

Cloud9 PDC SDK Guide

Revision History

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1. Overview

Cloud9 Payment Gateway provides a simple method of processing payment transactions for merchants who want to integrate payment processing with their existing applications. The Cloud9 Payment Gateway processes credit card, debit card and Electronic Benefits Transfer (EBT) transactions. Transactions are accepted from various industries including: retail, restaurant, mail order/telephone order, lodging, and E-comm.

This document describes how to write your own application for processing payment transactions or integrate payment processing capabilities into an existing application.

1.1 System Requirements

The Software Development Kit (SDK) does not require any special system requirements for usage. You are free to develop your application using any desired tools on any operating platform.

1.2 Software Development Kit (SDK)

The Software Development Kit, which includes this document, provides the guidance for developing an application that can send card-based payment transactions to the Cloud9 Payment Gateway and receive the response returned by the Cloud9 Payment Gateway. The methods of communicating with the Cloud9 Payment Gateway are through Simple Object Access Protocol (SOAP).

An itemized list of the contents of the SDK includes:

- Cloud9 PDC SDK Guide (this document)
- XML Schema (PosGatewayService.wsdl)
- SoapUI Sample XML Messages

1.3 Audience

This document is for Software Developers that need guidelines and procedures for processing transactions within the Cloud9 Payment Gateway.

1.4 Simple Object Access Protocol (SOAP)

To simplify the message specification, the Heartland Portico Gateway uses the SOAP for its message delivery. SOAP is a protocol for exchanging XML-based messages over a computer network. It provides a method of communication between applications running in different environments.

- A SOAP message is simply an XML document that contains the following elements:
- A required **Envelope** element that identifies the XML document as a SOAP message.
- An optional **Header** element that contains header information.
- A required **Body** element that contains call and response information.
- An optional **Fault** element that provides information about errors that occur during the processing of a message.

All of these elements are declared in the default namespace for the SOAP envelope. For more details, refer to <http://www.w3.org/2001/12/soap-envelope>.

The default namespace for SOAP encoding and data types is: <http://www.w3.org/2001/12/soap-encoding>.

1.5 Connectivity

To simplify development, the Cloud9 Payment Gateway provide a middleware called PDC to communicate with Payment Gateway. The connectivity method to the Cloud9 Payment Gateway is through the Internet.

1.6 Security

Each type of message uses a secure socket connection to ensure the confidentiality of information passed between the merchant and Cloud9 Payment Exchange. By doing this, credit card information is never accessible to external entities.

2. Transaction Type

2.1 Sale

A **Sale** transaction authorizes a sale purchased. This action decreases the cardholder's limit to buy. It authorizes a transfer of funds from the cardholder's account to merchant's account.

2.2 Auth

An **Auth** transaction places a temporary hold on the customer's account. Approvals on authorizations are used later to transfer funds by Finalize or AddTip.

2.3 Inquiry

An **Inquiry** transaction is used to query the balance amount of a card.

2.4 Refund

A **Refund** transaction is used to authorize a refund to a customer's credit card account.

2.5 Finalize

A **Finalize** transaction is used to change an Auth transaction to sale transaction.

2.6 AddTip

An **AddTip** transaction is used to add an additional amount to an original transaction, Auth or Sale. If the original transaction is Auth, this operation transfers the Auth to Sale.

2.7 Modify

A **Modify** transaction is used to alter the transaction amount of an original transaction, Auth or Sale.

2.8 Adjust

A **Adjust** transaction is used to alter the transaction amount of an original transaction whether or not it has been settled, Auth or Sale.

2.9 Void

A **Void** transaction is used to cancel an authorized transaction before it has been settled.

2.10 Reverse

A **Reverse** transaction is used to cancel an authorized transaction whether or not it has been settled.

2.11 Batch

A **Batch** transaction is used to close the current open batch and settle it. It is supported by terminal capture only. For host capture, merchant don't need submit batch request.

2.12 UpdateCardTokenInfo

A **UpdateCardTokenInfo** transaction is used to update card token information. It supports update ExpDate, CustomerAddress, CustomerZipCode.

2.13 DeleteCardToken

A **DeleteCardToken** transaction is used to delete exist card token.

2.14 CreateCardToken

A **CreateCardToken** transaction is used to create card token.

2.15 Verify

A **Verify** transaction is used to judge the card is valid.

2.16 Register

A **Register** transaction is used to associate Pin pad's serial number with GMID/GTID. This transaction only supported in the EMV, QuickChip endpoint.

2.17 Unregister

A **Unregister** transaction is used to unlink Pin pad's serial number from GMID/GTID and deactivate GMID/GTID. This transaction only supported in the EMV, QuickChip endpoint.

2.18 GetStatus

A **GetStatus** transaction is used to judge whether Pin pad is available. This transaction only supported in the EMV, QuickChip endpoint

2.19 AskNumberQuestion

A **AskNumberQuestion** transaction is used to get user input on the Pin pad. This transaction only supported in the EMV, QuickChip endpoint

2.20 AskSelectionQuestion

A **AskSelectionQuestion** transaction is used to get user selection results on the Pin pad. This transaction only supported in the EMV, QuickChip endpoint

2.21 ShowMessage

A **ShowMessage** transaction is used to display message on the Pin pad. This transaction only supported in the EMV, QuickChip endpoint

2.22 UploadImage

A **UploadImage** transaction is used to upload image to the Pin pad. This transaction only supported in the EMV, QuickChip endpoint

2.23 SetImageList

A **SetImageList** transaction is used to set up the index of images that need to be displayed on the Pin pad. This transaction only supported in the EMV, QuickChip endpoint

2.24 UploadMessage

A **UploadMessage** transaction is used to permanently replace built-in message in Pin pad. Even if restart the Pin pad. A reboot is required following UploadMessage. This transaction only supported in the EMV, QuickChip endpoint

2.25 ResetMessage

A **ResetMessage** transaction is used to restore built-in message in Pin pad. A reboot is required following **ResetMessage**. This transaction only supported in the EMV, QuickChip endpoint

2.26 RebootDevice

A **RebootDevice** transaction is used to restart Pin pad. This transaction only supported in the EMV, QuickChip endpoint

3. Information Overview

3.1 Amount

The Amount is calculated by the lowest denomination value of currency. For U.S./National applications, the lowest currency value is pennies and a transaction for one dollar is 100 pennies.

3.2 Partial authorization

The AllowsPartialAuth must be "Y" if the terminals support partial authorization. The Partial authorization can't be differentiated by the status field. The terminals must check AuthAmt when partial authorization is enable. If the AuthAmt is less than the amount you submit, the transaction is a partial authorization.

4. Data Groups

This chapter provides detailed information for data groups of SOAP message. A data group consists of multiple fields.

4.1 Configure Group

NOTE: This subgroup is used for all transactions.

| Field Name | Data Type | Usage | Description |
|------------|-----------|----------|--|
| GMID | String | Required | Merchant identifier Assigned by Cloud9 Payment Systems Administrator during registration |
| GTID | String | Required | Merchant's terminal identifier |

| | | | |
|-------------------|--------|----------|---|
| | | | Assigned by Cloud9 Payment Systems Administrator during registration This field is Optional when doing Register. |
| GMPW | String | Required | Merchant password Required only for Refund transactions. Not checked for all other transactions. |
| AllowsPartialAuth | String | Optional | Indicates whether partial authorization is allowed Valid values = Y or N Default is "N" |

4.2 Request Amount Group

NOTE: This subgroup is only used for Auth/Sale/Refund/Addtip transactions.

| Field Name | Data Type | Usage | Description |
|----------------|--------------|----------|---|
| MainAmt | Unsigned Int | Optional | Primary charge amount Total digits = 12 |
| TipAmt | Unsigned Int | Optional | Tip amount that is in addition to the main amount.Total digits = 12 |
| IncTaxAmt | Unsigned Int | Optional | Tax amount that is included in the main amount.Total digits = 12 |
| IncCashBackAmt | Unsigned Int | Optional | Cash back amount that is included in the main amount Total digits = 12 |
| TaxIndicator | String | Optional | Additional Information about TaxAmt Valid values = "Ntprvd", "NonTax" and "Prvded" Default is " Prvded" |

4.3 Action Group

NOTE: This subgroup is used for all transactions.

