

Cloud9 PDC SDK Guide

Revision History

Revision	Date	Change description
1.9	11/10/2017	Add Terminal Register Sample
1.8	11/01/2017	Add Verify, GMPW
1.7	10/23/2017	Add CreateCardToken.
1.6	10/16/2017	Add UpdateCardTokenInfo, DeleteCardToken, ErrorCode.
1.5	09/29/2017	Add CardHolder and ExpDate.
1.4	09/11/2017	Add CardToken parameter.
1.3	08/28/2017	Add Json message sample
1.2	05/04/2015	Modify the Amount that calculated by the lowest denomination value of currency and add a new element, AdditionalInfo, used in the future.
1.1	09/26/2014	Modify Some Groups and add some new Response Information
1.0	07/24/2014	Initial Draft

Table of Contents

1. OVERVIEW	1
1.1 SYSTEM REQUIREMENTS.....	1
1.2 SOFTWARE DEVELOPMENT KIT (SDK)	1
1.3 AUDIENCE.....	1
1.4 SIMPLE OBJECT ACCESS PROTOCOL (SOAP)	1
1.5 CONNECTIVITY.....	2
1.6 SECURITY.....	2
2. TRANSACTION TYPE.....	2
2.1 SALE.....	2
2.2 AUTH.....	2
2.3 INQUIRY.....	2
2.4 REFUND.....	2
2.5 FINALIZE.....	2
2.6 ADDTIP.....	2
2.7 MODIFY	2
2.8 VOID	2
2.9 BATCH.....	2
2.10 UPDATECARDTOKENINFO.....	3
2.11 DELETECARDTOKEN.....	3
2.12 CREATECARDTOKEN.....	3
2.13 VERIFY.....	3
3. INFORMATION OVERVIEW	3
3.1 AMOUNT.....	3
3.2 PARTIAL AUTHORIZATION.....	3
4. DATA GROUPS	3
4.1 CONFIGURE GROUP	3
4.2 REQUEST AMOUNT GROUP.....	3
4.3 ACTION GROUP	4
4.4 REQUEST EXTEND INFO. GROUP.....	4
4.5 TRACE GROUP.....	4
4.6 REQUEST CARD INFO. GROUP.....	5
4.7 ENCRYPTION DATA GROUP.....	6
4.8 PIN GROUP.....	6
4.9 RESULT GROUP	6
4.10 RESPONSE AMOUNT GROUP.....	7
4.11 RESPONSE CARD INFO.....	7
5. XML MESSAGE SAMPLE.....	7
5.1 SALE.....	7
5.1.1 Sale Request.....	7
5.1.2 Sale Response.....	8
5.2 OFFLINE-SALE.....	9
5.2.1 Offline-Sale Request.....	10
5.2.2 Offline-Sale Response.....	10
5.3 SALE (CARD INFO. FROM POS)	11
5.3.1 Sale Request.....	12
5.3.2 Sale Response.....	12
5.4 AUTH.....	14
5.4.1 Auth Request.....	14

5.4.2	<i>Auth Response</i>	15
5.5	INQUIRY.....	16
5.5.1	<i>Inquiry Request</i>	16
5.5.2	<i>Inquiry Response</i>	17
5.6	REFUND.....	18
5.6.1	<i>Refund Request</i>	18
5.6.2	<i>Refund Response</i>	19
5.7	FINALIZE.....	20
5.7.1	<i>Finalize Request</i>	20
5.7.2	<i>Finalize Response</i>	21
5.8	ADDTIP.....	22
5.8.1	<i>AddTip Request</i>	22
5.8.2	<i>AddTip Response</i>	23
5.9	VOID.....	24
5.9.1	<i>Void Request</i>	24
5.9.2	<i>Void Response</i>	25
5.10	MODIFY.....	26
5.10.1	<i>Modify Request</i>	26
5.10.2	<i>Modify Response</i>	27
5.11	BATCH.....	28
5.11.1	<i>Batch Request</i>	28
5.11.2	<i>Batch Response</i>	29
6.	JSON MESSAGE SAMPLE	30
6.1	SALE.....	30
6.1.1	<i>Sale Request</i>	30
6.1.2	<i>Sale Response</i>	30
6.2	OFFLINE-SALE.....	31
6.2.1	<i>Offline-Sale Request</i>	31
6.2.2	<i>Offline-Sale Response</i>	31
6.3	SALE (CARD INFO. FROM POS).....	32
6.3.1	<i>Sale Request with AccountNum</i>	32
6.3.2	<i>Sale Response with AccountNum</i>	32
6.3.3	<i>Sale Request with TrackData</i>	32
6.3.4	<i>Sale Response with TrackData</i>	33
6.4	SALE (CARD TOKEN).....	34
6.4.1	<i>Sale Request</i>	34
6.4.2	<i>Sale Response</i>	34
6.5	AUTH.....	35
6.5.1	<i>Auth Request</i>	35
6.5.2	<i>Auth Response</i>	35
6.6	INQUIRY.....	36
6.6.1	<i>Inquiry Request</i>	36
6.6.2	<i>Inquiry Response</i>	36
6.7	REFUND.....	37
6.7.1	<i>Refund Request</i>	37
6.7.2	<i>Refund Response</i>	37
6.8	FINALIZE.....	38
6.8.1	<i>Finalize Request</i>	38
6.8.2	<i>Finalize Response</i>	38
6.9	ADDTIP.....	39
6.9.1	<i>AddTip Request</i>	39
6.9.2	<i>AddTip Response</i>	39
6.10	VOID.....	40
6.10.1	<i>Void Request</i>	40
6.10.2	<i>Void Response</i>	40

