commidea
part of Point group

Web Service Guide

Integration Guide

Author: ML
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Revision History

Ver.	Name	Date	Comments
V5.28	ML	May 2011	- Payer Authentication matrix updated - 'Resultdatetime' string formatting corrected - On-Hold/Release functionality documented
V5.27	ML	Feb 2011	- Manual format updated
V5.26	ML	Feb 2011	- Mandatory 'accountpasscode' field added to transaction request message

Element Usage

Throughout the document, element usage is described using either 'C' (Conditional), 'O' (Optional) or 'M' (Mandatory). Where these are used, follow the below guidance:

Conditional – element required dependent upon another
Optional – element does not have to be present
Mandatory – element must be present and be populated with a value

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Content

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1. Introduction

This document is or use when integrating to the Commidea Web Service solution – XML V4. Contained within are descriptions and examples of the record structures required, as well as a step-by-step guide to how the process works.

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2. ICP XML V4

The latest version of the Web Services solution provides merchants with a more resilient design and faster service using Commidea's next generation ICP system architecture.

It also contains support for the following:

- **Payer Authentication**
  this module allows MasterCard and Visa payments to be verified by entering a password, should the card be enrolled in this service with the issuer

- **Token Gateway**
  this functionality provides the ability to register a customer's payment details with the Token Gateway which will return a token as a reference. None of the sensitive card details therefore need to be stored by the merchant, and can be reused in future by providing the token ID

- **Ukash**
  this module will allow customers to pay for items using either a Ukash Voucher or Ukash Account. Ukash account and vouchers enable people to pre-pay for items. The Voucher itself contains a 19 digit code which is entered when paying for goods online. Should there be any remaining amount from the voucher after the purchase; another code is generated for the remaining amount.

Each of the transaction types available are listed in sections throughout the manual. For each, the process will be explained, and then the message types themselves listed. This will provide an understanding of how each works, and then all the messaging information required to incorporate the functionality.

2.1. Process Overview

Commidea have a Web Service with a single function 'processmessage' which has an input parameter of 'message' and an output parameter of 'message'. This is defined by the WSDL which is located at:

https://testweb.commidea.com/commideagateway/commideagateway.asmx?WSDL

A 'message' has the following fields:

ClientHeader	which is a complex type (having multiple fields, e.g. SystemID, SystemGUID)
MsgType	which is a string and informing the solution how to read the MsgData
MsgData	which is a string containing the data which makes up the message

When the processmessage function is called, a message with the clientheader, msgtype and msgdata supplied will be passed to the Web Service. Commidea, in turn, will process this message and respond accordingly.

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The XSDs define the structure of the MsgData. Before a transactionrequest is sent in, the MsgType must be set and the MsgData populated according to the XML structure of a transactionrequest. Commidea then attempt to process the request and respond with a corresponding message.

This does not necessarily mean a message containing a transactionresponse because if the XML sent in is of an unreadable format or does not conform to the XSD then Commidea can return a message containing an error detailing what has occurred. The MsgType is set to 'ERROR' and the MsgData contains the XML structure of an error, for which there are XSDs available.

2.2. Procurement Cards (VGIS)

For integrators looking to process procurement cards (also known as to as 'VGIS') then please ensure that the Commidea Procurement Card Specification documentation in used in conjunction with the Web Services Guide.

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3. Integration

To enable merchants to integrate to their systems, Commidea has a fully functional test system in place for each version.

The process for new integrations is to develop to the test server and once the integrator is satisfied that the solution is fully functional, contact is made with the Implementations Department to arrange for integration testing. It is recommended that some testing is performed on the integration before booking a testing slot. To help with this there is a list of checks that will be performed included within the manual (please see Appendix A). Within this list there are tests performed on the ability to respond accordingly to declines and voice referrals – to help with this there are some default values which stimulate certain behaviour:

Value	Expected Outcome
.00	**Accepted, 789DE**
.02	**Voice referred**
.05	**Declined**
.07	**Communications Down**
.08	**Refund Offline**

The correct address / CSC input to get a full match is: 10, ME156LH with CSC 000

Below are the different input combinations and the expected output:

CSC Value	CVCRESULT
<null>	**0 – Not Provided**
555	**1 – Not Checked**
000	**2 – Matched**
111	**4 – Not Matched**

Address Line 1 Value	AD1AVSRESULT
<null>	**0 – Not Provided**
55	**1 – Not Checked**
10	**2 – Matched**
11	**4 – Not Matched**
12	**8 – Partial Match**

Post Code Value	PCAVSRESULT
<null>	**0 – Not Provided**
ME555LH or 555	**1 – Not Checked**
ME156LH or 156	**2 – Matched**
ME111LH or 111	**4 – Not Matched**
ME122LH or 122	**8 – Partial Match**

The test system is also configured to return a dummy authorisation code for every transaction; so do not be concerned by the fact that every transaction returns the same code. This will be '789DE'.

To obtain a test account, please contact the Implementations Team at implementations@commidea.com, specifying which system solution is being integrated to. They may then ask for more information before issuing a test account, dependant on which features of XML V4 are to be utilised.

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3.1. Integration Process

Before any testing can commence please ensure that a request for an XML test script is sent to the implementations Department. After receiving this, the 'Introduction' and 'Live Details' tabs must be completed and returned via email. As soon as this has been received the integration will be added to a testing queue. This process is in place for websites only and it is recommended that the test scripts are delivered to Commidea, at the absolute least, 2 weeks prior to any planned go live date. If there is a go live date to met, Implementations must be informed of this as soon as possible. Once the tests have been completed the script will be returned along with comments on any changes that Commidea require. After these changes have been made, and comments added to the script, please return it to Implementations to request re-testing. This process will continue until sign off is achieved.

Should you have any questions regarding the integration process, general technical queries or assistance then the Implementations team are available and will be happy to help.

3.2. Commidea Timeouts

Transaction Authorisation Database Timeout – 45 seconds

This is the period for which ICP will wait for a transaction result until returning an authorisation error as the transaction result.

Commidea Web Service Timeout – 60 seconds

This is the period after which ICP will timeout should it not be able to post the result back to the merchant.

Commidea Payer Authentication Database Timeout – 30 seconds

This is the period of time that ICP will wait until it receives a response back from the Payer Authentication application. It will return a Commidea timeout response in this instance.

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3.3. Integration Testing

As aforementioned, vigorous testing is performed by Commidea before any solution can be used in a live environment. To help developers ensure the application or website is ready for this testing; below are a list of recommendations to adhere to:

- Confirmation messages should be sent in every scenario except:
  - After receiving a negative error code response
  - Declined transactions
  - When processing pre authorisation transactions, as these are automatically confirmed
- A timeout period should be in place to ensure that, if no confirmation response is received after a predefined period of time, the confirmation message is resent. A new transaction should not be raised in this scenario, as this can result in duplicate orders. Should there be any issues with recurring responses not being returned please contact Implementations during testing, or the Helpdesk once the solution is being used in a live environment
- Build timeout periods into the solution to ensure that should there be any connection errors that these are captured and counteracted suitably
- Perform validation on fields locally before posting the record to the ICP server. For example, only allow numeric values to be entered into the relevant fields
- Perform card checks locally using LUHN validation (see Appendix D)
- When reporting a voice referral to the user, do not inform them that the transaction has been “declined”, as this is not the case. Inform the users something similar to: “… your payment attempt was unsuccessful, please use an alternative card”
- Before having a Commidea Engineer perform Integration Testing, ensure the solution is as close to the final product which will be set live as possible. For example; all on screen messages displayed to the user will need to be checked, so the solution must be complete and in full working order before being tested
- Referred, Declined and ‘Comms Down’ responses should all be catered for. These can be simulated using the test system. Please see the Website Testing Script for more information.

When the solution being built is a website, the following should be considered during development:

- Only include logos for card schemes that can be accepted by the site
- Disable use of the ‘Back’ button / ensure data from previous pages is cleared and therefore cannot be fraudulently retrieved by returning to the page
- Remove the ability for duplicate orders to be raised through the system by disabling the order button after the order has been submitted
- As mentioned in the general list of recommendations, integration of the website should be the last step of development before it is set live. In this case, it should be an exact replica of the live site, or as close a representation as possible
- Disabling the ability to copy and paste from within the web form for added security

When developing a system for use in a call centre environment (not a customer facing website front end) it will be necessary for the system to display the merchant number, terminal ID and

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voice referral telephone number in the case of a voice referral response. For a table of tests to run through before releasing the solution to Commidea for testing, please see Appendix A.

3.4. Testing URLs

Please find below the test URLs required to gain access to the XML payment service:

https://testweb.commidea.com/commideagateway/commideagateway.asmx

3.5. Integration Methods

Before describing the records that are required it would make sense to discuss the available methods to invoke the Commidea Web Service. To make the solution as pliable as possible there are the following options:

3.5.1. SOAP

This is a standard for exchanging XML-based messages, and forms a foundation layer of the web services stack, which provides a basic messaging framework that more abstract layers can be built on.

To enable merchants to integrate using this method there are a set of XSDs available which can be obtained from implementations@commidea.com.

