



WPOS EMV Process Guide

V- 2.2.02.210208



Version control information and description

Version No	Date	Writer	Description
V-2.0.0	2019.4.28		
V-2.0.6	2019.8.23		Add error code: 0x04020013 TRANSPROCESS_CONTACTLESSTRANS_NO_APPLICATION 0x04020014 TRANSPROCESS_CONTACTLESSTRANS_APPLICATION_BLOCK 0x04020015 TRANSPROCESS_CONTACTLESSTRANS_CARD_BLOCK 0x04020016 TRANSPROCESS_CONTACTLESSTRANS_USE_OTHER_INTERFACE 0x04020017 TRANSPROCESS_CONTACTLESSTRANS_NO_DETECT_CARD
V-2.06.215019	2019.9.01		Add the async transaction function 5.3 doContactTransAsyncOnline 5.4 doCLTransAsyncOnline
V-2.06.215905	2019.9.27		Add the Shield power button function 3.15 setPropForControlPowerKey
V-2.06.215A11	2019.10.1 4		Add the function 3.16 clearTransLog 4.4 startPINInputOff
V- D2.07.220409	2020.4.09		Add error code: 0x04010011 TRANSPROCESS_CONTACTTTRANS_APPSEL_APPLICATION_BLOCK
V- D2.07.220420	2020.4.20		Add the function 5.5 PreprocessingCL 5.6 doCLTransAsyncAfterPreProcessing
V- 2.2.00.200916	2020.9.16		Add Rupay Param
V-2.2.01.210121	2021.1.21		Add Split the transaction process 5.12 contact Transtion(substep) 5.13 contactLess Transtion(substep)
V-2.2.02.210208	2021.2.08		add Processing sensitive data 5.14 getSecurityDataList



Document Overview

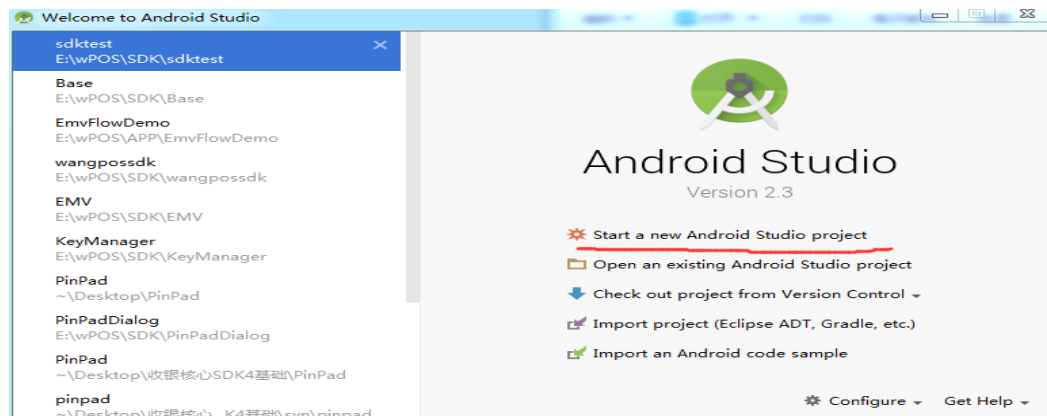
This document, *SDK Development Reference I*, based on the WPOS platform devices, which provide the capability and convenience for customers to understand the WPOS SDK, independently develop Android applications, and quickly integrate the development work.

Development Environment Setup

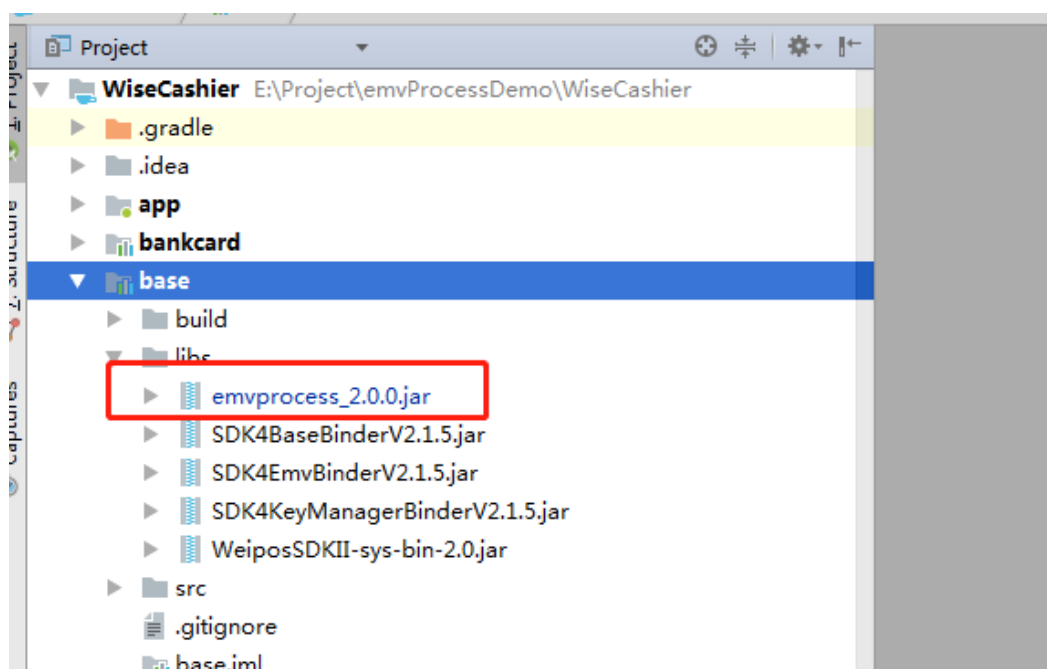
Step1: Download and Install Android Studio

You can download Android Studio from the official Website,
On the official website also have a reference for the installation

Step2: Start a new WPOS SDK project

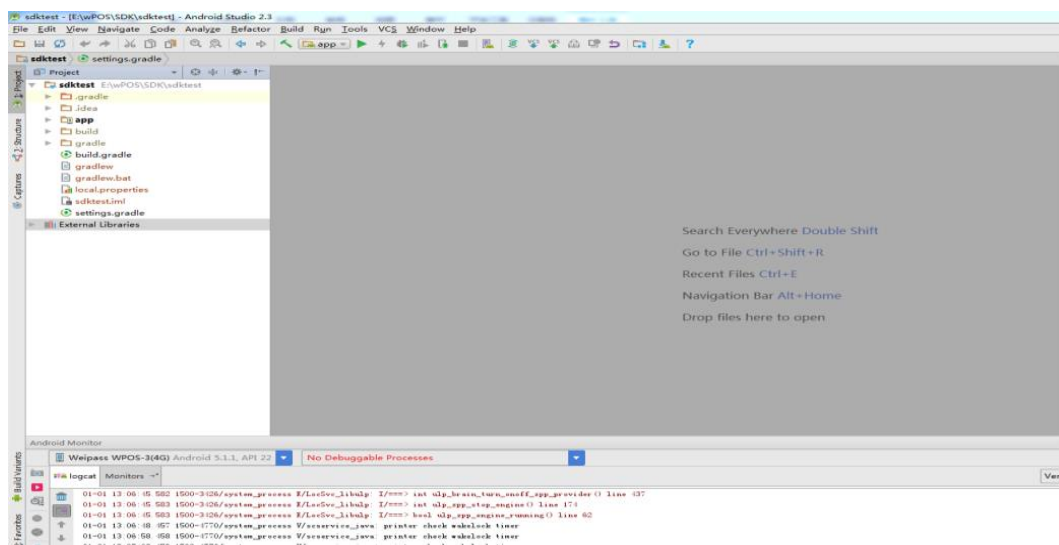
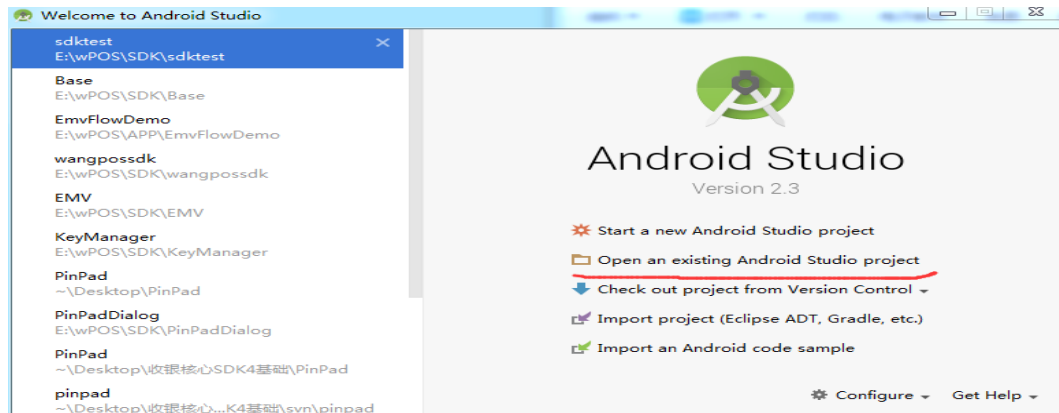


