datacap systems, inc.

100 New Britain Blvd
Chalfont, PA 18914
Tel: 215-997-8989
E-mail: datacap@dcap.com

dsiEMVX

EMV Programming Interface Specification

V02.00

(Preliminary)

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Revision History

02.00	09 Oct 2014	• Initial Release of Preliminary Draft

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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 server 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 should be done before every transaction (Sale, VoidSale, Return, VoidReturn, VoiceAuth) 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	Sale transaction – credit or debit
EMVVoidSale	Sale transaction Void – credit or debit
EMVReturn	Return transaction – credit or debit
EMVVoidReturn	Return transaction Void – credit or debit
EMVVoiceAuth	Force a transaction was authorized by voice and put it into the batch – credit only (must have PIN pad)

Admin

ServerVersion	Reports the NETePay server version with which the dsiEMVX is communicating

3.0 EMV Transaction Request/Response XML Definitions

3.1 EMVPadReset

Use: To reset the EMV PIN pad device. This command should be performed before every transaction (Sale, VoidSale, Return, VoidReturn, VoiceAuth) 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) to assure that the user is prompted to remove their card. 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.

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>
    <PadType>PadType</PadType>
    <ComPort>ComPort</ComPort>
    <InvoiceNo>InvoiceNo</InvoiceNo>
    <RefNo>RefNo</RefNo>
    <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 as assigned by the processor.
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"
PadType	Y	1	24	A	"Paymentech1" for Paymentech (Canada) "Global1" for Global or Mercury (Canada) "Moneris1" for Moneris (Canada) "TSYSVX805" for Verifone Vx805 for VITAL/TSYS (US)
ComPort	Y	1	3	N	COM (Serial) port number to which an EMV approved PIN

					pad is attached (1-255).
InvoiceNo	Y	1	24	A	Invoice number - sequential receipt number, check number, or other unique transaction identifier created and supplied by POS system.
RefNo	Y	1	24	A	Use the same data as InvoiceNo
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.

Legend:

A	Alphanumeric
N	Numeric
O	Optional
R	Required

Sample Request for EMVPadReset

```
<TStream>
    <Transaction>
            <HostOrIP>BOB</HostOrIP>
            <IpPort>9000</IpPort>
            <MerchantID>700000200104</MerchantID>
            <TerminalID>009</TerminalID>
            <OperatorID>55</OperatorID>
            <UserTrace>Dev1</UserTrace>
            <TranCode>EMVPadReset</TranCode>
            <PadType>Paymentech1</PadType>
            <ComPort>1</ComPort>
            <InvoiceNo>1</InvoiceNo>
            <RefNo>1</RefNo>
            <SequenceNo>0010010260</SequenceNo>
    </Transaction>
</TStream>
```

Sample Response for EMVPadReset

```
<RStream>
    <CmdResponse>
            <ResponseOrigin>Client</ResponseOrigin>
            <DSIXReturnCode>000000</DSIXReturnCode>
            <CmdStatus>Success</CmdStatus>
            <TextResponse>Reset Successful.</TextResponse>
            <SequenceNo>0010010260</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.

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>
    <CardType>CardType</CardType>
    <TranCode>EMVSale</TranCode>
    <PadType>PadType</PadType>
    <ComPort>ComPort</ComPort>
    <Account>
      <AcctNo>AcctNo</AcctNo>
    </Account>
    <InvoiceNo>InvoiceNo</InvoiceNo>
    <RefNo>RefNo</RefNo>
    <Amount>
      <Purchase>Purchase</Purchase>
      <Gratuity>Gratuity</Gratuity>
  </Amount>
    <Duplicate>Duplicate</Duplicate>
    <SequenceNo>SequenceNo</SequenceNo>
    <PartialAuth>PartialAuth</PartialAuth>
  </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 as assigned by the processor.
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.
CardType	O	3	20	AN	Use value "DEBIT" only if use of a Debit card is to be enforced by the PIN pad (for possible cash back); otherwise omit this tag
TranCode	R	1	40	A	"EMVSale"
PadType	R	1	24	A	"Paymentech1" for Paymentech (Canada) "Global1" for Global or Mercury (Canada) "Moneris1" for Moneris (Canada)

					“TSYSVX805” for Verifone Vx805 for VITAL/TSYS (US)
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)
Amount:Gratuity	O	1	8	N	Gratuity Amount (with 2 place decimal – eg. 29.95) OR “Prompt” (which will cause the PIN pad to prompt the cardholder to input the gratuity amount)
Duplicate	O	1	24	A	“None” OR “Override” (See implementation note 1)
SequenceNo	R	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.
PartialAuth	R	1	20	A	“Allow”

Legend:

A	Alphanumeric
N	Numeric
O	Optional
R	Required

Sample Request for EMVSale (Chip or MSR Read)

