StarPRNT iOS SDK User's Manual

August 16, 2017

Abstract

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
Aug 11, 2016	Correction of errors
Sep 12, 2016	Added the uploadData method to the SMCSAllReceipts class.
Apr 17, 2017	Supports BlackMark and PageMode.
Aug 16, 2017	Added the API reference of class included in StarIO framework. Added the SMBluetoothManagerFactory class. Added the API reference of the peripherals (barcode reader / customer display / scale).

About this manual

This manual is designed to help you understand StarIO and how to build an iOS application to interact with Star Micronics Thermal POS Printers. It is important to understand the basics of the Objective-C or Swift language. Although this SDK is for iOS, there are SDKs available for many different operating systems and programming languages at our website in the Developers section. Check the Developers section of our site for the newest SDKs, technical documentation, FAQs, and many more additional resources.

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1 Getting Start

1.1 Star Printer Compatibility Chart

	Printer Models	F/W Version	Interface	Emulation
POS Printer	mPOP	1.0 or later	Bluetooth	StarPRNT
	FVP10	1.2 or later	Bluetooth Ethernet	StarLine
	TSP100IIIW	1.0 or later	Wireless LAN	StarGraphic
	TSP100IIILAN	1.0 or later	Ethernet	StarGraphic
	TSP100IIIBI	1.0 or later	Bluetooth *2	StarGraphic
	TSP100IIIU	1.0 or later	USB	StarGraphic
	TSP100ECO	1.0 or later	USB *1	StarGraphic
	TSP100U	1.3 or later	USB *1	StarGraphic
	TSP100GT	1.0 or later	USB *1	StarGraphic
	TSP100LAN	2.0 or later	Ethernet	StarGraphic
	TSP650II	1.0 or later	Bluetooth *2 Ethernet	StarLine
	TSP700II	4.0 or later	Bluetooth *2 Ethernet	StarLine
		3.0 or later		
	TSP800II	2.0 or later	Bluetooth *2 Ethernet	StarLine
		1.2 or later		
	BSC10 LAN	1.0 or later	Ethernet	ESC/POS
	SP700	4.0 or later	Bluetooth (Excluding Jp model) Ethernet	StarDotImpact
		3.0 or later		
Portable Printer	SM-S210i	2.4 or later	Bluetooth	StarPRNT *3 / EscPosMobile
	SM-S220i	2.0 or later	Bluetooth	StarPRNT *3 / EscPosMobile
	SM-S230i	1.0 or later	Bluetooth	StarPRNT / EscPosMobile
	SM-T300i	2.4 or later	Bluetooth	StarPRNT *3 / EscPosMobile
	SM-T300	1.1 or later	Wireless LAN	EscPosMobile

Portable Printer	SM-T400i	2.4 or later	Bluetooth	StarPRNT *3 / EscPosMobile
	SM-L200	1.0 or later	Bluetooth Low Energy	StarPRNT / StarPRNTL *4
	SM-L300	1.1 or later	Bluetooth Low Energy	StarPRNT / StarPRNTL

*1 USB interface printer works via an Apple Airport Express.

*2 Support timeout value setting of data timeout function.
TSP100IIIBI: Firmware version 1.0 or later.
TSP650II, TSP800II: Firmware version 2.0 or later.
TSP700II: Firmware version 5.0 or later.

*3 Support for StarPRNT emulation is firmware version 3.0 or later.

*4 Support for StarPRNTL emulation is firmware version 2.0 or later

❖ Portable Printer

When using StarPRNT emulation:

To use the StarPRNT emulation, set the emulation setting of the printer to “StarPRNT”. To change the emulation, proceed as follows. (For SM-L200 and SM-L300, it does not need to switch the emulation.)

◆ Switching over between StarPRNT and ESC/POS emulation

1. Turn the printer power and open the printer cover.

2. Press and hold the POWER button and the FEED button simultaneously. As soon as the ERROR lamp flashes five times, release the buttons. The emulation switchover takes place automatically.

3. After setting a paper, close the printer cover. The set emulation is printed out.
   ESC/POS : EMU = ESC/POS
   StarPRNT : EMU = StarPRNT

   If the emulation is not switched correctly, repeat the above steps 1 to 3.
   At that time, in step 2, make sure not to release the buttons until the lamp completes the 5th flash.

4. Please reboot the printer after switching the emulation. *It will be valid after rebooting the printer.

1.2 Connecting a Star POS Printer to an iOS Device

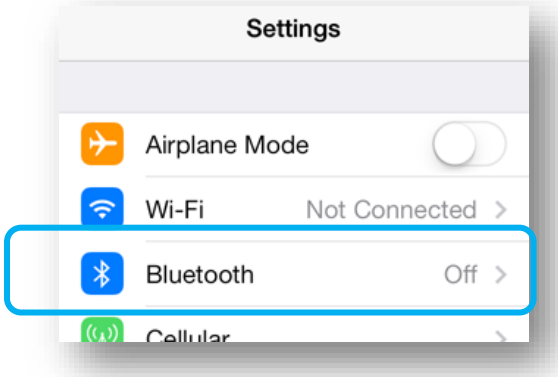
Bluetooth

All Star Bluetooth devices have each initial device name as a factory default setting, such as "Star Micronics" and "DK-AirCash". When using multiple devices, which have same device name, it is useful to change the device name for identifying each device easily.

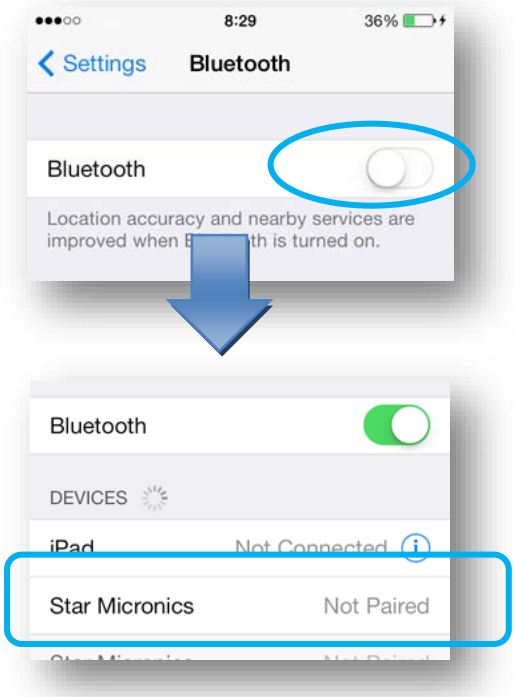
You can change the LAN/Bluetooth settings of the Star POS device, such as changing the Bluetooth device name, use mPOP Utility for mPOP, TSP 100III Utility for TSP 100IIIBI, and for other models use Star Setting Utility.Please download it from App Store.

- Pairing of a Star POS device with your iOS Device

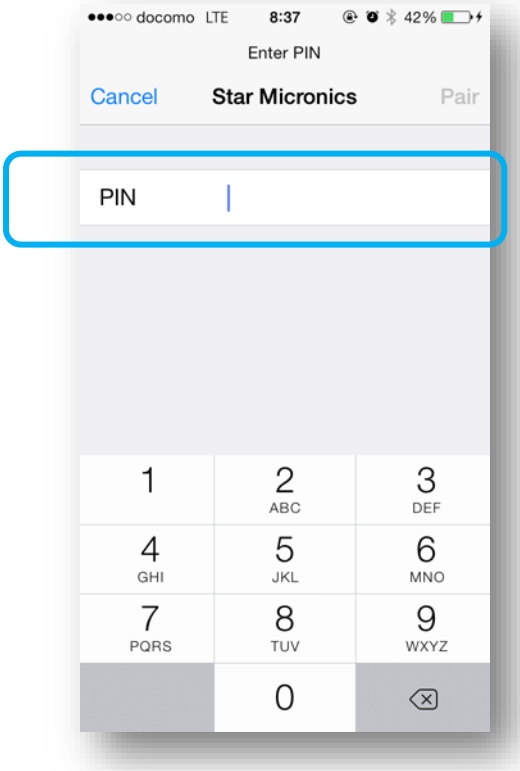
1. Ensure Bluetooth is enabled and the Star POS Device is powered on.
   When the security setting of the Star POS device is set to SSP, press the PAIR button for more than 5 seconds to make it available for pairing.
2. Tap Settings > Bluetooth.



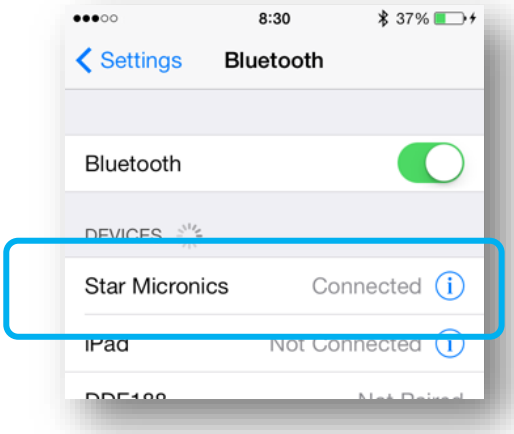
3. Tap Bluetooth to turn it on. Your iOS device searches and displays the Bluetooth devices in range. Tap the Star portable printer you want to pair with.



4. If a PIN code is used for Star Bluetooth device pairing, enter the PIN and tap Pair.



5. When the pairing is complete, you'll see this message.



◆How to change the Bluetooth Device Name

The Star Setting Utility can be downloaded from Apple App Store to change the iOS Port Name.

To confirm iOS Port Name, select [Settings]-[General]-[About] after Bluetooth pairing is established. The iOS Port Name will be shown under the Bluetooth address.

Ethernet Interface

Star POS Printers ship with DHCP enabled by default. If your network supports DHCP, be sure to make the necessary configurations so that your Star POS Printer will automatically get an IP Address.

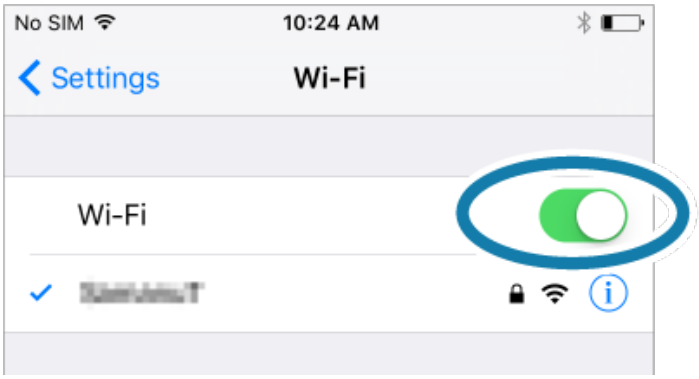
Use Star POS Printers with the #9100 Multi Session disabled. The setting can be confirmed by Test Print which can be executed by holding down the printer's feed button while turning the printer on.

Refer to "guidelines-ethernet_en.pdf" for how to confirm and change the #9100 Multi Session setting and how to set the Static IP Address.

You can set up your POS Printers which can connect to TCP/IP by using Star Setting Utility*(except for TSP100 Series) or TSP100III Utility*(TSP100 and TSP100III).
Please download it from App Store.

* Star Setting Utility and TSP100III Utility do not support printers which are not assigned an IP Address. (IP Address: 0.0.0.0)

1. Assign an IP Address to the Star POS Devices and connect it to the network.
2. Tap Settings.
3. Ensure Wi-Fi is ON.



4.Connect to the same network the Star POS Device is on.

USB Interface <TSP100IIIU only>

Connect the printer and the iOS device with a Lightning cable.

◆How to debug the USB printer

- The following descriptions, procedures and URL are subject to changes when Xcode versions upgrade or site updates. This document is based on our verification using Xcode 8.3 of MacOS 10.12.4 on April 4, 2017.

With USB printers, iOS device Lightning port is occupied by the communication with printer, so is not available for Xcode debug function.
However you can make use of the following method to confirm logs and to use Instruments:

1. Log output

NSLog() output can be saved to files by executing the following code in the application (here it is saved to a file "xcode.log"):

```
NSString *tmpDirPath = NSTemporaryDirectory();
NSString *path = [NSString stringWithFormat:@"%@xcode.log", tmpDirPath];

freopen([path cStringUsingEncoding:NSASCIIStringEncoding], "w+", stderr);
```

< How to extract the log >

1) Connect iOS device to mac with Lightning cable
2) Open Xcode, select "Window" – "Devices" on the main menu, and open "Devices" window
3) Select iOS device in the "Devices" pane in the left
4) Select/click the application to extract log in the "Installed Apps" and save the application in mac by clicking the gear-shaped icon and selecting "Download Container.."
5) Right-click the saved file and then select "Show Package Contents"
   You will see the content of the application then extract xcode.log from the tmp folder.

2. Instruments

See Apple's Instruments User Guide (English) for how to use Instruments through network.
https://developer.apple.com/library/content/documentation/DeveloperTools/Conceptual/InstrumentsUserGuide/WorkingwithTargets.html

2 How to configure iOS StarPRNT Project

2.1 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.

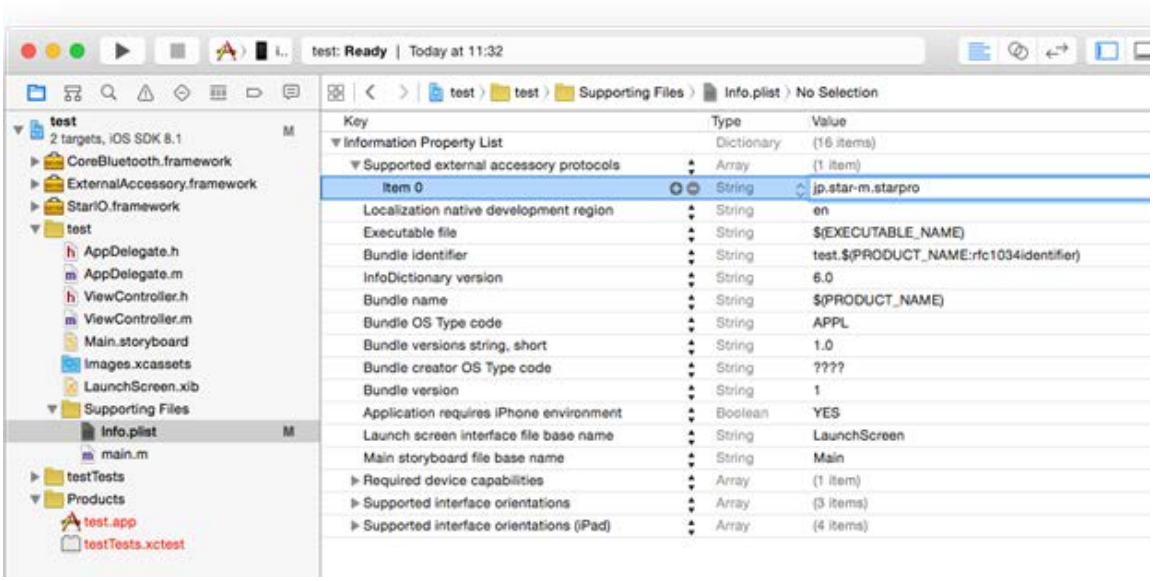
2.2 Add following frameworks to Project.

- CoreBluetooth.framework
- ExternalAccessory.framework

2.3 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”.



3 SMPort Class (StarIO.framework)

A SMPort class is the class to communicate with a printer.

Method

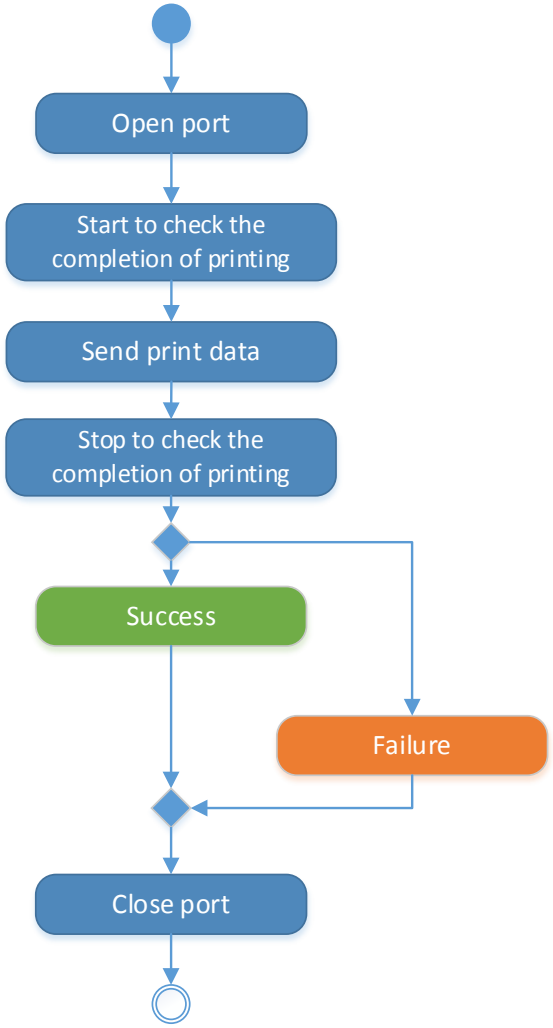
Name	Description
getPort	Creates a SMPort object and opens a port for communicating with the printer.
releasePort	Closes a connection to the port specified and destroy a SMPort object.
searchPrinter	Search for printers that can connect to Android devices.
writePort	Write data to the printer.
readPort	Read data from the printer.
getParsedStatus	Get printer status.
beginCheckedBlock	Starts to check completion of printing
endCheckedBlock	Terminates to check completion of printing
disconnect	Disconnects the specified Bluetooth device.
getFirmwareInformation	Gets printer model name and firmware version
StarIOVersion	Get the version number of the StarIO library.

Property

Name	Description
portName	Acquires the printer port name.
portSettings	Specifies connection setting information.
timeoutMillis	Acquires and specifies the timeout time for internal control and API. (unit: millisecond)
endCheckedBlockTimeoutMillis	Timeout value for internal control and API. (unit: millisecond)
connected	Connection status with the iOS device of the specified Bluetooth printer.

3.1 Printing flow using a SMPort class

Using the SMPort class, print per the following procedure.




```
unsigned char command[] = {0x41, 0x42, 0x43, 0x44, 0x1B, 0x7A, 0x00, 0x1B, 0x64, 0x02};
uint bytesWritten = 0;
StarPrinterStatus_2 starPrinterStatus;
SMPort *port = nil;

@try
{
   port = [SMPort getPort:@"BT:Star Micronics" :@"" :10000 ];

   // Start to check the completion of printing
   [port beginCheckedBlock:&starPrinterStatus :2];

   if (starPrinterStatus.offline == SM_TRUE)
   {
      // There was an error writing to the port
   }
   while (bytesWritten < sizeof (command)) {
      bytesWritten += [port writePort: command : bytesWritten : sizeof(command) - bytesWritten];
   }

   // Stop to check the completion of printing
   [port endCheckedBlock:&starPrinterStatus :2];

   if (starPrinterStatus.offline == SM_TRUE)
   {
      // There was an error writing to the port
   }
}
@catch (PortException)
{
   // There was an error writing to the port
}
@finally
{
    [SMPort releasePort:port];
}
```

Refer to Communication.m.

3.2 Model: SMPort class

Supported method for each model.

