NSObject</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confirms to</td>
<td></td>
</tr>
<tr>
<td>Framework</td>
<td>BXPrinter.a</td>
</tr>
<tr>
<td>[Availability]</td>
<td>iOS 3.1.3 and later</td>
</tr>
<tr>
<td>Declared</td>
<td>BXPrinterObject.h</td>
</tr>
</tbody>
</table>

4-1 Overview
BXPrinter Class contains the information of control target printer (name / network address / port).

4-2 Properties

4-2-1 name
Printer name

@property(readonly) NSString * name

[Discussion]
Printer name is saved automatically by collecting information from the connected printer.

[Availability]
SDK 1.0.0 and later

4-2-2 address
ConnectionID of printer

@property(readwrite) NSString * address

[Discussion]
Target Printer should be assigned first before connection.

[Availability]
SDK 1.0.0 and later

4-2-3 port
Only Wifi printer, MFI mode is not support

@property(readwrite) unsigned short port

[Availability]
SDK 1.0.0 and later
4-2-4 modelStr
Model name of printer

Name is provided by the firmware, and it is _EM220II in case of EM220II printer.

@property(readwrite) NSString * modelStr

[Discussion]
This value is updated by the checkPrinter method of BXPrinterController.

[Availability]
SDK 1.0.0 and later

4-2-5 versionStr
Firmware version of printer

Version name is provided by firmware, and it is in the form of _V01.00 STOB 040711 in case of EM220II.

@property(readwrite) NSString * versionStr

[Discussion]
This value is updated by the checkPrinter method of BXPrinterController.

[Availability]
SDK 1.0.0 and later

4-2-6 macAddress
Mac Address of printer

@property(readwrite) NSString * macAddress

[Availability]
SDK 1.0.0 and later

4-2-7 connectionClass
Printer interface type.

This value represents the way that the printer is connected.
Refer 2-15 Connection Class.

@property(readwrite) unsigned short * connectionClass

[Availability]
SDK 1.0.0 and later
5. BXPrinterController Class Reference

<table>
<thead>
<tr>
<th>Inherits from</th>
<th>NSObject</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confirms to</td>
<td></td>
</tr>
<tr>
<td>Framework</td>
<td>BXPrinter.a</td>
</tr>
<tr>
<td>[Availability]</td>
<td>iOS 3.1.3 and later</td>
</tr>
<tr>
<td>Declared</td>
<td>BXPrinter.h</td>
</tr>
</tbody>
</table>

5-1 Overview
BXPrinterController Class is the main object for printer control.

5-2 Properties

5-2-1 version
SDK version

@property(readonly) NSString * version

[Discussion]
It is a string in the form of “1.0.0” and it is read only.

[Availability]
SDK 1.0.0 and later

5-2-2 delegate
Assign the object to apply BXPrinterControlDelegate method

@property(readwrite) id<BXPrinterControlDelegate> delegate

[Availability]
SDK 1.0.0 and later

5-2-3 target
Control target printer object

@property(readwrite) BXPrinter * target

[Discussion]
It is a control target printer object and should be assigned before starting printer control.

[Availability]
SDK 1.0.0 and later
5-2-4 lookupDuration
Printer lookup time (unit: second)

@property(readwrite) CGFloat lookupDuration

[Discussion]
It could be a fractional number such as 0.5.

[Availability]
SDK 1.0.0 and later

5-2-5 lookupCount
Number of repeat on signal transmission for printer search

@property(readwrite) unsigned lookupCount

[Discussion]
Default value is set to 1. When it is set to a number bigger than 1, the printer search signal transmission is repeated by this number at intervals of 0.2 seconds.

[Availability]
SDK 1.0.0 and later

5-2-6 alignment
Horizontal alignment setting

@property(readwrite) int alignment

[Discussion]
Default value is set to left alignment, and this setting affects all output printing including text and bar code.

