

MFYSDK (Android)  
Programming Manual  
V1.2.0

Fujian Morefun Electronic Technology Co., Ltd.

# Catalogue

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## 1. REVISION HISTORY

Date	version	Description	Modify by
2018-10	V1.0	Create	Chen Jiaqi
2018-10-16	V1.0.1	Update ClrBuffer function description	Chen Jiaqi
2019-6-1	V1.0.2		Chen Jiaqi
2019-7-7	V1.0.3	Updated parameter descriptions for some functions	Chen Jiaqi
2019-10-30	V1.0.5	Update interface about dukpt Login bussinessId dukpt set “09000000” 6.12 PinPad 1.2 initDukptBDKAndKsn(BDK) 1.3 initDukptIPEKAndKsn(IPEK) 1.4 dukptCalculation(dukpt 3des) 1.14 inputOnlinePin 6.8 MagCardReader 1.2 searchCard 6.13 EmvHandler 1.9 readEmvData	ZhengBinbin
2019-11-13	V1.0.6	Added Interface about print 6.5 MultipleAppPrinter	ZhengBinbin
2019-12-02	V1.0.7	delete irrelevant parameters	ZhengBinbin
2020-03-13	V1.0.8	Delete initDukptBDKAndKsn initDukptIPEKAndKsn dukptCalculation Add dukptLoad dukptCalcDes increaseKSN EmvRupayService.aidl	ZhengBinbin
2021-09-22	V1.0.9	Add 6.13.1.20 emvTrans 6.13.2.11 onGetCardResult	
2023-01-04	V1.1.0	Add 6.1.1.1.17 getM0Ev1CardHandler 6.1.1.1.18 getM0CCardHandler 6.1.1.1.19 getNTagCardHandler 6.1.1.1.20 getSL4442CardHandler 6.1.1.1.21 setSystemClock	

		6.1.1.1.22 installApp 6.1.1.1.23 uninstallApp 6.1.1.1.24 getEmvRupayService	
2024-04-01	V1.2.0	6.1.1.25 setProperties 6.13.2.19 onUpdateServiceAmount 6.13.2.20 onCheckServiceBlackList 6.13.2.21 onGetServiceDirectory 6.13.2.22 onRupayCallback	

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## 2. GENERAL

YSDK works with all morefun smart POS. All APIs are built based on standard Android mechanism, and you need to add a JAR file to your project directory. The morefun POS application development environment is the same as Android application development environment.

## 3. DEFINITIONS

### 3.1. Android Service

One of the four major components in the Android system

This component is almost at the same level as Activity, but can only run in the background and interact with other components.

There are 2 ways to start the service (Service):

(Context) ctx.startService()

(Context) ctx.bindService()

### 3.2. AIDL (Android Interface definition language)

Since there is no shared memory between processes in Android system, some mechanisms need to be provided for data communication between different processes.

To enable other applications to access the services provided by this application, the Android system uses Remote Procedure Call (RPC) to implement it.

### 3.3. Master Key(MK)

The master key is used to encrypt the work key (WK). The terminal management system assigns a unique TMK to each terminal. The TMK should use at least double long

key. TMK must have security protections, can only write and participate in operations, and cannot be read. TMK should be securely stored in the terminal and terminal management system.

### **3.4. Working Key(WK)**

Also known as data key, usually refers to PIN encryption key, MAC calculated key and track data encryption key. Work keys must be updated frequently. The working key must be encrypted with the Master key encryption in the on-line updated message, and then transmitted after forming the ciphertext.

### **3.5. PIN(personal identification number)**

It's personal password. Data information that identifies the identity of cardholders in online transactions is not allowed to appear in plaintext in any part of computer and network systems.

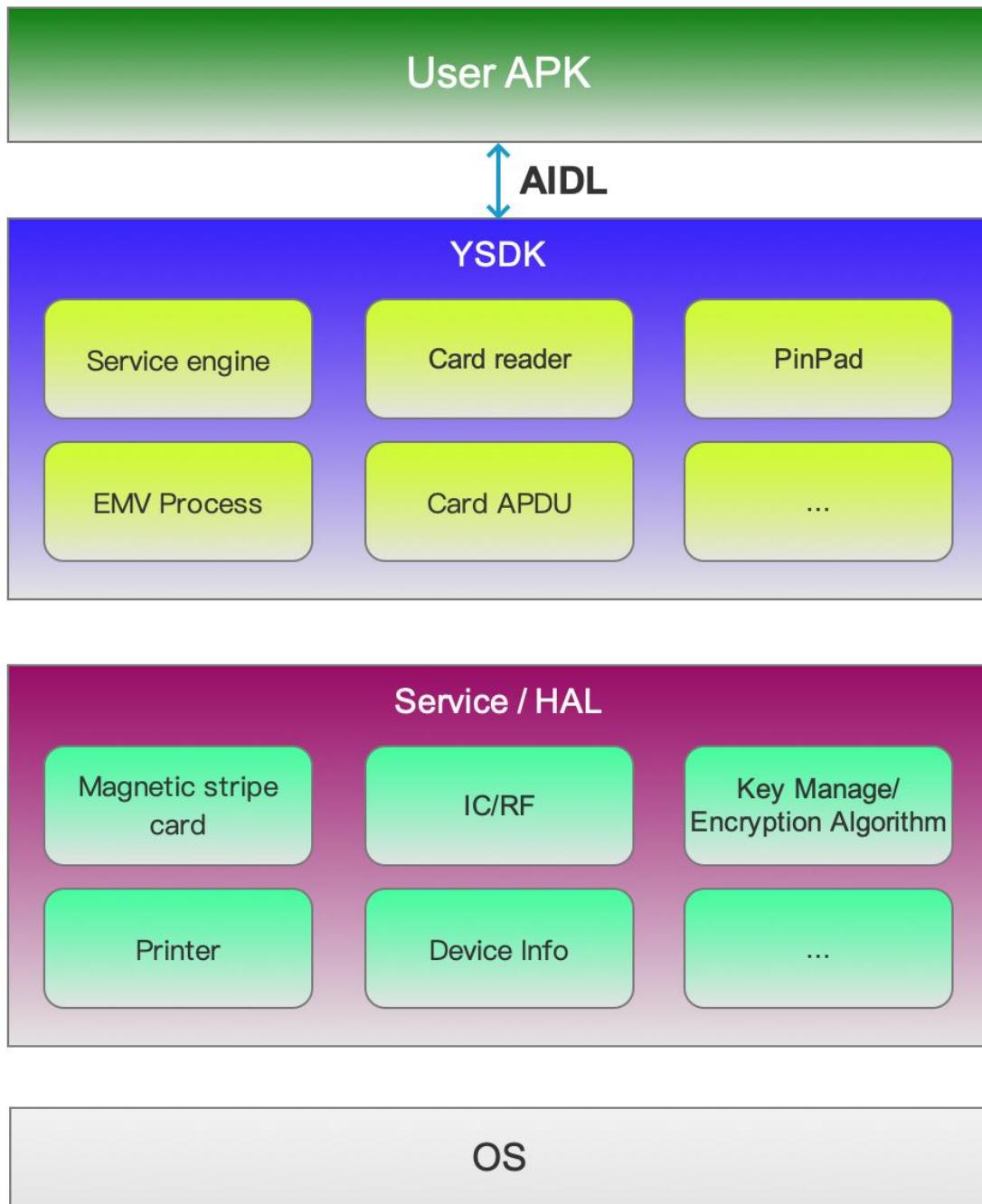
### **3.6. MAC(message authentication code)**

It is used to complete the correct identification of sources, prevent data tampered or steal users' data.

Mainly based on the user key to calculate the Mac function to verify the integrity of the message.

## 4. ARCHITECTURE

The terminal software architecture based on service mode is shown in the following figure:



## 5. SERVICE INSTRUCTION

### 5.1. Interface

The service layer will be output in the form of Apk, the APK runs independently in the smart POS terminal, and the application layer should invoke the service using the AIDL interface.

Service layer AIDL interface meets the following design principles:

AIDL uniformly exposes the interface, and the application program actively call the interface.

The interfaces declared in AIDL are the interfaces that are returned immediately after the call, and can be called directly on the main thread, without generate an ANR.

For an interface whose call time is uncontrollable, the result of the call is received by injecting a callback listener.

### 5.2. Configure

The service identifies itself by an action called “ysdk.service”, through which the application starts and binds the service. Some sample code about Action is as follows:

```
<intent-filter>  
    <action android:name="com.morefun.ysdk.service"/>  
</intent-filter>
```

- Return value definitions

Return KEY	Value	Description
Success	0	Call succeed
Fail	-1	Call failed

Param_In_Invalid	-2	Parameter error
TimeOut	-3	Call timeout
Device_Not_Ready	-4	Device not login

### 5.3. Import JAR file

Developing MFPOS applications requires adding jar file(y sdk\_xxxx\_xxxx.jar) to your project.

## 6. FUNCTION SPECIFICATION

### 6.1. Service engine

Used to manage all built-in and external device interfaces, such as magnetic stripe cards, printers, contact IC cards and contactless IC cards.

- Package name

com.morefun.yapi.engine

#### 6.1.1. DeviceServiceEngine

- AIDL filename

DeviceServiceEngine.aidl

- AIDL interface list

Interface Prototype	Function Description
login	Login ysdk service
logout	Logout ysdk service
getDevInfo	Get system information
getBeeper	Get Beep operating object
getLEDDriver	Get LEDoperating object
getPrinter	Get Printer operating object
getMultipleAppPrinter	Get Multiple Printer operating object
getInnerScanner	Get inbuilt scanner operating object

getSerialPortDriver	Get SerialPort operating object
MagCardReader getMagCardReader()	Get MagCardReader operating object
IccCardReader getIccCardReader(int slotNo)	Get ICCard Reader controlling object
CPUCardHandler getCPUCardHandler (in IccCardReader reader)	Get CPUCard Reader operating object
M1CardHandler getM1CardHandler(in IccCardReader reader)	Get Mifare one Card Reader operating object
PinPad getPinPad()	Get PinPad operating object
EmvHandler getEmvHandler()	Get EMV process operating object
setLanguageType(int languageType,int scope)	Set language type
M0Ev1Handler getM0Ev1CardHandler(in IccCardReader reader);	Get M0 Ev1 Card Operating Object
M0CHandler getM0CCardHandler(in IccCardReader reader);	Get M0 Card Operating Object
NTagCard getNTagCardHandler(in IccCardReader reader);	Get NTAG Card Operating Object
SL4442Card getSL4442CardHandler(in IccCardReader reader);	Get SLE4442 Card Operating Object

void setSystemClock(String datetime);	Set Terminal Time
void installApp(String appFilePath, String runActivityName, String appName);	Apk Silent Installation
void uninstallApp(String packageName, OnUninstallAppListener listener);	apk silent uninstall
EmvRupayService getEmvRupayService();	EMV Rupay Service Operating Object
int setProperties(in Bundle bundle)	Set system property

### 6.1.1.1. Function description

#### 6.1.1.1.1. Login

Prototype	int login (in Bundle bundle, String bussinessId)	
Description	Login ysdk service	
Parameter	bundle	reverse
	bussinessId	Bussiness id(Reserve) “09000000” DUKPT “09100000” DUKPT tracks are not encrypted “00000000” MK/SK
Return	0	Login succeed(service layer exist EMV file)
	1	Login failure
	2	Login succeed(service layer without EMV file)
Other		

#### 6.1.1.1.2. Logout

Prototype	void logout()
Description	Logout ysdk service
Parameter	void
Return	void
Other	

#### 6.1.1.3. getDevInfo

Prototype	Bundle getDevInfo()
Description	Get system information
Parameter	void
Return	hardware configuration information
Other	The return value is defined in the description of the DeviceInfoConstraints class.

