

# StarPRNT iOS SDK User's Manual

Aug 11, 2016

## **Abstract**

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This paper provides information about the StarPRNT iOS SDK.

It provides guidelines for our customers to build the StarPRNT application.

## Version History

| Release Date | Update               |
|--------------|----------------------|
| Apr 01, 2016 | Release              |
| Jul 29, 2016 | Correction of errors |

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## 1 How to configure iOS StarPRNT Project

### 1.1 Add iOS StarPRNT SDK to Project.

- Add StarIO.framework to “Link Binary With Libraries” on the “Build Phases” tab.
- Add StarIO\_Extension.framework to “Link Binary With Libraries” on the “Build Phases” tab.
- Add SMCloudServices.framework to “Link Binary With Libraries” on the “Build Phases” tab.
- Add SMCloudServicesResources.bundle in the SMCloudServices.framework folder to “Copy Bundle Resources” on the “Build Phases” tab.

**-SMCloudServices.framework-**

You need to add when using Star Cloud Services (AllReceipts, etc.) in the application.

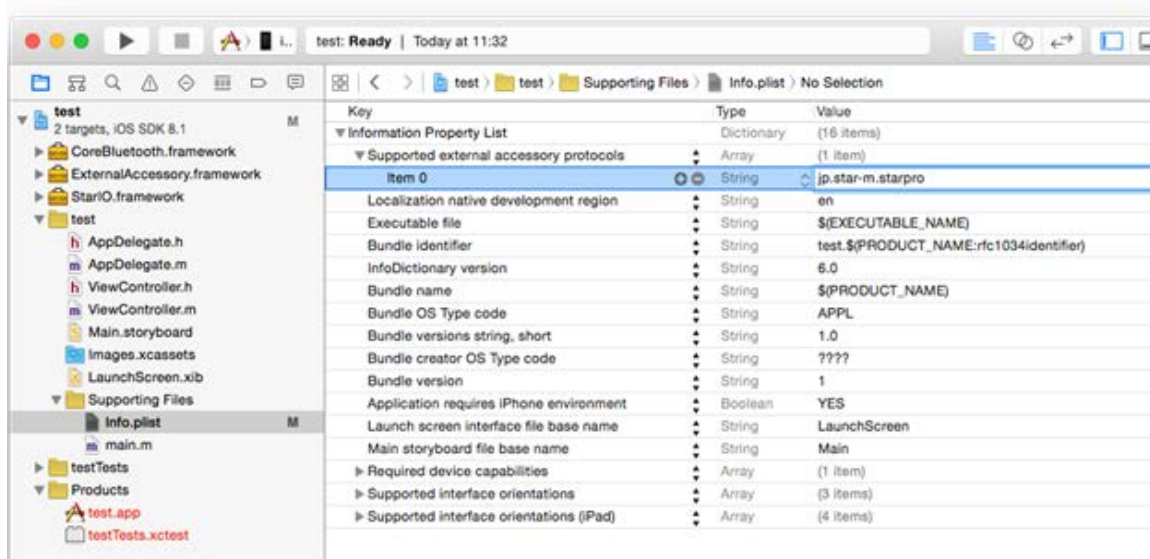
### 1.2 Add following frameworks to Project.

- CoreBluetooth.framework
- ExternalAccessory.framework

### 1.3 Edit information property list.

**Note: Please do not apply this, if you are not using Bluetooth ineterface.**

1. Click on the information property list file (default : “Info.plist”).
2. Add the “Supported external accessory protocols” Key.
3. Click the triangle of this key and set the value for the “Item 0” to “jp.star-m.starpro”.



## 2 StarloExt class included in the StarIO\_Extension.framework

### Method

| Name                 | Description                     |
|----------------------|---------------------------------|
| createCommandBuilder | Creates the ISCBBuilder object. |

### Constants

| Name               | Description               |
|--------------------|---------------------------|
| StarloExtEmulation | Emulation type constants. |

### 2.1 createCommandBuilder Method

Creates the ISCBBuilder object.

### Declaration

```
+ (ISCBBuilder *)createCommandBuilder:(StarloExtEmulation)emulation;
```

### Parameter

| Name      | Description   | Object type        |
|-----------|---|--------------------|
| emulation | Emulation type. <ul style="list-style-type: none"> <li>StarloExtEmulationStarPRNT ... StarPRNT emulation.</li> <li>StarloExtEmulationStarLine ... STAR Line Mode emulation.</li> <li>StarloExtEmulationStarGraphic ... STAR Graphic Mode emulation.</li> <li>StarloExtEmulationEscPos ... ESC/POS emulation.</li> <li>StarloExtEmulationEscPosMobile ... ESC/POS Mobile emulation.</li> <li>StarloExtEmulationStarDotImpact ... STAR Dot Impact emulation.</li> </ul> | StarloExtEmulation |

### Return value

| Description         | Object type |
|---------------------|-------------|
| ISCBBuilder object. | ISCBBuilder |

### Example

```
+ (NSData *)createCommandImage:(StarloExtEmulation)emulation image:(UIImage *)image {
    ISCBBuilder *builder = [StarloExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendBitmap:image diffusion:NO];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

    return [builder.commands copy];
}
```

Refer to *PrinterFunctions.m*.

## 2.2 StarloExtEmulation Constants

Emulation type constants.

### Declaration

```
typedef NS_ENUM(NSInteger, StarloExtEmulation) {
    StarloExtEmulationNone = 0,
    StarloExtEmulationStarPRNT,
    StarloExtEmulationStarLine,
    StarloExtEmulationStarGraphic,
    StarloExtEmulationEscPos,
    StarloExtEmulationEscPosMobile,
    StarloExtEmulationStarDotImpact
};
```

### Constants

| Name                            | Description                  |
|---------------------------------|------------------------------|
| StarloExtEmulationStarPRNT      | StarPRNT emulation.          |
| StarloExtEmulationStarLine      | STAR Line Mode emulation.    |
| StarloExtEmulationStarGraphic   | STAR Graphic Mode emulation. |
| StarloExtEmulationEscPos        | ESC/POS emulation.           |
| StarloExtEmulationEscPosMobile  | ESC/POS Mobile emulation.    |
| StarloExtEmulationStarDotImpact | STAR Dot Impact emulation.   |



## 2.3 Model : portSetting and StarloExtEmulation

Strings of “portSettings” and Constants of “StarloExtEmulation” for each model.

| Model             | portSettings | StarloExtEmulation              |
|-------------------|--------------|---------------------------------|
| mPOP              | “”           | StarloExtEmulationStarPRNT      |
| FVP10             | “”           | StarloExtEmulationStarLine      |
| TSP100            | “”           | StarloExtEmulationStarGraphic   |
| TSP650II          | “”           | StarloExtEmulationStarLine      |
| TSP700II          | “”           | StarloExtEmulationStarLine      |
| TSP800II          | “”           | StarloExtEmulationStarLine      |
| SM-S210i          | “mini”       | StarloExtEmulationEscPosMobile  |
| SM-S220i          | “mini”       | StarloExtEmulationEscPosMobile  |
| SM-S230i          | “mini”       | StarloExtEmulationEscPosMobile  |
| SM-T300i          | “mini”       | StarloExtEmulationEscPosMobile  |
| SM-T400i          | “mini”       | StarloExtEmulationEscPosMobile  |
| BSC10             | “escpos”     | StarloExtEmulationEscPos        |
| SM-S210i StarPRNT | "Portable"   | StarloExtEmulationStarPRNT      |
| SM-S220i StarPRNT | "Portable"   | StarloExtEmulationStarPRNT      |
| SM-S230i StarPRNT | "Portable"   | StarloExtEmulationStarPRNT      |
| SM-T300i StarPRNT | "Portable"   | StarloExtEmulationStarPRNT      |
| SM-T400i StarPRNT | "Portable"   | StarloExtEmulationStarPRNT      |
| SM-L200           | "Portable"   | StarloExtEmulationStarPRNT      |
| SP700             | “”           | StarloExtEmulationStarDotImpact |

portSettings is used for getPort Method of SMPort class included in the StarIO.framework or initWithType method of StarloExtManager class included in the StarIO\_Extension.framework.

StarloExtEmulation is used for createCommandBuilder method of StarloExt class included in the StarIO\_Extension.framework.

### 3 ISCBBuilder interface included in the StarIO\_Extension.framework

#### Method

| Name                          | Description   |
|-------------------------------|---|
| beginDocument                 | Begin document command is generated and added to the commands property.                             |
| endDocument                   | End document command is generated and added to the commands property.                               |
| appendInitialization          | Initialization command is generated and added to the commands property.                             |
| appendByte                    | Data is added to the commands property.   |
| appendData                    |   |
| appendBytes                   |   |
| appendRawByte                 |   |
| appendRawData                 | Raw data is added to the commands property.   |
| appendRawBytes                |   |
| appendFontStyle               | Select command of the font style is generated and added to the commands property.                   |
| appendCodePage                | Select command of the code page is generated and added to the commands property.                    |
| appendInternational           | Select command of the international character mode is generated and added to the commands property. |
| appendLineFeed                | Line feed command is generated and added to the commands property.                                  |
| appendDataWithLineFeed        |   |
| appendBytesWithLineFeed       |   |
| appendUnitFeed                | Unit feed command is generated and added to the commands property.                                  |
| appendDataWithUnitFeed        |   |
| appendBytesWithUnitFeed       |   |
| appendCharacterSpace          | Set command of the character space is generated and added to the commands property.                 |
| appendLineSpace               | Set command of the line space is generated and added to the commands property.                      |
| appendEmphasis                | Select command of the emphasis mode is generated and added to the commands property.                |
| appendDataWithEmphasis        |   |
| appendBytesWithEmphasis       |   |
| appendInvert                  | Select command of the invert mode is generated and added to the commands property.                  |
| appendDataWithInvert          |   |
| appendBytesWithInvert         |   |
| appendMultiple                | Select command of the multiple mode is generated and added to the commands property.                |
| appendDataWithMultiple        |   |
| appendBytesWithMultiple       |   |
| appendMultipleHeight          |   |
| appendDataWithMultipleHeight  |   |
| appendBytesWithMultipleHeight |   |
| appendMultipleWidth           |   |
| appendDataWithMultipleWidth   |   |
| appendBytesWithMultipleWidth  |   |
| appendUnderLine               | Select command of the under line mode is generated and added to the commands property.              |
| appendDataWithUnderLine       |   |
| appendBytesWithUnderLine      |   |
| appendLogo                    | Print command of the logo is generated and added to the commands property.                          |

| Name                                   | Description   |
|--|---|
| appendAbsolutePosition                 | Absolute position command is generated and added to the commands property.                      |
| appendDataWithAbsolutePosition         |   |
| appendBytesWithAbsolutePosition        |   |
| appendAlignment                        | Alignment command is generated and added to the commands property.                              |
| appendDataWithAlignment                |   |
| appendBytesWithAlignment               |   |
| appendCutPaper                         | Paper cut command is generated and added to the commands property.                              |
| appendPeripheral                       | Peripheral command is generated and added to the commands property.                             |
| appendSound                            | Sound command is generated and added to the commands property.                                  |
| appendBarcodeData                      | Print command of the barcode is generated and added to the commands property.                   |
| appendBarcodeBytes                     |   |
| appendBarcodeDataWithAbsolutePosition  | Print command of the absolute position barcode is generated and added to the commands property. |
| appendBarcodeBytesWithAbsolutePosition |   |
| appendBarcodeDataWithAlignment         | Print command of the alignment barcode is generated and added to the commands property.         |
| appendBarcodeBytesWithAlignment        |   |
| appendPdf417Data                       | Print command of the PDF417 is generated and added to the commands property.                    |
| appendPdf417Bytes                      |   |
| appendPdf417DataWithAbsolutePosition   | Print command of the absolute position PDF417 is generated and added to the commands property.  |
| appendPdf417BytesWithAbsolutePosition  |   |
| appendPdf417DataWithAlignment          | Print command of the alignment PDF417 is generated and added to the commands property.          |
| appendPdf417BytesWithAlignment         |   |
| appendQRCodeData                       | Print command of the QR code is generated and added to the commands property.                   |
| appendQRCodeBytes                      |   |
| appendQRCodeDataWithAbsolutePosition   | Print command of the absolute position QR code is generated and added to the commands property. |
| appendQRCodeBytesWithAbsolutePosition  |   |
| appendQRCodeDataWithAlignment          | Print command of the alignment QR code is generated and added to the commands property.         |
| appendQRCodeBytesWithAlignment         |   |
| appendBitmap                           | Print command of the bitmap is generated and added to the commands property.                    |
| appendBitmapWithAbsolutePosition       | Print command of the absolute position bitmap is generated and added to the commands property.  |
| appendBitmapWithAlignment              | Print command of the alignment bitmap is generated and added to the commands property.          |

### Property

| Name     | Description         |
|----------|---------------------|
| commands | Generated commands. |

## Constants

| Name                       | Description                                 |
|----------------------------|---|
| SCBInitializationType      | Initialization constants.                   |
| SCBFontStyleType           | Font style constants.                       |
| SCBCodePageType            | Code Page constants.                        |
| SCBInternationalType       | International character constants.          |
| SCBLogoSize                | Logo size constants.                        |
| SCBAlignmentPosition       | Alignment position constants.               |
| SCBCutPaperAction          | Paper cut constants.                        |
| SCBPeripheralChannel       | Peripheral channel constants.               |
| SCBSoundChannel            | Sound channel constants.                    |
| SCBBarcodeSymbology        | Barcode symbology constants.                |
| SCBBarcodeWidth            | Barcode width constants.                    |
| SCBPdf417Level             | PDF417 ECC (security level) constants.      |
| SCBQRCodeModel             | QR code model constants.                    |
| SCBQRCodeLevel             | QR code mistake correction level constants. |
| SCBBitmapConverterRotation | Bitmap rotation constants.                  |

### 3.1 Model : ISCBBuilder interface Method

Supported Method for each models.

| Function                       | Method                  | mPOP | FVP10 | TSP100 | TSP650II | TSP700II | TSP800II | SM-S210i | SM-S220i | SM-S230i | SM-T300i | SM-T400i | BSC10 | SM-S210i StarPRNT | SM-S220i StarPRNT | SM-S230i StarPRNT | SM-T300i StarPRNT | SM-T400i StarPRNT | SM-L200 | SP700 |
|--------------------------------|-------------------------|------|-------|--------|----------|----------|----------|----------|----------|----------|----------|----------|-------|-------------------|-------------------|-------------------|-------------------|-------------------|---------|-------|
| Document control               | beginDocument           | ✓    | ✓     | ✓      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |
|                                | endDocument             | ✓    | ✓     | ✓      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |
| Initialization                 | appendInitialization    | ✓    | ✓     | -      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |
| Data<br>(Text and Command)     | appendByte              | ✓    | ✓     | -      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |
|                                | appendData              | ✓    | ✓     | -      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |
|                                | appendBytes             | ✓    | ✓     | -      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |
| Raw data<br>(Text and Command) | appendRawByte           | ✓    | ✓     | ✓      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |
|                                | appendRawData           | ✓    | ✓     | ✓      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |
|                                | appendRawBytes          | ✓    | ✓     | ✓      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |
| Font style                     | appendFontStyle         | ✓    | ✓     | -      | ✓        | ✓        | ✓        | -        | -        | -        | -        | -        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |
| Code page                      | appendCodePage          | ✓    | ✓     | -      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |
| International                  | appendInternational     | ✓    | ✓     | -      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |
| Line feed                      | appendLineFeed          | ✓    | ✓     | -      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |
|                                | appendDataWithLineFeed  | ✓    | ✓     | -      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |
|                                | appendBytesWithLineFeed | ✓    | ✓     | -      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |
| Unit feed                      | appendUnitFeed          | ✓    | ✓     | ✓      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |
|                                | appendDataWithUnitFeed  | ✓    | ✓     | *1     | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |
|                                | appendBytesWithUnitFeed | ✓    | ✓     | *1     | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |
| Character space                | appendCharacterSpace    | ✓    | ✓     | -      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |
| Line space                     | appendLineSpace         | ✓    | ✓     | -      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |

- : ignored.

\*1 : Do not append data, append unit feed command only.

| Function          | Method                          | mPOP | FVP10 | TSP100 | TSP650II | TSP700II | TSP800II | SM-S210i | SM-S220i | SM-S230i | SM-T300i | SM-T400i | BSC10 | SM-S210i StarPRNT | SM-S220i StarPRNT | SM-S230i StarPRNT | SM-T300i StarPRNT | SM-T400i StarPRNT | SM-L200 | SP700 |
|-------------------|---------------------------------|------|-------|--------|----------|----------|----------|----------|----------|----------|----------|----------|-------|-------------------|-------------------|-------------------|-------------------|-------------------|---------|-------|
| Emphasis          | appendEmphasis                  | ✓    | ✓     | -      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |
|                   | appendDataWithEmphasis          | ✓    | ✓     | -      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |
|                   | appendBytesWithEmphasis         | ✓    | ✓     | -      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |
| Invert            | appendInvert                    | ✓    | ✓     | -      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |
|                   | appendDataWithInvert            | ✓    | ✓     | -      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |
|                   | appendBytesWithInvert           | ✓    | ✓     | -      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |
| Multiple          | appendMultiple                  | ✓    | ✓     | -      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |
|                   | appendDataWithMultiple          | ✓    | ✓     | -      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |
|                   | appendBytesWithMultiple         | ✓    | ✓     | -      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |
|                   | appendMultipleHeight            | ✓    | ✓     | -      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |
|                   | appendDataWithMultipleHeight    | ✓    | ✓     | -      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |
|                   | appendBytesWithMultipleHeight   | ✓    | ✓     | -      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |
|                   | appendMultipleWidth             | ✓    | ✓     | -      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |
|                   | appendDataWithMultipleWidth     | ✓    | ✓     | -      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |
|                   | appendBytesWithMultipleWidth    | ✓    | ✓     | -      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |
| Under line        | appendUnderLine                 | ✓    | ✓     | -      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |
|                   | appendDataWithUnderLine         | ✓    | ✓     | -      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |
|                   | appendBytesWithUnderLine        | ✓    | ✓     | -      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |
| Logo              | appendLogo                      | ✓    | ✓     | -      | ✓        | ✓        | ✓        | *2       | *2       | *2       | *2       | *2       | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |
| Absolute position | appendAbsolutePosition          | ✓    | ✓     | -      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |
|                   | appendDataWithAbsolutePosition  | ✓    | ✓     | -      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |
|                   | appendBytesWithAbsolutePosition | ✓    | ✓     | -      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |
| Alignment         | appendAlignment                 | ✓    | ✓     | -      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |
|                   | appendDataWithAlignment         | ✓    | ✓     | -      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |
|                   | appendBytesWithAlignment        | ✓    | ✓     | -      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |

- : ignored.