Alternatively the descriptions are available at the following URL:

https://testweb.commidea.com/commideagateway/commideagateway.asmx?op=ProcessMsg

3.5.2. Web Service Proxy

A Web Service Proxy can be created from within Microsoft Visual Studio .Net by adding a web reference to the URL of the web service, or by a tool called Web Service Description Language Tool (wsdl.exe). The proxy class that is generated from the WSDL that describes the web services has the same method signatures as the web service and hides the implementation details so that calling the web service is transparent. This can then be used to create a new instance of the web service object as though it is a local object instead of a remote one.

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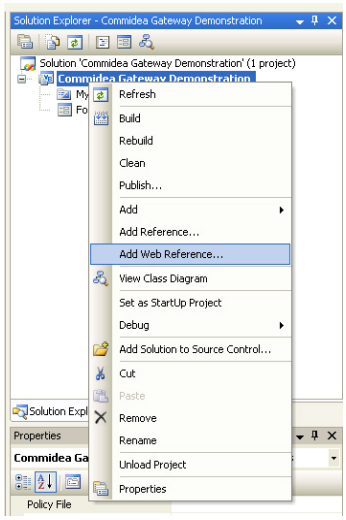
3.5.3. Web Service Discovery Language

To access the WSDL descriptions, please visit the following URLs:

https://testweb.commidea.com/commideagateway/commideagateway.asmx?WSDL

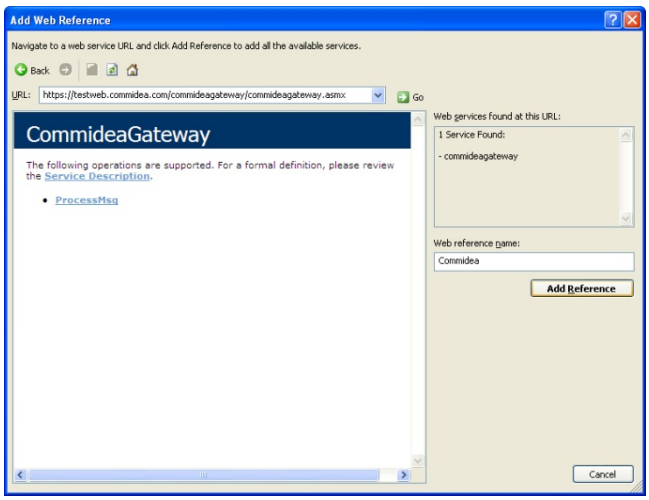


3.5.4. Web Referencing

XML V4 has been made simple to integrate into with the ability to add a web reference with Microsoft Visual Studio 2005. Following are the instructions for how to do this:

i. Right click in the project to add the reference to, and then select “Add Web Reference”:

ii. The address of the web service is then requested. Insert this into the “URL:” text box and press “Go”. The service should then be found, and “Add Reference” clicked to import it into the project.



Now that the reference has been added enabling consumption of the web service, via the use of a proxy class.

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3.6. PayPal Sandbox and Testing

When integrating to PayPal, a simulation environment is provided called the 'PayPal Sandbox' which is accessed by logging in to Developer Central. All test accounts, email addresses, funding sources (bank accounts, credit cards, balances, etc), etc are fictitious. Transactions are simulated and no real money moves. Emails sent to test accounts are simulated by appearing on Developer Central's 'Email' tab. Follow the steps below to sign up for Developer Central and create test accounts. The process is to create a test merchant account and a test buyer account to make purchases. Additional information about Developer Central and the PayPal Sandbox is online in the Sandbox User Guide.

1. Create a Developer Central login and password by signing up at https://developer.paypal.com. It is necessary to supply a valid (real) email address when signing up. All documentation which may be required from PayPal is available via a link on this page.

2. Create a test merchant account and a test customer account. PayPal request that integrators do not use real financial account information when creating test accounts.

    a. Login to Developer Central

    b. Go to the 'Sandbox' tab and click the 'Create Account' link. This will launch window which explains, using simulation, the PayPal account creation flow.

- Test customer account: It is sufficient to create a PayPal personal test account. Be sure to confirm the email address for the account as part of the setup. Look on Developer Central's 'Email' tab for the simulated account activation email which is required to complete the email address confirmation. Also add a credit card to the test customer account as a funding source so the account can make purchases – the account creation flow will pre-populate a fictitious card number for use.

- Test merchant account: It is necessary to add and confirm a bank account and also confirm the email address to be able to get API credentials for doing API calls with the test merchant account. Go to the test merchant account's Profile tab/API Access link to get API credentials.

Be sure to login first to Developer Central when testing redirection the customer to PayPal. To connect to the Sandbox use the following endpoint with API calls:

NVP API: https://api.sandbox.paypal.com/nvp/

SOAP API: https://api.sandbox.paypal.com/2.0/

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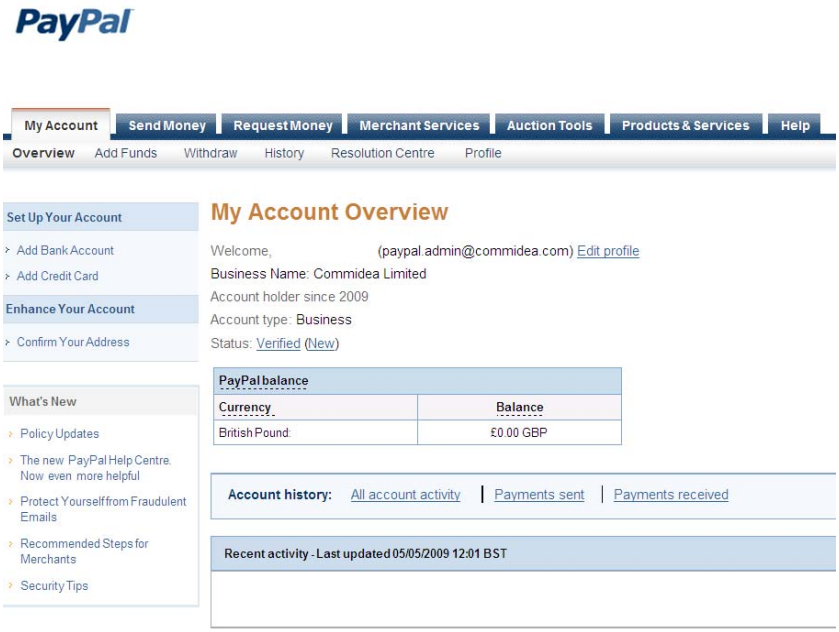
3.7. Grant PayPal API Permissions

Permissions will need to be granted to Commidea to make API calls on a merchant's behalf. Step by step instructions are detailed below.

1. Log into the PayPal account and select **Profile** from the options under **My Account**.



2. Select the tab under **Account Information** on the far left hand side of the page called **API Access**.
3. Select the option **Grant API Permission** in the left hand box.
4. Enter **paypal.admin_api1.commidea.com** in the required field; tick all of the boxes and Click **Submit**.

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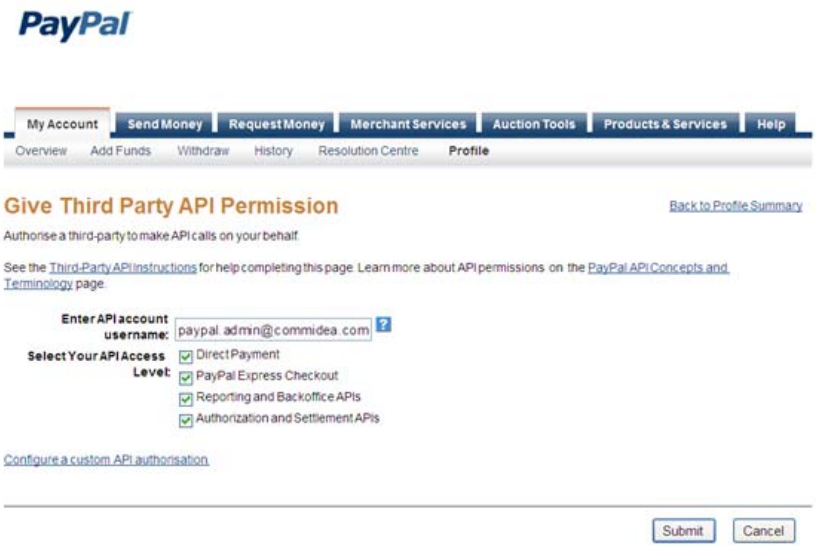

5. A page requesting permission will appear. Click **Give Permission**.
6. A page detailing your account settings will appear. Click **Log Out** at the top of the page.

3.8. Live URLs

Once integration testing has been passed, the URLs being posted to by the solution will need to be updated. These will be supplied after integration testing has been completed and signed off.

The other change necessary would be to the merchant account specific information; the live account information to be used by the merchant will be required. This will entail updating the Merchant Header and Account ID.

3.9. Web Service XSDs

To aid integration, Implementations have a set of XSDs available to provide some form of example code to allow developers to get started.

To acquire these XSDs please email implementations@commidea.com and with a subject title of 'XML V4 – XSD Request'.

3.10. Merchant Advice to Cardholders

Commidea recommends merchants provide information to their customers regarding the measures taken on the website to secure and protect cardholder data.

When the cardholder processes a payment on the merchant website an SSL certificate must be employed by the merchant to shield sensitive information. A statement similar to the below to

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detail this to the customer may help provide peace of mind when using the website to purchase goods:

"We use SSL (Secure Socket Layer) technology to encrypt and protect information which you submit through our site or checkout.