#### 6.1.1.4. getBeeper

Prototype	Beeper getBeeper()
Description	Get Buzzer object
Parameter	void
Return	If succeed, return to the buzzer operation example  if failed, return NULL
Other	

#### 6.1.1.5. getLEDDriver

Prototype	LEDDriver getLEDDriver()
Description	Get LEDoperating object

Parameter	void
Return	If succeed, Return LED operation example if failed, return NULL
Other	

#### 6.1.1.6. getPrinter

Prototype	Printer getPrinter()
Description	Get Printer operating object
Parameter	void
Return	If succeed, Get Printer operating example if failed, return NULL
Other	

#### 6.1.1.7. getMultipleAppPrinter

Prototype	MultipleAppPrinter getMultipleAppPrinter ()
Description	Get Multiple Printer operating object
Parameter	void
Return	If succeed, Get Multiple Printer operating example if failed, return NULL
Other	

#### 6.1.1.8. getInnerScanner

Prototype	InnerScanner getInnerScanner()
Description	Get inbuilt scanner operating object
Parameter	void

Return	If succeed, return scanner operating example  if failed, return NULL
Other	

#### 6.1.1.9. getSerialPortDriver

Prototype	SerialPortDriver getSerialPortDriver()
Description	Get SerialPort object
Parameter	void
Return	If succeed, return scanner operating example  if failed, return NULL
Other	

#### 6.1.1.10. getMagCardReader

Prototype	MagCardReader getMagCardReader()
Description	Get MagCardReader object
Parameter	void
Return	If succeed, return MagCardReader object  if failed, return NULL
Other	

#### 6.1.1.11. getIccCardReader

Prototype	IccCardReader getIccCardReader()
Description	Get IccCardReader object
Parameter	void
Return	If succeed, return IccCardReader object

	if failed, return NULL
Other	

#### 6.1.1.12. getCPUCardReader

Prototype	CPUCardHandler getCPUCardReader()
Description	Get CPUCardReader object
Parameter	void
Return	if succeed, return CPUCardReader object if failed, return NULL
Other	

#### 6.1.1.13. getM1CardReader

Prototype	M1CardHandler getM1CardReader()
Description	Get M1CardReader object
Parameter	void
Return	if succeed, return M1CardReader object if failed, return NULL
Other	

#### 6.1.1.14. getPinPad

Prototype	PinPad getPinPad()
Description	Get PinPad object
Parameter	void
Return	if succeed, return PinPad object if failed, return NULL

Other	
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### 6.1.1.15. getEmvHandler

Prototype	EmvHandler getEmvHandler()
Description	Get EMV process object
Parameter	void
Return	if succeed, return EMV process object if failed, return NULL
Other	

### 6.1.1.16. setLanguageType

Prototype	int setLanguageType(int languageType,int scope)	
Description	Set language type	
Parameter	languageType	Language type (see class LanguageType declaration)
	scope	
Return	If succeed, return to 1; if failed, return to 0	
Other		

### 6.1.1.17. getM0Ev1CardHandler

Prototype	M0Ev1Handler getM0Ev1CardHandler(in IccCardReader reader)
Description	Get M0 Ev1 Card object
Parameter	IccCardReader
Return	if succeed, return M0 Ev1 Card object if failed, return NULL

Other	
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#### 6.1.1.18. getM0CCardHandler

Prototype	M0CHandler getM0CCardHandler(in IccCardReader reader);
Description	Get M0 Card object
Parameter	IccCardReader
Return	if succeed, return M0 Card Process Object if failed, return NULL
Other	

#### 6.1.1.19. getNTagCardHandler

Prototype	NTagCard getNTagCardHandler(in IccCardReader reader);
Description	Get NTAG Card process object
Parameter	IccCardReader
Return	if succeed, return NTAG Card process object if failed, return NULL
Other	

#### 6.1.1.20. getSL4442CardHandler

Prototype	SL4442Card getSL4442CardHandler(in IccCardReader reader);
Description	Get SLE4442 Card process object
Parameter	IccCardReader
Return	if succeed, return SLE4442 Card Process object if failed, return NULL

Other	
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### 6.1.1.1.21. setSystemClock

Prototype	void setSystemClock(String datetime);
Description	Set the system time in the format yyyyMMddHHmmss
Parameter	Datetime format yyyyMMddHHmmss
Return	void
Other	

### 6.1.1.1.22. installApp

Prototype	void installApp(String appFilePath, String runActivityName, String appName);	
Description	Apk Silent Install	
Parameter	appFilePath	Need to install the apk path, such as storage/emulated /0/ testInstall.apk
	runActivityName	Reserved. null can be passed
	appName	Reserved. null can be passed
Return	void	
Other		

### 6.1.1.1.23. uninstallApp

Prototype	void uninstallApp(String packageName, OnUninstallAppListener listener);
Description	APK Silent Uninstall

Parameter	packageName	Name of the package to be uninstalled
	listener	Uninstall App Listener
Return	void	
Other		

#### 6.1.1.24. getEmvRupayService

Prototype	EmvRupayService getEmvRupayService();
Description	Get EMV Rupay Service process object
Parameter	void
Return	if succeed, return EMV Rupay Service process object if failed, return NULL
Other	

#### 6.1.1.25. setProperties

Prototype	int setProperties(in Bundle bundle)
Description	Set the system property

Parameter	data	Data for property  (see class DeviceInfoConstraints definition)  SETTING_SIM_SLOT  (Set the sim card slot, which can use 0 or 1)  SETTING_WIFI_SWITCH  (Set the wifi switch, which can use 0 or 1)  ENABLE_FULL_KEY_MODE  (For MF960 device use, set true to enable full keyboard mode)  DISABLE_FULL_KEY_MODE  (For MF960 device use, set true to disable full keyboard mode)  FORCE_SLEEP(force sleep)  SLEEP_TIME(Set sleep time)
Return	void	
Other		

## 6.1.2. Definitions

### 6.1.2.1. Device Info Constraints

Const	Value	Description
COMMON_VENDOR	vendor(String)	Vendor name
COMMON_MODEL	model(String)	Model name

COMMON_OS_VER	os_ver(String)	OS version
COMMON_HARDWARE	hardware(String)	Firmware version
COMMON_SN	sn(String)	Serial number
COMMON_SERVICE_VER	service_ver(String)	YSDK version

### 6.1.2.2. LanguageType

Const	Value	Description
ENGLISH	0(int)	English
SIMPLIFIED_CHINESE	1(int)	Simplified Chinese
TRADITIONAL_CHINESE	2(int)	Tradittion Chinese

### 6.1.2.3. ScopeType

Const	Value	Description
SERVICE_SCOPE	0(int)	Service layer Effective globally (including PIN pad, camera interface, etc.)

### 6.1.2.4. ServiceResult

Const	Value	Description
Success	0	Processing success
Fail	-1	Processing failure
Param_In_Invalid	-2	Input parameter error
Timeout	-3	Processing timeout
Device_Not_Ready	0	Service not logged in

## 6.2. Beeper

Operate buzzer equipment

- Package name

com.morefun.yapi.device.beeper

### 6.2.1. Device API

- AIDL filename

Beeper.aidl

- AIDL interface list

Prototype	Description
beep	buzzing

#### 6.2.1.1. beep

Prototype	void beep(int mode)
Description	Buzzer beep
Parameter	mode:Beep mode(See BeepModeConstraints declaration)
Return	void
Other	void

#### 6.2.2. BeepModeConstraints

Const	Value	Description
NORAML	0(int)	Beeps once
SUCCESS	1(int)	Beeps ok

FAIL	2(int)	Beeps failure
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## 6.3. LED

Operate LED equipment

- Package name

com.morefun.yapi.device.led

### 6.3.1. Device API

- AIDL filename

LEDDriver.aidl

- AIDL interface list

Prototype	Description	
setLed		buzzing

#### 6.3.1.1. SetLed

Prototype	void setLed(int light, boolean isOn)	
Description	Control LED switch	
Parameter	light	Specify LED(see LedLightConstraints declaration)
	isOn	0:OFF 1:ON
Return	void	
Other		

#### 6.3.2. LedLightConstraints

Const	Value	Description
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RED	1(int)	Red LED
GREEN	2(int)	Green LED
YELLOW	3(int)	Yellow LED
BLUE	4(int)	Blue LED

## 6.4. Printer

Operate printer equipment

- Package name

com.morefun.yapi.device.printer

- Return value:

Const	Value	Description
Printer_Print_Fail	-1001	Print failure
Printer_AddPrnStr_Fail	-1002	Set string buffer failed
Printer_AddImg_Fail	-1003	Set picture buffer failed
Printer_Busy	-1004	Printer busy
Printer_PaperLack	-1005	No paper
Printer_Wrong_Package	-1006	Data format error
Printer_Fault	-1007	Printer failure
Printer_OutOfMemory	-1008	Data out of memory
Printer_No_Printer	-1012	No printer
Printer_Low_Power	-1013	Low power
Printer_Other_Error	-1999	Other error

### 6.4.1. Device API

- AIDL filename

Printer.aidl

- AIDL interface list

Prototype	Description
initPrinter	Initialize printer
setConfig	Parameter settings
startPrint	Start print
getStatus	Get printer status
appendPrnStr	Append print context
appendImage	Append print image
feedPaper	Feed paper
cutPaper	Cut paper
appendScript	Append print script

#### 6.4.1.1. InitPrinter

Prototype	int initPrinter()
Description	Initialize printer
Parameter	void
Return	void
Other	Every new print needs to be called

#### 6.4.1.2. setConfig

Prototype	void setConfig(in Bundle bundle)	
Description	Parameter settings	
Parameter	bundle	Parameter(see PrintConfig declaration)
Return	void	
Other		

#### 6.4.1.3. startPrint

Prototype	int startPrint(in OnPrintListener listener)	
Description	Start print	
Parameter	listener	Print results listener
Return	see Return valuedeclaration	
Other		

#### 6.4.1.4. getStatus

Prototype	int getStatus()	
Description	Get printer status	
Parameter	void	
Return	seeReturn valuedeclaration	
Other		

#### 6.4.1.5. feedPaper

Prototype	void feedPaper(int value,int unit)	
Description	Printer feed paper	
Parameter	value	Feed value

	unit	Feed unit (see FeedUnitdeclaration)
Return	void	
Other		

#### 6.4.1.6. cutPaper

Prototype	void cutPaper()	
Description	Printer cut paper	
Parameter	void	
Return	void	
Other	No support: WIN9/MF919	

#### 6.4.1.7. appendPrnStr

Prototype	int appendPrnStr(String text, int fontsize, boolean isBoldFont)	
Description	Append print context	
Parameter	text	Print text
	fontsize	Font size (see FontFamilydeclaration)
	isBoldFont	Bold format (see FontFamilydeclaration)
Return	see Return valuedeclaration	
Other		

#### 6.4.1.8. appendImage

Prototype	int appendImage(in BitMap bitmap)
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Description	Append print image	
Parameter	bitmap	Print image
Return	see Return valuedeclaration	
Other		

### 6.4.2. OnPrintListener

- AIDL filename

OnPrintListener.aidl

- AIDL interface list

Prototype	Description
onPrintResult	Print result listener

#### 6.4.2.1. onPrintResult

Prototype	void onPrintResult(int retCode)	
Description	Get printer status	
Parameter	retCode	Print result  (see Return Value declaration)
Return	void	
Other		

### 6.4.3. FontUnit

Const	Value	Description
LINE	0(int)	Unit of line
PONIT	1(int)	Unit of point

#### 6.4.4. FontFamily

Const	Value	Description
SMALL	0(int)	Small size
MIDDLE	1(int)	Middle size
BIG	2(int)	Big size
NEED_BOLD	true(boolean)	Fontweight
NOT_NEED_BOLD	false(boolean)	Noraml

#### 6.4.5. PrintConfig

Const	Value	Description
COMMON_GRAYLEVEL	graylevel(String)	Print gray level
COMMON_REVERSE	reverse(String)	Set print reverse, default normal print
COMMON_IS_CUTPAPER	1(int)	automatic paper cutting at the end of printing

### 6.5. MultipleAppPrinter

Operate printer equipment

- Package name

com.morefun.yapi.device.printer

- Return value:

Const	Value	Description
Printer_Print_Fail	-1001	Print failure
Printer_AddPrnStr_Fail	-1002	Set string buffer failed