Copy emvprocess_x.x.x.jar jar file to the project libs Directory, as shown in screenshot below:





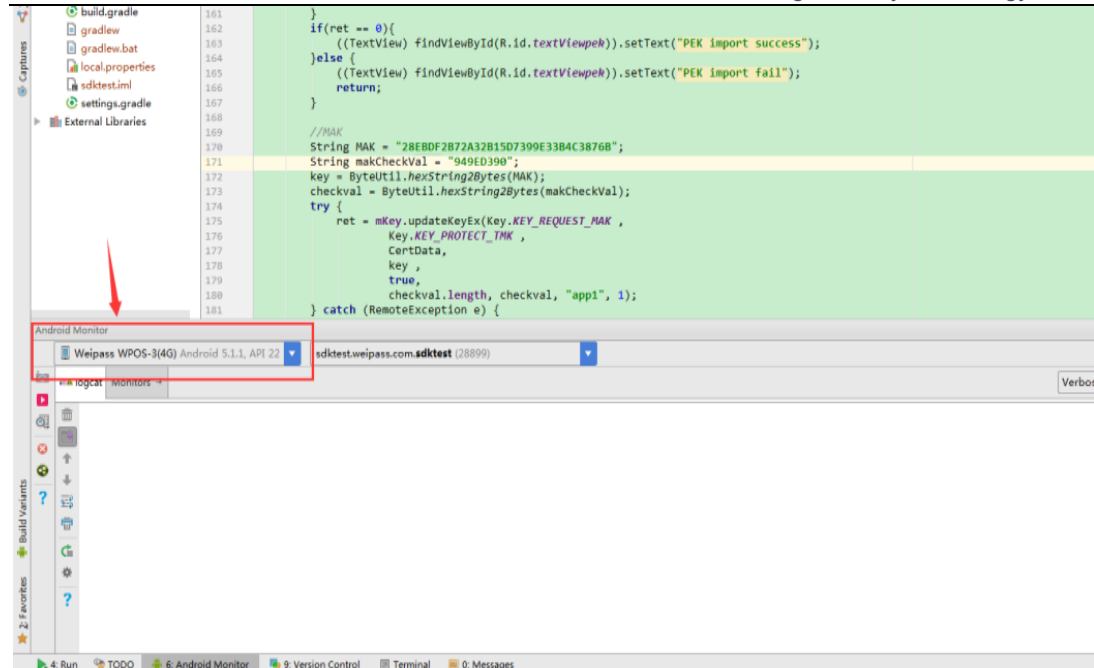
Step3: Import WiseCashier Project



Step4: Connect to the WPOS device

You shall connect to the WPOS device with the USB cable, and the POS shall activate the Developer Mode.

When the android studio detects the connected Devices, as shown in screenshot below:



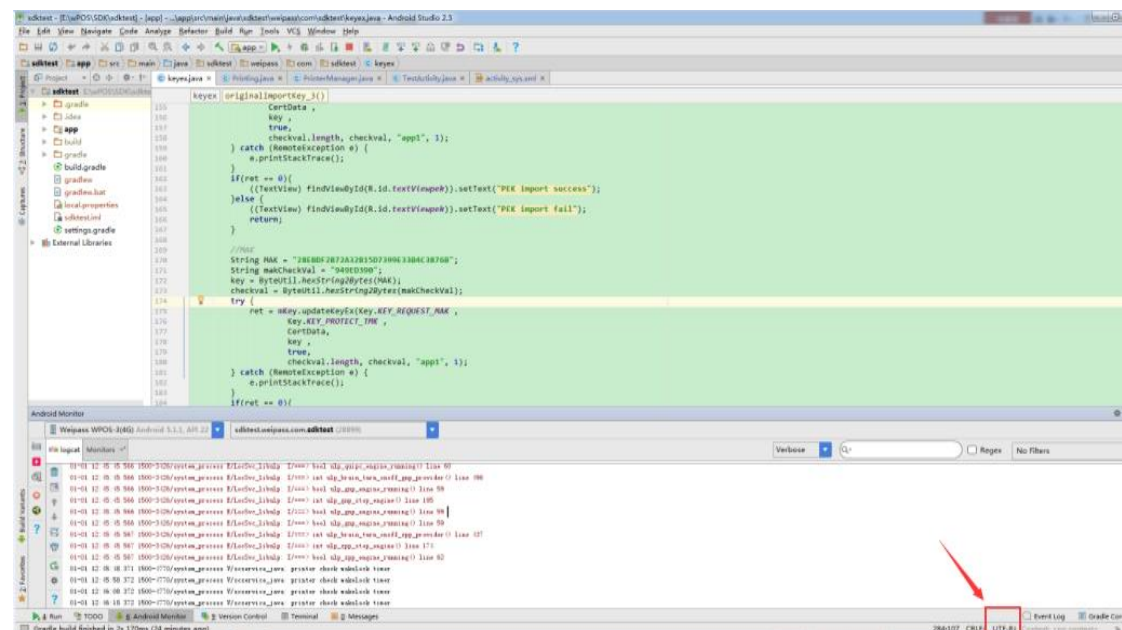
Step5: Run Project

Click the  to run the project on your device.

Development Need to Know

1. Android Studio with UTF-8

The default encode for the Android Studio is UTF-8, as shown in screenshot below:



2. Take logs:

If you have any problems when you using WPOS SDK, please take the logcat and feedback to



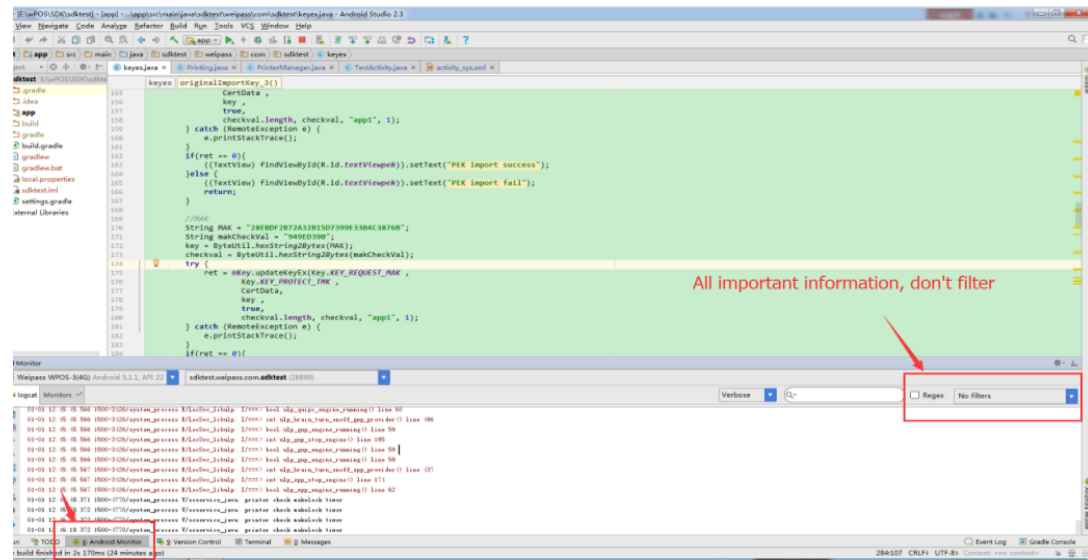
WPOS engineer team.

You can follow these steps:

1) Select Android Monitor in the bottom tool-bar in Android Studio.