'Verified by Visa' and 'Mastercard SecureCode' are schemes that have been introduced by card issuers to help fight against online fraud. [Merchant Name] is committed to combat fraud and is now participating in these schemes along with a growing number of participating retailers."

3.11. Customer Specific Hash

Some merchants require the ability to return a customer specific hashed version of the card number via the solution when processing payments. The XML Gateway supports this functionality via the <customerspecifichash> field within the transaction response message.

The field will be populated with the hash when the functionality is enabled on the merchant system.

For more information on this functionality, speak to the Commidea Account Manager.

3.12. On-Hold and Release Functionality

To cater for merchants who require the ability to review transactions prior to settlement, Commidea can enable the On-Hold & Release functionality on a per merchant account basis.

When enabled, each transaction processed by any of Commidea's solutions will be flagged as 'On-Hold' and will not be sent for settlement until the transaction is updated or "released".

Releasing a transaction is achieved by sending a Release Request via the Web Service gateway, transactions will be released by merchants once the transaction in question has been reviewed and the merchant is satisfied that it can be released and therefore submitted for settlement but Commidea. This message format for the release request is documented within this guide.

To provide the information required by the Web Service when sending a Release Request message for an On-Hold transaction (as discussed above), the integration version for the transaction response message provided by Ocius Sentinel will need to be set to 'Version 6'. This will ensure the Server Identity/AuthID and Transaction ID are sent in fields 35 and 36.

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4. Message Formats

All the XML data that is submitted to a Commidea Web Service must be formatted correctly; otherwise it will be rejected, and must be enclosed in the correct root element depending on the Web Service being called.

If passing data that contains any XML mark-up characters (e.g. ampersand '&' or less than / greater than symbols '< >') then it is recommended that the 'CDATAWrapping' flag within the Client Header is enabled. This informs the XML parser that it is not to be interpreted as mark-up. Here is an example, where using a reference of "Chip&PIN":

<![CDATA[<merchantreference>Chip&PIN</merchantreference>]]>

Without the use of CDATA wrapping this reference would not be valid because "&" is an illegal character within XML elements.

Detailed below are the formats which all messages will be wrapped in.

4.1. Message

All requests and responses will be wrapped in a message type, as defined below:

Section/Fields	Type/Format	Mandatory / Optional	Description
<message>			
MsgType	String	M	Type of message
MsgData	String	M	Data
ClientHeader	ClientHeader	M	ClientHeader information
</message>			

4.2. ClientHeader

The clientheader is used to validate requests and direct them to the correct server:

Section/Fields	Type/Format	Mandatory / Optional	Description
<ClientHeader>			
SystemID	Decimal	M	Allocated ID
SystemGUID	String	M	Allocated GUID
Passcode	String	M	Allocated Passcode
ProcessingDB	String	M (for Confirmation Request and Rejection Request)	This indicates the database to use for processing a particular request. If left blank the default database will be used. **N.B. Should only be left blank for the initial transaction request. (See 4.2.1)**
SendAttempt	Integer	M	If greater than 0 this indicates that this is a resend attempt and duplicate checking should be performed. Max value of 5 before an automatic declined response is returned. Commidea will hold unconfirmed transactions up to 10

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			days based on acquirer authorisation expiries
CDATAWrapping	Boolean	O	If true then response messages will be CDATA wrapped. If false then they will not be wrapped. If this boolean is not passed then by default wrapping will be disabled. We highly recommend that this is enabled
</ClientHeader>			

4.3. Processing DB Field

To further explain the use of this field within the ClientHeader, this field does not need to be populated during the initial request, unless advised otherwise. However, when sending a Confirmation or Rejection Request this field must be populated with the same ProcessingDB as returned in the Transaction Response. This will ensure that the Confirmation or Rejection is sent to the same database which is awaiting the final decision on the transaction.

The Processing DB tag needs to be set for:

- Authentication Request (for Payer Authentication)
- Transaction Confirmation
- Transaction Rejection

Essentially, any transactions that receive a Processing DB value within the response need to include this same value within any subsequent requests.

4.4. Error Response

The error response will be returned in the event of a processing error:

Section/Fields	Type/Format	Description
<Error>		
Code	Integer	Code indicating error type
MsgTxt	String	Description of error
</Error>		

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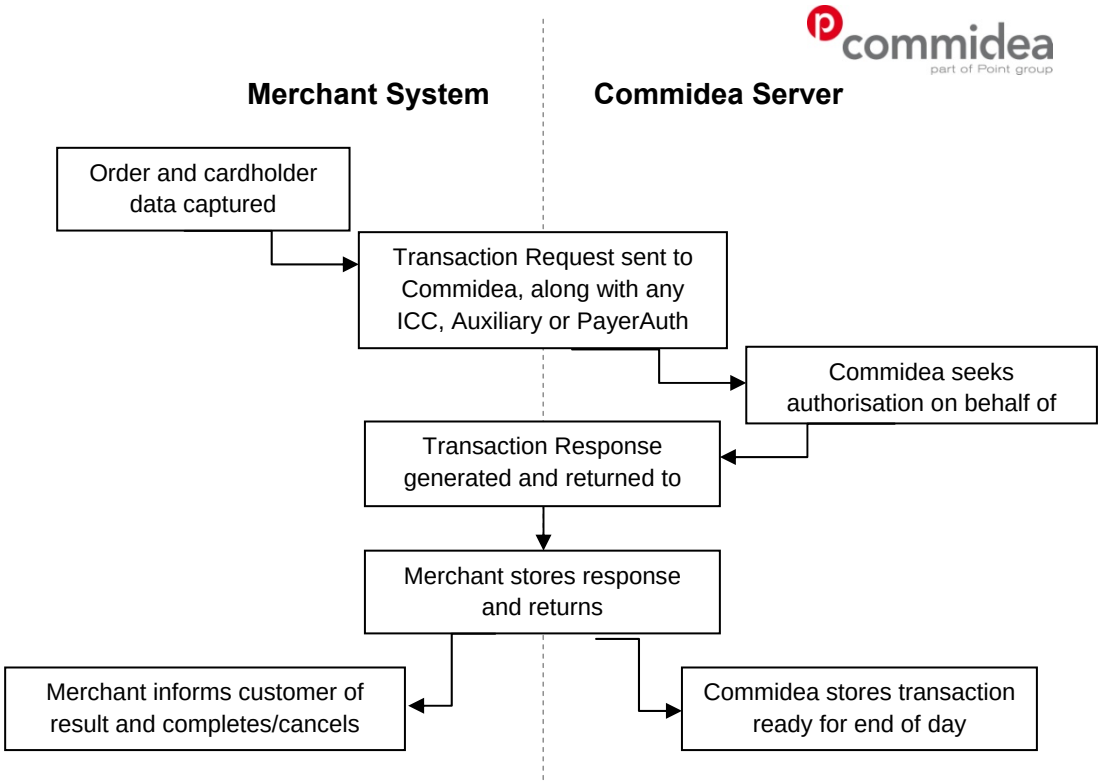
5. Transactions

5.1. Transaction Process

To process a transaction using XML V4 the following procedure is used:



5.2. Transaction Message Types

5.2.1. Transaction Request

The transaction request type contains all the required information to authorise the requested transaction type.

The Message Type for the transaction request is TXN and the namespace is TXN.

Section/Fields	Type/Format	Mandatory / Optional	Description
<transactionrequest>			
merchantreference	String	O	Merchant can add a reference to cross reference responses relating to the same transaction
accountid	Decimal	M	Account reference number, supplied by Commidea
accountpasscode	String	M	Account passcode, supplied by Commidea
txntype	String	M	01 – Purchase 02 – Refund

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			04 – Cash Advance 05 – Purchase with cash back (PWCB) 06 – Continuous Authority
transactioncurrencycode	String	M	This is the three digit currency code (numeric).
terminalcountrycode	String	M	In accordance with the numeric values defined in ISO 3166 (see Appendix C)
apacsterminalcapabilities	String	M	This is the functionality supported by the terminal in the format of that defined by the APACS standard. These are: 3291 – Only Swiped and Contact ICC unattended 4290 – Mail Order/Telephone Order 4298 – CNP/ECommerce (if flagged for payer authorisation with acquirer; no CNP transactions are allowed with the exception of refunds) 6290 - Keyed and Swiped Customer Present 7296 – Contact (ICC) Keyed and Swiped B291 – Swiped, Contact ICC and Contactless unattended C296 – Contactless and keyed transactions (a contactless auxiliary record should be presented for all transactions passed under this terminal type) F296 – Keyed, Swiped, Contact and Contactless EMV transactions (a contactless auxiliary record should be present for all transactions passed under this terminal type) **Integrators should check with Implementations to confirm that they have the correct capabilities.**
capturemethod	Integer	M	This indicates how the card details were obtained. Acceptable values are: 1 – Keyed Cardholder Present 2 – Keyed Cardholder Not Present Mail Order 3 – Swiped 4 – ICC Fallback to Swipe 5 – ICC Fallback to Signature 6 – ICC PIN Only 7 – ICC PIN and Signature 8 – ICC – No CVM 9 – Contactless EMV 10 – Contactless Mag Stripe 11 – Keyed Cardholder Not Present Telephone Order 12 – Keyed Cardholder Not Present E-Commerce Order
processingidentifier	Integer	M	This indicates the type of processing that needs to be undertaken. Current available values are as follows: 1 – Auth and Charge 2 – Auth Only 3 – Charge Only All refund transactions should use the 'Charge Only' option.