Printer_AddImg_Fail	-1003	Set picture buffer failed
Printer_Busy	-1004	Printer busy
Printer_PaperLack	-1005	No paper
Printer_Wrong_Package	-1006	Data format error
Printer_Fault	-1007	Printer failure
Printer_OutOfMemory	-1008	Data out of memory
Printer_No_Printer	-1012	No printer
Printer_Low_Power	-1013	Low power
Printer_Other_Error	-1999	Other error

### 6.5.1. Device API

- AIDL filename

Printer.aidl

- AIDL interface list

Prototype	Description
printStr	Print Multiple content
printImage	Print image

#### 6.5.1.1. printStr

Prototype	int printStr(in List<MulPrintStrEntity> lists,in OnPrintListener listener, in Bundle config);	
Description	Start print Multiple content	
Parameter	lists	List<MulPrintStrEntity>

	listener	Print results listener
	config	see PrintConfig declaration
Return	see Return valueddeclaration	
Other		

### 6.5.1.2. printImage

Prototype	int printImage(in Bitmap bitmap ,in OnPrintListener listener ,inBundle config);	
Description	Start print image	
Parameter	bitmap	Print image
	listener	Print results listener
	config	see PrintConfig declaration
Return	see Return valueddeclaration	
Other		

## 6.6. Scanner

Operate Scanner equipment

- Package name

com.morefun.yapi.device.scanner

- Return value

Const	Value	Description
Scanner_Customer_Exit	-2001	User cancel

Scanner_Other_Error	-2002	Other error
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### 6.6.1. Device API

- AIDL filename

Scanner.aidl

- AIDL interface list

Prototype	Description
initScanner	Initialize scanner
startScan	Start scan
stopScan	Stop scan

#### 6.6.1.1. initScanner

Prototype	void initScanner(in Bundle bundle)	
Description		
Parameter	bundle	Scanner config parameter (see ScannerConfig declaration)
Return	void	
Other		

#### 6.6.1.2. startScan

Prototype	int startScan(int timeout, in OnScannedListener listener)	
Description	Control LED switch	
Parameter	timeout	Scan time
	listener	Scan result listener

Return	See Return Value declaration
Other	

### 6.6.1.3. stopScan

Prototype	void stopScan()
Description	Scanner stop scan
Parameter	void
Return	void
Other	

### 6.6.2. OnScannedListener

- AIDL filename

OnScannedListener.aidl

- AIDL interface list

Prototype	Description
onScanResult	Scan result callback

### 6.6.2.1. onScanResult

Prototype	void onScanResult(int retCode,in byte[] data)	
Description	Scan result callback	
Parameter	retCode	Scan result (see ReturnValue declaration)
	data	Scan data
Return	void	

Other	
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### 6.6.3. ScannerConfig

Const	Key value	Description	Bundle value
COMM_SCANNER_T YPE	scanner_type	Scanner Type	0:Front camera 1:Back camera
COMM_ISCONTINUO US_SCAN	iscontinuous_scan	Continuous scanning	1:Continuous 0:Normal
COMM_CONTINUOU S_SCAN_PERIOD	continuous_scan_period	Continuous scanning interval	Unit: millisecond

## 6.7. SerialPort

Operate Serial port equipment

- Package name

com.morefun.yapi.device.serialport

- Return value:

Const	Value	Description
SerialPort_Connect_Fail	-4001	Connect failure
SerialPort_Fd_Error	-4002	handle error
SerialPort_Port_Not_Open	-4003	Port no open
SerialPort_DisConnect_Fail	-4004	Disconnect failure
SerialPort_Send_Fail	-4005	Send data failure

SerialPort_Timeout_Receiving_Data	-4006	Data reception timeout
SerialPort_Other_Error	-4999	Other error

## 6.7.1. Device API

- AIDL filename

SerialPortDriver.aidl

- AIDL interface list

Prototype	Description
connect	Open serial port
send	Send data
recv	Receive data
disConnect	Close serial port
clrBuffer	Clear serial buffer data

### 6.7.1.1. connect

Prototype	int connect(String cfg)
Description	Open serial port

Parameter	cfg	Connect parameter  (Format: 115200,n,8,1  speed: Baud rate  event: Check bit  bits: Data bit  stop: Stop bit)
Return	See Return Valuedeclaration	
Other		

### 6.7.1.2. send

Prototype	int send(in byte[] data,int dataLen)	
Description	Send data	
Parameter	data	Send data buffer
	datalen	Data length
Return	See Return Valuedeclaration	
Other		

### 6.7.1.3. recv

Prototype	int recv(out byte[] buffer, int recvlen, long timeout)	
Description	Receive data	
Parameter	buffer	Receive buffer
	recvlen	Receive buffer size
	timeout	Receiving timeout time
Return	receive data length	

Other	
-------	--

#### 6.7.1.4. disConnect

Prototype	int disconnect()
Description	Open serial port
Parameter	void
Return	See Return Valuedeclaration
Other	

#### 6.7.1.5. clrBuffer

Prototype	void clrBuffer()
Description	Clear serial buffer data
Parameter	void
Return	void
Other	

### 6.8. Magnetic card reader

Operate Magnetic card Reader equipment

- Package name

com.morefun.yapi.device.reader.mag

- Return value:

Const	Value	Description
MagCardReader_No_Swiped	-5001	No swipe card
MagCardReader_Other_Error	-5999	other error

#### 6.8.1. Device API

- AIDL filename

MagCardReader.aidl

- AIDL interface list

Prototype	Description
searchCard	Wait swipe card
stopSearch	Stop wait
setIsCheckLrc	Check LRC switch

#### 6.8.1.1. searchCard

Prototype	int searchCard(inOnSearchMagCardListener listener ,int timeout)	
Description	Wait swipe card	
Parameter	listener	Search listener
	timeout	Wait time
Return	See Return Valuedeclaration	
Other		

#### 6.8.1.2. stopSearch

Prototype	void stopSearch()
Description	Stop wait
Parameter	void
Return	void
Other	

### 6.8.1.3. setIsCheckLrc

Prototype	void setIsCheckLrc(boolean isCheckLrc)	
Description	Check LRC switch	
Parameter	isCheckLrc	true: checkLRC false: no check
Return	void	
Other		

### 6.8.2. OnSearchMagCardListener

- AIDL filename

OnSearchMagCardListener.aidl

- AIDL interface list

Prototype	Description
onSearchResult	Search result callback

### 6.8.2.1. onSearchResult

Prototype	void onSearchResult(int retCode ,in MagCardInfoEntity mcie)	
Description	Search result callback	
Parameter	retCode	See Return Valuedeclaration
	mcie	Card data object  (see MagCardInfoEntity declartion)
Return	See Return Valuedeclaration	

Other	
-------	--

### 6.8.3. MagCardInfoEntity

Information description of magnetic stripe card

- AIDL filename

MagCardInfoEntity.aidl

- Attribute description

Const	Value	Description
tk1	String	First track data
tk2	String	Second track data
tk3	String	Third track data
tk1ValidResult	int	First track Lrc check results 0-Pass 1-Failure 2-No check
tk2ValidResult	int	Second track Lrc check results 0-Pass 1-Failure 2-No check
tk3ValidResult	int	Third track Lrc check results 0-Pass 1-Failure

		2-No check
cardNo	String	Bank card number

## 6.9. IC card reader

Operate IC card Reader equipment

- Package name

com.morefun.yapi.device.reader.icc

- Return value:

Const	Value	Description
IccCardReader_ReadCardType_Error	-6001	Wrong card type
IccCardReader_CardInit_Error	-6002	Card initialization failed
IccCardReader_Other_Error	-6999	Other error

### 6.9.1. Device API

- AIDL filename

IccCardReader.aidl

- AIDL interface list

Prototype	Description
searchCard	Search card
stopSearch	Stop search card
isCardExists	Whether IC card exist
setupReaderConfig	Parameter settings

#### 6.9.1.1. searchCard

Prototype	int searchCard(in OnSearchIccCardListener listener, int timeout ,in String[] cardType)	
Description	Search card	
Parameter	listener	Search listener
	timeout	Wait time
	cardType	Card type
Return	See Return Valuedeclaration	
Other		

### 6.9.1.2. stopSearch

Prototype	void stopSearch()
Description	Stop wait
Parameter	void
Return	void
Other	

### 6.9.1.3. isCardExists

Prototype	boolean isCardExists()
Description	Whether IC card exist
Parameter	void
Return	true: card is exist  false: card not found
Other	

### 6.9.1.4. setupReaderConfig

Prototype	boolean setupReaderConfig(in Bundle bundle)	
Description	Parameter settings	
Parameter	bundle	Card slot parameters (see ReaderConfig declaration)
Return	true: set succeed false: set failure	
Other		

### 6.9.2. OnSearchIccCardListener

- AIDL filename

OnSearchIccCardListener.aidl

- AIDL interface list

Prototype	Description
onSearchResult	Search result callback

#### 6.9.2.1. onSearchResult

Prototype	void onSearchResult (int retCode, in Bundle bundle)	
Description	Search result callback	
Parameter	retCode	See Return Valuedeclaration
	bundle	Data returned after successful implementation of IC card (Key definition is defined by ICCSearchResult).
Return	void	

Other	
-------	--

### 6.9.3. ICCSearchResult

Const	KeyValue	Description	Bundle Value
CARDTYPE	CardType	Card type	String
M1SN	M1_sn	M1 card sn	byte[]
CARDOTHER	CardOther	<p>Other information on card, including error message code, card response information and so on.</p> <p>Format: error number (2 byte) + card related information (1 byte Hex length +Value) + reserved information</p>	byte[]

### 6.9.4. IC Card type const defination

Const	Value	Description
AT24CXX	AT24CXX(String)	
AT88SC102	AT88SC102(String)	
AT88SC1604	AT88SC1604(String)	
AT88SC1608	AT88SC1608(String)	
CPUCARD	CPUCARD(String)	
SLE44X2	SLE44X2(String)	
SLE44X8	SLE44X8(String)	

ACARD	ACARD(String)	
BCARD	BCARD(String)	
M1CARD	M1CARD(String)	
FELICA	FELICA(String)	
PSAM	PSAM (String)	

### 6.9.5. ReaderConfig

Const	Key value	Description	Bundle value
COMMON_SLOT_CHANNEL	slot_channel	Channel slot(1-7)	int
COMMON_ICC_PROTOCOL	icc_protocol	Supported specification types (0:EMV 1:ISO7816-3)	int

### 6.9.6. SLOT CHANNEL

Const	Value	Description
ICSIOT1	1(int)	IC slot 1
PSAMSIOT1	4(int)	PSAM slot1
PSAMSIOT2	5(int)	PSAM slot2
PSAMSIOT3	6(int)	PSAM slot3
RFSIOT	7(int)	RF slot

## 6.10. CPU card

Operate CPU card equipment

- Package name

com.morefun.yapi.card.cpu

- Return value:

Const	Value	Description
Icc_PullOut_Card	-10001	Card put out
Icc_Parity_Err	-10002	Parity error
Icc_Channel_Err	-10003	Channel error
Icc_Data_Len_TooLong	-10004	Send data too long(LC)
Icc_Protocol_Err	-10005	protocol error  (Not T=0 or T=1)
Icc_No_Reset_Card	-10006	No reset card.
Icc_Not_Call	-10007	Unable to communicate or fail to power up
Icc_Other_Error	-10099	Other error
Picc_Not_Open	-10201	RF module not open
Picc_Not_Searched_Card	-10202	No cards found
Picc_Card_Too_Many	-10203	Too many card  (Communication conflict)
Picc_Protocol_Data_Err	-10204	Protocol error
Picc_Card_No_Activation	-10205	Card not activated
Picc_Muti_Card_Err	-10206	Multi card conflict
Picc_Io_Err	-10207	IO error
Picc_Card_Status_Err	-10209	Card status error (such as A/B)

		card calling M1 card interface, or M1 card calling PiclIsoCommand interface)
Picc_Not_Call	-10210	Chip does not exist or abnormal
Picc_Other_Error	-10299	Other error

### 6.10.1. Device API

- AIDL filename

CPUCardHandler.aidl

- AIDL interface list

Prototype	Description
setPowerOn	Module power on
setPowerOff	Module power off
exchangeAPDUCmd	APDU communication
halt	Card hangs up
active	Card activation