| Field Name | Data Type | Usage | Description |
|-----------------|-----------|----------|---|
| TransType | String | Required | Transaction Type Valid values include: Auth Sale Finalize Addtip Void Reverse Refund Inquiry Modify Batch UpdateCardTokenInfo(available in JSON request) DeleteCardToken(available in JSON request) CreateCardToken(available in JSON request) Verify Register Unregister GetStatus AskNumberQuestion AskSelectionQuestion ShowMessage ResetMessage RebootDevice |
| IsOffline | String | Optional | Indicates whether is an offline transaction Valid values = Y or N Default is "N" |
| CreditOnFailure | String | Optional | Indicates whether do force void transaction. Valid values = Y or N Default is "N" |

4.4 Request Extend Info. Group

| Field Name | Data | Usage | Description |
|------------|------|-------|-------------|
|------------|------|-------|-------------|

| | Type | | |
|---------------|--------|----------|--|
| InvoiceNum | String | Optional | Invoice Number |
| OrderNum | String | Optional | Order Number Only used for purchase card |
| AuthCode | String | Optional | Offline auth code Only used for offline transaction |
| VoucherNum | String | Optional | Voucher serial number Only used for offline EBT transaction |
| AddtionalInfo | String | Optional | Reserved for future use. Data is delimited by a FS (0x1c) and is formatted as follows: Key=Value0x1cKey=Value0x1cKey=Value... |

4.5 Trace Group

NOTE: This subgroup is used for all transactions.

| Field Name | Data Type | Usage | Description |
|----------------|-----------|----------|--|
| SourceTraceNum | String | Optional | Source Trace number Provided by the merchant and it uniquely identifies a transaction. |
| GTRC | String | Optional | Gateway trace It is a unique trace number assigned to a transaction by Cloud9 payment and returned in the response message. The POS must submit it back for Void/Addtip/Finalize etc based previous transactions. |

4.6 Request Card Info. Group

NOTE: This subgroup is only used when card info is from POS, not PDC.
And the item, NeedSwipCard, must be "N".

| Field Name | Data Type | Usage | Description |
|------------|-----------|----------|---|
| Medium | String | Optional | Card Type. Must be present when card info is from POS. Valid values include: Credit/ Debit /EBTFood/EBTCash/Prepaid/Gift/ ElectronicCheck |
| AccountNum | String | Optional | Card number. Maximum length = 22. Must be present when card info is from POS and encrypted. |
| ExpDate | String | Optional | Card expiration Date MMY. Must be present when card info is from POS and encrypted. |
| EntryMode | String | Optional | Entry Mode. Must be present when NeedSwipCard is "N". Valid values include: Swipe/ Manual/ Proximity/ ChipContact/ ChipContactless/ EMVFallback2Swip |
| CVVNum | String | Optional | Card verification code on the card Maximum length = 6 |
| Track1 | String | Optional | full magnetic Track I data read from the card by a card reader. |
| Track2 | String | Optional | full magnetic Track II data read from the card by a card reader. |

| | | | |
|------------------|-------------------|----------|---|
| PinData | PINGrp | Optional | Must be present when Pin is passed |
| EncryptionData | EncryptionDataGrp | Optional | Must be present when account number is encryptrd |
| CardPresent | String | Optional | Indicates whether is card is present Valid values = Y or N.Default is "Y" |
| CommercialCard | String | Optional | Indicates whether is card is Commercial Card. Valid values = Y or N. Default is "Y" |
| CardToken | String | Optional | It can replace AccountNum and ExpDate. Only support in json request. |
| RequestCardToken | String | Optional | Indicates whether server return CardToken Valid values = Y or N. Default is "N". Only support in json request. |
| CustomerName | String | Optional | Cardholder's name. |
| CustomerZipCode | String | Optional | Cardholder's billing zip code. |
| CustomerAddress | String | Optional | Cardholder's billing address. |

4.7 Request Terminal Info. Group

| Field Name | Data Type | Usage | Description |
|--------------|-----------|----------|---|
| SN | String | Optional | Pin pad's serial number. Used in Register, Unregister request. Valid values: Full serial number: 14281PP81035776 Last 8 digit of serial number: 81035776 |
| MessageIndex | String | Optional | Index of question display on the pin pad. Used in AskNumberQuestion Valid values: 001: Please enter your home phone number 002: Please enter your 10-digit HOME phone number 003: Please enter your date of birth 004: Please Enter ZIP Code 010: Enter Card Number 011: Enter Expiration Date 012: Enter CVV or CID from card Used in UploadMessage Valid value : 1001: replace built-in message "Lane Closed" |
| MessageText | String | Optional | Text to be displayed on pin pad. Used in AskSelectionQuestion, ShowMessage. UploadMessage Maximum length = 30 |
| ImageData | String | Optional | Base64 encode image |
| ImageLength | String | Optional | The length of image data |
| ImageList | String | Optional | The ID list of image that needs to be displayed on the PinPad Valid values: |

| | | | |
|--|--|--|--|
| | | | 001 002 003 004 005 006 007 008 009 010 012 013 |
|--|--|--|--|

4.8 Encryption Data Group

| Field Name | Data Type | Usage | Description |
|--------------|-----------|----------|--|
| KeyID | String | Optional | This is an identifier used to retrieve the private key, which is required for decryption. |
| EncriptTrgt | String | Optional | Indicates the type of data that is being encrypted. Valid Values = Track1 ,Track2 and PAN |
| EncriptBlock | String | Optional | Contains the track data or card number provided in an encrypted block. Be Present when card data is encrypted. |

4.9 PIN Group

| Field Name | Data Type | Usage | Description |
|------------|-----------|----------|--|
| PinBlock | String | Optional | Contains the Encrypted PIN Block for the Debit or EBT transaction being submitted |
| KSN | String | Optional | used to create the base PIN encryption key for DUKPT PIN Debit and EBT transactions. Mandatory for PIN Debit and EBT transactions. |

4.10 Result Group

| Field Name | Data Type | Usage | Description |
|---------------|-----------|----------|---|
| AuthCode | String | Optional | Auth code is assigned by the association, issuing bank, or Debit/EBT network. |
| Status | String | Required | Indicates whether transaction success. Valid values include fail, success, timeout, cancel and invalidData. |
| ResponseCode | String | Required | The host response to a string number to indicate the status of the transaction. |
| ResponseText | String | Required | The host response to a message to describe the status of the transaction. |
| ErrorCode | String | Required | The host response to a string number to indicate the status of the transaction. |
| ErrorText | String | Required | The host response to a message to describe the status of the transaction. |
| AVSResultCode | String | Optional | If address verification requested, address verification result code returned by the Issuer |
| CCVResultCode | String | Optional | If card verification was provided in the request, card verification result code provided by the Issuer |

4.11 Response Amount Group

| Field Name | Data Type | Usage | Description |
|------------|-----------|-------|-------------|
|------------|-----------|-------|-------------|

| | | | |
|------------|--------------|----------|---|
| AuthAmt | Unsigned Int | Optional | Approval amount |
| BalanceAmt | Unsigned Int | Optional | If supplied from the Issuer, the available balance on the associated prepaid, EBT, or gift card |

4.12 Response Card Info.

| Field Name | Data Type | Usage | Description |
|------------|-----------|----------|---|
| Medium | String | Optional | Card Type. Valid values include: Credit/ Debit /EBTFood/EBT- Cash/Prepaid/Gift |
| Brand | String | Optional | Card brand Valid values include: Visa/Master/Discover/Amex /JCB/DinersClub |
| AccountNum | String | Optional | Card number Maximum length = 22 |
| CardToken | String | Optional | Card token Set RequestCardToken in the request, server will return it. |
| ExpDate | String | Optional | Card expiration Date MMY. |

4.13 Response Terminal Info.

| Field Name | Data Type | Usage | Description |
|--------------|-----------|----------|--|
| SN | String | Optional | Pin pad's serial number. The last 8 digit of full serial number. |
| DeviceStatus | String | Optional | Pin pad status. Valid values ON/OFF/BUSY |

5. XML Message Sample

5.1 Sale

5.1.1 Sale Request

```

<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:sof="http://www.911software.com/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <sof:Request>
      <Request>
        <Config>
          <GMID>03</GMID>
          <GTID>03</GTID>
          <GMPW>03</GMPW>
          <AllowsPartialAuth>N</AllowsPartialAuth>
        </Config>
        <Amount>
          <MainAmt>500</MainAmt>
          <TipAmt>100</TipAmt>
        </Amount>
        <ExtInfo>
          <InvoiceNum>000004</InvoiceNum>
        </ExtInfo>
        <Action>
          <Trans Type>Sale</Trans Type>
          <IsOffline>N</IsOffline>
        </Action>
        <Trace>
          <SourceTraceNum>000004</SourceTraceNum>
        </Trace>
        <NeedSwipCard>Y</NeedSwipCard>
      </Request>
    </sof:Request>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

5.1.2 Sale Response