In the extension dialog, select the Tab logcat, un-click the check-box Regex

select No Filter in the drop-down list beside the check-box Regex

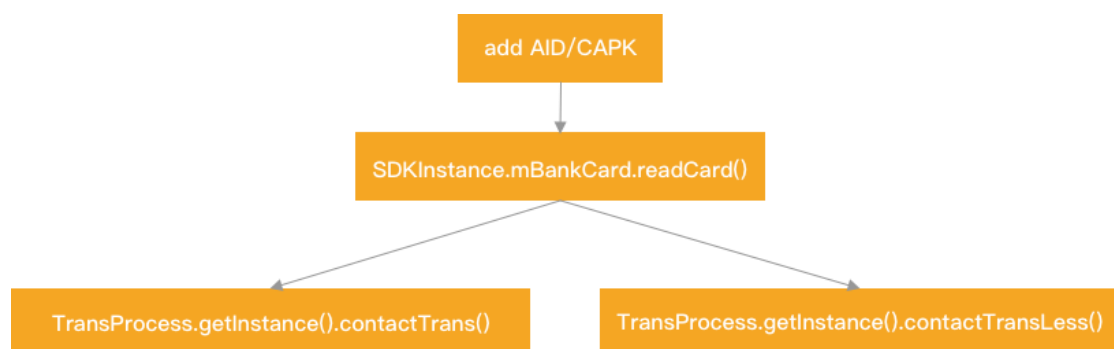


2) Copy the log-information in the logcat textbox, save as txt type file, and give feedback to

WPOS engineer team.

Compatibility: These Step is Compatible for all types WPOS devices.

1. Interfaces flow



2. Parameter Configuration

Note:

Copy the aid. json and capk.json and push to /storage/sdcard0/Cashier/ on the devices.



3. Function

3.1 SDK Init

Function Name	<code>initSDK(Context context)</code>
Parameter Input	Context
Parameter Output	N/A
Result	
Remarks	<code>SDKInstance. initSDK(getApplicationContext());</code>

3.2 Library Init

Function Name	<code>Init(boolean isLog)</code>
Parameter Input	Is print sdk log
Parameter Output	N/A
Result	
Note	
Remarks	<code>LibInit. init(true);</code>

3.3 add AID

Function Name	<code>addAID(aidData)</code>
Parameter Input	aidData (Please refer to the appendix-A for details)
Parameter Output	
Result	
Note	
Remarks	<code>KernelInit. addAID(aidData);</code>

3.4 add CAPK

Function Name	<code>addCAPK(capkData)</code>
Parameter Input	capkData (Please refer to the appendix-B for details)
Parameter Output	
Result	int result; 0:Success Others: Not success
Remarks	<code>KernelInit.addCAPK (aidData);</code>

3.5 add DRL

Function Name	<code>addDRL(drlData)</code>
Parameter Input	drlData (Please refer to the appendix-C for details)
Parameter Output	
Result	int result; 0:Success Others: Not success
Remarks	<code>KernelInit. addDRL(drlData);</code>



3.6 add Exception PAN

Function Name	addExceptionPan(exceptionPanData)
Parameter Input	exceptionPanData (Please refer to the appendix-D for details)
Parameter Output	
Result	int result; 0:Success Others: Not success
Remarks	KernelInit. addExceptionPan(exceptionPanData)

3.7 add Removed CAPK

Function Name	addRemovedCAPK(removedCAPKData)
Parameter Input	removedCAPKData (Please refer to the appendix-E for details)
Parameter Output	
Result	int result; 0:Success Others: Not success
Remarks	KernelInit. addRemovedCAPK(removedCAPKData)

3.8 add PID

Function Name	addPID(pidData)
Parameter Input	N/A
Parameter Output	
Result	int result; 0:Success Others:Not success
Remarks	KernelInit. addPID(pidData)

3.9 delete AID

Function Name	deleteAID()
Parameter Input	N/A
Parameter Output	
Result	int result; 0:Success Others:Not success
Remarks	KernelInit. deleteAID ()

3.10 delete CAPK

Function Name	deleteCAPK()
Parameter Input	N/A
Parameter Output	
Result	int result; 0:Success Others: Not success
Remarks	KernelInit. deleteCAPK()

3.11 delete DRL

Function Name	deleteDRL()
Parameter Input	N/A
Parameter Output	



Result	int result; 0:Success Others: Not success
Remarks	KernelInit. deleteDRL ()

3.12 delete PID

Function Name	deletePID()
Parameter Input	N/A
Parameter Output	N/A
Result	int result; 0:Success Others: Not success
Remarks	KernelInit. deletePID ()

3.13 delete Exception PAN

Function Name	deleteExceptPan()
Parameter Input	
Parameter Output	N/A
Result	int result; 0:Success Others: Not success
Remarks	KernelInit. deleteExceptPan ()

3.14 delete CAPK Removed

Function Name	deleteCAPKRemoved()
Parameter Input	
Parameter Output	N/A
Result	int result; 0:Success Others: Not success
Remarks	KernelInit. deleteCAPKRemoved ()

3.15 setPropForControlPowerKey

Function Name	setPropForControlPowerKey()
Parameter Input	Boolean: true or false (true-on;false-off)
Parameter Output	N/A
Result	void;
Remarks	TransProcess.getInstance().setPropForControlPowerKey(true);

3.16 clearTransLog

Function Name	clearTransLog()
Parameter Input	
Parameter Output	N/A
Result	int;
Remarks	SDKInstance.mEmvCore.clearTransLog();

4. PIN & KEY



4.1 import Key

Function Name	addAcquireKey(acquirerKey)
Parameter Input	acquirerKey (Please refer to the appendix-F for details)
Parameter Output	N/A
Result	int result; 0:Success Others: Not success
Notes	Acquirer.getInstance().addAcquireKey(acquirerKey);

4.2 EMV Kernel PIN Config

Function Name	configEMVPINSetting(pinSetting)
Parameter Input	pinSetting(Please refer to the appendix-G for details)
Parameter Output	N/A
Result	int result; 0:Success Others: Not success
Notes	Acquirer.getInstance().configEMVPINSetting(pinSetting);

4.3 StartPinPad

Function Name	startPINInput(pinSetting, pinpadCallback)
Parameter Input	pinpadCallback (Please refer to the appendix-H for details)
Parameter Output	
Result	
Remarks	Acquirer.getInstance().startPINInput(pinSetting, pinpadCallback)
Notes	

4.4 StartOFFPinPad

Function Name	startPINInputOff(pinSetting, pinpadCallback)
Parameter Input	pinpadCallback (Please refer to the appendix-H for details)
Parameter Output	
Result	
Remarks	Acquirer.getInstance().startPINInputOff(offpinSetting, pinpadCallback)
Notes	

5. EMV Process

5.1 contact Transtion

Function Name	contactTrans(activity, infoBean, processInterface)
Parameter Input	



Parameter Output	
Result	int result; 0:Success Others: Not success
Notes	
Remarks	TransProcess. <i>getInstance()</i> . <i>contactTrans</i> ((Activity) <i>mContext</i> , transInfoBean, <i>processInterface</i>);

5.2 contactLess Transtion

Function Name	<i>contactTransLess</i> (activity, infoBean, <i>processInterface</i>)
Parameter Input	
Parameter Output	
Result	int result; 0:Success Others: Not success
Notes	
Remarks	TransProcess. <i>getInstance()</i> . <i>contactTransLess</i> ((Activity) <i>mContext</i> , transInfoBean, <i>processInterface</i>);

5.3 contact Transtion

Function Name	<i>doContactTransAsyncOnline</i> (activity, infoBean, <i>processInterface</i>)
Parameter Input	
Parameter Output	
Result	int result; 0:Success Others: Not success
Notes	
Remarks	TransProcess. <i>getInstance()</i> . <i>doContactTransAsyncOnline</i> ((Activity) <i>mContext</i> , transInfoBean, <i>processInterface</i>); The Async

5.4 contactLess Transtion

Function Name	<i>doCLTransAsyncOnline</i> (activity, infoBean, <i>processInterface</i>)
Parameter Input	
Parameter Output	
Result	int result; 0:Success Others: Not success
Notes	
Remarks	TransProcess. <i>getInstance()</i> . <i>doCLTransAsyncOnline</i> ((Activity) <i>mContext</i> , transInfoBean, <i>processInterface</i>); The Async