Method	mPOP	FVP10	TSP100	TSP650II	TSP700II	TSP800II	SM-S210i	SM-S220i	SM-S230i	SM-T300i/T300	SM-T400i	BSC10	SM-S210i StarPRNT	SM-S220i StarPRNT	SM-S230i StarPRNT	SM-T300i StarPRNT	SM-T400i StarPRNT	SM-L200	SM-L300	SP700
getPort	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
releasePort	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
searchPrinter	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
writePort	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
readPort	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
getParsedStatus	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
beginCheckedBlock	✔	✔	✔	✔	*1	✔	✔	*3	✔	*3	✔	✔	✔	✔	✔	✔	✔	✔	✔	*1
endCheckedBlock	✔	✔	✔	✔	*1	✔	✔	*3	✔	*3	✔	✔	✔	✔	✔	✔	✔	✔	✔	*1
disconnect *5	✔	✔	-	✔	✔	✔	-	-	-	-	-	-	-	-	-	-	-	-	-	✔
getFirmwareInformation	✔	*4	*4	*4	*4	*4	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	*4
StarIOVersion	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔

-: igrored
*1: Frmware version 3.0 or later is required
*2: The model name of TSP100IIIU, TSP100U, TSP100GT and TSP100ECO is TSP100.
The model name of TSP100IIIW, TSP100IIILAN and TSP100LAN is TSP100LAN.
It is impossible to get the firmware version of TSP100IIIU, TSP100U, TSP100GT, TSP100ECO, TSP100IIIW, TSP100IIILAN and TSP100LAN.
*3: When using SM-S200i with firmware Ver 2.1 or earlier, the following limitation exists.
When using SM-T300 with firmware Ver 2.4 or earlier, the following limitation exists.
You can confirm the completion of transmission of print data but cannot confirm the completion of printing.
*4: When using Apple AirMac Express with a USB printer, it returns an empty string.
*5: It functions only in Bluetooth interface.

3.3 getPort Method

Creates a SMPort object and opens a port for communicating with the printer.

Declaration

+ (SMPort *) getPort: (NSString *) portName : (NSString *) portSettings : (u_int32_t) timeoutMillis;

Parameter

Name	Description	Object type
portName	Character string to specify the port for communication with the printer.	NSString *
portSettings	Specifies connection setting information. ・Emulation type ・Data timeout	NSString *
timeoutMillis	Timeout value for internal control and API. [unit: ms]	u_int32_t

Return value

Description	Object type
An instance of SMPort class. It returns "nil" if it fails to generate communication port.	SMPort *

Refer to the printing process flow using the SMPort class.

1. portName Parameter

Interface	portName	Description	Example
Bluetooth	BT:iOS Port Name	To specify the iOS Port Name	@”BT:Star Micronics”
Bluetooth Low Energy	BLE:Device Name	To specify the Bluetooth Device Name	@”BLE:STAR L200-00001”
	BLE:MAC address	To specify the MAC address in Bluetooth	@”BLE:00:11:62:1b:4d:f4”
Ethernet / Wireless LAN	TCP:IP address	To specify the IP address	@”TCP:192.168.1.130”
USB	USB:iOS Port Name	To specify the iOS Port Name	@”USB:TSP100”

2. portSettings Parameter

Specify the portSettings string in the following format.

- Emulation type
- Emulation type character string + option type character string separated by “;”.

Emulation	Emulation type
StarLine	“”
StarPRNT	“Portable”
StarPRNTL	“Portable”
StarGraphic	“”
StarDotImpct	“”
EscPos	“escpos”
EscPosMobile	“Portable;escpos” or ”mini”

Connection options (Bluetooth I/F only)	Option type
Data timeout function	“d[value]” Ex: “d10”

Connection options (Only when using AirPort)	Option type
Port number	“[Port number]” Ex: “9100”

*** Data timeout function** (Bluetooth I/F only, Support status refer to Printer.)
In case an error occurs while printing or no data is sent to the printer during a predetermined time, the data canceling function will be executed.
To set the time value, specify from 0 to 255 (unit: second) in [value]. Default timeout value is 3 second.
This function will be invalid when 0 is specified or any appropriate value is not specified.
This function prevents next print data from being printed incorrectly when the Bluetooth connection is disconnected during data transmission.

Example of portSettings

Printer connection environment	portSettings
Uses the portable printer of the EscPosMobile emulation as the default setting.	“Portable;escpos”
If data is not sent for 10 seconds during printing with the POS printer of the StarLine emulation, it operates the data canceling function.	“;d10”

3. timeoutMillis Parameter
timeout is a timeoutMillis timeout controlled internally and is used for communication in the APIs. This parameter guarantees that all of the below APIs will complete in a bounded amount of time, but does NOT guarantee the exact timeout length.
Timeout length is 10 seconds if specified less than 10 seconds.
When [Data timeout function setting] is used in the portSetting parameter, it should be at least 3 seconds longer than the time specified for the data timeout function. If it is set to less than 3 seconds, the timeout time of the endCheckedBlock method will be controlled internally to be 3 seconds longer automatically.

4. Use share printer function with Apple AirPort Express

Set AirPort Express IP Address for **portName**.

Ex. @”TCP:192.168.1.2”

Set port number for **portSettings**.
Increase the port number in sequential order from 9100 to 9109 until communication is successful.

Ex. @”9100”

5. Notification in case of SM-L Series
It could take some time when an iOS device tries to connect to a printer via "Bluetooth Low Energy".
If the connection fails, retry until the connection is successful.
If the connection time must be reduced, please design your application as the connection to a printer always keeps opening. *In this case, the printer cannot be detected by any other applications and devices.

3.4 releasePort Method

Closes a connection to the port specified and destroy a SMPort object.

Declaration

+ (void) releasePort: (SMPort *) port;

Parameter

Name	Description	Object type
port	A SMPort object previously created by the getPort method	SMPort *

Return value

Description	Object type
-	-

Refer to the printing process flow using a SMPort class.

1. Notes

After executing getPort, please do not forget releasePort before executing the next getPort. Otherwise the communication may return nil.

3.5 searchPrinter Method

Searches for a printer that can be connected to the iOS device.

searchPrinter detects printers in LAN and paired Bluetooth printers and returns search result as NSArray.

Declaration

+ (NSArray *) searchPrinter;

+ (NSArray *) searchPrinter: (NSString *) target;

Parameter

Name	Description		Object type
target	Specify the interface type of the Star printer to be searched. If the target is not specified, it searches all interface types.		NSString *
	Bluetooth I/F	“BT:”	
	Bluetooth Low Energy I/F	“BLE:”	
	Ethernet / Wireless LAN I/F	“TCP:”	
	USB I/F	“USB:”	

Return value

Description	Object type
Search result of Star printer. NSArray of return value includes instance of PortInfo class. Refer to the PortInfo class for the information that you can get.	NSArray *

1. Search execute time

The time it takes to execute the searchPrinter method differs according to the interface you want to search.

Interface	Execute time
All I/F	7[s]
Bluetooth I/F	Immediately responds with a control.
Bluetooth Low Energy I/F	7[s]
Ethernet / Wireless LAN I/F	6[s]
USB I/F	Immediately responds with a control.

2. Restrictions

This API do not guarantee the discovery of devices.

3. Notes with the BLE interface

When getting the printer device name using searchPriner method for the first time, sometimes portName will be @”BLE:”. In those cases, please connect the printer using getPort method. Once you have got the Device name, searchPrinter method works correctly.

Example

```
//The following would be an actual usage of searchPrinter:

NSArray *portArray = [[SMPort searchPrinter] retain];

for (int i = 0; i < portArray.count; i++) {
    PortInfo *port = [portArray objectAtIndex:i];
    NSLog(@"Port Name: %@", port.portName);
    NSLog(@"MAC Address : %@", port.macAddress);
    NSLog(@"Model Name: %@", port.modelName);
}

[portArray release];
```

3.6 writePort Method

This method writes data to the device. Use this to print to the printer, send commands, etc.
To check the completion of printing, run beginCheckedBlock before and endCheckedBlock after this method.

Declaration

- (u_int32_t) writePort:(u_int8_t const *) writeBuffer :(u_int32_t) offset :(u_int32_t) size;

Parameter

Name	Description	Object type
writeBuffer	Contains the output data in a byte array.	u_int8_t const *
offset	Specifies where to begin pulling data from writeBuffer.	u_int32_t
size	Number of bytes to write.	u_int32_t

Return value

Description	Object type
Bluetooth/Ethernet/Wireless LAN/USB I/F The number of bytes that were actually written. The writePort method is successful even when all of the data cannot be written. Your application should call this function a limited number of times until all the data has been written out or until an application determined retry threshold has been reached.	u_int32_t
Bluetooth Low Energy I/F It returns a transmission data size when it succeeded and "0" when it failed.	

Exception

Description	Object type
When a communication failure occurs	PortException

Refer to the printing process flow using a SMPort class.

3.7 readPort Method

Read data from the printer. Please use it only when it is necessary to read Raw byte from the printer.

Declaration

- (u_int32_t) readPort:(u_int8_t *) readBuffer :(u_int32_t) offSet :(u_int32_t) size;

Parameter

Name	Description	Object type
readBuffer	A Byte Array buffer into which data is read.	u_int8_t *
offset	specifies where to begin writing data into the readBuffer	u_int32_t
size	Total number of bytes to read.	u_int32_t

Return value

Description	Object type
The number of bytes that were read. The readPort method will succeed even when no all data was read in. Your application should call this function a limited number of times until the expected data has been read in or until an application determined retry threshold has been reached.	u_int32_t

Exception

Description	Object type
when a communication failure occurs	PortException

1. Restrictions

Do not use this method to get Raw Status. Use getParsedStatus Method for getting status.

3.8 getParsedStatus Method

Get printer status.

Declaration

- (void) getParsedStatus:(void *) starPrinterStatus :(u_int32_t) level;

Parameter

Name	Description	Object type
starPrinterStatus	StarPrinterStatus structure giving the current device status. For the type of status that can be obtained, refer to the StarPrinterStatus structure.	void *
level	StarPrinterStatus structure level (Possible to specify a value of 0, 1 or 2. Normally 2 is specified.)	u_int32_t

Return value

Description	Object type
-	-

Exception

Description	Object type
when a communication failure occurs	PortException

Example

```
StarPrinterStatus_2 printerStatus;

[port getParsedStatus: &printerStatus : 2];

if (printerStatus.offline == SM_TRUE)
{
    if (printerStatus.coverOpen == SM_TRUE) {
        //There was a cover open error
    }
    else if (printerStatus.receiptPaperEmpty == SM_TRUE) {
        //There was a receipt paper empty error
    }
    else {
        //There was a offline error
    }
}
else {
    //If False, then the printer is online.
}
```

3.9 beginCheckedBlock Method

This method is used in combination with endCheckedBlock and checks the completion of printing. beginCheckedBlock must be run just before sending print data.

Declaration

- (void) beginCheckedBlock:(void *) starPrinterStatus :(u_int32_t) level;

Parameter

Name	Description	Object type
starPrinterStatus	A pointer to StarPrinterStatus structure (Possible to specify StarPrinterStatus, StarPrinterStatus_1 of StarPrinterStatus_2. Normally StarPrinterStatus_2 is specified.) When this method is successful, the status of the current printer is stored.	void *
level	The level of StarPrinterStatus structure (Possible to specify a value of 0, 1 or 2. Normally 2 is specified.)	u_int32_t

Return value

Description	Object type
-	-

Refer to the printing process flow using a SMPort class about the procedure of the print end monitoring process by beginCheckedBlock / endCheckedBlock.

3.10 endCheckedBlock Method

This method is used together with the beginCheckedBlock method in a set and checks the completion of printing.
It monitors printer status and when the transferred data is printed completely, returns control. In case of being transferred other kind of data than print data, when its command is processed in the printer, it returns the control.

In case that printing is not completed before the timeout specified by endCheckedBlockTimeoutMillis property or printer error occurs during printing, it returns PortException.

Declaration

- (void) endCheckedBlock:(void *) starPrinterStatus :(u_int32_t) level;

Parameter

Name	Description	Object type
starPrinterStatus	a pointer to StarPrinterStatus structure (Possible to specify StarPrinterStatus, StarPrinterStatus_1 of StarPrinterStatus_2. Normally StarPrinterStatus_2 is specified.) When this method is successful, the status of the current printer is stored.	void *
level	the level of StarPrinterStatus structure (Possible to specify a value of 0,1 or 2. Normally 2 is specified.)	u_int32_t

Return value

Description	Object type
-	-

Exception

Description	Object type
-When a communication failure (An error sending the command such as Off-Line) occurs - No response for the completion of printing from a printer within the timeout	PortException

1. Timeout value
To timeout value, endCheckedBlockTimeoutMillis property is applied. Default value is the timeout value designated by getPort. Please adjust the endCheckedBlockTimeoutMillis value to be longer than printing time. Timeout length is specified by getPort, endCheckedBlockTimeoutMillis or is 10 seconds if specified less than 10 seconds.

Refer to the printing process flow using a SMPort class about the procedure of the print end monitoring process by beginCheckedBlock / endCheckedBlock.

3.11 disconnect Method

Disconnect the specified Bluetooth device.
After the disconnection, the Bluetooth device can be connected by other iOS terminals.

Declaration

- (BOOL) disconnect;

Parameter

Name	Description	Object type
-	-	-

Return value

Description	Object type
Disconnect success and fail This method fails in the following cases: - when the disconnection has not been completed within the timeout specified by getPort - when the disconnection function is not supported by a printer (such like portable printers). This method has no effect on Ethernet devices. It always returns YES when it was run with the Ethernet device.	BOOL

3.12 getFirmwareInformation Method

This method gets a model name and firmware Information of the printer.

Declaration

- (NSDictionary *) getFirmwareInformation;

Parameter

Name	Description	Object type
-	-	-

Return value

Description	Object type
An acquisition result of firmware information The return value can get the model name by setting the NSDictionary object key of the return value to "@ModelName" and get the firmware version by setting "@FirmwareVersion".	NSDictionary *

Exception

Description	Object type
If it failed to get information, it returns an empty string.	PortException

3.13 StarIOVersion Method

This method gets the StarIO version.

Declaration
+ (NSString *) StarIOVersion;

Parameter

Name	Description	Name
-	-	-

Return value

Description	Object type
StarIO version	NSString *

3.14 portName Property

Character string to specify the port for communication with the printer.

Declaration
- (NSString *) portName;

3.15 portSettings Property

Specifies connection setting information.

Declaration
- (NSString *) portSettings;

3.16 timeoutMillis Property

Timeout value for internal control and API. [unit: ms]
Timeout length is 10 seconds if specified less than 10 seconds.

Declaration
- (u_int32_t) timeoutMillis;

3.17 endCheckedBlockTimeoutMillis Property

Timeout value for endCheckedBlock Method. [unit: ms]

If it takes long time to print, stand-by time for print completion in endCheckedBlock method can be extended by increasing this value. Default value is the timeout value designated by getPort method. Timeout length is 10 seconds if specified less than 10 seconds.

When [Data timeout function setting] is used in the portSetting parameter of the getPort method, it should be at least 3 seconds longer than the time specified for the data timeout function. If it is set to less than 3 seconds, it will be controlled internally to be 3 seconds longer automatically.

Declaration
@property (assign, readwrite, nonatomic) u_int32_t endCheckedBlockTimeoutMillis;

3.18 connected Property

If the printer is connected to an iOS device, it returns "YES". If the printer is not connected to an iOS device, it returns "NO".
Only Bluetooth interfaces are supported. For non-supported interfaces, it constantly returns "YES". Due to the restrictions of the iOS device, it takes approximately 5 seconds from Bluetooth communication disconnecting until being reflected in this property.

Declaration
- (BOOL) connected;

4 StarPrinterStatus structure (StarIO.framework)

Class to maintain the printer status.
Maintains the printer status in both the boolean datatype and binary (raw byte array) formats.
For status types that can be acquired, refer to the field list.

Member

Member name	Contents	Type	Detail
blackMarkError	Black Mark Error	SM_BOOLEAN	" SM_TRUE " : Black mark error occurs. " SM_FALSE " : Black mark error does not occur. When you set printer to Black mark, and print to not Black mark paper, this error occurs.
compulsionSwitch	Compulsion SW	SM_BOOLEAN	You can check status of CashDrawer (Open or Close) " SM_TRUE " : Compulsion SW is pressed. " SM_FALSE " : Compulsion SW is not pressed.
coverOpen	Cover Status	SM_BOOLEAN	You can check status of Cover " SM_TRUE " : Cover is opened. " SM_FALSE " : Cover is closed.
cutterError	Auto-cutter Error	SM_BOOLEAN	You can check status of Cutter " SM_TRUE " : Cutter error occurs. " SM_FALSE " : Cutter error does not occur.
etbAvailable	ETB available or not	SM_BOOLEAN	" SM_TRUE " : available to use " SM_FALSE " : not available to use
etbCounter	ETB Counter	UCHAR	You can get current value of ETB
headThermistorError	Head Thermistor Error	SM_BOOLEAN	You can check status of Head Thermistor. " SM_TRUE " : Head thermistor detects an abnormal value. " SM_FALSE " : Head thermistor does not detect an abnormal value.
offline	ONLINE/OFFLINE Status	SM_BOOLEAN	You can check status of Online or offline. " SM_TRUE " : Printer is Offline. " SM_FALSE " : Printer is Online
overTemp	Stopped by high head temperature	SM_BOOLEAN	" SM_TRUE " : Printer is stopped by head temperature. " SM_FALSE " : Printer is not stopped by head temperature.
raw	Byte column of status	UCHAR[63]	Byte column of status (example : HEX 23 86 00 00 00 00 00 00 00)
rawLength	raw length	CHAR	raw length
receiptPaperEmpty	Paper end	SM_BOOLEAN	" SM_TRUE " : Paper end. " SM_FALSE " : Paper exist.
receiptPaperNearEmptyInner	Paper Near-end (Inner Side)	SM_BOOLEAN	" SM_TRUE " : Paper near-end. " SM_FALSE " : Paper does not near-end.
receiveBufferOverflow	Receive Buffer Overflow	SM_BOOLEAN	You can check status of recieved Buffer. " SM_TRUE " : Received buffer is full. " SM_FALSE " : Received buffer is not full.
unrecoverableError	Non-recoverable Error	SM_BOOLEAN	" SM_TRUE " : Unrecoverable error occurs. " SM_FALSE " : Unrecoverable error does not occur. Unrecoverable error : Head Thermistor Error, Auto-cutter Error, Electric Voltage Error and etc.)
voltageError	Electric Voltage Error	SM_BOOLEAN	" SM_TRUE " : Printers detects an abnormal power supply voltage. " SM_FALSE " : Printers does not detect an abnormal power supply voltage.

4.1 Model: StarPrinterStatus Structure

Supported member for each models.

Field	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	SM-L300	SP700
blackMarkError	-	✓	-	-	✓	✓	-	-	-	-	-	-	✓	✓	✓	✓	✓	✓	✓	✓
compulsionSwitch	✓	✓	✓	✓	✓	✓	-	-	-	-	-	✓	-	-	-	-	-	-	-	✓
coverOpen	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
cutterError	✓	✓	✓	✓	✓	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	✓
etbAvailable	✓	✓	✓	✓	✓	✓	-	-	-	-	-	-	✓	✓	✓	✓	✓	✓	✓	✓
etbCounter	✓	✓	✓	✓	✓	✓	-	-	-	-	-	-	✓	✓	✓	✓	✓	✓	✓	✓
headThermistorError	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
offline	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
overTemp	✓	✓	✓	✓	✓	✓	-	-	-	-	-	-	✓	✓	✓	✓	✓	✓	✓	✓
raw	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	✓	✓	✓	✓	✓	✓	✓	✓
rawLength	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	✓	✓	✓	✓	✓	✓	✓	✓
receiptPaperEmpty	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
receiptPaperNearEmptyInner	-	✓	-	✓	✓	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	✓
receiveBufferOverflow	-	✓	-	✓	✓	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	✓
unrecoverableError	✓	✓	✓	✓	✓	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	✓
voltageError	✓	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

- : ignored

5 PortInfo class (StarIO.framework)

This class holds information and model information for connecting to the Star printer.

Property

Name	Description
portName	Character string to specify the port for communication with the printer.
macAddress	Character string that indicates the printer's MAC address.
modelName	Character string that indicates the printer's model name.

5.1 portName property

Character string to specify the port for communication with the printer.
Can be used to specify the printer connection with the getPort method.

Declaration
@property (retain, readonly) NSString *portName;

5.2 macAddress property

Character string that indicates the printer's MAC address.

Declaration
@property (retain, readonly) NSString *portName;

5.3 modelName property

Character string that indicates the printer's model name.

Declaration
@property (retain, readonly) NSString *portName;

6 SMBluetoothManager class (StarIO.framework)

SMBluetoothManager Class specifies various settings of the Bluetooth interface.
It can not be used with SMPort Class.