```
<TStream>
    <Transaction>
            <HostOrIP>ePayServer</HostOrIP>
            <IpPort>9000</IpPort>
            <MerchantID>700000200104</MerchantID>
            <TerminalID>009</TerminalID>
            <OperatorID>55</OperatorID>
            <UserTrace>Dev1</UserTrace>
            <TranCode>EMVSale</TranCode>
            <PadType>Paymentech1</PadType>
            <ComPort>1</ComPort>
            <InvoiceNo>00000022</InvoiceNo>
            <RefNo>00000022</RefNo>
            <Amount>
                    <Purchase>10.00</Purchase>
            </Amount>
            <SequenceNo>0010010010</SequenceNo>
    </Transaction>
</TStream>
```

Sample Response for EMVSale (Chip or MSR Read)

```
<RStream>
    <CmdResponse>
            <ResponseOrigin>Processor</ResponseOrigin>
            <DSIXReturnCode>000000</DSIXReturnCode>
            <CmdStatus>Approved</CmdStatus>
            <TextResponse>APPROVED</TextResponse>
```

```
            <SequenceNo>0010010010</SequenceNo>
            <UserTrace>Dev1</UserTrace>
    </CmdResponse>
    <TranResponse>
            <MerchantID>700000200104</MerchantID>
            <TerminalID>009</TerminalID>
            <AcctNo>************8291<AcctNo>
            <CardType>VISA</CardType>
            <TranCode>EMVSale</TranCode>
            <AuthCode>094661</AuthCode>
            <CaptureStatus>Captured</CaptureStatus>
            <RefNo>00000001</RefNo>
            <InvoiceNo>00000022</InvoiceNo>
            <OperatorID>55</OperatorID>
            <Amount>
                    <Purchase>10.00</Purchase>
                    <Authorize>10.00</Authorize>
            </Amount>
            <AcqRefData>T0140147882546615C5000599990</AcqRefData>
    </TranResponse>
    <PrintData>
            <Line1>.MERCHANT ID: 700000200104</Line1>
            <Line2>.TERM ID: 009</Line2>
            <Line3>.</Line3>
            <Line4>.                  SALE                  </Line4>
            <Line5>.</Line5>

            <Line6>.************8291</Line6>
            <Line7>.VISA               ENTRY METHOD: SWIPED</Line7>
            <Line8>.</Line8>
            <Line9>.DATE: 2010/01/14  TIME: 16:51:57</Line9>
            <Line10>.</Line10>
            <Line11>.INV#: 00000022      APPR CODE: 094661   </Line11>
            <Line12>.RETRIEVAL #: 00000001</Line12>
            <Line13>.</Line13>
            <Line14>.AMOUNT                          $ 10.00</Line14>
            <Line15>.                             ==========</Line15>
            <Line16>.TOTAL                           $ 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>.          Cardholder Signature          </Line27>
            <Line28>.</Line28>
    </PrintData>
</RStream>
```

Sample Request for EMVSale (Manual Account Number Read)

```
<TStream>
    <Transaction>
            <HostOrIP>192.168.0.16</HostOrIP>
            <IpPort>9000</IpPort>
            <MerchantID>700000200104</MerchantID>
            <TerminalID>009</TerminalID>
            <OperatorID>55</OperatorID>
            <UserTrace>Dev1</UserTrace>
            <MerchantLanguage>English</MerchantLanguage>
            <TranCode>EMVSale</TranCode>
            <PadType>Paymentech1</PadType>
            <ComPort>1</ComPort>
            <Account>
                    <AcctNo>Prompt</AcctNo>
            </Account>
            <InvoiceNo>1</InvoiceNo>
            <RefNo>1</RefNo>
            <Amount>
```

```
                <Purchase>10.00</Purchase>
            </Amount>
            <SequenceNo>0010010280</SequenceNo>
    </Transaction>
</TStream>
```

Sample Response for EMVSale (Manual Account Number Read)

