

WIZARPOS Payment App Integration Protocol

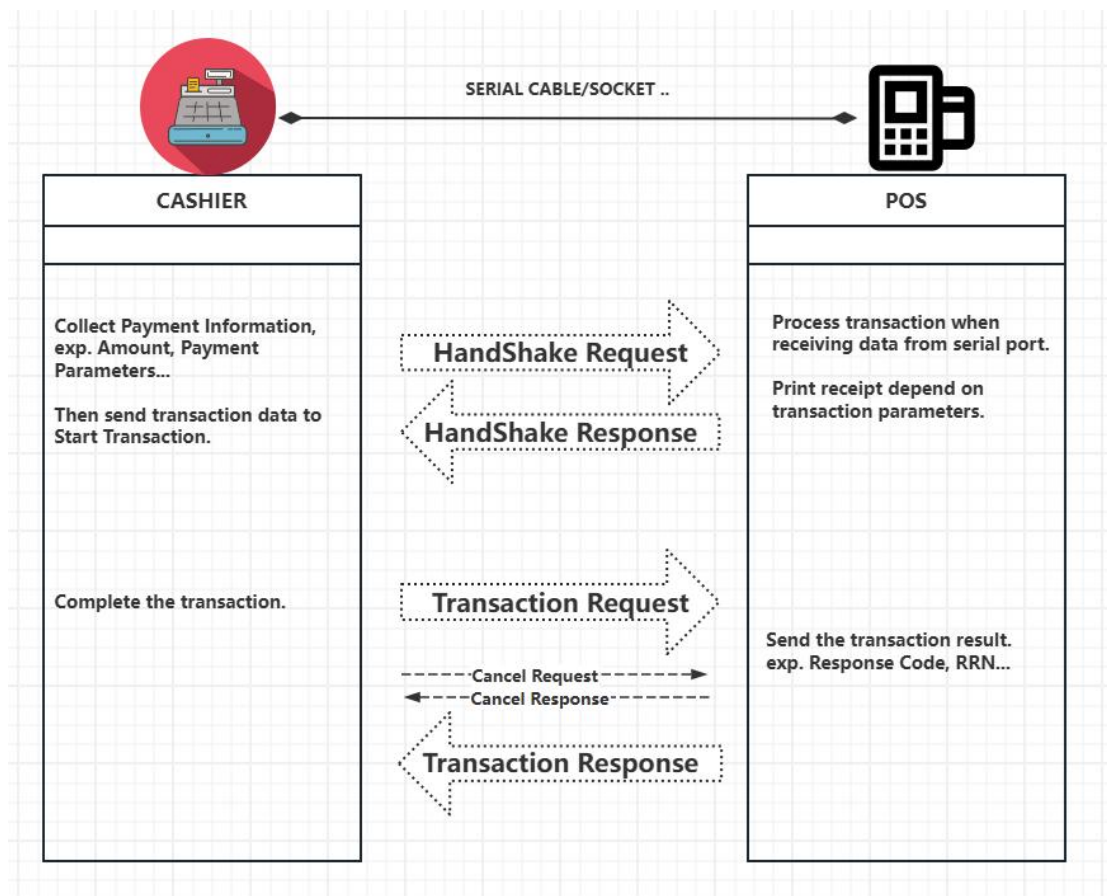
V2.3.6

wizarPOS

1. Introduction

This document describes data exchange protocol between Cashier and WIZARPOS terminal. The Cashier is caller to perform transactions and Terminal will listen to Cashier and execute financial transaction.

2. Transaction Flow



1. Cashier shall send Handshake Request at first to confirm connection is ready.
2. After Handshake, Cashier shall perform transaction and send Transaction Request which contains payment data.
3. POS execute transaction and response the result.

3. Communication Configuration

Serial port	Default Baud Rate: 115200
TCP server	Default port: 6031

4. Data Format

Data package between Cashier and Terminal.