#### 6.10.1.1. setPowerOn

Prototype	boolean setPowerOn(out byte[] atr)	
Description	Module power on	
Parameter	atr	ATR response(Format: ASCII)

Return	true: succeed  false: failure
Other	

#### 6.10.1.2. setPowerOff

Prototype	void setPowerOff()
Description	Module power off
Parameter	void
Return	void
Other	

#### 6.10.1.3. exchangeAPDUCmd

Prototype	int exchangeAPDUCmd(inout APDUCmd cmd)	
Description	APDUcommunication	
Parameter	cmd	APDU command(see APDUCmd declaration)
Return	See Return Valuedeclaration	
Other		

#### 6.10.1.4. halt

Prototype	boolean halt()
Description	Card hangs up
Parameter	void
Return	true: succeed  false: failure
Other	

### 6.10.1.5. active

Prototype	boolean active()
Description	Card activation
Parameter	void
Return	true: succeed false: failure
Other	

### 6.10.2. APDUCmd

- AIDL filename

APDUCmd.aidl

- Member variables

Variable	Type	Description
p1 (byte)	byte	
p2 (byte)	byte	
lc (int)	int	
le(int)	int	
ins(int)	int	
cla(int)	int	
swa(byte)	byte	

swb(byte)	byte	
dataIn(byte[])	byte[]	
dataOut(byte[])	byte[]	
dataOutLen(int)	int	

## 6.11. Mifare one card

Operate Mifare one card equipment

- Package name

com.morefun.yapi.card.mifare

- Return value:

Const	Value	Description
M1Card_Verify_Err	-10301	Authentication failure
M1Card_Fan_Not_Verify	-10302	Sector unauthenticated
M1Card_Data_Block_Err	-10303	Data block error
M1Card_Not_Open	-10304	Not open
M1Card_Card_Not_Activation	-10305	Not activation
M1Card_Card_OperType_Err or	-10306	Operate error
M1Card_Other_Error	-10399	Other error

### 6.11.1. Device API

- AIDL filename

M1CardHandler.aidl

- AIDL interface list

Prototype	Description
authority	card authorization
readBlock	Read block
writeBlock	Write block
operateBlock	Performs a charge/decrease/backup on a specified block of data, updating the value after the operation to another specified block of data

#### 6.11.1.1. authority

Prototype	int authority(int keyType, int secNo, in byte[] pwd, in byte[] serialNo)	
Description	Card authorization	
Parameter	keyType	Key type  (see M1KeyTypeConstraints declaration)
	secNo	Sector number
	pwd	Sector password
	serialNo	Card serialno
Return	See Return Valuedeclaration	
Other		

#### 6.11.1.2. readBlock

Prototype	int readBlock(int blkNo,out byte[] blkValue)
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Description	Read block	
Parameter	blkNo	Read block number
	blkValue	Block data read
Return	See Return Valuedeclaration	
Other		

#### 6.11.1.3. writeBlock

Prototype	int writeBlock(int blkNo,in byte[] blkValue)	
Description	Write data to block	
Parameter	blkNo	Write block number
	blkValue	Block data written
Return	See Return Valuedeclaration	
Other		

#### 6.11.1.4. operateBlock

Prototype	int operateBlock(int operType,int blkNo,in byte[] value,int updBlkNo)	
Description	Increment/Decrement/Backup operations to specified data blocks.	
Parameter	operType	Operation mode  (see class M1CardOperType definition)
	blkNo	Block number to be written
	value	Data to be written
	updBlkNo	Specify update target block number
Return	See Return Valuedeclaration	
Other		

### 6.11.2. M1KeyTypeConstraints

Const	Value	Description
KEYTYPE_A	0(int)	KEYA
KEYTYPE_B	1(int)	KEYB

### 6.11.3. M1CardOperType

Const	Value	Description
INCREMENT	0(int)	Increment operation
DECREMENT	1(int)	Decrement operation
BACKUP	2(int)	Backup operation

## 6.12. PinPad

Operate PinPad equipment

- Package name

com.morefun.yapi.device.pinpad

- Return value:

Const	Value	Description
PinPad_No_Key_Error	-7001	key does not exist
PinPad_KeyIdx_Error	-7002	The key index is wrong, and the parameter index is not in the range.
PinPad_Check_Key_Fail	-7004	Key validation failed
PinPad_No_Pin_Input	-7005	No input PIN
PinPad_Input_Cancel	-7006	Cancel input PIN

PinPad_Wait_Interval	-7007	Function call is less than minimum interval time
PinPad_Key_Len_Error	-7014	Key length error
PinPad_Input_Timeout	-7015	Input PIN timeout
PinPad_LoadMK_Error	-7019	Load master key failure
PinPad_LoadWK_Error	-7018	Load Work key failure
PinPad_Input_Clear	-7035	exit press clear key,
PinPad_Mac_Error	-7041	MAC error
PinPad_Crc_Error	-7042	CRC error
PinPad_Type_Error	-7043	Type error
PinPad_Other_Error	-7999	Other error

### 6.12.1. Device API

- AIDL filename

PinPad.aidl

- AIDL interface list

Prototype	Description
initPinPad	Initialize PinPad
loadKeyByCom	Load master key through pos
loadPlainMKey	Load plain master key
loadEncryptMKey	Load encrypt master key

loadWKey	Load encrypt working key
loadPlainWKey	Load plain working key
loadPlainDesKey	Load plain master key
calcWKeyKCV	Calculate CheckValue of work key
desEncByWKey	DES encrypted MAC/track key
getMac	Calculate MAC
desByPlainKey	Encrypt or decrypt data with pinkey
desByTmsKey	Encrypt or decrypt data with trans key
format	Format key zone
getRandom	Get 8 bytes random number
inputText	Input offline PIN
inputOnlinePin	Input online PIN
isInputting	Whether inputting
cancelInput	User cancel input
setTimeOut	Set input timeout
ppDispText	Set PIN keyboard display text
ppScrClr	Clear PIN keyboard display text

setSupportPinLen	Set PIN input length
injectKeyByBundle	Mosamble customer key Injection interface
increaseKSN	Increase ksn
dukptLoad	Load BDK or IPEK
dukptCalcDes	Dukpt encryption or decryption operations
checkKey	Check whether the MK/SK key exists
desCalcByKey	Specifies a key for encryption and decryption
desLoad	Key injection, saved in AP
checkKeys	Check whether the key exists
getKeyKcv	Get Key KCV
getRand	Gets a random number of a specific length
loadKEK	Load Trans Key
loadCipherMKey	Load Encrypt Master Key

### 6.12.1.1. initPinPad

Prototype	int initPinPad(int type)
Description	Initialize PinPad

Parameter	type	PIN keyboard type (see class PinPadType declaration)
Return	See Return Value declaration	
Other		

### 6.12.1.2. loadKeyByCom

Prototype	public int loadKeyByCom(int portNo, int keyType)	
Description	Load Master Key through mpos.	
Parameter	portNo	Reverse
	keyType	Use 0
Return	See Return Value declaration	
Other		

### 6.12.1.3. loadPlainMKey

Prototype	int loadPlainMKey(int mKeyIdx, in byte[] keyData, int keyDataLen, boolean isTmsKey);	
Description	Load master key	
Parameter	mKeyIdx	Key index
	keyData	Key data(Obtained from the platform, 16 bytes of key data)
	keyDataLen	Key data length
	isTmsKey	Reverse
Return	See Return Value declaration	

Other	
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#### 6.12.1.4. loadEncryptMKey

Prototype	<pre>int loadEncryptMKey(int mKeyIdx,                     in byte[] keyData,                     int keyDataLen)</pre>	
Description	Load master key, This method is deprecated, use loadCipherMKey	
Parameter	mKeyIdx	Key index
	keyData	Key data(Obtained from the platform, 16 bytes of key data)
	keyDataLen	Key data length
Return	See Return Value declaration	
Other		

#### 6.12.1.5. loadWKey

Prototype	<pre>int loadWKey(int mKeyIdx,int wKeyType,in byte[] keyData,int keyDataLen)</pre>	
Description	Load working key	
Parameter	mKeyIdx	Key index
	wKeyType	Key type(see WorkKeyType declaration)

	keyData	Key data, Obtained from the platform, support two format: 1. 8 bytes of key data + 4 bytes of check value 2. 16 bytes of key data + 4 bytes of check value
	keyDataLen	Key data length
Return		See Return Value declaration
Other		

### 6.12.1.6. loadPlainWKey

Prototype	int loadPlainWKey(int mKeyIdx, int keyType, in byte[] keyData, int keyDataLen);	
Description	Load working key	
Parameter	mKeyIdx	Key index
	keyType	Key type(see WorkKeyType declaration)
	keyData	Key data, Obtained from the platform, support two format: 3. 8 bytes of key data 4. 16 bytes of key data
	keyDataLen	Key data length
Return	See Return Value declaration	
Other		

### 6.12.1.7. loadPlainDesKey

Prototype	int loadPlainDesKey(int keyIdx, in byte[] keyData, int keyLen);	
Description	Load plain master key	
Parameter	keyIdx	Key index
	keyData	Key data, Obtained from the platform, support two format: 5. 8 bytes of key data 6. 16 bytes of key data
	keyDataLen	Key data length
Return	See Return Value declaration	
Other		

### 6.12.1.8. calcWKeyKCV

Prototype	public byte[] calcWKeyKCV(int mKeyIdx , int wKeyType)	
Description	Calculate CheckValue of work key	
Parameter	mKeyIdx	Key index
	wKeyType	Algorithm type (see WorkKeyTypedeclaration)
Return	The CheckValue of work key	
Other		

### 6.12.1.9. desEncByWKey

Prototype	public int desEncByWKey(int mKeyIdx, int wKeyType, byte[] data, int dataLen, int desType, byte[] desResult)	
Description	DES encrypted MAC/track key	
Parameter	mKeyIdx	Key index
	wKeyType	Algorithm type (see WorkKeyTypedeclaration)
	data	Source data buffer
	dataLen	Source data length
	desType	Encrypt type, default DES
	desResult	Result data
Return	See Return Valuedeclaration	
Other		

### 6.12.1.10. getMac

Prototype	byte[] getMac(int mKeyIdx,int mode,int type,in byte[] data)	
Description	Initialize PinPad	
Parameter	mKeyIdx	Key index
	mode	Algorithm type (see MacAlgorithmType declaration)
	type	Des algorithm type (see DesAlgorithmType declaration)
	data	Source data

Return	See Return Valuedeclaration
Other	

### 6.12.1.11. desByPlainKey

Prototype	byte[] desByPlainKey(int desKeyId, in byte[] data, int dataLen, int desType, int desMode)	
Description	DES encrypted MAC/track key	
Parameter	desKeyId	Key index
	data	Source data buffer
	dataLen	Source data length
	desType	Reverse use 0
	desMode	Encrypt use 0, or Decrypt use 1
Return	Result	
Other		

### 6.12.1.12. desByTmsKey

Prototype	byte[] desByTmsKey(int tmsMKeyId, in byte[] data, int dataLen, int desType, int desMode);	
Description	DES encrypted MAC/track key	
Parameter	tmsMKeyId	Key index
	data	Source data buffer
	dataLen	Source data length

	desType	Reverse use 0
	desMode	Encrypt use 0, or Decrypt use 1
Return	Return Result	
Other		

### 6.12.1.13. dukptLoad

Prototype	int dukptLoad(DukptLoadObj obj)	
Description	Dukpt Load key	
Parameter	obj	See DukptLoadObj
Return	See Return Value declaration	
Other		

### 6.12.1.14. dukptCalcDes

Prototype	Bundle dukptCalcDes(DukptCalcObj obj)	
Description	TDES encrypted/decrypted data by dukpt	
Parameter	obj	See DukptCalcObj
Return	See Return Value declaration	
Other		

### 6.12.1.15. format

Prototype	boolean format()
Description	Format key zone
Parameter	void

Return	true: succeed  false: failure
Other	

### 6.12.1.16. getRandom

Prototype	byte[] getRandom()
Description	Get 8 bytes random number
Parameter	void
Return	8 bytes random number
Other	