```
<RStream>
    <CmdResponse>
            <ResponseOrigin>Processor</ResponseOrigin>
            <DSIXReturnCode>000000</DSIXReturnCode>
            <CmdStatus>Approved</CmdStatus>
            <TextResponse>APPROVED</TextResponse>
            <SequenceNo>0010010280</SequenceNo>
            <UserTrace>Dev1</UserTrace>
    </CmdResponse>
    <TranResponse>
            <MerchantID>700000200104</MerchantID>
            <TerminalID>009</TerminalID>
            <AcctNo>************1212</AcctNo>
            <CardType>VISA</CardType>
            <TranCode>EMVSale</TranCode>
            <AuthCode>092129</AuthCode>
            <CaptureStatus>Captured</CaptureStatus>
            <RefNo>00000001</RefNo>
            <InvoiceNo>1</InvoiceNo>
            <OperatorID>55</OperatorID>
            <Amount>
                    <Purchase>10.00</Purchase>
                    <Authorize>10.00</Authorize>
            </Amount>
            <AcqRefData>T014035271122129BK6C00599901</AcqRefData>
    </TranResponse>
    <PrintData>
            <Line1>.MERCHANT ID: 700000200104</Line1>
            <Line2>.TERM ID: 009</Line2>
            <Line3>.</Line3>
            <Line4>.                  SALE                  </Line4>
            <Line5>.</Line5>
            <Line6>.************1212</Line6>
            <Line7>.VISA                  ENTRY METHOD: MAN</Line7>
            <Line8>.</Line8>
            <Line9>.DATE: 2010/02/04  TIME: 12:42:08</Line9>
            <Line10>.</Line10>
            <Line11>.INV#: 1             APPR CODE: 092129   </Line11>
            <Line12>.RETRIEVAL #: 00000001</Line12>
            <Line13>.</Line13>
            <Line14>.AMOUNT                        $ 10.00</Line14>
            <Line15>.                            ==========</Line15>
            <Line16>.TOTAL                         $ 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>.          Cardholder Signature          </Line27>
            <Line28>.</Line28>
    </PrintData>
</RStream>
```

Implementation Notes:

1. The Duplicate tag applies to Global Payment Systems and Mercury Payment Systems. In the event that an APDUPE response is received for a request, 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 charges of the same amount to the same card within a short time period are necessary.

3.3 EMVVoidSale

Use: To void a previous EMVSale

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

XML Request Template:

```
<?xml version="1.0"?>
<TStream>
  <Transaction>
    <HostOrIP>999.999.999.999</HostOrIP>
    <IpPort>99999</IpPort>                    optional (9000 unless supplied)
    <MerchantID>MerchantID</MerchantID>
    <TerminalID>TerminalID</TerminalID>
    <OperatorID>OperatorID</OperatorID>
    <UserTrace>UserTrace</UserTrace>
    <TranCode>EMVVoidSale</TranCode>
    <PadType>PadType</PadType>
    <ComPort>ComPort</ComPort>
    <Account>
      <AcctNo>AcctNo</AcctNo>
    </Account>
    <InvoiceNo>InvoiceNo</InvoiceNo>
    <RefNo>RefNo</RefNo>
    <AuthCode>AuthCode</AuthCode>
    <Amount>
      <Purchase>Purchase</Purchase>
      <Gratuity>Gratuity</Gratuity>
    </Amount>
    <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 as assigned by the processor.
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"
PadType	R	1	24	A	"Paymentech1" for Paymentech (Canada) "Global1" for Global or Mercury (Canada) "Moneris1" for Moneris (Canada) "TSYSVX805" for Verifone Vx805 for VITAL/TSYS (US)
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 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)
SequenceNo	R	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.