STX	VERSION	CTRL	LEN	CONTENT	ETX	BCC
0x02	0x02	(4 bytes)	(2 bytes)	(LEN bytes)	0x03	(1 byte)

STX indicate start byte of data package, Fixed 0x02.

VERSION indicate protocol version.

CTRL indicate control bytes of data package.

- Byte 1:**
- 0x01** indicate data from Cashier
 - 0x02** indicate data from POS
 - 0x03** indicate ACK from Cashier
 - 0xF1** indicate Handshake Request
 - 0xF2** indicate Handshake Response
 - 0xC1** indicate Cancel Request
 - 0xC2** indicate Cancel Response
 - 0x11** indicate Setting Request
 - 0x12** indicate Setting Response
 - 0x13** It refers to the setting parameter request.
 - 0x14** It refers to the response to the setting parameter request.
 - 0x15** It refers to the setting callback request.
 - 0x16** It refers to the response to the setting callback request.
 - 0x17** It refers to setting the callback content, which is notified to the vending machine by the POS.
 - 0x18** It refers to the content that the POS actively notifies the vending machine.
 - 0x19** It refers to the information collection instruction.
 - 0x1a** It refers to the response to the information collection request.
 - 0x1B** indicates the reboot command.
 - 0x1C** indicates the reboot command response.

Byte 2: Reserved. Set to 0x00.
Byte 3-4: Sequence number, request package set to X, response package set to X+1 **exp. Request [01] [0F], Response [01] [10]**

LEN indicate length bytes of CONTENT. Hex format.

Exp. [01] [0F] means 0x10F (271) bytes.

CONTENT indicate main content of transaction.

ETX indicate end byte, Fixed **0x03**.

BCC indicate package check value, from VERSION (contain) to ETX (contain).

BCC algorithm:

BCC := [VERSION] xor [CTRL Byte1] xor [CTRL Byte2] xor ... xor [ETX]

5. Handshake Request Content

<p>CONTENT (4 bytes)</p>

Handshake request content is 4 bytes random value.

6. Handshake Response Content

<p>CONTENT (4 bytes)</p>

Handshake response content should be same with the request.

7. Transaction Request Content

Transaction Request is content is json format as below:

NAME	FORMAT	DESCRIPTION
"TransType"	String [Mandatory]	Indicate transaction type to be performed. See A1.1 Transaction Type
"TransScheme"	String [Optional]	Cooperation with TransType , used in specific schemes See A1.2 Transaction Scheme
"CallerName"	String	Caller name

	[Optional]	
“TransIndexCode”	String [Optional]	Indicate Cashier trace number Should be unique for every transaction
“BusinessNum”	String [Optional]	Business registration number
“TerminalNum”	String [Optional]	Terminal number
“TransAmount”	String [Optional] [Mandatory for payment]	Total amount including OtherAmount and TipAmount “112233” means 1122.33(USD) or 112.233(JOD) depending on CurrencyCode It is recommended to abide by the standard: https://en.wikipedia.org/wiki/ISO_4217
“OtherAmount”	String [Optional]	Cash back amount
“TipAmount”	String [Optional]	Tip amount
“TaxAmount”	String [Optional]	Tax amount, should be included in TransAmount
“DutyFreeAmount”	String [Optional]	value of the tax exemption amount, should be included in TransAmount
“CurrencyCode”	String [Mandatory]	Indicate currency code of transaction 156: RMB 840: USD 400: JOD
“ReqTransDate”	String (YYYYMMDD) [Optional]	exp. “20201212”
“ReqTransTime”	String (hhmmss) [Optional]	exp. “1614033”
“OriTransIndexCode”	String [Optional]	Original request TransIndexCode
“OriTraceNum”	String [Optional]	
“OriInvoiceNum”	String [Optional]	Original transaction InvoiceNum
“OriTransId”	String [Optional]	Indicate original transaction id