```

<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:ns1="http://www.911software.com/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns1:Response>
      <Response>
        <GTRC>9bcf4291f79640caa2bb7fc6e780f5e0</GTRC>
        <Result>
          <AuthCode>40991A</AuthCode>
          <Status>success</Status>
          <ResponseCode>00</ResponseCode>
          <ResponseText>APPROVAL</ResponseText>
        </Result>
        <CardInfo>
          <Medium>Credit</Medium>
          <Brand>Visa</Brand>
          <AccountNum>40*****0016</AccountNum>
        </CardInfo>
        <Amount>
          <AuthAmt>600</AuthAmt>
        </Amount>
        <ExtInfo>
          <EntryMode>Manual</EntryMode>
        </ExtInfo>
      </Response>
    </ns1:Response>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

5.2 Offline-Sale

5.2.1 Offline-Sale Request

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:sof="http://www.911software.com/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <sof:Request>
      <Request>
        <Config>
          <GMID>03</GMID>
          <GTID>03</GTID>
          <GMPW>03</GMPW>
          <AllowsPartialAuth>N</AllowsPartialAuth>
        </Config>
        <Amount>
          <MainAmt>1000</MainAmt>
          <TipAmt>200</TipAmt>
        </Amount>
        <ExtInfo>
          <InvoiceNum>000005</InvoiceNum>
          <AuthCode>123456</AuthCode>
        </ExtInfo>
        <Action>
          <Trans Type>Sale</Trans Type>
          <IsOffline>Y</IsOffline>
        </Action>
        <Trace>
          <SourceTraceNum>000005</SourceTraceNum>
        </Trace>
        <NeedSwipCard>Y</NeedSwipCard>
      </Request>
    </sof:Request>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

5.2.2 Offline-Sale Response

```

<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:ns1="http://www.911software.com/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns1:Response>
      <Response>
        <GTRC>166c0d1749c04da79f7ab73cc5a99c42</GTRC>
        <Result>
          <AuthCode>123456</AuthCode>
          <Status>success</Status>
          <ResponseCode>0</ResponseCode>
          <ResponseText>Success</ResponseText>
        </Result>
        <CardInfo>
          <Medium>Credit</Medium>
          <Brand>Visa</Brand>
          <AccountNum>40*****0016</AccountNum>
        </CardInfo>
        <Amount>
          <AuthAmt>1200</AuthAmt>
        </Amount>
        <ExtInfo>
          <EntryMode>Manual</EntryMode>
        </ExtInfo>
      </Response>
    </ns1:Response>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

5.3 Sale (Card Info. From POS)

5.3.1 Sale Request

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:sof="http://www.911software.com/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <sof:Request>
      <Request>
        <Config>
          <GMID>03</GMID>
          <GTID>03</GTID>
          <GMPW>03</GMPW>
          <AllowsPartialAuth>N</AllowsPartialAuth>
        </Config>
        <Amount>
          <MainAmt>1000</MainAmt>
          <TipAmt>100</TipAmt>
        </Amount>
        <Action>
          <Trans Type>Sale</Trans Type>
          <IsOffline>N</IsOffline>
        </Action>
        <Trace>
          <SourceTraceNum>000017</SourceTraceNum>
        </Trace>
        <CardInfo>
          <Medium>Credit</Medium>
          <AccountNum>4012002000060016</AccountNum>
          <ExpDate>1225</ExpDate>
          <CWNum>123</CWNum>
        </CardInfo>
        <NeedSwipCard>N</NeedSwipCard>
      </Request>
    </sof:Request>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

5.3.2 Sale Response

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:ns1="http://www.911software.com/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns1:Response>
      <Response>
        <GTRC>80239ffb1b75480fbae17db6f73aaa41</GTRC>
        <Result>
          <AuthCode>41001A</AuthCode>
          <Status>success</Status>
          <ResponseCode>00</ResponseCode>
          <ResponseText>APPROVAL</ResponseText>
        </Result>
        <CardInfo>
          <Medium>Credit</Medium>
          <Brand>Visa</Brand>
          <AccountNum>40*****0016</AccountNum>
        </CardInfo>
        <Amount>
          <AuthAmt>1100</AuthAmt>
        </Amount>
        <ExtInfo>
          <EntryMode>Manual</EntryMode>
        </ExtInfo>
      </Response>
    </ns1:Response>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

5.4 Auth

5.4.1 Auth Request

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:sof="http://www.911software.com/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <sof:Request>
      <Request>
        <Config>
          <GMID>03</GMID>
          <GTID>03</GTID>
          <GMPW>03</GMPW>
          <AllowsPartialAuth>N</AllowsPartialAuth>
        </Config>
        <Amount>
          <MainAmt>500</MainAmt>
        </Amount>
        <Action>
          <Trans Type>Auth</Trans Type>
          <IsOffline>N</IsOffline>
        </Action>
        <Trace>
          <SourceTraceNum>000002</SourceTraceNum>
        </Trace>
        <NeedSwipCard>Y</NeedSwipCard>
      </Request>
    </sof:Request>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

5.4.2 Auth Response

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:ns1="http://www.911software.com/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns1:Response>
      <Response>
        <GTRC>890c3415aa224b0b80a3ff95e7b315d8</GTRC>
        <Result>
          <AuthCode>40990A</AuthCode>
          <Status>success</Status>
          <ResponseCode>00</ResponseCode>
          <ResponseText>APPROVAL</ResponseText>
        </Result>
        <CardInfo>
          <Medium>Credit</Medium>
          <Brand>Visa</Brand>
          <AccountNum>40*****0016</AccountNum>
        </CardInfo>
        <Amount>
          <AuthAmt>500</AuthAmt>
        </Amount>
        <ExtInfo>
          <EntryMode>Manual</EntryMode>
        </ExtInfo>
      </Response>
    </ns1:Response>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope
```

5.5 Inquiry

5.5.1 Inquiry Request

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:sof="http://www.911software.com/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <sof:Request>
      <Request>
        <Config>
          <GMID>03</GMID>
          <GTID>03</GTID>
          <GMPW>03</GMPW>
          <AllowsPartialAuth>N</AllowsPartialAuth>
        </Config>
        <Action>
          <Trans Type>Inquiry</Trans Type>
          <IsOffline>N</IsOffline>
        </Action>
        <Trace>
          <SourceTraceNum>000001</SourceTraceNum>
        </Trace>
        <NeedSwipCard>Y</NeedSwipCard>
      </Request>
    </sof:Request>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```


5.5.2 Inquiry Response

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:ns1="http://www.911software.com/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns1:Response>
      <Response>
        <GTRC>0d396c13514e48a4ba0baca203ffe4a4</GTRC>
        <Result>
          <AuthCode>SIM002</AuthCode>
          <Status>success</Status>
          <ResponseCode>00</ResponseCode>
          <ResponseText>APPROVAL</ResponseText>
        </Result>
        <CardInfo>
          <Medium>EBTCash</Medium>
          <AccountNum>40*****0016</AccountNum>
        </CardInfo>
        <Amount>
          <BalanceAmt>1100</BalanceAmt>
        </Amount>
        <ExtInfo>
          <EntryMode>Swipe</EntryMode>
        </ExtInfo>
      </Response>
    </ns1:Response>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

5.6 Refund

5.6.1 Refund Request

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:sof="http://www.911software.com/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <sof:Request>
      <Request>
        <Config>
          <GMID>03</GMID>
          <GTID>03</GTID>
          <GMPW>03</GMPW>
          <AllowsPartialAuth>N</AllowsPartialAuth>
        </Config>
        <Amount>
          <MainAmt>1000</MainAmt>
        </Amount>
        <Action>
          <Trans Type>Refund</Trans Type>
          <IsOffline>N</IsOffline>
        </Action>
        <ExtInfo>
          <OrderNum>000005</OrderNum>
        </ExtInfo>
        <Trace>
          <SourceTraceNum>000033</SourceTraceNum>
        </Trace>
        <NeedSwipCard>Y</NeedSwipCard>
      </Request>
    </sof:Request>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

5.6.2 Refund Response

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:ns1="http://www.911software.com/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns1:Response>
      <Response>
        <GTRC>1e637663560a4baf8a2e417a0f541504</GTRC>
        <Result>
          <Status>success</Status>
          <ResponseCode>0</ResponseCode>
          <ResponseText>Success</ResponseText>
        </Result>
        <CardInfo>
          <Medium>Credit</Medium>
          <Brand>Visa</Brand>
          <AccountNum>40*****0016</AccountNum>
        </CardInfo>
        <Amount>
          <AuthAmt>1000</AuthAmt>
        </Amount>
        <ExtInfo>
          <EntryMode>Manual</EntryMode>
        </ExtInfo>
      </Response>
    </ns1:Response>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