Legend:

A	Alphanumeric
N	Numeric
O	Optional
R	Required

Sample Request for EMVVoidSale

```
<TStream>
    <Transaction>
            <HostOrIP>ePayServer</HostOrIP>
            <IpPort>9000</IpPort>
            <MerchantID>700000200104</MerchantID>
            <TerminalID>009</TerminalID>
            <OperatorID>55</OperatorID>
            <UserTrace>Dev1</UserTrace>
            <TranCode>EMVVoidSale</TranCode>
            <PadType>Paymentech1</PadType>
            <ComPort>1</ComPort>
            <InvoiceNo>00000002</InvoiceNo>
            <RefNo>00000002</RefNo>
            <AuthCode>006896</AuthCode>
            <Amount>
                    <Purchase>10.00</Purchase>
            </Amount>
            <SequenceNo>0010010010</SequenceNo>
    </Transaction>
</TStream>
```

Sample Response for EMVVoidSale

```
<RStream>
    <CmdResponse>
            <ResponseOrigin>Processor</ResponseOrigin>
            <DSIXReturnCode>000000</DSIXReturnCode>
            <CmdStatus>Approved</CmdStatus>
            <TextResponse>APPROVED</TextResponse>
            <SequenceNo>0010010010</SequenceNo>
            <UserTrace>Dev1</UserTrace>
    </CmdResponse>
    <TranResponse>
```

```
            <MerchantID>700000200104</MerchantID>
            <TerminalID>009</TerminalID>
            <AcctNo>************0020</AcctNo>
            <CardType>M/C</CardType>
            <TranCode>EMVVoidSale</TranCode>
            <AuthCode>000000</AuthCode>
            <CaptureStatus>Captured</CaptureStatus>
            <RefNo>00000003</RefNo>
            <InvoiceNo>00000002</InvoiceNo>
            <OperatorID>55</OperatorID>
            <Amount>
                   <Purchase>10.00</Purchase>
                   <Authorize>10.00</Authorize>
            </Amount>
    </TranResponse>
    <PrintData>
            <Line1>.MERCHANT ID: 700000200104</Line1>
            <Line2>.TERM ID: 009</Line2>
            <Line3>.</Line3>
            <Line4>.                VOID SALE              </Line4>
            <Line5>.</Line5>
            <Line6>.************0020</Line6>
            <Line7>.M/C                  ENTRY METHOD: CHIP</Line7>
            <Line8>.</Line8>
            <Line9>.DATE: 2010/01/14  TIME: 16:54:23</Line9>
            <Line10>.</Line10>
            <Line11>.INV#: 00000002      APPR CODE: 000000   </Line11>
            <Line12>.RETRIEVAL #: 00000003</Line12>
            <Line13>.</Line13>
            <Line14>.AMOUNT                        $ 10.00</Line14>
            <Line15>.                            ==========</Line15>
            <Line16>.TOTAL                         $ 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>.TSI:A800</Line33>
            <Line34>.RESP CD:</Line34>
    </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.

XML Template: **EMVReturn**

XML Request Template:

```
<?xml version="1.0"?>
<TStream>
  <Transaction>
    <HostOrIP>999.999.999.999</HostOrIP>
    <IpPort>99999</IpPort>                    optional (9000 unless supplied)
    <MerchantID>MerchantID</MerchantID>
    <TerminalID>TerminalID</TerminalID>
    <OperatorID>OperatorID</OperatorID>
    <UserTrace>UserTrace</UserTrace>
    <TranCode>EMVReturn</TranCode>
    <PadType>PadType</PadType>
    <ComPort>ComPort</ComPort>
    <Account>
      <AcctNo>AcctNo</AcctNo>
    </Account>
    <InvoiceNo>InvoiceNo</InvoiceNo>
    <RefNo>RefNo</RefNo>
    <Amount>
      <Purchase>Purchase</Purchase>
      <Gratuity>Gratuity</Gratuity>
    </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 as assigned by the processor.
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"
PadType	R	1	24	A	"Paymentech1" for Paymentech (Canada) "Global1" for Global or Mercury (Canada) "Moneris1" for Moneris (Canada) "TSYSVX805" for Verifone Vx805 for VITAL/TSYS (US)
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)
Amount:Gratuity	O	1	8	N	Gratuity Amount (with 2 place decimal – eg. 29.95)
Duplicate	O	1	24	A	“None” OR “Override” (See implementation note 1)
SequenceNo	R	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.