Method

Name	Description
initWithName	Creates an instance of SMBluetoothManager.
Open	Open the connection with the Star Bluetooth device.
loadSetting	Get settings from connected Star Bluetooth device.
Close	Close the communication with the Star Bluetooth device.
Apply	Set the value specified for the Star Bluetooth device.

Property

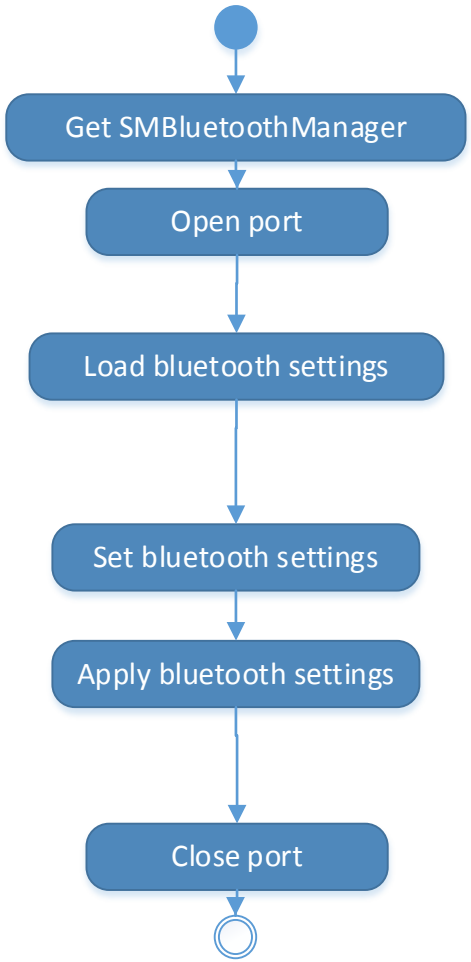
Name	Description
portName	The portName of the device to be connected.
deviceType	The type of the device to be connected.
Opened	Shows whether the port is opened.
deviceName	The current Bluetooth device name.
iOSPortName	The port name to be used with the StarIO.
autoConnect	The setting (Valid or Invalid) of the autoconnection function.
Security	The Bluetooth security setting.
pinCode	The PIN Code to be used for pairing.
deviceNameCapability	The setting enable / disable information of the Bluetooth device name.
iOSPortNameCapability	The setting enable / disable information of the iOSPor name.
autoConnectCapability	The setting enable / disable information of the AutoConnection.
securityTypeCapability	The setting enable / disable information of the Bluetooth Security Type.
pinCodeCapability	The setting enable / disable information of the PIN Code.

Constant

Name	Description
SMDeviceType	Constants of Printer Type
SMBluetoothSecurity	Constants of Bluetooth security type.
SMBluetoothSettingCapability	Constants of enable / disable information of the Bluetooth security type.

6.1 Bluetooth setting change flow using SMBluetoothManager

Using the SMBluetoothManager class, follow the steps below to change the printer's Bluetooth settings.




```
// Get SMBluetoothManager
SMBluetoothManager *bluetoothManager = [SMBluetoothManagerFactory getManager:portName
emulation:emulation];

// Open port
if ([bluetoothManager open] == NO) {
    // Fail to open port.
    return;
}

// Load bluetooth settings
if ([bluetoothManager loadSetting] == NO) {
    // Fail to load settings.
    [bluetoothManager close];
    return;
}

// Set bluetooth settings
// Example) Set the device name to "Star Micronics"
bluetoothManager.deviceName = @"Star Micronics";
// Apply bluetooth settings
if ([bluetoothManager apply] == NO) {
    // Fail to apply settings.
    [bluetoothManager close];
    return;
}

// Close port
[bluetoothManager close];
```

Refer to BluetoothSettingViewController.m.

6.2 Model: SMBluetoothManager Class

Supported Method for each models.

Method	mPOP *1	FVP10	TSP100 (only TSP100IIIBI)	TSP650II	TSP700II	TSP800II	SM-S210i *2	SM-S220i *2	SM-S230i *2	SM-T300i *2	SM-T400i *2	~~BSC10~~	SM-S210i StarPRNT	SM-S220i StarPRNT	SM-S230i StarPRNT	SM-T300i StarPRNT	SM-T400i StarPRNT	SM-L200	SM-L300	SP700
initWithName	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	✓	✓	✓	✓	✓	✓	✓	✓
open	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	✓	✓	✓	✓	✓	✓	✓	✓
loadSetting	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	✓	✓	✓	✓	✓	✓	✓	✓
close	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	✓	✓	✓	✓	✓	✓	✓	✓
apply	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	✓	✓	✓	✓	✓	✓	✓	✓

- : ignored.
*1: F/W Version 1.1 or later is required.
*2: F/W Version 3.0 or later is required.

The properties that can be set (reflected on the Bluetooth device when executing the apply method) in each model are as follows.

Property	mPOP *1	FVP10	TSP100 (only TSP100IIIBI)	TSP650II	TSP700II	TSP800II	SM-S210i *2	SM-S220i *2	SM-S230i *2	SM-T300i *2	SM-T400i *2	~~BSC10~~	SM-S210i StarPRNT	SM-S220i StarPRNT	SM-S230i StarPRNT	SM-T300i StarPRNT	SM-T400i StarPRNT	SM-L200	SM-L300	SP700
deviceName	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	✓	✓	✓	✓	✓	✓	✓	✓
iOSPortName	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	✓	✓	✓	✓	✓	-	-	✓
pinCode	-	✓	-	✓	✓	✓	✓	✓	✓	✓	✓	-	✓	✓	✓	✓	✓	✓	✓	✓
autoConnect	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	✓	✓	✓	✓	✓	-	-	✓
security	-	*3	-	*3	*3	*3	*4	*4	*4	*4	*4	-	*4	*4	*4	*4	*4	*4	*4	*3

- : ignored.
*1: F/W Version 1.1 or later is required.
*2: F/W Version 3.0 or later is required.
*3: SecurityType that can be set and acquired is PIN code or SSP
*4: SecurityType that can be set and acquired is PIN code or Disable

6.3 initWithName Method

Creates an instance of SMBluetoothManager.

Declaration
-(id) initWithPortName: (NSString *) portName deviceType: (SMDeviceType) deviceType;

Declaration

Name	Description	Object type
portName	The portName of the device to be connected. It is the same as the portName of the getPort method of the SMPort class.	NSString *
deviceType	The type of the device to be connected. When using mPOP or TSP100IIIBI, set SMDeviceTypePortablePrinter.	SMDeviceType

Return value

Description	Object type
It returns Instance of SMBluetoothManager when succeeded. It returns nil when failed.	id

Refer to the printing process flow using a SMBluetoothManager class about the procedure of change the Bluetooth Setting.

1. SMBluetoothManagerFactory class
SMBluetoothManagerFactory class can get the appropriate SMBluetoothManager object for the printer emulation.

6.4 open Method

This method is used to open connection to the Bluetooth printer.
Get the current settings by loadSetting method after conducting open method.

Declaration
- (BOOL) open;

Declaration

Name	Description	Object type
-	-	-

Return value

Description	Object type
succeeded or NO	BOOL

Refer to the printing process flow using a SMBluetoothManager class about the procedure of change the Bluetooth Setting.

6.5 loadSetting Method

Get settings from connected Star Bluetooth device.

Declaration
- (BOOL) loadSetting;

Declaration

Name	Description	Object type
-	-	-

Return value

Description	Object type
-	-

Refer to the printing process flow using a SMBluetoothManager class about the procedure of change the Bluetooth Setting.

6.6 close Method

Close the communication with the Star Bluetooth device.

Declaration
- (void) close;

Declaration

Name	Description	Object type
-	-	-

Return value

Description	Object type
-	-

Refer to the printing process flow using a SMBluetoothManager class about the procedure of change the Bluetooth Setting.

6.7 apply Method

This method is used to apply the property values of deviceName, iOSPortName, autoConnect, security and pinCode.

Declaration
- (BOOL) apply;

Declaration

Name	Description	Object type
-	-	-

Return value

Description	Object type
succeeded or NO	BOOL

1. The values applied with this method are effective after turning the device off and on and paring again.

Refer to the printing process flow using a SMBluetoothManager class *about the procedure of change the Bluetooth Setting.*

6.8 portName Property

The portName of the device to be connected.

Declaration
@property (nonatomic, readonly) NSString *portName;

6.9 deviceType Property

The type of the printer to be connected.

Declaration
@property(nonatomic, readonly) SMDeviceType deviceType;

6.10 opened Property

Shows whether the port is opened.
It returns YES if the open method was successful. Then it will return NO when the close method is called.

Declaration
@property(nonatomic, readonly) BOOL opened;

6.11 deviceName Property

Acquires and specifies the current Bluetooth device name.
This name is displayed when you are pairing via Bluetooth. When using Bluetooth Low Energy, it is used as a connection port name for communication. The current setting is read when the loadSetting method is called. To set it, run the apply method after changing this property.

Declaration
@property(nonatomic, retain) NSString *deviceName;

1. Valid characters
0-9 a-z A-Z ; : ! ? # $ % & , . @ _ - = Space / * + ~ ^ [{ ( ] }) | \

2. Valid number of characters
1 to 16

3. Notes
In case of Bluetooth Low Energy, the changed Bluetooth names are effective after turning the device off and on and connecting again.

6.12 iOSPortName Property

Acquires and specifies the iOS port name to be used with the StarIO for Bluetooth communication.
This function is not used with Bluetooth Low Energy.
The current setting is read when the loadSetting method is called. To set it, run the apply method after changing this property.

Declaration
@property(nonatomic, retain) NSString *iOSPortName;

1. Valid characters
0-9 a-z A-Z ; : ! ? # $ % & , . @ _ - = Space / * + ~ ^ [{ ( ] }) | \

2. Valid number of characters
1 to 16

6.13 autoConnect Property

Acquires and specifies the setting of the auto connection function.
This function is available only for Bluetooth. The current setting is read when the loadSetting method is called. To set it, run the apply method after changing this property.

Declaration
@property(nonatomic, assign) BOOL autoConnect;

1. Notes
Set to NO when the security setting is set to PIN code mode.

6.14 Security Property

Acquires and specifies the Bluetooth security setting.
This function is available only for Bluetooth.
The current setting is read when the open method is called. To set it, run the apply method after changing this property.

Declaration
@property(nonatomic, assign) SMBluetoothSecurity security;

6.15 pinCode Property

Specifies the PIN code of the Bluetooth interface.
This function is available only for Bluetooth.
It can not acquire the current setting.
Set to nil when the PIN code is not changed.

Declaration
@property(nonatomic, retain) NSString *pinCode;

1. Valid characters
0-9 a-z A-Z (except SM-L200 and SM-L300)
0-9 (SM-L200, SM-L300)

2. Valid number of characters
4 to 16 (except SM-L200 and SM-L300)
4 digits (SM-L200, SM-L300)

6.16 deviceNameCapability Property

The setting enable / disable information of the Bluetooth device name.

Declaration
@property (assign, readonly) SMBluetoothSettingCapability deviceNameCapability;

6.17 iOSPortNameCapability Property

The setting enable / disable information of the iOSPort name.

Declaration
@property (assign, readonly) SMBluetoothSettingCapability iOSPortNameCapability;

6.18 autoConnectCapability Property

The setting enable / disable information of the AutoConnection.

Declaration
@property (assign, readonly) SMBluetoothSettingCapability autoConnectCapability;

6.19 securityTypeCapability Property

The setting enable / disable information of the Bluetooth security type.

Declaration
@property (assign, readonly) SMBluetoothSettingCapability securityTypeCapability;

6.20 pinCodeCapability Property

The setting enable / disable information of the PIN code.

Declaration
@property (assign, readonly) SMBluetoothSettingCapability pinCodeCapability;

6.21 SMDeviceType Constant

Constants of Printer Type.

Declaration
```
typedef enum _SMDeviceType {
    SMDeviceTypeUnknown = 0,
    SMDeviceTypeDesktopPrinter,
    SMDeviceTypePortablePrinter,
    SMDeviceTypeDKAirCash,
} SMDeviceType;
```

Constants

Name	Description
SMDeviceTypeDesktopPrinter	Desktop Printer
SMDeviceTypePortablePrinter	Portable Printer When using mPOP or TSP100IIIBI, please specify SMDeviceTypePortablePrinter.

6.22 SMBluetoothSecurity Constant

Constants of Bluetooth Security type.

Declaration
```
typedef enum _SMBluetoothSecurity {
    SMBluetoothSecurityDisable,
    SMBluetoothSecuritySSP,
    SMBluetoothSecurityPINcode
} SMBluetoothSecurity;
```

Constants

Name	Description
SMBluetoothSecurityPINcode	Security by entering PIN code
SMBluetoothSecuritySSP	Security by pressing the interface card button
SMBluetoothSecurityDisable	No security

6.23 SMBluetoothSettingCapability Constant

Constants of enable / disable information of the Bluetooth security type.

Declaration

```
typedef enum _SMBluetoothSettingCapability {
    SMBluetoothSettingCapabilitySupport,
    SMBluetoothSettingCapabilityNoSupport
} SMBluetoothSettingCapability;
```

Constants

Name	Description
SMBluetoothSettingCapabilitySupport	Indicates the items and functions can be set for the printer that is currently connected.
SMBluetoothSettingCapabilityNoSupport	Indicates the items and functions can be set for the printer that is currently connected.

7 StarIoExt class (StarIO_Extension.framework)

Method

Name	Description
createCommandBuilder	Creates the ISCBBuilder object.
createDisplayCommandBuilder	Creates the customer display command builder object.
createScaleCommandBuilder	Creates the scale command builder object.
createBcrConnectParser	Creates a barcode reader connection status command response analysis object.
createDisplayConnectParser	Creates a customer display connection status command response analysis object.
createScaleConnectParser	Creates a scale connection status command response analysis object.
createScaleWeightParser	Creates a scale weight command response analysis object.

Constants

Name	Description
StarIoExtEmulation	Emulation type constants.
StarIoExtCharacterCode	Character Code constants.
StarIoExtBcrModel	Barcode Reader Model constants.
StarIoExtScaleModel	Scale Model constants.
StarIoExtDisplayModel	Customer Display Model constants.

7.1 createCommandBuilder Method

Creates the ISCBBuilder object.

Declaration

+ (ISCBBuilder *)createCommandBuilder:(StarIoExtEmulation)emulation;

Declaration

Name	Description	Object type
emulation	Emulation type. • StarIoExtEmulationStarPRNT … StarPRNT emulation. • StarIoExtEmulationStarLine … STAR Line Mode emulation. • StarIoExtEmulationStarGraphic … STAR Graphic Mode emulation. • StarIoExtEmulationEscPos … ESC/POS emulation. • StarIoExtEmulationEscPosMobile … ESC/POS Mobile emulation. • StarIoExtEmulationStarDotImpact … STAR Dot Impact emulation. • StarIoExtEmulationStarPRNTL… StarPRNTL emulation	StarIoExtEmulation

Return value

Description	Object type
ISCBBuilder object.	ISCBBuilder

Example

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

    [builder beginDocument];

    [builder appendBitmap:image diffusion:NO];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

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

Refer to PrinterFunctions.m.

7.2 createDisplayCommandBuilder Method

Creates the customer display command builder object.

Declaration

+ (ISDCBBuilder *)createDisplayCommandBuilder:(StarIoExtDisplayModel)model;

Parameter

Name	Description	Object type
model	Creates the customer display command builder object. • SCD222	StarIoExtDisplayModel

Return value

Description	Object type
ISDCBBuilder object	ISDCBBuilder *

Example

```
- (void)alertView:(UIAlertView *)alertView didDismissWithButtonIndex:(NSInteger)buttonIndex {
    if (buttonIndex != alertView.cancelButtonIndex) {
        ISDCBBuilder *builder = [StarIoExt createDisplayCommandBuilder:StarIoExtDisplayModelSCD222];

        …
}
```

Refer to DisplayViewController.m / DisplayExtViewController.m.

7.3 createScaleCommandBuilder Method

Creates the scale command builder object.

Declaration

+ (ISSCBBuilder *)createScaleCommandBuilder:(StarIoExtScaleModel)model;

Parameter

Name	Description	Object type
model	Scale Model constants • APS10 • APS12 • APS20	StarIoExtScaleModel

Return value

Description	Object type
ISSCBBuilder object	ISSCBBuilder *

Example

```
- (void)tableView:(UITableView *)tableView didSelectRowAtIndexPath:(NSIndexPath *)indexPath {
    …
                    else if (indexPath.row == 2) {
                        ISSCBBuilder *builder = [StarIoExt createScaleCommandBuilder:StarIoExtScaleModelAPS20];

                        [ScaleFunctions appendZeroClear:builder];

//                      NSData *commands = [builder.commands          copy];
                        NSData *commands = [builder.passThroughCommands copy];

                        [Communication sendCommandsDoNotCheckCondition:commands port:port
completionHandler:^(BOOL result, NSString *title, NSString *message) {
                            UIAlertView *alertView = [[UIAlertView alloc] initWithTitle:title message:message delegate:nil
cancelButtonTitle:@"OK" otherButtonTitles:nil];

                            [alertView show];
                        }];
                    }
    …
}
```

Refer to ScaleViewController.m / ScaleExtViewController.m.

7.4 createBcrConnectParser Method

Creates a barcode reader connection status command response analysis object.

Declaration

+ (ISCPConnectParser *)createBcrConnectParser:(StarIoExtBcrModel)model;

Parameter

Name	Description	Object type
model	Barcode Reader Model constant • POP1	StarIoExtBcrModel

Return value

Description	Object type
ISCPConnectParser object	ISCPConnectParser *

7.5 createDisplayConnectParser Method

Creates a customer display connection status command response analysis object.

Declaration

+ (ISCPConnectParser *)createDisplayConnectParser:(StarIoExtDisplayModel)model;

Parameter

Name	Description	Object type
model	Customer Display Model constant • SCD222	StarIoExtDisplayModel

Return value

Description	Object type
ISCPConnectParser object	ISCPConnectParser *

Example

```
- (void)tableView:(UITableView *)tableView didSelectRowAtIndexPath:(NSIndexPath *)indexPath {
    …
        @try {
            port = [SMPort getPort:[AppDelegate getPortName] :[AppDelegate getPortSettings] :10000];     // 10000mS!!!

            if (port != nil) {
                ISCPConnectParser *parser = [StarIoExt createDisplayConnectParser:StarIoExtDisplayModelSCD222];

                [Communication parseDoNotCheckCondition:parser port:port completionHandler:^(BOOL result, NSString
*title, NSString *message) {
                    if (result == YES) {
                        if (parser.connect == YES) {
                            UIAlertView *alertView = [[UIAlertView alloc] initWithTitle:@"Check Status" message:@"Display
Connect." delegate:nil cancelButtonTitle:@"OK" otherButtonTitles:nil];

                            [alertView show];
                        }
                        else {
                            UIAlertView *alertView = [[UIAlertView alloc] initWithTitle:@"Check Status" message:@"Display
Disconnect." delegate:nil cancelButtonTitle:@"OK" otherButtonTitles:nil];

                            [alertView show];
                        }
                    }
                    …
                }];
            }
            …
        }
        …
}
```

Refer to DisplayViewController.m / DisplayExtViewController.m.

7.6 createScaleConnectParser Method

Creates a scale connection status command response analysis object.

Declaration

+ (ISCPConnectParser *)createScaleConnectParser:(StarIoExtScaleModel)model;

Parameter

Name	Description	Object type
model	Scale Model constants • APS10 • APS12 • APS20	StarIoExtScaleModel

Return value

Description	Object type
ISCPConnectParser object	ISCPConnectParser *

Example

```
- (void)tableView:(UITableView *)tableView didSelectRowAtIndexPath:(NSIndexPath *)indexPath {
    [tableView deselectRowAtIndexPath:indexPath animated:YES];

    if (indexPath.section == 0) {
        self.blind = YES;

        SMPort *port = nil;

        @try {
            port = [SMPort getPort:[AppDelegate getPortName] :[AppDelegate getPortSettings] :10000];     // 10000mS!!!

            if (port != nil) {
                ISCPConnectParser *parser = [StarIoExt createScaleConnectParser:StarIoExtScaleModelAPS20];

                [Communication parseDoNotCheckCondition:parser port:port completionHandler:^(BOOL result, NSString *title,
NSString *message) {
                …
}
```

Refer to ScaleViewController.m / ScaleExtViewController.m.