\*2 : Always print from normal size.

| Function   | Method                                 | mPOP | FVP10 | TSP100 | TSP650II | TSP700II | TSP800II | SM-S210i | SM-S220i | SM-S230i | SM-T300i | SM-T400i | BSC10 | SM-S210i StarPRNT | SM-S220i StarPRNT | SM-S230i StarPRNT | SM-T300i StarPRNT | SM-T400i StarPRNT | SM-L200 | SP700 |
|------------|--|------|-------|--------|----------|----------|----------|----------|----------|----------|----------|----------|-------|-------------------|-------------------|-------------------|-------------------|-------------------|---------|-------|
| Cut paper  | appendCutPaper                         | ✓    | ✓     | ✓      | ✓        | ✓        | ✓        | *3       | *3       | *3       | *3       | *3       | ✓     | *3                | *3                | *3                | *3                | *3                | *3      | ✓     |
| Peripheral | appendPeripheral                       | ✓    | ✓     | ✓      | ✓        | ✓        | ✓        | -        | -        | -        | -        | -        | ✓     | -                 | -                 | -                 | -                 | -                 | -       | ✓     |
| Sound      | appendSound                            | ✓    | ✓     | ✓      | ✓        | ✓        | ✓        | -        | -        | -        | -        | -        | ✓     | -                 | -                 | -                 | -                 | -                 | -       | ✓     |
| Barcode    | appendBarcodeData                      | ✓    | ✓     | ✓      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | -     |
|            | appendBarcodeBytes                     | ✓    | ✓     | ✓      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | -     |
|            | appendBarcodeDataWithAbsolutePosition  | ✓    | ✓     | ✓      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | -     |
|            | appendBarcodeBytesWithAbsolutePosition | ✓    | ✓     | ✓      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | -     |
|            | appendBarcodeDataWithAlignment         | ✓    | ✓     | *4     | ✓        | ✓        | ✓        | *4       | *4       | *4       | *4       | *4       | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | -     |
|            | appendBarcodeBytesWithAlignment        | ✓    | ✓     | *4     | ✓        | ✓        | ✓        | *4       | *4       | *4       | *4       | *4       | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | -     |
| PDF417     | appendPdf417Data                       | ✓    | ✓     | ✓      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | -     |
|            | appendPdf417Bytes                      | ✓    | ✓     | ✓      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | -     |
|            | appendPdf417DataWithAbsolutePosition   | ✓    | ✓     | ✓      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | -     |
|            | appendPdf417BytesWithAbsolutePosition  | ✓    | ✓     | ✓      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | -     |
|            | appendPdf417DataWithAlignment          | ✓    | ✓     | *4     | ✓        | ✓        | ✓        | *4       | *4       | *4       | *4       | *4       | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | -     |
|            | appendPdf417BytesWithAlignment         | ✓    | ✓     | *4     | ✓        | ✓        | ✓        | *4       | *4       | *4       | *4       | *4       | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | -     |

- : ignored.

\*3 : Without paper cut.

\*4 : Always print from left side.

| Function | Method                                | mPOP | FVP10 | TSP100 | TSP650II | TSP700II | TSP800II | SM-S210i | SM-S220i | SM-S230i | SM-T300i | SM-T400i | BSC10 | SM-S210i StarPRNT | SM-S220i StarPRNT | SM-S230i StarPRNT | SM-T300i StarPRNT | SM-T400i StarPRNT | SM-L200 | SP700 |
|----------|---------------------------------------|------|-------|--------|----------|----------|----------|----------|----------|----------|----------|----------|-------|-------------------|-------------------|-------------------|-------------------|-------------------|---------|-------|
| QR code  | appendQrCodeData                      | ✓    | ✓     | ✓      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | -     |
|          | appendQrCodeBytes                     | ✓    | ✓     | ✓      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | -     |
|          | appendQrCodeDataWithAbsolutePosition  | ✓    | ✓     | ✓      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | -     |
|          | appendQrCodeBytesWithAbsolutePosition | ✓    | ✓     | ✓      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | -     |
|          | appendQrCodeDataWithAlignment         | ✓    | ✓     | *4     | ✓        | ✓        | ✓        | *4       | *4       | *4       | *4       | *4       | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | -     |
|          | appendQrCodeBytesWithAlignment        | ✓    | ✓     | *4     | ✓        | ✓        | ✓        | *4       | *4       | *4       | *4       | *4       | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | -     |
| Bitmap   | appendBitmap                          | ✓    | ✓     | ✓      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |
|          | appendBitmapWithAbsolutePosition      | ✓    | ✓     | ✓      | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |
|          | appendBitmapWithAlignment             | ✓    | ✓     | *4     | ✓        | ✓        | ✓        | *4       | *4       | *4       | *4       | *4       | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | ✓     |

- : ignored.

\*4 : Always print from left side.



### 3.2 beginDocument Method

Begin document command is generated and added to the commands property.

#### Declaration

- (void)beginDocument;

#### Parameter

| Name | Description | Object type |
|------|-------------|-------------|
| -    | -           | -           |

#### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

#### Example

```
+ (NSData *)createData:(StarloExtEmulation)emulation {
    NSData *otherData = [@"Hello World.\n" dataUsingEncoding:NSUTF8StringEncoding];

    ISCBBuilder *builder = [StarloExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendData:otherData];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

    return [builder.commands copy];
}
```

Refer to *ApiFunctions.m*.

### 3.3 endDocument Method

End document command is generated and added to the commands property.

#### Declaration

- (void)endDocument;

#### Parameter

| Name | Description | Object type |
|------|-------------|-------------|
| -    | -           | -           |

#### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

#### Example

```
+ (NSData *)createData:(StarloExtEmulation)emulation {
    NSData *otherData = [@"Hello World.\n" dataUsingEncoding:NSUTF8StringEncoding];

    ISCBBuilder *builder = [StarloExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendData:otherData];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

    return [builder.commands copy];
}
```

Refer to *ApiFunctions.m*.

### 3.4 appendInitialization Method

Initialization command is generated and added to the commands property.

#### Declaration

- (void)appendInitialization:(SCBInitializationType)type;

#### Parameter

| Name | Description   | Object type           |
|------|---|-----------------------|
| type | Initialization type. <ul style="list-style-type: none"> <li>SCBInitializationTypeCommand ... Command initialization.</li> <li><del>SCBInitializationTypeReset ... Reset printer.</del></li> <li><del>SCBInitializationTypeResetWithPrint ... Reset printer (execute self print).</del></li> </ul> | SCBInitializationType |

#### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

#### Example

```
+ (NSData *)createData:(StarloExtEmulation)emulation {
    NSData *otherData = [@"Hello World.\n" dataUsingEncoding:NSUTF8StringEncoding];

    ISCBBuilder *builder = [StarloExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendUnderLine:YES];
    [builder appendMultiple:2 height:2];
    [builder appendData:otherData];

    [builder appendInitialization:SCBInitializationTypeCommand];

    [builder appendData:otherData];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

    return [builder.commands copy];
}
```

Refer to *ApiFunctions.m*.

### 3.5 appendData Method

Data (Text and Command) is added to the commands property.

#### Declaration

- (void)appendByte:(unsigned char)data;
- (void)appendData:(NSData \*)otherData;
- (void)appendBytes:(const void \*)bytes length:(NSUInteger)length;

#### Parameter

| Name      | Description              | Object type   |
|-----------|--------------------------|---------------|
| data      | Data (Text and Command). | unsigned char |
| otherData |                          | NSData        |
| bytes     |                          | const void *  |
| length    |                          | NSUInteger    |

#### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

#### Example

```
+ (NSData *)createData:(StarIoExtEmulation)emulation {
    NSData *otherData = [@"Hello World." dataUsingEncoding:NSUTF8StringEncoding];

    unsigned char bytes[] = {0x48, 0x65, 0x6c, 0x6c, 0x6f, 0x20, 0x57, 0x6f, 0x72, 0x6c, 0x64, 0x2e};

    NSUInteger length = sizeof(bytes);

    ISCBBuilder *builder = [StarIoExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendData:otherData];
    [builder appendByte:@"\n"];

    [builder appendBytes:bytes length:length];
    [builder appendByte:@"\n"];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

    return [builder.commands copy];
}
```

Refer to *ApiFunctions.m* and each Command Specifications.

### 3.6 appendRawData Method

Raw data (Text and Command) is added to the commands property.

#### Declaration

- (void)appendRawByte:(unsigned char)data;
- (void)appendRawData:(NSData \*)otherData;
- (void)appendRawBytes:(const void \*)bytes length:(NSUInteger)length;

#### Parameter

| Name      | Description                  | Object type   |
|-----------|------------------------------|---------------|
| data      | Raw data (Text and Command). | unsigned char |
| otherData |                              | NSData        |
| bytes     |                              | const void *  |
| length    |                              | NSUInteger    |

#### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

#### Example

```
+ (NSData *)createData:(StarloExtEmulation)emulation image:(UIImage *)image {
    NSString *urlString = [SMCSAllReceipts uploadBitmap:image completion:nil];

    ISCBBuilder *builder = [StarloExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendBitmap:image diffusion:NO];

    NSData *data = [SMCSAllReceipts generateAllReceipts:urlString emulation:emulation info:YES qrCode:YES];

    [builder appendRawData:data];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

    return [builder.commands copy];
}
```

Refer to *AllReceiptsFunctions.m* and each Command Specifications.

### 3.7 appendFontStyle Method

Select command of the font style is generated and added to the commands property.

#### Declaration

- (void)appendFontStyle:(SCBFontStyleType)type;

#### Parameter

| Name | Description  | Object type      |
|------|--|------------------|
| type | Font style. <ul style="list-style-type: none"> <li>SCBFontStyleTypeA ... Font-A (12 x 24 dots) / Specify 7 x 9 font (half dots)</li> <li>SCBFontStyleTypeB ... Font-B (9 x 24 dots) / Specify 5 x 9 font (2P-1)</li> </ul> | SCBFontStyleType |

#### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

#### Example

```
+ (NSData *)createData:(StarloExtEmulation)emulation {
    NSData *otherData = [@"Hello World.\n" dataUsingEncoding:NSUTF8StringEncoding];

    ISCBBuilder *builder = [StarloExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendFontStyle:SCBFontStyleTypeA];
    [builder appendData:otherData];
    [builder appendFontStyle:SCBFontStyleTypeB];
    [builder appendData:otherData];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

    return [builder.commands copy];
}
```

Refer to *ApiFunctions.m* and each Command Specifications.

### 3.8 appendCodePage Method

Select command of the code page is generated and added to the commands property.

#### Declaration

- (void)appendCodePage:(SCBCodePageType)type;

#### Parameter

| Name | Description  | Object type     |
|------|--|-----------------|
| type | <p>Code Page.</p> <ul style="list-style-type: none"> <li>• SCBCodePageTypeCP437 ... CodePage437 (USA, Std. Europe).</li> <li>• SCBCodePageTypeCP737 ... Codepage 737 (Greek).</li> <li>• SCBCodePageTypeCP772 ... Codepage 772 (Lithuanian).</li> <li>• SCBCodePageTypeCP774 ... Codepage 774 (Lithuanian).</li> <li>• SCBCodePageTypeCP851 ... Codepage 851 (Greek).</li> <li>• SCBCodePageTypeCP852 ... Codepage 852 (Latin-2).</li> <li>• SCBCodePageTypeCP855 ... Codepage 855 (Cyrillic Bulgarian).</li> <li>• SCBCodePageTypeCP857 ... Codepage 857 (Turkey).</li> <li>• SCBCodePageTypeCP858 ... Codepage 858 (Multilingual).</li> <li>• SCBCodePageTypeCP860 ... Codepage 860 (Portuguese).</li> <li>• SCBCodePageTypeCP861 ... Codepage 861 (Icelandic).</li> <li>• SCBCodePageTypeCP862 ... Codepage 862 (Israel (Hebrew)).</li> <li>• SCBCodePageTypeCP863 ... Codepage 863 (Canadian French).</li> <li>• SCBCodePageTypeCP864 ... Codepage 864 (Arabic).</li> <li>• SCBCodePageTypeCP865 ... Codepage 865 (Nordic).</li> <li>• SCBCodePageTypeCP866 ... Codepage 866 (Cyrillic Russian).</li> <li>• SCBCodePageTypeCP869 ... Codepage 869 (Greek).</li> <li>• SCBCodePageTypeCP874 ... Codepage 874 (Thai).</li> <li>• SCBCodePageTypeCP928 ... Codepage 928 (Greek).</li> </ul> | SCBCodePageType |

| Name | Description   | Object type     |
|------|---|-----------------|
| type | <ul style="list-style-type: none"> <li>• SCBCodePageTypeCP932 ... Katakana.</li> <li>• SCBCodePageTypeCP998 ... Normal.</li> <li>• SCBCodePageTypeCP999 ... Codepage 1252 (Windows Latin-1).</li> <li>• SCBCodePageTypeCP1001 ... Codepage 1001 (Arabic).</li> <li>• SCBCodePageTypeCP1250 ... Codepage 1250 (Windows Latin-2).</li> <li>• SCBCodePageTypeCP1251 ... Codepage 1251 (Windows Cyrillic).</li> <li>• SCBCodePageTypeCP1252 ... Codepage 1252 (Windows Latin-1).</li> <li>• SCBCodePageTypeCP2001 ... Codepage 2001 (Lithuanian-KBL).</li> <li>• SCBCodePageTypeCP3001 ... Codepage 3001 (Estonian-1).</li> <li>• SCBCodePageTypeCP3002 ... Codepage 3002 (Estonian-2).</li> <li>• SCBCodePageTypeCP3011 ... Codepage 3011 (Latvian-1).</li> <li>• SCBCodePageTypeCP3012 ... Codepage 3012 (Latvian-2).</li> <li>• SCBCodePageTypeCP3021 ... Codepage 3021 (Bulgarian).</li> <li>• SCBCodePageTypeCP3041 ... Codepage 3041 (Maltese).</li> <li>• SCBCodePageTypeCP3840 ... Codepage 3840 (IBM-Russian).</li> <li>• SCBCodePageTypeCP3841 ... Codepage 3841 (Gost).</li> <li>• SCBCodePageTypeCP3843 ... Codepage 3843 (Polish).</li> <li>• SCBCodePageTypeCP3844 ... Codepage 3844 (CS2).</li> <li>• SCBCodePageTypeCP3845 ... Codepage 3845 (Hungarian).</li> <li>• SCBCodePageTypeCP3846 ... Codepage 3846 (Turkish).</li> <li>• SCBCodePageTypeCP3847 ... Codepage 3847 (Brazil-ABNT).</li> <li>• SCBCodePageTypeCP3848 ... Codepage 3848 (Brazil-ABICOMP).</li> <li>• SCBCodePageTypeUTF8 ... UTF-8.</li> <li>• SCBCodePageTypeBlank ... User Setting Blank Code Page.</li> </ul> | SCBCodePageType |



## Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

## Example

```
+ (NSData *)createData:(StarloExtEmulation)emulation {
    unsigned char bytes8[] = {0x80, 0x81, 0x82, 0x83, 0x84, 0x85, 0x86, 0x87, 0x88, 0x89, 0x8a, 0x8b, 0x8c, 0x8d, 0x8e,
0x8f, 0x0a};
    unsigned char bytes9[] = {0x90, 0x91, 0x92, 0x93, 0x94, 0x95, 0x96, 0x97, 0x98, 0x99, 0x9a, 0x9b, 0x9c, 0x9d, 0x9e,
0x9f, 0x0a};
    unsigned char bytesA[] = {0xa0, 0xa1, 0xa2, 0xa3, 0xa4, 0xa5, 0xa6, 0xa7, 0xa8, 0xa9, 0xaa, 0xab, 0xac, 0xad, 0xae,
0xaf, 0x0a};
    unsigned char bytesB[] = {0xb0, 0xb1, 0xb2, 0xb3, 0xb4, 0xb5, 0xb6, 0xb7, 0xb8, 0xb9, 0xba, 0xbb, 0xbc, 0xbd, 0xbe,
0xbf, 0x0a};
    unsigned char bytesC[] = {0xc0, 0xc1, 0xc2, 0xc3, 0xc4, 0xc5, 0xc6, 0xc7, 0xc8, 0xc9, 0xca, 0xcb, 0xcc, 0xcd, 0xce,
0xcf, 0x0a};
    unsigned char bytesD[] = {0xd0, 0xd1, 0xd2, 0xd3, 0xd4, 0xd5, 0xd6, 0xd7, 0xd8, 0xd9, 0xda, 0xdb, 0xdc, 0xdd, 0xde,
0xdf, 0x0a};
    unsigned char bytesE[] = {0xe0, 0xe1, 0xe2, 0xe3, 0xe4, 0xe5, 0xe6, 0xe7, 0xe8, 0xe9, 0xea, 0xeb, 0xec, 0xed, 0xee,
0xef, 0x0a};
    unsigned char bytesF[] = {0xf0, 0xf1, 0xf2, 0xf3, 0xf4, 0xf5, 0xf6, 0xf7, 0xf8, 0xf9, 0xfa, 0xfb, 0xfc, 0xfd, 0xfe, 0xff,
0x0a};

    NSUInteger length = sizeof(bytes8);

    ISCBBuilder *builder = [StarloExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendCodePage:SCBCodePageTypeCP932];

    [builder appendBytes:bytes8 length:length];
    [builder appendBytes:bytes9 length:length];
    [builder appendBytes:bytesA length:length];
    [builder appendBytes:bytesB length:length];
    [builder appendBytes:bytesC length:length];
    [builder appendBytes:bytesD length:length];
    [builder appendBytes:bytesE length:length];
    [builder appendBytes:bytesF length:length];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

    return [builder.commands copy];
}
```

Refer to *ApiFunctions.m* and each Command Specifications.

### 3.9 appendInternational Method

Select command of the international character mode is generated and added to the commands property.

#### Declaration

- (void)appendInternational:(SCBInternationalType)type;

#### Parameter

| Name | Description  | Object type          |
|------|--|----------------------|
| type | International character. <ul style="list-style-type: none"> <li>• SCBInternationalTypeUSA ... USA.</li> <li>• SCBInternationalTypeFrance ... France.</li> <li>• SCBInternationalTypeGermany ... Germany.</li> <li>• SCBInternationalTypeUK ... UK.</li> <li>• SCBInternationalTypeDenmark ... Denmark.</li> <li>• SCBInternationalTypeSweden ... Sweden.</li> <li>• SCBInternationalTypeItaly ... Italy.</li> <li>• SCBInternationalTypeSpain ... Spain.</li> <li>• SCBInternationalTypeJapan ... Japan.</li> <li>• SCBInternationalTypeNorway ... Norway.</li> <li>• SCBInternationalTypeDenmark2 ... Denmark   .</li> <li>• SCBInternationalTypeSpain2 ... Spain   .</li> <li>• SCBInternationalTypeLatinAmerica ... Latin America.</li> <li>• SCBInternationalTypeKorea ... Korea.</li> <li>• SCBInternationalTypeIreland ... Ireland.</li> <li>• SCBInternationalTypeLegal ... Legal.</li> </ul> | SCBInternationalType |

#### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

### Example

```
+ (NSData *)createData:(StarIoExtEmulation)emulation {
    unsigned char bytes[] = {0x23, 0x24, 0x40, 0x58, 0x5a, 0x5b, 0x5c, 0x5d, 0x5e, 0x60, 0x7b, 0x7c, 0x7d, 0x7e, 0x0a};

    NSUInteger length = sizeof(bytes);

    ISCBBuilder *builder = [StarIoExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendInternational:SCBInternationalTypeUSA];
    [builder appendBytes:bytes length:length];

    [builder appendInternational:SCBInternationalTypeJapan];
    [builder appendBytes:bytes length:length];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

    return [builder.commands copy];
}
```

*Refer to ApiFunctions.m and each Command Specifications.*

### 3.10 appendLineFeed Method

Line feed command is generated and added to the commands property.

#### Declaration

- (void)appendLineFeed;
- (void)appendDataWithLineFeed:(NSData \*)otherData;
- (void)appendBytesWithLineFeed:(const void \*)bytes length:(NSUInteger)length;
- (void)appendLineFeed:(NSInteger)line;
- (void)appendDataWithLineFeed:(NSData \*)otherData line:(NSInteger)line;
- (void)appendBytesWithLineFeed:(const void \*)bytes length:(NSUInteger)length line:(NSInteger)line;

#### Parameter

| Name      | Description                       | Object type  |
|-----------|-----------------------------------|--------------|
| unit      | Paper feed units. (Units : Lines) | NSInteger    |
| otherData | Data (Text and Command).          | NSData       |
| bytes     |                                   | const void * |
| length    |                                   | NSUInteger   |

#### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

#### Example

```
+ (NSData *)createData:(StarloExtEmulation)emulation {
    NSData *otherData = [@"Hello World." dataUsingEncoding:NSUTF8StringEncoding];

    SCBBBuilder *builder = [StarloExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendData:otherData];
    [builder appendLineFeed];

    [builder appendDataWithLineFeed:otherData];

    [builder appendData:otherData];
    [builder appendLineFeed:2];

    [builder appendDataWithLineFeed:otherData line:2];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

    return [builder.commands copy];
}
```

Refer to *ApiFunctions.m*.