Legend:
A Alphanumeric
N Numeric
O Optional
R Required

Sample EMV Return Request

```
<TStream>
    <Transaction>
            <HostOrIP>ePayServer</HostOrIP>
            <IpPort>9000</IpPort>
            <MerchantID>700000200104</MerchantID>
            <TerminalID>009</TerminalID>
            <OperatorID>55</OperatorID>
            <UserTrace>Dev1</UserTrace>
            <TranCode>EMVReturn</TranCode>
            <PadType>Paymentech1</PadType>
            <ComPort>1</ComPort>
            <InvoiceNo>5</InvoiceNo>
            <RefNo>5</RefNo>
            <Amount>
                    <Purchase>10.00</Purchase>
            </Amount>
            <SequenceNo>0010010010</SequenceNo>
    </Transaction>
</TStream>
```

Sample EMV Return Response

```
<RStream>
    <CmdResponse>
            <ResponseOrigin>Processor</ResponseOrigin>
            <DSIXReturnCode>000000</DSIXReturnCode>
            <CmdStatus>Approved</CmdStatus>
            <TextResponse>APPROVED</TextResponse>
            <SequenceNo>0010010010</SequenceNo>
            <UserTrace>Dev1</UserTrace>
    </CmdResponse>
    <TranResponse>
            <MerchantID>700000200104</MerchantID>
            <TerminalID>009</TerminalID>
            <AcctNo>************0020</AcctNo>
            <CardType>M/C</CardType>
```

```
            <TranCode>EMVReturn</TranCode>
            <CaptureStatus>Captured</CaptureStatus>
            <RefNo>00000004</RefNo>
            <InvoiceNo>5</InvoiceNo>
            <OperatorID>55</OperatorID>
            <Amount>
                   <Purchase>10.00</Purchase>
                   <Authorize>10.00</Authorize>
            </Amount>
    </TranResponse>
    <PrintData>
            <Line1>.MERCHANT ID: 700000200104</Line1>
            <Line2>.TERM ID: 009</Line2>
            <Line3>.</Line3>
            <Line4>.                REFUND                </Line4>
            <Line5>.</Line5>
            <Line6>.************0020</Line6>
            <Line7>.M/C                  ENTRY METHOD: CHIP</Line7>
            <Line8>.</Line8>
            <Line9>.DATE: 2010/01/14  TIME: 16:54:50</Line9>
            <Line10>.</Line10>
            <Line11>.INV#: 5             APPR CODE:          </Line11>
            <Line12>.RETRIEVAL #: 00000004</Line12>
            <Line13>.</Line13>
            <Line14>.AMOUNT                        $ 10.00</Line14>
            <Line15>.                            ==========</Line15>
            <Line16>.TOTAL                         $ 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>.TSI:A800</Line33>
            <Line34>.RESP CD:</Line34>
    </PrintData>
</RStream>
```

Implementation Notes:

1. The Duplicate tag applies to Global Payment Systems and Mercury Payment Systems. In the event that an APDUPE response is received for a request, 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.

3.5 EMVVoidReturn

Use: To void a previous EMVReturn.

XML Template: **EMVVoidReturn**

XML Request Template:

```
<?xml version="1.0"?>
<TStream>
  <Transaction>
    <HostOrIP>999.999.999.999</HostOrIP>
    <IpPort>99999</IpPort>                    optional (9000 unless supplied)
    <MerchantID>MerchantID</MerchantID>
    <TerminalID>TerminalID</TerminalID>
    <OperatorID>OperatorID</OperatorID>
    <UserTrace>UserTrace</UserTrace>
    <TranCode>EMVReturn</TranCode>
    <PadType>PadType</PadType>
    <ComPort>ComPort</ComPort>
    <Account>
      <AcctNo>AcctNo</AcctNo>
    </Account>
    <InvoiceNo>InvoiceNo</InvoiceNo>
    <RefNo>RefNo</RefNo>
    <Amount>
      <Purchase>Purchase</Purchase>
      <Gratuity>Gratuity</Gratuity>
    </Amount>
    <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 as assigned by the processor.
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"
PadType	R	1	24	A	"Paymentech1" for Paymentech (Canada) "Global1" for Global or Mercury (Canada) "Moneris1" for Moneris (Canada) "TSYSVX805" for Verifone Vx805 for VITAL/TSYS (US)
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 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)
SequenceNo	R	10	12	A	The sequence number returned in all responses to be used on the next request. If the SequenceNo is lost 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 EMVVoidReturn Request

```
<TStream>
    <Transaction>
            <HostOrIP>ePayServer</HostOrIP>
            <IpPort>9000</IpPort>
            <MerchantID>700000200104</MerchantID>
            <TerminalID>009</TerminalID>
            <OperatorID>55</OperatorID>
            <UserTrace>Dev1</UserTrace>
            <TranCode>EMVVoidReturn</TranCode>
            <PadType>Paymentech1</PadType>
            <ComPort>1</ComPort>
            <InvoiceNo>00000004</InvoiceNo>
            <RefNo>00000004</RefNo>
            <Amount>
                    <Purchase>10.00</Purchase>
            </Amount>
            <SequenceNo>0010010010</SequenceNo>
    </Transaction>
</TStream>
```

Sample EMVVoidReturn Response