7.7 createScaleWeightParser Method

Creates a scale weight command response analysis object.

Declaration

+ (ISSCPWeightParser *)createScaleWeightParser:(StarIoExtScaleModel)model;

Parameter

Name	Description	Object type
model	Scale Model constants • APS10 • APS12 • APS20	StarIoExtScaleModel

Return value

Description	Object type
ISSCPWeightParser object	ISSCPWeightParser *

Example

```
- (void)tableView:(UITableView *)tableView didSelectRowAtIndexPath:(NSIndexPath *)indexPath {
    …
    ISSCPWeightParser *weightParser = [StarIoExt createScaleWeightParser:StarIoExtScaleModelAPS20];

    [ScaleCommunication parseDoNotCheckCondition:weightParser port:port completionHandler:^(BOOL result, NSString
*title, NSString *message) {
    …
}
```

Refer to ScaleViewController.m / ScaleExtViewController.m.

7.8 StarIoExtEmulation Constants

Emulation type constants.

Declaration

```
typedef NS_ENUM(NSInteger, StarIoExtEmulation) {
    StarIoExtEmulationNone = 0,
    StarIoExtEmulationStarPRNT,
    StarIoExtEmulationStarLine,
    StarIoExtEmulationStarGraphic,
    StarIoExtEmulationEscPos,
    StarIoExtEmulationEscPosMobile,
    StarIoExtEmulationStarDotImpact
    StarIoExtEmulationStarPRNTL
};
```

Constants

Name	Description
StarIoExtEmulationStarPRNT	StarPRNT emulation.
StarIoExtEmulationStarLine	STAR Line Mode emulation.
StarIoExtEmulationStarGraphic	STAR Graphic Mode emulation.
StarIoExtEmulationEscPos	ESC/POS emulation.
StarIoExtEmulationEscPosMobile	ESC/POS Mobile emulation.
StarIoExtEmulationStarDotImpact	STAR Dot Impact emulation.
StarIoExtEmulationStarPRNTL	StarPRNTL emulation.

1. StarPRNTL emulation

StarPRNTL emulation reduces the command size with the appendBitmap-type method that generates a raster image printing command.
The time it takes to send the raster image command is reduced.
StarPRNTL emulation can only be selected on some supported models. For usable models, refer to the supported printers.

7.9 StarIoExtCharacterCode Constants

Character code type constants.

Declaration

```
typedef NS_ENUM(NSInteger, StarIoExtCharacterCode) {
    StarIoExtCharacterCodeNone = 0,
    StarIoExtCharacterCodeStandard,
    StarIoExtCharacterCodeJapanese,
    StarIoExtCharacterCodeSimplifiedChinese,
    StarIoExtCharacterCodeTraditionalChinese
};
```

Constants

Name	Description
StarIoExtCharacterCodeStandard	Standard character code.
StarIoExtCharacterCodeJapanese	Japanese character code.
StarIoExtCharacterCodeSimplifiedChinese	Simplified chinese character code.
StarIoExtCharacterCodeTraditionalChinese	Traditional chinese character code.

7.10 StarIoExtBcrModel Constant

Barcode Reader Model constants.

Declaration

```
typedef NS_ENUM(NSInteger, StarIoExtBcrModel) {
    StarIoExtBcrModelNone = 0,
    StarIoExtBcrModelPOP1
};
```

Constants

Name	Description
StarIoExtBcrModelPOP1	Designated barcode reader for mPOP : BCR-POP1

7.11 StarIoExtScaleModel Constant

Scale Model constants.

Declaration

```
c typedef NS_ENUM(NSInteger, StarIoExtScaleModel) {
    StarIoExtScaleModelNone = 0,
    StarIoExtScaleModelAPS10,
    StarIoExtScaleModelAPS12,
    StarIoExtScaleModelAPS20
};
```

Constants

Name	Description
StarIoExtScaleModelAPS10	Scale for mPOP APS10 * U.S. Only
StarIoExtScaleModelAPS12	Scale for mPOP APS12 * U.S. Only
StarIoExtScaleModelAPS20	Scale for mPOP APS20 * U.S. Only

7.12 StarIoExtDisplayModel Constant

Customer Display Model constants.

Declaration

```
typedef NS_ENUM(NSInteger, StarIoExtDisplayModel) {
    StarIoExtDisplayModelNone = 0,
    StarIoExtDisplayModelSCD222
};
```

Constants

Name	Description
StarIoExtDisplayModelSCD222	Designated customer display for mPOP: SCD222U

7.13 Model : portSetting and StarIoExtEmulation

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

Model	portSettings	StarIoExtEmulation
mPOP	“”	StarIoExtEmulationStarPRNT
FVP10	“”	StarIoExtEmulationStarLine
TSP100	“”	StarIoExtEmulationStarGraphic
TSP650II	“”	StarIoExtEmulationStarLine
TSP700II	“”	StarIoExtEmulationStarLine
TSP800II	“”	StarIoExtEmulationStarLine
SM-S210i	“mini”	StarIoExtEmulationEscPosMobile
SM-S220i	“mini”	StarIoExtEmulationEscPosMobile
SM-S230i	“mini”	StarIoExtEmulationEscPosMobile
SM-T300i	“mini”	StarIoExtEmulationEscPosMobile
SM-T400i	“mini”	StarIoExtEmulationEscPosMobile
BSC10	“escpos”	StarIoExtEmulationEscPos
SM-S210i StarPRNT	"Portable"	StarIoExtEmulationStarPRNT
SM-S220i StarPRNT	"Portable"	StarIoExtEmulationStarPRNT
SM-S230i StarPRNT	"Portable"	StarIoExtEmulationStarPRNT
SM-T300i StarPRNT	"Portable"	StarIoExtEmulationStarPRNT
SM-T400i StarPRNT	"Portable"	StarIoExtEmulationStarPRNT
SM-L200	"Portable"	StarIoExtEmulationStarPRNT
SM-L300	"Portable"	StarIoExtEmulationStarPRNTL
SP700	“”	StarIoExtEmulationStarDotImpact

portSettings is used for getPort Method of SMPort class included in the StarIO.framework or initWithType method of StarIoExtManager class included in the StarIO_Extension.framework.

StarIoExtEmulation is used for createCommandBuilder method of StarIoExt class included in the StarIO_Extension.framework.

8 ISCBBuilder interface (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 appendData appendBytes	Data is added to the commands property.
appendRawByte appendRawData appendRawBytes	Raw data is added to the commands property.
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 appendDataWithLineFeed appendBytesWithLineFeed	Line feed command is generated and added to the commands property.
appendUnitFeed appendDataWithUnitFeed appendBytesWithUnitFeed	Unit feed command is generated and added to the commands property.
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 appendDataWithEmphasis appendBytesWithEmphasis	Select command of the emphasis mode is generated and added to the commands property.
appendInvert appendDataWithInvert appendBytesWithInvert	Select command of the invert mode is generated and added to the commands property.
appendMultiple appendDataWithMultiple appendBytesWithMultiple appendMultipleHeight appendDataWithMultipleHeight appendBytesWithMultipleHeight appendMultipleWidth appendDataWithMultipleWidth appendBytesWithMultipleWidth	Select command of the multiple mode is generated and added to the commands property.
appendUnderLine appendDataWithUnderLine appendBytesWithUnderLine	Select command of the under line mode is generated and added to the commands property.
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.
appendBlackMark	Black mark command is generated and added to the commands property.
beginPageMode	Begin page mode command is generated and added to the commands property.
endPageMode	End page mode command is generated and added to the commands property.
appendPageModeVerticalAbsolutePosition	Vertical absolute position in page mode command is generated and added to the commands property.
appendPageModeRotation	Print direction in page mode command 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.
SCBBlackMarkType	Black mark constants.

8.1 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	SM-L300	SP700
Document control	beginDocument	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
	endDocument	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Initialization	appendInitialization	✔	✔	-	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Data (Text and Command)	appendByte	✔	✔	-	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
	appendData	✔	✔	-	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
	appendBytes	✔	✔	-	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
Raw data (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	SM-L300	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	SM-L300	SP700
Cut paper	appendCutPaper	✔	✔	✔	✔	✔	✔	*3	*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	SM-L300	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	✔	✔	✔	✔	✔	✔	✔	✔	✔
Black mark	appendBlackMark	-	✔	-	-	✔	✔	*5	*5	*5	*5	*5	-	*5	*5	*5	*5	*5	*5	*5	✔
Page mode	beginPageMode	✔	✔	-	✔	-	-	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	-
	endPageMode	✔	✔	-	✔	-	-	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	-
	appendPageModeVerticalAbsolutePosition	✔	✔	-	✔	-	-	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	-
	appendPageModeRotation	✔	✔	-	✔	-	-	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	-

- : ignored.
*4 : Always print from left side.
*5 : Need to change printer setting to "BM Valid".
Refer to User's manual for how to change.

8.2 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:(StarIoExtEmulation)emulation {
    NSData *otherData = [@"Hello World.\n" dataUsingEncoding:NSASCIIStringEncoding];

    ISCBBuilder *builder = [StarIoExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendData:otherData];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

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

Refer to ApiFunctions.m.

8.3 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:(StarIoExtEmulation)emulation {
    NSData *otherData = [@"Hello World.\n" dataUsingEncoding:NSASCIIStringEncoding];

    ISCBBuilder *builder = [StarIoExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendData:otherData];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

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

Refer to ApiFunctions.m.

8.4 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. • SCBInitializationTypeCommand … Command initialization. • ~~SCBInitializationTypeReset … Reset printer.~~ • ~~SCBInitializationTypeResetWithPrint … Reset printer (execute self print).~~	SCBInitializationType

Return value

Description	Object type
-	-

Example

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

    ISCBBuilder *builder = [StarIoExt 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.

8.5 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:NSASCIIStringEncoding];

    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.

8.6 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:(StarIoExtEmulation)emulation image:(UIImage *)image {
    NSString *urlString = [SMCSAllReceipts uploadBitmap:image completion:nil];

    ISCBBuilder *builder = [StarIoExt 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.

8.7 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. • 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)	SCBFontStyleType

Return value

Description	Object type
-	-

Example

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

    ISCBBuilder *builder = [StarIoExt 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.

8.8 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	Code Page. • 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).	SCBCodePageType

Name	Description	Object type
type	• 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.	SCBCodePageType