5.5 Transaction preprocessing

Function Name	PreprocessingCL (activity, infoBean, processInterface)
Parameter Input	
Parameter Output	
Result	int result; 0:Success Others: Not success
Notes	Called before reading the card
Remarks	TransProcess.getInstance().PreprocessingCL ((Activity) mContext, transInfoBean, processInterface);

5.6 contactLess Transtion

Function Name	doCLTransAsyncAfterPreProcessing (activity, infoBean, processInterface)
Parameter Input	
Parameter Output	
Result	int result; 0:Success Others: Not success
Notes	Called after reading the card (Must be used with 5.5)
Remarks	TransProcess.getInstance().doCLTransAsyncAfterPr eProcessing ((Activity) mContext, transInfoBean, processInterface); The Async

5.7 contact Simplify Transtion

Function Name	doContactSimplify (activity, infoBean)
Parameter Input	
Parameter Output	
Result	int result; 0: Success Others: Failed
Notes	
Remarks	TransProcess.getInstance().doContactSimplify((Activi ty) mContext, transInfoBean);

5.8 contactLess Simplify Transtion

Function Name	doCLSimplify(activity, infoBean)
Parameter Input	
Parameter Output	
Result	int result; 0: Success Others: Failed
Notes	
Remarks	TransProcess.getInstance().doCLSimplify ((Activity) mContext, transInfoBean);



5.9 contact custom CVM Transtion

Function Name	doContactDefinitelyCVM (activity, infoBean , processInterface)
Parameter Input	
Parameter Output	
Result	int result; 0: Success Others: Failed
Notes	
Remarks	TransProcess. getInstance(). doContactDefinitelyCVM(this, transInfoBean, processInterface);

5.10 Issuer Script Results

Function Name	getScriptResults (byte[] outData)
Parameter Input	
Parameter Output	
Result	int result; 0:Success Others: Not success
Notes	The Issuer Script Results are defined in Book 4, Annex A5.
Remarks	TransProcess. getInstance(). getScriptResults(outData)

5.11 Interfaces flow

ProcessInterface

Description: this is emv process listen to the callback class

interface	PINSetting ConfigTransTPK();
description	Set emv TPK
parameter	N/A
result	

interface	TransAmount setTransAmount();
description	Emv set amount
parameter	
result	



interface	OnlineResult processOnline();
description	Emv online process
parameter	
result	

interface	void processAdvice(byte[] adviceData);
description	
parameter	
result	

interface	void displayOfflinePinVerifyResult();
description	Process offlinePIN verification results
parameter	
result	

interface	void displayPan(String Pan);
description	Show Pan
parameter	
result	

interface	void onAmexOutCome(byte[] tlvData);
description	For amex outCome callback
parameter	



result	
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interface	<code>int processMutilAID(String[] AIDList);</code>
description	Mutil Appcation select
parameter	
result	

PinPadInterface

interface	<code>PinPadConfig getPINPADButton();</code>
description	Get pinpadbutton
parameter	
result	

interface	<code>void displayPINPAD();</code>
description	Show PinPad
parameter	
result	

interface	<code>void refreshPINPADLayout(int pinType, int offlinePinTotalTryTime, int offlinePinRemainTryTime, String numberOrder);</code>
description	out-of-order
parameter	pinType -- is offline or online offlinePinTotalTryTime -- offline Total Times offlinePinRemainTryTime -- offline Remain Times numberOrder "0123456789"



result	
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interface	void updatePINPAD(int count);
description	Updata PinPad the button text
parameter	
result	

interface	void pinPadResult(int pinInputResult, int isPinUpload, int pinLen, byte[] pin);
description	
parameter	pinInputResult -- Process password input results isPinUpload – pinLen— pin--
result	

interface	void dismissPINPAD();
description	Dismiss PinPad
parameter	
result	

5.12 contact Transtion(substep)

startContactTransAsyncOnline

Function Name	startContactTransAsyncOnline(activity, infoBean, processInterface)
Parameter Input	
Parameter Output	
Result	int result; 0:Success Others: Not success
Notes	Initialize the application and read the data



Remarks	<code>TransProcess. getInstance(). startContactTransAsyncOnline ((Activity) mContext, transInfoBean, processInterface);</code> <i>The Async</i>
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completeContactTransAsyncOnline

Function Name	<code>completeContactTransAsyncOnline(activity, infoBean, processInterface)</code>
Parameter Input	
Parameter Output	
Result	int result; 0:Success Others: Not success
Notes	Complete the transaction
Remarks	<code>TransProcess. getInstance(). completeContactTransAsyncO nline ((Activity) mContext, transInfoBean, processInterface);</code> <i>The Async</i>

5.13 contactLess Transtion (substep)

stratCLTransAsyncOnline

Function Name	<code>startCLTransAsyncOnline(activity, infoBean, processInterface)</code>
Parameter Input	
Parameter Output	
Result	int result; 0:Success Others: Not success
Notes	Initialize the application and read the data
Remarks	<code>TransProcess. getInstance(). startCLTransAsyncOnline ((Activity) mContext, transInfoBean, processInterface);</code> <i>The Async</i>

completeCLTransAsyncOnline

Function Name	<code>completeCLTransAsyncOnline(activity, infoBean, processInterface)</code>
Parameter Input	
Parameter Output	
Result	int result; 0:Success Others: Not success



Notes	Complete the transaction
Remarks	TransProcess. <i>getInstance()</i> .completeCLTransAsyncOnline ((Activity) mContext, transInfoBean, processInterface); The Async

5.14 Processing sensitive data

getSecurityDataList

Function Name	getSecurityDataList(String packageName)
Parameter Input	String packageName The package name to use when encrypting information
Parameter Output	
Result	String result Sensitive information ciphertext data, failure is null
Notes	Secure access to sensitive data
Remarks	

6. Param Glossary

The following abbreviations are used in the json file. For information on terms used in this specification.

Table 6.1—Glossary_Parameter

Abbreviation	Description
AID.json	common
AID_9F06	Application Identifier
AIDLen	Application Identifier len
isFullMatch	The AID is full fit
Version_9F09	Application Version Number
Priority	Application Priority Indicator
enableFloorLimitCheck	Whether the FloorLimit effective
FloorLimit_9F1B	Terminal Floor Limit
enableRandomTransSel	Whether the Random Transaction select
Threshold	
TargetPercent	
MaxTargetPercent	
enableVelocityCheck	
TACDenial	Terminal Action Code (Denial)
TACOnline	Terminal Action Code (Online)



TACDefault	Terminal Action Code (Default)
DefaultDDOL	Dynamic Data Authentication Data Object List
DefaultTDOL	Transaction Certificate Data Object List
RiskManagementData_9F1D	Terminal Risk Management Data
AcquirerId_9F01	Acquirer Identifier
EnableTerminalInfo	Whether use the aid parameter 1 true/0 false
MerchantId_9F16	Merchant Identifier
TerminalId_9F1C	Terminal Identification
MerchantName	MerchantName
MCC_9F15	Merchant Category Code
TransCurrencyCode_5F2A	Transaction Currency Code
TransCurrencyExp	Transaction Currency Exponent
ReferCurrencyCode_9F3C	Transaction Reference Currency Code
ReferCurrencyExp_9F3D	Transaction Reference Currency Exponent
TerminalType_9F35	Terminal Type
TerminalCap_9F33	Terminal Capabilities
ExTerminalCap_9F40	Additional Terminal Capabilities
CountryCode_9F1A	Terminal Country Code
Paypass	
MSDAppVersion_9F6D	Mag-stripe Application Version Number (Reader)
MSDCVMCap_DF811E	Mag-stripe CVM Capability - CVM Required
MSDCVMCapNoCVM_DF812C	Mag-stripe CVM Capability - No CVM Required
KernelConfig_DF811B	Kernel Configuration
UDOL_DF811A	Default UDOL
CLTransLimitCDCVM_DF8125	Reader Contactless Transaction Limit (On-device CVM)
CLTransLimitNoCDCVM_DF8124	Reader Contactless Transaction Limit (No On-device CVM)
ChipCVMCap_DF8118	CVM Capability - CVM Required
ChipCVMCapNoCVM_DF8119	CVM Capability - No CVM Required
CardDataInputCap_DF8117	Card Data Input Capability
SecurityCap_DF811F	Security Capability
TransCategoryCode_9F53	Transaction Category Code
MerchantCustomData_9F7C	Merchant Custom Data



