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# dsiEMVX

# EMV Programming Interface Specification

***V02.02***

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## *Revision History*

| | | |
|---|---|---|
| 02.00 | 10 Oct 2014 (A) | • Revised Release of Preliminary Draft |
| 02.01 | 31 May 2015 | • Prerelease version for internal review |
| 02.02 | 01 Jun 2015 | • Formal Release |

# *Table Of Contents*

## 1.0 Introduction

dsiEMVX is a Windows ActiveX control that provides applications with the ability to process an EMV (chip card) electronic payments in a multi-tiered client-server architecture. Applications integrated with dsiEMVX act as a client to Datacap's U.S. EMV certified NETePay payment servers to process payments.

The dsiEMVX software is designed to communicate exclusively with Datacap's in-store NETePay server products using Internet Protocol (IP). Messages exchanged between the dsiEMVX and the servers are encrypted for secure transmission over open networks (such as the Internet). This secure communications architecture provides the flexibility to configure systems using LAN and/or WAN networks.

Datacap servers are available for in-store or enterprise configurations and are designed to communicate with specific payment systems providers.

dsiEMVX does not use any storage on the client machine; the Datacap servers provide consolidated transaction data storage, logging and data management functions.

dsiEMVX directly controls an approved EMV PIN pad on a PC port (RS232 or USB Virtual COM port) to manage all PIN pad interactions.

The dsiEMVX control uses XML formatted requests and responses for transaction processing requests.

## 2.0 EMV Supported Transactions Summary

The following transaction codes <TranCode> are supported in dsiEMVX:

***Transaction***

| | |
|---|---|
| **EMVPadReset** | This command must be performed before every transaction (Sale, VoidSale, Return, VoidReturn, VoiceAuth and ZeroAuth) to assure that no card is in the PIN pad chip reader before starting a transaction. If no card is in the reader, then a response should be returned with 2-3 seconds. If there's a card in the reader, the PIN pad displays 'Remove Card' and waits for the card to be removed before returning a response; another EMVPadReset should then be issued. |
| **EMVSale** | EMV Sale transaction – credit or debit |
| **EMVVoidSale** | Void of a previously completed EMV Sale transaction – credit or debit |
| **EMVReturn** | EMV Return transaction – credit or debit |
| **EMVVoidReturn** | Void of a previously completed EMV Return transaction – credit or debit |
| **EMVVoiceAuth** | Capture a transaction that was authorized by voice into the current batch |
| **EMVZeroAuth** | To verify a card is valid without charging any amount. |
| **AdjustByRecordNo** | To adjust the gratuity amount on a previously processed EMVSale or EMVVoiceAuth transaction. |

***Admin***

| | |
|---|---|
| **EMVParamDownload** | This command loads essential parameter and security information into the EMV PIN pad. This command must be performed as requested by the payment service provider OR when a pad is replaced OR new PIN pad installation |
| **ServerVersion** | Reports the NETePay server version with which the dsiEMVX is communicating |
| **BatchSummary** | Retrieves current batch summary information (overall counts and net amount; optionally totals by card type) |
| **BatchClose** | To close the currently open batch |

## 2.1 Supported EMV PIN Pad Devices (SecureDevice)

The following approved EMV PIN pads are supported by dsiEMVX. The particular PIN pad depends on the payment processor. The following tables lists the **<SecureDevice>** value to be included in a transaction:

| Device/Payment Processing Provider | <SecureDevice> Value |
|---|---|
| Verifone Vx805 for Paymentech | EMV_VX805_PAYMENTECH |
| Verifone Vx805 for Mercury | EMV_VX805_MERCURY |
| Verifone Vx805 for Vantiv | EMV_VX805_VANTIV |
| Verifone Vx805 for TSYS | EMV_VX805_TSYS |
| Verifone Vx805 for FDMS Rapid Connect | EMV_VX805_RAPIDCON |
| Verifone Vx805 for Heartland | EMV_VX805_HEARTLAND |
| Verifone Vx805 for Global Payments | EMV_VX805_GLOBAL |
| Verifone Vx805 for WorldPay | EMV_VX805_WORLDPAY |

The EMV PIN pads supported by dsiEMVX can be determined by performing the **GetDevicesInfo** method available in dsiEMVX. See section 6.2 for details on **GetDevicesInfo**.

## 3.0 EMV Transaction Request XML Definitions

## 3.1 EMVPadReset

Use: To reset and ready the EMV PIN pad device for a new transaction.

Notes: 1. This command must be performed before every transaction (Sale, VoidSale, Return, VoidReturn, VoiceAuth and ZeroAuth) to assure that no card is in the EMV PIN pad chip card (insertion) reader before starting a new transaction. This command should also be performed at the end of any card related transaction (Sale, VoidSale, Return, VoidReturn, VoiceAuth and ZeroAuth) to assure that the user is prompted to remove their card. If no card is in the reader, then a response will be returned with 2-3 seconds. If there's a card in the reader, the EMV PIN pad displays 'Remove Card' and waits for the card to be removed before returning a response; another EMVPadReset must then be issued prior to processing a card based transaction request

2. Field values in **BOLD** are required. Field values in LIGHT GRAY are optional and extend the functionality of the basic transaction. See the following XML element table for use of both required and optional fields.

XML Template: **EMVPadReset**

```
<?xml version="1.0"?>
<TStream>
  <Transaction>
    <HostOrIP>999.999.999.999</HostOrIP>
    <IpPort>99999</IpPort>
    <MerchantID>MerchantID</MerchantID>
    <TerminalID>TerminalID</TerminalID>
    <OperatorID>OperatorID</OperatorID>
    <UserTrace>UserTrace</UserTrace>
    <Tran Code>EMVPadReset</TranCode>
    <SecureDevice>SecureDevice</SecureDevice>
    <ComPort>ComPort</ComPort>
    <SequenceNo>SequenceNo</SequenceNo>
  </Transaction>
</TStream>
```

| Element | Req | Min | Max | Type | Description/Value |
|---|---|---|---|---|---|
| HostOrIP | Y | 7 | 128 | A | IP address of server to use for this transaction. |
| IpPort | O | 1 | 5 | N | IP port number on server to use for this transaction. If omitted, default port is 9000. |
| MerchantID | Y | 1 | 24 | A | Merchant identification assigned by processor. |
| TerminalID | Y | 1 | 24 | A | Terminal ID data must be supplied in this tag only if required by the processor or merchant service provider; otherwise this tag should not be included. The POS system should store this value as a parameter to be included when required. |
| OperatorID | O | 1 | 24 | A | Operator (clerk, server, etc.) associated with the transaction. |
| UserTrace | O | 1 | 24 | A | A unique value created and supplied by POS system. |

| | | | | | |
|---|---|---|---|---|---|
| TranCode | Y | 1 | 40 | A | “EMVPadReset” |
| SecureDevice | Y | 1 | 24 | A | See Section 2.1 for allowed SecureDevice values. |
| ComPort | Y | 1 | 3 | N | COM (Serial) port number to which an EMV approved PIN pad is attached (1-255). |
| SequenceNo | Y | 10 | 12 | A | Use the value returned for <SequenceNo> from the last response. If the SequenceNo is lost or for initial deployment of the PIN pad, the ECR/POS should attempt any transaction (using “0010010010” as a SequnceNo value) to re-sync. |

Legend: A Alphanumeric N Numeric
O Optional R Required

***Sample Request for EMVPadReset***

```
<?xml version="1.0"?>
<TStream>
    <Transaction>
        <HostOrIP>127.0.0.1</HostOrIP>
        <IpPort>9000</IpPort>
        <MerchantID>700000000245</MerchantID>
        <TerminalID>001</TerminalID>
        <OperatorID>TEST</OperatorID>
        <UserTrace>Dev1</UserTrace>
        <TranCode>EMVPadReset</TranCode>
        <SecureDevice>EMV_VX805_PAYMENTECH</SecureDevice>
        <ComPort>1</ComPort>
        <SequenceNo>0010010010</SequenceNo>
    </Transaction>
</TStream>
```

***Sample Response for EMVPadReset***

```
<?xml version="1.0"?>
<RStream>
    <CmdResponse>
        <ResponseOrigin>Client</ResponseOrigin>
        <DSIXReturnCode>000000</DSIXReturnCode>
        <CmdStatus>Success</CmdStatus>
        <TextResponse>Reset Successful.</TextResponse>
        <SequenceNo>0010010010</SequenceNo>
        <UserTrace>Dev1</UserTrace>
    </CmdResponse>
</RStream>
```

## 3.2 EMVSale

Use: To process a payment using EMV capable equipment. Credit and Debit transactions with chip, MSR and manually input account information are supported.

Notes: Field values in **BOLD** are required. Field values in LIGHT GRAY are optional and extend the functionality of the basic EMVSale transaction. See the following XML element table for use of both required and optional fields.

Functional Option Tags for EMVSale:

1. Cash Back - (Tag: <CashBack>) – Allows a cardholder to request cash back in addition to payment for the transaction. Debit and certain credit card allow cash back.
2. Gratuity Entry - (Tag: <Gratuity>) – Allows a cardholder to specify a tip for a transaction in addition to a base transaction amount. Usually used by restaurant and service merchants.
3. Token Request - (Tags: <RecordNo> and <Frequency>) – Used to request an optional unique transaction identifier (token) to be assigned by the payment processor and returned in the transaction response. This token value is supplied to a subsequent **AdjustByRecordNo** transaction request to alter the amounts on the original transaction without possession of the card (e.g. for tip entry). *Note* that not all processors support token issuance or subsequent use *and* that only cards that don't require a PIN entry during the EMVSale will be able to request a token.

XML Template: **EMVSale**

XML Request Template:

```
<?xml version="1.0"?>
<TStream>
  <Transaction>
    <HostOrIP>999.999.999.999</HostOrIP>
    <IpPort>99999</IpPort>
    <MerchantID>MerchantID</MerchantID>
    <TerminalID>TerminalID</TerminalID>
    <OperatorID>OperatorID</OperatorID>
    <UserTrace>UserTrace</UserTrace>
    <TranCode>EMVSale</TranCode>
    <CollectData>CardholderName</CollectData>
    <SecureDevice>SecureDevice</SecureDevice>
    <ComPort>ComPort</ComPort>
    <Account>
      <AcctNo>AcctNo</AcctNo>
    </Account>
    <InvoiceNo>InvoiceNo</InvoiceNo>
    <RefNo>RefNo</RefNo>
    <Amount>
      <Purchase>Purchase</Purchase>
      <Gratuity>Gratuity</Gratuity>
      <CashBack>CashBack</CashBack>
  </Amount>
    <Duplicate>Duplicate</Duplicate>
    <SequenceNo>SequenceNo</SequenceNo>
    <PartialAuth>PartialAuth</PartialAuth>
    <RecordNo>RecordNumberRequested</RecordNo>
    <Frequency>Frequency</Frequency>
  </Transaction>
</TStream>
```

| Element | Req | Min | Max | Type | Description/Value |
|---|---|---|---|---|---|
| HostOrIP | R | 7 | 128 | A | IP address of server to use for this transaction. |
| IpPort | O | 1 | 5 | N | IP port number on server to use for this transaction. If omitted, default port is 9000. |
| MerchantID | R | 1 | 24 | A | Merchant identification assigned by processor. |
| TerminalID | R | 1 | 24 | A | Terminal ID data must be supplied in this tag only if required by the processor or merchant service provider; otherwise this tag should not be included. The POS system should store this value as a parameter to be included when required. |
| OperatorID | O | 1 | 24 | A | Operator (clerk, server, etc.) associated with the transaction. |
| UserTrace | O | 1 | 24 | A | A unique value created and supplied by POS system. |
| TranCode | R | 1 | 40 | A | "EMVSale" |
| CollectData | O | 1 | 40 | A | "CardholderName" – To optionally extract the cardholder name from the card. If name is available, it will be returned in the <CardholderName> tag in the response and the name will be included in the draft print output. |
| SecureDevice | R | 1 | 24 | A | See Section 2.1 for allowed SecureDevice values. |
| ComPort | R | 1 | 3 | N | RS232 or USB Virtual COM port number to which an EMV approved PIN pad is attached |
| Account:AcctNo | O | 1 | 24 | A | When the optional Account tag is included with the value "Prompt", the PIN pad will prompt operator for manual input of account number and expiration date.<br>*See Implementation Note 2.* |
| InvoiceNo | R | 1 | 24 | A | Invoice number - sequential receipt number, check number, or other unique transaction identifier created and supplied by POS system. |
| RefNo | R | 1 | 24 | A | Use the same data as InvoiceNo |
| Amount:Purchase | R | 1 | 8 | N | Purchase amount (with 2 place decimal – eg. 29.95) |
| Amount:Gratuity | O | 1 | 8 | N | Gratuity amount (with 2 place decimal – eg. 29.95)<br>OR<br>"Prompt" (which will cause the PIN pad to prompt the cardholder to input the gratuity amount) |
| Amount:CashBack | O | 1 | 8 | N | CashBack amount (with 2 place decimal – eg. 29.95)<br>OR<br>"Prompt" (which will cause the PIN pad to prompt the cardholder to input the cash back amount) |
| Duplicate | O | 1 | 24 | A | "None" OR "Override" (*See Implementation Note 1*) |
| SequenceNo | R | 10 | 12 | A | Use the value returned for <SequenceNo> from the last response. If the SequenceNo is lost or for initial deployment of the PIN pad, the ECR/POS should attempt any transaction (using "0010010010" as a SequnceNo value) to re-sync. |
| PartialAuth | R | 1 | 20 | A | "Allow" |
| RecordNo | O | 1 | 40 | A | To obtain a token from the payment processor for subsequent use in AdjustByRecordNo transaction. Use the value "RecordNumberRequested". Omit this tag if a token is not required. |

| | | | | | |
|---|---|---|---|---|---|
| Frequency | O | 1 | 40 | A | To request a token that can be used only in other transactions in the current batch, use the value “OneTime”. To request a token that can be used more than once in other transactions in the current or subsequent batches, use the value “Recurring”. Omit this tag if <RecordNo> tag is not supplied. |

Legend: A Alphanumeric N Numeric
O Optional R Required

***Sample Request for EMVSale (with Token Request)***

```
<?xml version="1.0"?>
<TStream>
    <Transaction>
        <HostOrIP>127.0.0.1</HostOrIP>
        <IpPort>9000</IpPort>
        <MerchantID>88430043857</MerchantID>
        <OperatorID>TEST</OperatorID>
        <UserTrace>Dev1</UserTrace>
        <TranCode>EMVSale</TranCode>
        <SecureDevice>EMV_VX805_MERCURY</SecureDevice>
        <ComPort>1</ComPort>
        <InvoiceNo>000006</InvoiceNo>
        <RefNo>000006</RefNo>
        <Amount>
            <Purchase>8.44</Purchase>
        </Amount>
        <SequenceNo>0010010010</SequenceNo>
        <RecordNo>RecordNumberRequested</RecordNo>
        <Frequency>OneTime</Frequency>
    </Transaction>
</TStream>
```