### 3.11 appendUnitFeed Method

Unit feed command is generated and added to the commands property.

#### Declaration

- (void)appendUnitFeed:(NSInteger)unit;
- (void)appendDataWithUnitFeed:(NSData \*)otherData unit:(NSInteger)unit;
- (void)appendBytesWithUnitFeed:(const void \*)bytes length:(NSUInteger)length unit:(NSInteger)unit;

#### Parameter

| Name      | Description                      | Object type  |
|-----------|----------------------------------|--------------|
| unit      | Paper feed units. (Units : Dots) | NSInteger    |
| otherData | Data (Text and Command).         | NSData       |
| bytes     |                                  | const void * |
| length    |                                  | NSUInteger   |

#### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

#### Example

```
+ (NSData *)createData:(StarloExtEmulation)emulation {
    NSData *otherData = [@"Hello World." dataUsingEncoding:NSUTF8StringEncoding];

    ISCBBuilder *builder = [StarloExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendData:otherData];
    [builder appendUnitFeed:64];

    [builder appendDataWithUnitFeed:otherData unit:64];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

    return [builder.commands copy];
}
```

Refer to *ApiFunctions.m*.

### 3.12 appendCharacterSpace Method

Set command of the character space is generated and added to the commands property.

#### Declaration

- (void)appendCharacterSpace:(NSInteger)space;

#### Parameter

| Name  | Description                      | Object type |
|-------|----------------------------------|-------------|
| space | Character spaces. (Units : Dots) | NSInteger   |

#### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

#### Example

```
+ (NSData *)createData:(StarloExtEmulation)emulation {
    NSData *otherData = [@"Hello World.\n" dataUsingEncoding:NSUTF8StringEncoding];

    ISCBBuilder *builder = [StarloExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendCharacterSpace:0];
    [builder appendData:otherData];
    [builder appendCharacterSpace:4];
    [builder appendData:otherData];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

    return [builder.commands copy];
}
```

Refer to *ApiFunctions.m*.

### 3.13 appendLineSpace Method

Set command of the line space is generated and added to the commands property.

#### Declaration

- (void)appendLineSpace:(NSInteger)lineSpace;

#### Parameter

| Name      | Description                 | Object type |
|-----------|-----------------------------|-------------|
| lineSpace | Line spaces. (Units : Dots) | NSInteger   |

#### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

#### Example

```
+ (NSData *)createData:(StarloExtEmulation)emulation {
    NSData *otherData = [@"Hello World.\n" dataUsingEncoding:NSUTF8StringEncoding];

    ISCBBuilder *builder = [StarloExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendLineSpace:32];
    [builder appendData:otherData];
    [builder appendData:otherData];
    [builder appendData:otherData];
    [builder appendLineSpace:24];
    [builder appendData:otherData];
    [builder appendData:otherData];
    [builder appendData:otherData];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

    return [builder.commands copy];
}
```

Refer to *ApiFunctions.m* and each Command Specifications.

### 3.14 appendEmphasis Method

Select command of the emphasis mode is generated and added to the commands property.

#### Declaration

- (void)appendEmphasis:(BOOL)emphasis;
- (void)appendDataWithEmphasis:(NSData \*)otherData;
- (void)appendBytesWithEmphasis:(const void \*)bytes length:(NSUInteger)length;

#### Parameter

| Name      | Description   | Object type  |
|-----------|---|--------------|
| emphasis  | Emphasis. <ul style="list-style-type: none"> <li>YES ... Valid</li> <li>NO ... Invalid</li> </ul> | BOOL         |
| otherData | Data (Text and Command).  | NSData       |
| bytes     |   | const void * |
| length    |   | NSUInteger   |

#### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

#### Example

```
+ (NSData *)createData:(StarloExtEmulation)emulation {
    NSData *otherData = [@"Hello World.\n" dataUsingEncoding:NSUTF8StringEncoding];
    NSData *otherDataHalf0 = [@"Hello " dataUsingEncoding:NSUTF8StringEncoding];
    NSData *otherDataHalf1 = [@"World.\n" dataUsingEncoding:NSUTF8StringEncoding];

    ISCBBuilder *builder = [StarloExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendData:otherData];
    [builder appendEmphasis:YES];
    [builder appendData:otherData];
    [builder appendData:otherData];
    [builder appendEmphasis:NO];
    [builder appendData:otherData];

    [builder appendDataWithEmphasis:otherData];
    [builder appendData:otherData];

    [builder appendDataWithEmphasis:otherDataHalf0];
    [builder appendData:otherDataHalf1];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

    return [builder.commands copy];
}
```

Refer to *ApiFunctions.m*.



### 3.15 appendInvert Method

Select command of the invert mode is generated and added to the commands property.

#### Declaration

- (void)appendInvert:(BOOL)invert;
- (void)appendDataWithInvert:(NSData \*)otherData;
- (void)appendBytesWithInvert:(const void \*)bytes length:(NSUInteger)length;

#### Parameter

| Name      | Description   | Object type  |
|-----------|---|--------------|
| invert    | Invert. <ul style="list-style-type: none"> <li>• YES ... Valid</li> <li>• NO ... Invalid</li> </ul> | BOOL         |
| otherData | Data (Text and Command).  | NSData       |
| bytes     |   | const void * |
| length    |   | NSUInteger   |

#### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

#### Example

```
+ (NSData *)createData:(StarloExtEmulation)emulation {
    NSData *otherData = [@"Hello World.\n" dataUsingEncoding:NSUTF8StringEncoding];
    NSData *otherDataHalf0 = [@"Hello " dataUsingEncoding:NSUTF8StringEncoding];
    NSData *otherDataHalf1 = [@"World.\n" dataUsingEncoding:NSUTF8StringEncoding];

    ISCBBuilder *builder = [StarloExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendData:otherData];
    [builder appendInvert:YES];
    [builder appendData:otherData];
    [builder appendData:otherData];
    [builder appendInvert:NO];
    [builder appendData:otherData];

    [builder appendDataWithInvert:otherData];
    [builder appendData:otherData];

    [builder appendDataWithInvert:otherDataHalf0];
    [builder appendData:otherDataHalf1];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

    return [builder.commands copy];
}
```

Refer to *ApiFunctions.m*.

### 3.16 appendMultiple Method

Select command of the multiple mode is generated and added to the commands property.

#### Declaration

- (void)appendMultiple:(NSInteger)width height:(NSInteger)height;
- (void)appendDataWithMultiple:(NSData \*)otherData width:(NSInteger)width height:(NSInteger)height;
- (void)appendBytesWithMultiple:(const void \*)bytes length:(NSUInteger)length width:(NSInteger)width height:(NSInteger)height;
- (void)appendMultipleHeight:(NSInteger)height;
- (void)appendDataWithMultipleHeight:(NSData \*)otherData height:(NSInteger)height;
- (void)appendBytesWithMultipleHeight:(const void \*)bytes length:(NSUInteger)length height:(NSInteger)height;
- (void)appendMultipleWidth:(NSInteger)width;
- (void)appendDataWithMultipleWidth:(NSData \*)otherData width:(NSInteger)width;
- (void)appendBytesWithMultipleWidth:(const void \*)bytes length:(NSUInteger)length width:(NSInteger)width;

#### Parameter

| Name      | Description              | Object type  |
|-----------|--------------------------|--------------|
| width     | Expanded width.          | NSInteger    |
| height    | Expanded height.         | NSInteger    |
| otherData | Data (Text and Command). | NSData       |
| bytes     |                          | const void * |
| length    |                          | NSUInteger   |

#### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

## Example

```
+ (NSData *)createData:(StarIoExtEmulation)emulation {
    NSData *otherData = [@"Hello World.\n" dataUsingEncoding:NSUTF8StringEncoding];
    NSData *otherDataHalf0 = [@"Hello " dataUsingEncoding:NSUTF8StringEncoding];
    NSData *otherDataHalf1 = [@"World.\n" dataUsingEncoding:NSUTF8StringEncoding];

    ISCBBuilder *builder = [StarIoExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendData:otherData];

    [builder appendMultiple:2 height:2];
    [builder appendData:otherData];
    [builder appendData:otherData];
    [builder appendMultiple:1 height:1];
    [builder appendData:otherData];

    [builder appendDataWithMultiple:otherData width:2 height:2];
    [builder appendData:        otherData];

    [builder appendDataWithMultiple:otherDataHalf0 width:2 height:2];
    [builder appendData:        otherDataHalf1];

    [builder appendData:otherDataHalf0];
    [builder appendDataWithMultiple:otherDataHalf1 width:2 height:2];

    [builder appendMultipleHeight:2];
    [builder appendData:otherData];
    [builder appendData:otherData];
    [builder appendMultipleHeight:1];
    [builder appendData:otherData];

    [builder appendDataWithMultipleHeight:otherDataHalf0 height:2];
    [builder appendData:otherDataHalf1];

    [builder appendData:otherDataHalf0];
    [builder appendDataWithMultipleHeight:otherDataHalf1 height:2];

    [builder appendMultipleWidth:2];
    [builder appendData:otherData];
    [builder appendData:otherData];
    [builder appendMultipleWidth:1];
    [builder appendData:otherData];

    [builder appendDataWithMultipleWidth:otherDataHalf0 width:2];
    [builder appendData:otherDataHalf1];

    [builder appendData:otherDataHalf0];
    [builder appendDataWithMultipleWidth:otherDataHalf1 width:2];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

    return [builder.commands copy];
}
```

Refer to *ApiFunctions.m* and each Command Specifications.

### 3.17 appendUnderLine Method

Select command of the under line mode is generated and added to the commands property.

#### Declaration

- (void)appendUnderLine:(BOOL)underLine;
- (void)appendDataWithUnderLine:(NSData \*)otherData;
- (void)appendBytesWithUnderLine:(const void \*)bytes length:(NSUInteger)length;

#### Parameter

| Name      | Description   | Object type  |
|-----------|---|--------------|
| underLine | Under line. <ul style="list-style-type: none"> <li>YES ... Valid</li> <li>NO ... Invalid</li> </ul> | BOOL         |
| otherData | Data (Text and Command).  | NSData       |
| bytes     |   | const void * |
| length    |   | NSUInteger   |

#### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

#### Example

```
+ (NSData *)createData:(StarloExtEmulation)emulation {
    NSData *otherData = [@"Hello World.\n" dataUsingEncoding:NSUTF8StringEncoding];
    NSData *otherDataHalf0 = [@"Hello " dataUsingEncoding:NSUTF8StringEncoding];
    NSData *otherDataHalf1 = [@"World.\n" dataUsingEncoding:NSUTF8StringEncoding];

    ISCBBuilder *builder = [StarloExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendData:otherData];

    [builder appendUnderLine:YES];
    [builder appendData:otherData];
    [builder appendData:otherData];
    [builder appendUnderLine:NO];
    [builder appendData:otherData];

    [builder appendDataWithUnderLine:otherData];
    [builder appendData:otherData];

    [builder appendDataWithUnderLine:otherDataHalf0];
    [builder appendData:otherDataHalf1];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

    return [builder.commands copy];
}
```

Refer to *ApiFunctions.m*.

### 3.18 appendLogo Method

Print command of the logo is generated and added to the commands property.

#### Declaration

- (void)appendLogo:(SCBLogoSize)size number:(NSInteger)number;

#### Parameter

| Name   | Description   | Object type |
|--------|---|-------------|
| size   | Logo size. <ul style="list-style-type: none"> <li>SCBLogoSizeNormal ... Normal.</li> <li>SCBLogoSizeDoubleWidth ... Double Width.</li> <li>SCBLogoSizeDoubleHeight ... Double Height.</li> <li>SCBLogoSizeDoubleWidthDoubleHeight ... Double Width / Height.</li> </ul> | SCBLogoSize |
| number | Logo number.  | NSInteger   |

#### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

#### Example

```
+ (NSData *)createData:(StarIoExtEmulation)emulation {
    ISCBBuilder *builder = [StarIoExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendLogo:SCBLogoSizeNormal number:1];

    [builder appendLogo:SCBLogoSizeDoubleWidth number:1];

    [builder appendLogo:SCBLogoSizeDoubleHeight number:1];

    [builder appendLogo:SCBLogoSizeDoubleWidthDoubleHeight number:1];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

    return [builder.commands copy];
}
```

Refer to *ApiFunctions.m* and each Command Specifications.

### 3.19 appendAbsolutePosition Method

Absolute position command is generated and added to the commands property.

#### Declaration

- (void)appendAbsolutePosition:(NSInteger)position;
- (void)appendDataWithAbsolutePosition:(NSData \*)otherData position:(NSInteger)position;
- (void)appendBytesWithAbsolutePosition:(const void \*)bytes length:(NSUInteger)length position:(NSInteger)position;

#### Parameter

| Name      | Description                       | Object type  |
|-----------|-----------------------------------|--------------|
| position  | Absolute position. (Units : Dots) | NSInteger    |
| otherData | Data (Text and Command).          | NSData       |
| bytes     |                                   | const void * |
| length    |                                   | NSUInteger   |

#### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

#### Example

```
+ (NSData *)createData:(StarloExtEmulation)emulation {
    NSData *otherData = [@"Hello World.\n" dataUsingEncoding:NSUTF8StringEncoding];

    ISCBBuilder *builder = [StarloExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendData:otherData];

    [builder appendAbsolutePosition:40];
    [builder appendData:otherData];
    [builder appendData:otherData];

    [builder appendDataWithAbsolutePosition:otherData position:40];
    [builder appendData:otherData];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

    return [builder.commands copy];
}
```

Refer to *ApiFunctions.m*.

## 3.20 appendAlignment Method

Alignment command is generated and added to the commands property.

### Declaration

- (void)appendAlignment:(SCBAlignmentPosition)position;
- (void)appendDataWithAlignment:(NSData \*)otherData position:(SCBAlignmentPosition)position;
- (void)appendBytesWithAlignment:(const void \*)bytes length:(NSUInteger)length position:(SCBAlignmentPosition)position;

### Parameter

| Name      | Description  | Object type          |
|-----------|--|----------------------|
| position  | Alignment position. <ul style="list-style-type: none"> <li>SCBAlignmentPositionLeft ... Left alignment.</li> <li>SCBAlignmentPositionCenter ... Center alignment.</li> <li>SCBAlignmentPositionRight ... Right alignment.</li> </ul> | SCBAlignmentPosition |
| otherData | Data (Text and Command).   | NSData               |
| bytes     |  | const void *         |
| length    |  | NSUInteger           |

### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

### Example

```
+ (NSData *)createData:(StarloExtEmulation)emulation {
    NSData *otherData = [@"Hello World.\n" dataUsingEncoding:NSUTF8StringEncoding];

    ISCBBuilder *builder = [StarloExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendData:otherData];

    [builder appendAlignment:SCBAlignmentPositionRight];
    [builder appendData:otherData];
    [builder appendData:otherData];
    [builder appendAlignment:SCBAlignmentPositionLeft];
    [builder appendData:otherData];
    [builder appendData:otherData];

    [builder appendDataWithAlignment:otherData position:SCBAlignmentPositionRight];
    [builder appendData:otherData];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

    return [builder.commands copy];
}
```

Refer to *ApiFunctions.m* and each Command Specifications.

### 3.21 appendCutPaper Method

Paper cut command is generated and added to the commands property.

#### Declaration

- (void)appendCutPaper:(SCBCutPaperAction)action;

#### Parameter

| Name   | Description  | Object type       |
|--------|--|-------------------|
| action | Paper cut action. <ul style="list-style-type: none"> <li>SCBCutPaperActionFullCut ... Full Cut.</li> <li>SCBCutPaperActionPartialCut ... Partial Cut.</li> <li>SCBCutPaperActionFullCutWithFeed ... Full Cut with Feed.</li> <li>SCBCutPaperActionPartialCutWithFeed ... Partial Cut with Feed.</li> </ul> | SCBCutPaperAction |

#### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

#### Example

```
+ (NSData *)createData:(StarloExtEmulation)emulation {
    NSData *otherData = [@"Hello World.\n" dataUsingEncoding:NSUTF8StringEncoding];

    ISCBBuilder *builder = [StarloExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendData:otherData];
    [builder appendData:otherData];
    [builder appendData:otherData];
    [builder appendData:otherData];
    [builder appendData:otherData];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

    return [builder.commands copy];
}
```

Refer to *ApiFunctions.m*.



## 3.22 appendPeripheral Method

Peripheral command is generated and added to the commands property.

### Declaration

- (void)appendPeripheral:(SCBPeripheralChannel)channel;
- (void)appendPeripheral:(SCBPeripheralChannel)channel time:(NSInteger)time;

### Parameter

| Name    | Description  | Object type          |
|---------|--|----------------------|
| channel | Peripheral channel. <ul style="list-style-type: none"> <li>SCBPeripheralChannelNo1 ... Channel1.</li> <li>SCBPeripheralChannelNo2 ... Channel2.</li> </ul> | SCBPeripheralChannel |
| time    | Drive time. (Units : mSec)<br>* Peripheral channel1 only.  | NSInteger            |

### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

### Example

```
+ (NSData *)createData:(StarloExtEmulation)emulation {
    ISCBBuilder *builder = [StarloExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendPeripheral:SCBPeripheralChannelNo1];
    [builder appendPeripheral:SCBPeripheralChannelNo2];
    [builder appendPeripheral:SCBPeripheralChannelNo1 time:2000];
    [builder appendPeripheral:SCBPeripheralChannelNo2 time:2000];

    [builder endDocument];

    return [builder.commands copy];
}
```

Refer to *ApiFunctions.m* and each Command Specifications.

### 3.23 appendSound Method

Sound command is generated and added to the commands property.

#### Declaration

- (void)appendSound:(SCBSoundChannel)channel;
- (void)appendSound:(SCBSoundChannel)channel repeat:(NSInteger)repeat;

#### Parameter

| Name    | Description   | Object type     |
|---------|---|-----------------|
| channel | Sound channel. <ul style="list-style-type: none"> <li>SCBSoundChannelNo1 ... Channel1.</li> <li>SCBSoundChannelNo2 ... Channel2.</li> </ul> | SCBSoundChannel |
| repeat  | Repeat count.   | NSInteger       |

#### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

#### Example

```
+ (NSData *)createData:(StarIoExtEmulation)emulation {
    ISCBBuilder *builder = [StarIoExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendSound:SCBSoundChannelNo1];
    [builder appendSound:SCBSoundChannelNo2];
    [builder appendSound:SCBSoundChannelNo1 repeat:3];
    [builder appendSound:SCBSoundChannelNo2 repeat:3];

    [builder endDocument];

    return [builder.commands copy];
}
```

Refer to *ApiFunctions.m* and each Command Specifications.

### 3.24 appendBarcodeData Method

Print command of the barcode is generated and added to the commands property.