CLTACDenial_DF8121	Terminal Action Code - Denial
CLTACOnline_DF8122	Terminal Action Code - Online
CITACDefault_DF8120	Terminal Action Code - Default
TransType_9C	Transaction Type
EnableFloorLimit	Whether the FloorLimit effective
EnableTransLimit	Whether the contactless trans Limit effective
EnableCVMLimit	Whether the CVM effective
EnableCLFloorLimit	Whether the contactless FloorLimit effective
EnableTransLimitONdevice	Whether the DF8125 effective
EnableTransLimitNoONdevice	Whether the DF8124 effective
CLFloorLimit	Paypass FloorLimit
CLCVMLimit	Paypass CVMLimit
payWave	
enableStatusCheck	Status Check Support flag
enableAmountZeroOption	Zero Amount Allowed flag
AmountZeroOption	0-trans end 1-online
enableFloorLimit	Whether the FloorLimit effective
enableTransLimit	Whether the TransLimit effective
enableCVMLimit	Whether the CVMLimit effective
CLFloorLimit	PayWave FloorLimit
CLTransLimit	PayWave TransLimit
CLCVMLimit	PayWave CVMLimit
TTQ_9F66	Terminal Transaction Qualifiers
AMEX	
CLCVMLimit	amex CVMLimit
CLFloorLimit	amex FloorLimit
CLTransLimit	amex TransLimit
IACDefault_9F0D	Issuer Action Code - Default
IACDenial_9F0E	Issuer Action Code - Denial
IACOnline_9F0F	Issuer Action Code - Online
MercNameORLocation_9F4E	Merchant Name and Location
TTQ_9F66	Terminal Transaction Qualifiers
transType_9C	Transaction Type
DRL	
ProgramID_9F5A	Application Program Identifier
ProgramIDLen	Application Program Identifier len



DREnableFlag	
enableStatusCheck	Status Check Support flag
enableAmountZeroOption	Zero Amount Allowed flag
AmountZeroOption	0-trans end 1-online
enableTransLimit	Whether the TransLimit effective
enableCVMLimit	Whether the CVMLimit effective
enableFloorLimit	Whether the FloorLimit effective
CLTransLimit	DRL TransLimit
CLCVMLimit	DRL CVMLimit
CLFloorLimit	DRL FloorLimit
TTQ_byte2	
Exception File	
EnableFlag	
PAN_ASCII	
PAN_ASCIIlen	
PANSeqNumber	
PaypassTerminalConfig	
enableMaxLifeTimeTorn	Exception terminal transaction record lifecycle flg
MaxLifeTimeTorn_DF811C	Exception end trade record lifecycle
enableMaxNumberTorn	Abnormal terminal transaction record maximum number indicator
MaxNumberTorn	Maximum number of abnormal terminal transaction records
enableBalanceReadBeforeGAC	Read the balance identification in front of the GAC
BalanceReadBeforeGAC_DF8104	Read the balance before the GAC
enableBalanceReadAfterGAC	Read the balance identification after the GAC
BalanceReadAfterGAC_DF8105	Read the balance after GAC
enableMobileSupportIndicator	Mobile phone support indicator identification
MobileSupportIndicator_9F7E	Mobile support indicator
enableHoldTimeValue	Holding time mark
HoldTimeValue_DF8130	Hold Time Value
enableInterfaceDeviceSN	Unique permanent serial number identification assigned by the producer to IFD



InterfaceDeviceSN_9F1E	Interface Device Serial
enableKernelID	Kernel type identification
KernelID_DF810C	Kernel ID
enableMessageHoldTime	Interest holding time mark
MessageHoldTime_DF812D	Message Hold Time
MinimumRRGP_DF8132	Minimum Relay Resistance Grace Period
MaximumRRGP_DF8133	Maximum Relay Resistance Grace Period
TerminalETTFRRCAPDU_DF8134	Terminal Expected Transmission Time For Relay Resistanc
TerminalETTFRRRAPDU_DF8135	Terminal Expected Transmission Time For Relay Resistanc
RRAT_DF8136	Relay Resistance Accuracy Threshold
RRTTMT_DF8137	Relay Resistance Transmission Time Mismatch Threshold
enableMinimumRRGP	Minimum Relay Resistance Grace Period
enableMaximumRRGP	Maximum Relay Resistance Grace Period
enableTerminalETTFRRCAPDU	Terminal Expected Transmission Time For Relay Resistanc
enableTerminalETTFRRRAPDU	Terminal Expected Transmission Time For Relay Resistanc
enableRRAT	Relay Resistance Accuracy Threshold
enableRRTTMT	Relay Resistance Transmission Time Mismatch Threshold
MCC_9F15	
MerchantId_9F16	
TerminalId_9F1C	
MerchantName	
TerminalType_9F35	
TerminalCap_9F33	
ExTerminalCap_9F40	
CountryCode_9F1A	
TransCurrencyCode_5F2A	
TransCurrencyExp	
ReferCurrencyCode_9F3C	
ReferCurrencyExp_9F3D	
DisplayOfflinePINRetryTime	
ForceOnline	



SupportDefaultTDOL	
SupportDefaultDDOL	
TTQ_9F66	
ReferCurrencyExp_9F3D	

7. attribute table

BaseAIDData

Abbreviation	TAG	length	Description
AppName			App Name
AID_9F06	9F06	5-16	AID
isFullMatch			The AID is full fit
version_9F09	9F09	2	Version number assigned by the payment system for the application
enableFloorLimitCheck		1	Vaule 1:true;0:false; Whether the FloorLimit effective
floorLimit_9F1B	9F1B	4	Indicates the floor limit in the terminal in conjunction with the AID
enableRandomTransactionsSel		1	Vaule 1:true;0:false; Whether the Random Transaction select
Threshold		1	Threshold
TargetPercent		1	TargetPercent
MaxTargetPercent		1	Max TargetPercent
enableVelocityCheck		1	Enable VelocityCheck
TACDenial		5	Terminal Action Code (Denial)
TACOnline		5	Terminal Action Code (Online)
TACDefault		5	Terminal Action Code (Default)
DefaultDDOL		var	Dynamic Data Authentication Data Object List
DefaultTDOL		var	Transaction Certificate Data Object List
RiskManagementData_9F1D	9F1D	1-8	Terminal Risk Management Data
AcquirerId_9F01	9F01	6	Acquirer Identifier
EnableTerminalInfo		1	Whether use the aid parameter 1 true/0 false
MerchantId_9F16	9F16	15	Merchant Identifier
TerminalId_9F1C	9F1C	8	Terminal Identification
MerchantName	9F4E	20	MerchantName
MCC_9F15	9F15	2	Merchant Category Code
TransCurrencyCode_5F2A	5F2A	2	Transaction Currency Code
TransCurrencyExp	5F36	1	Transaction Currency Exponent



ReferCurrencyCode_9F3C	9F3C	2	Transaction Reference Currency Code
ReferCurrencyExp_9F3D	9F3D	1	Transaction Reference Currency Exponent
TerminalType_9F35	9F3C	1	Terminal Type
TerminalCap_9F33	9F33	3	Terminal Capabilities
ExTerminalCap_9F40	9F40	5	Additional Terminal Capabilities
CountryCode_9F1A	9F1A	2	Terminal Country Code
disableCalcFloorLimitSum			Default is 1 Disable Calc FloorLimitSum
enablePaywaveCashAUCCheck		1	Default is 1 Enable Paywave CashAUC Check
enablePaywaveCashBackAUCCheck		1	Default is 1 Enable Paywave CashBackAUC Check
enablePaywaveExceptionFileCheck		1	Default is 1 Enable Paywave ExceptionFile Check
bitSetTVRMerchantForceOnline		1	Default is null the terminal shall set the 'Merchant forced transaction online' bit in the TVR to 1.
checkingOfflinePINRetryTime		1	Default is 1 Check the number of offline pin retries