***Sample Response for EMVSale***

```
<?xml version="1.0"?>
<RStream>
    <CmdResponse>
        <ResponseOrigin>Processor</ResponseOrigin>
        <DSIXReturnCode>000000</DSIXReturnCode>
        <CmdStatus>Approved</CmdStatus>
        <TextResponse>AP</TextResponse>
        <SequenceNo>0010010010</SequenceNo>
        <UserTrace>Dev1</UserTrace>
    </CmdResponse>
    <TranResponse>
        <MerchantID>88430043857</MerchantID>
        <AcctNo>************1064</AcctNo>
        <CardType>M/C</CardType>
        <TranCode>EMVSale</TranCode>
        <AuthCode>003711</AuthCode>
        <CaptureStatus>Captured</CaptureStatus>
        <RefNo>0004</RefNo>
        <InvoiceNo>000006</InvoiceNo>
        <OperatorID>TEST</OperatorID>
        <Amount>
            <Purchase>8.44</Purchase>
            <Authorize>8.44</Authorize>
        </Amount>
        <AcqRefData>bMCC0006650528  c    e00lMCC</AcqRefData>
        <ProcessData>|00|210100500000</ProcessData>
        <RecordNo>epNxoyv7dUzKVJk0Tnhjt5IxUPVyrM7sMhIFEAASNAAphg==</RecordNo>
    </TranResponse>
    <PrintData>
        <Line1>.MERCHANT ID: 88430043857</Line1>
        <Line2>.CLERK ID: TEST</Line2>
        <Line3>.</Line3>
```

```
        <Line4>.                  SALE                  </Line4>
        <Line5>.</Line5>
        <Line6>.************1064</Line6>
        <Line7>.MASTERCARD           ENTRY METHOD: CHIP</Line7>
        <Line8>.DATE: 05/28/2015  TIME: 16:59:43</Line8>
        <Line9>.</Line9>
        <Line10>.INVOICE: 000006     AUTH CODE: 003711   </Line10>
        <Line11>.REFERENCE: 0004</Line11>
        <Line12>.</Line12>
        <Line13>.AMOUNT                       USD$ 8.44</Line13>
        <Line14>.                            ==========</Line14>
        <Line15>.TOTAL                        USD$ 8.44</Line15>
        <Line16>.</Line16>
        <Line17>.          APPROVED - THANK YOU          </Line17>
        <Line18>.</Line18>
        <Line19>.BY ENTERING A VERIFIED PIN, CARHOLDER</Line19>
        <Line20>.AGREES TO PAY ISSUER SUCH TOTAL IN</Line20>
        <Line21>.ACCORDANCE WITH ISSUER'S AGREEMENT WITH</Line21>
        <Line22>.CARDHOLDER</Line22>
        <Line23>.</Line23>
        <Line24>.</Line24>
        <Line25>.Application Label: MCC 106 V1 3</Line25>
        <Line26>.AID: A0000000041010</Line26>
        <Line27>.TVR: 0000008000</Line27>
        <Line28>.IAD: 010103643006DAC0</Line28>
        <Line29>.TSI: E800</Line29>
        <Line30>.ARC: 00</Line30>
        <Line31>.CVM: PIN VERIFIED</Line31>
    </PrintData>
</RStream>
```

***Implementation Notes:***

1. The <Duplicate> tag is not supported by all EMV processing providers. In the event that a duplicate response is received for a request (<TextResponse> = “AP_DUPE”), using a value of “Override” for the <Duplicate> tag on a subsequent attempt will force the processing host to skip duplicate checking and therefore approve what appears to be a duplicate transaction. This is useful in cases where multiple transactions of the same amount to the same card within a short time period are necessary. Do not send the “Override” value unless the previous transaction attempt resulted in a duplicate response otherwise the processing host will return <TextResponse> = “NO_DUPE_FOUND”.

2. Manual card account entry with the <AcctNo> tag should only be used if the PIN pad insertion reader fails to get card account information on the first transaction attempt. The POS logic should allow the transaction to be run again with the <AcctNo> tag included to force a manual entry of card account information.

## 3.3 EMVVoidSale

Use: Void of a previously completed EMVSale transaction – credit or debit

Note: Field values in **BOLD** are required. Field values in LIGHT GRAY are optional and extend the functionality of the basic transaction. See the following XML element table for use of both required and optional fields.

XML Template: **EMVVoidSale** (*Stripe* Account Input on EMV approved PIN pad)

XML Request Template:

```
<?xml version="1.0"?>
<TStream>
  <Transaction>
    <HostOrIP>999.999.999.999</HostOrIP>
    <IpPort>99999</IpPort>
    <MerchantID>MerchantID</MerchantID>
    <TerminalID>TerminalID</TerminalID>
    <OperatorID>OperatorID</OperatorID>
    <UserTrace>UserTrace</UserTrace>
    <TranCode>EMVVoidSale</TranCode>
    <SecureDevice>SecureDevice</SecureDevice>
    <ComPort>ComPort</ComPort>
    <InvoiceNo>InvoiceNo</InvoiceNo>
    <RefNo>RefNo</RefNo>
    <AuthCode>AuthCode</AuthCode>
    <Amount>
      <Purchase>Purchase</Purchase>
      <Gratuity>Gratuity</Gratuity>
      <CashBack>CashBack</CashBack>
    </Amount>
    <SequenceNo>SequenceNo</SequenceNo>
    <AcqRefData>AcqRefData</AcqRefData>
    <ProcessData>ProcessData</ProcessData>
  </Transaction>
</TStream>
```

| Element | Req | Min | Max | Type | Description |
|---|---|---|---|---|---|
| HostOrIP | R | 7 | 128 | A | IP address of server to use for this transaction. |
| IpPort | O | 1 | 5 | N | IP port number on server to use for this transaction. If omitted, default port is 9000. |
| MerchantID | R | 1 | 24 | A | Merchant identification assigned by processor. |
| TerminalID | R | 1 | 24 | A | Terminal ID data must be supplied in this tag only if required by the processor or merchant service provider; otherwise this tag should not be included. The POS system should store this value as a parameter to be included when required. |
| OperatorID | O | 1 | 24 | A | Operator (clerk, server, etc.) associated with the transaction. |
| UserTrace | O | 1 | 24 | A | A unique value created and supplied by POS system. |
| TranCode | R | 1 | 40 | A | "EMVVoidSale" |

| | | | | | |
|---|---|---|---|---|---|
| SecureDevice | R | 1 | 24 | A | See Section 2.1 for allowed SecureDevice values. |
| ComPort | R | 1 | 3 | N | RS232 or USB Virtual COM port number to which an EMV approved PIN pad is attached |
| InvoiceNo | R | 1 | 24 | A | Invoice number - sequential receipt number, check number, or other unique transaction identifier created and supplied by POS system. |
| RefNo | R | 1 | 24 | A | Use the same data as InvoiceNo |
| AuthCode | R | 1 | 24 | A | The value of <AuthCode> returned in the response to the EMVSale to be voided. |
| Amount:Purchase | R | 1 | 8 | N | Purchase price (with 2 place decimal – eg. 29.95) |
| Amount:Gratuity | O | 1 | 8 | N | Gratuity Amount (with 2 place decimal – eg. 29.95) |
| Amount:CashBack | O | 1 | 8 | N | CashBack amount (with 2 place decimal – eg. 29.95) |
| SequenceNo | R | 10 | 12 | A | Use the value returned for <SequenceNo> from the last response. If the SequenceNo is lost or for initial deployment of the PIN pad, the ECR/POS should attempt any transaction (using “0010010010” as a SequnceNo value) to re-sync. |
| AcqRefData | R | 1 | 40 | A | Use the <AcqRefData> value obtained in the response to a previous EMVSale transaction to be voided. |
| ProcessData | R | 1 | 40 | A | Use the <ProcessData> value returned in the response to a previous EMVSale, EMVReturn or ZeroAuth transaction. Omit this tag if no <ProcessData> was returned in the response. |

| Legend: | | | | |
|---|---|---|---|---|
| | A | Alphanumeric | N | Numeric |
| | O | Optional | R | Required |

***Sample Request for EMVVoidSale***

```
<?xml version="1.0"?>
<TStream>
    <Transaction>
      <HostOrIP>127.0.0.1</HostOrIP>
      <IpPort>9000</IpPort>
      <MerchantID>700000000245</MerchantID>
      <TerminalID>001</TerminalID>
      <OperatorID>TEST</OperatorID>
      <UserTrace>Dev1</UserTrace>
      <TranCode>EMVVoidSale</TranCode>
      <SecureDevice>EMV_VX805_PAYMENTECH</SecureDevice>
      <ComPort>1</ComPort>
      <InvoiceNo>00000088</InvoiceNo>
      <RefNo>00000088</RefNo>
      <AuthCode>005522</AuthCode>
      <Amount>
        <Purchase>40.00</Purchase>
      </Amount>
      <SequenceNo>0010010010</SequenceNo>
      <AcqRefData>AMCC0110B60528   5999</AcqRefData>
    </Transaction>
</TStream>
```

***Sample Response for EMVVoidSale***

```
<?xml version="1.0"?>
<RStream>
```

```
    <CmdResponse>
      <ResponseOrigin>Processor</ResponseOrigin>
      <DSIXReturnCode>000000</DSIXReturnCode>
      <CmdStatus>Approved</CmdStatus>
      <TextResponse>APPROVED</TextResponse>
      <SequenceNo>0010010010</SequenceNo>
      <UserTrace>Dev1</UserTrace>
    </CmdResponse>
    <TranResponse>
      <MerchantID>700000000245</MerchantID>
      <TerminalID>001</TerminalID>
      <AcctNo>************0400</AcctNo>
      <CardType>M/C</CardType>
      <TranCode>EMVVoidSale</TranCode>
      <AuthCode>005522</AuthCode>
      <CaptureStatus>Captured</CaptureStatus>
      <RefNo>00000089</RefNo>
      <InvoiceNo>00000088</InvoiceNo>
      <OperatorID>TEST</OperatorID>
      <Amount>
        <Purchase>40.00</Purchase>
        <Authorize>40.00</Authorize>
      </Amount>
    </TranResponse>
    <PrintData>
      <Line1>.MERCHANT ID: 700000000245</Line1>
      <Line2>.TERMINAL ID: 001</Line2>
      <Line3>.CLERK ID: TEST</Line3>
      <Line4>.</Line4>
      <Line5>.                VOID SALE              </Line5>
      <Line6>.</Line6>
      <Line7>.************0400</Line7>
      <Line8>.MASTERCARD           ENTRY METHOD: CHIP</Line8>
      <Line9>.DATE: 05/28/2015  TIME: 16:50:35</Line9>
      <Line10>.</Line10>
      <Line11>.INVOICE: 00000088   AUTH CODE: 005522   </Line11>
      <Line12>.REFERENCE: 00000089</Line12>
      <Line13>.</Line13>
      <Line14>.AMOUNT                      USD$ 40.00</Line14>
      <Line15>.                            ==========</Line15>
      <Line16>.TOTAL                       USD$ 40.00</Line16>
      <Line17>.</Line17>
      <Line18>.          APPROVED - THANK YOU          </Line18>
      <Line19>.</Line19>
      <Line20>.I AGREE TO PAY THE ABOVE TOTAL AMOUNT</Line20>
      <Line21>.ACCORDING TO CARD ISSUER AGREEMENT</Line21>
      <Line22>.(MERCHANT AGREEMENT IF CREDIT VOUCHER)</Line22>
      <Line23>.</Line23>
      <Line24>.</Line24>
      <Line25>.</Line25>
      <Line26>.x_____</Line26>
      <Line27>.           Merchant Signature           </Line27>
      <Line28>.</Line28>
      <Line29>.</Line29>
      <Line30>.Application Label: MasterCard</Line30>
      <Line31>.AID: A0000000041010</Line31>
      <Line32>.TVR: 0000008000</Line32>
      <Line33>.IAD: 021280000F240000DAC000000000000000FF33</Line33>
      <Line34>.TSI: A800</Line34>
      <Line35>.CVM: SIGN</Line35>
    </PrintData>
  </RStream>
```

## 3.4 EMVReturn

Use: To process a return (refund) using EMV capable equipment. Credit and Debit transactions with chip, MSR and manually input account information are supported.

Note: Field values in **BOLD** are required. Field values in LIGHT GRAY are optional and extend the functionality of the basic transaction. See the following XML element table for use of both required and optional fields.

XML Template: **EMVReturn**

Functional Options for EMVReturn:

1. Token Request - (Tags: <RecordNo> and <Frequency>) – Used to request an optional unique transaction identifier (token) to be assigned by the payment processor and returned in the transaction response. This token value is supplied to a subsequent **AdjustByRecordNo** transaction request to alter the amounts on the original transaction without possession of the card (e.g. for tip entry). *Note* that not all processors support token issuance or subsequent use *and* that only cards that don't require a PIN entry during the EMVReturn will be able to request a token.