“OriRrn”	String [Optional]	Indicate original RRN
“OriTransDate”	String(YYYYMMDD) [Optional]	Indicate original transaction date
“OriTransTime”	String(hhmmss) [Optional]	Indicate original transaction time
“EnableReceipt”	boolean [Optional]	false-Disable Receipt true-Enable Receipt
“AppendingReceiptInfo”	String [Optional]	Indicate message to be printed on receipt
“SkipConfirmProcedure”	boolean [Optional]	false-Don not Skip true-Skip Confirm Procedure
“EnableCancelInPayment”	boolean [Optional]	true-Enable user cancel operation false-Disable user cancel operation
“AdditionalInfo”	String [Optional]	Simplex: No data will be returned for this transaction. Simplify: Simplified parameters will be returned. SN: The device SN will be returned in the AdditionalInfo of the response. Multiple parameters are linked with "&", for example: Simplify&SN.
“SkipUI”	boolean [Optional]	Skip payment application UI interaction : false-Don not Skip true-Skip
“OriAuthCode”	String [Optional]	Transaction Auth Code returned from Host Server
“goodsInfoList”	List [Optional]	Product Information List (Mandatory for Liquid Pay Transactions)
└─ “OrderNum”	String [Mandatory]	Unique Product ID
└─ “OrderInfo”	String [Mandatory]	Product details
└─ “OrderQuantity”	String [Mandatory]	Product Quantity
└─ “OrderUnitPrice”	String [Mandatory]	Unit Price of Product
“VoidReason”	String [Optional]	Void reason, which is required when liquid Pay conducts a void
“TransactionId”	String [Optional]	Transaction ID, which is required when liquid Pay conducts a void
“OpcAction”	String	When the value of TransType is OPC, it is

	[Optional]	mandatory. Refer to A1.3 OPC
“CallerStatus”	String [Optional]	<p>Caller status</p> <p>DOOR_OPEN_SUCCESS: The door is opened successfully.</p> <p>DOOR_OPEN_FAILURE: The door opening fails.</p> <p>DOOR_OPEN_TIME_OUT: The door opening times out.</p> <p>DOOR_CLOSE_SUCCESS: The door is closed successfully.</p> <p>SHIPMENT_SUCCESS: The shipment is successful.</p> <p>SHIPMENT_FAILURE: The shipment fails.</p>
“EnableReceipt”	boolean [Optional]	<p>Print receipt:</p> <p>false - Do not print</p> <p>true - Printing</p>
“NeedSignature”	boolean [Optional]	<p>true: Require the customer to sign and send the signature back after a successful transaction. false (or no signature): Do not collect a signature (default logic).</p>
“Deferred”	boolean [Optional]	<p>Controls whether this transaction uses deferred authorization, applicable to pre-authorization and purchase transactions.</p> <p>- true:</p> <p>The current transaction does not request a network connection; it is directly processed as successful and prints a receipt.</p> <p>The online submission will be performed later when the merchant requires it.</p>
“DeferredForceOffline”	boolean [Optional]	<p>Used together with Deferred:</p> <p>- true: The current transaction is forced to be offline; subsequent batch submission will be performed according to Deferred.</p> <p>- false: The transaction depends on the network status. If the network is normal, it will go online; if the network connection fails, it will be processed as Deferred, and subsequent batch submission will be performed according to Deferred.</p>

Request content sample:

```
{
```

```

    "TransType": "Purchase",
    "TransIndexCode": "112233",
    "TransAmount": "10000",
    "CurrencyCode": "840",
    "ReqTransDate": "20210302",
    "ReqTransTime": "144230",
    "OriTransId": "",
    "OriRrn": "",
    "EnableReceipt": true,
    "AppendingReceiptInfo": "",
    "SkipConfirmProcedure": false,
    "SkipUI": false
}

```

8. Transaction Response Content

Transaction Request is content is json format which contain request data as below:

NAME	FORMAT	DESCRIPTION
"TransType"	String [Mandatory]	Indicate transaction type to be performed.
"TransScheme"	String [Optional]	Cooperation with TransType, used in specific schemes See A1.2 Transaction Scheme
"CallerName"	String [Optional]	Caller name
"TransIndexCode"	String [Optional]	Indicate Cashier trace number
"TransResult"	boolean [Mandatory]	true: Success false: Failed
"RespCode"	String [Mandatory]	Response code from host server
"RespDesc"	String [Mandatory]	Response message from host server
"UnifiedCategory"	String [Optional]	Unified Classification of Response Codes See A1.5
"UnifiedCode"	String [Optional]	Unified Response Code See A1.6

"ApprovalCode"	String [Optional]	Approval code from host
"CardNum"	String [Optional]	
"EntryMode"	Int [Optional]	0x01: Manual Entry 0x02: Swipe Entry(no CVV) 0x05: Contact ICC(with CVV) 0x07: Contactless 0x90: Swipe Entry(with CVV) 0x91: Contactless MSD 0x95: Contact ICC(no CVV)
"ExpiryDate"	String [Optional]	
"CardBrand"	String [Optional]	exp. Visa/MasterCard/Amex/Discover
"TransAmount"	String [Optional] [Mandatory for Sale/Refund]	"112233" means 1122.33(USD) 112.233(JOD)
"OtherAmount"	String [Optional]	Cash back amount
"TipAmount"	String [Optional]	Tip amount
"Balance"	String [Optional]	
"TaxAmount"	String [Optional]	Tax amount, should be included in TransAmount
"DutyFreeAmount"	String [Optional]	value of the tax exemption amount
"CurrencyCode"	String [Optional]	Indicate currency code of transaction 156: RMB 840: USD 400: JOD
"CountryCode"	String [Optional]	
"DccOriCurrencyCode"	Integer [Optional] [Mandatory when DCC]	Original Request Currency Code to be converted
"DccOriAmount"	String	Original Request Amount

	[Optional] [Mandatory when DCC]	
“DccFee”	String [Optional] [Mandatory when DCC]	DCC Fee of the transaction
“DccExchangeRate”	String [Optional] [Mandatory when DCC]	DCC exchange rate
“DccMarkUp”	String [Optional] [Mandatory when DCC]	DCC mark up
“DccFooterText”	String [Optional] [Mandatory when DCC]	DCC footer text
“TransDate”	String (YYYYMMDD) [Mandatory]	Transaction date exp. “20201212”
“TransTime”	String (hhmmss) [Mandatory]	Transaction time exp. “1614033”
“MID”	String [Optional]	Merchant ID
“TID”	String [Optional]	Terminal ID
“MerchantName”	String [Optional]	Merchant Name
“MerchantAddress”	String [Optional]	Merchant Address
“TraceNum”	String [Optional]	Trace Number of payment app
“TransID”	String [Optional]	Transaction ID returned from Host Server
InvoiceNum	String [Optional]	Invoice Number of transaction

“RRN”	String [Optional]	Retrieval Reference number returned from Host Server
“AuthCode”	String [Optional]	Transaction Auth Code returned from Host Server
“OriTransIndexCode”	String [Optional]	Original request TransIndexCode
“OriInvoiceNum”	String [Optional]	Original transaction InvoiceNum
“OriTransId”	String [Optional]	Indicate original transaction id
“OriRrn”	String [Optional]	Indicate original RRN
“EmvAid”	String [Optional]	Indicate EMV AID
“EmvAppName”	String [Optional]	Indicate EMV app name
“EmvCryptogram”	String [Optional]	Indicate EMV TC or ARQC
“EmvTVR”	String [Optional]	Indicate EMV TVR
“AdditionalInfo”	String [Optional]	
“CardUniqueId”	String [Optional]	The transaction returns the unique identifier of the card.
“BatchNum”	String [Optional]	Batch number
“OpcAction”	String [Optional]	OPC action, the value is the same as the request input parameter.
“OpcVersionName”	String [Optional]	OPC version name
“OpcVersionCode”	String [Optional]	OPC version code
“HasMSR”	boolean [Optional]	true: There is a magnetic stripe card reader false: There is no magnetic stripe card reader
“BatchDetailInfo”	Object [Optional]	Batch settlement information on the payment application
“SignatureImage”	String [Optional]	Base64 encoded signature image data
“DeferredSummaryInfo”	Object [Optional]	Return the information of the Deferred transactions, including the number of