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tokenid	Decimal	O	Token Identifier for token transaction
pan	String	C	Card number (Conditionally required, not needed if providing a Token ID)
track2	String	C	Entire Track2 contents (including start and end sentinels and LRC) (Conditionally required, not needed if providing a Token ID) **Track2 is only to be used for Cardholder Present transaction only.**
csc	String	O	Amex Card – 3 or 4 digits (front of card) All Other Cards – 3 or 4 digits (rear security strip)
avshouse	String	O	Field checked by Address Verification System (AVS) add on module, ignored if module not enabled. AVS configuration can make this field mandatory. Numerics from house name\number
avspostcode	Integer	O	Field checked by Address Verification System (AVS) add on module, ignored if module not enabled. AVS configuration can make this field mandatory. Numerics from postcode only
issuenumber	String	O	1 or 2 digit card issue number. Only required by some Switch, Solo and Laser cards, and only required when card is keyed
expirydate	String	C	Card expiry month and year (YYMM) (Only required when card is keyed, can be calculated from Track2) (Conditionally required, not needed if providing a Token ID)
startdate	String	O	Card start date month and year (MMYY) Only required for Diners Club International, some Switch, some Solo and some Laser cards. Not required if Track2 data supplied
Please note the format difference between the expiry and start dates are intentional			
txnvalue	Decimal	M	Total value of transaction including tax. Applies to: Purchase, Refund, Cheque Guarantee, Cash Advance, and Purchase with Cash Back. With PWCB, field should only contain the values of the goods or services provided. Decimal point recommended but optional, e.g.: 1.23 = £1.23 123 = £123 000001.23 = £1.23 Only positive values. Values will be truncated to the correct number of decimal places required for the transaction currency (set by the merchant account being used)
cashback	Decimal	O	Total Cash Back value for PWCB transactions. Values will be truncated (without rounding) to the number of decimal places required for the transaction currency. Positive values only.
gratuity	Decimal	O	Additional value to add to total (e.g. service tip)
authcode	String	O	Only supplied for Offline transactions
transactiondatetime	String	O	Date and time the transaction was started, based on GMT (dd/mm/yyyy hh:mm:ss).
iccdata	iccdata	O	Contains ICC data
vgisid	String	O	VGIS XML data (Reserved for future use)

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employeeid	Decimal	O	Field used to add information on the employee processing the transaction
payerauthauxiliarydata	String	C	Payer Authentication auxiliary data. **This field is conditional upon the capture method/transaction type. If Payer Authentication is performed this data must be supplied, even for non-supporting card schemes. Capture methods such as ICC will not require Payer Auth auxiliary data to be supplied**
vgistransaction	Boolean	C	Denotes if the transaction is a procurement card/VGIS transaction. **Ensure the Procurement Guide Specification is utilised alongside the Web Services Guide for full VGIS data requirements**
</transactionrequest>			

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5.2.2. ICC Data

When processing an ICC transaction, this message type is used to supply the extra information required.

Section/Fields	Type/Format	Mandatory / Optional	Description
<iccdata>			
emvterminalcapabilities	String	M	The terminal capabilities as defined in the EMV specifications.
emvterminaltype	String	M	Terminal type/Currency indicator S = Sterling E = Euro 0 = Unspecified terminal capabilities – S 1 = ICC reader only – S 2 = Magnetic stripe only – S 3 = ICC/Magnetic stripe – S 4 = No card reader – S 5 = Unspecified terminal capabilities – E 6 = ICC reader only – E 7 = Magnetic stripe only – E 8 = ICC/Magnetic stripe – E 9 = No card reader – E
reasononlinecode	String	M	In the provisional European Standard (prENV 1750) the On-line reason codes are four digits in the form 15XX for PoS type of environment. As all PoS codes begin 15 there is no need to send this fixed value and therefore only the XX as defined in the ENV 1750 need be transmitted. Reason On-line will be used by the acquirer to determine if stand-in authorisation would be an appropriate action for this transaction. I.e. was it the ICC or the CAD which required an on-line authorisation.
arqc	String	M	Cryptogram generated by card at end of offline and online declined transactions. Can be used to validate the risk management activities for a given transaction (passed by ICC Terminal)
apppansequenceno	String	M	Identifies and differentiates cards with some PAN (ICC Card passes this information)
aip	String	M	Application Interchange Profile (passed by ICC terminal)
atc	String	M	Value of the last online transaction (passed by ICC terminal)
unpredictableno	String	M	(passed by ICC terminal)
tvr	String	M	Terminal Verification Results. Record of outcome of various application functions performed

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			by Cardholder System (passed by ICC terminal)
cryptotxntype	String	M	Indicates transaction type used to application usage control. One of the following passed by ICC terminal: 00 – Purchase 09 – Purchase with Cash Back 20 – Refund
iad	String	M	Present if provided by ICC in GENERATE AC command response (passed by ICC terminal)
aid	String	M	Data label that identifies an application on card or terminal. E.g. AID for VSDC is 1010, Visa Electron is 2010, and Plus is 8010. Card and Terminals use AIDs to determine which applications are mutually supported; both card and terminal must support the same AID to initiate a transaction. Both cards and terminals may support multiple AIDs (passed by ICC terminal)
terminalapplicationversionnumber	String	M	A version number allocated by the payment scheme used to ensure compatibility between the IC and the terminal. (extracted from the IC Terminal Tag 9F 09)
cardapplicationversionnumber	String	M	Version number assigned by the payment system for the application on the IC card (extracted from the IC Card Tag 9F 08)
cvmr	String	M	Identifies a method of verification of the cardholder supported by the application e.g. Chip and Pin but in a numeric code (extracted from the IC Card)
cryptoinfodata	String	M	Please see EMVECO Application Specification Book 3 Page 16 for breakdown (passed by ICC terminal)
</iccdata>			

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5.2.3. PayerAuth AuxiliaryData

After performing the PayerAuth process to check if the card has been enrolled and then authenticated; this message type is used to attach the PayerAuth results to the transaction.

This data must be supplied whenever Payer Authentication is processed, even if a non-supporting card scheme is presented. For the data to supply in this instance please see section 7.4.3 or consult Implementations for further guidance.

Section/Fields	Type/Format	Mandatory / Optional	Description
<payerauthauxiliarydata>			
authenticationstatus	String	M	Indicates if the transaction authenticated or not: Y – Customer was successfully authenticated N – Customer failed authentication, and the transaction declined A – Attempts processing. APACS message will show verified enrollment but cardholder not participating U – Enrollment could not be completed, due to technical or other problem
authenticationcavv	String	M	Contains 28-byte Base-64 encoded Cardholder Authentication Verification Value (CAVV)
authenticationeci	String	M	2 digit Electronic Commerce Indicator (ECI) value
atsdata	String	M	Data to populate authorisation message
transactionid	String	M	TransactionID should be populated with the PayerAuthRequestID provided in the PayerAuth EnrollmentCheck Response
</payerauthauxiliarydata>			

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5.2.4. Confirmation Request

This message type is used to confirm the transaction.

The Message Type for the confirmation request is CNF and the namespace is TXN.

Section/Fields	Type/Format	Mandatory / Optional	Description
<confirmationrequest>			
transactionid	Decimal	M	TransactionID from ProcessTransaction request
offlineauthcode	String	O	AuthCode if transaction was authorised offline
gratuity	Decimal	O	Additional value to add to total (e.g. service tip)
transactioncertificate	String	M for ICC	Transaction certificate from 2nd generate
arc	String	M for ICC	Auth response code
applicatonusagecontrol	String	M for ICC	Application usage control
tvr	String	M for ICC	Terminal verification results
cid	String	M for ICC	Cryptogram information data
tsi	String	M for ICC	Transaction status information
iad	String	M for ICC	Issuer Application Data
</confirmationrequest>			

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5.2.5. Rejection Request

This message type is used to reject the transaction.

The Message Type for the transaction request is RJT and the namespace is TXN.

Section/Fields	Type/Format	Mandatory / Optional	Description
<rejectionrequest>			
transactionid	Decimal	M	TransactionID from ProcessTransaction request
tokenid	Decimal	O	Token identifier for token transaction
capturemethod	Integer	M	This indicates how the card details were obtained. Acceptable values are: Keyed Customer Present = 1 Keyed Customer Not Present Mail Order = 2 Swiped = 3 ICC Fallback to Swipe = 4 ICC Fallback to Signature = 5 ICC PIN Only = 6 ICC PIN and Signature = 7 ICC – No CVM = 8 Contactless EMV = 9 Contactless Mag Stripe = 10 Keyed Customer Not Present Telephone Order = 11 Keyed Customer Not Present E-Commerce = 12
pan	String	C	Card number (when card keyed). Conditional as not required if TokenID provided.
track2	String	C	Entire Track2 contents (including start and end sentinels and LRC). Conditional as not required if TokenID provided.
csc	String	O	Amex Card – 3 or 4 digits (front of card) All Other Cards – 3 or 4 digits (rear security strip)
avshouse	String	O	Field checked by Address Verification System (AVS) add on module, ignored if module not enabled. AVS configuration can make this field mandatory. Numerics from house name\number
avspostcode	Integer	O	Field checked by Address Verification System (AVS) add on module, ignored if module not enabled. AVS configuration can make this field mandatory. Numerics from postcode only
</rejectionrequest>			

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5.2.6. Transaction Response

This message type which will contain the response from the transaction.