XML Request Template:

```
<?xml version="1.0"?>
<TStream>
  <Transaction>
    <HostOrIP>999.999.999.999</HostOrIP>
    <IpPort>99999</IpPort>
    <MerchantID>MerchantID</MerchantID>
    <TerminalID>TerminalID</TerminalID>
    <OperatorID>OperatorID</OperatorID>
    <UserTrace>UserTrace</UserTrace>
    <TranCode>EMVReturn</TranCode>
    <SecureDevice>SecureDevice</SecureDevice>
    <ComPort>ComPort</ComPort>
    <Account>
      <AcctNo>AcctNo</AcctNo>
    </Account>
    <InvoiceNo>InvoiceNo</InvoiceNo>
    <RefNo>RefNo</RefNo>
    <Amount>
      <Purchase>Purchase</Purchase>
    </Amount>
    <Duplicate>Duplicate</Duplicate>
    <SequenceNo>SequenceNo</SequenceNo>
    <RecordNo>RecordNumberRequested</RecordNo>
    <Frequency>Frequency</Frequency>
  </Transaction>
</TStream>
```

| Element | Req | Min | Max | Type | Description |
|---|---|---|---|---|---|
| HostOrIP | R | 7 | 128 | A | IP address of server to use for this transaction. |
| IpPort | O | 1 | 5 | N | IP port number on server to use for this transaction. If omitted, default port is 9000. |
| MerchantID | R | 1 | 24 | A | Merchant identification assigned by processor. |
| TerminalID | R | 1 | 24 | A | Terminal ID data must be supplied in this tag only if required by the processor or merchant service provider; otherwise this tag should not be included. The POS system should store this value as a parameter to be included when required. |
| OperatorID | O | 1 | 24 | A | Operator (clerk, server, etc.) associated with the transaction. |
| UserTrace | O | 1 | 24 | A | A unique value created and supplied by POS system. |
| TranCode | R | 1 | 40 | A | “EMVReturn” |
| SecureDevice | R | 1 | 24 | A | See Section 2.1 for allowed SecureDevice values. |
| ComPort | R | 1 | 3 | N | RS232 or USB Virtual COM port number to which an EMV approved PIN pad is attached |
| Account:AcctNo | o | 1 | 24 | A | “Prompt” – When the optional Account tag is included with the value Prompt, the PIN pad will prompt the operator for manual input of account number and expiration date from the card. |
| InvoiceNo | R | 1 | 24 | A | Invoice number - sequential receipt number, check number, or other unique transaction identifier created and supplied by POS system. |
| RefNo | R | 1 | 24 | A | Use the same data as InvoiceNo |
| Amount:Purchase | R | 1 | 8 | N | Purchase price (with 2 place decimal – eg. 29.95) |
| Duplicate | O | 1 | 24 | A | “None” OR “Override” (See implementation note 1) |
| SequenceNo | R | 10 | 12 | A | Use the value returned for <SequenceNo> from the last response. If the SequenceNo is lost or for initial deployment of the PIN pad, the ECR/POS should attempt any transaction (using “0010010010” as a SequnceNo value) to re-sync. |
| RecordNo | O | 1 | 40 | A | To obtain a token from the payment processor for subsequent use in AdjustByRecordNo transaction. Use the value “RecordNumberRequested”. |
| Frequency | O | 1 | 40 | A | “OneTime” |

Legend: A Alphanumeric N Numeric
O Optional R Required

### *Sample EMV Return Request*

```
<?xml version="1.0"?>
<TStream>
    <Transaction>
      <HostOrIP>127.0.0.1</HostOrIP>
      <IpPort>9000</IpPort>
      <MerchantID>700000000245</MerchantID>
      <TerminalID>001</TerminalID>
      <OperatorID>TEST</OperatorID>
      <UserTrace>Dev1</UserTrace>
      <TranCode>EMVReturn</TranCode>
      <SecureDevice>EMV_VX805_PAYMENTECH</SecureDevice>
      <ComPort>1</ComPort>
      <InvoiceNo>0002</InvoiceNo>
      <RefNo>0002</RefNo>
      <Amount>
        <Purchase>10.00</Purchase>
      </Amount>
      <SequenceNo>0010010010</SequenceNo>
    </Transaction>
</TStream>
```

### *Sample EMV Return Response*

```
<?xml version="1.0"?>
<RStream>
    <CmdResponse>
      <ResponseOrigin>Processor</ResponseOrigin>
      <DSIXReturnCode>000000</DSIXReturnCode>
      <CmdStatus>Approved</CmdStatus>
      <TextResponse>APPROVED</TextResponse>
      <SequenceNo>0010010010</SequenceNo>
      <UserTrace>Dev1</UserTrace>
    </CmdResponse>
    <TranResponse>
      <MerchantID>700000000245</MerchantID>
      <TerminalID>001</TerminalID>
      <AcctNo>************0400</AcctNo>
      <CardType>M/C</CardType>
      <TranCode>EMVReturn</TranCode>
      <AuthCode>______</AuthCode>
      <CaptureStatus>Captured</CaptureStatus>
      <RefNo>00000090</RefNo>
      <InvoiceNo>0002</InvoiceNo>
      <OperatorID>TEST</OperatorID>
      <Amount>
        <Purchase>10.00</Purchase>
        <Authorize>10.00</Authorize>
      </Amount>
    </TranResponse>
    <PrintData>
      <Line1>.MERCHANT ID: 700000000245</Line1>
      <Line2>.TERMINAL ID: 001</Line2>
      <Line3>.CLERK ID: TEST</Line3>
      <Line4>.</Line4>
      <Line5>.                 REFUND                 </Line5>
      <Line6>.</Line6>
      <Line7>.************0400</Line7>
      <Line8>.MASTERCARD           ENTRY METHOD: CHIP</Line8>
      <Line9>.DATE: 05/28/2015  TIME: 16:53:27</Line9>
      <Line10>.</Line10>
      <Line11>.INVOICE: 0002       AUTH CODE: ______   </Line11>
      <Line12>.REFERENCE: 00000090</Line12>
      <Line13>.</Line13>
      <Line14>.AMOUNT                      USD$ 10.00</Line14>
      <Line15>.                            ==========</Line15>
      <Line16>.TOTAL                       USD$ 10.00</Line16>
      <Line17>.</Line17>
      <Line18>.          APPROVED - THANK YOU          </Line18>
```

```
      <Line19>.</Line19>
      <Line20>.I AGREE TO PAY THE ABOVE TOTAL AMOUNT</Line20>
      <Line21>.ACCORDING TO CARD ISSUER AGREEMENT</Line21>
      <Line22>.(MERCHANT AGREEMENT IF CREDIT VOUCHER)</Line22>
      <Line23>.</Line23>
      <Line24>.</Line24>
      <Line25>.</Line25>
      <Line26>.x_____</Line26>
      <Line27>.          Merchant Signature          </Line27>
      <Line28>.</Line28>
      <Line29>.</Line29>
      <Line30>.Application Label: MasterCard</Line30>
      <Line31>.AID: A0000000041010</Line31>
      <Line32>.TVR: 0000008000</Line32>
      <Line33>.IAD: 021280000F240000DAC000000000000000FF33</Line33>
      <Line34>.TSI: A800</Line34>
      <Line35>.CVM: SIGN</Line35>
    </PrintData>
</RStream>
```

***Implementation Notes:***

1. The Duplicate tag is not supported by all EMV processing providers. In the event that a duplicate response is received for a request (<TextResponse = “AP_DUPE”), using a value of “Override” for the Duplicate tag on a subsequent attempt will force the processing host to skip duplicate checking and therefore approve what appears to be a duplicate transaction. This is useful in cases where multiple transactions of the same amount to the same card within a short time period are necessary. Do not send the “Override” value unless the previous transaction attempt resulted in a duplicate response otherwise the processing host will return <TextResponse> = “NO_DUPE_FOUND”.

## 3.5 EMVVoidReturn

Use: Void of a previously completed EMVReturn transaction – credit or debit

Note: Field values in **BOLD** are required. Field values in LIGHT GRAY are optional and extend the functionality of the basic transaction. See the following XML element table for use of both required and optional fields.

XML Template: **EMVVoidReturn**

XML Request Template:

```
<?xml version="1.0"?>
<TStream>
  <Transaction>
    <HostOrIP>999.999.999.999</HostOrIP>
    <IpPort>99999</IpPort>
    <MerchantID>MerchantID</MerchantID>
    <TerminalID>TerminalID</TerminalID>
    <OperatorID>OperatorID</OperatorID>
    <UserTrace>UserTrace</UserTrace>
    <TranCode>EMVReturn</TranCode>
    <SecureDevice>SecureDevice</SecureDevice>
    <ComPort>ComPort</ComPort>
    <InvoiceNo>InvoiceNo</InvoiceNo>
    <RefNo>RefNo</RefNo>
    <AuthCode>AuthCode</AuthCode>
    <Amount>
      <Purchase>Purchase</Purchase>
    </Amount>
    <SequenceNo>SequenceNo</SequenceNo>
    <AcqRefData>AcqRefData</AcqRefData>
    <ProcessData>ProcessData</ProcessData>
  </Transaction>
</TStream>
```

| Element | Req | Min | Max | Type | Description |
|---|---|---|---|---|---|
| HostOrIP | R | 7 | 128 | A | IP address of server to use for this transaction. |
| IpPort | O | 1 | 5 | N | IP port number on server to use for this transaction. If omitted, default port is 9000. |
| MerchantID | R | 1 | 24 | A | Merchant identification assigned by processor. |
| TerminalID | R | 1 | 24 | A | Terminal ID data must be supplied in this tag only if required by the processor or merchant service provider; otherwise this tag should not be included. The POS system should store this value as a parameter to be included when required. |
| OperatorID | O | 1 | 24 | A | Operator (clerk, server, etc.) associated with the transaction. |
| UserTrace | O | 1 | 24 | A | A unique value created and supplied by POS system. |
| TranCode | R | 1 | 40 | A | "EMVVoidReturn" |
| SecureDevice | R | 1 | 24 | A | See Section 2.1 for allowed SecureDevice values. |
| ComPort | R | 1 | 3 | N | RS232 or USB Virtual COM port number to which an |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | EMV approved PIN pad is attached |
| InvoiceNo | R | 1 | 24 | A | Invoice number - sequential receipt number, check number, or other unique transaction identifier created and supplied by POS system. |
| RefNo | R | 1 | 24 | A | Use the same data as InvoiceNo |
| AuthCode | R | 1 | 24 | A | The value of <AuthCode> returned in the response to the EMVReturn to be voided. |
| Amount:Purchase | R | 1 | 8 | N | Purchase price (with 2 place decimal – eg. 29.95) |
| SequenceNo | R | 10 | 12 | A | Use the value returned for <SequenceNo> from the last response. If the SequenceNo is lost or for initial deployment of the PIN pad, the ECR/POS should attempt any transaction (using "0010010010" as a SequnceNo value) to re-sync. |
| AcqRefData | R | 1 | 40 | A | Use the <AcqRefData> value obtained in the response to a previous EMVReturn transaction to be voided. |
| ProcessData | R | 1 | 40 | A | Use the <ProcessData> value returned in the response to a previous EMVSale, EMVReturn or ZeroAuth transaction. Omit this tag if no <ProcessData> was returned in the response. |

Legend: A Alphanumeric N Numeric
O Optional R Required

***Sample EMVVoidReturn Request***

```
<?xml version="1.0"?>
<TStream>
    <Transaction>
        <HostOrIP>127.0.0.1</HostOrIP>
        <IpPort>9000</IpPort>
        <MerchantID>700000000245</MerchantID>
        <TerminalID>004</TerminalID>
        <UserTrace>Dev1</UserTrace>
        <TranCode>EMVVoidReturn</TranCode>
        <SecureDevice>EMV_VX805_PAYMENTECH</SecureDevice>
        <ComPort>1</ComPort>
        <InvoiceNo>00000008</InvoiceNo>
        <RefNo>00000008</RefNo>
        <AuthCode>______</AuthCode>
        <Amount>
            <Purchase>6.00</Purchase>
        </Amount>
        <SequenceNo>0010010010</SequenceNo>
    </Transaction>
</TStream>
```

***Sample EMVVoidReturn Response***

```
<?xml version="1.0"?>
<RStream>
    <CmdResponse>
        <ResponseOrigin>Processor</ResponseOrigin>
        <DSIXReturnCode>000000</DSIXReturnCode>
        <CmdStatus>Approved</CmdStatus>
        <TextResponse>APPROVED</TextResponse>
        <SequenceNo>0010010010</SequenceNo>
        <UserTrace>Dev1</UserTrace>
    </CmdResponse>
    <TranResponse>
        <MerchantID>700000000245</MerchantID>
        <TerminalID>004</TerminalID>
```

```
        <AcctNo>************1064</AcctNo>
        <CardType>M/C</CardType>
        <TranCode>EMVVoidReturn</TranCode>
        <AuthCode>______</AuthCode>
        <CaptureStatus>Captured</CaptureStatus>
        <RefNo>00000009</RefNo>
        <InvoiceNo>00000008</InvoiceNo>
        <Amount>
            <Purchase>6.00</Purchase>
            <Authorize>6.00</Authorize>
        </Amount>
    </TranResponse>
    <PrintData>
        <Line1>.MERCHANT ID: 700000000245</Line1>
        <Line2>.TERMINAL ID: 004</Line2>
        <Line3>.</Line3>
        <Line4>.               VOID REFUND             </Line4>
        <Line5>.</Line5>
        <Line6>.************1064</Line6>
        <Line7>.MASTER CARD          ENTRY METHOD: CHIP</Line7>
        <Line8>.DATE: 05/13/2015  TIME: 09:29:40</Line8>
        <Line9>.</Line9>
        <Line10>.INVOICE: 00000008   AUTH CODE: ______   </Line10>
        <Line11>.REFERENCE: 00000009</Line11>
        <Line12>.</Line12>
        <Line13>.AMOUNT                      USD$ 6.00</Line13>
        <Line14>.                           ==========</Line14>
        <Line15>.TOTAL                       USD$ 6.00</Line15>
        <Line16>.</Line16>
        <Line17>.          APPROVED - THANK YOU          </Line17>
        <Line18>.</Line18>
        <Line19>.I AGREE TO PAY THE ABOVE TOTAL AMOUNT</Line19>
        <Line20>.ACCORDING TO CARD ISSUER AGREEMENT</Line20>
        <Line21>.(MERCHANT AGREEMENT IF CREDIT VOUCHER)</Line21>
        <Line22>.</Line22>
        <Line23>.</Line23>
        <Line24>.</Line24>
        <Line25>.x_____</Line25>
        <Line26>.           Merchant Signature           </Line26>
        <Line27>.</Line27>
        <Line28>.</Line28>
        <Line29>.Application Label: MCC 106 V1 3</Line29>
        <Line30>.AID: A0000000041010</Line30>
        <Line31>.TVR: 0000008000</Line31>
        <Line32>.IAD: 010103800000DAC0</Line32>
        <Line33>.TSI: A800</Line33>
        <Line34>.CVM: SIGN</Line34>
    </PrintData>
</RStream>
```

## 3.6 EMVVoiceAuth

Use: Capture a transaction that was authorized by voice into the current batch

Note: Field values in **BOLD** are required. Field values in LIGHT GRAY are optional and extend the functionality of the basic transaction. See the following XML element table for use of both required and optional fields.