#### Declaration

- (void)appendBarcodeData:(NSData \*)otherData symbology:(SCBBarcodeSymbology)symbology width:(SCBBarcodeWidth)width height:(NSInteger)height hri:(BOOL)hri;

- (void)appendBarcodeBytes:(const void \*)bytes length:(NSUInteger)length symbology:(SCBBarcodeSymbology)symbology width:(SCBBarcodeWidth)width height:(NSInteger)height hri:(BOOL)hri;

#### Parameter

| Name      | Description   | Object type         |
|-----------|---|---------------------|
| otherData | Barcode data.   | NSData              |
| bytes     |   | const void *        |
| length    |   | NSUInteger          |
| symbology | Barcode symbology. <ul style="list-style-type: none"> <li>SCBBarcodeSymbologyUPCE ... UPC-E.</li> <li>SCBBarcodeSymbologyUPCA ... UPC-A.</li> <li>SCBBarcodeSymbologyJAN8 ... JAN/EAN8.</li> <li>SCBBarcodeSymbologyJAN13 ... JAN/EAN13.</li> <li>SCBBarcodeSymbologyCode39 ... Code39.</li> <li>SCBBarcodeSymbologyITF ... ITF.</li> <li>SCBBarcodeSymbologyCode128 ... Code128.</li> <li>SCBBarcodeSymbologyCode93 ... Code93.</li> <li>SCBBarcodeSymbologyCodabar ... Codabar.</li> <li>SCBBarcodeSymbologyNW7 ... NW7.</li> </ul> | SCBBarcodeSymbology |
| width     | Barcode width. <ul style="list-style-type: none"> <li>SCBBarcodeWidthMode1 ... Mode1.</li> <li>SCBBarcodeWidthMode2 ... Mode2.</li> <li>SCBBarcodeWidthMode3 ... Mode3.</li> <li>SCBBarcodeWidthMode4 ... Mode4.</li> <li>SCBBarcodeWidthMode5 ... Mode5.</li> <li>SCBBarcodeWidthMode6 ... Mode6.</li> <li>SCBBarcodeWidthMode7 ... Mode7.</li> <li>SCBBarcodeWidthMode8 ... Mode8.</li> <li>SCBBarcodeWidthMode9 ... Mode9.</li> </ul>  | SCBBarcodeWidth     |
| height    | Barcode height. (Units : Dots)  | NSInteger           |
| hri       | Under-bar characters. <ul style="list-style-type: none"> <li>YES ... Valid</li> <li>NO ... Invalid</li> </ul>   | BOOL                |

#### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

### Example

```
+ (NSData *)createData:(StarloExtEmulation)emulation {
    NSData *otherDataCode128 = [@"{B0123456789" dataUsingEncoding:NSUTF8StringEncoding];

    ISCBBuilder *builder = [StarloExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendBarcodeData:otherDataCode128 symbology:SCBBarcodeSymbologyCode128
    width:SCBBarcodeWidthMode1 height:40 hri:YES];
    [builder appendUnitFeed:32];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

    return [builder.commands copy];
}
```

Refer to *ApiFunctions.m* and each Command Specifications.

### 3.25 appendBarcodeDataWithAbsolutePosition Method

Print command of the absolute position barcode is generated and added to the commands property.

#### Declaration

```
- (void)appendBarcodeDataWithAbsolutePosition:(NSData *)otherData
symbology:(SCBBarcodeSymbology)symbology width:(SCBBarcodeWidth)width
height:(NSInteger)height hri:(BOOL)hri position:(NSInteger)position;
```

```
- (void)appendBarcodeBytesWithAbsolutePosition:(const void *)bytes length:(NSUInteger)length
symbology:(SCBBarcodeSymbology)symbology width:(SCBBarcodeWidth)width
height:(NSInteger)height hri:(BOOL)hri position:(NSInteger)position;
```

#### Parameter

| Name      | Description  | Object type         |
|-----------|--|---------------------|
| position  | Absolute position. (Units : Dots)  | NSInteger           |
| otherData | Barcode data.  | NSData              |
| bytes     |  | const void *        |
| length    |  | NSUInteger          |
| symbology | Barcode symbology.<br><ul style="list-style-type: none"> <li>SCBBarcodeSymbologyUPCE ... UPC-E.</li> <li>SCBBarcodeSymbologyUPCA ... UPC-A.</li> <li>SCBBarcodeSymbologyJAN8 ... JAN/EAN8.</li> <li>SCBBarcodeSymbologyJAN13 ... JAN/EAN13.</li> <li>SCBBarcodeSymbologyCode39 ... Code39.</li> <li>SCBBarcodeSymbologyITF ... ITF.</li> <li>SCBBarcodeSymbologyCode128 ... Code128.</li> <li>SCBBarcodeSymbologyCode93 ... Code93.</li> <li>SCBBarcodeSymbologyCodabar ... Codabar.</li> <li>SCBBarcodeSymbologyNW7 ... NW7.</li> </ul> | SCBBarcodeSymbology |
| width     | Barcode width.<br><ul style="list-style-type: none"> <li>SCBBarcodeWidthMode1 ... Mode1.</li> <li>SCBBarcodeWidthMode2 ... Mode2.</li> <li>SCBBarcodeWidthMode3 ... Mode3.</li> <li>SCBBarcodeWidthMode4 ... Mode4.</li> <li>SCBBarcodeWidthMode5 ... Mode5.</li> <li>SCBBarcodeWidthMode6 ... Mode6.</li> <li>SCBBarcodeWidthMode7 ... Mode7.</li> <li>SCBBarcodeWidthMode8 ... Mode8.</li> <li>SCBBarcodeWidthMode9 ... Mode9.</li> </ul>  | SCBBarcodeWidth     |
| height    | Barcode height. (Units : Dots)   | NSInteger           |
| hri       | Under-bar characters.<br><ul style="list-style-type: none"> <li>YES ... Valid</li> <li>NO ... Invalid</li> </ul>   | BOOL                |

## Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

## Example

```
+ (NSData *)createData:(StarloExtEmulation)emulation {
    NSData *otherDataCode128 = [@"{B0123456789" dataUsingEncoding:NSUTF8StringEncoding];

    ISCBBuilder *builder = [StarloExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendBarcodeDataWithAbsolutePosition:otherDataCode128
    symbology:SCBBarcodeSymbologyCode128 width:SCBBarcodeWidthMode1 height:40 hri:YES position:40];
    [builder appendUnitFeed:32];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

    return [builder.commands copy];
}
```

Refer to *ApiFunctions.m* and each Command Specifications.

### 3.26 appendBarcodeDataWithAlignment Method

Print command of the alignment barcode is generated and added to the commands property.

#### Declaration

```
- (void)appendBarcodeDataWithAlignment:(NSData *)otherData
symbology:(SCBBarcodeSymbology)symbology width:(SCBBarcodeWidth)width
height:(NSInteger)height hri:(BOOL)hri position:(SCBAlignmentPosition)position;
```

```
- (void)appendBarcodeBytesWithAlignment:(const void *)bytes length:(NSUInteger)length
symbology:(SCBBarcodeSymbology)symbology width:(SCBBarcodeWidth)width
height:(NSInteger)height hri:(BOOL)hri position:(SCBAlignmentPosition)position;
```

#### Parameter

| Name      | Description   | Object type          |
|-----------|---|----------------------|
| position  | Alignment position. <ul style="list-style-type: none"> <li>SCBAlignmentPositionLeft ... Left alignment.</li> <li>SCBAlignmentPositionCenter ... Center alignment.</li> <li>SCBAlignmentPositionRight ... Right alignment.</li> </ul>  | SCBAlignmentPosition |
| otherData | Barcode data.   | NSData               |
| bytes     |   | const void *         |
| length    |   | NSUInteger           |
| symbology | Barcode symbology. <ul style="list-style-type: none"> <li>SCBBarcodeSymbologyUPCE ... UPC-E.</li> <li>SCBBarcodeSymbologyUPCA ... UPC-A.</li> <li>SCBBarcodeSymbologyJAN8 ... JAN/EAN8.</li> <li>SCBBarcodeSymbologyJAN13 ... JAN/EAN13.</li> <li>SCBBarcodeSymbologyCode39 ... Code39.</li> <li>SCBBarcodeSymbologyITF ... ITF.</li> <li>SCBBarcodeSymbologyCode128 ... Code128.</li> <li>SCBBarcodeSymbologyCode93 ... Code93.</li> <li>SCBBarcodeSymbologyCodabar ... Codabar.</li> <li>SCBBarcodeSymbologyNW7 ... NW7.</li> </ul> | SCBBarcodeSymbology  |
| width     | Barcode width. <ul style="list-style-type: none"> <li>SCBBarcodeWidthMode1 ... Mode1.</li> <li>SCBBarcodeWidthMode2 ... Mode2.</li> <li>SCBBarcodeWidthMode3 ... Mode3.</li> <li>SCBBarcodeWidthMode4 ... Mode4.</li> <li>SCBBarcodeWidthMode5 ... Mode5.</li> <li>SCBBarcodeWidthMode6 ... Mode6.</li> <li>SCBBarcodeWidthMode7 ... Mode7.</li> <li>SCBBarcodeWidthMode8 ... Mode8.</li> <li>SCBBarcodeWidthMode9 ... Mode9.</li> </ul>  | SCBBarcodeWidth      |
| height    | Barcode height. (Units : Dots)  | NSInteger            |

| Name | Description   | Object type |
|------|---|-------------|
| hri  | Under-bar characters. <ul style="list-style-type: none"> <li>YES ... Valid</li> <li>NO ... Invalid</li> </ul> | BOOL        |

### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

### Example

```
+ (NSData *)createData:(StarIoExtEmulation)emulation {
    NSData *otherDataCode128 = [@"{B0123456789" dataUsingEncoding:NSUTF8StringEncoding];

    ISCBBuilder *builder = [StarIoExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendBarcodeDataWithAlignment:otherDataCode128 symbology:SCBBarcodeSymbologyCode128
    width:SCBBarcodeWidthMode1 height:40 hri:YES position:SCBAlignmentPositionCenter];
    [builder appendUnitFeed:32];

    [builder appendBarcodeDataWithAlignment:otherDataCode128 symbology:SCBBarcodeSymbologyCode128
    width:SCBBarcodeWidthMode1 height:40 hri:YES position:SCBAlignmentPositionRight];
    [builder appendUnitFeed:32];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

    return [builder.commands copy];
}
```

Refer to *ApiFunctions.m* and each Command Specifications.



### 3.27 appendPdf417Data Method

Print command of the PDF417 is generated and added to the commands property.

#### Declaration

- (void)appendPdf417Data:(NSData \*)otherData line:(NSInteger)line column:(NSInteger)column level:(SCBPdf417Level)level module:(NSInteger)module aspect:(NSInteger)aspect;

- (void)appendPdf417Bytes:(const void \*)bytes length:(NSUInteger)length line:(NSInteger)line column:(NSInteger)column level:(SCBPdf417Level)level module:(NSInteger)module aspect:(NSInteger)aspect;

#### Parameter

| Name      | Description   | Object type    |
|-----------|---|----------------|
| otherData | PDF417 data.  | NSData         |
| bytes     |   | const void *   |
| length    |   | NSUInteger     |
| line      | Number of lines.  | NSInteger      |
| column    | Number of columns.  | NSInteger      |
| level     | PDF417 ECC (security level). <ul style="list-style-type: none"> <li>• SCBPdf417LevelECC0 ... Level0.</li> <li>• SCBPdf417LevelECC1 ... Level1.</li> <li>• SCBPdf417LevelECC2 ... Level2.</li> <li>• SCBPdf417LevelECC3 ... Level3.</li> <li>• SCBPdf417LevelECC4 ... Level4.</li> <li>• SCBPdf417LevelECC5 ... Level5.</li> <li>• SCBPdf417LevelECC6 ... Level6.</li> <li>• SCBPdf417LevelECC7 ... Level7.</li> <li>• SCBPdf417LevelECC8 ... Level8.</li> </ul> | SCBPdf417Level |
| module    | Module X direction size.  | NSInteger      |
| aspect    | Module aspect ratio.  | NSInteger      |

#### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

### Example

```
+ (NSData *)createData:(StarloExtEmulation)emulation {
    NSData *otherData = [@"Hello World." dataUsingEncoding:NSUTF8StringEncoding];

    ISCBBuilder *builder = [StarloExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendPdf417Data:otherData line:0 column:1 level:SCBPdf417LevelECC0 module:2 aspect:2];
    [builder appendUnitFeed:32];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

    return [builder.commands copy];
}
```

*Refer to `ApiFunctions.m` and each Command Specifications.*

### 3.28 appendPdf417DataWithAbsolutePosition Method

Print command of the absolute position PDF417 is generated and added to the commands property.

#### Declaration

```
- (void)appendPdf417DataWithAbsolutePosition:(NSData *)otherData line:(NSInteger)line
column:(NSInteger)column level:(SCBPdf417Level)level module:(NSInteger)module
aspect:(NSInteger)aspect position:(NSInteger)position;
```

```
- (void)appendPdf417BytesWithAbsolutePosition:(const void *)bytes length:(NSUInteger)length
line:(NSInteger)line column:(NSInteger)column level:(SCBPdf417Level)level
module:(NSInteger)module aspect:(NSInteger)aspect position:(NSInteger)position;
```

#### Parameter

| Name      | Description   | Object type    |
|-----------|---|----------------|
| position  | Absolute position. (Units : Dots)   | NSInteger      |
| otherData | PDF417 data.  | NSData         |
| bytes     |   | const void *   |
| length    |   | NSUInteger     |
| line      |   | NSInteger      |
| column    | Number of columns.  | NSInteger      |
| level     | PDF417 ECC (security level). <ul style="list-style-type: none"> <li>SCBPdf417LevelECC0 ... Level0.</li> <li>SCBPdf417LevelECC1 ... Level1.</li> <li>SCBPdf417LevelECC2 ... Level2.</li> <li>SCBPdf417LevelECC3 ... Level3.</li> <li>SCBPdf417LevelECC4 ... Level4.</li> <li>SCBPdf417LevelECC5 ... Level5.</li> <li>SCBPdf417LevelECC6 ... Level6.</li> <li>SCBPdf417LevelECC7 ... Level7.</li> <li>SCBPdf417LevelECC8 ... Level8.</li> </ul> | SCBPdf417Level |
| module    | Module X direction size.  | NSInteger      |
| aspect    | Module aspect ratio.  | NSInteger      |

#### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

### Example

```
+ (NSData *)createData:(StarloExtEmulation)emulation {
    NSData *otherData = [@"Hello World." dataUsingEncoding:NSUTF8StringEncoding];

    ISCBBuilder *builder = [StarloExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendPdf417DataWithAbsolutePosition:otherData line:0 column:1 level:SCBPdf417LevelECC0
    module:2 aspect:2 position:40];
    [builder appendUnitFeed:32];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

    return [builder.commands copy];
}
```

Refer to *ApiFunctions.m* and each Command Specifications.

### 3.29 appendPdf417DataWithAlignment Method

Print command of the alignment PDF417 is generated and added to the commands property.

#### Declaration

```
- (void)appendPdf417DataWithAlignment:(NSData *)otherData line:(NSInteger)line
column:(NSInteger)column level:(SCBPdf417Level)level module:(NSInteger)module
aspect:(NSInteger)aspect position:(SCBAlignmentPosition)position;

- (void)appendPdf417BytesWithAlignment:(const void *)bytes length:(NSUInteger)length
line:(NSInteger)line column:(NSInteger)column level:(SCBPdf417Level)level
module:(NSInteger)module aspect:(NSInteger)aspect position:(SCBAlignmentPosition)position;
```

#### Parameter

| Name      | Description   | Object type          |
|-----------|---|----------------------|
| position  | Alignment position. <ul style="list-style-type: none"> <li>SCBAlignmentPositionLeft ... Left alignment.</li> <li>SCBAlignmentPositionCenter ... Center alignment.</li> <li>SCBAlignmentPositionRight ... Right alignment.</li> </ul>  | SCBAlignmentPosition |
| otherData |   | NSData               |
| bytes     | PDF417 data.  | const void *         |
| length    |   | NSUInteger           |
| line      | Number of lines.  | NSInteger            |
| column    | Number of columns.  | NSInteger            |
| level     | PDF417 ECC (security level). <ul style="list-style-type: none"> <li>SCBPdf417LevelECC0 ... Level0.</li> <li>SCBPdf417LevelECC1 ... Level1.</li> <li>SCBPdf417LevelECC2 ... Level2.</li> <li>SCBPdf417LevelECC3 ... Level3.</li> <li>SCBPdf417LevelECC4 ... Level4.</li> <li>SCBPdf417LevelECC5 ... Level5.</li> <li>SCBPdf417LevelECC6 ... Level6.</li> <li>SCBPdf417LevelECC7 ... Level7.</li> <li>SCBPdf417LevelECC8 ... Level8.</li> </ul> | SCBPdf417Level       |
| module    | Module X direction size.  | NSInteger            |
| aspect    | Module aspect ratio.  | NSInteger            |

#### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

### Example

```
+ (NSData *)createData:(StarloExtEmulation)emulation {
    NSData *otherData = [@"Hello World." dataUsingEncoding:NSUTF8StringEncoding];

    ISCBBuilder *builder = [StarloExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendPdf417DataWithAlignment:otherData line:0 column:1 level:SCBPdf417LevelECC0 module:2
    aspect:2 position:SCBAlignmentPositionCenter];
    [builder appendUnitFeed:32];

    [builder appendPdf417DataWithAlignment:otherData line:0 column:1 level:SCBPdf417LevelECC0 module:2
    aspect:2 position:SCBAlignmentPositionRight];
    [builder appendUnitFeed:32];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

    return [builder.commands copy];
}
```

*Refer to ApiFunctions.m and each Command Specifications.*

### 3.30 appendQRCodeData Method

Print command of the QR code is generated and added to the commands property.

#### Declaration

- (void)appendQRCodeData:(NSData \*)otherData model:(SCBQRCodeModel)model level:(SCBQRCodeLevel)level cell:(NSInteger)cell;

- (void)appendQRCodeBytes:(const void \*)bytes length:(NSUInteger)length model:(SCBQRCodeModel)model level:(SCBQRCodeLevel)level cell:(NSInteger)cell;

#### Parameter

| Name      | Description   | Object type    |
|-----------|---|----------------|
| otherData | QR code data.   | NSData         |
| bytes     |   | const void *   |
| length    |   | NSUInteger     |
| model     | QR code model.<br>• SCBQRCodeModelNo1 ... Model1.<br>• SCBQRCodeModelNo2 ... Model2.  | SCBQRCodeModel |
| level     | QR code mistake correction level.<br>• SCBQRCodeLevelL ... Level L.<br>• SCBQRCodeLevelM ... Level M.<br>• SCBQRCodeLevelQ ... Level Q.<br>• SCBQRCodeLevelH ... Level H. | SCBQRCodeLevel |
| cell      | QR code cell size.  | NSInteger      |

#### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

#### Example

```
+ (NSData *)createData:(StarIoExtEmulation)emulation {
    NSData *otherData = [@"Hello World." dataUsingEncoding:NSUTF8StringEncoding];

    ISCBBuilder *builder = [StarIoExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendQRCodeData:otherData model:SCBQRCodeModelNo2 level:SCBQRCodeLevelL cell:4];
    [builder appendUnitFeed:32];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

    return [builder.commands copy];
}
```

Refer to *ApiFunctions.m* and each Command Specifications.

### 3.31 appendQrCodeDataWithAbsolutePosition Method

Print command of the absolute position QR code is generated and added to the commands property.

#### Declaration

```
- (void)appendQrCodeDataWithAbsolutePosition:(NSData *)otherData
model:(SCBQrCodeModel)model level:(SCBQrCodeLevel)level cell:(NSInteger)cell
position:(NSInteger)position;
```

```
- (void)appendQrCodeBytesWithAbsolutePosition:(const void *)bytes length:(NSUInteger)length
model:(SCBQrCodeModel)model level:(SCBQrCodeLevel)level cell:(NSInteger)cell
position:(NSInteger)position;
```

#### Parameter

| Name      | Description   | Object type    |
|-----------|---|----------------|
| position  | Absolute position. (Units : Dots)   | NSInteger      |
| otherData | QR code data.   | NSData         |
| bytes     |   | const void *   |
| length    |   | NSUInteger     |
| model     | QR code model.<br>• SCBQrCodeModelNo1 ... Model1.<br>• SCBQrCodeModelNo2 ... Model2.  | SCBQrCodeModel |
| level     | QR code mistake correction level.<br>• SCBQrCodeLevelL ... Level L.<br>• SCBQrCodeLevelM ... Level M.<br>• SCBQrCodeLevelQ ... Level Q.<br>• SCBQrCodeLevelH ... Level H. | SCBQrCodeLevel |
| cell      | QR code cell size.  | NSInteger      |

#### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

#### Example

```
+ (NSData *)createData:(StarloExtEmulation)emulation {
    NSData *otherData = [@"Hello World." dataUsingEncoding:NSUTF8StringEncoding];

    ISCBBuilder *builder = [StarloExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendQrCodeDataWithAbsolutePosition:otherData model:SCBQrCodeModelNo2
level:SCBQrCodeLevelL cell:4 position:40];
    [builder appendUnitFeed:32];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

    return [builder.commands copy];
}
```

Refer to *ApiFunctions.m* and each Command Specifications.