		successful and failed transactions, as well as the relevant details for each transaction.
"PosNetworkAvailable"	boolean [Optional]	Whether the current network is available true: Network is normal false: Network is unavailable
"PaymentConfigured"	boolean [Optional]	Whether the payment channel is configured true: Configured false: Not configured
"PaymentAppInstalled"	boolean [Optional]	Whether the payment application is installed true: Installed false: Not installed
"LastPosInfoResponse"	Object [Optional]	Result of the last normally responded getPosInfo command.
"LastTimestamp"	String [Optional]	Timestamp of the last response

9. Cancel Request Content

Cancel request content is empty.

10. Cancel Response Content

NAME	FORMAT	DESCRIPTION
"cancelled"	boolean [Mandatory]	true: transaction cancelled. False: transaction can't be cancelled

11. Setting Request Content

NAME	FORMAT	DESCRIPTION
"FixedAmount"	String [Mandatory]	Set a fixed amount for the payment application

Request Setting sample:

```
{
  "FixedAmount": "10000"
}
```

12. Setting Response Content

NAME	FORMAT	DESCRIPTION
"Result"	String [Mandatory]	Success Failed

Response Setting sample:

```
{
  "Result": "success"
}
```

13. ACK Content

NAME	FORMAT	DESCRIPTION
Key	String [Mandatory]	Customize keys and values according to requirements

14. Set Parameter Request Content

NAME	FORMAT	DESCRIPTION
"AppHide"	boolean [Optional]	true: Hide the app icon of the payment application. false: Display the app icon of the payment application.
"DeferredAmountLimit"	Integer [Optional]	For amounts exceeding this threshold, the transaction will not be deferred and will be forced to proceed via online transaction.
"DeferredAccountLimit"	Integer [Optional]	The maximum number of Deferred transactions allowed by the terminal.

15. Set Callback Request Content

Set callback request content is empty.

16. Set Callback Response Content

NAME	FORMAT	DESCRIPTION
"Result"	String [Mandatory]	Success Failed

Setting callback response sample:

```
{
  "Result": "success"
}
```

17. POS Active Notification Content

NAME	FORMAT	DESCRIPTION
"Type"	String [Mandatory]	Notification Type See A1.4 OPC Notification Type

Notification sample:

```
{
  "Type": "ActivePreAuth"
}
```

18. Information Collection Request Content

NAME	FORMAT	DESCRIPTION
"PromptLabel"	String [Mandatory]	The prompt text seen by the user as they type.
"InputType"	String [Mandatory]	Input type TEXT NUMBER PASSWORD PHONE
"MaxLength"	Integer [Optional]	Maximum length limit
"Timeout"	Integer	Timeout for waiting for input, in

	[Optional]	seconds (s/second)
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Sample:

```
{
  "PromptLabel": "Please enter your mobile phone number",
  "InputType": "PHONE",
  "MaxLength": 12,
  "Timeout": 60
}
```

19. Information Collection Response Content

NAME	FORMAT	DESCRIPTION
"RespCode"	String [Mandatory]	Response Code 00 Success 01 User clicked Cancel 02 Timeout FF Abnormal situation
"UserInputData"	String [Optional]	User input content
"RespDesc"	String [Optional]	Response Description

20. Reboot Request Content

Reboot request content is empty.