XML Template: **EMVVoiceAuth**

XML Request Template:

```
<?xml version="1.0"?>
<TStream>
  <Transaction>
    <HostOrIP>999.999.999.999</HostOrIP>
    <IpPort>99999</IpPort>
    <MerchantID>MerchantID</MerchantID>
    <TerminalID>TerminalID</TerminalID>
    <OperatorID>OperatorID</OperatorID>
    <UserTrace>UserTrace</UserTrace>
    <TranCode>EMVVoiceAuth</TranCode>
    <SecureDevice>SecureDevice</SecureDevice>
    <ComPort>ComPort</ComPort>
    <Account>
      <AcctNo>AcctNo</AcctNo>
    </Account>
    <InvoiceNo>InvoiceNo</InvoiceNo>
    <RefNo>RefNo</RefNo>
    <AuthCode>AuthCode</AuthCode>
    <Amount>
      <Purchase>Purchase</Purchase>
      <Gratuity>Gratuity</Gratuity>
      <CashBack>CashBack</CashBack>
    </Amount>
    <Duplicate>Duplicate</Duplicate>
    <SequenceNo>SequenceNo</SequenceNo>
  </Transaction>
</TStream>
```

| Element | Req | Min | Max | Type | Description |
|---|---|---|---|---|---|
| HostOrIP | R | 7 | 128 | A | IP address of server to use for this transaction. |
| IpPort | O | 1 | 5 | N | IP port number on server to use for this transaction. If omitted, default port is 9000. |
| MerchantID | R | 1 | 24 | A | Merchant identification assigned by processor. |
| TerminalID | R | 1 | 24 | A | Terminal ID data must be supplied in this tag only if required by the processor or merchant service provider; otherwise this tag should not be included. The POS system should store this value as a parameter to be included when required. |
| OperatorID | O | 1 | 24 | A | Operator (clerk, server, etc.) associated with the transaction. |
| UserTrace | O | 1 | 24 | A | A unique value created and supplied by POS system. |

| | | | | | |
|---|---|---|---|---|---|
| TranCode | R | 1 | 40 | A | “EMVVoiceAuth” |
| SecureDevice | R | 1 | 24 | A | See Section 2.1 for allowed SecureDevice values. |
| ComPort | R | 1 | 3 | N | RS232 or USB Virtual COM port number to which an EMV approved PIN pad is attached |
| Account:AcctNo | O | 1 | 24 | A | “Prompt” – The PIN pad will prompt the operator for manual input of account number and expiration date from the card. |
| InvoiceNo | R | 1 | 24 | A | Invoice number - sequential receipt number, check number, or other unique transaction identifier created and supplied by POS system. |
| RefNo | R | 1 | 24 | A | Use the same data as InvoiceNo |
| AuthCode | R | 1 | 24 | A | The authorization code obtained via telephone to the processing provider |
| Amount:Purchase | R | 1 | 8 | N | Purchase price (with 2 place decimal – eg. 29.95) |
| Amount:Gratuity | O | 1 | 8 | N | Gratuity Amount (with 2 place decimal – eg. 29.95) |
| Amount:CashBack | O | 1 | 8 | N | CashBack amount (with 2 place decimal – eg. 29.95) |
| SequenceNo | R | 10 | 12 | A | Use the value returned for <SequenceNo> from the last response. If the SequenceNo is lost or for initial deployment of the PIN pad, the ECR/POS should attempt any transaction (using “0010010010” as a SequnceNo value) to re-sync. |

Legend: A Alphanumeric N Numeric
O Optional R Required

***Sample EMVVoiceAuth Request***

```
<?xml version="1.0"?>
<TStream>
    <Transaction>
        <HostOrIP>127.0.0.1</HostOrIP>
        <IpPort>9000</IpPort>
        <MerchantID>700000000245</MerchantID>
        <TerminalID>001</TerminalID>
        <OperatorID>TEST</OperatorID>
        <UserTrace>Dev1</UserTrace>
        <TranCode>EMVVoiceAuth</TranCode>
        <SecureDevice>EMV_VX805_PAYMENTECH</SecureDevice>
        <ComPort>1</ComPort>
        <InvoiceNo>00000090</InvoiceNo>
        <RefNo>00000090</RefNo>
        <AuthCode>123456</AuthCode>
        <Amount>
            <Purchase>6.00</Purchase>
        </Amount>
        <SequenceNo>0010010010</SequenceNo>
    </Transaction>
</TStream>
```

***Sample EMVVoiceAuth Response***

```
<?xml version="1.0"?>
<RStream>
    <CmdResponse>
        <ResponseOrigin>Processor</ResponseOrigin>
        <DSIXReturnCode>000000</DSIXReturnCode>
        <CmdStatus>Approved</CmdStatus>
        <TextResponse>APPROVED</TextResponse>
        <SequenceNo>0010010010</SequenceNo>
```

```
        <UserTrace>Dev1</UserTrace>
    </CmdResponse>
    <TranResponse>
        <MerchantID>700000000245</MerchantID>
        <TerminalID>001</TerminalID>
        <AcctNo>************0000</AcctNo>
        <CardType>DCVR</CardType>
        <TranCode>EMVVoiceAuth</TranCode>
        <AuthCode>123456</AuthCode>
        <CaptureStatus>Captured</CaptureStatus>
        <RefNo>00000091</RefNo>
        <InvoiceNo>00000090</InvoiceNo>
        <OperatorID>TEST</OperatorID>
        <Amount>
            <Purchase>6.00</Purchase>
            <Authorize>6.00</Authorize>
        </Amount>
    </TranResponse>
    <PrintData>
        <Line1>.MERCHANT ID: 700000000245</Line1>
        <Line2>.TERMINAL ID: 001</Line2>
        <Line3>.CLERK ID: TEST</Line3>
        <Line4>.</Line4>
        <Line5>.                POST AUTH               </Line5>
        <Line6>.</Line6>
        <Line7>.************0000</Line7>
        <Line8>.DISCOVER           ENTRY METHOD: SWIPED</Line8>
        <Line9>.DATE: 05/28/2015  TIME: 16:55:50</Line9>
        <Line10>.</Line10>
        <Line11>.INVOICE: 00000090   AUTH CODE: 123456   </Line11>
        <Line12>.REFERENCE: 00000091</Line12>
        <Line13>.</Line13>
        <Line14>.AMOUNT                       USD$ 6.00</Line14>
        <Line15>.                            ==========</Line15>
        <Line16>.TOTAL                        USD$ 6.00</Line16>
        <Line17>.</Line17>
        <Line18>.          APPROVED - THANK YOU          </Line18>
        <Line19>.</Line19>
        <Line20>.I AGREE TO PAY THE ABOVE TOTAL AMOUNT</Line20>
        <Line21>.ACCORDING TO CARD ISSUER AGREEMENT</Line21>
        <Line22>.(MERCHANT AGREEMENT IF CREDIT VOUCHER)</Line22>
        <Line23>.</Line23>
        <Line24>.</Line24>
        <Line25>.</Line25>
        <Line26>.x_____________________________________</Line26>
        <Line27>.          Cardholder Signature          </Line27>
        <Line28>.</Line28>
    </PrintData>
</RStream>
```

## 3.7 EMVZeroAuth

Use: To verify a card is valid without charging any amount. *This transaction does not create a charge/debit to the cardholder account and no funds will be accrued to the merchant.*

Note: Field values in **BOLD** are required. Field values in LIGHT GRAY are optional and extend the functionality of the basic transaction. See the following XML element table for use of both required and optional fields.

XML Template: **EMVZeroAuth**

Functional Options for EMVZeroAuth:

1. Token Request - (Tags: <RecordNo> and <Frequency>) – Used to request an optional unique transaction identifier (token) to be assigned by the payment processor and returned in the transaction response. This token value is supplied to a subsequent **AdjustByRecordNo** transaction request to alter the amounts on the original transaction without possession of the card (e.g. for tip entry). *Note* that not all processors support token issuance or subsequent use *and* that only cards that don't require a PIN entry during the EMVZeroAuth will be able to request a token.

XML Request Template:

```
<?xml version="1.0"?>
<TStream>
  <Transaction>
    <HostOrIP>999.999.999.999</HostOrIP>
    <IpPort>99999</IpPort>
    <MerchantID>MerchantID</MerchantID>
    <TerminalID>TerminalID</TerminalID>
    <OperatorID>OperatorID</OperatorID>
    <UserTrace>UserTrace</UserTrace>
    <TranCode>EMVZeroAuth</TranCode>
    <SecureDevice>SecureDevice</SecureDevice>
    <ComPort>ComPort</ComPort>
    <Account>
      <AcctNo>AcctNo</AcctNo>
    </Account>
    <InvoiceNo>InvoiceNo</InvoiceNo>
    <RefNo>RefNo</RefNo>
    <Amount>
      <Purchase>Purchase</Purchase>
    </Amount>
    <SequenceNo>SequenceNo</SequenceNo>
    <RecordNo>RecordNumberRequested</RecordNo>
    <Frequency>Frequency</Frequency>
  </Transaction>
</TStream>
```

| Element | Req | Min | Max | Type | Description |
|---|---|---|---|---|---|
| HostOrIP | R | 7 | 128 | A | IP address of server to use for this transaction. |
| IpPort | O | 1 | 5 | N | IP port number on server to use for this transaction. If omitted, default port is 9000. |
| MerchantID | R | 1 | 24 | A | Merchant identification assigned by processor. |
| TerminalID | R | 1 | 24 | A | Terminal ID data must be supplied in this tag only if required by the processor or merchant service provider; otherwise this tag should not be included. The POS system should store this value as a parameter to be included when required. |
| OperatorID | O | 1 | 24 | A | Operator (clerk, server, etc.) associated with the transaction. |
| UserTrace | O | 1 | 24 | A | A unique value created and supplied by POS system. |
| TranCode | R | 1 | 40 | A | “EMVZeroAuth” |
| SecureDevice | R | 1 | 24 | A | See Section 2.1 for allowed SecureDevice values. |
| ComPort | R | 1 | 3 | N | RS232 or USB Virtual COM port number to which an EMV approved PIN pad is attached |
| Account:AcctNo | O | 1 | 24 | A | “Prompt” – When the optional Account tag is included with the value Prompt, the PIN pad will prompt the operator for manual input of account number and expiration date from the card. |
| InvoiceNo | R | 1 | 24 | A | Invoice number - sequential receipt number, check number, or other unique transaction identifier created and supplied by POS system. |
| RefNo | R | 1 | 24 | A | Use the same data as InvoiceNo |
| Amount:Purchase | R | 1 | 8 | N | “0.00” |
| SequenceNo | R | 10 | 12 | A | Use the value returned for <SequenceNo> from the last response. If the SequenceNo is lost or for initial deployment of the PIN pad, the ECR/POS should attempt any transaction (using “0010010010” as a SequnceNo value) to re-sync. |
| RecordNo | O | 1 | 40 | A | Required by selected payment processors when token use is enabled for the merchant’s account. Required by: Mercury. Otherwise omit this tag. |
| Frequency | O | 1 | 40 | A | If RecordNo tag is included, include this tag also with value “OneTime” |

Legend: A Alphanumeric N Numeric
O Optional R Required

### *Sample EMVZeroAuth Request*

```
<?xml version="1.0"?>
<TStream>
    <Transaction>
      <HostOrIP>127.0.0.1</HostOrIP>
      <IpPort>9000</IpPort>
      <MerchantID>700000000245</MerchantID>
      <TerminalID>001</TerminalID>
      <OperatorID>TEST</OperatorID>
      <UserTrace>Dev1</UserTrace>
      <TranCode>EMVZeroAuth</TranCode>
      <SecureDevice>EMV_VX805_PAYMENTECH</SecureDevice>
      <ComPort>1</ComPort>
      <InvoiceNo>000005</InvoiceNo>
      <RefNo>000005</RefNo>
      <Amount>
        <Purchase>0.00</Purchase>
      </Amount>
      <SequenceNo>0010010010</SequenceNo>
    </Transaction>
</TStream>
```

### *Sample EMVZeroAuth Response*

```
<?xml version="1.0"?>
<RStream>
    <CmdResponse>
      <ResponseOrigin>Processor</ResponseOrigin>
      <DSIXReturnCode>000000</DSIXReturnCode>
      <CmdStatus>Approved</CmdStatus>
      <TextResponse>APPROVED</TextResponse>
      <SequenceNo>0010010010</SequenceNo>
      <UserTrace>Dev1</UserTrace>
    </CmdResponse>
    <TranResponse>
      <MerchantID>700000000245</MerchantID>
      <TerminalID>001</TerminalID>
      <AcctNo>************0400</AcctNo>
      <CardType>M/C</CardType>
      <TranCode>EMVZeroAuth</TranCode>
      <AuthCode>005527</AuthCode>
      <RefNo>00000041</RefNo>
      <InvoiceNo>000005</InvoiceNo>
      <OperatorID>TEST</OperatorID>
      <Amount>
        <Purchase>0.00</Purchase>
        <Authorize>0.00</Authorize>
      </Amount>
      <AcqRefData>AMCC0110BC0528   5999</AcqRefData>
    </TranResponse>
    <PrintData>
      <Line1>.MERCHANT ID: 700000000245</Line1>
      <Line2>.TERMINAL ID: 001</Line2>
      <Line3>.CLERK ID: TEST</Line3>
      <Line4>.</Line4>
      <Line5>.               VERIFY CARD             </Line5>
      <Line6>.</Line6>
      <Line7>.************0400</Line7>
      <Line8>.MASTERCARD           ENTRY METHOD: CHIP</Line8>
      <Line9>.DATE: 05/28/2015  TIME: 16:56:26</Line9>
      <Line10>.</Line10>
      <Line11>.INVOICE: 000005     AUTH CODE: 005527   </Line11>
      <Line12>.REFERENCE: 00000041</Line12>
      <Line13>.</Line13>
      <Line14>.AMOUNT                       USD$ 0.00</Line14>
      <Line15>.                            ==========</Line15>
      <Line16>.TOTAL                        USD$ 0.00</Line16>
      <Line17>.</Line17>
      <Line18>.          APPROVED - THANK YOU          </Line18>
      <Line19>.</Line19>
```

```
      <Line20>.BY ENTERING A VERIFIED PIN, CARHOLDER</Line20>
      <Line21>.AGREES TO PAY ISSUER SUCH TOTAL IN</Line21>
      <Line22>.ACCORDANCE WITH ISSUER'S AGREEMENT WITH</Line22>
      <Line23>.CARDHOLDER</Line23>
      <Line24>.</Line24>
      <Line25>.</Line25>
      <Line26>.Application Label: MasterCard</Line26>
      <Line27>.AID: A0000000041010</Line27>
      <Line28>.TVR: 0000008000</Line28>
      <Line29>.IAD: 021280000F240000DAC0000000000000000FF33</Line29>
      <Line30>.TSI: E800</Line30>
      <Line31>.ARC: 00</Line31>
      <Line32>.CVM: PIN VERIFIED</Line32>
    </PrintData>
</RStream>
```

## 3.8 AdjustByRecordNo

Use: To adjust the gratuity amount on a previously processed EMVSale or EMVVoiceAuth transaction.

Note: Field values in **BOLD** are required. Field values in LIGHT GRAY are optional and extend the functionality of the basic transaction. See the following XML element table for use of both required and optional fields.