[Availability]
SDK 1.0.0 and later

5-2-7 attribute
Text printing property

@property(readwrite) int attribute

[Discussion]
Refer to 2-5 Text Attribute

[Availability]
SDK 1.0.0 and later
5-2-8 textSize
Size of the printed text

@property(readwrite) int textSize

[Discussion]
Refer to 2-4 Text Size

[Availability]
SDK 1.0.0 and later

5-2-9 characterSet
Defines the code page of printer

@property(readwrite) CGFloat lookupDuration

[Discussion]
Refer to 2-1 Character Set
Default value is set to BXL_CS_437.

[Availability]
SDK 1.0.0 and later

5-2-10 internationalCharacterSet
@property(readwrite) char internationalCharacterSet

[Discussion]
Refer to 2-2 International Character Set. Default value is set to BXL_CS_437.

[Availability]
SDK 1.0.0 and later

5-2-11 textEncoding
Type of the text Encoding.

@property(readwrite) long textEncoding

[Discussion]
Refer to NSStringEncoding in NSString.h

[Availability]
SDK 1.0.0 and later
5-2-12 state
Printer state code
This value is updated when checkPrinter method of BXPrinterController is called.

@property(readonly) long state

[Discussion]
Refer to 2-10 State

[Availability]
SDK 1.0.0 and later

5-2-13 power
@property(readonly) long state

[Discussion]
Refer to 2-9 Power

[Availability]
SDK 1.0.0 and later

5-2-14 AutoConnection
@property(assign) int AutoConnection

[Discussion]
Refer to 2-11 Connection Control

[Availability]
SDK 1.0.0 and later

<Note>
※ Printer connection is controlled automatically without using connect/disconnect function in the automatic connection mode.
※ Consecutive use of printText function may slow down the printing speed because most functions have a connect/disconnect job at the beginning and end of it. Use the manual connection mode to address this issue.

5-2-15 drawerPin
@property(assign) int drawerPin

[Discussion]
Refer to 2-12 Drawer kick-out connector pin.

[Availability]
SDK 1.0.0 and later

[Support Device]
Only thermal printer, EM220II is not support.
drawerOpenLevel
@property(assign) int drawerOpenLevel

[Discussion]
Refer to 2-13 Drawer open level

[Availability]
SDK 1.0.0 and later

[SUPPORT DEVICE]
Only thermal printer, EM220II is not support.

5-3 Instance Methods

5-3-1 getInstance
Method to obtain the BXPrinterController class instance

[Function prototype]
- (BXPrinterController *)getInstance

[Return Value]
BXPrinterController class is created and returned automatically when this method is called first time, and the existing BXPrinterController class is returned from the next time.

[Discussion]
Since BXPrinterController class uses only one instance in one process, user should obtain and use it using this method instead of creating it.

[Availability]
SDK 1.0.0 and later

5-3-2 open
Initialization task for using BXPrinterController class (memory allocation and background thread operation)

[Function prototype]
- (void)open

[Discussion]
- It should be called before calling main delegate of applications like (void)applicationDidBecomeActive:(UIApplication *) application.

[Availability]
SDK 1.0.0 and later
5-3-3 close
Resources are de-allocated for stopping or terminating the use of BXPrinterController class.

[Discussion]
- It should be called before calling main delegate of applications like (void)applicationWillResignActive:(UIApplication *) application. When close method is not called and applications using BXPrinterController are running in the background, simultaneous use of BXPrinterController by other applications could be restricted.

[Availability]
SDK 1.0.0 and later

5-3-4 lookup
The following printers will be searched.
- Paired bluetooth printers with iPhone
- Printers in the same WiFi network where iPhone is connected

[Function prototype]
- (void)lookup

[Discussion]
Start/End of search and searched printers can be obtained through BXPrinterControlDelegate.
Each iPhone has two network adaptors including 3G and WiFi networks, and the lookup method searches WiFi only. No operation takes place when there is no connected WiFi.

[Availability]
SDK 1.0.0 and later

5-3-5 selectTarget
Initialization task for object of specified target.

[Function prototype]
- (long)selectTarget
- (long)selectTarget : (int) modelID

[Parameters]
modellID
- Select to type of printer.
- If you were not input, This is allocated automatically.
  Refer to 2-14 Model ID.