5.7 Finalize

5.7.1 Finalize Request

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:sof="http://www.911software.com/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <sof:Request>
      <Request>
        <Config>
          <GMID>03</GMID>
          <GTID>03</GTID>
          <GMPW>03</GMPW>
          <AllowsPartialAuth>N</AllowsPartialAuth>
        </Config>
        <Action>
          <Trans Type>Finalize</Trans Type>
          <IsOffline>N</IsOffline>
        </Action>
        <Trace>
          <SourceTraceNum>000008</SourceTraceNum>
          <GTRC>c407c49517b5478abc6aeb8100e41294</GTRC>
        </Trace>
        <NeedSwipCard>Y</NeedSwipCard>
      </Request>
    </sof:Request>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

5.7.2 Finalize Response

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:SOAP-ENC="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:ns1="http://www.911software.com/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns1:Response>
      <Response>
        <GTRC>c407c49517b5478abc6aeb8100e41294</GTRC>
        <Result>
          <AuthCode>40992A</AuthCode>
          <Status>success</Status>
          <ResponseCode>0</ResponseCode>
          <ResponseText>Success</ResponseText>
        </Result>
        <Amount>
          <AuthAmt>1500</AuthAmt>
        </Amount>
      </Response>
    </ns1:Response>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

5.8 AddTip

5.8.1 AddTip Request

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:sof="http://www.911software.com/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <sof:Request>
      <Request>
        <Config>
          <GMID>03</GMID>
          <GTID>03</GTID>
          <GMPW>03</GMPW>
          <AllowsPartialAuth>N</AllowsPartialAuth>
        </Config>
        <Amount>
          <TipAmt>300</TipAmt>
        </Amount>
        <Action>
          <Trans Type>AddTip</Trans Type>
          <IsOffline>N</IsOffline>
        </Action>
        <Trace>
          <SourceTraceNum>000010</SourceTraceNum>
          <GTRC>ba3edccabf914c6684f4d9e4d71df0bf</GTRC>
        </Trace>
        <NeedSwipCard>Y</NeedSwipCard>
      </Request>
    </sof:Request>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

5.8.2 AddTip Response

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:ns1="http://www.911software.com/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns1:Response>
      <Response>
        <GTRC>ba3edccabf914c6684f4d9e4d71df0bf</GTRC>
        <Result>
          <AuthCode>40994A</AuthCode>
          <Status>success</Status>
          <ResponseCode>0</ResponseCode>
          <ResponseText>Success</ResponseText>
        </Result>
        <Amount>
          <AuthAmt>1500</AuthAmt>
        </Amount>
      </Response>
    </ns1:Response>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

5.9 Void

5.9.1 Void Request

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:sof="http://www.911software.com/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <sof:Request>
      <Request>
        <Config>
          <GMID>03</GMID>
          <GTID>03</GTID>
          <GMPW>03</GMPW>
          <AllowsPartialAuth>N</AllowsPartialAuth>
        </Config>
        <Action>
          <Trans Type>Void</Trans Type>
          <IsOffline>N</IsOffline>
        </Action>
        <Trace>
          <SourceTraceNum>000014</SourceTraceNum>
          <GTRC>abb12a0bee0f4923b6e627a6cb72b774</GTRC>
        </Trace>
        <NeedSwipCard>Y</NeedSwipCard>
      </Request>
    </sof:Request>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```


5.9.2 Void Response

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:ns1="http://www.911software.com/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns1:Response>
      <Response>
        <GTRC>abb12a0bee0f4923b6e627a6cb72b774</GTRC>
        <Result>
          <AuthCode>40998A</AuthCode>
          <Status>success</Status>
          <ResponseCode>0</ResponseCode>
          <ResponseText>Success</ResponseText>
        </Result>
        <Amount>
          <AuthAmt>1600</AuthAmt>
        </Amount>
      </Response>
    </ns1:Response>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

5.10 Modify

5.10.1 Modify Request

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:sof="http://www.911software.com/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <sof:Request>
      <Request>
        <Config>
          <GMID>03</GMID>
          <GTID>03</GTID>
          <GMPW>03</GMPW>
          <AllowsPartialAuth>N</AllowsPartialAuth>
        </Config>
        <Amount>
          <MainAmt>1500</MainAmt>
          <TipAmt>300</TipAmt>
        </Amount>
        <Action>
          <TransType>Modify</TransType>
          <IsOffline>N</IsOffline>
        </Action>
        <Trace>
          <SourceTraceNum>000012</SourceTraceNum>
          <GTRC>3b507866bdf746c0807bd89536e60bda</GTRC>
        </Trace>
        <NeedSwipCard>Y</NeedSwipCard>
      </Request>
    </sof:Request>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

5.10.2 Modify Response

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:SOAP-ENC="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:ns1="http://www.911software.com/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns1:Response>
      <Response>
        <GTRC>3b507866bdf746c0807bd89536e60bda</GTRC>
        <Result>
          <AuthCode>40995A</AuthCode>
          <Status>success</Status>
          <ResponseCode>0</ResponseCode>
          <ResponseText>Success</ResponseText>
        </Result>
        <Amount>
          <AuthAmt>1100</AuthAmt>
        </Amount>
      </Response>
    </ns1:Response>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

5.11 Batch

5.11.1 Batch Request

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:sof="http://www.911software.com/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <sof:Request>
      <Request>
        <Config>
          <GMID>03</GMID>
          <GTID>03</GTID>
          <GMPW>03</GMPW>
          <AllowsPartialAuth>N</AllowsPartialAuth>
        </Config>
        <Action>
          <Trans Type>Batch</Trans Type>
          <IsOffline>N</IsOffline>
        </Action>
        <Trace>
          <SourceTraceNum>000015</SourceTraceNum>
        </Trace>
        <NeedSwipCard>Y</NeedSwipCard>
      </Request>
    </sof:Request>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

5.11.2 Batch Response

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:SOAP-ENC="http://schemas.xmlsoap.org/soap/encoding/"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:ns1="http://www.911software.com/">
  <SOAP-ENV:Header/>
  <SOAP-ENV:Body>
    <ns1:Response>
      <Response>
        <GTRC/>
        <Result>
          <Status>success</Status>
          <ResponseCode>0</ResponseCode>
          <ResponseText>Success</ResponseText>
        </Result>
        <Amount>
          <AuthAmt>0</AuthAmt>
        </Amount>
      </Response>
    </ns1:Response>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

6. JSON Message Sample

6.1 Sale

6.1.1 Sale Request

```
{
  "GMID": "05",
  "GTID": "05",
  "GMPW": "123",
  "AllowsPartialAuth": "N",
  "MainAmt": "500",
  "TipAmt": "100",
  "InvoiceNum": "000004",
  "Trans Type": "Sale",
  "IsOffline": "N",
  "SourceTraceNum": "000004",
  "NeedSwipCard": "Y"
}
```

6.1.2 Sale Response

```
{
  "AccountNum": "401200*****0016",
  "AuthAmt": "600",
  "AuthCode": "37979A",
  "Brand": "Visa",
  "EntryMode": "Swipe",
  "GMID": "1001395732",
  "GMPW": "123",
  "GTID": "GT1001395735",
  "GTRC": "c98bbe85ff8942f5b787e33e7b1b54a3",
  "Medium": "Credit",
  "ResponseCode": "00",
  "ResponseText": "APPROVAL",
  "Status": "success"
}
```

6.2 Offline-Sale

6.2.1 Offline-Sale Request

```
{
  "GMID": "05",
  "GTID": "05",
  "GMPW": "123",
  "AllowsPartialAuth": "N",
  "MainAmt": "1000",
  "TipAmt": "200",
  "InvoiceNum": "000005",
  "AuthCode": "123456",
  "TransType": "Sale",
  "IsOffline": "Y",
  "SourceTraceNum": "000005",
  "NeedSwipCard": "Y"
}
```

6.2.2 Offline-Sale Response

```
{
  "AccountNum": "401200*****0016",
  "AuthAmt": "1200",
  "AuthCode": "123456",
  "Brand": "Visa",
  "EntryMode": "Swipe",
  "GMID": "1001395732",
  "GMPW": "123",
  "GTID": "GT1001395735",
  "GTRC": "21d3bc44239a498db5f2b8604c015e80",
  "Medium": "Credit",
  "ResponseCode": "0",
  "ResponseText": "Success",
  "Status": "success"
}
```