XML Template: **AdjustByRecordNo**

XML Request Template:

```
<?xml version="1.0"?>
<TStream>
  <Transaction>
    <HostOrIP>999.999.999.999</HostOrIP>
    <IpPort>99999</IpPort>
    <MerchantID>MerchantID</MerchantID>
    <TerminalID>TerminalID</TerminalID>
    <OperatorID>OperatorID</OperatorID>
    <UserTrace>UserTrace</UserTrace>
    <TranType>TranType</TranType>
    <TranCode>AdjustByRecordNo</TranCode>
    <SecureDevice>SecureDevice</SecureDevice>
    <ComPort>ComPort</ComPort>
    <InvoiceNo>InvoiceNo</InvoiceNo>
    <RefNo>RefNo</RefNo>
    <AuthCode>AuthCode</AuthCode>
    <Amount>
      <Purchase>Purchase</Purchase>
      <Gratuity>Gratuity</Gratuity>
      <CashBack>CashBack</CashBack>
    </Amount>
    <SequenceNo>SequenceNo</SequenceNo>
    <PartialAuth>PartialAuth</PartialAuth>
    <RecordNo>RecordNo</RecordNo>
    <Frequency>Frequency</Frequency>
    <AcqRefData>AcqRefData</AcqRefData>
    <ProcessData>ProcessData</ProcessData>
  </Transaction>
</TStream>
```

| Element | Req | Min | Max | Type | Description |
|---|---|---|---|---|---|
| HostOrIP | R | 7 | 128 | A | IP address of server to use for this transaction. |
| IpPort | O | 1 | 5 | N | IP port number on server to use for this transaction. If omitted, default port is 9000. |
| MerchantID | R | 1 | 24 | A | Merchant identification assigned by processor. |
| TerminalID | R | 1 | 24 | A | Terminal ID data must be supplied in this tag only if required by the processor or merchant service provider; otherwise this tag should not be included. The POS system should store this value as a parameter to be included when required. |
| OperatorID | O | 1 | 24 | A | Operator (clerk, server, etc.) associated with the |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | transaction. |
| UserTrace | O | 1 | 24 | A | A unique value created and supplied by POS system. |
| TranCode | R | 1 | 40 | A | “AdjustByRecordNo” |
| SecureDevice | R | 1 | 24 | A | See Section 2.1 for allowed SecureDevice values. |
| ComPort | R | 1 | 3 | N | RS232 or USB Virtual COM port number to which an EMV approved PIN pad is attached |
| Account:AcctNo | O | 1 | 24 | A | “Prompt” – When the optional Account tag is included with the value Prompt, the PIN pad will prompt the operator for manual input of account number and expiration date from the card. |
| InvoiceNo | R | 1 | 24 | A | Invoice number - sequential receipt number, check number, or other unique transaction identifier created and supplied by POS system. |
| RefNo | R | 1 | 24 | A | Use the same data as InvoiceNo |
| AuthCode | R | 1 | 24 | A | The authorization code obtained in the response to the EMVSale, EMVReturn or EMVZeroAuth transaction to be adjusted. |
| Amount:Purchase | R | 1 | 8 | N | Purchase price (with 2 place decimal – eg. 29.95) |
| Amount:Gratuity | R | 1 | 8 | N | Gratuity Amount to be adjusted (with 2 place decimal – eg. 29.95) |
| Amount:CashBack | O | 1 | 8 | N | CashBack amount supplied in original trnsaction (with 2 place decimal – eg. 29.95) |
| SequenceNo | R | 10 | 12 | A | Use the value returned for <SequenceNo> from the last response. If the SequenceNo is lost or for initial deployment of the PIN pad, the ECR/POS should attempt any transaction (using “0010010010” as a SequnceNo value) to re-sync. |
| PartialAuth | R | 1 | 20 | A | “Allow” |
| RecordNo | R | 1 | 40 | A | Use the <RecordNo> value obtained in the response to a previous EMVSale, EMVReturn or EMVZeroAuth transaction that included a token request. |
| Frequency | R | 1 | 40 | A | “OneTime” |
| AcqRefData | R | 1 | 40 | A | Use the <AcqRefData> value obtained in the response to a previous EMVSale, EMVReturn or ZeroAuth transaction. |
| ProcessData | R | 1 | 40 | A | Use the <ProcessData> value obtained in the response to a previous EMVSale, EMVReturn or ZeroAuth transaction. Omit this tag if no <ProcessData> was returned in the response. |

Legend:

| | | | |
|---|---|---|---|
| A | Alphanumeric | N | Numeric |
| O | Optional | R | Required |

***Sample AdjustByRecordNo Request***

```
<TStream>
    <Transaction>
        <HostOrIP>127.0.0.1</HostOrIP>
        <IpPort>9000</IpPort>
        <MerchantID>88430043857</MerchantID>
        <OperatorID>TEST</OperatorID>
        <UserTrace>Dev1</UserTrace>
```

```
        <TranType>Credit</TranType>
        <TranCode>AdjustByRecordNo</TranCode>
        <SecureDevice>EMV_VX805_MERCURY</SecureDevice>
        <ComPort>1</ComPort>
        <InvoiceNo>0004</InvoiceNo>
        <RefNo>0004</RefNo>
        <AuthCode>003711</AuthCode>
        <Amount>
            <Purchase>8.44</Purchase>
            <Gratuity>1.50</Gratuity>
        </Amount>
        <SequenceNo>0010010010</SequenceNo>
        <RecordNo>epNxoyv7dUzKVJk0Tnhjt5IxUPVyrM7sMhIFEAASNAAphg==</RecordNo>
        <Frequency>OneTime</Frequency>
        <AcqRefData>bMCC0006650528  c    e00lMCC</AcqRefData>
        <ProcessData>|00|210100500000</ProcessData>
    </Transaction>
</TStream>
```

### *Sample AdjustByRecordNo Response*

```
<?xml version="1.0"?>
<RStream>
    <CmdResponse>
        <ResponseOrigin>Processor</ResponseOrigin>
        <DSIXReturnCode>000000</DSIXReturnCode>
        <CmdStatus>Approved</CmdStatus>
        <TextResponse>AP</TextResponse>
        <SequenceNo>0010010010</SequenceNo>
        <UserTrace>Dev1</UserTrace>
    </CmdResponse>
    <TranResponse>
        <MerchantID>88430043857</MerchantID>
        <AcctNo>541333XXXXXX1064</AcctNo>
        <ExpDate>XXXX</ExpDate>
        <CardType>M/C</CardType>
        <TranCode>Adjust</TranCode>
        <AuthCode>003711</AuthCode>
        <CaptureStatus>Captured</CaptureStatus>
        <RefNo>0004</RefNo>
        <InvoiceNo>0004</InvoiceNo>
        <OperatorID>TEST</OperatorID>
        <Amount>
            <Purchase>8.44</Purchase>
            <Authorize>9.94</Authorize>
            <Gratuity>1.50</Gratuity>
        </Amount>
        <RecordNo>8xRA6A68RLeHs/eNgMkmhMqY2KTWh1hAMhIFEAASNAAphw==</RecordNo>
        <ProcessData>|02|210100600000</ProcessData>
    </TranResponse>
</RStream>
```

## 4.0 Admin Transactions

## 4.1 EMVParamDownload

Use: To download required parameters and security information for an EMV PIN pad.

Note: Field values in **BOLD** are required. Field values in LIGHT GRAY are optional and extend the functionality of the basic transaction. See the following XML element table for use of both required and optional fields.

XML Template: **EMVParamDownload**

XML Request Template:

```
<?xml version="1.0"?>
<TStream>
  <Admin>
    <HostOrIP>999.999.999.999</HostOrIP>
    <IpPort>99999</IpPort>
    <MerchantID>MerchantID</MerchantID>
    <TerminalID>TerminalID</TerminalID>
    <OperatorID>OperatorID</OperatorID>
    <UserTrace>UserTrace</UserTrace>
    <TranCode>EMVParamDownload</TranCode>
    <SecureDevice>SecureDevice</SecureDevice>
    <ComPort>ComPort</ComPort>
    <SequenceNo>SequenceNo</SequenceNo>
  </Admin>
</TStream>
```

| Element | Req | Min | Max | Type | Description |
|---|---|---|---|---|---|
| HostOrIP | R | 7 | 15 | A | IP address of server to use for this transaction. |
| IpPort | O | 1 | 5 | N | IP port number on server to use for this transaction. If omitted, default port is 9000. |
| MerchantID | R | 1 | 24 | A | Merchant identification assigned by processor. |
| TerminalID | R | 1 | 24 | A | Terminal ID data must be supplied in this tag only if required by the processor or merchant service provider; otherwise this tag should not be included. The POS system should store this value as a parameter to be included when required. |
| OperatorID | O | 1 | 10 | A | Operator (clerk, server, etc.) associated with the Transaction. |
| UserTrace | O | 1 | 20 | A | A unique value created and supplied by POS system |
| TranCode | R | 1 | 40 | A | "EMVParamDownload" |
| SecureDevice | R | 1 | 24 | A | See Section 2.1 for allowed SecureDevice values. |
| ComPort | R | 1 | 3 | N | RS232 or USB Virtual COM port number to which an EMV approved PIN pad is attached |
| SequenceNo | R | 10 | 12 | A | Use the value returned for <SequenceNo> from the last response. If the SequenceNo is lost or for initial |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | deployment of the PIN pad, the ECR/POS should attempt any transaction (using “0010010010” as a SequnceNo value) to re-sync. |

| Legend: | A | Alphanumeric | N | Numeric |
|---|---|---|---|---|
| | O | Optional | R | Required |

***Sample EMVParamDownload Request***

```
<?xml version="1.0"?>
<TStream>
    <Admin>
        <HostOrIP>127.0.0.1</HostOrIP>
        <IpPort>9000</IpPort>
        <MerchantID>700000000245</MerchantID>
        <TerminalID>001</TerminalID>
        <OperatorID>TEST</OperatorID>
        <UserTrace>Dev1</UserTrace>
        <TranCode>EMVParamDownload</TranCode>
        <SecureDevice>EMV_VX805_PAYMENTECH</SecureDevice>
        <ComPort>1</ComPort>
        <SequenceNo>0010010010</SequenceNo>
    </Admin>
</TStream>
```

***Sample EMVParamDownload Response***

```
<?xml version="1.0"?>
<RStream>
    <CmdResponse>
        <ResponseOrigin>Processor</ResponseOrigin>
        <DSIXReturnCode>000000</DSIXReturnCode>
        <CmdStatus>Success</CmdStatus>
        <TextResponse>SUCCESS</TextResponse>
        <SequenceNo>0010010010</SequenceNo>
        <UserTrace>Dev1</UserTrace>
    </CmdResponse>
    <TranResponse>
        <TranCode>EMVParamDownload</TranCode>
    </TranResponse>
</RStream>
```

## 4.2 ServerVersion

Use: To get the version (and other) information for the NETePay server that is processing for the dsiEMVX.

Note: Field values in **BOLD** are required. Field values in LIGHT GRAY are optional and extend the functionality of the basic transaction. See the following XML element table for use of both required and optional fields.

XML Template: **ServerVersion**

XML Request Template:

```
<?xml version="1.0"?>
<TStream>
  <Admin>
    <HostOrIP>999.999.999.999</HostOrIP>
    <IpPort>99999</IpPort>
    <MerchantID>MerchantID</MerchantID>
    <TerminalID>TerminalID</TerminalID>
    <OperatorID>OperatorID</OperatorID>
    <UserTrace>UserTrace</UserTrace>
    <TranCode>ServerVersion</TranCode>
    <SecureDevice>SecureDevice</SecureDevice>
    <ComPort>ComPort</ComPort>
    <SequenceNo>SequenceNo</SequenceNo>
  </Admin>
</TStream>
```

| Element | Req | Min | Max | Type | Description |
|---|---|---|---|---|---|
| HostOrIP | R | 7 | 15 | A | IP address of server to use for this transaction. |
| IpPort | O | 1 | 5 | N | IP port number on server to use for this transaction. If omitted, default port is 9000. |
| MerchantID | R | 1 | 24 | A | Merchant identification assigned by processor. |
| TerminalID | R | 1 | 24 | A | Terminal ID data must be supplied in this tag only if required by the processor or merchant service provider; otherwise this tag should not be included. The POS system should store this value as a parameter to be included when required. |
| OperatorID | O | 1 | 10 | A | Operator (clerk, server, etc.) associated with the Transaction. |
| UserTrace | O | 1 | 20 | A | A unique value created and supplied by POS system |
| TranCode | R | 1 | 40 | A | "ServerVersion" |
| SecureDevice | R | 1 | 24 | A | See Section 2.1 for allowed SecureDevice values. |
| ComPort | R | 1 | 3 | N | RS232 or USB Virtual COM port number to which an EMV approved PIN pad is attached |
| SequenceNo | R | 10 | 12 | A | Use the value returned for <SequenceNo> from the last response. If the SequenceNo is lost or for initial deployment of the PIN pad, the ECR/POS should attempt any transaction (using "0010010010" as a SequnceNo value) to re-sync. |

| Legend: | A | Alphanumeric | N | Numeric |
|---|---|---|---|---|
| | O | Optional | R | Required |

***Sample ServerVersion Request***

```
<?xml version="1.0"?>
<TStream>
    <Admin>
        <HostOrIP>127.0.0.1</HostOrIP>
        <IpPort>9000</IpPort>
        <MerchantID>88430043857</MerchantID>
        <OperatorID>TEST</OperatorID>
        <UserTrace>Dev1</UserTrace>
        <TranCode>ServerVersion</TranCode>
        <SecureDevice>EMV_VX805_MERCURY</SecureDevice>
        <ComPort>1</ComPort>
        <SequenceNo>0010010010</SequenceNo>
    </Admin>
</TStream>
```

***Sample ServerVersion Response***

```
<?xml version="1.0"?>
<RStream>
    <CmdResponse>
        <ResponseOrigin>Server</ResponseOrigin>
        <DSIXReturnCode>500000</DSIXReturnCode>
        <CmdStatus>Success</CmdStatus>
        <TextResponse>NETePay for Mercury Version MPH 5.10</TextResponse>
        <SequenceNo>0010010010</SequenceNo>
        <UserTrace>Dev1</UserTrace>
    </CmdResponse>
    <ServerVersion>
        <ProductName>NETePay 5.10</ProductName>
        <ProductClass>Host Based</ProductClass>
        <Provider>Mercury</Provider>
        <ProductVersion>MPH 5.10</ProductVersion>
    </ServerVersion>
</RStream>
```

## 4.3 BatchSummary

Use: Retrieves current batch summary information (totals and counts by card type)

Note: Field values in **BOLD** are required. Field values in LIGHT GRAY are optional and extend the functionality of the basic transaction. See the following XML element table for use of both required and optional fields.