Return value

Description	Object type
-	-

Example

```
+ (NSData *)createData:(StarIoExtEmulation)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 = [StarIoExt 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.

8.9 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. • 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.	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.

8.10 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:(StarIoExtEmulation)emulation {
    NSData *otherData = [@"Hello World." dataUsingEncoding:NSASCIIStringEncoding];

    ISCBBuilder *builder = [StarIoExt 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.

8.11 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:(StarIoExtEmulation)emulation {
    NSData *otherData = [@"Hello World."   dataUsingEncoding:NSASCIIStringEncoding];

    ISCBBuilder *builder = [StarIoExt 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.

8.12 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
-	-

1. Notes

In Japanese, Simplified Chinese, Traditional Chinese, Korean (DBCS), the character space is to be twice.

Example

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

    ISCBBuilder *builder = [StarIoExt 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.

8.13 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:(StarIoExtEmulation)emulation {
    NSData *otherData = [@"Hello World.\n" dataUsingEncoding:NSASCIIStringEncoding];

    ISCBBuilder *builder = [StarIoExt 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.

8.14 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. • YES … Valid • NO … Invalid	BOOL
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:NSASCIIStringEncoding];
    NSData *otherDataHalf0 = [@"Hello " dataUsingEncoding:NSASCIIStringEncoding];
    NSData *otherDataHalf1 = [@"World.\n" dataUsingEncoding:NSASCIIStringEncoding];

    ISCBBuilder *builder = [StarIoExt 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.

8.15 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. • YES … Valid • NO … Invalid	BOOL
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:NSASCIIStringEncoding];
    NSData *otherDataHalf0 = [@"Hello " dataUsingEncoding:NSASCIIStringEncoding];
    NSData *otherDataHalf1 = [@"World.\n" dataUsingEncoding:NSASCIIStringEncoding];

    ISCBBuilder *builder = [StarIoExt 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.

8.16 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:NSASCIIStringEncoding];
    NSData *otherDataHalf0 = [@"Hello " dataUsingEncoding:NSASCIIStringEncoding];
    NSData *otherDataHalf1 = [@"World.\n" dataUsingEncoding:NSASCIIStringEncoding];

    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.

8.17 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. • YES … Valid • NO … Invalid	BOOL
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:NSASCIIStringEncoding];
    NSData *otherDataHalf0 = [@"Hello " dataUsingEncoding:NSASCIIStringEncoding];
    NSData *otherDataHalf1 = [@"World.\n" dataUsingEncoding:NSASCIIStringEncoding];

    ISCBBuilder *builder = [StarIoExt 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.

8.18 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. • SCBLogoSizeNormal … Normal. • SCBLogoSizeDoubleWidth … Double Width. • SCBLogoSizeDoubleHeight … Double Height. • SCBLogoSizeDoubleWidthDoubleHeight … Double Width / Height.	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.

8.19 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:(StarIoExtEmulation)emulation {
    NSData *otherData = [@"Hello World.\n" dataUsingEncoding:NSASCIIStringEncoding];

    ISCBBuilder *builder = [StarIoExt 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.

8.20 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. • SCBAlignmentPositionLeft … Left alignment. • SCBAlignmentPositionCenter … Center alignment. • SCBAlignmentPositionRight … Right alignment.	SCBAlignmentPosition
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:NSASCIIStringEncoding];

    ISCBBuilder *builder = [StarIoExt 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.

8.21 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. • SCBCutPaperActionFullCut … Full Cut. • SCBCutPaperActionPartialCut … Partial Cut. • SCBCutPaperActionFullCutWithFeed … Full Cut with Feed. • SCBCutPaperActionPartialCutWithFeed … Partial Cut with Feed.	SCBCutPaperAction

Return value

Description	Object type
-	-

Example

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

    ISCBBuilder *builder = [StarIoExt 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.

8.22 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. • SCBPeripheralChannelNo1 … Channel1. • SCBPeripheralChannelNo2 … Channel2.	SCBPeripheralChannel
time	Drive time. (Units : mSec) * Peripheral channel1 only.	NSInteger

Return value

Description	Object type
-	-

Example

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

8.23 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. • SCBSoundChannelNo1 … Channel1. • SCBSoundChannelNo2 … Channel2.	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.

8.24 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. • SCBBarcodeSymbologyUPCE … UPC-E. • SCBBarcodeSymbologyUPCA … UPC-A. • SCBBarcodeSymbologyJAN8 … JAN/EAN8. • SCBBarcodeSymbologyJAN13 … JAN/EAN13. • SCBBarcodeSymbologyCode39 … Code39. • SCBBarcodeSymbologyITF … ITF. • SCBBarcodeSymbologyCode128 … Code128. • SCBBarcodeSymbologyCode93 … Code93. • ~~SCBBarcodeSymbologyCodabar … Codabar.~~ • SCBBarcodeSymbologyNW7 … NW7.	SCBBarcodeSymbology
width	Barcode width. • SCBBarcodeWidthMode1 … Mode1. • SCBBarcodeWidthMode2 … Mode2. • SCBBarcodeWidthMode3 … Mode3. • SCBBarcodeWidthMode4 … Mode4. • SCBBarcodeWidthMode5 … Mode5. • SCBBarcodeWidthMode6 … Mode6. • SCBBarcodeWidthMode7 … Mode7. • SCBBarcodeWidthMode8 … Mode8. • SCBBarcodeWidthMode9 … Mode9.	SCBBarcodeWidth
height	Barcode height. (Units : Dots)	NSInteger
hri	Under-bar characters. • YES … Valid • NO … Invalid	BOOL

Return value

Description	Object type
-	-

Example

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

    ISCBBuilder *builder = [StarIoExt 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.

8.25 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. • SCBBarcodeSymbologyUPCE … UPC-E. • SCBBarcodeSymbologyUPCA … UPC-A. • SCBBarcodeSymbologyJAN8 … JAN/EAN8. • SCBBarcodeSymbologyJAN13 … JAN/EAN13. • SCBBarcodeSymbologyCode39 … Code39. • SCBBarcodeSymbologyITF … ITF. • SCBBarcodeSymbologyCode128 … Code128. • SCBBarcodeSymbologyCode93 … Code93. • ~~SCBBarcodeSymbologyCodabar … Codabar.~~ • SCBBarcodeSymbologyNW7 … NW7.	SCBBarcodeSymbology
width	Barcode width. • SCBBarcodeWidthMode1 … Mode1. • SCBBarcodeWidthMode2 … Mode2. • SCBBarcodeWidthMode3 … Mode3. • SCBBarcodeWidthMode4 … Mode4. • SCBBarcodeWidthMode5 … Mode5. • SCBBarcodeWidthMode6 … Mode6. • SCBBarcodeWidthMode7 … Mode7. • SCBBarcodeWidthMode8 … Mode8. • SCBBarcodeWidthMode9 … Mode9.	SCBBarcodeWidth
height	Barcode height. (Units : Dots)	NSInteger
hri	Under-bar characters. • YES … Valid • NO … Invalid	BOOL

Return value

Description	Object type
-	-

Example

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

    ISCBBuilder *builder = [StarIoExt 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.

8.26 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. • SCBAlignmentPositionLeft … Left alignment. • SCBAlignmentPositionCenter … Center alignment. • SCBAlignmentPositionRight … Right alignment.	SCBAlignmentPosition
otherData	Barcode data.	NSData
bytes		const void *
length		NSUInteger
symbology	Barcode symbology. • SCBBarcodeSymbologyUPCE … UPC-E. • SCBBarcodeSymbologyUPCA … UPC-A. • SCBBarcodeSymbologyJAN8 … JAN/EAN8. • SCBBarcodeSymbologyJAN13 … JAN/EAN13. • SCBBarcodeSymbologyCode39 … Code39. • SCBBarcodeSymbologyITF … ITF. • SCBBarcodeSymbologyCode128 … Code128. • SCBBarcodeSymbologyCode93 … Code93. • ~~SCBBarcodeSymbologyCodabar … Codabar.~~ • SCBBarcodeSymbologyNW7 … NW7.	SCBBarcodeSymbology
width	Barcode width. • SCBBarcodeWidthMode1 … Mode1. • SCBBarcodeWidthMode2 … Mode2. • SCBBarcodeWidthMode3 … Mode3. • SCBBarcodeWidthMode4 … Mode4. • SCBBarcodeWidthMode5 … Mode5. • SCBBarcodeWidthMode6 … Mode6. • SCBBarcodeWidthMode7 … Mode7. • SCBBarcodeWidthMode8 … Mode8. • SCBBarcodeWidthMode9 … Mode9.	SCBBarcodeWidth
height	Barcode height. (Units : Dots)	NSInteger

Name	Description	Object type
hri	Under-bar characters. • YES … Valid • NO … Invalid	BOOL

Return value

Description	Object type
-	-

Example

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

    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.

8.27 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). • SCBPdf417LevelECC0 … Level0. • SCBPdf417LevelECC1 … Level1. • SCBPdf417LevelECC2 … Level2. • SCBPdf417LevelECC3 … Level3. • SCBPdf417LevelECC4 … Level4. • SCBPdf417LevelECC5 … Level5. • SCBPdf417LevelECC6 … Level6. • SCBPdf417LevelECC7 … Level7. • SCBPdf417LevelECC8 … Level8.	SCBPdf417Level
module	Module X direction size.	NSInteger
aspect	Module aspect ratio.	NSInteger

Return value

Description	Object type
-	-

Example

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

    ISCBBuilder *builder = [StarIoExt 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.

8.28 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	Number of lines.	NSInteger
column	Number of columns.	NSInteger
level	PDF417 ECC (security level). • SCBPdf417LevelECC0 … Level0. • SCBPdf417LevelECC1 … Level1. • SCBPdf417LevelECC2 … Level2. • SCBPdf417LevelECC3 … Level3. • SCBPdf417LevelECC4 … Level4. • SCBPdf417LevelECC5 … Level5. • SCBPdf417LevelECC6 … Level6. • SCBPdf417LevelECC7 … Level7. • SCBPdf417LevelECC8 … Level8.	SCBPdf417Level
module	Module X direction size.	NSInteger
aspect	Module aspect ratio.	NSInteger

Return value

Description	Object type
-	-

Example

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

    ISCBBuilder *builder = [StarIoExt 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.

8.29 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. • SCBAlignmentPositionLeft … Left alignment. • SCBAlignmentPositionCenter … Center alignment. • SCBAlignmentPositionRight … Right alignment.	SCBAlignmentPosition
otherData	PDF417 data.	NSData
bytes		const void *
length		NSUInteger
line	Number of lines.	NSInteger
column	Number of columns.	NSInteger
level	PDF417 ECC (security level). • SCBPdf417LevelECC0 … Level0. • SCBPdf417LevelECC1 … Level1. • SCBPdf417LevelECC2 … Level2. • SCBPdf417LevelECC3 … Level3. • SCBPdf417LevelECC4 … Level4. • SCBPdf417LevelECC5 … Level5. • SCBPdf417LevelECC6 … Level6. • SCBPdf417LevelECC7 … Level7. • SCBPdf417LevelECC8 … Level8.	SCBPdf417Level
module	Module X direction size.	NSInteger
aspect	Module aspect ratio.	NSInteger

Return value

Description	Object type
-	-

Example

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

    ISCBBuilder *builder = [StarIoExt 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.

8.30 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. • SCBQrCodeModelNo1 … Model1. • SCBQrCodeModelNo2 … Model2.	SCBQrCodeModel
level	QR code mistake correction level. • SCBQrCodeLevelL … Level L. • SCBQrCodeLevelM … Level M. • SCBQrCodeLevelQ … Level Q. • 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:NSASCIIStringEncoding];

    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.

8.31 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. • SCBQrCodeModelNo1 … Model1. • SCBQrCodeModelNo2 … Model2.	SCBQrCodeModel
level	QR code mistake correction level. • SCBQrCodeLevelL … Level L. • SCBQrCodeLevelM … Level M. • SCBQrCodeLevelQ … Level Q. • 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:NSASCIIStringEncoding];

    ISCBBuilder *builder = [StarIoExt 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.

8.32 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. • SCBAlignmentPositionLeft … Left alignment. • SCBAlignmentPositionCenter … Center alignment. • SCBAlignmentPositionRight … Right alignment.	SCBAlignmentPosition
otherData	QR code data.	NSData
bytes		const void *
length		NSUInteger
model	QR code model. • SCBQrCodeModelNo1 … Model1. • SCBQrCodeModelNo2 … Model2.	SCBQrCodeModel
level	QR code mistake correction level. • SCBQrCodeLevelL … Level L. • SCBQrCodeLevelM … Level M. • SCBQrCodeLevelQ … Level Q. • 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:NSASCIIStringEncoding];

    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.

8.33 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. • YES … Valid • NO … Invalid	BOOL
width	Bitmap width after conversion. (Units : Dots)	NSInteger
bothScale	Height is changed according to the conversion rate of the width property. • YES … Valid. • NO … Invalid.	BOOL
rotation	Rotation. • SCBBitmapConverterRotationNormal … Rotated 0. • SCBBitmapConverterRotationRight90 … Rotated 90. • SCBBitmapConverterRotationLeft90 … Rotated 270. • SCBBitmapConverterRotationRotate180 … Rotated 180.	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:[@"\n*Normal*\n" dataUsingEncoding:NSASCIIStringEncoding]];
    [builder appendBitmap:starLogoImage diffusion:YES];

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

    [builder appendData:[@"\n*Rotate180*\n" dataUsingEncoding:NSASCIIStringEncoding]];
    [builder appendBitmap:starLogoImage diffusion:YES rotation:SCBBitmapConverterRotationRotate180];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

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

Refer to ApiFunctions.m.

8.34 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. • YES … Valid • NO … Invalid	BOOL
width	Bitmap width after conversion. (Units : Dots)	NSInteger
bothScale	Height is changed according to the conversion rate of the width property. • YES … Valid. • NO … Invalid.	BOOL
rotation	Rotation. • SCBBitmapConverterRotationNormal … Rotated 0. • SCBBitmapConverterRotationRight90 … Rotated 90. • SCBBitmapConverterRotationLeft90 … Rotated 270. • SCBBitmapConverterRotationRotate180 … Rotated 180.	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:[@"\n*Normal, AbsolutePosition:40*\n" dataUsingEncoding:NSASCIIStringEncoding]];
    [builder appendBitmapWithAbsolutePosition:starLogoImage diffusion:YES position:40];

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

    [builder appendData:[@"\n*Rotate180, AbsolutePosition:40*\n" dataUsingEncoding:NSASCIIStringEncoding]];
    [builder appendBitmapWithAbsolutePosition:starLogoImage diffusion:YES
rotation:SCBBitmapConverterRotationRotate180 position:40];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

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

Refer to ApiFunctions.m.

8.35 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. • SCBAlignmentPositionLeft … Left alignment. • SCBAlignmentPositionCenter … Center alignment. • SCBAlignmentPositionRight … Right alignment.	SCBAlignmentPosition
image	Source bitmap object.	UIImage
diffusion	Random dither. • YES … Valid • NO … Invalid	BOOL
Width	Bitmap width after conversion. (Units : Dots)	NSInteger
bothScale	Height is changed according to the conversion rate of the width property. • YES … Valid. • NO … Invalid.	BOOL
rotation	Rotation. • SCBBitmapConverterRotationNormal … Rotated 0. • SCBBitmapConverterRotationRight90 … Rotated 90. • SCBBitmapConverterRotationLeft90 … Rotated 270. • SCBBitmapConverterRotationRotate180 … Rotated 180.	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:[@"\n*Normal, Alignment:Center*\n" dataUsingEncoding:NSASCIIStringEncoding]];
    [builder appendBitmapWithAlignment:starLogoImage diffusion:YES position:SCBAlignmentPositionCenter];

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

    [builder appendData:[@"\n*Rotate180, Alignment:Center*\n" dataUsingEncoding:NSASCIIStringEncoding]];
    [builder appendBitmapWithAlignment:starLogoImage diffusion:YES
rotation:SCBBitmapConverterRotationRotate180 position:SCBAlignmentPositionCenter];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

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

Refer to ApiFunctions.m.

8.36 appendBlackMark Method

Black mark command is generated and added to the commands property.

Declaration

- (void)appendBlackMark:(SCBBlackMarkType)type;

Parameter

Name	Description	Object type
type	Black mark. • SCBBlackMarkTypeInvalid … Black mark invalid. • SCBBlackMarkTypeValid … Black mark valid. • SCBBlackMarkTypeValidWithDetection … Black mark valid with detection.	SCBBlackMarkType

Return value

Description	Object type
-	-

Example

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

    ISCBBuilder *builder = [StarIoExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendBlackMark:SCBBlackMarkTypeValid];

    [builder appendData:otherData];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

//  [builder appendBlackMark:SCBBlackMarkTypeInvalid];

    [builder endDocument];

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

Refer to ApiFunctions.m.

8.37 beginPageMode Method

Begin page mode command is generated and added to the commands property.

Declaration

- (void)beginPageMode:(CGRect)rect rotation:(SCBBitmapConverterRotation)rotation;

Parameter

Name	Description	Object type
rect	Location and size. (Units : Dots)	CGRect
rotation	Print direction. • SCBBitmapConverterRotationNormal … Rotated 0. • SCBBitmapConverterRotationRight90 … Rotated 90. • SCBBitmapConverterRotationLeft90 … Rotated 270. • SCBBitmapConverterRotationRotate180 … Rotated 180.	SCBBitmapConverterRotation

Return value

Description	Object type
-	-

Example

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

    int height = 30 * 8;     // 30mm!!!

    CGRect rect;

    ISCBBuilder *builder = [StarIoExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendData:[@"\n*Rotate180 Text*\n" dataUsingEncoding:NSASCIIStringEncoding]];

    rect = CGRectMake(0, 0, width,  height);

    [builder beginPageMode:rect rotation:SCBBitmapConverterRotationRotate180];

    [builder appendPageModeVerticalAbsolutePosition:height / 2];

    [builder appendDataWithAbsolutePosition:otherData position:width / 2];

    [builder endPageMode];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

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

Refer to ApiFunctions.m.

8.38 endPageMode Method

End page mode command is generated and added to the commands property.

Declaration

- (void)endPageMode;

Parameter

Name	Description	Object type
-	-	-

Return value

Description	Object type
-	-

Example

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

    int height = 30 * 8;     // 30mm!!!

    CGRect rect;

    ISCBBuilder *builder = [StarIoExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendData:[@"\n*Rotate180 Text*\n" dataUsingEncoding:NSASCIIStringEncoding]];

    rect = CGRectMake(0, 0, width,  height);

    [builder beginPageMode:rect rotation:SCBBitmapConverterRotationRotate180];

    [builder appendPageModeVerticalAbsolutePosition:height / 2];

    [builder appendDataWithAbsolutePosition:otherData position:width / 2];

    [builder endPageMode];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

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

Refer to ApiFunctions.m.

8.39 appendPageModeVerticalAbsolutePosition Method

Vertical absolute position in page mode command is generated and added to the commands property.

Declaration

- (void)appendPageModeVerticalAbsolutePosition:(NSInteger)position;

Parameter

Name	Description	Object type
position	Vertical absolute position in page mode. (Units : Dots)	NSInteger

Return value

Description	Object type
-	-

Example

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

    int height = 30 * 8;     // 30mm!!!

    CGRect rect;

    ISCBBuilder *builder = [StarIoExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendData:[@"\n*Rotate180 Text*\n" dataUsingEncoding:NSASCIIStringEncoding]];

    rect = CGRectMake(0, 0, width,  height);

    [builder beginPageMode:rect rotation:SCBBitmapConverterRotationRotate180];

    [builder appendPageModeVerticalAbsolutePosition:height / 2];

    [builder appendDataWithAbsolutePosition:otherData position:width / 2];

    [builder endPageMode];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

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

Refer to ApiFunctions.m.

8.40 appendPageModeRotation Method

Print direction in page mode command is generated and added to the commands property.

Declaration

- (void)appendPageModeRotation:(SCBBitmapConverterRotation)rotation;

Parameter

Name	Description	Object type
rotation	Print direction. • SCBBitmapConverterRotationNormal … Rotated 0. • SCBBitmapConverterRotationRight90 … Rotated 90. • SCBBitmapConverterRotationLeft90 … Rotated 270. • SCBBitmapConverterRotationRotate180 … Rotated 180.	SCBBitmapConverterRotation

Return value

Description	Object type
-	-

Example

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

    int height = 30 * 8;     // 30mm!!!

    CGRect rect;

    ISCBBuilder *builder = [StarIoExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendData:[@"\n*Mixed Text*\n" dataUsingEncoding:NSASCIIStringEncoding]];

    rect = CGRectMake(0, 0, width,  height);

    [builder beginPageMode:rect rotation:SCBBitmapConverterRotationNormal];

    [builder appendPageModeVerticalAbsolutePosition:height / 2];

    [builder appendDataWithAbsolutePosition:otherData position:width / 2];

    [builder appendPageModeRotation:SCBBitmapConverterRotationRotate180];

    [builder appendPageModeVerticalAbsolutePosition:height / 2];

    [builder appendDataWithAbsolutePosition:otherData position:width / 2];

    [builder endPageMode];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

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

Refer to ApiFunctions.m.

8.41 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:NSASCIIStringEncoding];

    ISCBBuilder *builder = [StarIoExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendData:otherData];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

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

Refer to ApiFunctions.m.

8.42 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.

8.43 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.

8.44 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.

8.45 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.

8.46 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.

8.47 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.

8.48 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.

8.49 SCBPeripheralChannel Constants

Peripheral channel constants.

Declaration

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

Constants

Name	Description
SCBPeripheralChannelNo1	Channel1.
SCBPeripheralChannelNo2	Channel2.

Refer to ApiFunctions.m.

8.50 SCBSoundChannel Constants

Sound channel constants.

Declaration

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

Constants

Name	Description
SCBSoundChannelNo1	Channel1.
SCBSoundChannelNo2	Channel2.

Refer to ApiFunctions.m.

8.51 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.

8.52 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.

8.53 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.

8.54 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.

8.55 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.

8.56 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.

8.57 SCBBlackMarkType Constants

Black mark constants.

Declaration

```
typedef NS_ENUM(NSInteger, SCBBlackMarkType) {
    SCBBlackMarkTypeInvalid,
    SCBBlackMarkTypeValid,
    SCBBlackMarkTypeValidWithDetection
};
```

Constants

Name	Description
SCBBlackMarkTypeInvalid	Black mark invalid.
SCBBlackMarkTypeValid	Black mark valid.
SCBBlackMarkTypeValidWithDetection	Black mark valid with detection.

Refer to ApiFunctions.m and each Command Specifications.

9 ISDCBBuilder interface (StarIO_Extension.framework)

An interface to provide functions to generate commands for the customer display control.

Method

Name	Description
appendByte appendData appendBytes	Adds data (text or command) to the commands property.
appendBackSpace	Generates a backspace command, and then adds it to the commands property.
appendHorizontalTab	Generates a horizontal tab command, and then adds it to the commands property.
appendLineFeed	Generates a line feed command, and then adds it to the commands property.
appendCarriageReturn	Generates a carriage-return command, and then adds it to the commands property.
appendBitmap	Generates a graphic display command, and then adds it to the commands property.
appendInternational	Generates an international character specification command, and then adds it to the commands property.
appendCodePage	Generates a code page specification command, and then adds it to the commands property.
appendDeleteToEndOfLine	Generates a command to clear the screen until the end of the line, and then adds it to the commands property.
appendClearScreen	Generates a command to clear the screen, and then adds it to the commands property.
appendHomePosition	Generates a command to move the cursor to the home position, and then adds it to the commands property.
appendTurnOn	Generates a command to turn on/off the backlight, and then adds it to the commands property.
appendSpecifiedPosition	Generates a command to move the cursor to the specified position, and then adds it to the commands property.
appendCursorMode	Generates a command to change the cursor mode, and then adds it to the commands property.
appendContrastMode	Generates a command to change the contrast mode, and then adds it to the commands property.
appendUserDefinedCharacter	Generates a command to register user-defined characters (SBCS), and then adds it to the commands property.
appendUserDefinedDbcsCharacter	Generates a command to register user-defined characters (DBCS), and then adds it to the commands property.

Property

Name	Description
commands	Generated or added commands. * *readonly*
passThroughCommands	Generated or added commands to which adds a pass-through command. * *readonly*

Constant

Name	Description
SDCBInternationalType	International character constants.
SDCBCodePageType	Code Page constants.
SDCBCursorMode	Cursor Mode constants.
SDCBContrastMode	ContrastMode constants.

9.1 Model : ISDCBBuilder interface

The ISDCBBuilder interface is for mPOP/TSP100IIIU only.

9.2 appendData Method

Adds data (text or command) 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,Command)	unsigned char
otherData		NSData
bytes		const void *
length		NSUInteger

Return value

Description	Object type
-	-

Example

```
+ (void)appendTextPattern:(ISDCBBuilder *)builder number:(int)number {
//  [builder appendClearScreen];
    [builder appendCursorMode:SDCBCursorModeOff];
    [builder appendSpecifiedPosition:1 y:1];

    unsigned char pattern1[] =
"\x020\x021\x022\x023\x024\x025\x026\x027\x028\x029\x02a\x02b\x02c\x02d\x02e\x02f\x030\x031\x032\x033"

"\x034\x035\x036\x037\x038\x039\x03a\x03b\x03c\x03d\x03e\x03f\x040\x041\x042\x043\x044\x045\x046\x047";
    ...

    switch (number) {
        default : [builder appendBytes:pattern1 length:sizeof(pattern1)]; break;     // 0
        case 1  : [builder appendBytes:pattern2 length:sizeof(pattern2)]; break;
        case 2  : [builder appendBytes:pattern3 length:sizeof(pattern3)]; break;
        case 3  : [builder appendBytes:pattern4 length:sizeof(pattern4)]; break;
        case 4  : [builder appendBytes:pattern5 length:sizeof(pattern5)]; break;
        case 5  : [builder appendBytes:pattern6 length:sizeof(pattern6)]; break;
    }
}
```

Refer to DisplayFunctions.m.

9.3 appendBackSpace Method

Generates a backspace command, and then adds it to the commands property.

Declaration

void appendBackSpace();

Parameter

Name	Description	Object type
-	-	-

Return value

Description	Object type
-	-

9.4 appendHorizontalTab Method

Generates a horizontal tab command, and then adds it to the commands property.

Declaration

- (void)appendHorizontalTab;

Parameter

Name	Description	Object type
-	-	-

Return value

Description	Object type
-	-

9.5 appendLineFeed Method

Generates a line feed command, and then adds it to the commands property.

Declaration

- (void)appendLineFeed;

Parameter

Name	Description	Object type
-	-	-

Return value

Description	Object type
-	-

9.6 appendCarriageReturn Method

Generates a carriage-return command, and then adds it to the commands property.

Declaration

- (void)appendCarriageReturn;

Parameter

Name	Description	Object type
-	-	-

Return value

Description	Object type
-	-

9.7 appendBitmap Method

Generates a graphic display command, and then adds it to the commands property.

Declaration

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

Parameter

Name	Description	Object type
image	Image you want to display Specify the instance of the 160 × 40 dots monochrome Bitmap class. If a different sized Bitmap is specified, it is resized to 160 × 40 dots. The Bitmap pixels are automatically converted to monochrome value.	UIImage *
diffusion	Random dither. • YES … Valid • NO … Invalid	BOOL

Return value

Description	Object type
-	-

Example

```
+ (void)appendGraphicPattern:(ISDCBBuilder *)builder number:(int)number {
//  [builder appendClearScreen];
    [builder appendCursorMode:SDCBCursorModeOff];
//  [builder appendSpecifiedPosition:1 y:1];

    UIImage *image;

    switch (number) {
        default : image = [UIImage imageNamed:@"DisplayImage1.png"]; break;     // 0
        case 1  : image = [UIImage imageNamed:@"DisplayImage2.png"]; break;
        case 2  : image = [UIImage imageNamed:@"DisplayImage3.png"]; break;
        case 3  : image = [UIImage imageNamed:@"DisplayImage4.png"]; break;
    }

    [builder appendBitmap:image diffusion:YES];
}
```

Refer to DisplayFunctions.m.

9.8 appendInternational Method

Generates an international character specification command, and then adds it to the commands property.

Declaration

- (void)appendInternational:(SDCBInternationalType)type;

Parameter

Name	Description	Object type
type	International character constants.	SDCBInternationalType

Return value

Description	Object type
-	-

Example

```
+ (void)appendCharacterSet:(ISDCBBuilder *)builder internationalType:(SDCBInternationalType)internationalType
codePageType:(SDCBCodePageType)codePageType {
//  [builder appendClearScreen];
    [builder appendCursorMode:SDCBCursorModeOff];
    [builder appendSpecifiedPosition:1 y:1];

    [builder appendInternational:internationalType];
    [builder appendCodePage     :codePageType];

    unsigned char pattern1[] =
"\x02d\x020\x020\x020\x023\x024\x040\x05b\x05c\x05d\x05e\x060\x07b\x07c\x07d\x07e\x020\x020\x020\x02d"

"\x0a0\x0a1\x0a2\x0a3\x0a4\x0a5\x0a6\x0a7\x0a8\x0a9\x0aa\x0ab\x0ac\x0ad\x0ae\x0af\x0b0\x0b1\x0b2\x0b3";

    ...