21. Reboot Response Content

NAME	FORMAT	DESCRIPTION
"RespCode"	String [Mandatory]	00: Received successfully, ready to restart soon. Others: Failed

Annex 1

A1.1 Transaction Type

TransType	Description
Purchase	
PreAuth	
IncrementalAuth	
AuthVoid	
AuthCompletion	
BalanceInquiry	
Reversal	
Refund	
Settle	
TipAdjust	
ReadCard	To obtain card information, only "TransType" needs to be passed, and "CardUniqueld" will be returned.
<i>Local transaction</i>	
QueryTransaction	Query transaction result by OriTransIndexCode
PrintLast	
PrintTotal	
PrintDetail	
PrintParameter	
GetPosInfo	
VerifyCardPan	Verify whether card number match original transaction
OPC	This request will be processed by OPC and will not be forwarded to the payment application.
GetLastSettleInfo	Obtain batch settlement information on the payment application.
PrintByInvoice	
Deferred	Upload Deferred transactions via network

A1.2 Transaction Scheme

Scheme	Description
Credit	Credit card
Debit	Debit card
EBT	
ECS	

QR	QR transaction
QRUserScan	QR - code transaction. The POS displays the QR - code, and the user scans it.
QRPosScan	QR - code transactions, the user shows the QR - code and the POS scans it.

A1.3 OPC Action

Action	Description
Version	Query the OPC version
OrderResult	Order result. Pass the order result information in AdditionalInfo.
CallerStatusChange	Notify the OPC host computer of the status change.

A1.4 OPC Notification Type

Type	Description
ActivePreAuth	Active pre - authorization notification

A1.5 Unified Response Classification

类型	描述
APPROVED	Transaction Successful
SOFT_DECLINE	Soft Decline
HARD_DECLINE	
SYSTEM_ERROR	System & Network Exception
TERMINAL_ERROR	Terminal & Local Hardware Exception

A1.6 Unified Response Code

A1.6.1 APPROVED (Transaction Successful)

类型	描述
APPROVED	
REVERSAL_SUCCESS	

A1.6.2 SOFT_DECLINE

类型	描述
DECLINE_INSUFFICIENT_FUNDS	Insufficient Balance / Insufficient Credit Limit
DECLINE_INCORRECT_PIN	Password Error / Excessive Attempts
DECLINE_EXPIRED_CARD	Card has expired
DECLINE_EXCEEDS_LIMIT	Exceeded single transaction / daily transaction limit
DECLINE_INVALID_AMOUNT	Invalid transaction amount (e.g. amount is 0)
DECLINE_CVV_FAILED	CVV / Security Code verification failed

A1.6.3 HARD_DECLINE

类型	描述
DECLINE_DO_NOT_HONOR	Issuer Declined
DECLINE_INVALID_CARD	Invalid card number / No such issuer
DECLINE_FRAUD_LOST_STOLEN	Suspected fraud / Lost card / Stolen card
DECLINE_PICK_UP_CARD	Confiscate Card (Serious Fraud)
DECLINE_NOT_PERMITTED	This card does not allow such transactions.
DECLINE_DUPLICATE_TXN	Duplicate Transaction Blocked

A1.6.4 SYSTEM_ERROR

类型	描述
ERROR_SYSTEM_MALFUNCTION	Payment channel or issuer system failure
ERROR_TIMEOUT	Issuer / Network Timeout
ERROR_ROUTING_UNAVAILABLE	Unable to route / Clearing network unavailable
ERROR_MAC_KEY_SYNC	Terminal key decryption / MAC verification failed
ERROR_FORMAT_INVALID	Invalid message format or missing required parameters

A1.6.5 TERMINAL_ERROR

类型	描述
HW_ERR_ICC_INIT_FAILED	IC card reader initialization failed / Unable to open
HW_ERR_MSR_FAILED	Magnetic stripe reader open failed
HW_ERR_READ_TIMEOUT	Card reading / card insertion timeout
HW_ERR_PINPAD	PIN pad malfunction or input timeout
HW_ERR_PRINTER_OUT_OF_PAPER	Printer out of paper

HW_ERR_PRINTER_FAULT	Printer general fault
HW_ERR_REQUIRE_SETTLEMENT	Batch settlement (Batch Close) must be performed first before proceeding
HW_ERR_TXN_NOT_FOUND	Original transaction record not found (commonly used for refund or reversal)
HW_ERR_USER_CANCELLED	Operator/User manually cancelled the transaction
HW_ERR_FALLBACK_REQUIRED	Chip reading failed, fallback to magnetic stripe required

