



mPay - Reader Series iOS SDK User Manual

Ver: 1.0

Singular Technology



Revision History

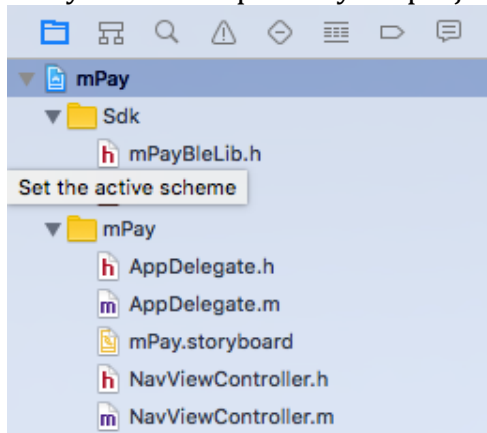
Revision	Description	Date
V1.0	Initial Release	2016/9/26



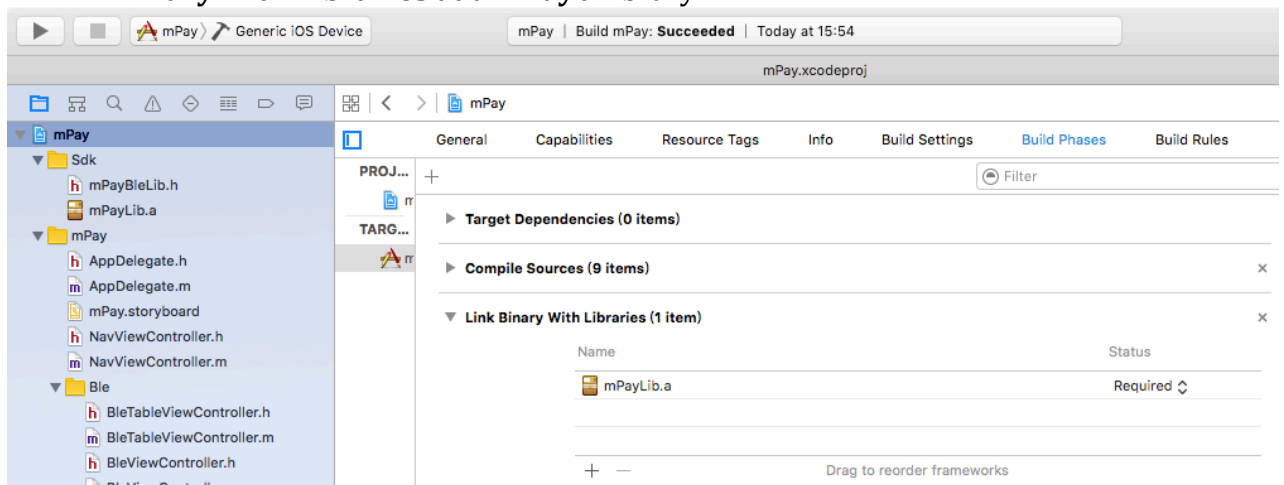
mPay iOS SDK User Manual

To use mPay iOS SDK

1. First create an iOS project.
2. Import the mPay lib.
 - a. mPayBleLib.h import to your project.



- b. In **Link Binary with Libraries** add **mPay.a** library



3. You cannot use the simulator, only build in iOS device.



SDK function list:

S/N	Function Name	Function Description
BLE		
1	mPayBle_SearchDevice	Searching BLE device
2	mPayBle_StopSearching	Stop search BLE device
3	mPayBle_ConnectDevice	Connected the device
4	mPayBle_DisconnectDevice	Disconnect BLE device
5	mPayBle_RetrieveDevice	Retrieve BLE device
Shared		
6	mPayBle_GetSdkVersion	Get SDK version string
7	mPayBle_Releasesae	Release mPay library
8	mPayBle_GetReaderVersion	Get reader version string
9	mPayBle_GiveUpAction	Give up transaction
10	mPayBle_GetBattery	Get device battery power
11	mPayBle_SetSleepTimer	Set device sleep timer
12	mPayBle_GetTerminalSn	Get device serial number
13	mPayBle_SetTerminalSn	Set device serial number
14	mPayBle_MagSwipe	Ready to magnetic card swipe
15	mPayBle_IccSelect	Select ICC slot
16	mPayBle_IccDetect	Detect ICC slot
17	mPayBle_IccPowerOn	Power on ICC
18	mPayBle_IccPowerOff	Power off ICC
19	mPayBle_IccAccess	Access ICC
20	mPayBle_RfActivateCard	Activate PICC
21	mPayBle_RfDeactivateCard	Deactivate PICC
22	mPayBle_RfRateCard	Rate PICC
23	mPayBle_RfAccessCard	Access PICC
24	mPayBle_IccGetCardHolder	Get ICC cardholder
25	mPayBle_RfMifareAuthCard	Authenticate MIFARE
26	mPayBle_RfMifareReadBlock	Read MIFARE block
27	mPayBle_RfMifareWriteBlock	Write MIFARE block
28	mPayBle_RfMifareIncrement	Increase MIFARE value
29	mPayBle_RfMifareDecrement	Decrease MIFARE value



1. **(BOOL)mPayBle_SearchDevice;**

Start to search Bluetooth device.

Return: TRUE: success
FALSE: false

Delegate: onMPayBleResponse_GetDevice

2. **(BOOL)mPayBle_StopSearching;**

Get search version string.

Return: TRUE: success
FALSE: false

3. **(BOOL)mPayBle_ConnectDevice:(CBPeripheral*) peripheral;**

Connect Bluetooth device in searching list.

Parameter:
peripheral: you want to connect BLE device.

Return: TRUE: success
FALSE: false

Delegate: onMPayBleResponse_isConnected

4. **(BOOL)mPayBle_DisconnectDevice;**

Disconnect Bluetooth device.

Return: TRUE: success
FALSE: false

5. **(BOOL)mPayBle_Retrieve:(NSString*)uuid;**

Disconnect Bluetooth device.

Parameter:
uuid: when you connected BLE device you can save the UUID, then you can connect to BLE device with UUID.

Return: TRUE: success
FALSE: false

Delegate: onMPayBleResponse_isConnected

6. **(NSString*)mPayBle_GetSdkVersion;**

Get SDK version.

Return: SDK version string.



7. **(void)mPayBle_Releasesae;**
Release SDK resources.

Return: TRUE: success
FALSE: false

8. **(BOOL)mPayBle_GetReaderVersion;**
Get mPay device version string.

Return: TRUE: success
FALSE: false

Delegate: onMPayXResponse_GetVersionString

9. **(BOOL)mPayX_GiveUpAction;**
Give up action.

Return: TRUE: success
FALSE: false

Delegate: onMPayXResponse_GiveUpAction

10. **(BOOL)mPayBle_GetBattery;**
Give device's battery power.

Return: TRUE: success
FALSE: false

Delegate: onMPayBleResponse_GetBattery

11. **(BOOL)mPayBle_SetSleepTimer:(NSString*)sTimer;**
Set device sleep timer.

Parameter:
sTimer: 00~FF hex string, if 00: without counter, 0~30: it will count 0~30 min.

Return: TRUE: success
FALSE: false

Delegate: onMPayBleResponse_SetSleepTimer

12. **(BOOL)mPayBle_GetTerminalSn;**
Get device serial number.

Return: TRUE: success
FALSE: false

Delegate: onMPayBleResponse_GetTerminalSn



13. (BOOL)mPayBle_SetTerminalSn:(NSString*)sSn;
Set device serial number.

Return: TRUE: success
FALSE: false

Delegate: onMPayBleResponse_SetTerminalSn

14. (BOOL)mPayBle_MagSwipe;
Ready to magnetic card swipe.

Return: TRUE: success
FALSE: false

Delegate: onMPayBleResponse_MagCardRead

15. (BOOL)mPayBle_IccSelect:(int)slot;
Select ICC slot.

Parameter: slot: 0:ICC; 1:SAM

Return: TRUE: success
FALSE: false

Delegate: onMPayBleResponse_IccSelect

16. (BOOL)mPayBle_IccDetect;
Detect ICC or SAM slot.