6.3 Sale (Card Info. From POS)

6.3.1 Sale Request with AccountNum

```
{
  "GMID": "05",
  "GTID": "05",
  "GMPW": "03",
  "TransType": "Sale",
  "Medium": "Credit",
  "AccountNum": "4788250000028291",
  "ExpDate": "1222",
  "MainAmt": "1001",
  "TipAmt": "212",
  "IncTaxAmt": "153",
  "EntryMode": "Manual",
  "NeedSwipeCard": "N"
}
```

6.3.2 Sale Response with AccountNum

```
{
  "AccountNum": "478825*****8291",
  "AuthAmt": "1213",
  "AuthCode": "TAS110",
  "Brand": "Visa",
  "ErrorCode": "000",
  "ErrorText": "APPROVAL TAS110 ",
  "ExpDate": "1222",
  "GMID": "05",
  "GMPW": "03",
  "GTID": "05",
  "GTRC": "1b9d6a04dab84eda9aacc051c1e10ac6",
  "Medium": "Credit",
  "ResponseCode": "00",
  "ResponseText": "APPROVAL TAS110 ",
  "Status": "success"
}
```


6.3.3 Sale Request with TrackData

```
{
  "GMD": "05",
  "GTID": "05",
  "GMPW": "03",
  "TransType": "Sale",
  "Medium": "Credit",
  "Track2": ";4788250000028291=22121015432112345678?",
  "MainAmt": "1001",
  "TipAmt": "212",
  "IncTaxAmt": "153",
  "EntryMode": "Swipe",
  "NeedSwipeCard": "N"
}
```

6.3.4 Sale Response with TrackData

```
{
  "AccountNum": "478825*****8291",
  "AuthAmt": "1213",
  "AuthCode": "TAS116",
  "Brand": "Visa",
  "ErrorCode": "000",
  "ErrorText": "APPROVAL TAS116 ",
  "ExpDate": "1222",
  "GMD": "05",
  "GMPW": "03",
  "GTID": "05",
  "GTRC": "bff1000f88a0415cbd9ae0c2239ed97d",
  "Medium": "Credit",
  "ResponseCode": "00",
  "ResponseText": "APPROVAL TAS116 ",
  "Status": "success"
}
```

6.4 Sale (Card Token)

6.4.1 Sale Request

```
{
  "GMID": "05",
  "GTID": "05",
  "GMPW": "03",
  "TransType": "Sale",
  "Medium": "Credit",
  "CardToken": "51904a0c96c14887a4044170229ee5c3",
  "MainAmt": "1001",
  "TipAmt": "212",
  "IncTaxAmt": "153",
  "EntryMode": "Manual",
  "NeedSwipeCard": "N"
}
```

6.4.2 Sale Response

```
{
  "AccountNum": "401200*****5439",
  "AuthAmt": "1213",
  "AuthCode": "TAS119",
  "Brand": "Visa",
  "CardToken": "51904a0c96c14887a4044170229ee5c3",
  "ErrorCode": "000",
  "ErrorText": "EXACT MATCH  ",
  "ExpDate": "1220",
  "GMID": "05",
  "GMPW": "03",
  "GTID": "05",
  "GTRC": "3bd7701791494201b325d6cd594b8df3",
  "Medium": "Credit",
  "ResponseCode": "00",
  "ResponseText": "EXACT MATCH  ",
  "Status": "success"
}
```

6.5 Auth

6.5.1 Auth Request

```
{
  "GMID": "05",
  "GTID": "05",
  "GMPW": "123",
  "AllowsPartialAuth": "N",
  "MainAmt": "500",
  "Trans Type": "Auth",
  "IsOffline": "N",
  "SourceTraceNum": "000002",
  "NeedSwipCard": "Y"
}
```

6.5.2 Auth Response

```
{
  "AccountNum": "401200*****0016",
  "AuthAmt": "500",
  "AuthCode": "37986A",
  "Brand": "Visa",
  "EntryMode": "Swipe",
  "GMID": "1001395732",
  "GMPW": "123",
  "GTID": "GT1001395735",
  "GTRC": "f83cd5bb63a54f0abefd9f2bb4bd8312",
  "Medium": "Credit",
  "ResponseCode": "00",
  "ResponseText": "APPROVAL",
  "Status": "success"
}
```

6.6 Inquiry

6.6.1 Inquiry Request

```
{
  "GMID": "05",
  "GTID": "05",
  "GMPW": "123",
  "AllowsPartialAuth": "N",
  "Trans Type": "Inquiry",
  "IsOffline": "N",
  "SourceTraceNum": "000001",
  "NeedSwipCard": "Y"
}
```

6.6.2 Inquiry Response

```
{
  "AccountNum": "401200*****0016",
  "AuthAmt": "0",
  "AuthCode": "BALINQ",
  "EntryMode": "Swipe",
  "GMID": "1001396276",
  "GMPW": "123",
  "GTID": "GT1001396279",
  "GTRC": "85197eef8b654fb9bb09c8922848221f",
  "Medium": "Debit",
  "ResponseCode": "00",
  "ResponseText": "000000443322 ",
  "Status": "success"
}
```

6.7 Refund

6.7.1 Refund Request

```
{  
  "GMID": "05",  
  "GTID": "05",  
  "GMPW": "123",  
  "AllowsPartialAuth": "N",  
  "MainAmt": "1000",  
  "TransType": "Refund",  
  "IsOffline": "N",  
  "OrderNum": "000005",  
  "SourceTraceNum": "000033",  
  "NeedSwipCard": "Y"  
}
```

6.7.2 Refund Response

```
{  
  "AccountNum": "401200*****0016",  
  "AuthAmt": "1000",  
  "AuthCode": "273348",  
  "Brand": "Visa",  
  "EntryMode": "Swipe",  
  "GMID": "1001395732",  
  "GMPW": "123",  
  "GTID": "GT1001395735",  
  "GTRC": "3ee1df6b787c452aa5a96db0a50f0567",  
  "Medium": "Credit",  
  "ResponseCode": "0",  
  "ResponseText": "Success",  
  "Status": "success"  
}
```

6.8 Finalize

6.8.1 Finalize Request

```
{  
  "GMID": "05",  
  "GTID": "GT1001395979",  
  "GMPW": "03",  
  "GTRC": "3087c11f59144d84995d681cfb838f77",  
  "Trans Type": "Finalize"  
}
```

6.8.2 Finalize Response

```
{  
  "AccountNum": "478825*****8291",  
  "AuthAmt": "0",  
  "Brand": "Visa",  
  "ErrorCode": "000",  
  "ErrorText": "SUCCESS",  
  "ExpDate": "1222",  
  "GMID": "05",  
  "GMPW": "03",  
  "GTID": "GT1001395979",  
  "GTRC": "3087c11f59144d84995d681cfb838f77",  
  "Medium": "Credit",  
  "ResponseCode": "00",  
  "ResponseText": "SUCCESS",  
  "Status": "success"  
}
```

6.9 AddTip

6.9.1 AddTip Request

```
{  
  "GMID": "05",  
  "GTID": "GT1001395979",  
  "GMPW": "03",  
  "GTRC": "4205a50aef084913bc67e8a3dcda8641",  
  "Trans Type": "AddTip",  
  "TipAmt": "232"  
}
```

6.9.2 AddTip Response

```
{  
  "AccountNum": "478825*****8291",  
  "AuthAmt": "1213",  
  "Brand": "Visa",  
  "ErrorCode": "000",  
  "ErrorText": "SUCCESS",  
  "ExpDate": "1222",  
  "GMID": "05",  
  "GMPW": "03",  
  "GTID": "GT1001395979",  
  "GTRC": "4205a50aef084913bc67e8a3dcda8641",  
  "Medium": "Credit",  
  "ResponseCode": "00",  
  "ResponseText": "SUCCESS",  
  "Status": "success"  
}
```

6.10 Void

6.10.1 Void Request

```
{
  "GMID": "05",
  "GTID": "GT1001395979",
  "GMPW": "03",
  "GTRC": "27f12974e0f242aaaa73a7651c33d21f",
  "Trans Type": "Void"
}
```

6.10.2 Void Response

```
{
  "AccountNum": "478825*****8291",
  "AuthAmt": "0",
  "AuthCode": "TAS139",
  "Brand": "Visa",
  "ErrorCode": "000",
  "ErrorText": "APPROVAL TAS139 ",
  "ExpDate": "1222",
  "GMID": "05",
  "GMPW": "03",
  "GTID": "GT1001395979",
  "GTRC": "27f12974e0f242aaaa73a7651c33d21f",
  "Medium": "Credit",
  "ResponseCode": "00",
  "ResponseText": "APPROVAL TAS139 ",
  "Status": "success"
}
```