### 6.12.1.17. inputText

Prototype	int inputText(in Bundle bundle, in OnPinPadInputListener listener, int mode)	
Description	Input Offline Pin	
Parameter	Bundle	Config (see PinPadConstraints declaration)
	listener	PinPad input callback
	mode	DispTextMode.PASSWORD or DispTextMode.PLAINTEXT
Return	See Return Value declaration	
Other		

### 6.12.1.18. inputOnlinePin

Prototype	int inputOnlinePin(in Bundle config, in byte[] panBlock, int mKeyId , int pinAlgMode, in OnPinPadInputListenerlistener)	
Description	Input Online Pin	
Parameter	Bundle	Config (see PinPadConstraints declaration)
	panBlock	PAN account number
	mKeyId	Key index
	pinAlgMode	PIN algorithm type (see PinAlgorithmMode declaration)
	listener	PinPad input callback
Return	See Return Valuedeclaration	
Other		

### 6.12.1.19. isInputting

Prototype	boolean isInputting()
Description	Whether inputting
Parameter	void
Return	true: inputting, else return false
Other	

### 6.12.1.20. cancellInput

Prototype	void cancellInput ()
Description	User cancel input
Parameter	void

Return	void	
Other		

### 6.12.1.21. setTimeout

Prototype	Void setTimeOut(int timeout)	
Description	User cancel input	
Parameter	timeout	Unit second
Return	void	
Other		

### 6.12.1.22. ppDispText

Prototype	void ppDispText(String text,int lineNo)	
Description	Set PIN keyboard display text	
Parameter	text	Display text
	lineNo	Line number
Return	void	
Other		

### 6.12.1.23. ppScrClr

Prototype	void ppScrClr(int lineNo)	
Description	Clear PIN keyboard display text	
Parameter	lineNo	Line number
Return	void	
Other		

### 6.12.1.24. setSupportPinLen

Prototype	void setSupportPinLen (in int[] pinLen)	
Description	Set Pin input length range	
Parameter	pinLen	Pin input length range
Return	void	
Other		

### 6.12.1.25. injectKeyByBundle

Prototype	int injectKeyByBundle(in Bundle keyBundle)	
Description	Mosamble Key Inject	
Parameter	keyBundle	
Return	void	
Other		

### 6.12.1.26. increaseKSN

Prototype	String increaseKSN(int keyIndex, boolean isIncrease)	
Description		
Parameter	keyIndex	Key index
	isIncrease	
Return	KSN	
Other		

### 6.12.1.27. dukptLoad

Prototype	int dukptLoad(in DukptLoadObj dukptLoadObj);
Description	Load BDK or IPEK

Parameter	dukptLoadObj	See DukptLoadObj
Return	If 0 is returned successfully, other values fail	
Other		

### 6.12.1.28. dukptCalcDes

Prototype	Bundle dukptCalcDes(in DukptCalcObj dukptCalcObj);		
Description	Dukpt encryption or decryption operations		
Parameter	dukptCalcObj	See DukptCalcObj	
Return	Key value	Description	Bundle value
	dukptKsn	KSN	String
	dukptData	The calculated data	String
Other			

### 6.12.1.29. checkKey

Prototype	boolean checkKey(in TDesKeyObj tDesKeyObj);				
Description	Check whether the MK/SK key exists				
Parameter	tDesKeyObj	See TDesKeyObj			
Return	true: Key Exist false:Key does not exist				
Other					

### 6.12.1.30. desCalcByKey

Prototype	byte[] desCalcByKey(in DesCalcObj desCalcObj);		
Description	Specifies a key for encryption and decryption		

Parameter	desCalcObj	See DesCalcObj
Return	Des Calculated data	
Other		

### 6.12.1.31. desLoad

Prototype	int desLoad(in DesLoadObj desLoadObj);	
Description	Key injection, saved in AP	
Parameter	desLoadObj	See DesLoadObj
Return	int	
Other		

### 6.12.1.32. checkKeys

Prototype	List<CheckKeyObj> checkKeys(in CheckKeyEnum checkKey);	
Description	Check whether the key exists	
Parameter	checkKey	See CheckKeyEnum
Return	List<CheckKeyObj> See CheckKeyObj	
Other		

### 6.12.1.33. getKeyKcv

Prototype	CheckKeyObj getKeyKcv(in CheckKeyEnum checkKey, int keysolt);	
Description	Get Key KCV	
Parameter	checkKey	See CheckKeyEnum

	keysolt	Key Index
Return	See CheckKeyObj	
Other		

#### 6.12.1.34. getRand

Prototype	byte[] getRand(int len);	
Description	Gets a random number of a specific length	
Parameter	len	Get random length
Return	Random Value	
Other		

#### 6.12.1.35. loadKEK

Prototype	boolean loadKEK(int keyId, in byte[] key, in byte[] checkValue);	
Description	Load Trans Key	
Parameter	keyId	Trans Key Index
	key	Key data(Obtained from the platform, 16 bytes of key data)
	checkValue	Check Value
Return	true: Load Success, false: Load Fail	
Other		

#### 6.12.1.36. loadCipherMKey

Prototype	boolean loadCipherMKey(int keyId, in byte[] keyData, in byte[]
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	checkValue, int kekId);	
Description	Load Encrypt Master Key	
Parameter	keyId	Master Key Index
	keyData	Key data(Obtained from the platform, 16 bytes of key data)
	checkValue	Check Value
	kekId	Trans Key Index
Return	true: Load Success, false: Load Fail	
Other		

### 6.12.2. OnPinPadInputListener

- AIDL filename

OnPinPadInputListener.aidl

- AIDL interface list

Prototype	Description
onInputResult	Pinpad input callback
onSendKey	Synchronous echo display for input

#### 6.12.2.1. onInputResult

Prototype	void onInputResult(int retCode,in byte[]data,String ksn)	
Description	Pinpad input callback	
Parameter	retCode	See Return Valuedeclaration

	data	Encrypted PIN ciphertext
	ksn	Dukpt KSN
Return	void	
Other		

### 6.12.2. onSendKey

Prototype	void onSendKey(byte keycode)	
Description	Synchronous echo display for input	
Parameter	keyCode	KeyCode key value (online Pin needs to convert 0-9 to *)
Return	void	
Other		

### 6.12.3. PinPadType

Const	Value	Description
INTERNAL	0(int)	Internal pin
EXTERNAL	1(int)	External pin

### 6.12.4. WorkKeyType

Const	Value	Description
PINKEY	0(int)	PIN Key
MACKEY	1(int)	MAC Key
TDKEY	2(int)	Track Key

### 6.12.5. PinAlgorithmMode

Const	Value	Description
ISO9564FMT1	0(int)	

### 6.12.6. MacAlgorithmType

Const	Value	Description
ECB	0(int)	
CBC	1(int)	

### 6.12.7. KSNConstraints

Const	Value	Description
DukptKeyType	DukptKeyType(byte)	See DukptKeyType
DukptksnIncreaseGenerat ePEK	DukptksnIncreaseGenerate PEK (boolean)	true: Increase KSN and GeneratePEK
DesAlgorithmType	DesAlgorithmType (int)	See DesAlgorithmType

### 6.12.8. DukptKeyType

Const	Value	Description
MF_DUKPT DES KEY_PIN	0x00	
MF_DUKPT DES KEY_MAC1	0x01	
MF_DUKPT DES KEY_MAC2	0x02	
MF_DUKPT DES KEY_DATA1	0x03	
MF_DUKPT DES KEY_DATA2	0x04	

### 6.12.9. DispTextMode

Const	Value	Description
PASSWORD	0(int)	* number display
PLAINTEXT	1(int)	original display

### 6.12.10. PinPadKeyCode

Const	Value	Description
KEYCODE_0	0x30(byte)	0
KEYCODE_1	0x31(byte)	1
KEYCODE_2	0x32(byte)	2
KEYCODE_3	0x33(byte)	3
KEYCODE_4	0x34(byte)	4
KEYCODE_5	0x35(byte)	5
KEYCODE_6	0x36(byte)	6
KEYCODE_7	0x37(byte)	7
KEYCODE_8	0x38(byte)	8
KEYCODE_9	0x39(byte)	9
KEYCODE_STAR	0x2a(byte)	*
KEYCODE_OCTOTHORPE	0x23(byte)	#
KEYCODE_CANCEL	0x18(byte)	Cancel
KEYCODE_BACKSPACE	0x08(byte)	Backspace
KEYCODE_CLEAR	0xfe(byte)	Clear
KEYCODE_CONFIRM	0xd(byte')	OK

### 6.12.11. LanguageType

Const	Value	Description
ENGLISH	0(int)	English

### 6.12.12. DukptLoadObj

## Information description of DukptLoadObj

- AIDL filename

DukptLoadObj.aidl

- Attribute description

Const	Value	Description
key	String	Dukpt key
ksn	String	KS N
keyType	DukptKeyTypeEnum	DUKPT_BDK_PLAINTEXT(0x00), DUKPT_IPEK_PLAINTEXT(0x01), DUKPT_IPEK_ENC_KEK(0x02), DUKPT_BDK_ENC_KEK(0x03), DUKPT_IPEK_ENC_MAK(0x04), UKPT_BDK_ENC_MAK(0x05);
keyIndex	DukptKeyIndexEnum	Key Index

### 6.12.13. DukptCalcObj

## Information description of DukptCalcObj

- AIDL filename

DukptCalcObj.aidl

- Attribute description

Const	Value	Description
dukptTypeEnum	DukptTypeEnum	DUKPT_DES_KEY_PIN(0x00), DUKPT_DES_KEY_MAC1(0x01),

		DUKPT_DES_KEY_MAC2(0x02), DUKPT_DES_KEY_DATA1(0x03), DUKPT_DES_KEY_DATA2(0x04), DUKPT_DES_KEY_PEK(0x05);
dukptAlgEnum	DukptAlgEnum	DUKPT_ALG_ECB(0x00), DUKPT_ALG_CBC(0x01);
dukptOperEnum	DukptOperEnum	DUKPT_ENCRYPT(0x00), DUKPT_DECRYPT(0x01);
dukptKeyIndexEnum	DukptKeyIndexEnum	Key Index

#### 6.12.14. TDesKeyObj

Information description of TDesKeyObj

- AIDL filename

TDesKeyObj.aidl

- Attribute description

Const	Value	Description
keyTypeEnum	KeyTypeEnum	DES_WK_PIN(0x01), DES_WK_MAC(0x02), DES_WK_TD(0x03), DES_MAIN_KEY(0x04), DES_TRANS_KEY(0x05), DES_AP_KEY(0x06);
operEnum	OperEnum	EXITS_KEY(0x01),

		DELETE_KEY(0x02);
keyIndex	int	Key Index

### 6.12.15. DesCalcObj

Information description of DesCalcObj

- AIDL filename

DesCalcObj.aidl

- Attribute description

Const	Value	Description
keyTypeEnum	KeyTypeEnum	DES_WK_PIN(0x01), DES_WK_MAC(0x02), DES_WK_TD(0x03), DES_MAIN_KEY(0x04), DES_TRANS_KEY(0x05), DES_AP_KEY(0x06);
desModeEnum	DesModeEnum	ENCRYPT(0x01), DECRYPT(0x02);
keyIndex	Int[]	Key Index
data	byte[]	Data
dataLength	int	Data Length

### 6.12.16. DesLoadObj

Information description of DesLoadObj

- AIDL filename

## DesLoadObj.aidl

## ● Attribute description

Const	Value	Description
keyTypeEnum	KeyTypeEnum	DES_WK_PIN(0x01), DES_WK_MAC(0x02), DES_WK_TD(0x03), DES_MAIN_KEY(0x04), DES_TRANS_KEY(0x05), DES_AP_KEY(0x06);
desModeEnum	DesModeEnum	ENCRYPT(0x01), DECRYPT(0x02);
keyIndex	Int[]	Key Index
data	byte[]	Data
dataLength	int	Data Length

**6.12.17. CheckKeyEnum**

Information description of CheckKeyEnum

## ● Attribute description

Const	Value
DUKPT_KEY	0x01
DES_AP_EFT_KEY	0x02
DES_KEK_KEY	0x03
DES_MASTER_KEY	0x04