6.11	MODIFY	41
6.11.1	<i>Modify Request</i>	41
6.11.2	<i>Modify Response</i>	41
6.12	BATCH.....	42
6.12.1	<i>Batch Request</i>	42
6.12.2	<i>Batch Response</i>	42
6.13	REQUEST CARD TOKEN.....	42
6.13.1	<i>CardToken Request</i>	42
6.13.2	<i>CardToken Response</i>	43
6.14	UPDATE CARD TOKEN.....	43
6.14.1	<i>Update CardToken Request</i>	43
6.14.2	<i>Update CardToken Response</i>	44
6.15	DELETE CARD TOKEN.....	44
6.15.1	<i>Delete CardToken Request</i>	44
6.15.2	<i>Delete CardToken Response</i>	44
6.16	CREATE CARD TOKEN.....	45
6.16.1	<i>Create CardToken Request</i>	45
6.16.2	<i>Create CardToken Response</i>	45
6.17	VERIFY.....	46
6.17.1	<i>Verify Request</i>	46
6.17.2	<i>Verify Response</i>	46
6.18	REGISTER TERMINAL.....	47
6.18.1	<i>Register Terminal Request with GTID</i>	47
6.18.2	<i>Register Terminal Response with GTID</i>	47
6.18.3	<i>Register Terminal Request without GTID</i>	48
6.18.4	<i>Register Terminal Response without GTID</i>	48
7.	APPENDICES	49
7.1	CLOUD9 SERVER	49
7.2	STATUS CODE.....	49
7.3	ERROR CODE	49
7.4	GLOSSARY.....	51

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. If the original transaction is Auth, this operation transfers the Auth to Sale.

2.8 Void

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

2.9 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.

2.10 UpdateCardTokenInfo

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

2.11 DeleteCardToken

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

2.12 CreateCardToken

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

2.13 Verify

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

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
GMPW	String	Required	Merchant password Password checking on refund transaction.
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
IncCashBack Amt	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 Refund Inquiry Modify Batch UpdateCardTokenInfo(available in JSON request) DeleteCardToken(available in JSON request) CreateCardToken(available in JSON request) Verify
IsOffline	String	Required	Indicates whether is an offline transaction Valid values = Y or N Default is "N"

4.4 Request Extend Info. Group

Field Name	Data Type	Usage	Description
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
AdditionalInfo	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	Required	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 /EBT Food/EBT Cash/Prepaid/Gift
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	Encryption DataGrp	Optional	Must be present when account number is encrypted
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.
CustomerAddresses	String	Optional	Cardholder's billing address.

4.7 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.

4.8 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.

4.9 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

4.10 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

4.11 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.

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>
          <TransType>Sale</TransType>
          <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",
  "TransType": "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

```
{
  "GMID": "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",
  "GMID": "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",  
  "TransType": "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": "1001395976",  
  "GTID": "GT1001395979",  
  "GMPW": "03",  
  "GTRC": "3087c11f59144d84995d681cfb838f77",  
  "TransType": "Finalize"  
}
```

6.8.2 Finalize Response

```
{  
  "AccountNum": "478825*****8291",  
  "AuthAmt": "0",  
  "Brand": "Visa",  
  "ErrorCode": "000",  
  "ErrorText": "SUCCESS",  
  "ExpDate": "1222",  
  "GMID": "1001395976",  
  "GMPW": "03",  
  "GTID": "GT1001395979",  
  "GTRC": "3087c11f59144d84995d681cfb838f77",  
  "Medium": "Credit",  
  "ResponseCode": "00",  
  "ResponseText": "SUCCESS",  
  "Status": "success"  
}
```

6.9 AddTip

6.9.1 AddTip Request

```
{
  "GMID": "1001395976",
  "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": "1001395976",
  "GMPW": "03",
  "GTID": "GT1001395979",
  "GTRC": "4205a50aef084913bc67e8a3dcda8641",
  "Medium": "Credit",
  "ResponseCode": "00",
  "ResponseText": "SUCCESS",
  "Status": "success"
}
```

6.10 Void

6.10.1 Void Request

```
{
  "GMID": "1001395976",
  "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": "1001395976",
  "GMPW": "03",
  "GTID": "GT1001395979",
  "GTRC": "27f12974e0f242aaaa73a7651c33d21f",
  "Medium": "Credit",
  "ResponseCode": "00",
  "ResponseText": "APPROVAL TAS139 ",
  "Status": "success"
}
```