Revision

Version	Description	Date & Author
1.0.0	Create First Version	20210302 fengshuopeng
1.0.1	Add transaction type Add currency and reserved fields in content	20210308 fengshuopeng
1.0.2	Update Transaction Request/Response content	20210326 fengshuopeng
1.0.3	Add "InvoiceNum" for transaction response	20211216 fengshuopeng
1.0.4	Add "SkipConfirmProcedure" in request	20220615 fengshuopeng
1.0.5	Add "DccFee", "DccExchangeRate", "DccMarkUp", "DccFooterText", "Sequence" "EntryMode", "PaymentType" in response	20230829 fengshuopeng
1.0.6	Add cancel request/response	20231017 fengshuopeng
1.0.7	Add " TransResult" in response	20240619 fengshuopeng
2.0.0	Update version to 0x02, request/response fields update	20240715 fengshuopeng
2.0.1	Add "BusinessNum", "TerminalNum", "TaxAmount", "DutyFreeAmount", "AdditionalInfo" in request, add "ApprovalCode", "TaxAmount", "DutyFreeAmount", "AdditionalInfo" in response	20240905 fengshuopeng
2.0.2	Add "OriTransDate", "OriTransTime" in request	20240912 fengshuopeng
2.0.3	Add QR scheme	20241010 fengshuopeng
2.0.4	Add Some TransType	20250218 nihailiang
2.0.5	Add Data Format CTRL Add Setting Request And Response	20250305 nihailiang
2.0.6	Add SkipUI in REQUEST for skip payment APP UI	20250320 nihailiang

2.0.7	Add the transaction type "ReadCard", and return the card unique identifier "CardUniqueld".	20250320 nihailiang
2.0.8	Add the "AdditionalInfo" request parameters Simplex, Simplify, SN. Add the "OriAuthCode" field to the request parameters. Suggestions on adding transaction amount standards	20250901 wukaikai
2.0.9	Add liquid Pay - related fields such as goodsInfoList, OrderNum, OrderInfo, OrderQuantity, OrderUnitPrice, VoidReason, and TransactionId.	20250909 wukaikai
2.0.10	Add the BatchNum field to the response.	20251016 wukaikai
2.1.0	Add the type OPC to TransType. Request to add the fields opcAction and openResult. Response to add the fields action, opcVersionName and opcVersionCode.	20251021 wukaikai
2.2.0	Add setting parameters and setting callbacks.	20251031 wukaikai
2.2.3	Add the HasMSR field to the GetPosInfo command for return. Add the OPC active notification command to the vending machine.	20251208 wukaikai
2.2.4	Set parameters to add the AppHide field.	20251210 wukaikai
2.2.5	Add the EnableReceipt field to the transaction request.	20251211 wukaikai
2.2.6	The transaction type has added getLastSettleInfo, and the returned data has added the field batchDetailInfo.	20251217 wukaikai
2.2.7	Add the CallerStatusChange type to OpcAction. Add DOOR_CLOSE_SUCCESS, SHIPMENT_SUCCESS, and SHIPMENT_FAILURE to the CallerStatus field.	20260107 wukaikai
2.3.0	Increase information collection	20260122 wukaikai
2.3.1	Request to add NeedSignature field, response to SignatureImage field	20260128 wukaikai
2.3.2	The TransType class now includes PrintByInvoice.	20260211 wukaikai
2.3.3	Add Deferred related fields	20260211 wukaikai
2.3.4	The GetPosInfo API is updated to return additional fields: PosNetworkAvailable, PaymentConfigured, and PaymentAppInstalled. A POS restart command is also added.	20260226 wukaikai
2.3.5	Add the unified return fields: UnifiedCategory and UnifiedCode.	20260320 wukaikai

2.3.6	Update CardUniqueld field description.	20260324 wukaikai
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