Return: TRUE: success
FALSE: false

Delegate: onMPayBleResponse_IccStatus

17. (BOOL)mPayBle_IccPowerOn;
ICC or SAM slots power on.

Return: TRUE: success
FALSE: false

Delegate: onMPayBleResponse_IccPowerOn

18. (BOOL)mPayBle_IccPowerOff;
ICC or SAM slots power on.

Return: TRUE: success
FALSE: false

Delegate: onMPayBleResponse_IccPowerOn



19. (BOOL)mPayBle_IccAccess:(NSString*)sAPDU;
ICC or SAM slots access.

Parameter: sAPDU: use ISO7816-4 APDU format

Return: TRUE: success
FALSE: false

Delegate: onMPayBleResponse_IccAccess

20. (BOOL)mPayBle_RfActivateCard;
Activate PICC.

Return: TRUE: success
FALSE: false

Delegate: onMPayBleResponse_PiccActivation

21. (BOOL)mPayBle_RfDeactivateCard;
Deactivate PICC.

Return: TRUE: success
FALSE: false

Delegate: onMPayBleResponse_PiccDeactivation

22. (BOOL)mPayBle_RfRateCard;
Request PICC answer to select.

Return: TRUE: success
FALSE: false

Delegate: onMPayBleResponse_PiccRate

23. (BOOL)mPayBle_RfAccessCard:(NSString*)sData;
Access PICC.

Parameter: sData: use ISO14443-4 APDU format

Return: TRUE: success
FALSE: false

Delegate: onMPayBleResponse_PiccAccess



24. (BOOL)mPayBle_IccGetCardHolder;

Get ICC or PICC cardholder information.

Return: TRUE: success
FALSE: false

Delegate: onMPayBleResponse_IccGetCardholder

**25. (BOOL)mPayBle_RfMifareAuthCard:(NSString*)sType
sData:(NSString*)sBlock
sData:(NSString*)sKey;**

Authenticate MIFARE card.

Parameter: sType(1 byte): key type, 0x41:Type A; 0x42:Type B
sBlock(1 byte): card Block index
sKey(6 byte): authenticate key

Return: TRUE: success
FALSE: false

Delegate: onMPayBleResponse_MifareAuth

26. (BOOL)mPayBle_RfMifareReadBlock:(NSString*)sBlock;

Read data from MIFARE card.

Parameter: sBlock(1 byte): card Block index

Return: TRUE: success
FALSE: false

Delegate: onMPayBleResponse_MifareReadBlock

**27. (BOOL)mPayBle_RfMifareWriteBlock:(NSString*)sBlock
sData:(NSString*)sData;**

Write data to MIFARE card.

Parameter: sBlock(1 byte): card Block index
sData(16 Byte): write data into card

Return: TRUE: success
FALSE: false

Delegate: onMPayBleResponse_MifareWriteBlock



**28. (BOOL)mPayBle_RfMifareIncrement:(NSString*)sBlock
sData:(NSString*)sData;**

Increment value to MIFARE card.

Parameter: sBlock(1 byte): card Block index
sData(4 Byte): add value into card

Return: TRUE: success
FALSE: false

Delegate: onMPayBleResponse_MifareIncrement

**29. (BOOL)mPayBle_RfMifareDecrement:(NSString*)sBlock
sData:(NSString*)sData;**

Decrement value to MIFARE card.

Parameter: sBlock(1 byte): card Block index
sData(4 Byte): add value into card

Return: TRUE: success
FALSE: false

Delegate: onMPayBleResponse_MifareDecrement



SDK delegate list:

S/N	Function Name	Function Description
BLE		
1	onMPayBleResponse_GetDevice	If BLE module got the Bluetooth device, it's will response peripheral.
2	onMPayBleResponse_isConnected	If BLE device connected, it's will response success.
Shared		
3	onMPayXResponse_Error	If mPay have some error, it's will response.
4	onMPayBleResponse_UpdateState	Response BLE state
5	onMPayXResponse_GetVersionString	Response mPay version string
6	onMPayXResponse_GiveUpAction	Response gives up status
7	onMPayBleResponse_GetBattery	Response device power
8	onMPayBleResponse_SetSleepTimer	Response operate status
9	onMPayBleResponse_GetTerminalSn	Response device serial number
10	onMPayBleResponse_SetTerminalSn	Response operate status
11	onMPayBleResponse_IccSelect	Response operate status
12	onMPayBleResponse_IccStatus	Response ICC insert or not
13	onMPayBleResponse_IccPowerOn	Response ICC ATR
14	onMPayBleResponse_IccAccess	Response R-APDU
15	onMPayBleResponse_IccPowerOff	Response operated status
16	onMPayBleResponse_MagCardRead	Response magnetic car data
17	onMPayBleResponse_PiccActivation	Response PICC unique number
18	onMPayBleResponse_PiccRate	Response PISS ATS
19	onMPayBleResponse_PiccAccess	Response PICC R-APDU
20	onMPayBleResponse_IccGetCardholder	Response ICC or PICC cardholder info
21	onMPayBleResponse_PiccDeactivation	Response operated status
22	onMPayBleResponse_MifareAuth	Response operated status
23	onMPayBleResponse_MifareReadBlock	Response MIFARE data
24	onMPayBleResponse_MifareWriteBlock	Response operated status
25	onMPayBleResponse_MifareIncrement	Response operated status
26	onMPayBleResponse_MifareDecrement	Response operated status



1. **(void)onMPayBleResponse_GetDevice:**
(BOOL)bSucceed
peripheral:(CBPeripheral*)peripheral;
Response to search BLE device.

bSucceed: TRUE: success
FALSE: false

Peripheral: BLE device peripheral

2. **(void)onMPayBleResponse_isConnected:(BOOL)bSucceed;**
Response to connected BLE device.

bSucceed: TRUE: success
FALSE: false

3. **(void)onMPayBleResponse_Error:(NSString*)sErrorCode**
sMessage:(NSString*)sMessage;
After executed function, it's will response error state.

errorCode	sErrorMessage
0	
-1	STATUS_READER_NOT_SUPPORT_COMMAND
-2	STATUS_READER_PARAMETER
-3	STATUS_READER_CRC
-4	STATUS_READER_TIMEOUT
-5	STATUS_READER_MAG_NOT_SWIPED
-12	STATUS_READER_ENTRY_SLEEP_MODE
-16	STATUS_READER_MAG_DATA_ERROR
-17	STATUS_READER_NOT_SUPPORT_RSA_KEY
-18	STATUS_READER_SC_REMOVED
-19	STATUS_READER_SC_POWER_ON_FAIL
-20	STATUS_READER_SC_APDU_FAIL
-21	STATUS_READER_SC_POWER_OFF_FAIL
-22	STATUS_READER_SC_TYPE_NOT_SUPPORT
-126	ERROR_SDK_INCORRECT_DATA_LENGTH
-127	ERROR_SDK_TIMEOUT
-128	ERROR_SDK_UNKNOW

4. **(void)onMPayBleResponse_UpdateState:(int)iStateCode**



Message:(NSString*)sMessage;
Response BLE status.

iStateCode	sMessage
-1	Unknown
-2	Unsupported
-3	Unauthorized
-4	Resetting
-5	PoweredOff
-6	PoweredOn

5. **(void)onMPayBleResponse_GetVersionString:**
(BOOL)bSucceed
sMessage:(NSString*)sMessage;
Responses reader's the version string.

bSucceed: TRUE: success
FALSE: false

sMessage: mPay version string

6. **(void)onMPayBleResponse_GiveUpAction:(BOOL)bSucceed;**
Response gives up status

bSucceed: TRUE: success
FALSE: false

7. **(void)onMPayBleResponse_GetBattery:**
(BOOL)bSucceed
battery:(NSString*)sBattery;
Response reader's power.

bSucceed: TRUE: success
FALSE: false

sBattery: 0:Low power 1:1/3 power 2:2/3 power 3:Full power

8. **(void)onMPayBleResponse_SetSleepTimer:(BOOL)bSucceed;**
Response operated status.