The Message Type for the transaction response is TRM (for initial transactions result message) and FTR (for the final transaction result message) and the namespace is TXN.

Section/Fields	Type/Format	Description
<transactionresponse>		
merchantreference	String	Merchant can add a reference to cross reference responses relating to the same transaction
transactionid	Decimal	Transaction ID (unique only to the processing database utilised)
resultdatetimestring	String	Extended date and time string (YYYY-MM-DDTHH:MM:SS.sss)
processingdb	String	This indicates the database used to processing the request.
errormsg	String	Error message
merchantnumber	String	Unique merchant number
tid	String	Terminal ID
schemename	String	Card scheme name 1 – Amex 2 – Visa 3 – MasterCard 4 – Maestro 5 – Diners 6 – Visa Debit 7 – JCB 8 – BT Test Host 9 – Time 10 – Solo 11 – Electron 21 – Visa CPC 23 – AllStar CPC 24 – EDC/Maestro 25 – Laser 26 – LTF 27 – CAF 28 – Creation 29 – Clydesdale 31 – BHS Gold 32 – Mothercare Card 33 – Burton Menswear 35 – BA AirPlus 36 – Amex CPC 999 – Invalid Card Range
messagenumber	String	Transaction message number (equivalent of EFTSN from previous versions of the Web Service)
authcode	String	Authorisation code return by bank. Blank if the transaction declined, if transaction value is below the floor limit or if the transaction is a refund
authmessage	String	Authorisation message e.g. ‘RETAIN CARD’
vrtel	String	Telephone number to be called by the operator to seek manual authorisation. Only supplied for referred transactions
txnresult	String	Transaction result: ERROR REFERRAL COMMSDOWN DECLINED REJECTED CHARGED

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		APPROVED AUTHORISED AUTHONLY For further information on the transaction results please see section 5.3.
pcavsresult	Integer	Postcode AVS result: 0 – Not provided* 1 – Not checked 2 – Matched 4 – Not matched 8 – Partial Match *Default result when no details are provided
ad1avsresult	Integer	Address line 1 AVS result: 0 – Not provided* 1 – Not checked 2 – Matched 4 – Not matched 8 – Partial Match *Default result when no details are provided
cvcresult	Integer	CVC result: 0 – Not provided* 1 – Not checked 2 – Matched 4 – Not matched *Default result when no details are provided
arc	String	Acquirer response code. Should integrators wish to utilise this information to provide further insight into the transaction result, please contact your acquirer for further information, as this differs per acquirer.
iadarc	String	Authorisation response cryptogram
iadoad	String	Optional additional data
isd	String	Issuer script data
authorisingentity	Integer	This indicates who actually performed the authorisation processing. Valid values are as follows: Not Provided = 0 Merchant = 1 Acquirer = 2 Card Scheme = 4 Issuer = 8
vgisreference	String	VGIS Reference assigned to the transaction. Only returned when vgistransaction is passed within the transaction request as 'true'. **Ensure the Procurement Guide Specification is utilised alongside the Web Services Guide for full VGIS data requirements**
customerspecifichash	String	Hashed version of the card number, specific to the configuration of the merchant in question. **Feature must be enabled before the field will be returned**
</transactionresponse>		

5.3. Transaction Results

In order to provide more information surrounding the various transaction result statues which are returned within a transaction response; the below definitions have been detailed:

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ERROR – There has been an error with the payment due to malformed XML, bad content or something fundamental has been incorrect in the request.

REFERRAL – This is a voice referral message for when the bank have requested the cardholder call their acquirer for some validation or checking reason. This is generally not supported in an E-commerce environment.

COMMSDOWN – The communications channel to the acquirer is down on Commidea's side and as such no authorisation could be sought. A call with the helpdesk should be logged in this situation.

DECLINED – The transaction has been declined. Further information can be obtained from the <authmessage> field.

REJECTED – This result is returned when a payment is rejected after an initial authorisation due to such reasons as a not matched CV2 or AVS response. Essentially this result means the merchant has decided not to charge the transaction after an authorisation has been successful.

CHARGED – This result will be received after a charge request has been completed in order to settle the funds, following an authorisation-only ('Auth-Only) request. This result will be returned after the initial response of APPROVED is received from the charge request, with CHARGED being returned after the confirmation of the charge.

APPROVED – This is the first transaction result received when a charge request is sent to settle an authorisation only request. 'CHARGED' is received once the confirmation is sent as the second part of this process.

AUTHORISED – This denotes the successful authorisation of a standard auth and charge transaction (one which is not linked to an initial authorisation only transaction) and the confirmation (or rejection – see REJECTED) is required.

AUTHONLY – This indicates that the card has been the subject of an authorisation only transaction (see CHARGED). This is usually performed prior to a charge request being sent to settle the funds.

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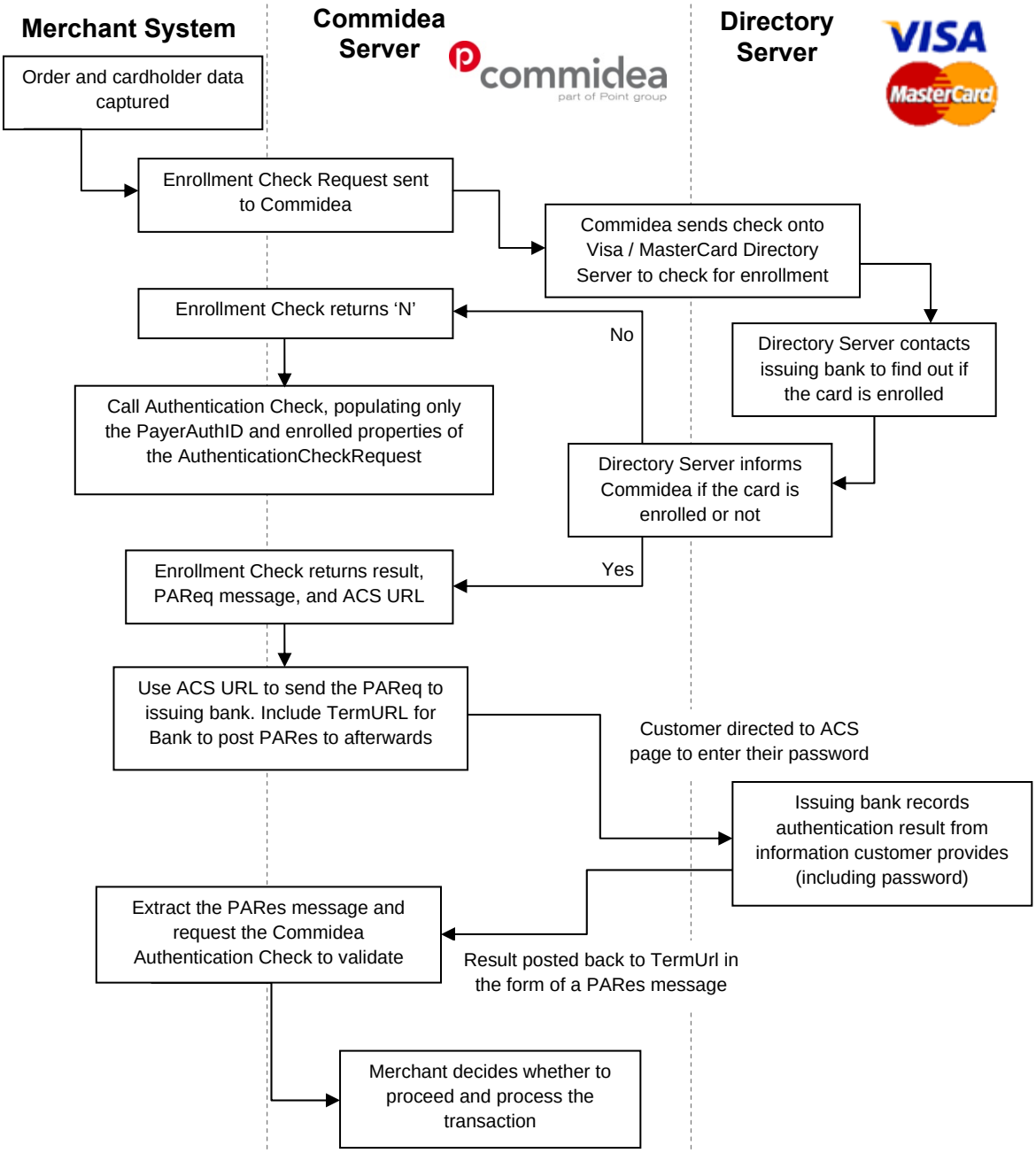
6. PayerAuth

6.1. PayerAuth Process

Payer Authentication checking, this adds support for Verified by Visa and MasterCard SecureCode without running additional software. These cardholder authentication services deter unauthorised card use. Additionally participating merchants receive added protection from fraudulent chargeback activity. Those who do not use these services may be liable for higher merchant fees; it is recommended to check this with the acquirer in question. Here is an overview of the entire process:



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The process for this is as follows: as with standard transaction processing, the cardholder details and order information is captured, but this is then passed to the Commidea Enrollment Check. This discovers if the cardholder is enrolled by sending it onto the VISA or MasterCard Directory Server, this then contacts the issuer to check. If the cardholder is enrolled, they are redirected to the cardholder's web site by the host system (the URL is provided in the enrollment response) and they then enter their password. A string result is returned for validation, and used when calling the Commidea Authentication Check service to ensure this is valid. A response will be received; detailing the validity and the transaction can then be continued or aborted. This decision is up to the merchant and will take into account the outcome of the validity check.