CLPayPassAIDData

Abbreviation	TAG	length	Description
MSDAppVersion_9F6D	9F6D	2	Mag-stripe Application Version Number (Reader)
MSDCVMCap_DF811E	DF811E	1	Mag-stripe CVM Capability - CVM Required
MSDCVMCapNoCVM_DF812C	DF812C	1	Mag-stripe CVM Capability - No CVM Required
KernelConfig_DF811B	DF811B	1	Kernel Configuration
UDOL_DF811A	DF811A	3	Default UDOL
CLTransLimitCDCVM_DF8125	DF8125	6	Reader Contactless Transaction Limit (On-device CVM)
CLTransLimitNoCDCVM_DF8124	DF8124	6	Reader Contactless Transaction Limit (No On-device CVM)
ChipCVMCap_DF8118	DF8118	1	CVM Capability - CVM Required



ChipCVMCapNoC VM_DF8119	DF8119	1	CVM Capability - No CVM Required
CardDataInputCap _DF8117	DF8117	1	Card Data Input Capability
SecurityCap_DF81 1F	DF811 F	1	Security Capability
TransCategoryCode _9F53	9F53	1	Transaction Category Code
MerchantCustomD ata_9F7C	9F7C	20	Merchant Custom Data
CLTACDenial_DF 8121	DF812 1	5	Terminal Action Code - Denial
CLTACOnline_DF 8122	DF812 2	5	Terminal Action Code - Online
CITACDefault_DF 8120	DF812 0	5	Terminal Action Code - Default
TransType	9F40	1	Additional Terminal Capabilities (Cash /Goods /Services /Cashback /Inquiry /Transfer /Payment /Administrative)
EnableFloorLimit		1	Whether the FloorLimit effective
EnableTransLimit		1	Whether the contactless trans Limit effective
EnableCVMLimit		1	Whether the CVM effective
EnableCLFloorLim it		1	Whether the contactless FloorLimit effective
EnableTransLimitO Ndevice		1	Whether the DF8125 effective
EnableTransLimitN oONdevice		1	Whether the DF8124 effective
CLFloorLimit		6	Paypass FloorLimit
CLCVMLimit		6	Paypass CVMLimit

CLPayWaveAIDData

Abbreviation	TAG	length	Description
enableStatusCheck		1	Status Check Support flag
enableAmountZero Option		1	Zero Amount Allowed flag
AmountZeroOption		1	0-trans end 1-online
enableFloorLimit		1	Whether the FloorLimit effective
enableTransLimit		1	Whether the TransLimit effective
enableCVMLimit		2	Whether the CVMLimit effective
CLFloorLimit		6	PayWave FloorLimit
CLTransLimit		6	PayWave TransLimit
CLCVMLimit		6	PayWave CVMLimit
TTQ_9F66	9F66	4	Terminal Transaction Qualifiers

**CLqPBOCAIDData**

Abbreviation	TAG	length	Description
enableStatusCheck		1	Status Check Support flag
enableAmountZero Option		1	Zero Amount Allowed flag
AmountZeroOption		1	0-trans end 1-online
enableFloorLimit		1	Whether the FloorLimit effective
enableTransLimit		1	Whether the TransLimit effective
enableCVMLimit		2	Whether the CVMLimit effective
CLFloorLimit		6	PayWave FloorLimit
CLTransLimit		6	PayWave TransLimit
CLCVMLimit		6	PayWave CVMLimit
TTQ_9F66	9F66	4	Terminal Transaction Qualifiers

CLAMEXAIDData

Abbreviation	TAG	length	Description
CLCVMLimit		6	amex CVMLimit
CLFloorLimit		6	amex FloorLimit
CLTransLimit		6	amex TransLimit
IACDefault_9F0D	9F0D	5	Issuer Action Code - Default
IACDenial_9F0E	9F0E	5	Issuer Action Code - Denial
IACOnline_9F0F	9F0F	5	Issuer Action Code - Online
MercNameORLoca tion_9F4E	9F4E	var	Merchant Name and Location
TTQ_9F66	9F66	4	Terminal Transaction Qualifiers
transType_9C	9C	1	Transaction Type

CLDISCOVERData

Abbreviation	TAG	length	Description
transType		1	Transaction Type

CLMIRAIDData

Abbreviation	TAG	length	Description
CLFloorLimit_DF51	DF51	6	Reader Contactless FloorLimit
CLNOCVMLimit_DF52	DF52	6	Reader Contactless NOCVMLimit
CLTransLimitCDCVM_DF54	DF54	6	Reader Contactless TransLimit CDCVM
CLTransLimitNoCDCVM_DF53	DF53	6	Reader Contactless TransLimit NoCDCVM
TerminalTPMCap_DF55	DF55		Terminal TPM Capbility
TransRecoveryLimit_DF56	DF56		Transation Recovery Limit



DataExchangeList			Data Exchange List
transType_9C			Transation Type

CLRupayAIDData

Abbreviation	TAG	length	Description
CLFloorLimit	DF51	6	Reader Contactless FloorLimit
CLCVMLimit	DF52	6	Reader Contactless NOCVMLimit
CLTransLimit	DF54	6	Reader Contactless TransLimit
CLCountryCode_9F1A	9F1A		Reader Contactless Country Code
CLTerminalType_9F35	9F35		Reader Contactless Terminal Type
CLTerminalCap_9F33	9F33		Reader Contactless Terminal Capabilities
CLExTerminalCap_9F40	9F40		Reader Contactless Additional Terminal Capabilities
CLtacDecline			Reader Contactless TAC Decline
CLtacOnline			Reader Contactless TAC Online
CLtacDefault			Reader Contactless TAC Default
transType_9C			Transation Type

CAPKData

Abbreviation	TAG	length	Description
RID	9F06	5	RID
publicKeyIndex	9F22	1	publicKey Index
PublicKeyAlgorithm		1	PublicKey Algorithm
publicKeyHashAlgorithm		1	publicKey Hash Algorithm
publicKeyModulus		var	publicKey Modulus
publicKeyExponent		1	PublicKey Exponent
publicKeyExpiredDate		1	publicKey Expired Date
checkValue		20	checkSum

CAPKRevoke

Abbreviation	TAG	length	Description
RID	9F06	5	RID
index	9F22	1	Index
certificateSN			certificate serial number

DRLAmexData

Abbreviation	TAG	length	Description
tag9F5A	9F5A	1-16	Application Program Identifier (Program ID)
floorLimit	9F1B	4	Terminal Floor Limit



cvmReqLimit			CVM Required Limit
transLimit			Transation Limit

TerminalSetting

Abbreviation	TAG	length	Description
MCC_9F15	9F15	1-16	
merchantId_9F16	9F16	15	Merchant Identifier
terminalId_9F1C	9F1C	8	Terminal Identification
merchantName		Var	
terminalType_9F35	9F35	1	Terminal Type
terminalCap_9F33	9F33	3	Terminal Capabilities
exTerminalCap_9F40	9F40	5	Additional Terminal Capabilities
countryCode_9F1A	9F1A	2	Terminal Country Code
transCurrencyCode_5F2A	5F2A	2	Transaction Currency Code
transCurrencyExp	5F36	1	Transaction Currency Exponent
referCurrencyCode_9F3C	9F3C	2	Transaction Reference Currency Code
referCurrencyExp_9F3D	9F3D	1	Transaction Reference Currency Exponent
displayOfflinePINRetryTime		1	Whether to display the number of retries for offline PIN
forceOnline		1	Is support Mandatory online
supportDefaultTDOL		Var	DefaultTDOL
supportDefaultDDOL		Var	DefaultDDOL
TTQ_9F66	9F66	4	Terminal Transaction Qualifiers (TTQ)
disableCalcFloorLimitSum		1	Disable Calc FloorLimitSum
enablePaywaveDRL		1	Enable Paywave DRL
enablePaywaveCashAUCCheck		1	Enable PaywaveCashAUC Check
enablePaywaveCashBackAUCCheck		1	Enable PaywaveCashBackAUC Check
enablePaywaveExceptionFileCheck		1	Enable PaywaveExceptionFile Check
enablePaypassNullAmount		1	Enable Paypass NullAmount
enablePaypassNullOtherAmount		1	Enable PaypassNullOther Amount
tag9C	9C	1	
transType			Additional Terminal Capabilities (Cash /Goods /Services /Cashback /Inquiry /Transfer /Payment /Administrative)
PBOC_EC_TSI			PBOC EC