[Return Value]
Refer to 2-16 Result Code

[Discussion]
Target of BXPrininterController property should be set in advance.

[Availability]
SDK 1.0.0 and later
5-3-6 connect
Connect to target printer.

[Function prototype]
- (BOOL)connect

[Discussion]
This method not works
when AutoConnection is setting in BXL_CONNECTIONMODE_AUTO(default, == 0)

Target of BXPrinterController property should be set in advance.

[Availability]
SDK 1.0.0 and later

5-3-7 disconnect
Disconnect to connected printer.

[Function prototype]
- (void)disconnect

[Discussion]
This method not works
when AutoConnection is setting in BXL_CONNECTIONMODE_AUTO(default, == 0).

[Availability]
SDK 1.0.0 and later

5-3-8 disconnectWithTimeout
Disconnects the connected printer.
If the data remained in the buffer, the data remained will be transmitted to the printer.

[Function prototype]
- (void)disconnectWithTimeout:(int)timeout

[Parameters]

int timeout

(timeout == 0)
The timeout is not used. Disconnects the connected printer immediately even if
the data exist in the buffer.

(timeout < 0)
The connection is not disconnected until the data remained in the buffer have
been transmitted to the printer. It takes long time if the data-size is too large

(timeout > 0)
If the data remained in the buffer, the data remained will be transmitted to the
printer within the timeout and then the connected printer will be disconnected.

[Availability]
SDK 1.0.0 and later
5-3-9 isConnected
Returns the connection state of the printer.

[Return Value]
TRUE if the printer is connected.
FALSE if the printer is not connected.

[Function prototype]
- (BOOL)isConnected

[Availability]
SDK 1.0.0 and later

5-3-10 enableLSB
Enable to Last status back.

[Function prototype]
- (long)enableLSB:(BOOL)bEnable

[Parameters]
bEnable
LSB Enable.
FALSE : LSB Disable
TRUE : LSB Enable

[Return Value]
Refer to 2-16 Result Code

[Availability]
SDK 1.0.0 and later

5-3-11 printText
Print text.
No operation takes place when there is no connected printer.

[Function prototype]
- (long)printText:(NSString *)string

[Parameters]
string
Unicode data with null terminator. Print target text string

[Return Value]
Refer to 2-16 Result Code

[Discussion]
Tex alignment property should be set in advance.

[Availability]
SDK 1.0.0 and later
5-3-12 printBox
Print box shape text.
No action takes place if no printer is connected.

[Function prototype]
(long)printText:(int)width height: (int)height;

[Parameters]
int
Specify the width of the box.
1 == width equivalent to that of one character
int
Specify the length of the box.
1 == length equivalent to that of one character

[Return Value]
Refer to 2-16 Result Code

[Discussion]
Alignment and properties of the text should be defined in advance.

[Availability]
SDK 1.0.0 and later

5-3-13 lineFeed
Perform line feed

[Function prototype]
- (void)linefeed:(int)lines

[Parameters]
lines
Number of lines to advance

[Return Value]
Refer to 2-16 Result Code

[Availability]
SDK 1.0.0 and later
5-3-14 nextPrintPos
Feed the paper to the beginning of the next label paper.

[Function prototype]
- (long)nextPrintPos

[Return Value]
Refer to 2-16 Result Code

[Discussion]
This method works only when in label mode.

[Availability]
SDK 1.0.0 and later

5-3-15 cutPaper
Cuts paper.
Support Device: Only thermal printer, EM220II is not support.

[Function prototype]
- (long)cutPaper

[Return Value]
Refer to 2-16 Result Code

[Availability]
SDK 1.0.0 and later

5-3-16 printBarcode
Print one-dimensional and two-dimensional bar code.