To ensure that the process is clear, here are the steps required in their entirety:

i. The cardholder creates an order on the system, and clicks the 'Buy' button, which sends a post of the final buy page
ii. Create and send an Enrollment Check request, populating it with all the details from the webpage order
iii. This is sent onto the Directory Server, which contacts the issuing bank and finds out if the card is enrolled or not
iv. The Check Enrollment response is sent and if the card is enrolled contains:
    a. <Enrolled>Y</Enrolled>
    b. The PaReq message required to send to the issuing bank
    c. Access Control Server (ACS) URL

If the card is not enrolled, proceed to step x.

v. Send the PaReq message to the bank to request authentication. To do this, create a web page that only has hidden content, including a form that meets the following requirements:
    - The forms action is the ACS URL, which displays the issuing bank's dialog requesting the authentication password from the cardholder
    - The form includes the required hidden field PaReq, the value of which was returned to the merchant in the Enrollment Check response. **It is necessary to remove any White Space within this PaReq field otherwise this will cause errors when it is returned to the bank.**
    - The form includes the required field TermUrl, the value of which is the location where the merchant wants the bank to post the payment authentication response (PaRes) message.
    - The form must include the hidden field MD (merchant data); however, including a value in this field is optional. The value has no meaning to the bank, but is guaranteed to be returned without change. This allows the merchant to tag the redirect with a reference which will be returned during the redirect.
    - This page typically include JavaScript that automatically posts the form when the page loads (onload script)
vi. Open this page in the cardholder's web browser. Due to popup-blocking software, it is recommended opening this in the main browser window. The cardholder's web browser displays the issuing bank's authentication dialog, and enters their secret password for the credit card.
vii. The issuing bank records the result of the authentication dialog with the cardholder and sends it to the merchant, along with the transaction details, in a digitally signed PaRes

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message. The result is posted to the TermUrl on the web site, and the form posted by the issuing bank includes the PaRes.

viii. Extract the PaRes message from the form data and request the Commidea Authentication Check to validate the contents of the PaRes message.

ix. Depending upon the result of the Authentication Check; the merchant can now decide whether or not to proceed.

x. If the Enrollment Check indicated that the card was not enrolled, then call the Authentication Check populating only the PayerAuthRequestID and setting <Enrolled>N</Enrolled>within the AuthenticationCheckRequest.

If the card was enrolled and the merchant has now received the PaRes then populate PayerAuthRequestID, set the request to <Enrolled>Y</Enrolled> and include the PaRes message in the AuthenticationCheckRequest.

xi. Populate a Transaction Request with all the relevant details

xii. Invoke the Process Transaction method, passing the Transaction Request and wait for the Transaction Response to be returned

xiii. When the response is received, check the AuthResult to see if there was an error. If not then it is possible to complete the transaction with a Process Confirm; again populating the required information.

The only scenario in which a transaction should not be processed after performing Enrollment and Authentication checks would be when the following results are received:

<Enrolled>Y</Enrolled>

<AuthenticationStatus>N</AuthenticationStatus>

This represents the card being enrolled, but when the cardholder has attempted to authenticate using their password, this has not been matched correctly.

In the situation where these checks are unsuccessful, i.e. a response of <Enrolled>U</Enrolled> or <AuthenticationStatus>U</ AuthenticationStatus> is returned; it is recommended that the check is resent. Due to the fact that there has been a technical problem when checking Enrollment, charge back liability has not been shifted away from the merchant at this stage, as potentially the failure could have occurred before the information reached the Directory Server. However, the final decision on this is down to the merchant. If there is relatively low risk involved, due to a low transaction amount for example, the transaction could be continued and processed regardless.

When the card is not enrolled for Payer Authentication; the following responses will be amongst those produced:

<Enrolled>N</Enrolled>

<AuthenticationStatus>N</AuthenticationStatus>

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It is important to remember that this does not mean it is not safe to proceed with the transaction; just that the cardholder has not been enrolled in the service. Due to an enrollment check being performed by the merchant, the liability is shifted to the issuer.

6.1.1. PayerAuth Expiry

One possible area which could create confusion is how long the Payer Authentication check lasts for once it has been approved, and if it can be reused.

Once the Payer Authentication check has been performed it is valid for 90days with VISA, and with MasterCard it does not expire.

One example would be that this allows use of the ID for an authorisation only transaction. If the authorisation code provided for the authorisation expires before charging the card; a full authorisation and charge transaction can be performed, using the PayerAuthRequestID that was provided initially.

6.1.2. Canadian Corporate Purchase Cards

Some Canadian Corporate Purchase Cards have been excluded from the Enrollment Check, and can result in a response of 'U' for the <Enrollment> field.

Unfortunately we are unable to confirm which bin ranges have been excluded and cannot therefore provide a specific response in this scenario.

6.1.3. Process Transaction

Once the enrollment and authentication checks have been performed, the transaction can be process by including a PayerAuth Auxiliary data record along with a Transaction Request record. Please see sections 5.2.1 and 5.2.3 for more information.

6.1.4. Payer Authentication with Token

When performing Payer Authentication in conjunction with an integration which utilises the Token Gateway, the process is to supply the TokenID with all the Payer Authentication checking records instead of supplying full card details.

Please note that each time stored card details are used to process a transaction, the Payer Authentication process must be completed.

6.1.5. Chargeback Information

Should chargeback information be required then this can be obtained from the Merchant Helpdesk.

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6.1.6. Cardholder Authentication Implementation Guidelines

In order to provide some guidelines for how to go about implementing the cardholder authentication process, the following information has been collated from MasterCard and Visa:

1. **Consumer Message on Payment Page**
   In order to make the consumer aware of the merchant's participation with MasterCard SecureCode and Verified by Visa, it is recommended that a message is displayed on the payment page, similar to: "Your card may be eligible for or enrolled in MasterCard SecureCode or Verified by Visa. When you click 'Pay' below you may be prompted for further information before your order can be completed."

2. **Creation of Cardholder Authentication Window**
   The process with this window is that it is initially created by the merchant; however, that the actual content of the window is controlled by the cardholder's issuing financial institution. Initially it was possible to implement this using either a pop-up window or an inline window, but only the inline window implementation is now supported.

   Merchants utilising the pop-up window approach are expected to convert to an inline window implementation and inline window implementations are required for all new merchant implementations. By presenting a full-page view, it makes the SecureCode authentication process appear to be a seamless part of the merchant checkout process. Many merchants use frames to customise their deployments.

   In a frame implementation, only part of the full window is redirected to the issuer's access control server. This allows the merchant to display a branded header, as well as explanation text that can assist cardholders who are new to the cardholder authentication experience. Here are some key points for merchants implementing this approach:

   - The use of active HTML links in the branded header frame is not allowed. Below the header frame, however, it is recommended to include a link that directs the cardholder back to the checkout page in case of technical difficulties.
   - The explanation text should be clear and concise. The text should not assume that the cardholder is already enrolled and should not provide instructions that might conflict with the cardholder's issuer instructions.
   - The use of newer frame technologies such as iFrames and floating .Net frames is not recommended as some cardholders set their browsers to block such elements.
   - The merchant should make sure that the authentication window frame is fully visible and is not located too low in the page due to long text or large upper frame. A minimum space of 400x400 pixels is required for the Access Control Server (ACS) frame. It must not be necessary to scroll to see the authentication page.
   - Merchants must ensure that the 'back' button functionality works and cardholders who click on it are routed back to the checkout page.

   Inline authentication windows can also be used without frames. This will show the cardholder that they are no longer at the merchant and are now communicating with their issuing bank whilst also allowing them to check the SSL lock to ensure connection

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with the Issuer ACS. As a result, the 'Without frames' approach may be preferred by some cardholders.

3. **TERMURL Field**
   This field is provided by the merchant to the issuer during the payer authentication request process. It provides the issuer with the merchant URL where the payer authentication response message is to be sent. The use of mixed HTTP and HTTPS frames typically results in a security box being presented to the cardholder. Depending upon how the cardholder responds to this dialog, the current and all future attempts to transmit the PAReq message may fail. As a result, merchants using inline authentication windows with frames must populate the TERMURL field with a HTTPS address.

6.2. PayerAuth Message Types

6.2.1. PayerAuth EnrollmentCheck Request

The EnrollmentCheck request is raised to check if the card is enrolled with MasterCard SecureCode or Verified By Visa.

The Message Type for the payer authentication enrollment check is PAI and the namespace is PAYERAUTH.