XML Template: **BatchSummary**

XML Request Template:

```
<?xml version="1.0"?>
<TStream>
  <Admin>
    <HostOrIP>999.999.999.999</HostOrIP>
    <IpPort>99999</IpPort>
    <MerchantID>MerchantID</MerchantID>
    <TerminalID>TerminalID</TerminalID>
    <OperatorID>OperatorID</OperatorID>
    <UserTrace>UserTrace</UserTrace>
    <TranType>Administrative</TranType>
    <TranCode>BatchSummary</TranCode>
    <SecureDevice>SecureDevice</SecureDevice>
    <ComPort>ComPort</ComPort>
    <SequenceNo>SequenceNo</SequenceNo>
  </Admin>
</TStream>
```

| Element | Req | Min | Max | Type | Description |
|---|---|---|---|---|---|
| HostOrIP | R | 7 | 15 | A | Host name or IP address of server to use for this transaction. |
| IpPort | O | 1 | 5 | N | IP port number on server to use for this transaction. If omitted, default port is 9000. |
| MerchantID | R | 1 | 24 | A | Merchant identification assigned by processor. |
| TerminalID | R | 1 | 24 | A | Terminal ID data must be supplied in this tag only if required by the processor or merchant service provider; otherwise this tag should not be included. The POS system should store this value as a parameter to be included when required. |
| OperatorID | O | 1 | 10 | A | Operator (clerk, server, etc.) associated with the Transaction. |
| UserTrace | O | 1 | 20 | A | A unique value created and supplied by POS system |
| TranType | R | 1 | 40 | A | “Administrative” |
| TranCode | R | 1 | 40 | A | “BatchSummary” |
| SecureDevice | R | 1 | 24 | A | See Section 2.1 for allowed SecureDevice values. |
| ComPort | R | 1 | 3 | N | RS232 or USB Virtual COM port number to which an EMV approved PIN pad is attached |
| SequenceNo | R | 10 | 12 | A | Use the value returned for <SequenceNo> from the last response. If the SequenceNo is lost or for initial |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | deployment of the PIN pad, the ECR/POS should attempt any transaction (using “0010010010” as a SequnceNo value) to re-sync. |

Legend:

| | | | |
|---|---|---|---|
| A | Alphanumeric | N | Numeric |
| O | Optional | R | Required |

***Sample BatchSummary Request***

```
<?xml version="1.0"?>
<TStream>
    <Admin>
        <HostOrIP>127.0.0.1</HostOrIP>
        <IpPort>9000</IpPort>
        <MerchantID>88430043857</MerchantID>
        <OperatorID>TEST</OperatorID>
        <UserTrace>Dev1</UserTrace>
        <TranType>Administrative</TranType>
        <TranCode>BatchSummary</TranCode>
        <SecureDevice>EMV_VX805_MERCURY</SecureDevice>
        <ComPort>1</ComPort>
        <SequenceNo>0010010010</SequenceNo>
    </Admin>
</TStream>
```

***Sample BatchSummary Response***

```
<?xml version="1.0"?>
<RStream>
    <CmdResponse>
        <ResponseOrigin>Processor</ResponseOrigin>
        <DSIXReturnCode>000000</DSIXReturnCode>
        <CmdStatus>Success</CmdStatus>
        <TextResponse>OK</TextResponse>
        <SequenceNo>0010010010</SequenceNo>
        <UserTrace>Dev1</UserTrace>
    </CmdResponse>
    <BatchSummary>
        <MerchantID>88430043857</MerchantID>
        <OperatorID>TEST</OperatorID>
        <BatchNo>0099</BatchNo>
        <BatchItemCount>4</BatchItemCount>
        <NetBatchTotal>32.32</NetBatchTotal>
        <CreditPurchaseCount>4</CreditPurchaseCount>
        <CreditPurchaseAmount>32.32</CreditPurchaseAmount>
        <CreditReturnCount>0</CreditReturnCount>
        <CreditReturnAmount>0.00</CreditReturnAmount>
        <DebitPurchaseCount>0</DebitPurchaseCount>
        <DebitPurchaseAmount>0.00</DebitPurchaseAmount>
        <DebitReturnCount>0</DebitReturnCount>
        <DebitReturnAmount>0.00</DebitReturnAmount>
    </BatchSummary>
</RStream>
```

## 4.4 BatchClose

Use: To close the currently open batch. Transactions in an open batch will not be paid to the merchant until the batch is closed. A BatchClose should be performed at least daily for most merchants.

Notes: 1. Field values in **BOLD** are required. Field values in LIGHT GRAY are optional and extend the functionality of the basic transaction. See the following XML element table for use of both required and optional fields.

2. A BatchSummary request must be performed immediately prior to a BatchClose request and all matching non-zero response fields in the BatchSummary must be supplied in the BatchClose response.

XML Template: **Batch Close Request**

```
<?xml version="1.0"?>
<TStream>
  <Admin>
    <HostOrIP>999.999.999.999</HostOrIP>
    <IpPort>99999</IpPort>
    <MerchantID>MerchantID</MerchantID>
    <TerminalID>TerminalID</TerminalID>
    <OperatorID>OperatorID</OperatorID>
    <UserTrace>UserTrace</UserTrace>
    <TranType>Administrative</TranType>
    <TranCode>BatchClose</TranCode>
    <SecureDevice>SecureDevice</SecureDevice>
    <ComPort>ComPort</ComPort>
    <SequenceNo>SequenceNo</SequenceNo>
    <BatchNo>BatchNo</BatchNo>
    <BatchItemCount>BatchItemCount</BatchItemCount>
    <NetBatchTotal>NetBatchTotal</NetBatchTotal>
    <CreditPurchaseCount>CreditPurchaseCount</CreditPurchaseCount>
    <CreditPurchaseAmount>CreditPurchaseAmount</CreditPurchaseAmount>
    <CreditReturnCount>CreditReturnCount</CreditReturnCount>
    <CreditReturnAmount>CreditReturnAmount</CreditReturnAmount>
    <DebitPurchaseCount>DebitPurchaseCount</DebitPurchaseCount>
    <DebitPurchaseAmount>DebitPurchaseAmount</DebitPurchaseAmount>
    <DebitReturnCount>DebitReturnCount</DebitReturnCount>
    <DebitReturnAmount>DebitReturnAmount</DebitReturnAmount>
  </Admin>
</TStream>
```

| Element | Req | Min | Max | Type | Description |
|---|---|---|---|---|---|
| HostOrIP | R | 7 | 15 | A | Host name or IP address of server to use for this transaction. |
| IpPort | O | 1 | 5 | N | IP port number on server to use for this transaction. If omitted, default port is 9000. |
| MerchantID | Y | 1 | 24 | A | Merchant identification assigned by processor. |
| TerminalID | O | 1 | 24 | A | Terminal ID data must be supplied in this tag only if |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | required by the processor or merchant service provider; otherwise this tag should not be included. The POS system should store this value as a parameter to be included when required. |
| OperatorID | O | 1 | 10 | N | Operator (clerk, server, etc.) associated with the inquiry. |
| UserTrace | O | 1 | 20 | A | A unique value created and supplied by POS system |
| TranType | Y | 1 | 40 | A | “Administrative” |
| TranCode | Y | 1 | 40 | A | “BatchClose” |
| SecureDevice | R | 1 | 24 | A | See Section 2.1 for allowed SecureDevice values. |
| ComPort | R | 1 | 3 | N | RS232 or USB Virtual COM port number to which an EMV approved PIN pad is attached |
| SequenceNo | R | 10 | 12 | A | Use the value returned for <SequenceNo> from the last response. If the SequenceNo is lost or for initial deployment of the PIN pad, the ECR/POS should attempt any transaction (using “0010010010” as a SequnceNo value) to re-sync. |
| BatchNo | Y | 1 | 6 | A | Batch number returned by BatchSummary request |
| BatchItemCount | Y | 1 | 8 | N | Number of total items in batch returned by BatchSummary request |
| NetBatchTotal | Y | 1 | 10 | N | Net of all transactions in batch returned by BatchSummary request |
| CreditPurchaseCount | O | 1 | 8 | N | Number of credit purchase transactions in batch returned by BatchSummary request. *Note: This value must be included in the BatchClose request if a non-zero value was returned in a BatchSummary response.* |
| CreditPurchaseAmount | O | 1 | 10 | N | Net of all credit purchase transactions in batch returned by BatchSummary request *Note: This value must be included in the BatchClose request if a non-zero value was returned in a BatchSummary response.* |
| CreditReturnCount | O | 1 | 8 | N | Number of credit return transactions in batch returned by BatchSummary request. *Note: This value must be included in the BatchClose request if a non-zero value was returned in a BatchSummary response.* |
| CreditReturnAmount | O | 1 | 10 | N | Net of all credit return transactions in batch returned by BatchSummary request. *Note: This value must be included in the BatchClose request if a non-zero value was returned in a BatchSummary response.* |
| DebitPurchaseCount | O | 1 | 8 | N | Number of debit purchase transactions in batch returned by BatchSummary request. *Note: This value must be included in the BatchClose request if a non-zero value was returned in a BatchSummary response.* |
| DebitPurchaseAmount | O | 1 | 10 | N | Net of all debit purchase transactions in batch returned by BatchSummary request. *Note: This value must be included in the BatchClose request if a non-zero value was returned in a BatchSummary response.* |
| DebitReturnCount | O | 1 | 8 | N | Number of debit return transactions in batch returned by BatchSummary request. *Note: This value must be included in the BatchClose request if a non-zero value was returned in a BatchSummary response.* |
| DebitReturnAmount | O | 1 | 10 | N | Net of all debit return transactions in batch returned by BatchSummary request. *Note: This value must be included in the BatchClose request if a non-zero value was returned in a BatchSummary response.* |

### *Sample BatchClose Request*

```
<?xml version="1.0"?>
<TStream>
    <Admin>
        <HostOrIP>127.0.0.1</HostOrIP>
        <IpPort>9000</IpPort>
        <MerchantID>88430043857</MerchantID>
        <OperatorID>TEST</OperatorID>
        <UserTrace>Dev1</UserTrace>
        <TranType>Administrative</TranType>
        <TranCode>BatchClose</TranCode>
        <SecureDevice>EMV_VX805_MERCURY</SecureDevice>
        <ComPort>1</ComPort>
        <SequenceNo>0010010010</SequenceNo>
        <BatchNo>0099</BatchNo>
        <BatchItemCount>4</BatchItemCount>
        <NetBatchTotal>32.32</NetBatchTotal>
        <CreditPurchaseCount>4</CreditPurchaseCount>
        <CreditPurchaseAmount>32.32</CreditPurchaseAmount>
        <CreditReturnCount>0</CreditReturnCount>
        <CreditReturnAmount>0.00</CreditReturnAmount>
        <DebitPurchaseCount>0</DebitPurchaseCount>
        <DebitPurchaseAmount>0.00</DebitPurchaseAmount>
        <DebitReturnCount>0</DebitReturnCount>
        <DebitReturnAmount>0.00</DebitReturnAmount>
    </Admin>
</TStream>
```

### *Sample BatchClose Response*

```
<?xml version="1.0"?>
<RStream>
    <CmdResponse>
        <ResponseOrigin>Processor</ResponseOrigin>
        <DSIXReturnCode>000000</DSIXReturnCode>
        <CmdStatus>Success</CmdStatus>
        <TextResponse>OK</TextResponse>
        <SequenceNo>0010010010</SequenceNo>
        <UserTrace>Dev1</UserTrace>
    </CmdResponse>
    <BatchClose>
        <MerchantID>88430043857</MerchantID>
        <OperatorID>TEST</OperatorID>
        <BatchNo>0099</BatchNo>
        <BatchItemCount>4</BatchItemCount>
        <NetBatchTotal>32.32</NetBatchTotal>
        <CreditPurchaseCount>4</CreditPurchaseCount>
        <CreditPurchaseAmount>32.32</CreditPurchaseAmount>
        <CreditReturnCount>0</CreditReturnCount>
        <CreditReturnAmount>0.00</CreditReturnAmount>
        <DebitPurchaseCount>0</DebitPurchaseCount>
        <DebitPurchaseAmount>0.00</DebitPurchaseAmount>
        <DebitReturnCount>0</DebitReturnCount>
        <DebitReturnAmount>0.00</DebitReturnAmount>
        <ControlNo>0099</ControlNo>
    </BatchClose>
</RStream>
```

# 5.0 Transaction Responses

## 5.1 EMVPadReset XML Response Template

EMVPadReset XML Response Template:

```
<?xml version="1.0"?>
<RStream>
  <CmdResponse>
    <ResponseOrigin>ResponseOrigin</ResponseOrigin>
    <DSIXReturnCode>DSIXReturnCode</DSIXReturnCode>
    <CmdStatus>CmdStatus</CmdStatus>
    <TextResponse>TextResponse</TextResponse>
    <SequenceNo>SequenceNo</SequenceNo>
    <UserTrace> UserTrace</UserTrace>
  </CmdResponse>
</RStream>
```

| Element | Return | Min | Max | Type | Description |
|---|---|---|---|---|---|
| ResponseOrigin | Y | 1 | 10 | A | Indicates the source of the response:<br>"Client" = generated by dsiEMVX control<br>"Server" = generated by Datacap server<br>"Processor" = generated by payment processor |
| DSIXReturnCode | Y | 6 | 6 | N | Six digit return code that identifies the error type. |
| CmdStatus | Y | 1 | 10 | A | Indicates the outcome of the command:<br>"Success" = command completed successfully<br>"Error" = error processing command. Check DSIXReturnCode and TextResponse for additional info on error. See Section 6. |
| TextResponse | Y | 1 | 40 | A | The text response message from the processor. |
| SequenceNo | Y | 10 | 12 | A | The sequence number returned in all responses to be used on the next request. If the SequenceNo is lost or initial deployment of the PIN pad, the ECR/POS should attempt any transaction (using "0010010010" as a SequnceNo value) to re-sync. |
| UserTrace | O | 0 | 40 | A | Echo of data supplied by the user system in the request; for use by the user system for internal tracking. May be null if no user system data was supplied in the request |

***Implementation Notes:***

1. A CmdStatus response of "Success" is required to the EMVPadReset request in order to use the PIN pad.
2. The EMVPadReset must be performed before every transaction (Sale, VoidSale, Return, VoidReturn, VoiceAuth and ZeroAuth) to assure that no card is in the EMV PIN pad chip card (insertion) reader before starting a transaction. This command should also be performed at the end of any card related transaction (Sale, VoidSale, Return, VoidReturn, VoiceAuth and ZeroAuth) to assure that the user is prompted to remove their card. If no card is in the reader, then a response will be returned with 2-3 seconds. If there's a card in the reader, the EMV PIN pad displays 'Remove Card' and waits for the card to be removed before returning a response; another EMVPadReset should then be issued prior to processing a card based transaction request.