    switch (codePageType) {
        default                          : [builder appendBytes:pattern1 length:sizeof(pattern1)]; break;     //
CP437,Katakana,CP850,CP860,CP863,CP865,CP1252,CP866,CP852,CP858
        case SDCBCodePageTypeJapanese          : [builder appendBytes:pattern2 length:sizeof(pattern2)]; break;
        case SDCBCodePageTypeSimplifiedChinese  : [builder appendBytes:pattern3 length:sizeof(pattern3)]; break;
        case SDCBCodePageTypeTraditionalChinese : [builder appendBytes:pattern4 length:sizeof(pattern4)]; break;
        case SDCBCodePageTypeHangul            : [builder appendBytes:pattern5 length:sizeof(pattern5)]; break;
    }
}
```

Refer to DisplayFunctions.m.

9.9 appendCodePage Method

Generates a code page specification command, and then adds it to the commands property.

Declaration

- (void)appendCodePage:(SDCBCodePageType)type;

Parameter

Name	Description	Object type
type	Code page constants.	SDCBCodePageType

Return value

Description	Object type
-	-

Example

```
+ (void)appendCharacterSet:(ISDCBBuilder *)builder internationalType:(SDCBInternationalType)internationalType
codePageType:(SDCBCodePageType)codePageType {
//  [builder appendClearScreen];
    [builder appendCursorMode:SDCBCursorModeOff];
    [builder appendSpecifiedPosition:1 y:1];

    [builder appendInternational:internationalType];
    [builder appendCodePage     :codePageType];

    unsigned char pattern1[] =
"\x02d\x020\x020\x020\x023\x024\x040\x05b\x05c\x05d\x05e\x060\x07b\x07c\x07d\x07e\x020\x020\x020\x02d"

"\x0a0\x0a1\x0a2\x0a3\x0a4\x0a5\x0a6\x0a7\x0a8\x0a9\x0aa\x0ab\x0ac\x0ad\x0ae\x0af\x0b0\x0b1\x0b2\x0b3";

    ...

    switch (codePageType) {
        default                         : [builder appendBytes:pattern1 length:sizeof(pattern1)]; break;     //
CP437,Katakana,CP850,CP860,CP863,CP865,CP1252,CP866,CP852,CP858
        case SDCBCodePageTypeJapanese          : [builder appendBytes:pattern2 length:sizeof(pattern2)]; break;
        case SDCBCodePageTypeSimplifiedChinese  : [builder appendBytes:pattern3 length:sizeof(pattern3)]; break;
        case SDCBCodePageTypeTraditionalChinese : [builder appendBytes:pattern4 length:sizeof(pattern4)]; break;
        case SDCBCodePageTypeHangul            : [builder appendBytes:pattern5 length:sizeof(pattern5)]; break;
    }
}
```

Refer to DisplayFunctions.m.

9.10 appendDeleteToEndOfLine Method

Generates a command to clear the screen until the end of the line, and then adds it to the commands property.

Declaration

- (void)appendDeleteToEndOfLine;

Parameter

Name	Description	Object type
-	-	-

Return value

Description	Object type
-	-

9.11 appendClearScreen Method

Generates a command to clear the screen, and then adds it to the commands property.

Declaration

- (void)appendClearScreen;

Parameter

Name	Description	Object type
-	-	-

Return value

Description	Object type
-	-

Example

```
+ (void)appendClearScreen:(ISDCBBuilder *)builder {
    [builder appendClearScreen];
}
```

Refer to DisplayFunctions.m.

9.12 appendHomePosition Method

Generates a command to move the cursor to the home position, and then adds it to the commands property.

Declaration

- (void)appendHomePosition;

Parameter

Name	Description	Object type
-	-	-

Return value

Description	Object type
-	-

9.13 appendTurnOn Method

Generates a command to turn on/off the backlight, and then adds it to the commands property.

Declaration

- (void)appendTurnOn:(BOOL)turnOn;

Parameter

Name	Description	Object type
turnOn	Backlight ON/OFF	BOOL

Return value

Description	Object type
-	-

Example

```
+ (void)appendTurnOn:(ISDCBBuilder *)builder turnOn:(BOOL)turnOn {
    ...
    [builder appendTurnOn:turnOn];
}
```

Refer to DisplayFunctions.m.

9.14 appendSpecifiedPosition Method

Generates a command to move the cursor to the specified position, and then adds it to the commands property.

Declaration

- (void)appendSpecifiedPosition:(int)x y:(int)y;

Parameter

Name	Description	Object type
x	Digit position (Leftmost digit is 1)	int
y	Line position (top line is 1)	int

Return value

Description	Object type
-	-

Example

```
+ (void)appendCursorMode:(ISDCBBuilder *)builder cursorMode:(SDCBCursorMode)cursorMode {
//  [builder appendClearScreen];
    [builder appendCursorMode:SDCBCursorModeOff];
    [builder appendSpecifiedPosition:1 y:1];

    unsigned char pattern[] = "Star Micronics      "
                              "Total :       12345";

    [builder appendBytes:pattern length:sizeof(pattern)];

    [builder appendSpecifiedPosition:20 y:2];

    [builder appendCursorMode:cursorMode];
}
```

Refer to DisplayFunctions.m.

9.15 appendCursorMode Method

Generates a command to change the cursor mode, and then adds it to the commands property.

Declaration

- (void)appendCursorMode:(SDCBCursorMode)cursorMode;

Parameter

Name	Description	Object type
cursorMode	Cursor mode constants.	SDCBCursorMode

Return value

Description	Object type
-	-

Example

```
+ (void)appendCursorMode:(ISDCBBuilder *)builder cursorMode:(SDCBCursorMode)cursorMode {
//  [builder appendClearScreen];
    [builder appendCursorMode:SDCBCursorModeOff];
    [builder appendSpecifiedPosition:1 y:1];

    unsigned char pattern[] = "Star Micronics      "
                              "Total :        12345";

    [builder appendBytes:pattern length:sizeof(pattern)];

    [builder appendSpecifiedPosition:20 y:2];

    [builder appendCursorMode:cursorMode];
}
```

Refer to DisplayFunctions.m.

9.16 appendContrastMode Method

Generates a command to change the contrast mode, and then adds it to the commands property.

Declaration

- (void)appendContrastMode:(SDCBContrastMode)contrastMode;

Parameter

Name	Description	Object type
contrastMode	Contrast mode constants.	SDCBContrastMode

Return value

Description	Object type
-	-

Example

```
+ (void)appendContrastMode:(ISDCBBuilder *)builder contrastMode:(SDCBContrastMode)contrastMode {
    ...
    [builder appendContrastMode:contrastMode];
}
```

Refer to DisplayFunctions.m.

9.17 appendUserDefinedCharacter Method

Generates a command to register user-defined characters (SBCS), and then adds it to the commands property.

Declaration

- (void)appendUserDefinedCharacter:(int)index code:(int)code font:(unsigned char *)font;

Parameter

Name	Description	Object type
index	Font number 00h ≦ index ≦ 1Fh	int
code	Character code of user-defined character. 20h ≦ code ≦ 7Fh If CodePageType.Japanese is specified with the appendCharacterSet method and the appendCodePage method, the following range is also supported. A0h ≦ code ≦ DFh	int
font	16-byte font data Refer to the font data format of the user-defined characters. Specifying null deletes the user-defined characters of the specified font No.	unsigned char *

Return value

Description	Object type
-	-

Example

```
+ (void)appendUserDefinedCharacter:(ISDCBBuilder *)builder set:(BOOL)set {
//  [builder appendClearScreen];
    [builder appendCursorMode:SDCBCursorModeOff];
    [builder appendSpecifiedPosition:1 y:1];

    [builder appendInternational:SDCBInternationalTypeUSA];
    [builder appendCodePage     :SDCBCodePageTypeJapanese];

    if (set) {
        [builder appendUserDefinedCharacter:0 code:0x20 font:(unsigned char *)
"\x000\x000\x032\x000\x049\x000\x049\x07f\x026\x048\x000\x048\x000\x030\x000\x000"];

        [builder appendUserDefinedDbcsCharacter:0 code:0x8140 font:(unsigned char *)
"\x000\x000\x000\x000\x000\x000\x000\x000\x003\x020\x004\x090\x004\x090\x002\x060"

"\x000\x000\x007\x0f0\x004\x080\x004\x080\x003\x000\x000\x000\x000\x000\x000\x000"];
    }
    else {
        [builder appendUserDefinedCharacter:0 code:0x00 font:nil];

        [builder appendUserDefinedDbcsCharacter:0 code:0x0000 font:nil];
    }

    unsigned char pattern[] =
"\x05b\x020\x020\x053\x074\x061\x072\x020\x04d\x069\x063\x072\x06f\x06e\x069\x063\x073\x020\x020\x05d"

"\x05b\x081\x040\x081\x040\x083\x058\x083\x05e\x081\x05b\x090\x0b8\x096\x0a7\x081\x040\x081\x040\x05d";

    [builder appendBytes:pattern length:sizeof(pattern)];
}
```

Refer to DisplayFunctions.m.

9.18 appendUserDefinedDbcsCharacter Method

Generates a command to register user-defined characters (DBCS), and then adds it to the commands property.

Declaration

- (void)appendUserDefinedDbcsCharacter:(int)index code:(int)code font:(unsigned char *)font;

Parameter

Name	Description	Object type
index	Font number 00h ≦ index ≦ 0Fh	int
code	Character code of user-defined character. 20h ≦ code ≦ 7Fh If CodePageType.Japanese is specified with the appendCharacterSet method and the appendCodePage method, the following range is also supported. 80 00h ≦ code ≦ FF FFh	int
font	32-byte font data Refer to the font data format of the user-defined characters. Specifying null deletes the user-defined characters of the specified font No.	unsigned char *

Return value

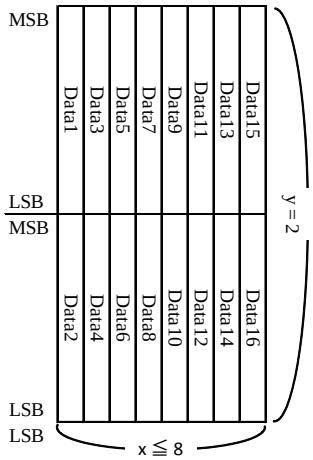
Description	Object type
-	-

Example

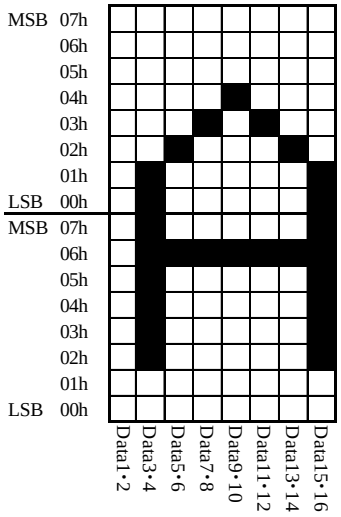
```
+ (void)appendUserDefinedCharacter:(ISDCBBuilder *)builder set:(BOOL)set {
//  [builder appendClearScreen];
    [builder appendCursorMode:SDCBCursorModeOff];
    [builder appendSpecifiedPosition:1 y:1];

    [builder appendInternational:SDCBInternationalTypeUSA];
    [builder appendCodePage     :SDCBCodePageTypeJapanese];

    if (set) {
        [builder appendUserDefinedCharacter:0 code:0x20 font:(unsigned char *)
"\x000\x000\x032\x000\x049\x000\x049\x07f\x026\x048\x000\x048\x000\x030\x000\x000"];

        [builder appendUserDefinedDbcsCharacter:0 code:0x8140 font:(unsigned char *)
"\x000\x000\x000\x000\x000\x000\x000\x000\x003\x020\x004\x090\x004\x090\x002\x060"

"\x000\x000\x007\x0f0\x004\x080\x004\x080\x003\x000\x000\x000\x000\x000\x000\x000"];
    }
    else {
        [builder appendUserDefinedCharacter:0 code:0x00 font:nil];

        [builder appendUserDefinedDbcsCharacter:0 code:0x0000 font:nil];
    }

    unsigned char pattern[] =
"\x05b\x020\x020\x053\x074\x061\x072\x020\x04d\x069\x063\x072\x06f\x06e\x069\x063\x073\x020\x020\x05d"

"\x05b\x081\x040\x081\x040\x083\x058\x083\x05e\x081\x05b\x090\x0b8\x096\x0a7\x081\x040\x081\x040\x05d";

    [builder appendBytes:pattern length:sizeof(pattern)];
}
```

Refer to DisplayFunctions.m.

Font data format of the user-defined characters

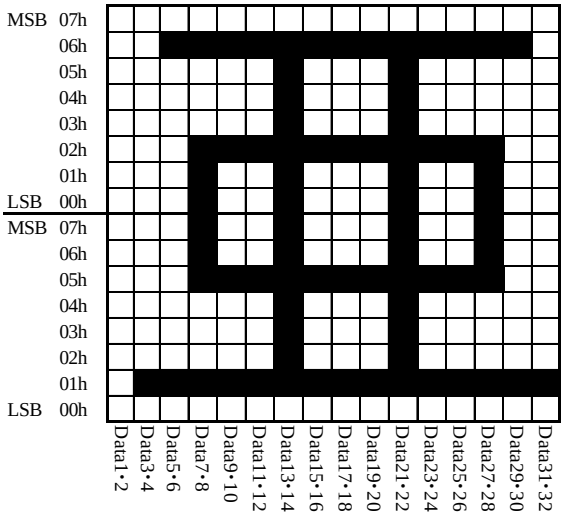


user-defined character (SBCS)



Byte	1	3	5	7	9	11	13	15
Data	00h	03h	04h	08h	10h	08h	04h	03h
Byte	2	4	6	8	10	12	14	16
Data	00h	FCh	40h	40h	40h	40h	40h	FCh

user-defined character (DBCS)



Byte	1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31
Data	00h	00h	40h	47h	44h	44h	7Fh	44h	44h	44h	7Fh	44h	44h	47h	44h	00h
Byte	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32
Data	00h	02h	02h	E2h	22h	22h	FEh	22h	22h	22h	FEh	22h	22h	E2h	22h	02h

9.19 commands Property

Generated or added commands.

Declaration

@property (nonatomic, readonly) NSMutableData *commands;

値

Description	Object type
Generated or added commands.	NSMutableData *

9.20 passThroughCommands Property

Generated or added commands to which adds a pass-through command.

Declaration

@property (nonatomic, readonly) NSMutableData *passThroughCommands;

値

Description	Object type
Generated or added commands to which adds a pass-through command.	NSMutableData *

Example

```
ISDCBBuilder *builder = [StarIoExt createDisplayCommandBuilder:StarIoExtDisplayModelSCD222];

...

NSData *commands = [builder.passThroughCommands copy];
```

Refer to DisplayViewController.m / DisplayExtViewController.m.

9.21 SDCBInternationalType Constant

International character constants.

Declaration

```
typedef NS_ENUM(NSInteger, SDCBInternationalType) {
    SDCBInternationalTypeUSA          = 0x00,
    SDCBInternationalTypeFrance       = 0x01,
    SDCBInternationalTypeGermany      = 0x02,
    SDCBInternationalTypeUK           = 0x03,
    SDCBInternationalTypeDenmark      = 0x04,
    SDCBInternationalTypeSweden       = 0x05,
    SDCBInternationalTypeItaly        = 0x06,
    SDCBInternationalTypeSpain        = 0x07,
    SDCBInternationalTypeJapan        = 0x08,
    SDCBInternationalTypeNorway       = 0x09,
    SDCBInternationalTypeDenmark2     = 0x0a,
    SDCBInternationalTypeSpain2       = 0x0b,
    SDCBInternationalTypeLatinAmerica = 0x0c,
    SDCBInternationalTypeKorea        = 0x0d
};
```

Constants

Name	Description
SDCBInternationalTypeUSA	USA
SDCBInternationalTypeFrance	France
SDCBInternationalTypeGermany	Germany
SDCBInternationalTypeUK	UK
SDCBInternationalTypeDenmark	Denmark
SDCBInternationalTypeSweden	Sweden
SDCBInternationalTypeItaly	Italy
SDCBInternationalTypeSpain	Spain
SDCBInternationalTypeJapan	Japan
SDCBInternationalTypeNorway	Norway
SDCBInternationalTypeDenmark2	Denmark ||
SDCBInternationalTypeSpain2	Spain ||
SDCBInternationalTypeLatinAmerica	Latin America
SDCBInternationalTypeKorea	Korea

9.22 SDCBCodePageType Constant

Code Page constants.

Declaration

```
typedef NS_ENUM(NSInteger, SDCBCodePageType) {
    SDCBCodePageTypeCP437             = 0x00,
    SDCBCodePageTypeKatakana          = 0x01,
    SDCBCodePageTypeCP850             = 0x02,
    SDCBCodePageTypeCP860             = 0x03,
    SDCBCodePageTypeCP863             = 0x04,
    SDCBCodePageTypeCP865             = 0x05,
    SDCBCodePageTypeCP1252            = 0x06,
    SDCBCodePageTypeCP866             = 0x07,
    SDCBCodePageTypeCP852             = 0x08,
    SDCBCodePageTypeCP858             = 0x09,
    SDCBCodePageTypeJapanese          = 0x0a,
    SDCBCodePageTypeSimplifiedChinese  = 0x0b,
    SDCBCodePageTypeTraditionalChinese = 0x0c,
    SDCBCodePageTypeHangul            = 0x0d
};
```

Constants

Name	Description
SDCBCodePageTypeCP437	CodePage437 (USA, Std. Europe).
SDCBCodePageTypeKatakana	Katakana.
SDCBCodePageTypeCP850	PC850 (Multilingual)
SDCBCodePageTypeCP860	PC860 (Portuguese)
SDCBCodePageTypeCP863	PC863 (Canadian-French)
SDCBCodePageTypeCP865	PC865 (Norwegian)
SDCBCodePageTypeCP1252	WPC1252
SDCBCodePageTypeCP866	PC866 [Cyrillic #2]
SDCBCodePageTypeCP852	PC852 [Latin 2]
SDCBCodePageTypeCP858	Page 19 [PC858]
SDCBCodePageTypeJapanese	Japanese font (shift JIS)
SDCBCodePageTypeSimplifiedChinese	Simplified Chinese (GB2312)
SDCBCodePageTypeTraditionalChinese	Traditional Chinese (Big5)
SDCBCodePageTypeHangul	Hangul (KSC5601)

9.23 SDCBCursorMode Constant

Cursor Mode constants.

Declaration

```
typedef NS_ENUM(NSInteger, SDCBCursorMode) {
    SDCBCursorModeOff   = 0x00,
    SDCBCursorModeBlink = 0x01,
    SDCBCursorModeOn    = 0x02
};
```

Constants

Name	Description
SDCBCursorModeOff	Cursor off
SDCBCursorModeBlink	Cursor blinking
SDCBCursorModeOn	Cursor lighting

9.24 SDCBContrastMode Constant

Contrast mode constants.

Declaration

```
typedef NS_ENUM(NSInteger, SDCBContrastMode) {
    SDCBContrastModeMinus3  = 0x00,
    SDCBContrastModeMinus2  = 0x01,
    SDCBContrastModeMinus1  = 0x02,
    SDCBContrastModeDefault = 0x03,
    SDCBContrastModePlus1   = 0x04,
    SDCBContrastModePlus2   = 0x05,
    SDCBContrastModePlus3   = 0x06
};
```

Constants

Name	Description
SDCBContrastModeMinus3	Contrast: -3
SDCBContrastModeMinus2	Contrast: -2
SDCBContrastModeMinus1	Contrast: -1
SDCBContrastModeDefault	Default
SDCBContrastModePlus1	Contrast: +1
SDCBContrastModePlus2	Contrast: +2
SDCBContrastModePlus3	Contrast: +3

10 ISSCBBuilder interface (StarIO_Extension.framework)

An interface to provide functions that generates commands for the scale.

Method

Name	Description
appendByte	Adds data (command) to the command buffer.
appendData	
appendBytes	
appendZeroClear	Generates a command to zero-clear the weight of the scale, and adds it to the command buffer.
appendUnitChange	Generates a command to switch the unit of the scale, and adds it to the command buffer.

Property

Name	Description
commands	Generated or added commands. * *readonly*
passThroughCommands	Generated or added commands to which adds a pass-through command. * *readonly*

10.1 Model : ISSCBBuilder interface

ISSCBBuilder interface is for mPOP only.

10.2 appendData Method

Adds data (command) to the command buffer.

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 (Command)	unsigned char
otherData		NSData
bytes		const void *
length		NSUInteger

Return value

Description	Object type
-	-

10.3 appendZeroClear Method

Generates a command to zero-clear the weight of the scale, and adds it to the command buffer.

Declaration

- (void)appendZeroClear;

Parameter

Name	Description	Object type
-	-	-

Return value

Description	Object type
-	-

Example