```
<RStream>
    <CmdResponse>
            <ResponseOrigin>Processor</ResponseOrigin>
            <DSIXReturnCode>000000</DSIXReturnCode>
            <CmdStatus>Approved</CmdStatus>
            <TextResponse>APPROVED</TextResponse>
            <SequenceNo>0010010010</SequenceNo>
            <UserTrace>Dev1</UserTrace>
    </CmdResponse>
    <TranResponse>
            <MerchantID>700000200104</MerchantID>
            <TerminalID>009</TerminalID>
            <AcctNo>************0020</AcctNo>
            <CardType>M/C</CardType>
            <TranCode>EMVVoidReturn</TranCode>
```

```
            <CaptureStatus>Captured</CaptureStatus>
            <RefNo>00000005</RefNo>
            <InvoiceNo>00000004</InvoiceNo>
            <OperatorID>55</OperatorID>
            <Amount>
                   <Purchase>10.00</Purchase>
                   <Authorize>10.00</Authorize>
            </Amount>
    </TranResponse>
    <PrintData>
            <Line1>.MERCHANT ID: 700000200104</Line1>
            <Line2>.TERM ID: 009</Line2>
            <Line3>.</Line3>
            <Line4>.              VOID REFUND             </Line4>
            <Line5>.</Line5>
            <Line6>.************0020</Line6>
            <Line7>.M/C                  ENTRY METHOD: CHIP</Line7>
            <Line8>.</Line8>
            <Line9>.DATE: 2010/01/14  TIME: 16:55:11</Line9>
            <Line10>.</Line10>
            <Line11>.INV#: 00000004      APPR CODE:          </Line11>
            <Line12>.RETRIEVAL #: 00000005</Line12>
            <Line13>.</Line13>
            <Line14>.AMOUNT                        $ 10.00</Line14>
            <Line15>.                           ==========</Line15>
            <Line16>.TOTAL                         $ 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>.TSI:A800</Line33>
            <Line34>.RESP CD:</Line34>
    </PrintData>
</RStream>
```

3.6 EMVVoiceAuth

Use: To capture a previously voice authorized transaction.

XML Template: **EMVVoiceAuth**

XML Request Template:

```
<?xml version="1.0"?>
<TStream>
  <Transaction>
    <HostOrIP>999.999.999.999</HostOrIP>
    <IpPort>99999</IpPort>                    optional (9000 unless supplied)
    <MerchantID>MerchantID</MerchantID>
    <TerminalID>TerminalID</TerminalID>
    <OperatorID>OperatorID</OperatorID>
    <UserTrace>UserTrace</UserTrace>
    <TranCode>EMVVoiceAuth</TranCode>
    <PadType>PadType</PadType>
    <ComPort>ComPort</ComPort>
    <Account>
      <AcctNo>AcctNo</AcctNo>
    </Account>
    <InvoiceNo>InvoiceNo</InvoiceNo>
    <RefNo>RefNo</RefNo>
    <Amount>
      <Purchase>Purchase</Purchase>
      <Gratuity>Gratuity</Gratuity>
    </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 as assigned by the processor.
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"
PadType	R	1	24	A	"Paymentech1" for Paymentech (Canada) "Global1" for Global or Mercury (Canada) "Moneris1" for Moneris (Canada) "TSYSVX805" for Verifone Vx805 for VITAL/TSYS (US)
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 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)
Duplicate	O	1	24	A	“None” OR “Override” (See implementation note 1)
SequenceNo	R	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.