**AmexTermParamData**

Abbreviation	TAG	length	Description
kernelId	9F2A	1	Kernel Identifier
terminalType	9F35	1	Terminal Type
terFloorLimit	9F1B	4	Terminal FloorLimit
terCountryCode	9F1A	2	Terminal Country Code
exTermCapab			
terminalCapa	9F33	3	Terminal Capabilities
enhCLReaderCapa	9F6E	4	Enhanced Contactless Reader Capabilities
propKernelConfig			
kernel4ReaderCapa	9F6D	1	Contactless Reader Capabilities
defaultDRLFloorLimit		8	Default DRL FloorLimit
defaultDRLCVMLimit		8	Default DRL CVMLimit
defaultDRLTransLimit		8	Default DRL TransLimit

PaypassTerminalConfig

Abbreviation	TAG	length	Description
enableMaxLifeTimeTorn		1	TAG DF811C flg
maxLifeTimeTorn_DF811C	DF811C	2	Max Lifetime of Torn Transaction Log Record
enableMaxNumberTorn		1	TAG DF811D flg
maxNumberTorn	DF811D	1	Max Number of Torn Transaction Log Records
enableBalanceReadBeforeGAC		1	Enable Balance Read Before GAC
balanceReadBeforeGAC_DF8104	DF8104	6	Balance Read Before Gen AC
enableBalanceReadAfterGAC		1	Enable Balance Read Before Gen AC
balanceReadAfterGAC_DF8105	DF8105	6	Balance Read After Gen AC
enableMobileSupportIndicator		1	Contactless Reader Capabilities
mobileSupportIndicator_9F7E	9F7E	1	Mobile Support Indicator
enableHoldTimeValue		1	Enable HoldTime Value



holdTimeValue_DF8130	DF8130	1	Hold Time Value
enableInterfaceDeviceSN		1	Enable Interface Device SN
interfaceDeviceSN_9F1E	9F1E	4	Interface Device Serial Number
enableKernelID		1	Enable Kernel ID
kernelID_DF810C	DF810C	1	Kernel ID
enableMessageHoldTime		3	Enable Message Hold Time
messageHoldTime_DF812D	DF812D		Message Hold Time
minimumRRGP_DF8132	DF8132	2	Minimum Relay Resistance Grace Period
maximumRRGP_DF8133	DF8133	2	Maximum Relay Resistance Grace Period
terminalETTFRRCA_PDU_DF8134	DF8134	2	Terminal Expected Transmission Time For Relay Resistance C-APDU
terminalETTFRRRA_PDU_DF8135	DF8135	2	Terminal Expected Transmission Time For Relay Resistance R-APDU
RRAT_DF8136	DF8136	2	Relay Resistance Accuracy Threshold
RRTTMT_DF8137	DF8137	1	Relay Resistance Transmission Time Mismatch Threshold
enableMinimumRRGP		1	Enable Minimum RRGP
enableMaximumRRGP		1	Enable Maximum RRGP
enableTerminalETTFRRCAPDU		1	Enable Terminal ETTFRRCAPDU
enableTerminalETTFRRRAPDU		1	Enable Terminal ETTFRRRAPDU
enableRRAT		1	Enable RRAT
enableRRTTMT		1	Enable RRTTMT

DRLData

Abbreviation	TAG	length	Description
ProgramID_9F5A		17	Program ID
ProgramIDLen		1	ProgramID Length
DRLEnableFlag		1	Enable DRL Flag
enableStatusCheck		1	Enable Status Check
enableAmountZeroOption		1	Enable AmountZero Option



AmountZeroOption		1	Amount Zero Option
enableTransLimit		1	Enable TransLimit
enableCVMLimit		1	Enable CVMLimit
enableFloorLimit		1	Enable FloorLimit
CLTransLimit		8	Reader Contactless TransLimit
CLCVMLimit		8	Reader Contactless CVM Limit
CLFloorLimit		8	Reader Contactless Floorlimit
TTQ_byte2		4	TTQ_byte2
CLNotAllowFlag		1	Reader Contactless NotAllowFlag

ExceptionPan

Abbreviation	type	length	Description
EnableFlag	string	1	Enable Flag
PAN_ASCII	string	20	PAN ASCII
PAN_ASCIIlen	string	1	PAN ASCII Length
PANSeqNumber	string	1	PAN SeqNumber

AcquirerKey

Abbreviation	type	length	Condition	Description
packageName	string		C	packageName
keyType	int		M	Key Type: TMK/DEK/IPEK/PEK/MAK
algorithmType	int		M	EncryMode
azKeyValue	string		M	Key Value
azKCVValue	string		C	Key Check value
azKSN	string		C	KSN values
isPlainText	boolean		M	True is PlainText key ; false is encrypted

OnlineResult

Abbreviation	type	length	Condition	Description
transStatus	int	HEX1	C	ONLINE_APPROVAL = 0; ONLINE_DECLINE = 1; ONLINE_REFERENCE = 2; ONLINE_FAILED = 3; TERMINATE_TRANSACTION = 4;
DE39	string	HEX2	C	39 field of the ISO8583 If not, fill it with 00 (response code)
DE38	string		C	Authorization response code(38)
tag91Data	string		C	Authorization Data
tag71Data	string		C	issue Script of 71 TAG
tag72Data	string		C	issue Script of 72 TAG
getBytes()	byte[]		M	kernel needs these TAGS after online transactions.



OutComeData

Abbreviation	type	length	Condition	Description
DF8129_Value	string	8		Outcome Parameter Set
DF8115_Value	string	6		Error Indication
DF8116_Value	string	22		User Interface Request Data
DF8129_Msg	string			TAG DF8129 Message Identifier
DF8115_Msg	string			TAG DF8115 Message Identifier
DF8116_Msg	string			TAG DF8116 Message Identifier

PinPadConfig

Abbreviation	type	length	Condition	Description
btn0	Button		M	Button 0
btn1	Button		M	Button 1
.....	Button		M	Button 2-8
btn9	Button		M	Button 9
btncancel	string		M	Button cancel
btnconfirm	string		M	Button confirm
btnclean	boolean		M	Button clean

PINSetting

Abbreviation	type	length	Condition	Description
packageName	string		M	packageName
pan	string		M	Used to calculate PIN requirements
isDUKPT	boolean		M	is support DUKPT
timeOut	int		M	In seconds
minPINLength	int		M	Minimum length of PIN
maxPINLength	int		M	Maximum length of PIN
pinBlockFormat	int		M	pinBlock Format 0x00 - ISO9564 Format 0 0x01 - ISO9564 Format 1 0x03 - ISO9564 Format 3 0x20 - PinPad test mode
isBypass	boolean		M	IS support ByPass mode
isAutoComfirm	boolean		M	is support Automatic confirmation of full PIN input
isFixLayout	boolean		M	is support Fixed layout
isBuzzer	boolean		M	Is support Buzzer



isClearButtonNotCancel	boolean		M	true:clear button is still clear button;false:clear button same as cancel
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OffPINSetting

Abbreviation	type	length	Condition	Description
timeOut	int		M	In seconds
minPINLength	int		M	Minimum length of PIN
maxPINLength	int		M	Maximum length of PIN
isBypass	boolean		M	IS support ByPass mode
isFixLayout	boolean		M	is support Fixed layout
isBuzzer	boolean		M	Is support Buzzer
exponent	Int	1	M	Public Exponent
publicKeyModule	byte[]		M	publicKey Module

TrackData

Abbreviation	type	length	Condition	Description
track1	string		C	track1 data
track2	string		C	Track2 data
Track3	string		C	Track3 data

TrackMessage

Abbreviation	type	length	Condition	Description
PAN	string		C	Primary Account Number
cardSn	string		C	Application PAN Sequence Number
track2	string		C	Track2 data
track1	string		C	Track 1 Data
cardExpireDate	string		C	TAG 5F24 Expiration

**TransAmount**

Abbreviation	type	length	Condition	Description
amount	long		M	Amount 9F02 TAG
otherAmount	long		M	Other Amount 9F03 TAG

TransInfoBean

Abbreviation	type	length	Condition	Description
isSimpleTransaction	int		C	Is Simplify the process
pinSetting	PINSetting		M	Other Amount 9F03 TAG
pinDialog	Dialog		C	the Dialog of the pin pad layout
pinActivity	Activity		C	the activity of the pin pad layout
transNumber	int		M	System Trace Audit Number 000000 -- 999999
transType	int		M	Trans type
transAmount	TransAmount		C	reference TransAmount
terminalSetting	TerminalSetting		M	reference TerminalSetting