```
+ (void)appendZeroClear:(ISSCBBuilder *)builder {
    [builder appendZeroClear];
}
```

Refer to ScaleFunctions.m.

10.4 appendUnitChange Method

Generates a command to switch the unit of the scale, and adds it to the command buffer.

Declaration

- (void)appendUnitChange;

Parameter

Name	Description	Object type
-	-	-

Return value

Description	Object type
-	-

Example

```
+ (void)appendUnitChange:(ISSCBBuilder *)builder {
    [builder appendUnitChange];
}
```

Refer to ScaleFunctions.m.

10.5 commands Property

Generated or added commands.

Declaration

@property (nonatomic, readonly) NSMutableData *commands;

値

Description	Object type
Generated or added commands.	NSMutableData *

10.6 passThroughCommands Property

Generated or added commands to which adds a pass-through command.

Declaration

@property (nonatomic, readonly) NSMutableData *passThroughCommands;

値

Description	Object type
Generated or added commands to which adds a pass-through command.	NSMutableData *

Example

```
ISSCBBuilder *builder = [StarIoExt createScaleCommandBuilder:StarIoExtScaleModelAPS20];

[ScaleFunctions appendZeroClear:builder];

NSData *commands = [builder.passThroughCommands copy];

[Communication sendCommandsDoNotCheckCondition:commands port:port completionHandler:^(BOOL result, NSString
*title, NSString *message) {
    UIAlertView *alertView = [[UIAlertView alloc] initWithTitle:title message:message delegate:nil cancelButtonTitle:@"OK"
otherButtonTitles:nil];

    [alertView show];
}];
```

Refer to ScaleViewController.m / ScaleExtViewController.m.

11 ISCPParser interface (StarIO_Extension.framework)

An interface to analyze the command response for the peripheral (barcode reader / customer display / scale) control.

Method

Name	Description
createSendCommands	Generates a command to receive the response from the peripheral (barcode reader / customer display / scale).
createReceiveCommands	Generates a command to receive the response from the scale.

Property

Name	Description
completionHandler	Analyzes the response of the command (command generated with the createSendCommands or createReceiveCommands) for the peripheral (barcode reader / customer display / scale) control.

Constant

Name	Description
StarIoExtParserCompletionResult	Parse result constants.

11.1 Model : ISCPParser interface

ISCPParser interface is for mPOP/TSP100IIIU only.

11.2 createSendCommands Method

Generates a command to receive the response from the peripheral (barcode reader / customer display / scale).

Declaration

- (NSData *)createSendCommands;

Parameter

Name	Description	Object type
-	-	-

Return value

Description	Object type
Generated command.	NSData *

Example

```
+ (BOOL)parseDoNotCheckCondition:(ISCPParser *)parser
                            port:(SMPort *)port
               completionHandler:(SendCompletionHandler)completionHandler {
    BOOL result = NO;

    NSString *title   = @"";
    NSString *message = @"";

    NSData *sendCommands    = [parser createSendCommands];
    NSData *receiveCommands = [parser createReceiveCommands];

    @try {
        while (YES) {
            ...

            while (result == NO) {
                ...

                while (total < (uint32_t) sendCommands.length) {
                    uint32_t written = [port writePort:sendCommands.bytes :total :(uint32_t) sendCommands.length - total];

                    total += written;

                    if ([[NSDate date] timeIntervalSinceDate:startDate] >= 30.0) {     // 30000mS!!!
                        title   = @"Printer Error";
                        message = @"Write port timed out";
                        break;
                    }
                }

                if (total < (uint32_t) sendCommands.length) {
                    break;
                }

                NSDate *innerStartDate = [NSDate date];

                while (result == NO) {
                    ...

                    while (total < (uint32_t) receiveCommands.length) {
                        uint32_t written = [port writePort:receiveCommands.bytes :total :(uint32_t) receiveCommands.length -
total];

                        total += written;
```

```
                if ([[NSDate date] timeIntervalSinceDate:innerStartDate] >= 30.0) {     // 30000mS!!!
                    title   = @"Printer Error";
                    message = @"Write port timed out";
                    break;
                }
            }

            ...

            while (completionResult == StarIoExtParserCompletionResultInvalid) {
                ...

                int readLength = [port readPort:buffer :amount :1024 - amount];

                ...

                completionResult = parser.completionHandler(buffer, &amount);

                if (completionResult == StarIoExtParserCompletionResultSuccess) {
                    title   = @"Send Commands";
                    message = @"Success";

                    result = YES;
                }
            }
        }
    }

    break;
  }
 }
 ...
}
```

Refer to Communication.m / ScaleCommunication.m.

11.3 createReceiveCommands Method

Generates a command to receive the response from the scale.

Declaration

- (NSData *)createReceiveCommands;

Parameter

Name	Description	Object type
-	-	-

Return value

Description	Object type
Generated command.	NSData *

Example

Refer to the example of the createSendCommands method.

11.4 completionHandler Property

Analyzes the response of the command (command generated with the createSendCommands or createReceiveCommands) for the peripheral (barcode reader / customer display / scale) control.

Declaration

typedef StarIoExtParserCompletionResult (^StarIoExtParserCompletionHandler)(uint8_t *buffer, int *length);

@property (nonatomic, copy) StarIoExtParserCompletionHandler completionHandler;

值

Description	Object type
Parse handler	StarIoExtParserCompletionHandler

Example

Refer to the example of the createSendCommands method.

11.5 StarIoExtParserCompletionResult Constant

Parse result constants.

Declaration

```
typedef NS_ENUM(NSInteger, StarIoExtParserCompletionResult) {
    StarIoExtParserCompletionResultInvalid = 0,
    StarIoExtParserCompletionResultSuccess,
    StarIoExtParserCompletionResultFailure
};
```

Constants

Name	Description
StarIoExtParserCompletionResultInvalid	Parse invalid.
StarIoExtParserCompletionResultSuccess	Parse success.
StarIoExtParserCompletionResultFailure	Parse failure.

12 ISCPConnectParser interface (StarIO_Extension.framework)

An interface to provide functions to get the connection/disconnection status of the peripherals (barcode reader / customer display / scale).

Declaration
@interface ISCPConnectParser : ISCPParser

Method

Name	Description
connect	Gets the connection/disconnection status of the peripherals (barcode reader / customer display / scale).

12.1 Model : ISCPConnectParser interface

The ISCPConnectParser interface is for mPOP/TSP100IIIU only.

12.2 connect Method

Gets the connection/disconnection status of the peripherals (barcode reader / customer display / scale).
Executes after the completionHandler property returns StarIoExtParserCompletionResultSuccess.

Declaration

- (BOOL)connect;

Parameter

Name	Description	Object type
-	-	-

Return value

Description	Object type
The connection/disconnection status of the peripheral.	BOOL

Example

```
ISCPConnectParser *parser = [StarIoExt createDisplayConnectParser:StarIoExtDisplayModelSCD222];

[Communication parseDoNotCheckCondition:parser port:port completionHandler:^(BOOL result, NSString *title, NSString
*message) {
    if (result == YES) {
        if (parser.connect == YES) {
            UIAlertView *alertView = [[UIAlertView alloc] initWithTitle:@"Check Status" message:@"Display Connect."
delegate:nil cancelButtonTitle:@"OK" otherButtonTitles:nil];

            [alertView show];
        }
        else {
            UIAlertView *alertView = [[UIAlertView alloc] initWithTitle:@"Check Status" message:@"Display Disconnect."
delegate:nil cancelButtonTitle:@"OK" otherButtonTitles:nil];

            [alertView show];
        }
    }
    else {
//      UIAlertView *alertView = [[UIAlertView alloc] initWithTitle:@"Failure" message:@"Display Impossible." delegate:nil
cancelButtonTitle:@"OK" otherButtonTitles:nil];
        UIAlertView *alertView = [[UIAlertView alloc] initWithTitle:@"Failure" message:@"Printer Impossible." delegate:nil
cancelButtonTitle:@"OK" otherButtonTitles:nil];

        [alertView show];
    }
}];
```

Refer to DisplayViewController.m / DisplayExtViewController.m / ScaleViewController.m / ScaleExtViewController.m.

13 ISSCPWeightParser (StarIO_Extension.framework)

An interface to analyze the command response for the scale control and to provide functions to get displayed weight data.

Declaration

@interface ISSCPWeightParser : ISCPParser

Method

Name	Description
weight	Gets the displayed weight of the scale.
status	Gets the measurement state of the scale.

Constant

Name	Description
StarIoExtDisplayedWeightStatus	Weight measurement state constants.

13.1 Model : ISSCPWeightParser interface

ISSCPWeightParser interface is for mPOP only.

13.2 weight Method

Gets the displayed weight of the scale.
Executes after the completionHandler property returns StarIoExtParserCompletionResultSuccess.

Declaration

- (NSString *)weight;

Parameter

Name	Description	Object type
-	-	-

Return value

Description	Object type
Displayed weight of the scale	NSString *

Example

```
[ScaleCommunication parseDoNotCheckCondition:weightParser port:port completionHandler:^(BOOL result, NSString
*title, NSString *message) {
    if (result == YES) {
        UIAlertView *alertView;

        switch (weightParser.status) {
            default                                 :
//          case StarIoExtDisplayedWeightStatusZero :
                alertView = [[UIAlertView alloc] initWithTitle:@"Success [Zero]"
                                                       message:weightParser.weight
                                                      delegate:nil
                                             cancelButtonTitle:@"OK"
                                             otherButtonTitles:nil];
                break;
            case StarIoExtDisplayedWeightStatusNotInMotion :
                alertView = [[UIAlertView alloc] initWithTitle:@"Success [Not in motion]"
                                                       message:weightParser.weight
                                                      delegate:nil
                                             cancelButtonTitle:@"OK"
                                             otherButtonTitles:nil];
                break;
                                        case StarIoExtDisplayedWeightStatusMotion :
                alertView = [[UIAlertView alloc] initWithTitle:@"Success [Motion]"
                                                       message:weightParser.weight
                                                      delegate:nil
                                             cancelButtonTitle:@"OK"
                                             otherButtonTitles:nil];
                break;
        }

        [alertView show];
    }
    else {     // Because the scale doesn't sometimes react.
        UIAlertView *alertView = [[UIAlertView alloc] initWithTitle:title message:message delegate:nil
cancelButtonTitle:@"OK" otherButtonTitles:nil];

        [alertView show];
    }
}];
```

Refer to ScaleViewController.m / ScaleExtViewController.m.

13.3 status Method

Gets the measurement state of the scale.
Executes after the completionHandler property returns StarIoExtParserCompletionResultSuccess.

Declaration

- (StarIoExtDisplayedWeightStatus)status;

Parameter

Name	Description	Object type
-	-	-

Return value

Description	Object type
Measurement state of the scale	StarIoExtDisplayedWeightStatus

Example

Refer to the example of the weight method.

13.4 StarIoExtDisplayedWeightStatus Constant

重量の計測状態定数。

Declaration

```
typedef NS_ENUM(NSInteger, StarIoExtDisplayedWeightStatus) {
    StarIoExtDisplayedWeightStatusInvalid = 0,
    StarIoExtDisplayedWeightStatusZero,
    StarIoExtDisplayedWeightStatusNotInMotion,
    StarIoExtDisplayedWeightStatusMotion
};
```

Constants

Name	Description
StarIoExtDisplayedWeightStatusInvalid	Invalid
StarIoExtDisplayedWeightStatusZero	Zero clear
StarIoExtDisplayedWeightStatusNotInMotion	Measurement complete state
StarIoExtDisplayedWeightStatusMotion	Measuring

14 StarPRNT iOS SDK Sample

14.1 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;

    …

    SMPort *port = nil;

    @try {
        while (YES) {
            port = [SMPort 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;
}
```

15 StarIoExtManager class included in the StarIO_Extension.framework

Method

Name	Description
initWithType	Initializes the StarIoManager object.
connect	Management start.
disconnect	Management stop.

Property

Name	Description
port	SMPort object. * *readonly*
lock	Exclusive access control object of communication by port property. * *readonly*
delegate	Delegate of the StarIoExtManager.
printerStatus	Printer status. * *readonly*
printerPaperStatus	Printer paper status. * *readonly*
printerCoverStatus	Printer cover status. * *readonly*
cashDrawerStatus	Cash drawer status. * readonly
barcodeReaderStatus	Barcode reader status. * *readonly*
cashDrawerOpenActiveHigh	Mode of cash drawer open sensor active.

Constants

Name	Description
StarIoExtManagerType	Manager type constants.
StarIoExtManagerPrinterStatus	Printer status constants.
StarIoExtManagerPrinterPaperStatus	Printer paper status constants.
StarIoExtManagerPrinterCoverStatus	Printer cover status constants.
StarIoExtManagerCashDrawerStatus	Cash drawer status constants.
StarIoExtManagerBarcodeReaderStatus	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).

15.1 initWithType Method

Initializes the StarIoManager object.

Declaration

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

Parameter

Name	Description	Object type
type	Maneger type. • StarIoExtManagerTypeStandard … Management of the printer and the cash drawer. • StarIoExtManagerTypeWithBarcodeReader … Management of the printer, cash drawer and the barcode reader. • StarIoExtManagerTypeOnlyBarcodeReader … Management of the barcode reader.	StarIoExtManagerType
portName	Printer port name.	NSString
portSettings	Port settings.	NSString
ioTimeoutMillis	Timeout value for internal control and API.	NSUInteger

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.

15.2 connect Method

Management start.

Declaration

- (BOOL)connect;

Parameter

Name	Description	Object type
-	-	-

Return value

Description	Object type
Result. • YES … Success • NO … Failure	BOOL

Example

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

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

    if ([_starIoExtManager 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.

15.3 disconnect Method

Management stop.

Declaration

- (BOOL)disconnect;

Parameter

Name	Description	Object type
-	-	-

Return value

Description	Object type
Result. • YES … Success • NO … Failure	BOOL

Example

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

    [_starIoExtManager disconnect];
}
```

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

15.4 port Property

SMPort object. * *readonly*

Declaration

@property (readonly, nonatomic) SMPort *port;

15.5 lock Property

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

Declaration

@property (readonly, nonatomic) NSRecursiveLock *lock;

Example

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

    …

    [_starIoExtManager.lock lock];

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

    [_starIoExtManager.lock unlock];

    …

}
```

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

15.6 delegate Property

Delegate of the StarIoExtManager.

Declaration

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

Example

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

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

    _starIoExtManager.delegate = self;
}
```

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

15.7 printerStatus Property

Printer Online status. * *readonly*

Declaration

@property (readonly, nonatomic) StarIoExtManagerPrinterStatus printerStatus;

Value

Description	Object type
Printer status. • StarIoExtManagerPrinterStatusInvalid … Invalid. • StarIoExtManagerPrinterStatusImpossible … Impossible to use printer. • StarIoExtManagerPrinterStatusOnline … Detect online. • StarIoExtManagerPrinterStatusOffline … Detect offline.	StarIoExtManagerPrinterStatus

15.8 printerPaperStatus Property

Printer paper status. * *readonly*

Declaration

@property (readonly, nonatomic) StarIoExtManagerPrinterPaperStatus printerPaperStatus;

Value

Description	Object type
Printer paper status. • StarIoExtManagerPrinterPaperStatusInvalid … Invalid. • StarIoExtManagerPrinterPaperStatusImpossible … Impossible to use Equipment. • StarIoExtManagerPrinterPaperStatusReady … Detect paper ready. • StarIoExtManagerPrinterPaperStatusNearEmpty … Detect paper near end. • StarIoExtManagerPrinterPaperStatusEmpty … Detect paper empty.	StarIoExtManagerPrinterPaperStatus

15.9 printerCoverStatus Property

Printer cover status. * *readonly*

Declaration

@property (readonly, nonatomic) StarIoExtManagerPrinterCoverStatus printerCoverStatus;

Value

Description	Object type
Printer cover status. • StarIoExtManagerPrinterCoverStatusInvalid … Invalid. • StarIoExtManagerPrinterCoverStatusImpossible … Ipossible to use Equipment. • StarIoExtManagerPrinterCoverStatusOpen … Detect cover open. • StarIoExtManagerPrinterCoverStatusClose … Detect cover close.	StarIoExtManagerPrinterCoverStatus

15.10 cashDrawerStatus Property

Cash drawer status. * *readonly*

Declaration

@property (readonly, nonatomic) StarIoExtManagerCashDrawerStatus cashDrawerStatus;

Value

Description	Object type
Cash drawer status. • StarIoExtManagerCashDrawerStatusInvalid … Invalid. • StarIoExtManagerCashDrawerStatusImpossible … Impossible to use Equipment. • StarIoExtManagerCashDrawerStatusOpen … Detect Cash drawer open. • StarIoExtManagerCashDrawerStatusClose … Detect Cash drawer close.	StarIoExtManagerCashDrawerStatus

15.11 barcodeReaderStatus Property

Barcode reader status. * *readonly*

Declaration

@property (readonly, nonatomic) StarIoExtManagerBarcodeReaderStatus barcodeReaderStatus;

Value

Description	Object type
Barcode reader status. • StarIoExtManagerBarcodeReaderStatusInvalid … Invalid. • StarIoExtManagerBarcodeReaderStatusImpossible … Impossible to use Equipment. • StarIoExtManagerBarcodeReaderStatusConnect … Detect Barcode reader connection. • StarIoExtManagerBarcodeReaderStatusDisconnect … Detect Barcode reader disconnection.	StarIoExtManagerBarcodeReaderStatus

15.12 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. • YES … Active high. • NO … Active low.	BOOL

15.13 StarIoExtManagerType Constants

Manager type constants.

Declaration

```
typedef NS_ENUM(NSUInteger, StarIoExtManagerType) {
    StarIoExtManagerTypeStandard = 0,
    StarIoExtManagerTypeWithBarcodeReader,
    StarIoExtManagerTypeOnlyBarcodeReader,
};
```

Constants

Name	Description
StarIoExtManagerTypeStandard	Management of the printer and the cash drawer.
StarIoExtManagerTypeWithBarcodeReader	Management of the printer, cash drawer and the barcode reader.
StarIoExtManagerTypeOnlyBarcodeReader	Management of the barcode reader.

15.14 StarIoExtManagerPrinterStatus Constants

Printer status constants.

Declaration

```
typedef NS_ENUM(NSInteger, StarIoExtManagerPrinterStatus) {
    StarIoExtManagerPrinterStatusInvalid = 0,
    StarIoExtManagerPrinterStatusImpossible,
    StarIoExtManagerPrinterStatusOnline,
    StarIoExtManagerPrinterStatusOffline
};
```

Constants

Name	Description
StarIoExtManagerPrinterStatusInvalid	Invalid.
StarIoExtManagerPrinterStatusImpossible	Impossible to use printer.
StarIoExtManagerPrinterStatusPrinterOnline	Detect Printer online.
StarIoExtManagerPrinterStatusPrinterOffline	Detect Printer offline.

15.15 StarIoExtManagerPrinterPaperStatus Constants

Printer paper status constants.

Declaration

```
typedef NS_ENUM(NSInteger, StarIoExtManagerPrinterPaperStatus) {
    StarIoExtManagerPrinterPaperStatusInvalid = 0,
    StarIoExtManagerPrinterPaperStatusImpossible,
    StarIoExtManagerPrinterPaperStatusReady,
    StarIoExtManagerPrinterPaperStatusNearEmpty,
    StarIoExtManagerPrinterPaperStatusEmpty
};
```

Constants

Name	Description
StarIoExtManagerPrinterPaperStatusInvalid	Invalid.
StarIoExtManagerPrinterPaperStatusImpossible	Impossible to use Printer.
StarIoExtManagerPrinterPaperStatusReady	Detect Printer paper ready.
StarIoExtManagerPrinterPaperStatusNearEmpty	Detect Printer paper near end.
StarIoExtManagerPrinterPaperStatusEmpty	Detect Printer paper empty.

15.16 StarIoExtManagerPrinterCoverStatus Constants

Printer cover status constants.

Declaration