6.11 Modify

6.11.1 Modify Request

```
{
  "GMID": "05",
  "GTID": "GT1001395979",
  "GMPW": "03",
  "GTRC": "e11dde4de55542e9822df7951c6a5bd0",
  "Trans Type": "Modify",
  "MainAmt": "1501",
  "TipAmt": "232",
  "IncTaxAmt": "193"
}
```

6.11.2 Modify Response

```
{
  "AccountNum": "478825*****8291",
  "AuthAmt": "0",
  "Brand": "Visa",
  "ErrorCode": "000",
  "ErrorText": "SUCCESS",
  "ExpDate": "1222",
  "GMID": "05",
  "GMPW": "03",
  "GTID": "GT1001395979",
  "GTRC": "e11dde4de55542e9822df7951c6a5bd0",
  "Medium": "Credit",
  "ResponseCode": "00",
  "ResponseText": "SUCCESS",
  "Status": "success"
}
```

6.12 Batch

6.12.1 Batch Request

```
{
  "GMID": "05",
  "GTID": "GT1001395979",
  "GMPW": "03",
  "TransType": "Batch"
}
```

6.12.2 Batch Response

```
{
  "AuthAmt": "0",
  "ErrorCode": "0GB",
  "ErrorText": "TSYS:success\n",
  "GMID": "05",
  "GMPW": "03",
  "GTID": "GT1001395979",
  "ResponseCode": "GB",
  "ResponseText": "TSYS:success\n",
  "Status": "success"
}
```

6.13 Request Card Token

6.13.1 CardToken Request

```
{
  "GMID": "05",
  "GTID": "GT1001395979",
  "GMPW": "03",
  "TransType": "Sale",
  "Medium": "Credit",
  "AccountNum": "4788250000028291",
  "ExpDate": "1222",
  "MainAmt": "1001",
  "TipAmt": "212",
  "IncTaxAmt": "153",
  "EntryMode": "Manual",
  "RequestCardToken": "Y",
  "NeedSwipeCard": "N"
}
```

6.13.2 CardToken Response

```
{
  "AccountNum": "478825*****8291",
  "AuthAmt": "1213",
  "AuthCode": "TAS156",
  "Brand": "Visa",
  "CardToken": "f57ce96996f042488c38698fa0af3cb0",
  "ErrorCode": "000",
  "ErrorText": "APPROVAL TAS156 ",
  "ExpDate": "1222",
  "GMID": "05",
  "GMPW": "03",
  "GTID": "GT1001395979",
  "GTRC": "9010451d187e4ea1985ef59474713bb4",
  "Medium": "Credit",
  "ResponseCode": "00",
  "ResponseText": "APPROVAL TAS156 ",
  "Status": "success"
}
```

6.14 Update Card Token

6.14.1 Update CardToken Request

```
{
  "GMID": "05",
  "GTID": "05",
  "GMPW": "123",
  "Trans Type": "UpdateCardTokenInfo",
  "CardToken": "e814324e9d0d4ccabd3d0e8f142fc21c",
  "ExpDate": "1219",
  "CustomerAddress": "8320",
  "CustomerZipCode": "74254"
}
```

6.14.2 Update CardToken Response

```
{
  "EntryModel": "Unknow",
  "ErrorCode": "100",
  "ErrorText": "No Error",
  "Medium": "UnknowCard",
  "ResponseCode": "00",
  "ResponseText": "No Error",
  "Status": "success"
}
```

6.15 Delete Card Token

6.15.1 Delete CardToken Request

```
{
  "GMID": "05",
  "GTID": "05",
  "GMPW": "123",
  "Trans Type": "DeleteCardToken",
  "CardToken": "f2885df4d232403b8f47885da95b80ae"
}
```

6.15.2 Delete CardToken Response

```
{
  "EntryModel": "Unknow",
  "ErrorCode": "100",
  "ErrorText": "No Error",
  "Medium": "UnknowCard",
  "ResponseCode": "00",
  "ResponseText": "No Error",
  "Status": "success"
}
```

6.16 Create Card Token

6.16.1 Create CardToken Request

```
{
  "GMID": "05",
  "GTID": "05",
  "GMPW": "03",
  "Trans Type": "CreateCardToken",
  "Medium": "Credit",
  "AccountNum": "4012000098765439",
  "ExpDate": "1220",
  "CustomerZipCode": "85284",
  "CustomerAddress": "8320",
  "NeedSwipeCard": "N"
}
```

6.16.2 Create CardToken Response

```
{
  "AccountNum": "401200*****5439",
  "AuthAmt": "0",
  "AuthCode": "PREATH",
  "Brand": "Visa",
  "CardToken": "51904a0c96c14887a4044170229ee5c3",
  "ErrorCode": "085",
  "ErrorText": "EXACT MATCH  ",
  "ExpDate": "1220",
  "GMID": "05",
  "GMPW": "03",
  "GTID": "GT1001395979",
  "GTRC": "5238624e07424e1e86f3291ec4bf9958",
  "Medium": "Credit",
  "ResponseCode": "85",
  "ResponseText": "EXACT MATCH  ",
  "Status": "success"
}
```

6.17 Verify

6.17.1 Verify Request

```
{
  "GMID": "05",
  "GTID": "05",
  "GMPW": "03",
  "TransType": "Verify",
  "Medium": "Credit",
  "AccountNum": "4012000098765439",
  "ExpDate": "1220",
  "CVVNum": "999",
  "CustomerAddress": "8320",
  "CustomerZipCode": "85284",
  "EntryMode": "Manual",
  "NeedSwipeCard": "N"
}
```

6.17.2 Verify Response

```
{
  "AccountNum": "401200*****5439",
  "AuthAmt": "0",
  "AuthCode": "PREATH",
  "Brand": "Visa",
  "ErrorCode": "085",
  "ErrorText": "EXACT MATCH  ",
  "ExpDate": "1220",
  "GMID": "05",
  "GMPW": "03",
  "GTID": "GT1001395979",
  "GTRC": "93b246020b96460c8af0efa0eb0021da",
  "Medium": "Credit",
  "ResponseCode": "85",
  "ResponseText": "EXACT MATCH  ",
  "Status": "success"
}
```

6.18 Register

If the serial number has been registered by other GMID/GTID, it will return error.

6.18.1 Register Request with GTID

```
{
  "GMID": "05",
  "GTID": "05",
  "GMPW": "123",
  "TransType": "Register"
  "SN": "15297PP12345678"
}
```

6.18.2 Register Response with GTID

```
{
  "ErrorCode": "100",
  "ErrorText": "No Error",
  "GMID": "05",
  "GMPW": "123",
  "GTID": "05",
  "ResponseCode": "00",
  "ResponseText": "No Error",
  "SN": "12345678",
  "Status": "success",
  "TransType": "Register"
}
```

1. If the serial number has been registered by other GMID, it will return error.
2. If the serial number has been registered by other GTID corresponding to this GMID, it will return the corresponding GTID.

6.18.3 Register Request without GTID

```
{
  "GMID": "05",
  "GMPW": "123",
  "TransType": "Register"
  "SN": "15297PP12345678"
}
```

6.18.4 Register Response without GTID

```
{
  "ErrorCode": "100",
  "ErrorText": "No Error",
  "GMID": "05",
  "GMPW": "123",
  "GTID": "05",
  "ResponseCode": "00",
  "ResponseText": "No Error",
  "SN": "12345678",
  "Status": "success",
  "TransType": "Register"
}
```

6.19 Offline-Register

6.19.1 Offline-Register Request

```
{
  "GMID": "05",
  "GTID": "05",
  "GMPW": "123",
  "TransType": "Register",
  "IsOffline": "Y",
  "SN": "15297PP12345678"
}
```


6.19.2 Offline-Register Response

```
{
  "ErrorCode": "100",
  "ErrorText": "No Error",
  "GMID": "05",
  "GMPW": "123",
  "GTID": "05",
  "ResponseCode": "00",
  "ResponseText": "No Error",
  "SN": "12345678",
  "Status": "success",
  "Trans Type": "Register"
}
```

6.20 Unregister

6.20.1 Unregister Request

```
{
  "GMID": "05",
  "GTID": "05",
  "GMPW": "03",
  "SN": "12345678",
  "Trans Type": "Unregister"
}
```

6.20.2 Unregister Response

```
{
  "ErrorCode": "100",
  "ErrorText": "No Error",
  "GMID": "05",
  "GMPW": "03",
  "GTID": "05",
  "ResponseCode": "00",
  "ResponseText": "No Error",
  "SN": "12345678",
  "Status": "success"
}
```