6.11 Modify

6.11.1 Modify Request

```
{  
  "GMID": "1001395976",  
  "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": "1001395976",  
  "GMPW": "03",  
  "GTID": "GT1001395979",  
  "GTRC": "e11dde4de55542e9822df7951c6a5bd0",  
  "Medium": "Credit",  
  "ResponseCode": "00",  
  "ResponseText": "SUCCESS",  
  "Status": "success"  
}
```

6.12 Batch

6.12.1 Batch Request

```
{
  "GMID": "1001395976",
  "GTID": "GT1001395979",
  "GMPW": "03",
  "TransType": "Batch"
}
```

6.12.2 Batch Response

```
{
  "AuthAmt": "0",
  "ErrorCode": "0GB",
  "ErrorText": "TSYS:success\n",
  "GMID": "1001395976",
  "GMPW": "03",
  "GTID": "GT1001395979",
  "ResponseCode": "GB",
  "ResponseText": "TSYS:success\n",
  "Status": "success"
}
```

6.13 Request Card Token

6.13.1 CardToken Request

```
{
  "GMID": "1001395976",
  "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": "1001395976",
  "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": "1001395976",
  "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": "1001395976",
  "GMPW": "03",
  "GTID": "GT1001395979",
  "GTRC": "93b246020b96460c8af0efa0eb0021da",
  "Medium": "Credit",
  "ResponseCode": "85",
  "ResponseText": "EXACT MATCH  ",
  "Status": "success"
}
```

6.18 Register Terminal

6.18.1 Register Terminal Request with GTID

```
{  
  "GMID": "05",  
  "GTID": "05",  
  "GMPW": "03",  
  "SN": "81773904"  
}
```

6.18.2 Register Terminal Response with GTID

```
{  
  "ErrorCode": "100",  
  "ErrorText": "No Error",  
  "GMID": "1001395732",  
  "GMPW": "TSYS03",  
  "GTID": "GT1001396419",  
  "ResponseCode": "00",  
  "ResponseText": "No Error",  
  "SN": "81773904",  
  "Status": "success"  
}
```

6.18.3 Register Terminal Request without GTID

```
{  
  "GMID": "05",  
  "GMPW": "03",  
  "SN": "81773904"  
}
```

6.18.4 Register Terminal Response without GTID

```
{  
  "ErrorCode": "100",  
  "ErrorText": "No Error",  
  "GMID": "1001395732",  
  "GMPW": "TSYS03",  
  "GTID": "GT1001396419",  
  "ResponseCode": "00",  
  "ResponseText": "No Error",  
  "SN": "81773904",  
  "Status": "success"  
}
```

7. Appendices

7.1 Cloud9 server

Test Server Configuration		
Cloud-Multiplexer	testlink.c9pg.com:12000	Used to make pinpad connection
Cloud-PDC	https://testlink.c9pg.com:11000/PDC/EMV https://testlink.c9pg.com:11000/PDC/QuickChip	Used to send transaction request, it supports using pinpad to do the transaction.
	https://testlink.c9pg.com:11000/PDC/terminal/register	Used to register terminal
Proxy	https://testlink.c9pg.com:5568/restApi	Used to send transaction request, it don't support pinpad.
Production Server Configuration		
Cloud-Multiplexer	link.c9pg.com:12000	Used to make pinpad connection
Cloud-PDC	https://link.c9pg.com:11000/PDC/EMV https://link.c9pg.com:11000/PDC/QuickChip	Used to send transaction request, it supports using pinpad to do the transaction.
	https://link.c9pg.com:11000/PDC/terminal/register	Used to register terminal
Proxy	https://link.c9pg.com:5568/restApi	Used to send transaction request, it don't support pinpad.

7.2 Status Code

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

7.3 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 not support the card type
108	Processor not support or not load to system
109	Invalid amount
110	Void amount exceeds original authorized amount
111	Offline transaction can only be used for Credit/EBT Footstamp's sale
112	Credit/EBT Foodstamp card with cashback is not allowed

113	Addtip must be based on Auth/Sale transaction
114	Finalize must be based on Auth transaction
115	Original transaction has already been voided
116	Offline transaction must supply AuthCode
117	Engine process transaction time out
118	Proxy process message time out
119	PDC process transaction time out
120	Processor process transaction time out
128	EntryMode empty
137	AVS Verify Failed.
138	CVV Verify Failed.
150	Connect PinPad fail,Please check cable/configuration and try again
154	Swipe card with PinPad fail
999	undefine error
0NB	No Transaction Need Batch
0GB	Good Batch
0DB	Duplicate Batch
0RB	Rejected Batch
0EB	Batch Fail but error occured at our processor end
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	Error response text from check service
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
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
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
054	Expired card
053	No savings account
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	no reply Issuer or switch is unavailable
092	Destination not found
093	Violation, cannot complete
094	DUPLICATE TRANS
096	System malfunction
0EC	Verification error
0N3	Cash back service not available
0N4	Exceeds issuer withdrawal limit
0N7	CVV2 Value supplied is invalid
0T0	First check is OK and has been converted APPROVAL
0T1	Check is OK but cannot be converted DECLINE
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	To many checks (over merchant or bank limit)
0R0	Customer requested recurring payment stop of specific recurring payment
0R1	Customer requested recurring payment stop of all recurring payment

7.4 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