8. Error Code Table

code	Flag	Description
0	SUCCESS	SUCCESS
0x01010001	LIBINIT_INIT_SYSTEMTIME_ERROR	System time error, please connect to network and sync the device time



0x01010002	LIBINIT_INIT_SETDATETIME_FAILED	Failed to set system time, please contact us
0x01010003	LIBINIT_INIT_EMVCOREINIT_FAILED	EMV init failed, please contact us
0x02010001	ACQUIRER_ADDACQUIREKEY_UPDATEKEY_FAILED	Import key failed, please contact us
0x02010002	ACQUIRER_ADDACQUIREKEY_INJECTIKSN_FAILED	Import ksn failed, please contact us
0x02010003	ACQUIRER_ADDACQUIREKEY_INJECTIPEYBYKEY_FAILED	Import IPEK failed, please contact us
0x02010010	ACQUIRER_ADDACQUIREKEY_PARAMETER_NULL	The relevant parameters are empty
0x02010011	ACQUIRER_ADDACQUIREKEY_DUKPT_ALGORITHM_TYPE_ISNOT3DES	DUKPT Algorithm Type is not 3DES
0x030100FF	KERNELINIT_ADDAID_FAILED_EXCEPTION	Add AID when an exception occurs
0x03010010	KERNELINIT_ADDAID_PARAMETER_ERROR	AID argument is empty
0x03010001	KERNELINIT_ADDAID_ADDAID_MC_FAILED	AID parameters added to paypass failed
0x03010002	KERNELINIT_ADDAID_ADDAID_AMEX_FAILED	AID add to AMEX failed
0x03010003	KERNELINIT_ADDAID_ADDAID_AMEX_EXCEPTION	AID add to AMEX
0x030200FF	KERNELINIT_ADDCAPK_FAILED_EXCEPTION	Add to CAPK failed
0x03020010	KERNELINIT_ADDCAPK_PARAMETER_ERROR	CAPK argument is empty
0x03020001	KERNELINIT_ADDCAPK_AMEX_FAILED	CAPK add to AMEX failed
0x03020002	KERNELINIT_ADDCAPK_FAILED	Add to CAPK failed
0x030300FF	KERNELINIT_ADDDRL_FAILED_EXCEPTION	Add to DRL abnormal
0x03030010	KERNELINIT_ADDDRL_PARAMETER_ERROR	DRL argument is empty
0x03030011	KERNELINIT_ADDDRL_AMEX_ERROR	add to AMEX DRL failed
0x03030001	KERNELINIT_ADDDRL_ADDDRL_FAILED	add to DRL failed
0x030400FF	KERNELINIT_ADDPAYPASSTERMINALCONFIG_FAILED_EXCEPTION	add to paypass parameters abnormal
0x03040010	KERNELINIT_ADDPAYPASSTERMINALCONFIG_PARAMETER_ERROR	Paypass argument is empty
0x03040001	KERNELINIT_ADDPAYPASSTERMINALCONFIG_SETTERMCONFIG_FAILED	Setting Paypass terminal parameters failed
0x030500FF	KERNELINIT_ADDEXCEPTIONPAN_FAILED_EXCEPTION	add to abnormal file
0x03050010	KERNELINIT_ADDEXCEPTIONPAN_PARAMETER_ERROR	Abnormal file parameters are empty
0x03050001	KERNELINIT_ADDEXCEPTIONPAN_ADDEXCEPTIONPAN_FAILED	add to abnormal file failed
0x030600FF	KERNELINIT_ADDREMOVEDCAPK_FAILED_EXCEPTION	add to recycle the public key abnormal
0x03060010	KERNELINIT_ADDREMOVEDCAPK_PARAMETER_ERROR	Recycle the public key, the parameter is empty
0x03060001	KERNELINIT_ADDREMOVEDCAPK_ADDIPERE	add to recycle the public key failed



	VOKE_FAILED	
0x03070001	KERNELINIT_DELETEAID_FAILED	Delete AID failed
0x03080001	KERNELINIT_DELETECAPK_FAILED	Delete CAPK failed
0x03090001	KERNELINIT_DELETEDRL_FAILED	Delete DRL failed
0x03100001	KERNELINIT_DELETEPID_FAILED	Delete PID failed
0x03110001	KERNELINIT_DELETEEXCEPTAN_FAILED	Delete abnormal files failed
0x03120001	KERNELINIT_DELETECAPKREVOKE_FAILED	Delete recycled the public key failed
0x03130001	KERNELINIT_TERMPARAMAMEX_FAILED	Set up AMEX terminal parameters failed
0x040200FF	TRANSPROCESS_CONTACTLESSTRANS_FAILED_EXCEPTION	Non-receiving transactions abnormal
0x04020001	TRANSPROCESS_CONTACTLESSTRANS_PREPROCESS_FAILED	Non- pick-up pre-processing failed
0x04020002	TRANSPROCESS_CONTACTLESSTRANS_APPLICATIONSELECT_FAILED	Non-connected app selection failed
0x04020003	TRANSPROCESS_CONTACTLESSTRANS_READRECORD_FAILED	Non-receiving read app records failed
0x04020004	TRANSPROCESS_CONTACTLESSTRANS_CARDAUTHENTICATE_FAILED	Non-receiving card data authentication failed
0x04020010	TRANSPROCESS_CONTACTLESSTRANS_PARAMETER_NULL	Non-connected trading parameters are short
0x04020011	TRANSPROCESS_CONTACTLESSTRANS_PARAMETER_TERMINALSETTING_NULL	Non-connected terminal parameters are empty (EMVParam)
0x04020012	TRANSPROCESS_CONTACTLESSTRANS_PARAMETER_TERMINALSETTING_ERROR	Non-connected terminal parameters are empty (EMVParam)
0x04020013	TRANSPROCESS_CONTACTLESSTRANS_NO_APPLICATION	Non-connected app selection, no application
0x04020014	TRANSPROCESS_CONTACTLESSTRANS_APPLICATION_BLOCK	Non-connected card app locked
0x04020015	TRANSPROCESS_CONTACTLESSTRANS_CARD_BLOCK	Non-connected cards are locked
0x04020016	TRANSPROCESS_CONTACTLESSTRANS_USE_OTHER_INTERFACE	Non-receiving transactions are abnormal, try again
0x04020017	TRANSPROCESS_CONTACTLESSTRANS_NO_DETECT_CARD	No non-receiving cards detected
0x04020018	TRANSPROCESS_CONTACTLESSTRANS_ONLINE_FAILED	Non-connected online transactions failed
0x04020019	TRANSPROCESS_CONTACTLESSTRANS_TRANSACTION_DENIAL	Non-connected process rejected
0x04020020	TRANSPROCESS_CONTACTLESSTRANS_USE_CONTACT	Please use the contact card to trade
0x04020021	TRANSPROCESS_CONTACTLESSTRANS_TRY_AGAIN	Non-receiving transactions abnormal, try again
0x04020023	TRANSPROCESS_CONTACTLESSTRANS_OTHER	Other errors in non-receiving transactions



	R_ERROR	
0x040100ff	TRANSPROCESS_CONTACTTRANS_FAILED	Contact deals failed
0x04010001	TRANSPROCESS_CONTACTTRANS_APPSEL_FAILED	Contact trading app selection failed
0x04010002	TRANSPROCESS_CONTACTTRANS_READAPPDATA_FAILED	Contact trading reading application records failed
0x04010003	TRANSPROCESS_CONTACTTRANS_CARDAUTH_FAILED	Contact transaction card data authentication failed
0x04010004	TRANSPROCESS_CONTACTTRANS_PROCCONTACTTRANS_FAILED	Contact transaction process failed
0x04010005	TRANSPROCESS_CONTACTTRANS_ONLINE_FAILED	Contact transaction online failed
0x04010011	TRANSPROCESS_CONTACTTRANS_APPSEL_APPLICATION_BLOCK	Application Block
0x04030001	TRANSPROCESS_GETPANFROMMEMVCARD_GETPAN_FAILED	Contact transaction reading card number failed
0x050100ff	OUTCOME_FAILED	Get outcome failed