6.21 GetStatus

6.21.1 GetStatus Request

```
{  
  "GMID": "05",  
  "GTID": "05",  
  "GMPW": "123",  
  "Trans Type": "GetStatus"  
}
```

6.21.2 GetStatus Response

```
{  
  "DeviceStatus": "ON",  
  "ErrorCode": "100",  
  "ErrorText": "No Error",  
  "GMID": "05",  
  "GMPW": "123",  
  "GTID": "05",  
  "ResponseCode": "00",  
  "ResponseText": "No Error",  
  "SN": "12345678",  
  "Status": "success",  
  "Trans Type": "GetStatus"  
}
```

6.22 AskNumberQuestion

6.22.1 AskNumberQuestion Request

```
{  
  "GMID": "05",  
  "GTID": "05",  
  "GMPW": "03",  
  "MessageIndex": "010",  
  "Trans Type": "AskNumberQuestion",  
  "NeedSwipeCard": "Y"  
}
```

6.22.2 AskNumberQuestion Response

```
{
  "ErrorCode": "100",
  "ErrorText": "5454545454545454",
  "GMID": "05",
  "GMPW": "03",
  "GTID": "05",
  "ResponseCode": "00",
  "ResponseText": "5454",
  "Status": "success"
}
```

6.23 AskSelectionQuestion

6.23.1 AskSelectionQuestion Request

```
{
  "GMID": "05",
  "GTID": "05",
  "GMPW": "03",
  "MessageText": "Are you sure?",
  "Trans Type": "AskSelectionQuestion",
  "NeedSwipeCard": "Y"
}
```

6.23.2 AskSelectionQuestion Response

```
{
  "ErrorCode": "100",
  "ErrorText": "Y",
  "GMID": "05",
  "GMPW": "03",
  "GTID": "05",
  "ResponseCode": "00",
  "ResponseText": "Y",
  "Status": "success"
}
```

6.24 ShowMessage

6.24.1 ShowMessage Request

```
{  
  "GMID": "05",  
  "GTID": "05",  
  "GMPW": "03",  
  "MessageText": "Happy Birthday!",  
  "Trans Type": "ShowMessage",  
  "NeedSwipeCard": "Y"  
}
```

6.24.2 ShowMessage Response

```
{  
  "ErrorCode": "100",  
  "ErrorText": "Complete",  
  "GMID": "05",  
  "GMPW": "03",  
  "GTID": "05",  
  "ResponseCode": "00",  
  "ResponseText": "Complete",  
  "Status": "success"  
}
```

6.25 Reverse

6.25.1 Reverse Request

```
{  
  "GMID": "05",  
  "GTID": "05",  
  "GMPW": "03",  
  "GTRC": "27f12974e0f242aaaa73a7651c33d21f",  
  "Trans Type": "Reverse"  
}
```

6.25.2 Reverse Response

```
{  
  "AccountNum": "478825*****8291",  
  "AuthAmt": "5001",  
  "AuthCode": "273348",  
  "Brand": "Visa",  
  "ErrorCode": "000",  
  "ErrorText": "SUCCESS",  
  "ExpDate": "1222",  
  "GMID": "05",  
  "GMPW": "03",  
  "GTID": "05",  
  "GTRC": "57b331fb6ebb4a859c49c8e919ee7858",  
  "Medium": "Credit",  
  "ResponseCode": "00",  
  "ResponseText": "SUCCESS",  
  "Status": "success"  
}
```

6.26 UploadImage

6.26.1 UploadImage Request

```
{
  "GMID": "05",
  "GTID": "05",
  "GMPW": "03",
  "TransType": "UploadImage",
  "ImageID": "001",
  "NeedSwipeCard": "Y",
  "ImageData": "ABC",
  "ImageLength": "3"
}
```

6.26.2 UploadImage Response

```
{
  "ErrorCode": "100",
  "ErrorText": "Complete",
  "GMID": "05",
  "GMPW": "03",
  "GTID": "05",
  "ResponseCode": "00",
  "ResponseText": "Complete",
  "Status": "success"
}
```

6.27 SetImageList

6.27.1 SetImageList Request

```
{
  "GMID": "05",
  "GTID": "05",
  "GMPW": "03",
  "TransType": "SetImageList",
  "ImageList": "001,002,003,004,005,006,007,008,009,010,011,012,013",
  "NeedSwipeCard": "Y"
}
```

6.27.2 SetImageList Response

```
{
  "ErrorCode": "100",
  "ErrorText": "Complete",
  "GMID": "05",
  "GMPW": "03",
  "GTID": "05",
  "ResponseCode": "00",
  "ResponseText": "Complete",
  "Status": "success"
}
```

6.28 UploadMessage

6.28.1 UploadMessage Request

```
{
  "GMID": "05",
  "GTID": "05",
  "GMPW": "03",
  "MessageText": "Happy Birthday!!!",
  "MessageIndex": "1001",
  "Trans Type": "UploadMessage"
}
```

6.28.2 UploadMessage Response

```
{
  "ErrorCode": "100",
  "ErrorText": "Complete",
  "GMD": "05",
  "GMPW": "03",
  "GTID": "05",
  "ResponseCode": "00",
  "ResponseText": "Complete",
  "Status": "success"
}
```

6.29 ResetMessage

6.29.1 ResetMessage Request

```
{
  "GMD": "05",
  "GTID": "05",
  "GMPW": "03",
  "Trans Type": "ResetMessage"
}
```

6.29.2 ResetMessage Response

```
{
  "ErrorCode": "100",
  "ErrorText": "Complete",
  "GMD": "05",
  "GMPW": "03",
  "GTID": "05",
  "ResponseCode": "00",
  "ResponseText": "Complete",
  "Status": "success"
}
```

6.30 RebootDevice

6.30.1 RebootDevice Request


```
{
  "GMID": "05",
  "GTID": "05",
  "GMPW": "03",
  "TransType": "RebootDevice"
}
```

6.30.2 RebootDevice Response

```
{
  "ErrorCode": "100",
  "ErrorText": "Complete",
  "GMID": "05",
  "GMPW": "03",
  "GTID": "05",
  "ResponseCode": "00",
  "ResponseText": "Complete",
  "Status": "success"
}
```

6.31 Adjust

6.31.1 Adjust Request

```
{
  "GMID": "05",
  "GTID": "05",
  "GMPW": "03",
  "GTRC": "570c438f242d4a49aec25d679574eb24",
  "TransType": "Adjust",
  "MainAmt": "6736",
  "RequestCardToken": "Y"
}
```

6.31.2 Adjust Response

```
{
  "AccountNum": "478825*****8291",
  "AuthAmt": "1735",
  "AuthCode": "TAS021",
  "Brand": "Visa",
  "ErrorCode": "000",
  "ErrorText": "APPROVAL TAS021 ",
  "ExpDate": "0222",
  "GMID": "05",
  "GMPW": "03",
  "GTID": "05",
  "GTRC": "410e7dd378aa4abd89c80fc5f2b4a58f",
  "Medium": "Credit",
  "ResponseCode": "00",
  "ResponseText": "APPROVAL TAS021 ",
  "Status": "success"
}
```

7. IOS SDK

7.1 initWithDelegate

| Parameter | Type | Description |
|-----------|-------------------|--|
| delegate | IPDCManagerNotify | The address of the delegate object that responds to the IPDCManagerNotify protocol |

7.2 postTransactionToUrl

| Parameter | Type | Description |
|-------------|---------|---|
| url | String | URL which transaction send to, currently only supports the https protocol |
| request | String | Transaction request, JSON format |
| withTimeout | Integer | Transaction timeout. Unit: second, usually set it as 120 |

7.3 setProperties

| Parameter | Type | Description | | | | | | | | | | |
|-----------------|--|--|------|--|----------------|------------------------|-----------|--|---------------|--|-----------------|--|
| properties | NSDictionary* | <table border="1"> <thead> <tr> <th colspan="2">Keys</th> </tr> </thead> <tbody> <tr> <td>enableRushMode</td> <td>Default value is false</td> </tr> <tr> <td>uploadUrl</td> <td>URL which transaction send to. Default value is null.</td> </tr> <tr> <td>checkInterval</td> <td>Time interval that check if uploadUrl is online. Unit: second. Default value is 60</td> </tr> <tr> <td>failedThreshold</td> <td>Maximum number of consecutive failed transactions. Default value is 3</td> </tr> </tbody> </table> <p>When failedThreshold reaches the maximum value, and enableRushMode is true, SDK will enter rush mode.</p> | Keys | | enableRushMode | Default value is false | uploadUrl | URL which transaction send to. Default value is null. | checkInterval | Time interval that check if uploadUrl is online. Unit: second. Default value is 60 | failedThreshold | Maximum number of consecutive failed transactions. Default value is 3 |
| Keys | | | | | | | | | | | | |
| enableRushMode | Default value is false | | | | | | | | | | | |
| uploadUrl | URL which transaction send to. Default value is null. | | | | | | | | | | | |
| checkInterval | Time interval that check if uploadUrl is online. Unit: second. Default value is 60 | | | | | | | | | | | |
| failedThreshold | Maximum number of consecutive failed transactions. Default value is 3 | | | | | | | | | | | |