DES_PIN_KEY	0x05
DES_AP_KEY	0x06
DES_MAC_KEY	0x07
DES_DATA_KEY	0x08

### 6.12.18. CheckKeyObj

Information description of CheckKeyObj

- AIDL filename

CheckKeyObj.aidl

- Attribute description

Const	Value	Description
keyIndex	int	Key Index
KCV	String	KCV
KIN	String	KIN

## 6.13. EMV Process

Operate EMV Process

- Package name

com.morefun.yapi.emv

- Return value:

Const	Value	Description
Emv_Qpboc_Online	-8003	Non contact QPBOC transactions online
Emv_PARA_ERR	-8011	Parameter error
Emv_App_Block	-8013	Application has been locked

Emv_FallBack	-8014	Transaction fallback
Emv_Online	-8019	Trading should be online.
Emv_Cancel	-8020	Transaction cancellation
Emv_Declined	-8021	Transaction refusal
Emv_Terminate	-8022	Transaction terminate
Emv_Other_Error	-8999	Other error

### 6.13.1. Device API

- AIDL filename

EMVHandler.aidl

- AIDL interface list

Prototype	Description
emvProcess	Start EMV Process (This method is out of date, use emvTrans)
initTermConfig	Initialize EMV config
setAidParaList	Add EMV Parameter List
setCAPKList	Add CA Public Key List
clearAidParam	Clear all AID parameter
addAidParam	Add a EMV Parameter
clearCAPKParam	Clear all CA public key

addCAPKParam	Add CA public key
getCapkList	Get CA Public Key List
getAidParaList	Get AID Param List
getTlvs	Get EMV TAGS
setTlv	Set Tlv
getEmvCardLog	Get card log
clearLog	Clear EMV log
emvGetEcBalance	Get electronic cash balance
onSelAppResponse	Select application response
onSetConfirmCardNoResponse	Confirm cardNo response
onSetCardHolderInputPin	Confirm Card Holder Input Pin Response
onSetCertVerifyResponse	Identification result response
onSetOnlineProcResponse	Online callback response
onSetContactlessOnlinePlaceCardMod	Confrim Contactless Online Place Card
eResponse	Response
onSetAIDParameterResponse	Set AID parameter response
onSetCAPubkeyResponse	Set CApublickey response

onSetTRiskManageResponse	Confirm TRisk Manager Response
onSetIssuerVoiceReferenceResponse	Confirm Issue Voice Reference Response
onSetSelectAccountTypeResponse	Confrim Select Account Type Response
onSetSelectLanguageResponse	Confirm Select Language Response
readEmvData	Read EMV Data
isErrorCode	Emv kernel ErrorCode
addCertRevokedList	Add Cert Revoke List
clearCertRevokedList	Clear Cert Revoke List
onSetInputAmountResponse	Confirm Input Amount Response
onOptionSetOnFinishResponse	Confirm Option Set On Finish Response
endPBOC	End EMV Trans
addEmvDynamicLimit	Add EMV Dynamic Limit
clearDynamicLimit	Clear Dynamic Limit
emvTrans	Start EMV Trans
onSetConfirmDisplayMessage	Confirm Display Message Response

### 6.13.1.1. EmvProcess

Prototype	int emvProcess(in Bundle data ,in OnEmvProcessListener listener)
-----------	---

Description	Printer feed paper	
Parameter	data	Data for EMV process (see class EMVTransDataConstraints definition)
	listener	Process listener (see OnEMVProcessListenerdeclaration)
Return	See Return Value declaration	
Other		

#### 6.13.1.2. initTermConfig

Prototype	int initTermConfig(in Bundle cfg)	
Description	Initialize terminal parameters	
Parameter	cfg	Terminal parameters (see class EMVTermCfgConstraints declaration)
Return	See Return Value declaration	
Other		

#### 6.13.1.3. setAidParamList

Prototype	int setAidParaList(in List<EmvAidPara> aidParaList);	
Description	Add AID Para List	
Parameter	aidParaList	See EmvAidPara
Return	See Return Value declaration	
Other		

#### 6.13.1.4. setCAPKList

Prototype	int setCAPKList(in List<EmvCapk> capkList);
-----------	---

Description	Add CAPK List	
Parameter	capkList	See EmvCapk
Return	See Return Value declaration	
Other		

### 6.13.1.5. clearAidParam

Prototype	int clearAidParam()	
Description	Clear all EMV parameter	
Parameter	void	
Return	See ReturnValue declaration	
Other		

### 6.13.1.6. addAidParam

Prototype	int addAidParam(byte[] aidPara)	
Description	Add a EMV parameter	
Parameter	aidPara	AID parameter(Format: TLV)
Return	See ReturnValue declaration	
Other		

### 6.13.1.7. clearCAPKParam

Prototype	int clearCAPKParam()	
Description	Clear all CA public key	
Parameter	void	
Return	See ReturnValue declaration	
Other		

### 6.13.1.8. addCAPKParam

Prototype	int addCAPKParam(byte[] capkParam)	
Description	Add CA public key	
Parameter	capkList	CA public key list(Format: TLV)
Return	See ReturnValue declaration	
Other		

### 6.13.1.9. getCapkList

Prototype	List<EmvCapk> getCapkList();
Description	Read CAPK List
Return	CAPK List
Other	

### 6.13.1.10. getAidParaList

Prototype	List<EmvAidPara> getAidParaList();
Description	Read tag value
Return	AID Para List
Other	

### 6.13.1.11. getTlvs

Prototype	byte[] getTlvs(in byte[] tag, int pathId)
Description	Read tag value

Parameter	tag	Specify tag key  The tag 57 is always retuned by SDK in encrypted format and its sred enabled when 57 is returned or SRED compatible and it can not be disabled
	pathId	Data source  (see EMVDataSourcedeclaration)
Return	TLV value	
Other		

### 6.13.1.12. setTlv

Prototype	int setTlv(in byte[] tag,in byte[] value)	
Description	Write TLV value to kernel	
Parameter	tag	Specify tag key
	value	TLV value
Return	See ReturnValue declaration	
Other		

### 6.13.1.13. getEmvCardLog

Prototype	int getEmvCardLog(int channelType, in OnEmvProcessListener listener)
Description	Get EMV card log

Parameter	channelType	Source of card transaction log (see EmvChannelType declaration)
	listener	Process listener (see OnEMVProcessListener declaration)
Return	true: succeed  false: failure	
Other		

#### 6.13.1.14. clearLog

Prototype	int clearLog()
Description	Clear EMV kernel transaction log
Parameter	void
Return	See ReturnValue declaration
Other	

#### 6.13.1.15. emvGetEcBalance

Prototype	int emvGetEcBalance(int channelType ,  in OnEmvProcessListener listener);	
Description	Get electronic cash balance	
Parameter	channelType	Source of card transaction log (see EmvChannelType declaration)
	listener	Process listener (see OnEMVProcessListener declaration)
Return	See ReturnValue declaration	

Other	
-------	--

### 6.13.1.16. onSelAppResponse

Prototype	void onSelAppResponse(int appldx)	
Description	Select application response	
Parameter	appldx	Application index(< 0: cancel select)
Return	void	
Other		

### 6.13.1.17. onSetConfirmCardNoResponse

Prototype	void onSetConfirmCardNoResponse(boolean isConfirm);	
Description	Confirm cardNo response	
Parameter	isConfirm	Whether confirm the card number
Return	void	
Other		

### 6.13.1.18. onSetCardHolderInputPin

Prototype	void onSetCardHolderInputPin(in byte[] pinBlock);	
Description	Card Holder Input Pin Response	
Parameter	pinBlock	Whether confirm the input Pin
Return	true: succeed  false: failure	
Other		

### 6.13.1.19. onSetCertVerifyResponse

Prototype	void onSetCertVerifyResponse (boolean isVerify)
-----------	---

Description	Identification result response	
Parameter	isVerify	Whether confirm the certificate number
Return	true: succeed  false: failure	
Other		

#### 6.13.1.20. onSetOnlineProcResponse

Prototype	void onSetOnlineProcResponse(int retCode,in Bundle data)	
Description	Online callback response	
Parameter	retCode	Process result
	data	Online result data  (see class EmvOnLineResult definition)
Return	void	
Other		

#### 6.13.1.21. onSetContactlessOnlinePlaceCardModeResponse

Prototype	void onSetContactlessOnlinePlaceCardModeResponse(boolean checkCard);	
Description	Contactless Online Place Card response	
Parameter	checkCard	boolean
Return	void	
Other		

#### 6.13.1.22. onSetAIDParameterResponse

Prototype	void onSetAIDParameterResponse (in EmvAidPara aid)
-----------	--

Description	Set AID parameter response	
Parameter	aid	AID parameter
Return	void	
Other		

### 6.13.1.23. onSetCAPubkeyResponse

Prototype	void onSetCAPubkeyResponse (in EmvCapk capk)	
Description	Set CA public key response	
Parameter	capk	CA public key
Return	void	
Other		

### 6.13.1.24. onSetTRiskManageResponse

Prototype	void onSetTRiskManageResponse(String result);	
Description	Confirm TRisk Manage Response	
Parameter	result	String
Return	void	
Other		

### 6.13.1.25. onSetIssuerVoiceReferenceResponse

Prototype	void onSetIssuerVoiceReferenceResponse(int retCode);	
Description	Confirm Issuer Voice Reference Response	
Parameter	retCode	0 Confirm Success
Return	void	
Other		

### 6.13.1.26. onSetSelectAccountTypeResponse

Prototype	void onSetSelectAccountTypeResponse(int select);	
Description	Confirm Select Account Type Response	
Parameter	select	0 Confirm
Return	void	
Other		

### 6.13.1.27. onSetSelectLanguageResponse

Prototype	void onSetSelectLanguageResponse(int retCode);	
Description	Confirm Select Language Response	
Parameter	retCode	0 Confirm
Return	void	
Other		

### 6.13.1.28. readEmvData

Prototype	int readEmvData(in String[] taglist, out byte[] buffer, inout Bundle bundle);	
Description	read TLV valuesfrom kernel	
Parameter	taglist	Specify tag key array
	buffer	
	Bundle	bundle
Return	See ReturnValue declaration	
Other		

### 6.13.1.29. isErrorCode

Prototype	boolean isErrorCode(int errorCode);	
Description	Is contain EmvErrorCode	
Parameter	errorCode	Emv kernel Code (see EmvErrorCode declaration)
Return	if true, is contain EmvErrorCode	
Other		

### 6.13.1.30. addCertRevokedList

Prototype	int addCertRevokedList(in byte[] revokedList);	
Description	Add Cert Revoked List	
Parameter	revokedList	
Return	void	
Other		

### 6.13.1.31. clearCertRevokedList

Prototype	void clearCertRevokedList();	
Description	Clear Cert Revoked List	
Return	void	
Other		

### 6.13.1.32. onSetInputAmountResponse

Prototype	void onSetInputAmountResponse(String amount);	
Description	Confirm Input Amount Response	
Parameter	amount	String
Return	void	

Other	
-------	--

### 6.13.1.33. onOptionSetOnFinishResponse

Prototype	Bundle onOptionSetOnFinishResponse(int retCode, in Bundle bundle);	
Description	Option Set Finish	
Parameter	retCode	0 Success Other Fail
	bundle	
Return	void	
Other		

### 6.13.1.34. endPBOC

Prototype	void endPBOC();	
Description	End EMV Trans	
Return	void	
Other		

### 6.13.1.35. addEmvDynamicLimit

Prototype	int addEmvDynamicLimit(in EmvTermDRL emvTermDR);	
Description	Confirm Display Message Response	
Parameter	emvTermDR	See EmvTermDRL
Return	int	
Other		

### 6.13.1.36. clearDynamicLimit

Prototype	void clearDynamicLimit();
-----------	---------------------------

Description	Clear Dynamic Limit
Return	void
Other	

### 6.13.1.37. emvTrans

Prototype	int emvTrans(in Bundle data, in OnEmvProcessListener listener)	
Description	Emv process execution, different from emvProcess, integrates the card search process and reads the card faster	
Parameter	data	Data for EMV process (see class EMVTransDataConstraints definition)
	listener	Process listener (see OnEmvProcessListener)
Return	See ReturnValue declaration	
Other		