### 3.32 appendQrCodeDataWithAlignment Method

Print command of the alignment QR code is generated and added to the commands property.

#### Declaration

```
- (void)appendQrCodeDataWithAlignment:(NSData *)otherData model:(SCBQrCodeModel)model
level:(SCBQrCodeLevel)level cell:(NSInteger)cell position:(SCBAlignmentPosition)position;
```

```
- (void)appendQrCodeBytesWithAlignment:(const void *)bytes length:(NSUInteger)length
model:(SCBQrCodeModel)model level:(SCBQrCodeLevel)level cell:(NSInteger)cell
position:(SCBAlignmentPosition)position;
```

#### Parameter

| Name      | Description  | Object type          |
|-----------|--|----------------------|
| position  | Alignment position. <ul style="list-style-type: none"> <li>SCBAlignmentPositionLeft ... Left alignment.</li> <li>SCBAlignmentPositionCenter ... Center alignment.</li> <li>SCBAlignmentPositionRight ... Right alignment.</li> </ul> | SCBAlignmentPosition |
| otherData | QR code data.  | NSData               |
| bytes     |  | const void *         |
| length    |  | NSUInteger           |
| model     | QR code model. <ul style="list-style-type: none"> <li>SCBQrCodeModelNo1 ... Model1.</li> <li>SCBQrCodeModelNo2 ... Model2.</li> </ul>  | SCBQrCodeModel       |
| level     | QR code mistake correction level. <ul style="list-style-type: none"> <li>SCBQrCodeLevelL ... Level L.</li> <li>SCBQrCodeLevelM ... Level M.</li> <li>SCBQrCodeLevelQ ... Level Q.</li> <li>SCBQrCodeLevelH ... Level H.</li> </ul>   | SCBQrCodeLevel       |
| cell      | QR code cell size.   | NSInteger            |

#### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

### Example

```
+ (NSData *)createData:(StarIoExtEmulation)emulation {
    NSData *otherData = [@"Hello World." dataUsingEncoding:NSUTF8StringEncoding];

    ISCBBuilder *builder = [StarIoExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendQrCodeDataWithAlignment:otherData model:SCBQrCodeModelNo2 level:SCBQrCodeLevelL
cell:4 position:SCBAlignmentPositionCenter];
    [builder appendUnitFeed:32];

    [builder appendQrCodeDataWithAlignment:otherData model:SCBQrCodeModelNo2 level:SCBQrCodeLevelL
cell:4 position:SCBAlignmentPositionRight];
    [builder appendUnitFeed:32];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

    return [builder.commands copy];
}
```

*Refer to ApiFunctions.m and each Command Specifications.*

### 3.33 appendBitmap Method

Print command of the bitmap is generated and added to the commands property.

#### Declaration

- (void)appendBitmap:(UIImage \*)image diffusion:(BOOL)diffusion width:(NSInteger)width bothScale:(BOOL)bothScale rotation:(SCBBitmapConverterRotation)rotation;

- (void)appendBitmap:(UIImage \*)image diffusion:(BOOL)diffusion rotation:(SCBBitmapConverterRotation)rotation;

- (void)appendBitmap:(UIImage \*)image diffusion:(BOOL)diffusion width:(NSInteger)width bothScale:(BOOL)bothScale;

- (void)appendBitmap:(UIImage \*)image diffusion:(BOOL)diffusion;

#### Parameter

| Name      | Description  | Object type                |
|-----------|--|----------------------------|
| image     | Source bitmap object.  | UIImage                    |
| diffusion | Random dither.<br><ul style="list-style-type: none"> <li>YES ... Valid</li> <li>NO ... Invalid</li> </ul>  | BOOL                       |
| width     | Bitmap width after conversion. (Units : Dots)  | NSInteger                  |
| bothScale | Height is changed according to the conversion rate of the width property.<br><ul style="list-style-type: none"> <li>YES ... Valid.</li> <li>NO ... Invalid.</li> </ul>   | BOOL                       |
| rotation  | Rotation.<br><ul style="list-style-type: none"> <li>SCBBitmapConverterRotationNormal ... Rotated 0.</li> <li>SCBBitmapConverterRotationRight90 ... Rotated 90.</li> <li>SCBBitmapConverterRotationLeft90 ... Rotated 270.</li> <li>SCBBitmapConverterRotationRotate180 ... Rotated 180.</li> </ul> | SCBBitmapConverterRotation |

#### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

### Example

```
+ (NSData *)createData:(StarloExtEmulation)emulation width:(NSInteger)width {
    UIImage *starLogoImage = [UIImage imageNamed:@"StarLogoImage"];

    ISCBBuilder *builder = [StarloExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendData:@"\nNormal\n" dataUsingEncoding:NSUTF8StringEncoding];
    [builder appendBitmap:starLogoImage diffusion:YES];

    [builder appendData:@"\nwidth:Full, bothScale:YES\n" dataUsingEncoding:NSUTF8StringEncoding];
    [builder appendBitmap:starLogoImage diffusion:YES width:width bothScale:YES];
    [builder appendData:@"\nwidth:Full, bothScale:NO\n" dataUsingEncoding:NSUTF8StringEncoding];
    [builder appendBitmap:starLogoImage diffusion:YES width:width bothScale:NO];

    [builder appendData:@"\nRotate180\n" dataUsingEncoding:NSUTF8StringEncoding];
    [builder appendBitmap:starLogoImage diffusion:YES rotation:SCBBitmapConverterRotationRotate180];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

    return [builder.commands copy];
}
```

Refer to *ApiFunctions.m*.

### 3.34 appendBitmapWithAbsolutePosition Method

Print command of the absolute position bitmap is generated and added to the commands property.

#### Declaration

```
- (void)appendBitmapWithAbsolutePosition:(UIImage *)image diffusion:(BOOL)diffusion
width:(NSInteger)width bothScale:(BOOL)bothScale rotation:(SCBBitmapConverterRotation)rotation
position:(NSInteger)position;
```

```
- (void)appendBitmapWithAbsolutePosition:(UIImage *)image diffusion:(BOOL)diffusion
rotation:(SCBBitmapConverterRotation)rotation position:(NSInteger)position;
```

```
- (void)appendBitmapWithAbsolutePosition:(UIImage *)image diffusion:(BOOL)diffusion
width:(NSInteger)width bothScale:(BOOL)bothScale position:(NSInteger)position;
```

```
- (void)appendBitmapWithAbsolutePosition:(UIImage *)image diffusion:(BOOL)diffusion
position:(NSInteger)position;
```

#### Parameter

| Name      | Description   | Object type                |
|-----------|---|----------------------------|
| position  | Absolute position. (Units : Dots)   | NSInteger                  |
| image     | Source bitmap object.   | UIImage                    |
| diffusion | Random dither. <ul style="list-style-type: none"> <li>YES ... Valid</li> <li>NO ... Invalid</li> </ul>  | BOOL                       |
| width     | Bitmap width after conversion. (Units : Dots)   | NSInteger                  |
| bothScale | Height is changed according to the conversion rate of the width property. <ul style="list-style-type: none"> <li>YES ... Valid.</li> <li>NO ... Invalid.</li> </ul>   | BOOL                       |
| rotation  | Rotation. <ul style="list-style-type: none"> <li>SCBBitmapConverterRotationNormal ... Rotated 0.</li> <li>SCBBitmapConverterRotationRight90 ... Rotated 90.</li> <li>SCBBitmapConverterRotationLeft90 ... Rotated 270.</li> <li>SCBBitmapConverterRotationRotate180 ... Rotated 180.</li> </ul> | SCBBitmapConverterRotation |

#### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

### Example

```
+ (NSData *)createData:(StarIoExtEmulation)emulation width:(NSInteger)width {
    UIImage *starLogoImage = [UIImage imageNamed:@"StarLogoImage"];

    ISCBBuilder *builder = [StarIoExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendData:@"\nNormal, AbsolutePosition:40*\n" dataUsingEncoding:NSUTF8StringEncoding];
    [builder appendBitmapWithAbsolutePosition:starLogoImage diffusion:YES position:40];

    [builder appendData:@"\nwidth:Full, bothScale:YES, AbsolutePosition:40*\n"
dataUsingEncoding:NSUTF8StringEncoding];
    [builder appendBitmap:starLogoImage diffusion:YES width:width bothScale:YES position:40];
    [builder appendData:@"\nwidth:Full, bothScale:NO, AbsolutePosition:40*\n"
dataUsingEncoding:NSUTF8StringEncoding];
    [builder appendBitmap:starLogoImage diffusion:YES width:width bothScale:NO position:40];

    [builder appendData:@"\nRotate180, AbsolutePosition:40*\n" dataUsingEncoding:NSUTF8StringEncoding];
    [builder appendBitmapWithAbsolutePosition:starLogoImage diffusion:YES
rotation:SCBBitmapConverterRotationRotate180 position:40];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

    return [builder.commands copy];
}
```

Refer to *ApiFunctions.m*.

### 3.35 appendBitmapWithAlignment Method

Print command of the alignment bitmap is generated and added to the commands property.

#### Declaration

- (void)appendBitmapWithAlignment:(UIImage \*)image diffusion:(BOOL)diffusion width:(NSInteger)width bothScale:(BOOL)bothScale rotation:(SCBBitmapConverterRotation)rotation position:(SCBAlignmentPosition)position;

- (void)appendBitmapWithAlignment:(UIImage \*)image diffusion:(BOOL)diffusion rotation:(SCBBitmapConverterRotation)rotation position:(SCBAlignmentPosition)position;

- (void)appendBitmapWithAlignment:(UIImage \*)image diffusion:(BOOL)diffusion width:(NSInteger)width bothScale:(BOOL)bothScale position:(SCBAlignmentPosition)position;

- (void)appendBitmapWithAlignment:(UIImage \*)image diffusion:(BOOL)diffusion position:(SCBAlignmentPosition)position;

#### Parameter

| Name      | Description   | Object type                |
|-----------|---|----------------------------|
| position  | Alignment position. <ul style="list-style-type: none"> <li>SCBAlignmentPositionLeft ... Left alignment.</li> <li>SCBAlignmentPositionCenter ... Center alignment.</li> <li>SCBAlignmentPositionRight ... Right alignment.</li> </ul>  | SCBAlignmentPosition       |
| image     | Source bitmap object.   | UIImage                    |
| diffusion | Random dither. <ul style="list-style-type: none"> <li>YES ... Valid</li> <li>NO ... Invalid</li> </ul>  | BOOL                       |
| Width     | Bitmap width after conversion. (Units : Dots)   | NSInteger                  |
| bothScale | Height is changed according to the conversion rate of the width property. <ul style="list-style-type: none"> <li>YES ... Valid.</li> <li>NO ... Invalid.</li> </ul>   | BOOL                       |
| rotation  | Rotation. <ul style="list-style-type: none"> <li>SCBBitmapConverterRotationNormal ... Rotated 0.</li> <li>SCBBitmapConverterRotationRight90 ... Rotated 90.</li> <li>SCBBitmapConverterRotationLeft90 ... Rotated 270.</li> <li>SCBBitmapConverterRotationRotate180 ... Rotated 180.</li> </ul> | SCBBitmapConverterRotation |

#### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

### Example

```
+ (NSData *)createData:(StarloExtEmulation)emulation width:(NSInteger)width {
    UIImage *starLogoImage = [UIImage imageNamed:@"StarLogoImage"];

    ISCBBuilder *builder = [StarloExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendData:@"\nNormal, Alignment:Center*\n" dataUsingEncoding:NSUTF8StringEncoding];
    [builder appendBitmapWithAlignment:starLogoImage diffusion:YES position:SCBAlignmentPositionCenter];

    [builder appendData:@"\nwidth:Full, bothScale:YES, Alignment:Center*\n"
    dataUsingEncoding:NSUTF8StringEncoding];
    [builder appendBitmapWithAlignment:starLogoImage diffusion:YES width:width bothScale:YES
    position:SCBAlignmentPositionCenter];

    [builder appendData:@"\nwidth:Full, bothScale:NO, Alignment:Center*\n"
    dataUsingEncoding:NSUTF8StringEncoding];
    [builder appendBitmapWithAlignment:starLogoImage diffusion:YES width:width bothScale:NO
    position:SCBAlignmentPositionCenter];

    [builder appendData:@"\nRotate180, Alignment:Center*\n" dataUsingEncoding:NSUTF8StringEncoding];
    [builder appendBitmapWithAlignment:starLogoImage diffusion:YES
    rotation:SCBBitmapConverterRotationRotate180 position:SCBAlignmentPositionCenter];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

    return [builder.commands copy];
}
```

Refer to *ApiFunctions.m*.



### 3.36 commands Property

Generated commands.

#### Declaration

@property (nonatomic, readonly) NSMutableData \*commands;

#### Value

| Description         | Object type   |
|---------------------|---------------|
| Generated commands. | NSMutableData |

#### Example

```
+ (NSData *)createData:(StarIoExtEmulation)emulation {
    NSData *otherData = [@"Hello World.\n" dataUsingEncoding:NSUTF8StringEncoding];

    ISCBBuilder *builder = [StarIoExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendData:otherData];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

    return [builder.commands copy];
}
```

Refer to *ApiFunctions.m*.

### 3.37 SCBInitializationType Constants

Initialization constants.

#### Declaration

```
typedef NS_ENUM(NSUInteger, SCBInitializationType) {
    SCBInitializationTypeCommand
// SCBInitializationTypeReset,
// SCBInitializationTypeResetWithPrint
};
```

#### Constants

| Name                                | Description                         |
|-------------------------------------|-------------------------------------|
| SCBInitializationTypeCommand        | Command initialization.             |
| SCBInitializationTypeReset          | Reset printer.                      |
| SCBInitializationTypeResetWithPrint | Reset printer (execute self print). |

Refer to *ApiFunctions.m*.

### 3.38 SCBFontStyleType Constants

Font style constants.

#### Declaration

```
typedef NS_ENUM(NSUInteger, SCBFontStyleType) {
    SCBFontStyleTypeA,
    SCBFontStyleTypeB
};
```

#### Constants

| Name              | Description  |
|-------------------|--|
| SCBFontStyleTypeA | Font-A (12 x 24 dots) / Specify 7 x 9 font (half dots) |
| SCBFontStyleTypeB | Font-B (9 x 24 dots) / Specify 5 x 9 font (2P-1)       |

Refer to *ApiFunctions.m* and each *Command Specifications*.

### 3.39 SCBCodePageType Constants

Code Page constants.

#### *Declaration*

```
typedef NS_ENUM(NSUInteger, SCBCodePageType) {
    SCBCodePageTypeCP437,
    SCBCodePageTypeCP737,
    SCBCodePageTypeCP772,
    SCBCodePageTypeCP774,
    SCBCodePageTypeCP851,
    SCBCodePageTypeCP852,
    SCBCodePageTypeCP855,
    SCBCodePageTypeCP857,
    SCBCodePageTypeCP858,
    SCBCodePageTypeCP860,
    SCBCodePageTypeCP861,
    SCBCodePageTypeCP862,
    SCBCodePageTypeCP863,
    SCBCodePageTypeCP864,
    SCBCodePageTypeCP865,
    SCBCodePageTypeCP866,
    SCBCodePageTypeCP869,
    SCBCodePageTypeCP874,
    SCBCodePageTypeCP928,
    SCBCodePageTypeCP932,
    SCBCodePageTypeCP998,
    SCBCodePageTypeCP999,
    SCBCodePageTypeCP1001,
    SCBCodePageTypeCP1250,
    SCBCodePageTypeCP1251,
    SCBCodePageTypeCP1252,
    SCBCodePageTypeCP2001,
    SCBCodePageTypeCP3001,
    SCBCodePageTypeCP3002,
    SCBCodePageTypeCP3011,
    SCBCodePageTypeCP3012,
    SCBCodePageTypeCP3021,
    SCBCodePageTypeCP3041,
    SCBCodePageTypeCP3840,
    SCBCodePageTypeCP3841,
    SCBCodePageTypeCP3843,
    SCBCodePageTypeCP3844,
    SCBCodePageTypeCP3845,
    SCBCodePageTypeCP3846,
    SCBCodePageTypeCP3847,
    SCBCodePageTypeCP3848,
    SCBCodePageTypeUTF8,
    SCBCodePageTypeBlank
};
```

## Constants

| Name                  | Description                        |
|-----------------------|------------------------------------|
| SCBCodePageTypeCP437  | CodePage437 (USA, Std. Europe).    |
| SCBCodePageTypeCP737  | Codepage 737 (Greek).              |
| SCBCodePageTypeCP772  | Codepage 772 (Lithuanian).         |
| SCBCodePageTypeCP774  | Codepage 774 (Lithuanian).         |
| SCBCodePageTypeCP851  | Codepage 851 (Greek).              |
| SCBCodePageTypeCP852  | Codepage 852 (Latin-2).            |
| SCBCodePageTypeCP855  | Codepage 855 (Cyrillic Bulgarian). |
| SCBCodePageTypeCP857  | Codepage 857 (Turkey).             |
| SCBCodePageTypeCP858  | Codepage 858 (Multilingual).       |
| SCBCodePageTypeCP860  | Codepage 860 (Portuguese).         |
| SCBCodePageTypeCP861  | Codepage 861 (Icelandic).          |
| SCBCodePageTypeCP862  | Codepage 862 (Israel (Hebrew)).    |
| SCBCodePageTypeCP863  | Codepage 863 (Canadian French).    |
| SCBCodePageTypeCP864  | Codepage 864 (Arabic).             |
| SCBCodePageTypeCP865  | Codepage 865 (Nordic).             |
| SCBCodePageTypeCP866  | Codepage 866 (Cyrillic Russian).   |
| SCBCodePageTypeCP869  | Codepage 869 (Greek).              |
| SCBCodePageTypeCP874  | Codepage 874 (Thai).               |
| SCBCodePageTypeCP928  | Codepage 928 (Greek).              |
| SCBCodePageTypeCP932  | Katakana.                          |
| SCBCodePageTypeCP998  | Normal.                            |
| SCBCodePageTypeCP999  | Codepage 1252 (Windows Latin-1).   |
| SCBCodePageTypeCP1001 | Codepage 1001 (Arabic).            |
| SCBCodePageTypeCP1250 | Codepage 1250 (Windows Latin-2).   |
| SCBCodePageTypeCP1251 | Codepage 1251 (Windows Cyrillic).  |
| SCBCodePageTypeCP1252 | Codepage 1252 (Windows Latin-1).   |
| SCBCodePageTypeCP2001 | Codepage 2001 (Lithuanian-KBL).    |
| SCBCodePageTypeCP3001 | Codepage 3001 (Estonian-1).        |
| SCBCodePageTypeCP3002 | Codepage 3002 (Estonian-2).        |
| SCBCodePageTypeCP3011 | Codepage 3011 (Latvian-1).         |
| SCBCodePageTypeCP3012 | Codepage 3012 (Latvian-2).         |
| SCBCodePageTypeCP3021 | Codepage 3021 (Bulgarian).         |
| SCBCodePageTypeCP3041 | Codepage 3041 (Maltese).           |
| SCBCodePageTypeCP3840 | Codepage 3840 (IBM-Russian).       |
| SCBCodePageTypeCP3841 | Codepage 3841 (Gost).              |
| SCBCodePageTypeCP3843 | Codepage 3843 (Polish).            |
| SCBCodePageTypeCP3844 | Codepage 3844 (CS2).               |
| SCBCodePageTypeCP3845 | Codepage 3845 (Hungarian).         |
| SCBCodePageTypeCP3846 | Codepage 3846 (Turkish).           |
| SCBCodePageTypeCP3847 | Codepage 3847 (Brazil-ABNT).       |
| SCBCodePageTypeCP3848 | Codepage 3848 (Brazil-ABICOMP).    |
| SCBCodePageTypeUTF8   | UTF-8.                             |
| SCBCodePageTypeBlank  | User Setting Blank Code Page.      |

Refer to *ApiFunctions.m* and each Command Specifications.