[Function prototype]
- (long)printBarcode:(char *)data
  symbology:(long)symbology
  width:(long)width
  height:(long)height
  alignment:(long)alignment
  textPosition:(long)textPosition

[Parameters]

data
  ANSI code data with null terminator. Transfer bar code data to print
symbology
  Define bar code type.
width
  Width of barcode, valid range is 2~7
  Barcode printing may not work properly if the width of barcode print exceeds the
  printer paper width.
  This setting does not affect 2-dimensional bar code.
height
  Height of bar code, unit is number of dot, range is 1~255
  This setting does not affect 2-dimensional bar code.
alignment
Barcode alignment setting
Refer to 2-3 Barcode/Text Alignment

textPosition
Barcode text position setting
Refer to 2-6 Barcode Text Position

[Return Value]
Refer to 2-16 Result Code

[Availability]
SDK 1.0.0 and later

5-3-17 printBitmap
Print image file

[Function prototype]
- (long)printBitmap:(NSString *)path
  width:(long)width
  alignment:(long)alignment
  level:(long)level

[Parameters]
path
  Path of image file
width
  Width of image file to convert, valid setting range is 0 ~ max width
  Image is resized with the given condition when the value is less than 0
  Refer to 2-8 Image Width
alignment
  Image alignment setting
  Refer to 2-3 Image Alignment
level
  Color level and diffusion processing option of image

<table>
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<tr>
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<td>0 ~ 100</td>
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<Note> What is Error Diffusion?
It is a method to present the color image or black and white image with less number of bits/pixel, which may produce few visible patterns such as a snake-like pattern for a certain type of image but in general the capability of sharp representation is excellent. Disadvantage is long processing type and this is because errors are measured and amount of computing required for distribution the errors to neighbor pixels.

It is recommended to use the diffusion algorithm with this SDK.

[Return Value]
Refer to 2-16 Result Code
5-3-18 checkPrinter
Check the printer states and update the printer state property.

[Function prototype]
-(long)checkPrinter

[Return Value]
Refer to 2-16 Result Code

[Availability]
SDK 1.0.0 and later

5-3-19 msrReadReady
Switch the printer to MSR Ready state. Printing is not allowed in Ready state.

[Function prototype]
-(long)msrReadReady

[Return Value]
Refer to 2-16 Result Code

[Availability]
SDK 1.0.0 and later

5-3-20 msrReadCancel
Release the ‘MSR Ready’ state of printer

[Function prototype]
-(long)msrReadCancel

[Return Value]
Refer to 2-16 Result Code

[Availability]
SDK 1.0.0 and later

5-3-21 msrReadCancelEx
Releases ‘MSR Ready’ state of the printer.

[Function prototype]
-(long)msrReadCancelEx

[Return Value]
Refer to 2-16 Result Code

[Availability]
SDK 1.0.0 and later
5-3-22 msrReadTrack
Read MSR data. It is MSR read mode. If BXLMSR_DATAEMPTY is returned, card is not read in MSR. Scan the card with MSR again or use the 'msrReadCancel' method to cancel the read mode.

[Function prototype]
- (long)msrReadTrack:(NSData **)data1
data2:(NSData **)data2
data3:(NSData **)data3

[Parameters]
data1
Read MSR Data Track 1 and save it.
data2
Read MSR Data Track 2 and save it.
data3
Read MSR Data Track 3 and save it.

[Return Value]
Refer to 2-16 Result Code

[Discussion]
All of data1, data2, data3 carry unallocated NSData *data, and NSData object is allocated inside the method. The allocated data1, data2, data3 are auto release ones and users do not have to release them explicitly.

[Availability]
SDK 1.0.0 and later

5-3-23 msrGetTrack
Read MSR data. It is MSR read mode. If BXLMSR_DATAEMPTY is returned, card is not read in MSR. Scan the card with MSR again or use the msrReadCancel method to cancel the read mode.

[Function prototype]
- (long)msrGetTrack:(int)track
  response:(NSData **)response

[Parameters]
track
  MSR Data Track number 1 ~ 3
response
  MSR Data Track value

[Return Value]
Refer to 2-16 Result Code
Response carries unallocated NSData *data, and NSData object is allocated inside the method. The response is auto release one and users do not have to release it explicitly.

