

# **Cloud9 PDC SDK Guide**

## Revision History

Revision	Date	Change description
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

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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. 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.

## 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	Password for user, reserved for future use
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 Refund Inquiry Modify Batch
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.
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"

#### 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.
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 and so on
AccountNum	String	Optional	Card number Maximum length = 22

## 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>
          <TransType>Sale</TransType>
          <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>
          <TransType>Sale</TransType>
          <IsOffline>N</IsOffline>
        </Action>
        <Trace>
          <SourceTraceNum>000017</SourceTraceNum>
        </Trace>
        <CardInfo>
          <Medium>Credit</Medium>
          <AccountNum>4012002000060016</AccountNum>
          <ExpDate>1225</ExpDate>
          <CVVNum>123</CVVNum>
        </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>
          <TransType>Auth</TransType>
          <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>
          <TransType>Inquiry</TransType>
          <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>
          <TransType>Refund</TransType>
          <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>
          <TransType>Finalize</TransType>
          <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>
          <TransType>AddTip</TransType>
          <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>
          <TransType>Void</TransType>
          <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>
          <TransType>Batch</TransType>
          <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

```
{
  "GMID": "05",
  "GTID": "05",
  "GMPW": "123",
  "AllowsPartialAuth": "N",
  "MainAmt": "1000",
  "TipAmt": "100",
  "TransType": "Sale",
  "IsOffline": "N",
  "SourceTraceNum": "000017",
  "Medium": "Credit",
  "AccountNum": "4012002000060016",
  "ExpDate": "1225",
  "CVVNum": "123",
  "NeedSwipCard": "N"
}
```

### 6.3.2 Sale Response

```
{
  "AccountNum": "401200*****0016",
  "AuthAmt": "1100",
  "AuthCode": "37982A",
  "Brand": "Visa",
  "EntryMode": "Manual",
  "GMID": "1001395732",
  "GMPW": "123",
  "GTID": "GT1001395735",
  "GTRC": "16f730f7dacb4c2897fb6e397d70c6aa",
  "Medium": "Credit",
  "ResponseCode": "00",
  "ResponseText": "APPROVAL",
  "Status": "success"
}
```

## 6.4 Auth

### 6.4.1 Auth Request

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

### 6.4.2 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"
}
```

## 6.5 Inquiry

### 6.5.1 Inquiry Request

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

### 6.5.2 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"
}
```

## 6.6 Refund

### 6.6.1 Refund Request

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

### 6.6.2 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"  
}
```

## 6.7 Finalize

### 6.7.1 Finalize Request

```
{
  "GMID": "05",
  "GTID": "05",
  "GMPW": "123",
  "AllowsPartialAuth": "N",
  "TransType": "Finalize",
  "IsOffline": "N",
  "OrderNum": "000005",
  "SourceTraceNum": "000033",
  "GTRC": "4bc57384a90b4abd8be2edb8bdadeaa2c",
  "NeedSwipCard": "Y"
}
```

### 6.7.2 Finalize Response

```
{
  "AccountNum": "401200*****0016",
  "AuthAmt": "500",
  "AuthCode": "37986A",
  "Brand": "Visa",
  "EntryMode": "Swipe",
  "GMID": "1001395732",
  "GMPW": "123",
  "GTID": "GT1001395735",
  "GTRC": "f83cd5bb63a54f0abefd9f2bb4bd8312",
  "Medium": "Credit",
  "ResponseCode": "0",
  "ResponseText": "Success",
  "Status": "success"
}
```



## 6.8 AddTip

### 6.8.1 AddTip Request

```
{  
  "GMID": "05",  
  "GTID": "05",  
  "GMPW": "123",  
  "AllowsPartialAuth": "N",  
  "TipAmt": "300",  
  "TransType": "AddTip",  
  "IsOffline": "N",  
  "OrderNum": "000005",  
  "SourceTraceNum": "000010",  
  "GTRC": "4bc57384a90b4abd8be2edb8bdaeeaa2c",  
  "NeedSwipCard": "Y"  
}
```

### 6.8.2 AddTip Response

```
{  
  "AccountNum": "401200*****0016",  
  "AuthAmt": "500",  
  "AuthCode": "37996A",  
  "Brand": "Visa",  
  "EntryMode": "Swipe",  
  "GMID": "1001395732",  
  "GMPW": "123",  
  "GTID": "GT1001395735",  
  "GTRC": "83f48bf3d84c4557ba9e17be6a8cab57",  
  "Medium": "Credit",  
  "ResponseCode": "0",  
  "ResponseText": "Success",  
  "Status": "success"  
}
```

## 6.9 Void

### 6.9.1 Void Request

```
{  
  "GMID": "05",  
  "GTID": "05",  
  "GMPW": "123",  
  "AllowsPartialAuth": "N",  
  "TransType": "Void",  
  "IsOffline": "N",  
  "OrderNum": "000005",  
  "SourceTraceNum": "000014",  
  "GTRC": "4bc57384a90b4abd8be2edb8bdaeeaa2c",  
  "NeedSwipCard": "Y"  
}
```

### 6.9.2 Void Response

```
{  
  "AccountNum": "401200*****0016",  
  "AuthAmt": "500",  
  "AuthCode": "37996A",  
  "Brand": "Visa",  
  "EntryMode": "Swipe",  
  "GMID": "1001395732",  
  "GMPW": "123",  
  "GTID": "GT1001395735",  
  "GTRC": "83f48bf3d84c4557ba9e17be6a8cab57",  
  "Medium": "Credit",  
  "ResponseCode": "0",  
  "ResponseText": "Success",  
  "Status": "success"  
}
```

## 6.10 Modify

### 6.10.1 Modify Request

```
{
  "GMID": "05",
  "GTID": "05",
  "GMPW": "123",
  "AllowsPartialAuth": "N",
  "MainAmt": "1500",
  "TipAmt": "300",
  "TransType": "Modify",
  "IsOffline": "N",
  "SourceTraceNum": "000012",
  "GTRC": "33f1e91c1f0c4d30b7b9d5932b3a23f0",
  "NeedSwipeCard": "Y"
}
```

### 6.10.2 Modify Response

```
{
  "AccountNum": "401200*****0016",
  "AuthAmt": "1100",
  "AuthCode": "37982A",
  "Brand": "Visa",
  "EntryMode": "Manual",
  "GMID": "1001395732",
  "GMPW": "123",
  "GTID": "GT1001395735",
  "GTRC": "16f730f7dacb4c2897fb6e397d70c6aa",
  "Medium": "Credit",
  "ResponseCode": "0",
  "ResponseText": "Success",
  "Status": "success"
}
```

## 6.11 Batch

### 6.11.1 Batch Request

```
{
  "GMID": "05",
  "GTID": "05",
  "GMPW": "123",
  "AllowsPartialAuth": "N",
  "TransType": "Batch",
  "IsOffline": "N",
  "SourceTraceNum": "000015",
  "NeedSwipeCard": "Y"
}
```

### 6.11.2 Batch Response

```
{
  "AuthAmt": "0",
  "GMID": "1001395732",
  "GMPW": "123",
  "GTID": "GT1001395735",
  "ResponseCode": "0",
  "ResponseText": "HPS:success\n",
  "Status": "success"
}
```

## 7. Appendices

### 7.1 Status Code

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

### 7.2 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