### 3.40 SCBInternationalType Constants

International character constants.

#### Declaration

```
typedef NS_ENUM(NSUInteger, SCBInternationalType) {
    SCBInternationalTypeUSA,
    SCBInternationalTypeFrance,
    SCBInternationalTypeGermany,
    SCBInternationalTypeUK,
    SCBInternationalTypeDenmark,
    SCBInternationalTypeSweden,
    SCBInternationalTypeItaly,
    SCBInternationalTypeSpain,
    SCBInternationalTypeJapan,
    SCBInternationalTypeNorway,
    SCBInternationalTypeDenmark2,
    SCBInternationalTypeSpain2,
    SCBInternationalTypeLatinAmerica,
    SCBInternationalTypeKorea,
    SCBInternationalTypeIreland,
    SCBInternationalTypeLegal
};
```

#### Constants

| Name                             | Description    |
|----------------------------------|----------------|
| SCBInternationalTypeUSA          | USA.           |
| SCBInternationalTypeFrance       | France.        |
| SCBInternationalTypeGermany      | Germany.       |
| SCBInternationalTypeUK           | UK.            |
| SCBInternationalTypeDenmark      | Denmark.       |
| SCBInternationalTypeSweden       | Sweden.        |
| SCBInternationalTypeItaly        | Italy.         |
| SCBInternationalTypeSpain        | Spain.         |
| SCBInternationalTypeJapan        | Japan.         |
| SCBInternationalTypeNorway       | Norway.        |
| SCBInternationalTypeDenmark2     | Denmark   .    |
| SCBInternationalTypeSpain2       | Spain   .      |
| SCBInternationalTypeLatinAmerica | Latin America. |
| SCBInternationalTypeKorea        | Korea.         |
| SCBInternationalTypeIreland      | Ireland.       |
| SCBInternationalTypeLegal        | Legal.         |

Refer to *ApiFunctions.m* and each Command Specifications.

### 3.41 SCBLogoSize Constants

Logo size constants.

#### Declaration

```
typedef NS_ENUM(NSUInteger, SCBLogoSize) {
    SCBLogoSizeNormal,
    SCBLogoSizeDoubleWidth,
    SCBLogoSizeDoubleHeight,
    SCBLogoSizeDoubleWidthDoubleHeight
};
```

#### Constants

| Name                               | Description            |
|------------------------------------|------------------------|
| SCBLogoSizeNormal                  | Normal.                |
| SCBLogoSizeDoubleWidth             | Double Width.          |
| SCBLogoSizeDoubleHeight            | Double Height.         |
| SCBLogoSizeDoubleWidthDoubleHeight | Double Width / Height. |

Refer to *ApiFunctions.m* and each Command Specifications.

### 3.42 SCBAlignmentPosition Constants

Alignment position constants.

#### Declaration

```
typedef NS_ENUM(NSUInteger, SCBAlignmentPosition) {
    SCBAlignmentPositionLeft,
    SCBAlignmentPositionCenter,
    SCBAlignmentPositionRight
};
```

#### Constants

| Name                       | Description       |
|----------------------------|-------------------|
| SCBAlignmentPositionLeft   | Left alignment.   |
| SCBAlignmentPositionCenter | Center alignment. |
| SCBAlignmentPositionRight  | Right alignment.  |

Refer to *ApiFunctions.m* and each Command Specifications.

### 3.43 SCBCutPaperAction Constants

Paper cut constants.

#### Declaration

```
typedef NS_ENUM(NSInteger, SCBCutPaperAction) {
    SCBCutPaperActionFullCut,
    SCBCutPaperActionPartialCut,
    SCBCutPaperActionFullCutWithFeed,
    SCBCutPaperActionPartialCutWithFeed
};
```

#### Constants

| Name                                | Description            |
|-------------------------------------|------------------------|
| SCBCutPaperActionFullCut            | Full Cut.              |
| SCBCutPaperActionPartialCut         | Partial Cut.           |
| SCBCutPaperActionFullCutWithFeed    | Full Cut with Feed.    |
| SCBCutPaperActionPartialCutWithFeed | Partial Cut with Feed. |

Refer to *ApiFunctions.m* and each Command Specifications.

### 3.44 SCBPeripheralChannel Constants

Peripheral channel constants.

#### Declaration

```
typedef NS_ENUM(NSInteger, SCBPeripheralChannel) {
    SCBPeripheralChannelNo1,
    SCBPeripheralChannelNo2
};
```

#### Constants

| Name                    | Description |
|-------------------------|-------------|
| SCBPeripheralChannelNo1 | Channel1.   |
| SCBPeripheralChannelNo2 | Channel2.   |

Refer to *ApiFunctions.m*.

### 3.45 SCBSoundChannel Constants

Sound channel constants.

#### Declaration

```
typedef NS_ENUM(NSInteger, SCBSoundChannel) {
    SCBSoundChannelNo1,
    SCBSoundChannelNo2
};
```

#### Constants

| Name               | Description |
|--------------------|-------------|
| SCBSoundChannelNo1 | Channel1.   |
| SCBSoundChannelNo2 | Channel2.   |

Refer to *ApiFunctions.m*.

### 3.46 SCBBarcodeSymbology Constants

Barcode symbology constants.

#### Declaration

```
typedef NS_ENUM(NSUInteger, SCBBarcodeSymbology) {
    SCBBarcodeSymbologyUPCE,
    SCBBarcodeSymbologyUPCA,
    SCBBarcodeSymbologyJAN8,
    SCBBarcodeSymbologyJAN13,
    SCBBarcodeSymbologyCode39,
    SCBBarcodeSymbologyITF,
    SCBBarcodeSymbologyCode128,
    SCBBarcodeSymbologyCode93,
    // SCBBarcodeSymbologyCodabar,
    SCBBarcodeSymbologyNW7
};
```

#### Constants

| Name                       | Description |
|----------------------------|-------------|
| SCBBarcodeSymbologyUPCE    | UPC-E.      |
| SCBBarcodeSymbologyUPCA    | UPC-A.      |
| SCBBarcodeSymbologyJAN8    | JAN/EAN8.   |
| SCBBarcodeSymbologyJAN13   | JAN/EAN13.  |
| SCBBarcodeSymbologyCode39  | Code39.     |
| SCBBarcodeSymbologyITF     | ITF.        |
| SCBBarcodeSymbologyCode128 | Code128.    |
| SCBBarcodeSymbologyCode93  | Code93.     |
| SCBBarcodeSymbologyCodabar | Codabar.    |
| SCBBarcodeSymbologyNW7     | NW7.        |

Refer to *ApiFunctions.m* and each Command Specifications.



### 3.47 SCBBarcodeWidth Constants

Barcode width constants.

#### *Declaration*

```
typedef NS_ENUM(NSUInteger, SCBBarcodeWidth) {
    SCBBarcodeWidthMode1,
    SCBBarcodeWidthMode2,
    SCBBarcodeWidthMode3,
    SCBBarcodeWidthMode4,
    SCBBarcodeWidthMode5,
    SCBBarcodeWidthMode6,
    SCBBarcodeWidthMode7,
    SCBBarcodeWidthMode8,
    SCBBarcodeWidthMode9
};
```

#### *Constants*

| Name                 | Description |
|----------------------|-------------|
| SCBBarcodeWidthMode1 | Mode1.      |
| SCBBarcodeWidthMode2 | Mode2.      |
| SCBBarcodeWidthMode3 | Mode3.      |
| SCBBarcodeWidthMode4 | Mode4.      |
| SCBBarcodeWidthMode5 | Mode5.      |
| SCBBarcodeWidthMode6 | Mode6.      |
| SCBBarcodeWidthMode7 | Mode7.      |
| SCBBarcodeWidthMode8 | Mode8.      |
| SCBBarcodeWidthMode9 | Mode9.      |

*Refer to ApiFunctions.m and each Command Specifications.*

### 3.48 SCBPdf417Level Constants

PDF417 ECC (security level) constants.

#### Declaration

```
typedef NS_ENUM(NSUInteger, SCBPdf417Level) {
    SCBPdf417LevelECC0,
    SCBPdf417LevelECC1,
    SCBPdf417LevelECC2,
    SCBPdf417LevelECC3,
    SCBPdf417LevelECC4,
    SCBPdf417LevelECC5,
    SCBPdf417LevelECC6,
    SCBPdf417LevelECC7,
    SCBPdf417LevelECC8
};
```

#### Constants

| Name               | Description |
|--------------------|-------------|
| SCBPdf417LevelECC0 | Level0.     |
| SCBPdf417LevelECC1 | Level1.     |
| SCBPdf417LevelECC2 | Level2.     |
| SCBPdf417LevelECC3 | Level3.     |
| SCBPdf417LevelECC4 | Level4.     |
| SCBPdf417LevelECC5 | Level5.     |
| SCBPdf417LevelECC6 | Level6.     |
| SCBPdf417LevelECC7 | Level7.     |
| SCBPdf417LevelECC8 | Level8.     |

Refer to *ApiFunctions.m* and each Command Specifications.

### 3.49 SCBQRCodeModel Constants

QR code model constants.

#### Declaration

```
typedef NS_ENUM(NSUInteger, SCBQRCodeModel) {
    SCBQRCodeModelNo1,
    SCBQRCodeModelNo2
};
```

#### Constants

| Name              | Description |
|-------------------|-------------|
| SCBQRCodeModelNo1 | Model1.     |
| SCBQRCodeModelNo2 | Model2.     |

Refer to *ApiFunctions.m* and each Command Specifications.

### 3.50 SCBQrCodeLevel Constants

QR code mistake correction level constants.

#### Declaration

```
typedef NS_ENUM(NSUInteger, SCBQrCodeLevel) {
    SCBQrCodeLevelL,
    SCBQrCodeLevelM,
    SCBQrCodeLevelQ,
    SCBQrCodeLevelH
};
```

#### Constants

| Name            | Description |
|-----------------|-------------|
| SCBQrCodeLevelL | Level L.    |
| SCBQrCodeLevelM | Level M.    |
| SCBQrCodeLevelQ | Level Q.    |
| SCBQrCodeLevelH | Level H.    |

Refer to *ApiFunctions.m* and each Command Specifications.

### 3.51 SCBBitmapConverterRotation Constants

Bitmap rotation constants.

#### Declaration

```
typedef NS_ENUM(NSUInteger, SCBBitmapConverterRotation) {
    SCBBitmapConverterRotationNormal,
    SCBBitmapConverterRotationRight90,
    SCBBitmapConverterRotationLeft90,
    SCBBitmapConverterRotationRotate180
};
```

#### Constants

| Name                                | Description  |
|-------------------------------------|--------------|
| SCBBitmapConverterRotationNormal    | Rotated 0.   |
| SCBBitmapConverterRotationRight90   | Rotated 90.  |
| SCBBitmapConverterRotationLeft90    | Rotated 270. |
| SCBBitmapConverterRotationRotate180 | Rotated 180. |

Refer to *ApiFunctions.m*.

## 4 StarPRNT iOS SDK Sample

### 4.1 Communication

An example of print data transmission of StarIO iOS SDK equivalence and An example of print data transmission with a StarIoExtManager object.

#### -StarIoExtManager-

If using a StarIoExtManager, between devices will be the always-on connection. Therefore, if you shared with other applications and other terminal and the device, also when the transition to the transition and the sleep state to the other applications are envisioned, it will require consideration on the implementation on the connection status of the device.

#### Example (Like a StarIO iOS SDK)

```
+ (BOOL)sendCommands:(NSData *)commands portName:(NSString *)portName portSettings:(NSString
*)portSettings timeout:(NSInteger)timeout {
    BOOL result = NO;

    ...

    SMCPort *port = nil;

    @try {
        while (YES) {
            port = [SMCPort getPort:portName :portSettings :(uint32_t) timeout];

            if (port == nil) {

                ...

                break;
            }

            StarPrinterStatus_2 printerStatus;

            [port beginCheckedBlock:&printerStatus :2];

            if (printerStatus.offline == SM_TRUE) {

                ...

                break;
            }

            NSDate *startDate = [NSDate date];

            uint32_t total = 0;

            while (total < commandLength) {
                uint32_t written = [port writePort:commandsBytes :total :commandLength - total];

                total += written;

                if ([NSDate date] timeIntervalSinceDate:startDate] >= 30.0) { // 30000mS!!!
                    break;
                }
            }
        }
    }
```

```

    if (total < commandLength) {
        ...
        break;
    }

    port.endCheckedBlockTimeoutMillis = 30000; // 30000mS!!!
    [port endCheckedBlock:&printerStatus :2];

    if (printerStatus.offline == SM_TRUE) {
        ...
        break;
    }

    result = YES;
    break;
}
}
@catch (PortException *exc) {
    ...
}
@finally {
    if (port != nil) {
        [SMPort releasePort:port];
    }
}

...

return result;
}

```

### Example (Using StarIoExtManager object)

```

+ (BOOL)sendCommands:(NSData *)commands port:(SMPort *)port {
    BOOL result = NO;

    ...

    @try {
        while (YES) {

            ...

            StarPrinterStatus_2 printerStatus;

            [port beginCheckedBlock:&printerStatus :2];

            if (printerStatus.offline == SM_TRUE) {

                ...

                break;
            }

            NSDate *startDate = [NSDate date];

            uint32_t total = 0;

```

```

while (total < commandLength) {
    uint32_t written = [port writePort:commandsBytes :total :commandLength - total];

    total += written;

    if ([[NSDate date] timeIntervalSinceDate:startDate] >= 30.0) { // 30000mS!!!
        break;
    }
}

if (total < commandLength) {

    ...

    break;
}

port.endCheckedBlockTimeoutMillis = 30000; // 30000mS!!!

[port endCheckedBlock:&printerStatus :2];

if (printerStatus.offline == SM_TRUE) {

    ...

    break;
}

result = YES;
break;
}
}
}catch (PortException *exc) {

    ...

}

...

return result;
}

```

**When you'd like to know StarIO.framework details, refer to the StarIO iOS SDK document.**

## 5 StarloExtManager class included in the StarIO\_Extension.framework

### Method

| Name         | Description                           |
|--------------|---------------------------------------|
| initWithType | Initializes the StarloManager object. |
| connect      | Management start.                     |
| disconnect   | Management stop.                      |

### Property

| Name                     | Description  |
|--------------------------|--|
| port                     | StarIOPort object. * <i>readonly</i>   |
| lock                     | Exclusive access control object of communication by port property. * <i>readonly</i> |
| delegate                 | Delegate of the StarloExtManager.  |
| printerStatus            | Printer status. * <i>readonly</i>  |
| printerPaperStatus       | Printer paper status. * <i>readonly</i>  |
| printerCoverStatus       | Printer cover status. * <i>readonly</i>  |
| cashDrawerStatus         | Cash drawer status. * <i>readonly</i>  |
| barcodeReaderStatus      | Barcode reader status. * <i>readonly</i>   |
| cashDrawerOpenActiveHigh | Mode of cash drawer open sensor active.  |

### Constants

| Name                                | Description                      |
|-------------------------------------|----------------------------------|
| StarloExtManagerType                | Manager type constants.          |
| StarloExtManagerPrinterStatus       | Printer status constants.        |
| StarloExtManagerPrinterPaperStatus  | Printer paper status constants.  |
| StarloExtManagerPrinterCoverStatus  | Printer cover status constants.  |
| StarloExtManagerCashDrawerStatus    | Cash drawer status constants.    |
| StarloExtManagerBarcodeReaderStatus | Barcode reader status constants. |

-Auto Power Down function with Bluetooth connection-

Please use SM-S and SM-T series in Auto Power Down function "NO USE" setting (default setting).

## 5.1 initWithType Method

Initializes the StarIoManager object.

### Declaration

```
- (id)initWithType:(StarIoExtManagerType)type portName:(NSString *)portName
portSettings:(NSString *)portSettings ioTimeoutMillis:(NSInteger)ioTimeoutMillis;
```

### Parameter

| Name            | Description  | Object type          |
|-----------------|--|----------------------|
| type            | Manager type. <ul style="list-style-type: none"> <li>StarIoExtManagerTypeStandard ... Management of the printer and the cash drawer.</li> <li>StarIoExtManagerTypeWithBarcodeReader ... Management of the printer, cash drawer and the barcode reader.</li> <li>StarIoExtManagerTypeOnlyBarcodeReader ... Management of the barcode reader.</li> </ul> | StarIoExtManagerType |
| portName        | Printer port name.   | NSString             |
| portSettings    | Port settings.   | NSString             |
| ioTimeoutMillis | Timeout value for internal control and API.  | NSInteger            |

### Return value

| Description              | Object type      |
|--------------------------|------------------|
| StarIoExtManager object. | StarIoExtManager |

### Example

```
- (void)viewDidLoad {
    [super viewDidLoad];
    // Do any additional setup after loading the view.

    _starIoExtManager = [[StarIoExtManager alloc] initWithType:StarIoExtManagerTypeStandard
                                                             portName:[AppDelegate getPortName]
                                                             portSettings:[AppDelegate getPortSettings]
                                                             ioTimeoutMillis:10000]; // 10000mS!!!

    _starIoExtManager.delegate = self;
}
```

Refer to *PrinterExtViewController.m*, *CashDrawerExtViewController.m*, *BarcodeReaderExtViewController.m* and *CombinationExtViewController.m*.

◆ When you'd like to know portName, portSettings and ioTimeoutMills details, refer to the StarIO iOS SDK document.



## 5.2 connect Method

Management start.

### Declaration

- (BOOL)connect;

### Parameter

| Name | Description | Object type |
|------|-------------|-------------|
| -    | -           | -           |

### Return value

| Description   | Object type |
|---|-------------|
| Result.   |             |
| <ul style="list-style-type: none"> <li>YES ... Success</li> <li>NO ... Failure</li> </ul> | BOOL        |

### Example

```
- (void)viewWillAppear:(BOOL)animated {
    [super viewWillAppear:animated];

    if (_starloExtManager.port != nil) {
        [_starloExtManager disconnect];
    }

    if ([_starloExtManager connect] == NO) {
        UIAlertView *alert = [[UIAlertView alloc] initWithTitle:@"Fail to Open Port."
                                                             message:@""
                                                             delegate:self
                                                             cancelButtonTitle:@"OK"
                                                             otherButtonTitles:nil];

        [alert show];
    }
}
```

Refer to *PrinterExtViewController.m*, *CashDrawerExtViewController.m*, *BarcodeReaderExtViewController.m* and *CombinationExtViewController.m*.

### 5.3 disconnect Method

Management stop.

#### Declaration

- (BOOL)disconnect;

#### Parameter

| Name | Description | Object type |
|------|-------------|-------------|
| -    | -           | -           |

#### Return value

| Description   | Object type |
|---|-------------|
| Result.   |             |
| <ul style="list-style-type: none"> <li>YES ... Success</li> <li>NO ... Failure</li> </ul> | BOOL        |

#### Example

```
- (void)viewWillDisappear:(BOOL)animated {
    [super viewWillDisappear:animated];

    [_starIoExtManager disconnect];
}
```

Refer to *PrinterExtViewController.m*, *CashDrawerExtViewController.m*, *BarcodeReaderExtViewController.m* and *CombinationExtViewController.m*.

### 5.4 port Property

StarIOPort object. \* *readonly*

#### Declaration

@property (readonly, nonatomic) SMPort \*port;

◆When you'd like to know StarIO object details, refer to the StarIO iOS SDK document.