**Availability**
SDK 1.0.0 and later

### 5-3-24 msrReadFullTrack
Read entire MSR data. It is MSR read mode. If BXLMSR_DATAEMPTY is returned, card is not read in MSR. Scan the card with MSR again or use the msrReadCancel method to cancel the read mode.

**Function prototype**
- (long)msrReadFullTrack:(NSData **)response

**Parameters**
- *response*
  MSR Data Track value

**Return Value**
Refer to 2-16 Result Code

**Discussion**
Response carries unallocated NSData *data, and NSData object is allocated inside the method. The response is auto release one and users do not have to release it explicitly.

**Availability**
SDK 1.0.0 and later

### 5-3-25 directIO
Send or read user defined data.

**Function prototype**
- (long)directIO:(NSData *)request
  response:(NSData **)response

**Parameters**
- *request*
  Data to be sent to printer, ANSI CODE data
- *response*
  response sent from printer is returned

**Return Value**
Refer to 2-16 Result Code

**Availability**
SDK 1.0.0 and later
5-3-26 icON
Apply power to smart card reader of printer

[Function prototype]
- (long)icON:(NSData **)response

[Parameters]
response
  ATR (Answer to Reset) value is returned.

[Return Value]
Refer to 2-16 Result Code

[Discussion]
Response is saved as auto release type inside the method, and users do not have to release it explicitly.

[Availability]
SDK 1.0.0 and later

5-3-27 icOFF
Turn off the power of the smart card reader of printer

[Function prototype]
- (long)icOFF

[Return Value]
Refer to 2-16 Result Code

[Availability]
SDK 1.0.0 and later

5-3-28 icApdu
Send APDU command and get response. It works only when the power is applied to the printer smart card.

[Function prototype]
- (long)icApdu:(NSData **)request
  response:(NSData **)response

[Parameters]
request
  APDU command data to send to printer, ANSI CODE data
response
  APDU response sent from printer is returned

[Return Value]
Refer to 2-16 Result Code

[Availability]
SDK 1.0.0 and later
5-3-29 icGetStatus
Read the status of card inserted into the smart card reader of printer

[Function prototype]
- (long)icGetStatus:(NSData **)response

[Parameters]
response
Card status value is returned

[Return Value]
Refer to 2-16 Result Code

[Availability]
SDK 1.0.0 and later

5-3-30 nvImageList
Read the list of image addresses saved in NV area.

[Function prototype]
- (long)nvImageList:(NSArray **)images

[Parameters]
images
Address list is provided. Each address is saved in the form of NSNumber *. The images are provided in the form of autorelease, and developers do not have to release it explicitly.

[Return Value]
Refer to 2-16 Result Code

[Discussion]
<Example >
NSArray *images;

[[BXPrinterController getInstance()] nvImageList:&images];
for(NSNumber *n in images)
{
    NSLog(@"%d", [NSNumber intValue]);
}

[Availability]
SDK 1.0.0 and later
5-3-31 downloadNVImage (Diffusion)
Download the image data corresponding to the address saved in the NV area.

[Function prototype]
- (long)downloadNVImage:(int)address
  withImage:(UIImage *)image
  width:(long)width
  level:(long)level

[Parameters]
address
Image address in the range of 0 ~ 99. If there is an image saved for the corresponding address, the existing image is replaced by the new image.

images
Download target image object

width
Width of the image to print
When the setting is BXL_WIDTH_FULL, the image is printed with the maximum width that can be printed by the printer.

  Image is enlarged when the width of the image is smaller than the setting, and reduced when it is bigger than the setting.

level
Color level and diffusion processing option of image

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<Note> What is Error Diffusion?
It is a method to present the color image or black and white image with less number of bits/pixel, which may produce few visible patterns such as a snake-like pattern for a certain type of image but in general the capability of sharp representation is excellent. Disadvantage is long processing type and this is because errors are measured and amount of computing required for distribution the errors to neighbor pixels.

It is recommended to use the diffusion algorithm with this SDK.

[Return Value]
Refer to 2-16 Result Code

[Discussion]
When the width of the image is wider than the width of printer, the image is resized automatically.