```
typedef NS_ENUM(NSInteger, StarIoExtManagerPrinterCoverStatus) {
    StarIoExtManagerPrinterCoverStatusInvalid = 0,
    StarIoExtManagerPrinterCoverStatusImpossible,
    StarIoExtManagerPrinterCoverStatusOpen,
    StarIoExtManagerPrinterCoverStatusClose
};
```

Constants

Name	Description
StarIoExtManagerPrinterCoverStatusInvalid	Invalid.
StarIoExtManagerPrinterCoverStatusImpossible	Impossible to use Printer.
StarIoExtManagerPrinterCoverStatusOpen	Detect Printer cover open.
StarIoExtManagerPrinterCoverStatusClose	Detect Printer cover close.

15.17 StarIoExtManagerCashDrawerStatus Constants

Cash drawer status constants.

Declaration

```
typedef NS_ENUM(NSInteger, StarIoExtManagerCashDrawerStatus) {
    StarIoExtManagerCashDrawerStatusInvalid = 0,
    StarIoExtManagerCashDrawerStatusImpossible,
    StarIoExtManagerCashDrawerStatusOpen,
    StarIoExtManagerCashDrawerStatusClose
};
```

Constants

Name	Description
StarIoExtManagerCashDrawerStatusInvalid	Invalid.
StarIoExtManagerCashDrawerStatusImpossible	Impossible to use Cash drawer.
StarIoExtManagerCashDrawerStatusOpen	Detect Cash drawer open.
StarIoExtManagerCashDrawerStatusClose	Detect Cash drawer close.

15.18 StarIoExtManagerBarcodeReaderStatus Constants

Barcode reader status constants.

Declaration

```
typedef NS_ENUM(NSInteger, StarIoExtManagerBarcodeReaderStatus) {
    StarIoExtManagerBarcodeReaderStatusInvalid = 0,
    StarIoExtManagerBarcodeReaderStatusImpossible,
    StarIoExtManagerBarcodeReaderStatusConnect,
    StarIoExtManagerBarcodeReaderStatusDisconnect
};
```

Constants

Name	Description
StarIoExtManagerBarcodeReaderStatusInvalid	Invalid.
StarIoExtManagerBarcodeReaderStatusImpossible	Impossible to use Barcode reader.
StarIoExtManagerBarcodeReaderStatusConnect	Detect Barcode reader connection.
StarIoExtManagerBarcodeReaderStatusDisconnect	Detect Barcode reader disconnection.

16 StarIoExtManagerDelegate class included in the StarIO_Extension.framework

Method

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

16.1 didPrinterImpossible Method

Tells the delegate the printer impossible. * *optional*

Declaration

- (void)didPrinterImpossible;

- (void)didPrinterImpossible:(StarIoExtManager *)manager;

Parameter

Name	Description	Object type
manager	A StarIoExtManager object informing the delegate.	StarIoExtManager

Return value

Description	Object type
-	-

Example

```
- (void)didPrinterImpossible:(StarIoExtManager *)manager {
    _commentLabel.text = @"Printer Impossible.";

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

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

16.2 didPrinterOnline Method

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

Declaration

- (void)didPrinterOnline;

- (void)didPrinterOnline:(StarIoExtManager *)manager;

Parameter

Name	Description	Object type
manager	A StarIoExtManager object informing the delegate.	StarIoExtManager

Return value

Description	Object type
-	-

Example

```
- (void)didPrinterOnline:(StarIoExtManager *)manager {
    _commentLabel.text = @"Printer Online.";

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

Refer to PrinterExtViewController.m and CombinationExtViewController.m.

16.3 didPrinterOffline Method

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

Declaration

- (void)didPrinterOffline;

- (void)didPrinterOffline:(StarIoExtManager *)manager;

Parameter

Name	Description	Object type
manager	A StarIoExtManager object informing the delegate.	StarIoExtManager

Return value

Description	Object type
-	-

Example

```
- (void)didPrinterOffline:(StarIoExtManager *)manager {
    _commentLabel.text = @"Printer Offline.";

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

Refer to PrinterExtViewController.m and CombinationExtViewController.m.

16.4 didPrinterPaperReady Method

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

Declaration

- (void)didPrinterPaperReady;

- (void)didPrinterPaperReady:(StarIoExtManager *)manager;

Parameter

Name	Description	Object type
manager	A StarIoExtManager object informing the delegate.	StarIoExtManager

Return value

Description	Object type
-	-

Example

```
- (void)didPrinterPaperReady:(StarIoExtManager *)manager {
    _commentLabel.text = @"Printer Paper Ready.";

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

Refer to PrinterExtViewController.m and CombinationExtViewController.m.

16.5 didPrinterPaperNearEmpty Method

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

Declaration

- (void)didPrinterPaperNearEmpty;

- (void)didPrinterPaperNearEmpty:(StarIoExtManager *)manager;

Parameter

Name	Description	Object type
manager	A StarIoExtManager object informing the delegate.	StarIoExtManager

Return value

Description	Object type
-	-

Example

```
- (void)didPrinterPaperNearEmpty:(StarIoExtManager *)manager {
    _commentLabel.text = @"Printer Paper Near Empty.";

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

Refer to PrinterExtViewController.m and CombinationExtViewController.m.

16.6 didPrinterPaperEmpty Method

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

Declaration

- (void)didPrinterPaperEmpty;

- (void)didPrinterPaperEmpty:(StarIoExtManager *)manager;

Parameter

Name	Description	Object type
manager	A StarIoExtManager object informing the delegate.	StarIoExtManager

Return value

Description	Object type
-	-

Example

```
- (void)didPrinterPaperEmpty:(StarIoExtManager *)manager {
    _commentLabel.text = @"Printer Paper Empty.";

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

Refer to PrinterExtViewController.m and CombinationExtViewController.m.

16.7 didPrinterCoverOpen Method

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

Declaration

- (void)didPrinterCoverOpen;

- (void)didPrinterCoverOpen:(StarIoExtManager *)manager;

Parameter

Name	Description	Object type
manager	A StarIoExtManager object informing the delegate.	StarIoExtManager

Return value

Description	Object type
-	-

Example

```
- (void)didPrinterCoverOpen:(StarIoExtManager *)manager {
    _commentLabel.text = @"Printer Cover Open.";

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

Refer to PrinterExtViewController.m and CombinationExtViewController.m.

16.8 didPrinterCoverClose Method

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

Declaration

- (void)didPrinterCoverClose;

- (void)didPrinterCoverClose:(StarIoExtManager *)manager;

Parameter

Name	Description	Object type
manager	A StarIoExtManager object informing the delegate.	StarIoExtManager

Return value

Description	Object type
-	-

Example

```
- (void)didPrinterCoverClose:(StarIoExtManager *)manager {
    _commentLabel.text = @"Printer Cover Close.";

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

Refer to PrinterExtViewController.m and CombinationExtViewController.m.

16.9 didCashDrawerOpen Method

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

Declaration

- (void)didCashDrawerOpen;

- (void)didCashDrawerOpen:(StarIoExtManager *)manager;

Parameter

Name	Description	Object type
manager	A StarIoExtManager object informing the delegate.	StarIoExtManager

Return value

Description	Object type
-	-

Example

```
- (void)didCashDrawerOpen:(StarIoExtManager *)manager {
    _commentLabel.text = @"Cash Drawer Open.";

//  _commentLabel.textColor = [UIColor redColor];
    _commentLabel.textColor = [UIColor magentaColor];
}
```

Refer to CashDrawerExtViewController.m and CombinationExtViewController.m.

16.10 didCashDrawerClose Method

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

Declaration

- (void)didCashDrawerClose;

- (void)didCashDrawerClose:(StarIoExtManager *)manager;

Parameter

Name	Description	Object type
manager	A StarIoExtManager object informing the delegate.	StarIoExtManager

Return value

Description	Object type
-	-

Example

```
- (void)didCashDrawerClose:(StarIoExtManager *)manager {
    _commentLabel.text = @"Cash Drawer Close.";

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

Refer to CashDrawerExtViewController.m and CombinationExtViewController.m.

16.11 didBarcodeReaderImpossible Method

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

Declaration

- (void)didBarcodeReaderImpossible;

- (void)didBarcodeReaderImpossible:(StarIoExtManager *)manager;

Parameter

Name	Description	Object type
manager	A StarIoExtManager object informing the delegate.	StarIoExtManager

Return value

Description	Object type
-	-

Example

```
- (void)didBarcodeReaderImpossible:(StarIoExtManager *)manager {
    _commentLabel.text = @"Barcode Reader Impossible.";

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

Refer to BarcodeReaderExtViewController.m and CombinationExtViewController.m.

16.12 didBarcodeReaderConnect Method

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

Declaration

- (void)didBarcodeReaderConnect;

- (void)didBarcodeReaderConnect:(StarIoExtManager *)manager;

Parameter

Name	Description	Object type
manager	A StarIoExtManager object informing the delegate.	StarIoExtManager

Return value

Description	Object type
-	-

Example

```
- (void)didBarcodeReaderConnect:(StarIoExtManager *)manager {
    _commentLabel.text = @"Barcode Reader Connect.";

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

Refer to BarcodeReaderExtViewController.m and CombinationExtViewController.m.

16.13 didBarcodeReaderDisconnect Method

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

Declaration

- (void)didBarcodeReaderDisconnect;

- (void)didBarcodeReaderDisconnect:(StarIoExtManager *)manager;

Parameter

Name	Description	Object type
manager	A StarIoExtManager object informing the delegate.	StarIoExtManager

Return value

Description	Object type
-	-

Example

```
- (void)didBarcodeReaderDisconnect:(StarIoExtManager *)manager {
    _commentLabel.text = @"Barcode Reader Disconnect.";

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

Refer to BarcodeReaderExtViewController.m and CombinationExtViewController.m.

16.14 didBarcodeDataReceive Method

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

Declaration

- (void)didBarcodeDataReceive:(NSData *)data;

- (void)didBarcodeDataReceive:(StarIoExtManager *)manager data:(NSData *)data;

Parameter

Name	Description	Object type
data	Received barcode data.	NSData
manager	A StarIoExtManager object informing the delegate.	StarIoExtManager

Return value

Description	Object type
-	-

Example

```
- (void)didBarcodeDataReceive:(StarIoExtManager *)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.

16.15 didAccessoryConnectSuccess Method

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

Declaration

- (void)didAccessoryConnectSuccess;

- (void)didAccessoryConnectSuccess:(StarIoExtManager *)manager;

Parameter

Name	Description	Object type
manager	A StarIoExtManager object informing the delegate.	StarIoExtManager

Return value

Description	Object type
-	-

Example

```
- (void)didAccessoryConnectSuccess:(StarIoExtManager *)manager {
    _commentLabel.text = @"Accessory Connect Success.";

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

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

16.16 didAccessoryConnectFailure Method

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

Declaration

- (void)didAccessoryConnectFailure;

- (void)didAccessoryConnectFailure:(StarIoExtManager *)manager;

Parameter

Name	Description	Object type
Manager	A StarIoExtManager object informing the delegate.	StarIoExtManager

Return value

Description	Object type
-	-

Example

```
- (void)didAccessoryConnectFailure:(StarIoExtManager *)manager {
    _commentLabel.text = @"Accessory Connect Failure.";

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

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

16.17 didAccessoryDisconnect Method

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

Declaration

- (void)didAccessoryDisconnect;

- (void)didAccessoryDisconnect:(StarIoExtManager *)manager;

Parameter

Name	Description	Object type
manager	A StarIoExtManager object informing the delegate.	StarIoExtManager

Return value

Description	Object type
-	-

Example

```
- (void)didAccessoryDisconnect:(StarIoExtManager *)manager {
    _commentLabel.text = @"Accessory Disconnect.";

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

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

16.18 didStatusUpdate Method

Tells the delegate the status updated. * *optional*

Declaration

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

- (void)didStatusUpdate:(StarIoExtManager *)manager status:(NSString *)status;

Parameter

Name	Description	Object type
status	Updated status. Hexdecimal digit sequence of 3rd to 6th bytes in Automatic Status (*) (ex. “28000000”) -Status update timing- • When the status changes. • Even no status change, every 5 min. * Please refer to STAR Line Mode and StarPRNT command manual for details of Automatic Status.	NSString
manager	A StarIoExtManager object informing the delegate.	StarIoExtManager

Return value

Description	Object type
-	-

Example

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

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

Refer to AllReceiptsExtViewController.m.

17 SMBluetoothManagerFactory class (StarIO_Extension.framework)

SMBluetoothManagerFactory class can get the appropriate SMBluetoothManager object for the printer emulation.

Method

Name	Description
getManager	Gets the object of the SMBluetoothManager class for the emulation to be passed in the parameter.

17.1 getManager Method

Gets the object of the SMBluetoothManager class for the emulation to be passed in the parameter.

Declaration

- (SMBluetoothManager *)getManager:(NSString *)portName
emulation:(StarIoExtEmulation)emulation;

Parameter

Name	Description	Object type
portName	Printer port name	NSString *
emulation	emulation	StarIoExtEmulation

Return value

Description	Object type
SMBluetoothManager object	SMBluetoothManager *

Refer to the printing process flow using a SMBluetoothManager about the procedure of change the Bluetooth Setting.

18 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;

- (NSUInteger)getParsedStatus:(void *)starPrinterStatus :(u_int32_t)level :(NSError **)error;

- (NSDictionary *)getFirmwareInformation:(NSError **)error;

- (NSDictionary *)getDipSwitchInformation:(NSError **)error;

- (NSUInteger)getOnlineStatus:(NSError **)error;

- (NSUInteger)beginCheckedBlock:(void *)starPrinterStatus :(u_int32_t)level :(NSError **)error;

- (NSUInteger)endCheckedBlock:(void *)starPrinterStatus :(u_int32_t)level :(NSError **)error;

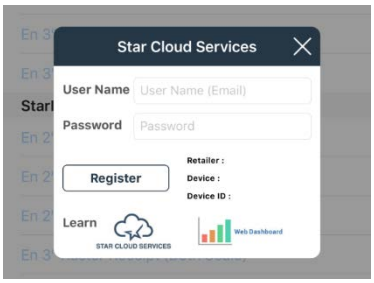
19 SMCloudServices class included in the SMCloudServices.framework

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.

19.1 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. -isRegistered- • YES … Registered. • 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.

19.2 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. • YES … Registered. • NO … Unregistered.	BOOL

Example

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

    …

    BOOL userInteractionEnabled = YES;

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

    …

    return cell;
}
```

Refer to AllReceiptsViewController.m.

20 SMCSAllReceipts class included in the SMCloudServices.framework

Method

Name	Description
uploadBitmap	Uploads bitmap to the Star Micronics Service.
uploadData	Uploads data 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.

20.1 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	SM-L300	SP700
Upload	uploadBitmap	✔	✔	✔	✔	✔	✔	-	-	-	-	-	✔	✔	✔	✔	✔	✔	✔	✔	-
	uploadData	✔	✔	-	✔	✔	✔	-	-	-	-	-	✔	✔	✔	✔	✔	✔	✔	✔	-
Update	updateStatus	✔	✔	✔	✔	✔	✔	-	-	-	-	-	✔	✔	✔	✔	✔	✔	✔	✔	-
Generate	generateAllReceipts	✔	✔	✔	✔	✔	✔	-	-	-	-	-	✔	✔	✔	✔	✔	✔	✔	✔	-

- : Not guarantee.

20.2 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. -statusCode- • HTTP status code. -error- • Error information when fails to upload data.	void (^)(NSInteger statusCode, NSError *error)

Return value

Description	Object type
Uploaded URL.	NSString

Example

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

    ISCBBuilder *builder = [StarIoExt 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.

20.3 uploadData Method

Uploads data (NSData object) to the Star Micronics Service.

Declaration

+ (NSString *)uploadData:(NSData *)data emulation:(StarIoExtEmulation)emulation characterCode:(StarIoExtCharacterCode)characterCode width:(NSInteger)width completion:(void (^)(NSInteger statusCode, NSError *error))completion;

Parameter

Name	Description	Object type
data	Data to upload.	NSData
emulation	Emulation type. • StarIoExtEmulationStarPRNT … StarPRNT emulation. • StarIoExtEmulationStarLine … STAR Line Mode emulation. • ~~StarIoExtEmulationStarGraphic … STAR Graphic Mode emulation.~~ • StarIoExtEmulationEscPos … ESC/POS emulation. • ~~StarIoExtEmulationEscPosMobile … ESC/POS Mobile emulation.~~ • ~~StarIoExtEmulationStarDotImpact … STAR Dot Impact emulation.~~	StarIoExtEmulation
characterCode	Character code type constants. • StarIoExtCharacterCodeStandard … Standard character code. • StarIoExtCharacterCodeJapanese … Japanese character code. • ~~StarIoExtCharacterCodeSimplifiedChinese … Simplified chinese character code.~~ • ~~StarIoExtCharacterCodeTraditionalChinese … Traditional chinese character code.~~	StarIoExtCharacterCode
width	Printable width. (Units : Dots)	NSInteger
completion	When the upload is completed, check upload result as following status. -statusCode- • HTTP status code. -error- • Error information when fails to upload data.	void (^)(NSInteger statusCode, NSError *error)

Return value

Description	Object type
Uploaded URL.	NSString

Example

```
+ (NSData *)createData:(StarIoExtEmulation)emulation characterCode:(StarIoExtCharacterCode)characterCode
data:(NSData *)data width:(NSInteger)width {
    ISCBBuilder *builder = [StarIoExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendData:data];

    [builder endDocument];

    NSData *receiptData = [builder.commands copy];

    NSString *urlString = [SMCSAllReceipts uploadData:receiptData emulation:emulation
characterCode:characterCode width:width completion:nil];

    builder = [StarIoExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendData:data];

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

    [builder appendRawData:allReceiptsData];

    [builder appendCutPaper:SCBCutPaperActionPartialCutWithFeed];

    [builder endDocument];

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

Refer to AllReceiptsFunctions.m.

20.4 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	Updated status. Hexdecimal digit sequence of 3rd to 6th bytes in Automatic Status (*) (ex. “28000000”) * Please refer to STAR Line Mode and StarPRNT command manual for details of Automatic Status.	NSString
completion	When the update is completed, check update result as following parameter. -statusCode- • HTTP status code. -error- • If the request fails, the error parameter contains information about the failure.	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.

20.5 generateAllReceipts Method

Generates the print data for the AllReceipts™ use.

Declaration

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

Parameter

Name	Description	Object type
urlString	Uploaded URL	NSString
emulation	Emulation type. • StarIoExtEmulationStarPRNT … StarPRNT emulation. • StarIoExtEmulationStarLine … STAR Line Mode emulation. • StarIoExtEmulationStarGraphic … STAR Graphic Mode emulation. • StarIoExtEmulationEscPos … ESC/POS emulation. • ~~StarIoExtEmulationEscPosMobile … ESC/POS Mobile emulation.~~ • ~~StarIoExtEmulationStarDotImpact … STAR Dot Impact emulation.~~	StarIoExtEmulation
info	Generates information logo. • YES … Valid. • NO … Invalid.	BOOL
qrCode	Generates QR code. • YES … Valid. • NO … Invalid.	BOOL
width	Printable width. (Units : Dots)	NSInteger

Return value

Description	Object type
Generated print data.	NSData

Example

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

    ISCBBuilder *builder = [StarIoExt createCommandBuilder:emulation];

    [builder beginDocument];

    [builder appendBitmap:image diffusion:NO];

    NSData *data;

    if (emulation == StarIoExtEmulationStarGraphic) {
        data = [SMCSAllReceipts generateAllReceipts:urlString emulation:emulation info:info qrCode:qrCode width:
width];     // Support to centering in Star Graphic.
    }
    else {
        data = [SMCSAllReceipts generateAllReceipts:urlString emulation:emulation info:info qrCode:qrCode];     //
Non support to centering in Star Graphic.
    }

    [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

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

<< Star Could Services Retailer Registration site >>

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”.

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