Section/Fields	Type/Format	Mandatory/ Optional/Conditional	Description
<payerauthenrollmentcheckrequest>			
merchantreference	String	O	Merchant can add a reference to cross reference responses relating to the same transaction
mkaccountid	Decimal	M	Account reference number, supplied by Commidea
mkacquirerid	Decimal	M	Acquirer reference number 1 – Barclaycard Business (BMS) [Sterling only] 2 – NatWest Streamline 3 – HMS (HSBC) 4 – Lloyds TSB Cardnet 5 – Elavon (GiroBank) 6 – Bank Of Scotland 7 – American Express 8 – Clydesdale Bank 9 – Barclaycard Business (BMS) MultiCurrency 10 – Bank of Ireland 11 – Northern Bank 12 – Yorkshire Bank 13 – GE Capital 14 – Ulster Bank 15 – Int'l Barclaycard Business (BMS) [Sterling] 16 – Int'l Lloyds TSB Cardnet 17 – Int'l HMS (HSBC) 18 – Int'l NatWest 19 – Int'l Barclaycard Business (BMS) Multi 20 – Diners 21 – Creation

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			23 – JCB 24 – AIB
merchantname	String Varchar(25)	M	The MerchantName must match the name shown online to the cardholder at the merchant's site and the name submitted by the merchant's acquirer in the settlement transaction
merchantcountrycode	String Varchar(50)	M	This field contains a three digit number assigned by the signing member or processor to identify the merchant's location country. Based on ISO Country Codes – 3166. (See Appendix C)
merchanturl	String Varchar(255)	M	This field contains the fully qualified URL of the merchant site
visamerchantbankid	String Varchar(50)	C (Only for Visa checks)	This field contains a six digit assigned Bank Identification Number issued by the merchant's member bank or processor. The acquirer Bank Identification Number (BIN) identifies the member bank that signed the merchant using the Point of Sale application
visamerchantnumber	String Varchar(50)	C (Only for Visa checks)	This field contains a unique ID number which is assigned by the signing merchant's acquirer, bank or processor. This field is used to identify the merchant within the VisaNet system
visamerchantpassword	String Varchar(50)	C (Only for Visa checks)	The alphanumeric merchant password is provided by the acquirer
mcmmerchantbankid	String Varchar(50)	C (Only for MasterCard /Maestro checks)	This field contains a six digit assigned Bank Identification Number issued by the merchant's member bank or processor. The acquirer Bank Identification Number (BIN) identifies the member bank that signed the merchant using the Point of Sale application
mcmmerchantnumber	String Varchar(50)	C (Only for MasterCard /Maestro checks)	This field contains a unique ID number which is assigned by the signing merchant's acquirer, bank or processor. This field is used to identify the merchant within the SecureCode system
mcmmerchantpassword	String Varchar(50)	C (Only for MasterCard /Maestro checks)	The alphanumeric merchant password is provided by the acquirer
tokenid	Decimal	C	Token identifier for token transaction. If none to be passed, '0' to be used.
cardnumber	String Varchar(50)	C	Card PAN

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cardexpyear	String Char(2)	C	Card expiry date year YY e.g. 08 (not passed if token id supplied)
cardexpmonth	String Char(2)	C	Card expiry date month MM (not passed if token id supplied)
currencycode	String Char(3)	M	This field contains a three digit number assigned by the signing member or processor to identify the merchant's authorisation currency. Based on ISO Country Code – 3166 (See Appendix C)
currencyexponent	String Char(1	M	No of decimal places in currency field ie. GBP will be 2
browseracceptheader	String Varchar(255)	O	This field contains the exact content of the HTTP accept header as sent to the merchant from the cardholder's user agent. This field is required only if the cardholder's user agent supplied a value.
browseruseragentheader	String Varchar(255)	O	This field contains the exact content of the HTTP user-agent header as sent to the merchant from the cardholder's user agent. This field is only required if the cardholder's user agent supplied a value.
transactionamount	String Varchar(50)	M	Amount to be authorised with implied decimal point ie. £10.00 is represented as 1000 and 0.10 is represented as 10.
transactiondisplayamount	String Varchar(50)	M	The transaction amount is to be presented with all currency-specific punctuation, as this will be the number displayed to the customer. E.g. 10.00
transactiondescription	String Varchar(50)	O	This field contains a description of the goods or services being purchased, determined by the merchant.
</payerauthenrollmentcheckrequest>			

6.2.2. PayerAuth EnrollmentCheck Response

The response from the check will be contained within the EnrollmentCheck response.

The Message Type for the payer authentication enrollment check response is PAER and the namespace is PAYERAUTH.

Section/Fields	Type/Format	Description
<payerauthenrollmentcheckresponse>		
merchantreference	String Varchar(50)	Merchant can add a reference to cross reference responses relating to the

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		same transaction
processingdb	String	This indicates the database to use for processing a particular request. If left blank the default database will be used.
payerauthrequestid	Decimal	Unique Identifier
enrolled	String Char(1)	Indicates if card is enrolled in the 3D secure program.
acsurl	String Varchar(4096)	Fully qualified URL of an Access Control Server.
pareq	String Varchar(1000)	This field will contain the entire XML response packet from the Directory Server.
errorcode	Integer	Error code defining the error
errordescription	String Varchar(1000)	Description of the error
</payerauthenrollmentcheckresponse>		

6.2.3. PayerAuth AuthenticationCheck Request

After the enrollment check has been performed, authentication can be sought using this message type.

The Message Type for the payer authentication check request is PAI and the namespace is PAYERAUTH.

Section/Fields	Type/Format	Mandatory/ Optional/ Conditional	Description
<payerauthauthenticationcheckrequest>			
merchantreference	String	O	Merchant can add a reference to cross reference responses relating to the same transaction
payerauthrequestid	Decimal	M	Unique Identifier returned during EnrollmentCheckResponse.
pares	String	C	Compressed and encoded Payer Authentication Response message, returned in response from Visa / Mastercard (Only included if received)
enrolled	String	M	Indicates if the card was enrolled – Y/N
</payerauthauthenticationcheckrequest>			

6.2.4. PayerAuth AuthenticationCheck Response

The authentication check response will contain the result of the authentication check.

The Message Type for the payer authentication response is PAAR and the namespace is PAYERAUTH.

Section/Fields	Type/Format	Description
<payerauthauthenticationcheckresponse>		
merchantreference	String	Merchant can add a reference to cross reference responses relating to the same transaction

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payerauthrequestid	Decimal	PayerAuth transaction identifier
authenticationstatus	String	This property indicates whether the transaction has been authenticated or not. • Y – The customer was successfully authenticated. All data needed for clearing is included. • N – The customer failed authentication • A – Attempted processing. The APACS message will show verified enrolment but cardholder is not participating at this time. • U – Authentication could not be performed due to technical or other problems.
authenticationcertificate	String	The certificate that signed the Payer Authentication Response (PARes) message.
authenticationcavv	String	This property contains a 28-byte Base-64 encoded Cardholder Authentication Verification Value (CAVV).
authenticationeci	String	Two digit Electronic Commerce Indicator (ECI) value.
authenticationtime	String	The date and time in which the Payer Authentication Response (PARes) message was signed by the Access Control Server (ACS). The value is expressed in GMT and uses the format "YYYYMMDD HH:MM:SS".
atsdata	String	Additional transaction security data
errorcode	Integer	Error code defining the error
errordescription	String	Description of the error
processingdb	String	This indicates the database used for processing a particular request
</payerauthauthenticationcheckresponse>		

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7. Payer Authentication Decisions

In order to decide upon which situations to accept or decline transaction, the below table is included and covers both Visa VbV Transactions and MasterCard SecureCode Transactions. This matrix provides a description of the Authentication Results and Merchant to Acquirer values presented during each scenario.

Case Number	MPI Authentication					APACS Authorisation				Streamline Settlement		RAG Status
	Card Type	VERes	PARes	CAVV/AVV	ECI	ECI	CAVV/AVV	Trans ID	ATSD	Trans source	Liability Shift	
1	Visa 3D	Y	Y	Yes	05	05	Yes	Yes	D0C100	12	Yes	
2	Visa 3D	Y	A	Yes	06	06	Yes	Yes	D0C200	13	Yes	
3	Visa 3D	N	None	None	None	None	None	None	D0C200	13	Yes	
4	Mcard 3D	Y	Y	Yes	02	02	Yes	Yes	D09100	12	Yes	
5	Mcard 3D	Y	A	Yes	01	01	Yes	Yes	D09200	13	Yes	
6	Mcard 3D	N	None	None	None	None	None	None	D09200	13	Yes	
7	None 3D	None	None	None	None	None	None	None	808000	14	No	
8	Visa 3D	U	None	None	None	None	None	None	D0C400	14/13	No	
9	Visa 3D	Y	U	None	None	None	None	None	D0C400	14/13	No	
10	Mcard 3D	U	None	None	None	None	None	None	D09400	13	Yes	
11	Mcard 3D	Y	U	None	None	None	None	None	D09400	13	Yes	
12	Visa 3D	Y	N	None	None	None	None	None	None	None	None	
13	Mcard 3D	Y	N	None	None	None	None	None	None	None	None	

Key to VERes & PARes Codes:

Y (VERes) Perform a PARes
N (VERes) Issuer/BIN not participating
U (VERes) Authentication process did not complete correctly
Y (PARes) Cardholder enrolled and authenticated

A (PARes) Cardholder not enrolled
N (PARes) Cardholder enrolled, transaction not authenticated
U (PARes) Authentication process did not complete correctly

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Key to RAG Status:

Indicates a BAU (business as usual) transaction
Indicates a system failure at some point
Indicates attempted fraud or cardholder error