[Availability]
SDK 1.0.0 and later
5-3-32 downloadNVImage (Normal)
Download the image data to the designated address in NV area.

[Function prototype]
- (long)downloadNVImage:(int)address
  withImage:(UIImage *)image

[Parameters]
address
  Image address in the range of 0 ~ 99. If there is an image saved for the corresponding address, the existing image is replaced by a new image.
images
  Download target image object

[Return Value]
Refer to 2-16 Result Code

[Discussion]
When the width of the image is wider than the width of printer, the image is resized automatically.
The width value is set to BXL_WIDTH_FULL and the image data processed with 1050 of level, 50% of brightness and error diffusion algorithm enable settings is downloaded.

[Availability]
SDK 1.0.0 and later

5-3-33 printNVImage
Print the image data to the designated address in NV area.

[Function prototype]
- (long)printNVImage:(int)address

[Parameters]
address
  Image address in the range of 0 ~ 9

[Return Value]
Refer to 2-16 Result Code

[Discussion]
Image is not printed if image does not exist in the corresponding address.

[Availability]
SDK 1.0.0 and later
5-3-34 removeNVImage
Delete image data from the designated address in NV area.

[Function prototype]
- (long)removeNVImage:(int)address

[Parameters]
address
Image address in the range of 0 ~ 99

[Return Value]
Refer to 2-16 Result Code

[Discussion]
No action takes place if image does not exist in the corresponding address

[Availability]
SDK 1.0.0 and later

5-3-35 removeAllNVImages
Delete all image data from the designated address in NV area.

[Function prototype]
- (long)removeAllNVImages

[Return Value]
Refer to 2-16 Result Code

[Availability]
SDK 1.0.0 and later

5-3-36 openDrawer
Open to the Cash Drawer.

[Function prototype]
- (long)openDrawer

[Return Value]
Refer to 2-16 Result Code

[Availability]
SDK 1.0.0 and later
5-3-37 isSupport_MSR
Check whether a specific feature of the MSR is supported.

[Function prototype]
- (BOOL)isSupport_MSR

[Return Value]
If the feature of the MSR is supported, return TRUE.

[Availability]
SDK 1.0.0 and later

5-3-38 isSupport_IC
Check whether a specific feature of the IC is supported.

[Function prototype]
- (BOOL)isSupport_IC

[Return Value]
If the feature of the IC is supported, return TRUE.

[Availability]
SDK 1.0.0 and later

5-3-39 isSupport_Config
Check whether a specific feature of the Config is supported.

[Function prototype]
- (BOOL)isSupport_Config

[Return Value]
If the feature of the config is supported, return TRUE.

[Availability]
SDK 1.0.0 and later

5-3-40 isSupport_CashDrawer
Check whether a specific feature of the CashDrawer is supported.

[Function prototype]
- (BOOL)isSupport_CashDrawer

[Return Value]
If the feature of the CashDrawer is supported, return TRUE.

[Availability]
SDK 1.0.0 and later
5-3-41 isSupport_LSB
Check whether a specific feature of the LSB is supported.

[Function prototype]
(BOOL)isSupport_LSB

[Return Value]
If the feature of the LSB is supported, return TRUE.

[Availability]
SDK 1.0.0 and later

5-3-42 isSupport_Barcode
Checks whether the printer can print out barcodes.

[Function prototype]
(BOOL)isSupport_Barcode

[Return Value]
TRUE if printing barcodes are supported.
FALSE if printing barcodes are not supported.

[Availability]
SDK 1.0.0 and later

5-3-43 getBarcodeSupportTable
Check that the barcode print function is supported.

[Function prototype]
(NSMutableArray*)getBarcodeSupportTable

[Return Value]
NSMutableArray that contains BXBarcode is returned.

[Availability]
SDK 1.0.0 and later
6. BXPrinterControllerDelegate Protocol Reference

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6-1 Overview
This receives events occurring in the BXPrinterController class.

6-2 Instance Methods

6-2-1 didStart
It is called when class starts to be used using open method of BXPrinterController.

It is called after printer connection is completed.