## 5.5 lock Property

Exclusive access control object of communication by port property. \* *readonly*

### Declaration

@property (readonly, nonatomic) NSRecursiveLock \*lock;

### Example

```
- (IBAction)touchUpInsidePrintButton:(id)sender {
    ...

    [_starloExtManager.lock lock];

    [Communication sendCommands:commands port:[_starloExtManager port]];

    [_starloExtManager.lock unlock];

    ...
}
```

Refer to *PrinterExtViewController.m*, *CashDrawerExtViewController.m* and *CombinationExtViewController.m*.

## 5.6 delegate Property

Delegate of the StarloExtManager.

### Declaration

@property (weak, nonatomic) id<StarloExtManagerDelegate> delegate;

### Example

```
- (void)viewDidLoad {
    [super viewDidLoad];
    // Do any additional setup after loading the view.

    _starloExtManager = [[StarloExtManager alloc] initWithType:StarloExtManagerTypeOnlyBarcodeReader
                                                             portName:[AppDelegate getPortName]
                                                             portSettings:[AppDelegate getPortSettings]
                                                             ioTimeoutMillis:10000]; // 10000mS!!!

    _starloExtManager.delegate = self;
}
```

Refer to *PrinterExtViewController.m*, *CashDrawerExtViewController.m*, *BarcodeReaderExtViewController.m* and *CombinationExtViewController.m*.

## 5.7 printerStatus Property

Printer Online status. \* *readonly*

### Declaration

@property (readonly, nonatomic) StarloExtManagerPrinterStatus printerStatus;

### Value

| Description   | Object type                   |
|---|-------------------------------|
| Printer status. <ul style="list-style-type: none"> <li>StarloExtManagerPrinterStatusInvalid ... Invalid.</li> <li>StarloExtManagerPrinterStatusImpossible ... Impossible to use printer.</li> <li>StarloExtManagerPrinterStatusOnline ... Detect online.</li> <li>StarloExtManagerPrinterStatusOffline ... Detect offline.</li> </ul> | StarloExtManagerPrinterStatus |

## 5.8 printerPaperStatus Property

Printer paper status. \* *readonly*

### Declaration

@property (readonly, nonatomic) StarloExtManagerPrinterPaperStatus printerPaperStatus;

### Value

| Description   | Object type                        |
|---|------------------------------------|
| Printer paper status. <ul style="list-style-type: none"> <li>StarloExtManagerPrinterPaperStatusInvalid ... Invalid.</li> <li>StarloExtManagerPrinterPaperStatusImpossible ... Impossible to use Equipment.</li> <li>StarloExtManagerPrinterPaperStatusReady ... Detect paper ready.</li> <li>StarloExtManagerPrinterPaperStatusNearEmpty ... Detect paper near end.</li> <li>StarloExtManagerPrinterPaperStatusEmpty ... Detect paper empty.</li> </ul> | StarloExtManagerPrinterPaperStatus |

## 5.9 printerCoverStatus Property

Printer cover status. \* *readonly*

### Declaration

@property (readonly, nonatomic) StarloExtManagerPrinterCoverStatus printerCoverStatus;

### Value

| Description   | Object type                        |
|---|------------------------------------|
| Printer cover status. <ul style="list-style-type: none"> <li>StarloExtManagerPrinterCoverStatusInvalid ... Invalid.</li> <li>StarloExtManagerPrinterCoverStatusImpossible ... Impossible to use Equipment.</li> <li>StarloExtManagerPrinterCoverStatusOpen ... Detect cover open.</li> <li>StarloExtManagerPrinterCoverStatusClose ... Detect cover close.</li> </ul> | StarloExtManagerPrinterCoverStatus |

## 5.10 cashDrawerStatus Property

Cash drawer status. \* *readonly*

### Declaration

@property (readonly, nonatomic) StarloExtManagerCashDrawerStatus cashDrawerStatus;

### Value

| Description   | Object type                      |
|---|----------------------------------|
| Cash drawer status. <ul style="list-style-type: none"> <li>StarloExtManagerCashDrawerStatusInvalid ... Invalid.</li> <li>StarloExtManagerCashDrawerStatusImpossible ... Impossible to use Equipment.</li> <li>StarloExtManagerCashDrawerStatusOpen ... Detect Cash drawer open.</li> <li>StarloExtManagerCashDrawerStatusClose ... Detect Cash drawer close.</li> </ul> | StarloExtManagerCashDrawerStatus |

## 5.11 barcodeReaderStatus Property

Barcode reader status. \* *readonly*

### Declaration

@property (readonly, nonatomic) StarloExtManagerBarcodeReaderStatus barcodeReaderStatus;

### Value

| Description   | Object type                         |
|---|-------------------------------------|
| Barcode reader status. <ul style="list-style-type: none"><li>StarloExtManagerBarcodeReaderStatusInvalid ... Invalid.</li><li>StarloExtManagerBarcodeReaderStatusImpossible ... Impossible to use Equipment.</li><li>StarloExtManagerBarcodeReaderStatusConnect ... Detect Barcode reader connection.</li><li>StarloExtManagerBarcodeReaderStatusDisconnect ... Detect Barcode reader disconnection.</li></ul> | StarloExtManagerBarcodeReaderStatus |

## 5.12 cashDrawerOpenActiveHigh Property

Mode of cash drawer open sensor active.

### Declaration

@property (nonatomic) BOOL cashDrawerOpenActiveHigh;

### Value

| Description   | Object type |
|---|-------------|
| Mode of a cash drawer open sensor active. <ul style="list-style-type: none"><li>YES ... Active high.</li><li>NO ... Active low.</li></ul> | BOOL        |

## 5.13 StarloExtManagerType Constants

Manager type constants.

### Declaration

```
typedef NS_ENUM(NSUInteger, StarloExtManagerType) {
    StarloExtManagerTypeStandard = 0,
    StarloExtManagerTypeWithBarcodeReader,
    StarloExtManagerTypeOnlyBarcodeReader,
};
```

### Constants

| Name                                  | Description  |
|---------------------------------------|--|
| StarloExtManagerTypeStandard          | Management of the printer and the cash drawer.                 |
| StarloExtManagerTypeWithBarcodeReader | Management of the printer, cash drawer and the barcode reader. |
| StarloExtManagerTypeOnlyBarcodeReader | Management of the barcode reader.                              |

## 5.14 StarloExtManagerPrinterStatus Constants

Printer status constants.

### Declaration

```
typedef NS_ENUM(NSUInteger, StarloExtManagerPrinterStatus) {
    StarloExtManagerPrinterStatusInvalid = 0,
    StarloExtManagerPrinterStatusImpossible,
    StarloExtManagerPrinterStatusOnline,
    StarloExtManagerPrinterStatusOffline
};
```

### Constants

| Name  | Description                |
|---|----------------------------|
| StarloExtManagerPrinterStatusInvalid        | Invalid.                   |
| StarloExtManagerPrinterStatusImpossible     | Impossible to use printer. |
| StarloExtManagerPrinterStatusPrinterOnline  | Detect Printer online.     |
| StarloExtManagerPrinterStatusPrinterOffline | Detect Printer offline.    |

## 5.15 StarloExtManagerPrinterPaperStatus Constants

Printer paper status constants.

### Declaration

```
typedef NS_ENUM(NSInteger, StarloExtManagerPrinterPaperStatus) {
    StarloExtManagerPrinterPaperStatusInvalid = 0,
    StarloExtManagerPrinterPaperStatusImpossible,
    StarloExtManagerPrinterPaperStatusReady,
    StarloExtManagerPrinterPaperStatusNearEmpty,
    StarloExtManagerPrinterPaperStatusEmpty
};
```

### Constants

| Name   | Description                    |
|--|--------------------------------|
| StarloExtManagerPrinterPaperStatusInvalid    | Invalid.                       |
| StarloExtManagerPrinterPaperStatusImpossible | Impossible to use Printer.     |
| StarloExtManagerPrinterPaperStatusReady      | Detect Printer paper ready.    |
| StarloExtManagerPrinterPaperStatusNearEmpty  | Detect Printer paper near end. |
| StarloExtManagerPrinterPaperStatusEmpty      | Detect Printer paper empty.    |

## 5.16 StarloExtManagerPrinterCoverStatus Constants

Printer cover status constants.

### Declaration

```
typedef NS_ENUM(NSInteger, StarloExtManagerPrinterCoverStatus) {
    StarloExtManagerPrinterCoverStatusInvalid = 0,
    StarloExtManagerPrinterCoverStatusImpossible,
    StarloExtManagerPrinterCoverStatusOpen,
    StarloExtManagerPrinterCoverStatusClose
};
```

### Constants

| Name   | Description                 |
|--|-----------------------------|
| StarloExtManagerPrinterCoverStatusInvalid    | Invalid.                    |
| StarloExtManagerPrinterCoverStatusImpossible | Impossible to use Printer.  |
| StarloExtManagerPrinterCoverStatusOpen       | Detect Printer cover open.  |
| StarloExtManagerPrinterCoverStatusClose      | Detect Printer cover close. |



## 5.17 StarloExtManagerCashDrawerStatus Constants

Cash drawer status constants.

### Declaration

```
typedef NS_ENUM(NSInteger, StarloExtManagerCashDrawerStatus) {
    StarloExtManagerCashDrawerStatusInvalid = 0,
    StarloExtManagerCashDrawerStatusImpossible,
    StarloExtManagerCashDrawerStatusOpen,
    StarloExtManagerCashDrawerStatusClose
};
```

### Constants

| Name                                       | Description                    |
|--|--------------------------------|
| StarloExtManagerCashDrawerStatusInvalid    | Invalid.                       |
| StarloExtManagerCashDrawerStatusImpossible | Impossible to use Cash drawer. |
| StarloExtManagerCashDrawerStatusOpen       | Detect Cash drawer open.       |
| StarloExtManagerCashDrawerStatusClose      | Detect Cash drawer close.      |

## 5.18 StarloExtManagerBarcodeReaderStatus Constants

Barcode reader status constants.

### Declaration

```
typedef NS_ENUM(NSInteger, StarloExtManagerBarcodeReaderStatus) {
    StarloExtManagerBarcodeReaderStatusInvalid = 0,
    StarloExtManagerBarcodeReaderStatusImpossible,
    StarloExtManagerBarcodeReaderStatusConnect,
    StarloExtManagerBarcodeReaderStatusDisconnect
};
```

### Constants

| Name  | Description                          |
|---|--------------------------------------|
| StarloExtManagerBarcodeReaderStatusInvalid    | Invalid.                             |
| StarloExtManagerBarcodeReaderStatusImpossible | Impossible to use Barcode reader.    |
| StarloExtManagerBarcodeReaderStatusConnect    | Detect Barcode reader connection.    |
| StarloExtManagerBarcodeReaderStatusDisconnect | Detect Barcode reader disconnection. |

## 6 StarloExtManagerDelegate class included in the StarIO\_Extension.framework

### Method

| Name                       | Description  |
|----------------------------|--|
| didPrinterImpossible       | Tells the delegate the printer impossible. <i>* optional</i>                       |
| didPrinterOnline           | Tells the delegate the printer has come online. <i>* optional</i>                  |
| didPrinterOffline          | Tells the delegate the printer has come offline. <i>* optional</i>                 |
| didPrinterPaperReady       | Tells the delegate the printer has come paper ready. <i>* optional</i>             |
| didPrinterPaperNearEmpty   | Tells the delegate the printer has come paper near end. <i>* optional</i>          |
| didPrinterPaperEmpty       | Tells the delegate the printer has come paper empty. <i>* optional</i>             |
| didPrinterCoverOpen        | Tells the delegate the printer has come cover open. <i>* optional</i>              |
| didPrinterCoverClose       | Tells the delegate the printer has come cover close. <i>* optional</i>             |
| didCashDrawerOpen          | Tells the delegate the cash drawer has come open. <i>* optional</i>                |
| didCashDrawerClose         | Tells the delegate the cash drawer has come close. <i>* optional</i>               |
| didBarcodeReaderImpossible | Tells the delegate the barcode reader impossible. <i>* optional</i>                |
| didBarcodeReaderConnect    | Tells the delegate the barcode reader connected. <i>* optional</i>                 |
| didBarcodeReaderDisconnect | Tells the delegate the barcode reader disconnected. <i>* optional</i>              |
| didBarcodeDataReceive      | Tells the delegate the barcode data received. <i>* optional</i>                    |
| didAccessoryConnectSuccess | Tells the delegate the bluetooth accessory connection succeeded. <i>* optional</i> |
| didAccessoryConnectFailure | Tells the delegate the bluetooth accessory connection failed. <i>* optional</i>    |
| didAccessoryDisconnect     | Tells the delegate the bluetooth accessory disconnected. <i>* optional</i>         |
| didStatusUpdate            | Tells the delegate the status updated. <i>* optional</i>                           |

### 6.1 didPrinterImpossible Method

Tells the delegate the printer impossible. *\* optional*

#### Declaration

- (void)didPrinterImpossible;

- (void)didPrinterImpossible:(StarloExtManager \*)manager;

#### Parameter

| Name    | Description                                       | Object type      |
|---------|---|------------------|
| manager | A StarloExtManager object informing the delegate. | StarloExtManager |

#### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

#### Example

```
- (void)didPrinterImpossible:(StarloExtManager *)manager {
    _commentLabel.text = @"Printer Impossible.";
    _commentLabel.textColor = [UIColor redColor];
}
```

Refer to *PrinterExtViewController.m*, *CashDrawerExtViewController.m* and *CombinationExtViewController.m*.

## 6.2 didPrinterOnline Method

Tells the delegate the printer has come online. \* *optional*

### Declaration

- (void)didPrinterOnline;
- (void)didPrinterOnline:(StarloExtManager \*)manager;

### Parameter

| Name    | Description                                       | Object type      |
|---------|---|------------------|
| manager | A StarloExtManager object informing the delegate. | StarloExtManager |

### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

### Example

```
- (void)didPrinterOnline:(StarloExtManager *)manager {
    _commentLabel.text = @"Printer Online.";
    _commentLabel.textColor = [UIColor blueColor];
}
```

Refer to *PrinterExtViewController.m* and *CombinationExtViewController.m*.

## 6.3 didPrinterOffline Method

Tells the delegate the printer has come offline. \* *optional*

### Declaration

- (void)didPrinterOffline;
- (void)didPrinterOffline:(StarloExtManager \*)manager;

### Parameter

| Name    | Description                                       | Object type      |
|---------|---|------------------|
| manager | A StarloExtManager object informing the delegate. | StarloExtManager |

### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

### Example

```
- (void)didPrinterOffline:(StarloExtManager *)manager {
    _commentLabel.text = @"Printer Offline.";
    _commentLabel.textColor = [UIColor redColor];
}
```

Refer to *PrinterExtViewController.m* and *CombinationExtViewController.m*.

## 6.4 didPrinterPaperReady Method

Tells the delegate the printer has come paper ready. \* optional

### Declaration

- (void)didPrinterPaperReady;
- (void)didPrinterPaperReady:(StarloExtManager \*)manager;

### Parameter

| Name    | Description                                       | Object type      |
|---------|---|------------------|
| manager | A StarloExtManager object informing the delegate. | StarloExtManager |

### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

### Example

```
- (void)didPrinterPaperReady:(StarloExtManager *)manager {
    _commentLabel.text = @"Printer Paper Ready.";
    _commentLabel.textColor = [UIColor blueColor];
}
```

Refer to *PrinterExtViewController.m* and *CombinationExtViewController.m*.

## 6.5 didPrinterPaperNearEmpty Method

Tells the delegate the printer has come paper near end. \* optional

### Declaration

- (void)didPrinterPaperNearEmpty;
- (void)didPrinterPaperNearEmpty:(StarloExtManager \*)manager;

### Parameter

| Name    | Description                                       | Object type      |
|---------|---|------------------|
| manager | A StarloExtManager object informing the delegate. | StarloExtManager |

### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

### Example

```
- (void)didPrinterPaperNearEmpty:(StarloExtManager *)manager {
    _commentLabel.text = @"Printer Paper Near Empty.";
    _commentLabel.textColor = [UIColor orangeColor];
}
```

Refer to *PrinterExtViewController.m* and *CombinationExtViewController.m*.

## 6.6 didPrinterPaperEmpty Method

Tells the delegate the printer has come paper empty. \* *optional*

### Declaration

- (void)didPrinterPaperEmpty;
- (void)didPrinterPaperEmpty:(StarloExtManager \*)manager;

### Parameter

| Name    | Description                                       | Object type      |
|---------|---|------------------|
| manager | A StarloExtManager object informing the delegate. | StarloExtManager |

### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

### Example

```
- (void)didPrinterPaperEmpty:(StarloExtManager *)manager {
    _commentLabel.text = @"Printer Paper Empty.";
    _commentLabel.textColor = [UIColor redColor];
}
```

Refer to *PrinterExtViewController.m* and *CombinationExtViewController.m*.

## 6.7 didPrinterCoverOpen Method

Tells the delegate the printer has come cover open. \* *optional*

### Declaration

- (void)didPrinterCoverOpen;
- (void)didPrinterCoverOpen:(StarloExtManager \*)manager;

### Parameter

| Name    | Description                                       | Object type      |
|---------|---|------------------|
| manager | A StarloExtManager object informing the delegate. | StarloExtManager |

### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

### Example

```
- (void)didPrinterCoverOpen:(StarloExtManager *)manager {
    _commentLabel.text = @"Printer Cover Open.";
    _commentLabel.textColor = [UIColor redColor];
}
```

Refer to *PrinterExtViewController.m* and *CombinationExtViewController.m*.

## 6.8 didPrinterCoverClose Method

Tells the delegate the printer has come cover close. \* *optional*

### Declaration

- (void)didPrinterCoverClose;
- (void)didPrinterCoverClose:(StarloExtManager \*)manager;

### Parameter

| Name    | Description                                       | Object type      |
|---------|---|------------------|
| manager | A StarloExtManager object informing the delegate. | StarloExtManager |

### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

### Example

```
-(void)didPrinterCoverClose:(StarloExtManager *)manager {
    _commentLabel.text = @"Printer Cover Close.";
    _commentLabel.textColor = [UIColor blueColor];
}
```

Refer to *PrinterExtViewController.m* and *CombinationExtViewController.m*.

## 6.9 didCashDrawerOpen Method

Tells the delegate the cash drawer has come open. \* *optional*

### Declaration

- (void)didCashDrawerOpen;
- (void)didCashDrawerOpen:(StarloExtManager \*)manager;

### Parameter

| Name    | Description                                       | Object type      |
|---------|---|------------------|
| manager | A StarloExtManager object informing the delegate. | StarloExtManager |

### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

### Example

```
-(void)didCashDrawerOpen:(StarloExtManager *)manager {
    _commentLabel.text = @"Cash Drawer Open.";
    // _commentLabel.textColor = [UIColor redColor];
    _commentLabel.textColor = [UIColor magentaColor];
}
```

Refer to *CashDrawerExtViewController.m* and *CombinationExtViewController.m*.

## 6.10 didCashDrawerClose Method

Tells the delegate the cash drawer has come close. \* *optional*

### Declaration

- (void)didCashDrawerClose;
- (void)didCashDrawerClose:(StarloExtManager \*)manager;

### Parameter

| Name    | Description                                       | Object type      |
|---------|---|------------------|
| manager | A StarloExtManager object informing the delegate. | StarloExtManager |

### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

### Example

```
- (void)didCashDrawerClose:(StarloExtManager *)manager {
    _commentLabel.text = @"Cash Drawer Close.";
    _commentLabel.textColor = [UIColor blueColor];
}
```

Refer to CashDrawerExtViewController.m and CombinationExtViewController.m.