bSucceed: TRUE: success
FALSE: false

9. **(void)onMPayBleResponse_GetTerminalSn:**
(BOOL)bSucceed
sMessage:(NSString*)sMessage;



bSucceed: TRUE: success
FALSE: false
sMessage: Serial number

10. (void)onMPayBleResponse_SetTerminalSn:(BOOL)bSucceed;
Response operated status

bSucceed: TRUE: success
FALSE: false

11. (void)onMPayBleResponse_IccSelect:(BOOL)bSucceed;
Response operated status

bSucceed: TRUE: success
FALSE: false

**12. (void)onMPayBleResponse_IccStatus:(BOOL)bSucceed
isInserted:(BOOL)isInserted;**
Response card inserted or not.

bSucceed: TRUE: success
FALSE: false

isInserted: TRUE: inserted; FALSE: not insert

**13. (void)onMPayBleResponse_IccPowerOn:
(BOOL)bSucceed
Atr:(NSString*)sAtr;**
Response ICC ATR

bSucceed: TRUE: success
FALSE: false

sAtr: answer to reset from ICC

**14. (void)onMPayBleResponse_IccAccess:(BOOL)bSucceed
Rapdu:(NSString*)sRapdu;**
Response R-APDU from ICC

bSucceed: TRUE: success
FALSE: false

sRapdu: R-APDU from ICC

15. (void)onMPayBleResponse_IccPowerOff:(BOOL)bSucceed;
Response operated status

bSucceed: TRUE: success
FALSE: false



16. **(void)onMPayBleResponse_MagCardRead:**
(BOOL)bSucceed

Track1Data:(NSString*)sTrack1Data

Track2Data:(NSString*)sTrack2Data

Track3Data:(NSString*)sTrack3Data;

Response magnetic card data

bSucceed: TRUE: success
FALSE: false

sTrack1Data: track1 data

sTrack2Data: track2 data

sTrack3Data: track3 data

17. **(void)onMPayBleResponse_PiccActivation:**
(BOOL)bSucceed

SerialNumber:(NSString*)sSerialNumber;

Response unique number

bSucceed: TRUE: success
FALSE: false

sSerialNumber: PICC UID

18. **(void)onMPayBleResponse_PiccRate:(BOOL)bSucceed**
Ats:(NSString*)sAts;

Response ATS from PICC

bSucceed: TRUE: success
FALSE: false

sAts: answer to select from PICC

19. **(void)onMPayBleResponse_PiccAccess:**
(BOOL)bSucceed

Rapdu:(NSString*)sRapdu;

Response R-APDU from PICC

bSucceed: TRUE: success
FALSE: false

sRapdu: R-APDU from PICC

20. **(void)onMPayBleResponse_IccGetCardholder:**
(BOOL)bSucceed

CardNumber:(NSString*)sCardNumber

CardHolderName:(NSString*)sCardHolderName



Date:(NSString*)sDate;

Response cardholder information from ICC or PICC

bSucceed: TRUE: success
 FALSE: false

sCardNumber: card number
sCardHolderName: cardholder name
sDate: card expire date

21. (void)onMPayBleResponse_PiccDeactivation:(BOOL)bSucceed;

Response operated status

bSucceed: TRUE: success
 FALSE: false

22. (void)onMPayBleResponse_MifareAuth:(BOOL)bSucceed;

Response operated status

bSucceed: TRUE: success
 FALSE: false

**23. (void)onMPayBleResponse_MifareReadBlock:
 (BOOL)bSucceed**

sData:(NSString*)sData;

Response data from MIFARE card

bSucceed: TRUE: success
 FALSE: false

sData: card data

24. (void)onMPayBleResponse_MifareWriteBlock:(BOOL)bSucceed;

Response operated status

bSucceed: TRUE: success
 FALSE: false

25. (void)onMPayBleResponse_MifareIncrement:(BOOL)bSucceed;

Response operated status

bSucceed: TRUE: success
 FALSE: false

26. (void)onMPayBleResponse_MifareDecrement:(BOOL)bSucceed;

Response operated status

bSucceed: TRUE: success

FALSE: false



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