8. Appendices

8.1 Cloud9 server

| Test Server Configuration | | |
|---------------------------|---|--|
| Multiplexer | testlink.c9pg.com:12000 | Used to make pinpad connection |
| Cloud PDC | https://testlink.c9pg.com:11911/EMV | Used to send transaction request, it supports using pinpad to do the standard EMV transaction. |
| | https://testlink.c9pg.com:11911/QuickChip | Used to send transaction request, it supports using pinpad to do the QuickChip transaction |

| | | |
|--|---|--|
| REST API | https://testlink.c9pg.com:11911/restApi | Used to send transaction request, it don't support pinpad. |
| Production Server Configuration | | |
| Multiplexer | link.c9pg.com:12000 | Used to make pinpad connection |
| Cloud PDC | https://link.c9pg.com:11911/EMV | Used to send transaction request, it supports using pinpad to do the standard EMV transaction. |
| | https://link.c9pg.com:11911/QuickChip | Used to send transaction request, it supports using pinpad to do the QuickChip transaction |
| REST API | https://link.c9pg.com:11911/restApi | Used to send transaction request, it don't support pinpad. |

8.2 Status Code

| | |
|-------------|---|
| success | Transaction success |
| fail | Transaction fail |
| cancel | Transaction cancel |
| timeout | Transaction time out, please re-try later |
| invalidData | The element is wrong |

8.3 Error Code

| | |
|-----|---|
| 100 | No Error |
| 101 | Invalid GMID |
| 102 | Invalid GTID |
| 103 | Invalid GMPW |
| 104 | Invalid GTRC |
| 105 | Invalid Card Token |
| 106 | Invalid Database |
| 107 | Processor does not support the card type |
| 108 | Processor module not loaded |
| 109 | Invalid amount |
| 110 | Void amount exceeds original authorized amount |
| 111 | Offline transaction can only be used for Credit Card Sale / EBT Food Stamp Sale |
| 112 | Credit / EBT Food Stamp card with cashback is not allowed |
| 113 | Addtip must be based on Auth/Sale transactions |
| 114 | Finalize must be based on Auth transactions |
| 115 | Original transaction has already been voided |
| 116 | Offline transaction must supply AuthCode |
| 117 | Engine process timed out |
| 118 | Proxy process timed out |
| 119 | PDC process timed out |
| 120 | Processor process timed out |
| 128 | EntryMode empty |
| 133 | Card number invalid |
| 134 | Card date expired |
| 137 | AVS Verification Failed. |
| 138 | CVV Verification Failed. |
| 139 | ZIP Verification Failed. |
| 146 | Duplicate transaction (reserved). |

| | |
|-----|--|
| 149 | PinPad busy, please wait for the current transaction to finish and try again. |
| 150 | Failed to connect to pin pad. Check cable/configuration |
| 151 | User/Operator canceled |
| 152 | Pin Pad Timeout |
| 154 | Failed to read card data. Timed out or user canceled. |
| 156 | PinPad invalid serial number. Provide error SN in Unregister. |
| 157 | PinPadSerialNumberRegistrationFailed. Internal error: failed to generate unique GTID. Try again. |
| 158 | PinPadSerialNumberRegistrationFailed, Pin pad already registered with another GMID/GTID. |
| 162 | No Terminal Serial Number registered for TID. |
| 175 | Invalid Message Index |
| 176 | Invalid Message Length |
| 177 | Invalid Image ID |
| 178 | Invalid Image Data |
| 179 | The type of terminal not support this function |
| 181 | Invalid Transaction. Reverse refund transaction has been settled. |
| 999 | Undefined error |
| 0NB | No Finalized Transactions to Batch |
| 0GB | Good Batch |
| 0DB | Duplicate Batch |
| 0RB | Rejected Batch |
| 000 | Approved and completed |
| 001 | Refer to issuer |
| 002 | Refer to issuer-Special condition |
| 003 | Invalid Merchant ID |
| 004 | Pick up card (no fraud) |
| 005 | Do not honor |
| 006 | General error |
| 007 | Pick up card, special condition (fraud account) |
| 008 | Honor Mastercard with ID |
| 010 | Partial approval for the authorized amount returned in Group III version 022 |
| 011 | VIP approval |
| 012 | Invalid transaction |
| 013 | Invalid amount |
| 014 | Invalid card number |
| 015 | No such issuer |
| 019 | Re-enter transaction |
| 021 | Unable to back out transaction |
| 028 | File is temporarily unavailable |
| 034 | Mastercard use only, Transaction Cancelled; Fraud Concern (Used in reversal requests only) |
| 039 | No credit account |
| 041 | Lost card, pick up (fraud account) |
| 043 | Stolen card, pick up (fraud account) |
| 051 | Insufficient funds |
| 052 | No checking account |
| 053 | No savings account |
| 054 | Expired card |
| 055 | Incorrect PIN |
| 057 | Transaction not permitted-Card |
| 058 | Transaction not permitted-Terminal |

| | |
|-----|--|
| 059 | Transaction not permitted-Merchant |
| 061 | Exceeds withdrawal limit |
| 062 | Invalid service code, restricted |
| 063 | Security violation |
| 065 | Activity limit exceeded |
| 075 | PIN tried exceeded |
| 076 | Unable to locate, no match |
| 077 | Inconsistent data, reversed, or repeat |
| 078 | No account |
| 079 | Already reversed at switch |
| 080 | No Financial impact (used in reversal responses to declined originals). |
| 081 | Cryptographic error |
| 082 | CVV data is not correct |
| 083 | Cannot verify PIN |
| 085 | No reason to decline |
| 086 | Cannot verify PIN |
| 091 | Issuer or switch is unavailable |
| 092 | Destination not found |
| 093 | Violation, cannot complete |
| 094 | Unable to locate, no match |
| 096 | System malfunction |
| 0A1 | POS device authentication successful |
| 0A2 | POS device authentication not successful |
| 0A3 | POS device deactivation successful |
| 0B1 | Surcharge amount not permitted on debit cards or EBT food stamps |
| 0B2 | Surcharge amount not supported by debit network issuer |
| 0CV | Card Type Verification Error |
| 0D3 | Transaction failure due to missing or invalid 3D-Secure cryptogram |
| 0E1 | Encryption is not configured |
| 0E2 | Terminal is not authenticated |
| 0E3 | Data could not be decrypted |
| 0EA | Verification error |
| 0EB | Verification error |
| 0EC | Verification error |
| 0HV | Hierarchy Verification Error |
| 0K0 | Token request was processed |
| 0K1 | Tokenization is not configured |
| 0K2 | Terminal is not authenticated |
| 0K3 | Data could not be de-tokenized |
| 0M0 | Mastercard: Canada region-issued Domestic Debit Transaction not allowed |
| 0N3 | Cash back service not available |
| 0N4 | Exceeds issuer withdrawal limit |
| 0N7 | CVV2 Value supplied is invalid |
| 0R0 | Customer requested stop of specific recurring payment |
| 0R1 | Customer requested stop of all recurring payments from specific merchant |
| 0T0 | First check is OK and has been converted |
| 0T1 | Check is OK but cannot be converted This is a declined transaction |
| 0T2 | Invalid ABA number, not an ACH participant |
| 0T3 | Amount greater than the limit |
| 0T4 | Unpaid items, failed negative file check |

| | |
|-----|---|
| 0T5 | Duplicate check number |
| 0T6 | MICR error |
| 0T7 | Too many checks (over merchant or bank limit) |
| 0V1 | Daily threshold exceeded |

8.4 Glossary

| | |
|------|--------------------------------|
| EBT | Electronic Benefits Transfer |
| PIN | Personal Identification Number |
| POS | Point-Of-Sale |
| SDK | Software Development Kit |
| XML | Extensible Markup Language |
| SOAP | Simple Object Access Protocol |
| JSON | JavaScript Object Notation |