## 5.2 XML Response Template for:

**EMVSale**
**EMVVoidSale**
**EMVReturn**
**EMVVoidReturn**
**EMVVoiceAuth**
**EMVZeroAuth**
**AdjustByRecordNo**

---

XML Response Template:

```
<?xml version="1.0"?>
<RStream>
  <CmdResponse>
    <ResponseOrigin>ResponseOrigin</ResponseOrigin>
    <DSIXReturnCode>DSIXReturnCode</DSIXReturnCode>
    <TextResponse>TextResponse</TextResponse>
    <CmdStatus>CmdStatus</CmdStatus>
    <SequenceNo>SequenceNo</SequenceNo>
    <UserTrace>UserTrace</UserTrace>
  </CmdResponse>
  <TranResponse>
    <MerchantID>MerchantID</MerchantID>
    <TerminalID>TerminalID</TerminalID>
    <AcctNo>AcctNo</AcctNo>
    <CardType>CardType</CardType>
    <TranCode>TranCode</TranCode>
    <AuthCode>AuthCode</AuthCode>
    <CaptureStatus>CaptureStatus</CaptureStatus>
    <RefNo>RefNo</RefNo>
    <InvoiceNo>InvoiceNo</InvoiceNo>
    <OperatorID>OperatorID</OperatorID>
    <Amount>
      <Purchase>Purchase</Purchase>
      <CashBack>CashBack</CashBack>
      <Gratuity>Gratuity</Gratuity>
      <Authorize>Authorize</Authorize>
    </Amount>
    <CardholderName>CardholderName</CardholderName>
    <AcqRefData>AcqRefData</AcqRefData>
    <PostProcess>PostProcess</PostProcess>
    <ProcessData>ProcessData</ProcessData>
    <RecordNo>RecordNo</RecordNo>
  </TranResponse>
  <PrintData>
    <Line1>Line1</Line1>
    <Line2>Line2</Line2>
    <Line3>Line3</Line3>
              •
              •
    <LineN>LineN</LineN>
  </PrintData>
</RStream>
```

| Element | Return | Min | Max | Type | Description |
|---|---|---|---|---|---|
| ResponseOrigin | Y | 1 | 10 | A | Indicates the source of the response:<br>"Client" = generated by dsiEMVX control<br>"Server" = generated by Datacap server<br>"Processor" = generated by payment processor |
| DSIXReturnCode | Y | 6 | 6 | N | Six digit return code that identifies the error type. |
| CmdStatus | Y | 1 | 10 | A | Indicates the outcome of the command:<br>"Approved" = transaction approved by payment processor<br>"Declined" = transaction declined by payment processor<br>"Error" = error processing command. Check DSIXReturnCode and TextResponse for additional info on error. See Section 6. |
| TextResponse | Y | 1 | 40 | A | The text response message from the processor. |
| SequenceNo | Y | 10 | 12 | A | The sequence number returned in all responses to be used on the next request. If the SequenceNo is lost or initial deployment of the PIN pad, the ECR/POS should attempt any transaction (using "0010010010" as a SequnceNo value) to re-sync. |
| UserTrace | O | 0 | 40 | A | Echo of data supplied by the user system in the request; for use by the user system for internal tracking. May be null if no user system data was supplied in the request |
| MerchantID | Y | 1 | 24 | A | The merchant ID supplied in the transaction request. |
| TerminalID | O | 1 | 24 | A | The terminal ID supplied in the transaction request. |
| AcctNo | O | 1 | 24 | A | The account number from the card used for a manually entered transaction – will be truncated. |
| CardType | O | 1 | 24 | A | Card type used on transaction (e.g. VISA, M/C, AMEX, etc) |
| TranCode | Y | 1 | 40 | A | TranCode value supplied in the transaction request. |
| AuthCode | O | 1 | 24 | A | The authorization code issued by the host for an approved transaction. |
| CaptureStatus | O | 1 | 24 | A | Indicates whether the host has captured the transaction. |
| RefNo | O | 1 | 16 | A | Reference number |
| InvoiceNo | O | 1 | 24 | A | The invoice number supplied in the transaction request. |
| Operator | O | 1 | 23 | A | Operator number used in request |
| Amount:Purchase | Y | 1 | 8 | N | The purchase amount requested in the transaction. |
| Amount:CashBack | O | 1 | 8 | N | The cash back amount requested in the transaction. |
| Amount:Gratuity | O | 1 | 8 | N | The gratuity amount requested in the transaction. |
| Amount:Authorize | O | 1 | 8 | N | The amount actually authorized for the transaction. This amount could be less than the Purchase amount requested and the POS/ECR system should verify to determine if additional tendering is required to satisfy the total payment. |
| CardholderName | O | 1 | 40 | A | Cardholder name returned which may be present if the <CollectData> tag is used in the request. |
| AcqRefData | O | 1 | 40 | A | Acquirer Reference Data returned by processor. |
| PostProcess | O | 1 | 40 | A | If this tag is retuned with a value 'EMVParamDownloadRequired', the POS system should perform an EMV Parameter Download request as the next transaction. |
| ProcessData | O | 1 | 40 | A | Returned when optional <RecordNo> tag used in a request. This value must be retained for use in a subsequent AdjustByRecordNo |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | request. |
| RecordNo | O | 1 | 80 | A | Returned when optional <RecordNo> tag used in a request. This value must be retained for use in a subsequent AdjustByRecordNo request. |
| PrintData:LineNNN | O | 1 | 41 | A | Receipt print lines. Each <LineN> tag should be printed on a new line. Each <LineN> tag begins with a "." which should not be printed – empty lines (blank) have only "." as data. When <PrintData> elements exist, they should always be printed as the draft for the transaction. |

**Implementation Notes:**

1. If CmdStatus response is:

| | |
|---|---|
| **Approved** | Transaction was successfully processed and cardholder account was charged |
| **Declined** | Transaction was successfully processed but cardholder account was declined and not charged– an alternative tender should be processed. |
| **Error** | Transaction was not successfully processed due to some error – see Section 7 for error code. Transaction should be retried or alternative tender attempted. |

2. The TextResponse ***must*** be displayed for operator.
3. The DSIXReturnCode should be displayed for operator, if possible.
4. The order of the tags may differ from the presentation above and depends on the XML parser used.

**(Continued on next page)**

5. Draft Printing

If <PrintData> is returned in the response stream, it represents a draft document that must be printed. Two copies must be printed; one for presentation to the cardholder as a separate draft from the usual receipt and one for retention by the merchant. Before printing the contents of the <PrintData> stream, the POS system should print the merchant name, address and phone number as separate lines at the top of the draft. After printing the contents of the <PrintData> stream, the POS must add the phrase “Cardholder Copy” as the last line of the first draft copy and the phrase ”Merchant Copy” as the last line of the second draft copy. See the following example.

```
             MERCHANT NAME
            MERCHANT STREET
            CITY, STATE ZIP
             123-456-7890

MERCHANT ID: 700000000245
TERMINAL ID: 004

                  SALE

************1064
MASTERCARD           ENTRY METHOD: CHIP
DATE: 05/13/2015  TIME: 09:22:31

INVOICE: 00000001   AUTH CODE: 012756
REFERENCE: 00000005

AMOUNT                        USD$ 5.00
                             ==========
TOTAL                         USD$ 5.00

          APPROVED - THANK YOU

BY ENTERING A VERIFIED PIN, CARHOLDER
AGREES TO PAY ISSUER SUCH TOTAL IN
ACCORDANCE WITH ISSUER'S AGREEMENT WITH
CARDHOLDER


Application Label: MCC 106 V1 3
AID: A0000000041010
TVR: 0000008000
IAD: 010103643006DAC0
TSI: E800
ARC: 00
CVM: PIN VERIFIED

             Cardholder Copy
```

```
             MERCHANT NAME
            MERCHANT STREET
            CITY, STATE ZIP
             123-456-7890

MERCHANT ID: 700000000245
TERMINAL ID: 004

                  SALE

************1064
MASTERCARD           ENTRY METHOD: CHIP
DATE: 05/13/2015  TIME: 09:22:31

INVOICE: 00000001   AUTH CODE: 012756
REFERENCE: 00000005

AMOUNT                        USD$ 5.00
                             ==========
TOTAL                         USD$ 5.00

          APPROVED - THANK YOU

BY ENTERING A VERIFIED PIN, CARHOLDER
AGREES TO PAY ISSUER SUCH TOTAL IN
ACCORDANCE WITH ISSUER'S AGREEMENT WITH
CARDHOLDER


Application Label: MCC 106 V1 3
AID: A0000000041010
TVR: 0000008000
IAD: 010103643006DAC0
TSI: E800
ARC: 00
CVM: PIN VERIFIED

              Merchant Copy
```

**Note:** If the cardholder is prompted to enter a PIN during a transaction and does so successfully, the draft copy will indicate that the cardholder was verified by PIN entry. In the event that a requested PIN entry is unsuccessful, the draft copy will include a signature line for the cardholder to sign. The merchant should have the cardholder sign the Merchant Copy of the draft and retain for their records.

## ServerVersion XML Response Template:

```
<?xml version="1.0"?>
<RStream>
  <CmdResponse>
    <ResponseOrigin>ResponseOrigin</ResponseOrigin>
    <DSIXReturnCode>DSIXReturnCode</DSIXReturnCode>
    <TextResponse>TextResponse</TextResponse>
    <CmdStatus>CmdStatus</CmdStatus>
    <SequenceNo>SequenceNo</SequenceNo>
    <UserTrace>UserTrace</UserTrace>
  </CmdResponse>
  <ServerVersion>
    <ProductName>ProductName</ProductName>
    <ProductClass> ProductClass</ProductClass>
    <Provider> Provider</Provider>
    <ProductVersion> ProductVersion</ProductVersion>
    <SerialNo>SerialNo</SerialNo>
  </ServerVersion>
</RStream>
```

| Element | Return | Min | Max | Type | Description |
|---|---|---|---|---|---|
| ResponseOrigin | Y | 1 | 10 | A | Indicates the source of the response:<br>"Client" = generated by dsiEMVX control<br>"Server" = generated by Datacap server<br>"Processor" = generated by payment processor |
| DSIXReturnCode | Y | 6 | 6 | N | Six digit return code that identifies the error type. |
| CmdStatus | Y | 1 | 10 | A | Indicates the outcome of the command:<br>"Success" = command completed successfully<br>"Error" = error processing command. Check DSIXReturnCode and TextResponse for additional info on error |
| TextResponse | Y | 1 | 40 | A | The text response message from the processor. |
| SequenceNo | Y | 10 | 12 | A | The sequence number returned in all responses to be used on the next request. If the SequenceNo is lost or initial deployment of the PIN pad, the ECR/POS should attempt any transaction (using "0010010010" as a SequnceNo value) to re-sync. |
| UserTrace | O | 0 | 40 | A | Echo of data supplied by the user system in the request; for use by the user system for internal tracking. May be null if no user system data was supplied in the request |
| ProductName | Y | 1 | 24 | A | "NETePay" (Sever product name) |
| ProductClass | Y | 1 | 24 | A | "Terminal Based" OR "Host Based" Type of processing server. |
| Provider | Y | 1 | 24 | A | Processing provider identifier. |
| ProductVersion | Y | 1 | 40 | A | Version information for the Datacap server. |
| SerialNo | Y | 1 | 40 | A | Serial number information for the Datacap server. |

## 5.4 EMVParamLoad XML Response Template

EMVParamLoad XML Response Template:

```
<?xml version="1.0"?>
<RStream>
  <CmdResponse>
    <ResponseOrigin>ResponseOrigin</ResponseOrigin>
    <DSIXReturnCode>DSIXReturnCode</DSIXReturnCode>
    <TextResponse>TextResponse</TextResponse>
    <CmdStatus>CmdStatus</CmdStatus>
    <SequenceNo>SequenceNo</SequenceNo>
    <UserTrace>UserTrace</UserTrace>
  </CmdResponse>
  <TranResponse>
    <TranCode>TranCode</TranCode>
  </TranResponse>
</RStream>
```

| Element | Return | Min | Max | Type | Description |
|---|---|---|---|---|---|
| ResponseOrigin | Y | 1 | 10 | A | Indicates the source of the response:<br>"Client" = generated by dsiEMVX control<br>"Server" = generated by Datacap server<br>"Processor" = generated by payment processor |
| DSIXReturnCode | Y | 6 | 6 | N | Six digit return code that identifies the error type. |
| CmdStatus | Y | 1 | 10 | A | Indicates the outcome of the command:<br>"Success" = command completed successfully<br>"Error" = error processing command. Check DSIXReturnCode and TextResponse for additional info on error |
| TextResponse | Y | 1 | 40 | A | The text response message from the processor. |
| SequenceNo | Y | 10 | 12 | A | The sequence number returned in all responses to be used on the next request. If the SequenceNo is lost or initial deployment of the PIN pad, the ECR/POS should attempt any transaction (using "0010010010" as a SequnceNo value) to re-sync. |
| UserTrace | O | 0 | 40 | A | Echo of data supplied by the user system in the request; for use by the user system for internal tracking. May be null if no user system data was supplied in the request |
| TranCode | Y | 1 | 20 | A | "EMVParamDownload" |

**Implementation Notes:**

***If CmdStatus response is:***

Success – Parameter download completed successfully

Error – Parameter download was not successful due to some error – see Section 6 for error code. Parameter download should be attempted again until successful.