Legend:

A	Alphanumeric
N	Numeric
O	Optional
R	Required

Sample EMVVoiceAuth Request

```
<TStream>
    <Transaction>
            <HostOrIP>ePayServer</HostOrIP>
            <IpPort>9000</IpPort>
            <MerchantID>700000200104</MerchantID>
            <TerminalID>009</TerminalID>
            <OperatorID>55</OperatorID>
            <UserTrace>Dev1</UserTrace>
            <TranCode>EMVVoiceAuth</TranCode>
            <PadType>Paymentech1</PadType>
            <ComPort>1</ComPort>
            <InvoiceNo>6</InvoiceNo>
            <RefNo>6</RefNo>
            <AuthCode>123456</AuthCode>
            <Amount>
                    <Purchase>10.00</Purchase>
            </Amount>
            <SequenceNo>0010010010</SequenceNo>
    </Transaction>
</TStream>
```

Sample EMVVoiceAuth Response

```
<RStream>
    <CmdResponse>
            <ResponseOrigin>Processor</ResponseOrigin>
            <DSIXReturnCode>000000</DSIXReturnCode>
            <CmdStatus>Approved</CmdStatus>
            <TextResponse>APPROVED</TextResponse>
            <SequenceNo>0010010010</SequenceNo>
            <UserTrace>Dev1</UserTrace>
    </CmdResponse>
    <TranResponse>
```

```
            <MerchantID>700000200104</MerchantID>
            <TerminalID>009</TerminalID>
            <AcctNo>************0020</AcctNo>
            <CardType>M/C</CardType>
            <TranCode>EMVVoiceAuth</TranCode>
            <AuthCode>123456</AuthCode>
            <CaptureStatus>Captured</CaptureStatus>
            <RefNo>00000006</RefNo>
            <InvoiceNo>6</InvoiceNo>
            <OperatorID>55</OperatorID>
            <Amount>
                   <Purchase>10.00</Purchase>
                   <Authorize>10.00</Authorize>
            </Amount>
    </TranResponse>
    <PrintData>
            <Line1>.MERCHANT ID: 700000200104</Line1>
            <Line2>.TERM ID: 009</Line2>
            <Line3>.</Line3>
            <Line4>.                POST AUTH              </Line4>
            <Line5>.</Line5>
            <Line6>.************0020</Line6>
            <Line7>.M/C                  ENTRY METHOD: CHIP</Line7>
            <Line8>.</Line8>
            <Line9>.DATE: 2010/01/14  TIME: 16:55:38</Line9>
            <Line10>.</Line10>
            <Line11>.INV#: 6             APPR CODE: 123456   </Line11>
            <Line12>.RETRIEVAL #: 00000006</Line12>
            <Line13>.</Line13>
            <Line14>.AMOUNT                        $ 10.00</Line14>
            <Line15>.                            ==========</Line15>
            <Line16>.TOTAL                         $ 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>.TSI:A800</Line33>
            <Line34>.RESP CD:</Line34>
    </PrintData>
</RStream>
```

Implementation Notes:

1. The Duplicate tag applies to Global Payment Systems and Mercury Payment Systems. In the event that an APDUPE response is received for a request, 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.

3.7 ServerVersion

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

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>
    <PadType>PadType</PadType>
    <ComPort>ComPort</ComPort>
    <InvoiceNo>InvoiceNo</InvoiceNo>
    <RefNo>RefNo</RefNo>
    <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 supplied as provided by the processor or merchant service provider.
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"
PadType	R	1	10	A	"Paymentech1" for Paymentech (Canada) "Global1" for Global or Mercury (Canada) "Moneris1" for Moneris (Canada) "TSYSVX805" for Verifone Vx805 for VITAL/TSYS (US)
ComPort	R	1	3	N	RS232 or USB Virtual COM port number to which an EMV approved PIN pad is attached
InvoiceNo	R	1	16	A	Invoice number - sequential receipt number, check number, or other unique transaction identifier created and supplied by POS system.
RefNo	R	1	16	A	Use the same data as InvoiceNo
SequenceNo	R	10	12	A	Sequence number returned in response to the immediately previous transaction

Legend:		
	A	Alphanumeric
	N	Numeric
	O	Optional
	R	Required

Sample EMV Server Version Request

```
<TStream>
    <Admin>
            <HostOrIP>ePayServer</HostOrIP>
            <IpPort>9000</IpPort>
            <MerchantID>700000200104</MerchantID>
            <TerminalID>009</TerminalID>
            <OperatorID>55</OperatorID>
            <UserTrace>Dev1</UserTrace>
            <TranCode>ServerVersion</TranCode>
            <PadType>Paymentech1</PadType>
            <ComPort>1</ComPort>
            <InvoiceNo>12</InvoiceNo>
            <RefNo>12</RefNo>
            <SequenceNo>0010010010</SequenceNo>
    </Admin>
</TStream>
```