### 6.13.1.38. onSetConfirmDisplayMessage

Prototype	void onSetConfirmDisplayMessage(int retCode);	
Description	Confirm Display Message Response	
Parameter	retCode	0 Success Other Fail
Return	void	
Other		

## 6.13.2. OnEmvProcessListener

- AIDL filename

OnEmvProcessListener.aidl

- AIDL interface list

Prototype	Description
onSelApp	Select application callback
onConfirmCardNo	Confirm card number callback
onCardHolderInputPin	Input PIN callback
onPinPress	Input PIN show callback
onCertVerify	ID confirmation callback
onOnlineProc	Online callback
onContactlessOnlinePlaceCardMode	
onFinish	Finish callback
onSetAIDParameter	Set AID parameter callback
onSetCAPubkey	Set CA public key callback
onTRiskManage	
onSelectLanguage	
onSelectAccountType	
onIssuerVoiceReference	

onDisplayOfflinePin	
inputAmount	
onGetCardResult	
onDisplayMessage	
onUpdateServiceAmount	
onCheckServiceBlackList	
onGetServiceDirectory	Get service directory
onRupayCallback	Rupay card callback

#### 6.13.2.1. onSelApp

Prototype	void onSelApp(in List<String> appNameList ,boolean isFirstSelect)	
Description	Select application callback	
Parameter	appNameList	App name list
	isFirstSelect	Whether first select
Return	void	
Other		

#### 6.13.2.2. onConfirmCardNo

Prototype	void onConfirmCardNo(String cardNo)
Description	Confirm card number callback

Parameter	cardNo	card number
Return	void	
Other		

### 6.13.2.3. onCardHolderInputPin

Prototype	void onCardHolderInputPin(boolean isOnlinePin, int leftTimes)	
Description	Input PIN callback	
Parameter	isOnlinePin	Whether online pin
	leftTimes	number of attempts remaining
Return	void	
Other		

### 6.13.2.4. onPinPress

Prototype	void onPinPress(byte keyCode)	
Description	Press key callback	
Parameter	keyCode	only *, Del and Clear keys.
Return	void	
Other		

### 6.13.2.5. onCertVerify

Prototype	void onCertVerify(String cerName, String certInfo)	
Description	ID confirmation callback	
Parameter	cerName	Cert name
	certInfo	Cert Infomation
Return	void	

Other	
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### 6.13.2.6. onOnlineProc

Prototype	void onOnlineProc(in Bundle data)	
Description	Online process callback	
Parameter	data  (see EMVOnlineRequest declaration)	Online data
Return	void	
Other		

### 6.13.2.7. onContactlessOnlinePlaceCardMode

Prototype	void onContactlessOnlinePlaceCardMode(int mode);	
Description	Contactless Online Place Card Mode callback	
Parameter	mode	
Return	void	
Other		

### 6.13.2.8. onFinish

Prototype	void onFinish(int retCode,in Bundle data)	
Description	Finish callback	
Parameter	retCode	Result code  (see ReturnValue declaration)
	data	Result data  (see EMVOnlineResult & EnvErrorConstraints declaration)

Return	void	
Other		

### 6.13.2.9. onSetAIDParameter

Prototype	void onSetAIDParameter(String aid)	
Description	Set AID parameter callback	
Parameter	aid	AID value
Return	void	
Other		

### 6.13.2.10. onSetCAPubkey

Prototype	void onSetCAPubkey(string rid, int index, int algMode)	
Description	Set AID parameter callback	
Parameter	rid	RID value
	index	IC public key index
	algMode	Algorithm  (see EmvAlgorithmType declaration)
Return	void	
Other		

### 6.13.2.11. onTRiskManage

Prototype	void onTRiskManage(String pan, String panSn);	
Description	TRisk Manage Callback	
Parameter	pan	Card No
	panSn	Card SN

Return	void	
Other		

### 6.13.2.12. onSelectLanguage

Prototype	void onSelectLanguage(String language);	
Description	Select Language Callback	
Parameter	language	String
Return	void	
Other		

### 6.13.2.13. onSelectAccountType

Prototype	void onSelectAccountType(in List<String> accountTypes);	
Description	Select Account Type Callback	
Parameter	accountTypes	Account Type List
Return	void	
Other		

### 6.13.2.14. onIssuerVoiceReference

Prototype	void onIssuerVoiceReference(String pan);	
Description	Issuer Voice Reference Callback	
Parameter	pan	String
Return	void	
Other		

### 6.13.2.15. onDisplayOfflinePin

Prototype	void onDisplayOfflinePin(int retCode);	
-----------	--	--

Description	Display Offline Pin Callback	
Parameter	retCode	int
Return	void	
Other		

### 6.13.2.16. inputAmount

Prototype	void inputAmount(int type);	
Description	Input Amount Callback	
Parameter	type	
Return	void	
Other		

### 6.13.2.17. onGetCardResult

Prototype	void onGetCardResult(int ret, in Bundle bundle)	
Description	Get Card Result Callback	
Parameter	ret	
	bundle	
Return	void	
Other		

### 6.13.2.18. onDisplayMessage

Prototype	void onDisplayMessage();	
Description	Display Message Callback	
Return	void	
Other		

### 6.13.2.19. onUpdateServiceAmount

Prototype	void onUpdateServiceAmount(String ServiceRelatedData)
Description	Update Service Amount
Return	void
Other	

### 6.13.2.20. onCheckServiceBlackList

Prototype	void onCheckServiceBlackList(String pan, String amount)
Description	Check Service Black list
Return	void
Other	

### 6.13.2.21. onGetServiceDirectory

Prototype	void onGetServiceDirectory(in byte[] directory)
Description	Get service directory
Return	void
Other	

### 6.13.2.22. onRupayCallback

Prototype	void onRupayCallback(int type, in Bundle bundle)
Description	Rupay Callback
Return	void
Other	

## 6.13.3. EMVTransDataConstraints

Const	Key value	Description	Bundle value

PROCTYPE	procType	EMV Process (seeEmvTransFlow declaration)	int
SEQNO	posSer	POS batch number	String
TRANSAMT	transAmt	transaction amount	String
CASHBACKAMT	cashbackAmt	Cashback amount	String
TRANSDATE	transDate	transaction date (YYYYMMDD)	String
TRANSTIME	transTime	transaction time(hhmmss)	String
MERNAME	merName	Merchant name	String
MERID	merId	Merchant number	String
TERMINAL_ID	termId	Terminal number	String
B9C	9C	9C	byte
ISQPBOCFORCE	isQpbocForceLin	Whether Qpboc	boolean
ONLINE	e	forced online	
TERMINAL_TLVS	TerminalTlvs	EMV terminal tlvs  Such as DF81190118  /DF811B0130  TAG : DF8119  LEN:01  VALUE:18	ArrayList<String>

ISNEEDPAN	isNeedPan	Whether the account is involved in encryption  true: the account is required to participate in encryption.  false or no KEY:the account is not involved in encryption.	boolean
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#### 6.13.4. EMVTermCfgConstraints

Const	Key value	Description	Bundle value
TERMCAP	termCap	Terminal Capabilities (9F33)	byte[3]
ADDTERMCAP	additionalTermCap	Terminal addition capabilities (9F40)	byte[5]
BATCHDATACAPTURE	BatchDataCapture	EC Terminal Support Indicator (9F7A)	byte[9]
COUNTRYCODE	countryCode	Terminal Country Code	byte[2]

		(9F1A)	
TERMINAL ID	termId	Terminal Identification (9F1C)	byte[9]
TERMTYPE	termType	Terminal Type (9F35)	Byte
CURRENCYCODE	curCode	Transaction Currency Code (5F2A)	byte[2]

### 6.13.5. EmvOnlineRequest

Const	Key value	Description	Bundle value
PIN	Pin	Pin encrypted ciphertext	byte[8]
CARD_SN	cardSn	Card serial number	byte[2]

### 6.13.6. EmvErrorConstraints

Const	Key value	Description	Bundle value
EMV_ERROR_CODE	EMV ERROR CODE	Emv error code	String

### 6.13.7. EmvProcessResult

Const	Key value	Description	Bundle value
SCRIPTRESULT	scriptResult	Process result	byte[]
EMVLOG	emvLog	EMV log	List<EmvCardLog>
ECBALANCE	ecBalance	e-cash balance	byte[12] (Format: ASC)

### 6.13.8. EmvCardLog

- AIDL filename

EmvCardLog.aidl

- AIDL member list

Name	Type	Description
isAmtExist	Boolean	Transaction amount is identified
amt	String	Transaction amount (like it: 00001000)
isOtherAmtExist	boolean	Other amounts are identified
otherAmt	String	Other amounts
isDateExist	boolean	Whether transaction date exist
transDate	String	Date of transaction(YYMMDD)
isTimeExist	boolean	Whether transaction time exist
transTime	String	Time of transaction
isCntCodeExist	boolean	Whether country code exist
cntCode	String	country code(9F1A)
isCurExist	boolean	Whether Transaction Currency Code exist

curCode	String	Transaction Currency Code (5F2A)
isAtcExist	boolean	Whether Application Transaction Counter exist
atc	String	Application Transaction Counter(9F36)
is9Cexist	boolean	Whether Transaction Type exist
serveType	String	Transaction Type(9C)
isMerNameExist	boolean	Whether Merchant name address exist
merName	String	Merchant name address(9F4E)
tlvLen	int	Tlv length
tlv	byte []	Other TLV

### 6.13.9. EmvChannelType

Const	Value	Description
FROM_ICC	0(int)	ICC
FROM_PICC	1(int)	RF IC

### 6.13.10. EmvDataSource

Const	Type	Description
FROMKERNEL	0(int)	From kernel
FROMCARD	1(int)	From card

### 6.13.11. EmvTransFlow

Const	Type	Description
FULL	0(int)	EMV full process
SIMPLE	1(int)	EMV simple process
QPASS	2(int)	QPASS process

### 6.13.12. EmvErrorCode

Const	Value	Description
EMV_ERR_SELAPP	273	Application selection error
EMV_ERR_SELAPP_PSE	289	PSE application selection error
EMV_ERR_SELAPP_PSE_UNSUPPO RT	290	Card does not support PSE selection
EMV_ERR_SELAPP_APPLOCK	291	is locked
EMV_ERR_SELAPP_DIRSEL	292	Dir selection error
EMV_ERR_SELAPP_PARSE	293	PPSE parsing error
EMV_ERR_AIDLIST	305	AID list method selection error
EMV_ERR_ICCOP_SELECTAID	308	Send AID select command to return negative value

EMV_ERR_ICCOP_SELECTAID_DATA 84	309	
EMV_ERR_ICCOP_SELECTAID_DATA SFI	308	
EMV_ERR_ICCOP_SELECTAID_SFI	311	
EMV_ERR_SELECTAID_NOMATCH	312	
EMV_ERR_SELECTAID_SW1W2_NO_ 9000	313	
EMV_ERR_SELECTAID_PARSE_ERR OR	314	
EMV_ERR_SELECTAID_DATA_MISS	315	
EMV_ERR_INITAPP_ERR	529	Initialization application error
EMV_ERR_INITAPP_CHECKGPO	545	
EMV_ERR_INITAPP_GPO_UNPACK	546	
EMV_ERR_INITAPP_GPO_LEN	547	GPO data length is incorrect
EMV_ERR_INITAPP_GPO_77	548	
EMV_ERR_INITAPP_GPO_80	549	
EMV_ERR_INITAPP_GPO_NO82	550	
EMV_ERR_INITAPP_GPO_NO94	551	
EMV_ERR_INITAPP_SELACCOUNT	554	Account selection error
EMV_ERR_INITAPP_6985	555	ICC returns 6985
EMV_ERR_COMPLETE	2321	Failed to complete processing

EMV_ERR_COMPLETE_ADVICE	2337	Terminal requested to connect and forced notification, but failed to connect
EMV_ERR_COMPLETE_GAC	2338	The second GAC return is not 9000
EMV_ERR_COMPLETE_CID_INTERR UPT	2340	CID returned transaction aborted
EMV_ERR_COMPLETE_PARASE_GA C	2341	GAC parsing failed
EMV_ERR_ICCOP_POWERUP	2643	IC card power on error
EMV_ERR_ICCOP_POWERDOWN	2644	IC card power off error
EMV_ERR_ICCOP_L1_ERR	2642	APDU not returned