[Function prototype]
- (void) didStart

[Parameters]
controller
BXPrinterController object that generates events

[Discussion]
It can be used to indicate the beginning of the use of printer class to users.

[Availability]
SDK 1.0.0 and later

6-2-2 didStop
It is called when class use is stopped using open method of BXPrinterController.

[Function prototype]
- (void) didStop

[Parameters]
controller
BXPrinterController object that generates events

[Discussion]
It can be used to indicate the termination of the use of printer class.

[Availability]
SDK 1.0.0 and later
6-2-3 didFindPrinter
This method is called for each individual printer when a printer is discovered from the same network.

[Function prototype]
- (void)didFindPrinter:(BXPrinterController *)controller
  printer:(BXPrinter *)printer

[Parameters]
controller
  BXPrinterController object that generates events
printer
  Information of discovered printer

[Discussion]
If same printer responds multiple time during the printer lookup process, this method is called only once the first time.

[Availability]
SDK 1.0.0 and later

6-2-4 didConnect
This method is called when connection to printer finished.

[Function prototype]
- (void)didConnect:(BXPrinterController *)controller

[Discussion]
If you need to have more information about target printers, please refer to target properties in BXPrinterController.

[Availability]
SDK 1.0.0 and later

6-2-5 didNotConnect
This method is called when connection to printer cannot be made.

[Function prototype]
- (void)didNotConnect:(BXPrinterController *)controller
  withError:(NSError *)error

[Parameters]
controller
  BXPrinterController object that generates events
error
  Information of cause of failure

[Discussion]
This can be used when there is error during printer connection stage.

[Availability]
SDK 1.0.0 and later
6-2-6 willLookupPrinters
This method is called before starting printer search.

[Function prototype]
- (void)willLookupPrinters:(BXPrinterController *)controller

[Parameters]
controller
BXPrinterController object that generates events

[Discussion]
This can be used to indicate the start of printer search.

[Availability]
SDK 1.0.0 and later

6-2-7 didLookupPrinters
This method is called when printer search is completed.

[Function prototype]
- (void)didLookupPrinters:(BXPrinterController *)controller

[Parameters]
controller
BXPrinterController object that generates events

[Discussion]
It can be used to indicate the search status to users.

[Availability]
SDK 1.0.0 and later

6-2-8 didNotLookup
This method is called when printer search cannot be performed.

[Function prototype]
- (void)didNotLookup:(BXPrinterController *)controller
  withError:(NSError *)error

[Parameters]
controller
BXPrinterController object that generates events
error
Information of cause of failure

[Discussion]
Lookup fails when printer is connected to WiFi or Bluetooth.

[Availability]
SDK 1.0.0 and later
6-2-9 didBeBrokenConnection
This method is called when the connection to printer is broken.

[Function prototype]
- (void)didBeBrokenConnection:(BXPrinterController *)controller
  withError:(NSError *)error

[Parameters]
controller
  BXPrinterController object that generates events
error
  Information of cause of failure

[Discussion]
This is not called when user breaks the connection by calling the close method of
BXPrinterController explicitly. This method is called only when the connection is
interrupted by external problem other than user intervention.
Refer to the target property of BXPrinterController for the information of target printer.

[Availability]
SDK 1.0.0 and later

6-2-10 msrArrived
This method is called when MSR data arrives correctly in MSR Read mode.

[Function prototype]
- (void)msrArrived:(BXPrinterController *)controller
  track:(NSNumber *)track

[Parameters]
controller
  BXPrinterController object that generates events
track
  Track number 1 ~ 3 for MSR data

[Discussion]
After this method is called, the MSR data of the corresponding track can be obtained
through the getTrack: method of BXPrinterController.

[Availability]
SDK 1.0.0 and later
didUpdateStatus
This method is called when printer status variable has changed.

[Function prototype]
- (void)didUpdateStatus:(BXPrinterController *)controller
  Status(NSNumber*) status

[Parameters]
controller
  BXPrinterController object that generates events
status
  printer status.

[Availability]
SDK 1.0.0 and later