Sample EMV Server Version Response

```
<RStream>
    <CmdResponse>
            <ResponseOrigin>Server</ResponseOrigin>
            <DSIXReturnCode>500000</DSIXReturnCode>
            <CmdStatus>Success</CmdStatus>
            <TextResponse>NETePay ML/XML Version PE 4.16</TextResponse>
            <SequenceNo>0010010010</SequenceNo>
            <UserTrace>Dev1</UserTrace>
    </CmdResponse>
    <ServerVersion>
            <ProductName>NETePay</ProductName>
            <ProductClass>Host Based</ProductClass>
            <Provider>Paymentech NetConnect</Provider>
            <ProductVersion>PE 4.16</ProductVersion>
    </ServerVersion>
</RStream>
```

4.0 Transaction Responses

4.1 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: "Client" = generated by dsiEMVX control "Server" = generated by Datacap server "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: "Success" = command completed successfully "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	Transaction sequence number (save for subsequent transaction request)
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 command in order to use the PIN pad.
2. The EMVPadReset command should be performed before every transaction (Sale, VoidSale, Return, VoidReturn, VoiceAuth) to assure that no card is in the EMV PIN pad chip card (insertion) 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.

4.2 XML Response Template for

EMVSale
EMVVoidSale
EMVReturn
EMVVoidReturn
EMVVoiceAuth

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>
      <Authorize>Authorize</Authorize>
    </Amount>
    <AcqRefData>AcqRefData</AcqRefData>
    <PostProcess>PostProcess</PostProcess>
  </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: "Client" = generated by dsiEMVX control "Server" = generated by Datacap server "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: "Approved" = transaction approved by payment processor "Declined" = transaction declined by payment processor "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	Transaction sequence number (save for subsequent transaction requests)
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: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.
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.
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 6 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.
5. If PrintData is returned, two copies must be printed; one for presentation to cardholder as a separate draft from the usual receipt and one for the merchant. Cardholder copies will have the phrase “CardHolder Copy/Copie du titulaire” as the last line; merchant copies will have ”Merchant Copy/Copie du marchand” as the last line. See following example.

```
             MERCHANT NAME
           MERCHANT STREET
         CITY, PROVINCE CODE
             POSTAL CODE
            123-456-7890

MERCHANT ID: 70102475

                SALE

************0036
VISA                 ENTRY METHOD: CHIP

DATE: 2010/02/24         TIME: 12:02:06

INV#: 1201            APPR CODE: 05494A
RETRIEVAL #: 0021

AMOUNT                       CAD$ 10.00
                             ==========
TOTAL                        CAD$ 10.00


          APPROVED - THANK YOU


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


Application Preferred Name:
CREDITO DE VISA
AID:A0000000031010
TVR:0000008000
TSI:F800
RESP CD:00

          NO SIGNATURE REQUIRED

   CardHolder Copy/Copie du titulaire
```

```
             MERCHANT NAME
           MERCHANT STREET
         CITY, PROVINCE CODE
             POSTAL CODE
            123-456-7890

MERCHANT ID: 70102475

                SALE

************0036
VISA                 ENTRY METHOD: CHIP

DATE: 2010/02/24         TIME: 12:02:06

INV#: 1201            APPR CODE: 05494A
RETRIEVAL #: 0021

AMOUNT                       CAD$ 10.00
                             ==========
TOTAL                        CAD$ 10.00


          APPROVED - THANK YOU


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


Application Preferred Name:
CREDITO DE VISA
AID:A0000000031010
TVR:0000008000
TSI:F800
RESP CD:00

          NO SIGNATURE REQUIRED

     Merchant Copy/Copie du marchand
```

4.3 ServerVersion XML Response Template

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>
  </ServerVersion>
</RStream>
```

Element	Return	Min	Max	Type	Description
ResponseOrigin	Y	1	10	A	Indicates the source of the response: "Client" = generated by dsiEMVX control "Server" = generated by Datacap server "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: "Success" = command completed successfully "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	Transaction sequence number (save for subsequent transaction requests)
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.

5.0 dsiEMVX Programming Interface for EMV Transactions

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 DSIClientX.

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

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

Returns: XML formatted string response of type RStream. See Section 4 on XML Responses.

6.0 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.

DSIServer Specific (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

DSIClientX Specific (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
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