## 6.14. M0 Ev1 card

Operate M0 Ev1 card equipment

- Package name

com.morefun.yapi.card.mifare

### 6.14.1. Device API

- AIDL filename

M0Ev1Handler.aidl

- AIDL interface list

Prototype	Description

open	Open Card
close	Close
getVersion	Get Version
read	Read
readFast	Read Fast
write	Write
writeCompatible	Write Compatible
readCount	Read Count
increaseCount	Increase Count
auth	Auth
readSign	Read Sign
tearDetect	Tear Detect
VCSL	VCSL

#### 6.14.1.1. open

Prototype	boolean open()
Description	Open

Return	true: Open Success false:Open Fail
Other	

#### 6.14.1.2. close

Prototype	boolean close()
Description	Close
Return	true: Open Success false:Open Fail
Other	

#### 6.14.1.3. getVersion

Prototype	void getVersion(in byte[] cmd4,out byte[] rst16)	
Description	Get Version	
Parameter	cmd4	Command
	rst16	Return rst
Return	void	
Other		

#### 6.14.1.4. read

Prototype	void read(in byte[] cmd8, out byte[] rst24)	
Description	Read data	
Parameter	cmd8	Command
	rst24	RST
Return	void	
Other		

#### 6.14.1.5. readFast

Prototype	void readFast(in byte[] cmd12,out byte[] rst8_4pageNum);	
Description	Read Fast Data	
Parameter	cmd12	Command
	rst8_4pageNum	RST
Return	void	
Other		

#### 6.14.1.6. write

Prototype	void write(in byte[] cmd12,out byte[] rst8);	
Description	Write Data	
Parameter	cmd12	Command
	rst8	RST
Return	void	
Other		

#### 6.14.1.7. writeCompatible

Prototype	void writeCompatible(in byte[] cmd28,out byte[] rst8);	
Description	Write Compatible	
Parameter	cmd28	Command
	rst8	RST
Return	void	
Other		

#### 6.14.1.8. readCount

Prototype	void readCount(in byte[] cmd8,out byte[] rst8);
-----------	---

Description	Read Count	
Parameter	cmd8	Command
	rst8	RST
Return	void	
Other		

#### 6.14.1.9. increaseCount

Prototype	void increaseCount(in byte[] cmd12,out byte[] rst8);	
Description	Increase Count	
Parameter	cmd12	Command
	rst8	RST
Return	void	
Other		

#### 6.14.1.10. auth

Prototype	void auth(in byte[] cmd8,out byte[] rst10);	
Description	Auth	
Parameter	cmd8	Command
	rst10	RST
Return	void	
Other		

#### 6.14.1.11. readSign

Prototype	void readSign(in byte[] cmd4,out byte[] rst40);	
Description	Read Sign	

Parameter	cmd4	Command
	Rst40	RST
Return	void	
Other		

#### 6.14.1.12. tearDetect

Prototype	void tearDetect(in byte[] cmd8,out byte[] rst9);	
Description	Tear Detect	
Parameter	cmd8	Command
	rst9	RST
Return	void	
Other		

#### 6.14.1.13. VCSL

Prototype	void VCSL(in byte[] cmd24,out byte[] rst9);	
Description	VCSL	
Parameter	Cmd24	Command
	Rst9	RST
Return	void	
Other		

### 6.15. M0 Card

Operate M0 Card equipment

- Package name

com.morefun.yapi.card.mifare

### 6.15.1. Device API

- AIDL filename

M0Handler.aidl

- AIDL interface list

Prototype	Description
open	Open Card
close	Close
read	Read
write	Write
writeCompatible	Write Compatible
auth1	Auth
auth2	Auth

#### 6.15.1.1. open

Prototype	boolean open()
Description	Open
Return	true: Open Success false:Open Fail
Other	

#### 6.15.1.2. close

Prototype	boolean close()
-----------	-----------------

Description	Close	
Return	true: Open Success false:Open Fail	
Other		

### 6.15.1.3. read

Prototype	void read(in byte[] cmd8, out byte[] rst24)	
Description	Read data	
Parameter	cmd8	Command
	rst24	RST
Return	void	
Other		

### 6.15.1.4. write

Prototype	void write(in byte[] cmd12,out byte[] rst8);	
Description	Write Data	
Parameter	cmd12	Command
	rst8	RST
Return	void	
Other		

### 6.15.1.5. writeCompatible

Prototype	void writeCompatible(in byte[] cmd28,out byte[] rst8);	
Description	Write Compatible	
Parameter	cmd28	Command
	rst8	RST

Return	void
Other	

### 6.15.1.6. Auth1

Prototype	void auth1(in byte[] cmd4, out byte[] rst16);	
Description	auth1	
Parameter	cmd4	Command
	rst16	RST
Return	void	
Other		

### 6.15.1.7. Auth2

Prototype	void auth2(in byte[] cmd20, out byte[] rst16);	
Description	auth2	
Parameter	cmd20	Command
	rst16	RST
Return	void	
Other		

## 6.16. NTAG Card

Operate NTAG Card equipment

- Package name

com.morefun.yapi.card.industry

### 6.16.1. Device API

- AIDL filename

NTagCard.aidl

- AIDL interface list

Prototype	Description
open	Open Card
close	Close
getVersion	Get Version
read	Read
readFast	Read Fast
write	Write
writeCompatible	Write Compatible
readCount	Read Count
authPwd	Auth
readSign	Read Sign

#### 6.16.1.1. open

Prototype	boolean open()
Description	Open

Return	true: Open Success false:Open Fail
Other	

### 6.16.1.2. close

Prototype	boolean close()
Description	Close
Return	true: Open Success false:Open Fail
Other	

### 6.16.1.3. getVersion

Prototype	void getVersion(in byte[] cmd2, out byte[] rst14)	
Description	Get Version	
Parameter	cmd2	Command
	rst14	Return rst
Return	void	
Other		

### 6.16.1.4. read

Prototype	void read(in byte[] cmd6, out byte[] rst22)	
Description	Read data	
Parameter	Cmd6	Command
	rst22	RST
Return	void	
Other		

### 6.16.1.5. readFast

Prototype	void readFast(in byte[] cmd10, out byte[] cmdVar);	
Description	Read Fast Data	
Parameter	cmd10	Command
	cmdVar	RST
Return	void	
Other		

#### 6.16.1.6. write

Prototype	void write(in byte[] cmd10, out byte[] rst6);	
Description	Write Data	
Parameter	cmd10	Command
	Rst6	RST
Return	void	
Other		

#### 6.16.1.7. writeCompatible

Prototype	void writeCompatible(in byte[] cmd26, out byte[] rst6);	
Description	Write Compatible	
Parameter	cmd26	Command
	Rst6	RST
Return	void	
Other		

#### 6.16.1.8. readCount

Prototype	void readCount(in byte[] cmd6, out byte[] rst);
-----------	---

Description	Read Count	
Parameter	Cmd6	Command
	rst	RST
Return	void	
Other		

### 6.16.1.9. authPwd

Prototype	void authPwd(in byte[] cmd6, out byte[] cmd8);	
Description	AuthPwd	
Parameter	Cmd6	Command
	Rst8	RST
Return	void	
Other		

## 6.17. SLE4442 Card

Operate SLE4442 Card equipment

- Package name

com.morefun.yapi.card.industry

### 6.17.1. Device API

- AIDL filename

SL4442Card.aidl

- AIDL interface list

Prototype	Description

open	Open Card
close	Close
powerOn	Power On
powerOff	Power Off
isCardPresent	Card Present
readMM	Read Main Memory Data
readPM	Read Protection Memory Data
readSM	Read Security Memory Data
writeMM	Write Main Memory Data
writePM	Write Protection Memory Data
writeSM	Write Security Memory Data
auth	Auth

### 6.17.1.1. Open

Prototype	int open(in byte[] cmd, out byte[] result)	
Description	Open	
Parameter	Cmd	Open Command
	result	Result

Return	0: Open Success other:Open Fail	
Other		

### 6.17.1.2. Close

Prototype	int close(in byte[] cmd, out byte[] result);	
Description	Close	
Parameter	Cmd	Open Command
	result	Result
Return	0: Close Success other:Open Fail	
Other		

### 6.17.1.3. PowerOn

Prototype	int powerOn(in byte[] cmd,out byte[] result)	
Description	Power On	
Parameter	cmd	Command
	result	Result Value
Return	0: Close Success other:Open Fail	
Other		

### 6.17.1.4. powerOff

Prototype	int powerOff(in byte[] cmd,out byte[] result);	
Description	Power Off	
Parameter	Cmd	Command
	result	Result

Return	0: Close Success other:Open Fail	
Other		

### 6.17.1.5. isCardPresent

Prototype	int isCardPresent(in byte[] cmd,out byte[] result)	
Description	Is Card Present	
Parameter	cmd	Command
	result	Result
Return	int	
Other		

### 6.17.1.6. ReadMM

Prototype	int readMM(in byte[] cmd,out byte[] result)	
Description	Read Main Memory Data	
Parameter	cmd	Command
	result	Result
Return	int	
Other		

### 6.17.1.7. readPM

Prototype	int readPM(in byte[] cmd,out byte[] result);	
Description	Read Protection Memory Data	
Parameter	cmd	Command
	result	Result
Return	void	

Other	
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### 6.17.1.8. readSM

Prototype	int readSM(in byte[] cmd,out byte[] result)	
Description	Read Security Memory Data	
Parameter	Cmd	Command
	result	Result
Return	void	
Other		

### 6.17.1.9. writeMM

Prototype	int writeMM(in byte[] cmd, out byte[] result);	
Description	Write Main Memory Data	
Parameter	cmd	Command
	result	Result
Return	int	
Other		

### 6.17.1.10. writePM

Prototype	int writePM(in byte[] cmd,out byte[] result);	
Description	Write Protection Memory Data	
Parameter	cmd	Command
	result	Result
Return	void	
Other		

### 6.17.1.11. writeSM

Prototype	int writeSM(in byte[] cmd, out byte[] result);	
Description	Write Security Memory Data	
Parameter	Cmd	Command
	result	Result
Return	void	
Other		

### 6.17.1.12. auth

Prototype	int auth(in byte[] cmd, out byte[] result);	
Description	auth	
Parameter	Cmd	Command
	result	Result
Return	void	
Other		

## 6.18. EMV Rupay Service

Operate EMV Rupay Service equipment

- Package name

com.morefun.yapi.emv

### 6.18.1. Device API

- AIDL filename

EmvRupayService.aidl

- AIDL interface list

Prototype	Description
addServiceParam	Add Service Param
addPRMacqKeyParam	Add PRMacq Key Param
getRuPayServiceParaList	Get Rupay Service Param
getRuPayPRMacqKeyParaList	Get Rupay PRMacq Key Param
clearServiceParam	Clear Service Param
clearPRMacqKeyParam	Clear PRMacq Key Param

#### 6.18.1.1. addServiceParam

Prototype	int addServiceParam(String ServiceParaList)	
Description	Add Service Param	
Parameter	ServiceParaList	String
Return	int	
Other		

#### 6.18.1.2. addPRMacqKeyParam

Prototype	int addPRMacqKeyParam(String PRMacqKeyParaList)	
Description	Add PRMacq Key Param	
Parameter	PRMacqKeyParaList	String
Return	int	
Other		

### 6.18.1.3. getRuPayServiceParamList

Prototype	List<String> getRuPayServiceParaList()
Description	Get Rupay Service Param
Return	List<String>
Other	

### 6.18.1.4. getRuPayPRMacqKeyParaList

Prototype	List<String> getRuPayPRMacqKeyParaList()
Description	Get Rupay PRMacq Key Param
Return	List<String>
Other	

### 6.18.1.5. clearServiceParam

Prototype	void clearServiceParam()
Description	Clear Service Param
Return	void
Other	

### 6.18.1.6. clearPRMacqKeyParam

Prototype	void clearPRMacqKeyParam();
Description	Clear PRMacq Key Param
Return	void
Other	