## 5.5 BatchSummary XML Response Template

BatchSummary XML Response Template:

```
<?xml version="1.0"?>
<RStream>
  <CmdResponse>
    <ResponseOrigin>ResponseOrigin</ResponseOrigin>
    <DSIXReturnCode>DSIXReturnCode</DSIXReturnCode>
    <CmdStatus>CmdStatus</CmdStatus>
    <TextResponse>TextResponse</TextResponse>
    <SequenceNo>SequenceNo</SequenceNo>
    <UserTraceData>UserTraceData</UserTraceData>
  </CmdResponse>
  <BatchSummary>
    <MerchantID>MerchantID</MerchantID>
    <OperatorID>OperatorID</OperatorID>
    <TerminalID>TerminalID</TerminalID>
    <BatchNo>BatchNo</BatchNo>
    <BatchItemCount>BatchItemCount</BatchItemCount >
    <NetBatchTotal>NetBatchTotal</NetBatchTotal>
    <CreditPurchaseCount>CreditPurchaseCount</CreditPurchaseCount>
    <CreditPurchaseAmount>CreditPurchaseAmount</CreditPurchaseAmount>
    <CreditReturnCount>CreditReturnCount</CreditReturnCount>
    <CreditReturnAmount>CreditReturnAmount</CreditReturnAmount>
    <DebitPurchaseCount>DebitPurchaseCount</DebitPurchaseCount>
    <DebitPurchaseAmount>DebitPurchaseAmount</DebitPurchaseAmount>
    <DebitReturnCount>DebitReturnCount</DebitReturnCount>
    <DebitReturnAmount>DebitReturnAmount</DebitReturnAmount>
  </BatchSummary>
</RStream>
```

| Element | Return | Min | Max | Type | Description |
|---|---|---|---|---|---|
| ResponseOrigin | Y | 1 | 10 | A | Indicates the source of the response:<br>"Server" = generated by DSI server<br>"Processor" = generated by processor<br>"Client" = generated by DSIClientX control |
| DSIXReturnCode | Y | 6 | 6 | N | Six digit return code that identifies an error type. See Section 7 on error codes for possible values |
| CmdStatus | Y | 1 | 10 | A | Indicates the outcome of the command:<br>"Success" = command completed successfully<br>"Error" = error processing command. Check DSIXReturnCode and TextResponse for additional info on error |
| TextResponse | Y | 1 | 40 | AN | For Successful responses, this field can contain an optional message from the server or processor. |
| SequenceNo | Y | 10 | 12 | N | The sequence number returned in all responses to be used on the next request. If the SequenceNo is lost or initial deployment of the PIN pad, the ECR/POS should attempt any transaction (using "0010010010" as a SequnceNo value) to re-sync. |
| UserTraceData | O | 0 | 40 | AN | Echo of data supplied by the user system in the request; for use by the user system for internal tracking. |

| | | | | | |
|---|---|---|---|---|---|
| MerchantID | Y | 1 | 24 | AN | Merchant identification assigned by processor. |
| TerminalID | O | 0 | 24 | AN | Terminal ID data must be supplied in this tag only if provided by the processor or merchant service provider; otherwise this tag should not be included. |
| BatchNo | Y | 1 | 6 | AN | Batch number returned by processor |
| BatchItemCount | Y | 1 | 8 | N | Number of total items in batch |
| NetBatchTotal | Y | 1 | 10 | N | Net of all transactions in batch |
| CreditPurchaseCount | O | 1 | 8 | N | Number of credit purchase transactions in batch returned by BatchSummary request. Note: This value must be saved for use by the BatchClose command. |
| CreditPurchaseAmount | O | 1 | 10 | N | Net of all credit purchase transactions in batch returned by BatchSummary request. Note: This value must be saved for use by the BatchClose command. |
| CreditReturnCount | O | 1 | 8 | N | Number of credit returns transactions in batch returned by BatchSummary request. Note: This value must be saved for use by the BatchClose command. |
| CreditReturnAmount | O | 1 | 10 | N | Net of all credit return transactions in batch returned by BatchSummary request. Note: This value must be saved for use by the BatchClose command. |
| DebitPurchaseCount | O | 1 | 8 | N | Number of debit purchase transactions in batch returned by BatchSummary request. Note: This value must be saved for use by the BatchClose command. |
| DebitPurchaseAmount | O | 1 | 10 | N | Net of all debit purchase transactions in batch returned by BatchSummary request. Note: This value must be saved for use by the BatchClose command. |
| DebitReturnCount | O | 1 | 8 | N | Number of debit return transactions in batch returned by BatchSummary request. Note: This value must be saved for use by the BatchClose command. |
| DebitReturnAmount | O | 1 | 10 | N | Net of all debit return transactions in batch returned by BatchSummary request. Note: This value must be saved for use by the BatchClose command. |

## 5.6 BatchClose XML Response Template

BatchClose XML Response Template:

```
<?xml version="1.0"?>
<RStream>
  <CmdResponse>
    <ResponseOrigin>ResponseOrigin</ResponseOrigin>
    <DSIXReturnCode>DSIXReturnCode</DSIXReturnCode>
    <CmdStatus>CmdStatus</CmdStatus>
    <TextResponse>TextResponse</TextResponse>
    <SequenceNo>SequenceNo</SequenceNo>
    <UserTraceData>UserTraceData</UserTraceData>
  </CmdResponse>
  <BatchClose>
    <MerchantID>MerchantID</MerchantID>
    <OperatorID>OperatorID</OperatorID>
    <TerminalID>TerminalID</TerminalID>
    <BatchNo>BatchNo</BatchNo>
    <BatchItemCount>BatchItemCount</BatchItemCount >
    <NetBatchTotal>NetBatchTotal</NetBatchTotal>
    <CreditPurchaseCount>CreditPurchaseCount</CreditPurchaseCount>
    <CreditPurchaseAmount>CreditPurchaseAmount</CreditPurchaseAmount>
    <CreditReturnCount>CreditReturnCount</CreditReturnCount>
    <CreditReturnAmount>CreditReturnAmount</CreditReturnAmount>
    <DebitPurchaseCount>DebitPurchaseCount</DebitPurchaseCount>
    <DebitPurchaseAmount>DebitPurchaseAmount</DebitPurchaseAmount>
    <DebitReturnCount>DebitReturnCount</DebitReturnCount>
    <DebitReturnAmount>DebitReturnAmount</DebitReturnAmount>
  </BatchClose>
  <PostProcess>PostProcess</PostProcess>
</RStream>
```

| Element | Return | Min | Max | Type | Description |
|---|---|---|---|---|---|
| ResponseOrigin | Y | 1 | 10 | A | Indicates the source of the response:<br>"Server" = generated by DSI server<br>"Processor" = generated by processor<br>"Client" = generated by DSIClientX control |
| DSIXReturnCode | Y | 6 | 6 | N | Six digit return code that identifies an error type. See Section 7 on error codes for possible values |
| CmdStatus | Y | 1 | 10 | A | Indicates the outcome of the command:<br>"Success" = command completed successfully<br>"Error" = error processing command. Check DSIXReturnCode and TextResponse for additional info on error |
| TextResponse | Y | 1 | 40 | AN | For Successful responses, this field can contain an optional message from the server or processor. |
| SequenceNo | Y | 10 | 12 | N | The sequence number returned in all responses to be used on the next request. If the SequenceNo is lost or initial deployment of the PIN pad, the ECR/POS should attempt any transaction (using "0010010010" as a SequnceNo value) to re-sync. |
| UserTraceData | O | 0 | 40 | AN | Echo of data supplied by the user system in the request; for use |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | by the user system for internal tracking. |
| MerchantID | Y | 1 | 24 | AN | Merchant identification assigned by processor. |
| TerminalID | O | 0 | 24 | AN | Terminal ID data must be supplied in this tag only if provided by the processor or merchant service provider; otherwise this tag should not be included. |
| BatchNo | Y | 1 | 6 | AN | Batch number returned by processor |
| BatchItemCount | Y | 1 | 8 | N | Number of total items in batch |
| NetBatchTotal | Y | 1 | 10 | N | Net of all transactions in batch |
| CreditPurchaseCount | O | 1 | 8 | N | Number of credit purchase transactions in batch returned by BatchSummary request |
| CreditPurchaseAmount | O | 1 | 10 | N | Net of all credit purchase transactions in batch |
| CreditReturnCount | O | 1 | 8 | N | Number of credit return transactions in batch |
| CreditReturnAmount | O | 1 | 10 | N | Net of all credit return transactions in batch |
| DebitPurchaseCount | O | 1 | 8 | N | Number of debit purchase transactions in batch |
| DebitPurchaseAmount | O | 1 | 10 | N | Net of all debit purchase transactions in batch |
| DebitReturnCount | O | 1 | 8 | N | Number of debit return transactions in batch |
| DebitReturnAmount | O | 1 | 10 | N | Net of all debit return transactions in batch |
| PostProcess | O | 1 | 40 | A | If this tag is retuned with a value ‘EMVParamDownloadRequired’, the POS system should perform an EMV Parameter Download request as the next transaction. |

# 6.0 dsiEMVX Programming Interface for EMV Transactions and Functions

## 6.1 Method: ProcessTransaction

Use: ***To process EMV transactions***. dsiEMVX is for processing all credit and debit cards as EMV transactions. Check, prepaid or loyalty transactions are processed using a separate ActiveX control, *DSIClientX or dsiPDCX*.

Note: EBT, FSA, Check, PrePaid and Loyalty transactions can be processed using an additional Datacap ActiveX control for NETePay; either **dsiPDCX** or **DSIClientX**.

**dsiPDCX** provides POS the ability to process payments using NETePay without handling sensitive cardholder data (i.e. account number, expiration date, CVV/CID, PIN). dsiPDCX insulates a POS application from handling cardholder data by directly controlling the card account input device, such as an MSR, PIN pad, contactless reader, etc. Since dsiPDCX directly controls the input cardholder account information to process a payment transaction, it can facilitate an 'out of scope' position from a PCI-DSC (Payment Card Industry Data Security Council) PA-DSS (Payment Application – Data Security Standard) perspective for a POS application.

DSIClientX provides POS the ability to process payments using NETePay utilizing the wide variety of card input peripherals included in the POS hardware. Devices such as keyboard resident, USB and serial stripe readers are supported. However, since the POS is in control of card input functions, DSIClientX does not isulate the POS from handling cardholder data as does dsiPDCX.

Syntax: **BSTR ProcessTransaction** (BSTR XMLCommand)

Arguments: **BSTR XML Command** – An XML formatted string containing the details of the transaction request. See Sections 3 and 4 on available XML commands, formats and usage.

Returns: XML formatted string response of type RStream. See Section 5 on XML Responses.

## 6.2 Method: GetDevicesInfo

Use: To determine the which SecureDevices are supported in the version of dsiEMVX and the device capabiltites and characteristics..

Syntax: **`BSTR GetDevicesInfo()`**

Arguments: None

Returns: XML formatted string response of type Devices as follows:

```
<Devices>
<NumSecureDevices>SSSSSS</NumSecureDevices>
<SecureDeviceNN>
    <DescriptionNN>Description</DescriptionNN>
    <InterfaceNN>Interface</InterfaceNN>
    <SecureDeviceIDNN>SecureDeviceID</SecureDeviceIDNN>
</SecureDeviceNN>
</Devices>
```

| Element | Min | Max | Type | Description |
|---|---|---|---|---|
| NumSecureDevices | 1 | 6 | N | Where SSSSSS ndicates the number of Secure Devices supported in the version of dsiPDCX |
| SecureDeviceNN: DescriptionNN | 1 | 40 | A | Description text of SecureDeviceNN. NN = 1 to SSSSSS. |
| SecureDeviceNN: InterfaceNN | 1 | 40 | AN | Interface type(s) supported for SecureDeviceNN. NN = 1 to SSSSSS. |
| SecureDeviceNN: SecureDeviceIDNN | 1 | 40 | AN | SecureDeviceID for SecureDeviceNN. NN = 1 to SSSSSS. |

Sample Response:

```
<?xml version="1.0"?>
<Devices>
<NumSecureDevices>3</NumSecureDevices>
    <SecureDevice1>
        <Description1>Verifone Vx805 XPI - Mercury</Description1>
        <Interface1>RS-232 or USB/VCom</Interface1>
        <SecureDeviceID1>EMV_VX805_MERCURY</SecureDeviceID1>
    </SecureDevice1>
    <SecureDevice2>
        <Description2>Verifone Vx805 XPI - Paymentech</Description2>
        <Interface2>RS-232 or USB/VCom</Interface2>
        <SecureDeviceID2>EMV_VX805_PAYMENTECH</SecureDeviceID2>
    </SecureDevice2>
    <SecureDevice3>
        <Description3>Verifone Vx805 XPI - Vantiv</Description3>
        <Interface3>RS-232 or USB/VCom</Interface3>
        <SecureDeviceID3>EMV_VX805_VANTIV</SecureDeviceID3>
    </SecureDevice3>
</Devices>
```

## 7.0 Error Codes

Note: Error codes are informational and may change depending on processor or version. Do not rely on the code number or code text for programmatic decisions. Code numbers should be displayed or printed when possible in case of an error to assist support personnel.

### NETePay Errors (TCP/IP)

| Code Number | Code Text |
|---|---|
| 002000 | Password Verified |
| 002001 | Queue Full |
| 002002 | Password Failed – Disconnecting |
| 002003 | System Going Offline |
| 002004 | Disconnecting Socket |
| 002006 | Refused 'Max Connections' |
| 002008 | Duplicate Serial Number Detected |
| 002009 | Password Failed (Client / Server) |
| 002010 | Password failed (Challenge / Response) |
| 002011 | Internal Server Error – Call Provider |
| 100201 | Invalid Transaction Type |
| 100202 | Invalid Operator ID |
| 100203 | Invalid Memo |
| 100204 | Invalid Account Number |
| 100205 | Invalid Expiration Date |
| 100206 | Invalid Authorization Code |
| 100207 | Invalid Reference Number |
| 100208 | Invalid Authorization Amount |
| 100209 | Invalid Cash Back Amount |
| 100210 | Invalid Gratuity Amount |
| 100211 | Invalid Purchase Amount |
| 100212 | Invalid Magnetic Stripe Data |
| 100213 | Invalid PIN Block Data |
| 100214 | Invalid Derived Key Data |
| 100215 | Invalid State Code |
| 100216 | Invalid Date of Birth |
| 100217 | Invalid Check Type |
| 100218 | Invalid Routing Number |
| 100219 | Invalid TranCode |
| 100220 | Invalid Merchant ID |
| 100221 | Invalid TStream Type |
| 100222 | Invalid Batch Number |
| 100223 | Invalid Batch Item Count |
| 100224 | Invalid MICR Input Type |
| 100225 | Invalid Driver's License |
| 100226 | Invalid Sequence Number |
| 100227 | Invalid Pass Data |
| 100228 | Invalid Card Type |

## dsiEMVX Errors (TCP/IP)

| Code Number | Code Text |
|---|---|
| 001001 | General Failure |
| 001003 | Invalid Command Format |
| 001004 | Insufficient Fields |
| 001006 | API Not Initialized |
| 001007 | Timeout on Response |
| 001011 | Empty Command String |
| | |
| 003002 | In Process with server |
| 003003 | Socket Error sending request. |
| 003004 | Socket already open or in use |
| 003005 | Socket Creation Failed |
| 003006 | Socket Connection Failed |
| 003007 | Connection Lost |
| 003008 | TCP/IP Failed to Initialize |
| 003009 | Control failed to find branded serial (password lookup failed) |
| 003010 | Time Out waiting for server response |
| 003011 | Connect Cancelled |
| 003012 | 128 bit CryptoAPI failed. |
| 003014 | Threaded Auth Started Expect Response Event (Note it is possible the event could fire before the function returns.) |
| 003017 | Failed to start Event Thread. |
| 003050 | XML Parse Error |
| 003051 | All Connections Failed |
| 003052 | Server Login Failed |
| 003053 | Initialize Failed |
| | |
| 004001 | Response Length Error (Too Short) |
| 004002 | Unable to Parse Response from Global (Indistinguishable) |
| 004003 | String Error |
| 004004 | Weak Encryption Request Not Supported |
| 004005 | Clear Text Request Not Supported |
| 004011 | Error Occurred While Decrypting Request |
| 004010 | Unrecognized Request Format |
| 004017 | Invalid Check Digit |
| 004018 | Merchant ID Missing |
| 004019 | TStream Type Missing |
| 004020 | Could Not Encrypt Response- Call Provider |
| | |
| 009999 | Unknown Error |