## 6.11 didBarcodeReaderImpossible Method

Tells the delegate the barcode reader impossible. \* *optional*

### Declaration

- (void)didBarcodeReaderImpossible;
- (void)didBarcodeReaderImpossible:(StarloExtManager \*)manager;

### Parameter

| Name    | Description                                       | Object type      |
|---------|---|------------------|
| manager | A StarloExtManager object informing the delegate. | StarloExtManager |

### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

### Example

```
- (void)didBarcodeReaderImpossible:(StarloExtManager *)manager {
    _commentLabel.text = @"Barcode Reader Impossible.";
    _commentLabel.textColor = [UIColor redColor];
}
```

Refer to BarcodeReaderExtViewController.m and CombinationExtViewController.m.

## 6.12 didBarcodeReaderConnect Method

Tells the delegate the barcode reader connected. \* *optional*

### Declaration

- (void)didBarcodeReaderConnect;

- (void)didBarcodeReaderConnect:(StarloExtManager \*)manager;

### Parameter

| Name    | Description                                       | Object type      |
|---------|---|------------------|
| manager | A StarloExtManager object informing the delegate. | StarloExtManager |

### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

### Example

```
- (void)didBarcodeReaderConnect:(StarloExtManager *)manager {
    _commentLabel.text = @"Barcode Reader Connect.";
    _commentLabel.textColor = [UIColor blueColor];
}
```

Refer to BarcodeReaderExtViewController.m and CombinationExtViewController.m.

## 6.13 didBarcodeReaderDisconnect Method

Tells the delegate the barcode reader disconnected. \* *optional*

### Declaration

- (void)didBarcodeReaderDisconnect;

- (void)didBarcodeReaderDisconnect:(StarloExtManager \*)manager;

### Parameter

| Name    | Description                                       | Object type      |
|---------|---|------------------|
| manager | A StarloExtManager object informing the delegate. | StarloExtManager |

### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

### Example

```
- (void)didBarcodeReaderDisconnect:(StarloExtManager *)manager {
    _commentLabel.text = @"Barcode Reader Disconnect.";
    _commentLabel.textColor = [UIColor redColor];
}
```

Refer to BarcodeReaderExtViewController.m and CombinationExtViewController.m.



## 6.14 didBarcodeDataReceive Method

Tells the delegate the barcode data received. *\* optional*

### Declaration

- (void)didBarcodeDataReceive:(NSData \*)data;
- (void)didBarcodeDataReceive:(StarloExtManager \*)manager data:(NSData \*)data;

### Parameter

| Name    | Description                                       | Object type      |
|---------|---|------------------|
| data    | Received barcode data.                            | NSData           |
| manager | A StarloExtManager object informing the delegate. | StarloExtManager |

### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

### Example

```
- (void)didBarcodeDataReceive:(StarloExtManager *)manager data:(NSData *)data {
    NSMutableString *text = [NSMutableString stringWithString:@""];

    const uint8_t *p = [data bytes];

    for (int i = 0; i < data.length; i++) {
        uint8_t ch = *(p + i);

        if (ch >= 0x20 && ch <= 0x7f) {
            [text appendFormat:@"%c", (char) ch];
        }
        else if (ch == 0x0d) {
            ...

            text = [NSMutableString stringWithString:@""];
        }
    }
}
```

Refer to *BarcodeReaderExtViewController.m* and *CombinationExtViewController.m*.

## 6.15 didAccessoryConnectSuccess Method

Tells the delegate the bluetooth accessory connection succeeded. \* *optional*

### Declaration

- (void)didAccessoryConnectSuccess;
- (void)didAccessoryConnectSuccess:(StarloExtManager \*)manager;

### Parameter

| Name    | Description                                       | Object type      |
|---------|---|------------------|
| manager | A StarloExtManager object informing the delegate. | StarloExtManager |

### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

### Example

```
- (void)didAccessoryConnectSuccess:(StarloExtManager *)manager {
    _commentLabel.text = @"Accessory Connect Success.";
    _commentLabel.textColor = [UIColor blueColor];
}
```

Refer to *PrinterExtViewController.m*, *CashDrawerExtViewController.m*, *BarcodeReaderExtViewController.m* and *CombinationExtViewController.m*.

## 6.16 didAccessoryConnectFailure Method

Tells the delegate the bluetooth accessory connection failed. \* *optional*

### Declaration

- (void)didAccessoryConnectFailure;
- (void)didAccessoryConnectFailure:(StarloExtManager \*)manager;

### Parameter

| Name    | Description                                       | Object type      |
|---------|---|------------------|
| Manager | A StarloExtManager object informing the delegate. | StarloExtManager |

### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

### Example

```
- (void)didAccessoryConnectFailure:(StarloExtManager *)manager {
    _commentLabel.text = @"Accessory Connect Failure.";
    _commentLabel.textColor = [UIColor redColor];
}
```

Refer to *PrinterExtViewController.m*, *CashDrawerExtViewController.m*, *BarcodeReaderExtViewController.m* and *CombinationExtViewController.m*.

## 6.17 didAccessoryDisconnect Method

Tells the delegate the bluetooth accessory disconnected. \* *optional*

### Declaration

- (void)didAccessoryDisconnect;

- (void)didAccessoryDisconnect:(StarloExtManager \*)manager;

### Parameter

| Name    | Description                                       | Object type      |
|---------|---|------------------|
| manager | A StarloExtManager object informing the delegate. | StarloExtManager |

### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

### Example

```
- (void)didAccessoryDisconnect:(StarloExtManager *)manager {
    _commentLabel.text = @"Accessory Disconnect.";
    _commentLabel.textColor = [UIColor redColor];
}
```

Refer to *PrinterExtViewController.m*, *CashDrawerExtViewController.m*, *BarcodeReaderExtViewController.m* and *CombinationExtViewController.m*.

## 6.18 didStatusUpdate Method

Tells the delegate the status updated. \* *optional*

### Declaration

- (void)didStatusUpdate:(NSString \*)status;

- (void)didStatusUpdate:(StarloExtManager \*)manager status:(NSString \*)status;

### Parameter

| Name    | Description   | Object type      |
|---------|---|------------------|
| status  | <p>Updated status.</p> <p>Hexdecimal digit sequence of 3rd to 6th bytes in Automatic Status (*)<br/>(ex. "28000000")</p> <p>-Status update timing-</p> <ul style="list-style-type: none"> <li>• When the status changes.</li> <li>• Even no status change, every 5 min.</li> </ul> <p>* Please refer to STAR Line Mode and StarPRNT command manual for details of Automatic Status.</p> | NSString         |
| manager | A StarloExtManager object informing the delegate.   | StarloExtManager |

### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

### Example

```
- (void)didStatusUpdate:(StarloExtManager *)manager status:(NSString *)status {
    _commentLabel.text = status;

    _commentLabel.textColor = [UIColor greenColor];
}
```

Refer to *AllReceiptsExtViewController.m*.

## 7 API expanded for Swift support included in the StarIO.framework

API that can know the end result of the method by NSError has been prepared.

### *Declaration for Swift*

```
public func writePort(writeBuffer: UnsafePointer<UInt8>, _ offSet: UInt32, _ size: UInt32, _ error:
NSErrorPointer) -> UInt32

public func readPort(readBuffer: UnsafeMutablePointer<UInt8>, _ offSet: UInt32, _ size: UInt32, _ error:
NSErrorPointer) -> UInt32

public func getParsedStatus(starPrinterStatus: UnsafeMutablePointer<Void>, _ level: UInt32, _ error:
NSErrorPointer) -> UInt32

public func getFirmwareInformation(error: NSErrorPointer) -> [NSObject : AnyObject]!

public func getDipSwitchInformation(error: NSErrorPointer) -> [NSObject : AnyObject]!

public func getOnlineStatusWithError(error: NSErrorPointer) -> UInt32

public func beginCheckedBlock(starPrinterStatus: UnsafeMutablePointer<Void>, _ level: UInt32, _ error:
NSErrorPointer) -> UInt32

public func endCheckedBlock(starPrinterStatus: UnsafeMutablePointer<Void>, _ level: UInt32, _ error:
NSErrorPointer) -> UInt32
```

### *Declaration for Objective-c*

```
-(u_int32_t)writePort:(u_int8_t const *)writeBuffer :(u_int32_t)offSet :(u_int32_t)size :(NSError **)error;
-(u_int32_t)readPort:(u_int8_t *)readBuffer :(u_int32_t)offSet :(u_int32_t)size :(NSError **)error;
-(NSInteger)getParsedStatus:(void *)starPrinterStatus :(u_int32_t)level :(NSError **)error;
-(NSDictionary *)getFirmwareInformation:(NSError **)error;
-(NSDictionary *)getDipSwitchInformation:(NSError **)error;
-(NSInteger)getOnlineStatus:(NSError **)error;
-(NSInteger)beginCheckedBlock:(void *)starPrinterStatus :(u_int32_t)level :(NSError **)error;
-(NSInteger)endCheckedBlock:(void *)starPrinterStatus :(u_int32_t)level :(NSError **)error;
```

**When you'd like to know StarIO.framework details, refer to the StarIO iOS SDK document.**

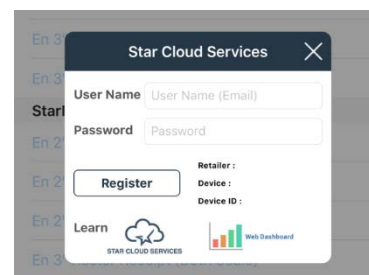
## 8 SMCloudServices class included in the SMCloudServices.framework

### Method

| Name                 | Description  |
|----------------------|--|
| showRegistrationView | It displays a view of the Star Cloud Services registration.                |
| isRegistered         | Checks whether the application is registered with the Star Cloud Services. |

### 8.1 showRegistrationView Method

It displays a view of the Star Cloud Services registration.



### Declaration

```
+ (void)showRegistrationView:(void (^)(BOOL isRegistered))completion;
```

### Parameter

| Name       | Description   | Object type                 |
|------------|---|-----------------------------|
| completion | When the View is closed, check application registration status as following parameter.<br><br>-isRegistered-<br>• YES ... Registered.<br>• NO ... Unregistered. | void (^)(BOOL isRegistered) |

### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

### Example

```
- (void)tableView:(UITableView *)tableView didSelectRowAtIndexPath:(NSIndexPath *)indexPath {
    ...

    [SMCloudServices showRegistrationView:^(BOOL isRegistration) {
        [_tableView reloadData];
    }];

    ...
}
```

Refer to AllReceiptsViewController.m.

## 8.2 isRegistered Method

Checks whether the application is registered with the Star Cloud Services.

### Declaration

+ (BOOL)isRegistered;

### Parameter

| Name | Description | Object type |
|------|-------------|-------------|
| -    | -           | -           |

### Return value

| Description            | Object type |
|------------------------|-------------|
| Result.                | BOOL        |
| • YES ... Registered.  |             |
| • NO ... Unregistered. |             |

### Example

```
- (UITableViewCell *)tableView:(UITableView *)tableView cellForRowAtIndexPath:(NSIndexPath *)indexPath {
    ...

    BOOL userInteractionEnabled = YES;

    if ([SMCloudServices isRegistered] == NO) {
        userInteractionEnabled = NO;
    }

    ...

    return cell;
}
```

Refer to *AllReceiptsViewController.m*.

## 9 SMCSAllReceipts class included in the SMCloudServices.framework

### Method

| Name                | Description  |
|---------------------|--|
| uploadBitmap        | Uploads bitmap to the Star Micronics Service.                    |
| updateStatus        | Updates the device status information on the Star Cloud Service. |
| generateAllReceipts | Generates the print data for the AllReceipts™ use.               |

### 9.1 Model : SMCSAllReceipts class Method

Supported Method for each models.

| Function | Method              | mPOP | FVP10 | TSP100 | TSP650II | TSP700II | TSP800II | SM-S210i | SM-S220i | SM-S230i | SM-T300i | SM-T400i | BSC10 | SM-S210i StarPRNT | SM-S220i StarPRNT | SM-S230i StarPRNT | SM-T300i StarPRNT | SM-T400i StarPRNT | SM-L200 | SP700 |
|----------|---------------------|------|-------|--------|----------|----------|----------|----------|----------|----------|----------|----------|-------|-------------------|-------------------|-------------------|-------------------|-------------------|---------|-------|
| Upload   | uploadBitmap        | ✓    | ✓     | ✓      | ✓        | ✓        | ✓        | -        | -        | -        | -        | -        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | -     |
| Update   | updateStatus        | ✓    | ✓     | ✓      | ✓        | ✓        | ✓        | -        | -        | -        | -        | -        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | -     |
| Generate | generateAllReceipts | ✓    | ✓     | ✓      | ✓        | ✓        | ✓        | -        | -        | -        | -        | -        | ✓     | ✓                 | ✓                 | ✓                 | ✓                 | ✓                 | ✓       | -     |

- : Not guarantee.



## 9.2 uploadBitmap Method

Uploads bitmap (UIImage object) to the Star Micronics Service.

### Declaration

```
+ (NSString *)uploadBitmap:(UIImage *)image completion:(void (^)(NSInteger statusCode, NSError *error))completion;
```

### Parameter

| Name       | Description  | Object type                                    |
|------------|--|--|
| image      | Bitmap to upload.  | UIImage  |
| completion | When the upload is completed, check upload result as following status.<br><br>-statusCode-<br>• HTTP status code.<br><br>-error-<br>• Error information when fails to upload data. | void (^)(NSInteger statusCode, NSError *error) |

### Return value

| Description   | Object type |
|---------------|-------------|
| Uploaded URL. | NSString    |

### Example

```
+ (NSData *)createData:(StarloExtEmulation)emulation image:(UIImage *)image {
    NSString *urlString = [SMCSAllReceipts uploadBitmap:image completion:nil];

    ISCBBuilder *builder = [StarloExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendBitmap:image diffusion:NO];

    NSData *data = [SMCSAllReceipts generateAllReceipts:urlString emulation:emulation info:YES qrCode:YES];

    [builder appendRawData:data];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

    return [builder.commands copy];
}
```

Refer to *AllReceiptsFunctions.m*.

### 9.3 updateStatus Method

Updates the device status information on the Star Cloud Services.

#### Declaration

```
+ (void)updateStatus:(NSString *)status completion:^(void (^)(NSInteger statusCode, NSError *error))completion;
```

#### Parameter

| Name       | Description   | Object type                                    |
|------------|---|--|
| status     | <p>Updated status.</p> <p>Hexadecimal digit sequence of 3rd to 6th bytes in Automatic Status (*) (ex. "28000000")</p> <p>* Please refer to STAR Line Mode and StarPRNT command manual for details of Automatic Status.</p>  | NSString                                       |
| completion | <p>When the update is completed, check update result as following parameter.</p> <p>-statusCode-</p> <ul style="list-style-type: none"> <li>• HTTP status code.</li> </ul> <p>-error-</p> <ul style="list-style-type: none"> <li>• If the request fails, the error parameter contains information about the failure.</li> </ul> | void (^)(NSInteger statusCode, NSError *error) |

#### Return value

| Description | Object type |
|-------------|-------------|
| -           | -           |

#### Example

```
- (void)didStatusUpdate:(StarIoExtManager *)manager status:(NSString *)status {
    [SMCSAllReceipts updateStatus:status completion:^(NSInteger statusCode, NSError *error) {
        ...
    }];
}
```

Refer to *AllReceiptsExtViewController.m*.

## 9.4 generateAllReceipts Method

Generates the print data for the AllReceipts™ use.

### Declaration

```
+ (NSData *)generateAllReceipts:(NSString *)urlString emulation:(StarIoExtEmulation)emulation
info:(BOOL)info qrCode:(BOOL)qrCode;
```

### Parameter

| Name      | Description   | Object type        |
|-----------|---|--------------------|
| urlString | Uploaded URL  | NSString           |
| emulation | Emulation type. <ul style="list-style-type: none"> <li>StarIoExtEmulationStarPRNT ... StarPRNT emulation.</li> <li>StarIoExtEmulationStarLine ... STAR Line Mode emulation.</li> <li>StarIoExtEmulationStarGraphic ... STAR Graphic Mode emulation.</li> <li>StarIoExtEmulationEscPos ... ESC/POS emulation.</li> <li><del>StarIoExtEmulationEscPosMobile ... ESC/POS Mobile emulation.</del></li> <li><del>StarIoExtEmulationStarDotImpact ... STAR Dot Impact emulation.</del></li> </ul> | StarIoExtEmulation |
| info      | Generates information logo. <ul style="list-style-type: none"> <li>YES ... Valid.</li> <li>NO ... Invalid.</li> </ul>   | BOOL               |
| qrCode    | Generates QR code. <ul style="list-style-type: none"> <li>YES ... Valid.</li> <li>NO ... Invalid.</li> </ul>  | BOOL               |

### Return value

| Description           | Object type |
|-----------------------|-------------|
| Generated print data. | NSData      |

### Example

```
+ (NSData *)createData:(StarloExtEmulation)emulation image:(UIImage *)image {
    NSString *urlString = [SMCSAllReceipts uploadBitmap:image completion:nil];

    ISCBBuilder *builder = [StarloExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendBitmap:image diffusion:NO];

    NSData *data = [SMCSAllReceipts generateAllReceipts:urlString emulation:emulation info:YES qrCode:YES];

    [builder appendRawData:data];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

    return [builder.commands copy];
}
```

*Refer to AllReceiptsFunctions.m.*

## Appendix A. How to use AllReceipts™ (Guides for Retailers)

Please visit the following URL for details about “AllReceipts™”, FREE digital receipts service from Star Micronics.

[www.allreceipts.com](http://www.allreceipts.com)

You can start using our services immediately after you complete your registration from the following website.

<< **Star Cloud Services Retailer Registration site** >>

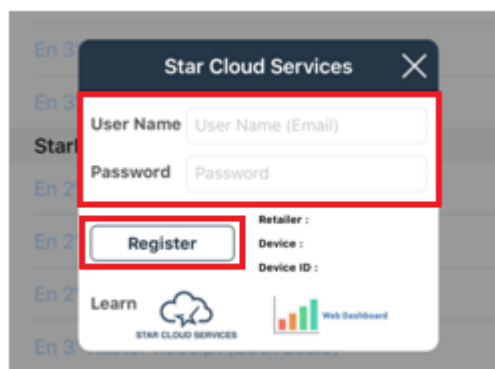
[www.starcloudservices.com](http://www.starcloudservices.com)

### 1) Device Registration

Register the device using your registered Star Cloud Services account.

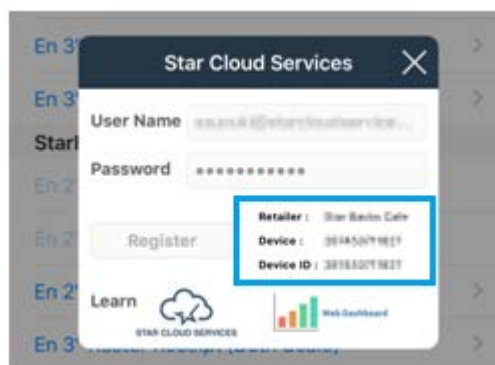
Once you have registered the device, you can use the service of uploading print data to the cloud server and manage the registered device from the Star Cloud Services dashboard.

### 2) Enter the username and the password of your registered Star Cloud Services account and click “Register Device”.



The image shows a mobile app interface for 'Star Cloud Services'. It features a registration form with the following fields: 'User Name' (with a placeholder 'User Name (Email)'), 'Password', and a 'Register' button. To the right of the form, there are labels for 'Retailer:', 'Device:', and 'Device ID:'. At the bottom, there are links for 'Learn' and 'Web Dashboard'.

### 3) When the device is registered successfully, the account information of the connected Star Cloud Services appears.



The image shows the same 'Star Cloud Services' app interface after successful registration. The 'User Name' field now contains the email 'susan.k@starcloudservices.com'. The 'Password' field is masked with dots. The 'Register' button is now disabled. A blue box highlights the account information on the right: 'Retailer: Star Sevin Cafe', 'Device: 35145071821', and 'Device ID: 38183271821'.