VbV			
	EMV Terminal Type	30 (Visa ECI 5) =	Merchant & Cardholder are registered
		31 (Visa ECI 6) =	Merchant is registered, but Cardholder isn't.
		32 (Visa ECI 7) =	Standard E-Commerce message
	APACS 70-2 Section B.4.2 (page 85)	Electronic Commerce Data Record Sub-type 01	
	APACS 70-3 Section A.4 (page 93) Customer Instruction	G = Merchant & Cardholder registered H = Merchant is registered, but Cardholder isn't. J = Standard E-Commerce message	
	Tests 5a & 5b	Please put a line through the scenario not being used	
	Tests 6a & 6b	Please put a line through the scenario not being used	
Secure Code			
	EMV Terminal Type	30 (M'Card PDS 2) =	Merchant & Cardholder are registered
		31 (M'Card PDS 1) =	Merchant is registered, but Cardholder isn't.
		32 (M'Card PDS 0) =	Standard E-Commerce message
	APACS 70-2 Section B.4.2 (page 85)	Electronic Commerce Data Record Sub-type 01	
	APACS 70-3 Section A.4 (page 93) Customer Instruction	G = Merchant & Cardholder registered H = Merchant is registered, but Cardholder isn't. J = Standard E-Commerce message	
	Tests 12a & 12b	Please put a line through the scenario not being used	
	Tests 13a & 13b	Please put a line through the scenario not being used	

7.1. Non Supporting Card Schemes

Payer Auth is not performed on non supporting schemes i.e.- Creation, AMEX, JCB, Diners. However, Additional Transaction Security Data is required to show that SSL encryption was used for the transaction.

SCHEME	VERES	PARES	ATSD	ECI
Non supporting schemes i.e.- Creation, AMEX, JCB, Diners, Solo	N/A	N/A	D08000	07

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8. On-Hold & Release Functionality

As discussed earlier within this guide, the on-hold and release functionality can be enabled on a merchant account. Once enabled, each and every transaction will require a release message to be sent to the Commidea servers via the Web Service before the transaction is submitted for settlement to the acquirer.

These message formats are detailed below:

8.1. Release Request

The Message Type for the payer authentication enrollment check response is RELEASEONHOLDREQUEST and the namespace is ONHOLD.

Section/Fields	Type/Format	Description
<releaseonholdrequest>		
authdb	String	The authorisation database within the Commidea infrastructure which processed the transaction during authorisation
mktransactionid	Decimal	Transaction ID (unique only to the processing database utilised)
</releaseonholdrequest>		

8.1.1. Request Example

```
<?xml version="1.0"?>
<soap:Envelope xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
<soap:Body>
<ProcessMsg xmlns="https://www.commidea.webservices.com">
<Message>
 <ClientHeader xmlns="https://www.commidea.webservices.com">
  <SystemID>30002411</SystemID>
  <SystemGUID>096d5d0f-f9dc-430a-8d9c-e102393409c4</SystemGUID>
  <Passcode>17075320</Passcode>
  <SendAttempt>0</SendAttempt>
 </ClientHeader>
<MsgType xmlns="https://www.commidea.webservices.com">RELEASEONHOLDREQUEST</MsgType>
<MsgData xmlns="https://www.commidea.webservices.com">
<![CDATA[<releaseonholdrequest xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns="ONHOLD">
 <authdb>TEST_AUTHDB2</authdb>
<mktransactionid>1969925</mktransactionid>
 </releaseonholdrequest>]]></MsgData>
</Message>
</ProcessMsg>
</soap:Body>
</soap:Envelope>
```

8.1. Release Response

The Message Type for the payer authentication enrollment check response is RELEASEONHOLDRESPONSE and the namespace is ONHOLD.

Section/Fields	Type/Format	Description
<releaseonholdresponse>		
result	String	Result of the release request. Result types are: RELEASED
mktransactionid	Decimal	Transaction ID (unique only to the processing database utilised)
authdb	String	The authorisation database within the Commidea infrastructure which processed the transaction during authorization
</releaseonholdresponse>		

8.1.1. Response Example

<?xml version="1.0"?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"><soap:Body><ProcessMsgResponse
xmlns="https://www.commidea.webservices.com"><ProcessMsgResult><ClientHeader><SystemID>30002411</SystemID><SystemGUID>096d5d0f-f9dc-430a-8d9c-e102393409c4</SystemGUID><Passcode/><ProcessingDB>TEST_AUTHDB2</ProcessingDB><SendAttempt>0</SendAttempt><CDATAWrapping>false</CDATAWrapping></ClientHeader><MsgType>RELEASEONHOLDRESPONSE</MsgType><MsgData><releaseonholdresponse
xmlns="ONHOLD"><result>RELEASED</result><mktransactionid>1969925</mktransactionid><authdb>TEST_AUTHDB2</authdb></releaseonholdresponse></MsgData></ProcessMsgResult></ProcessMsgResponse></soap:Body></soap:Envelope>

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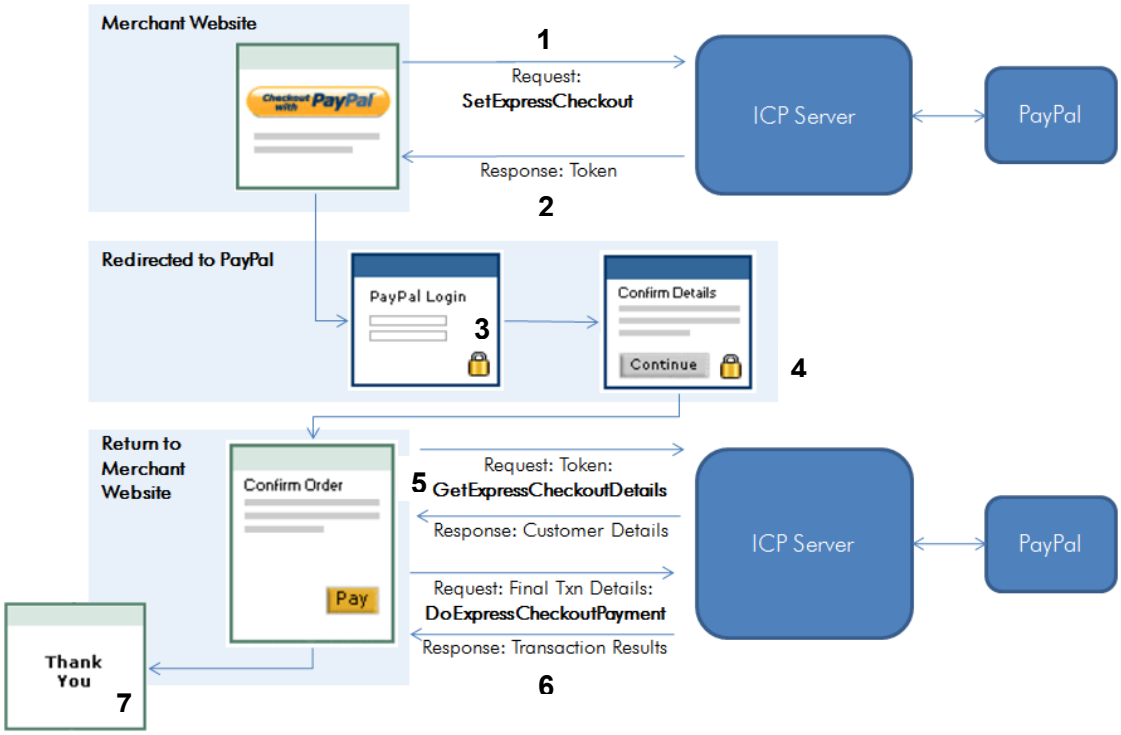
9. PayPal

9.1. PayPal Express Checkout Process

To provide an overview of the PayPal process, please see the flow chart shown below:



The steps can be summarised into the following process:

1. From the Merchant website the customer will have the option to Checkout with PayPal. If this option is chosen a 'SetExpressCheckout Request' is created and sent. This will contain the URL to which the customer's browser is returned after choosing to pay with PayPal.
2. PayPal returns a token, a string value used to track the customer throughout the checkout process.
3. The website directs the customer to the PayPal site, where they log in, select a funding source and confirm contact and shipping information.
4. The customer clicks the 'Continue' button and PayPal directs them to the ReturnURL specified in the SetExpressCheckout Request, along with the token identifying the customer appended to the URL.
5. The 'GetExpressCheckoutDetails' call is made to obtain the customer details from PayPal, via ICP. The token sent from PayPal must be included to identify the customer and allow PayPal to return the required information.
6. When the customer completes payment the 'DoExpressCheckoutPayment' request is made, to which PayPal responds with the transaction result.
7. The transaction result is displayed to the customer.

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From the point of view of the customer, they experience a three-click process:

1. Click to select to pay via PayPal
2. Click to confirm login details
3. Click to confirm the payment details

Should more information be required then a walkthrough document which describes in detail how to integrate to PayPay Express Checkout (including button placement, button usage, and button/logo image integration) can all be found within PayPal's supporting documentation store.

Once the integration has been designed from a front-end perspective, the message types and record sets which follow should be utilised. The integration can be tested with the PayPal test accounts created using the instructions from section 3.5 & 3.6 of this manual.

9.2. PayPal Message Types

The Message Type for PayPal requests is PPI and the namespace is PAYPAL.

9.2.1. SetExpressCheckout Request

Section/Fields	Type/Format	Optional / Required	Description
<paypalsetexpresscheckoutrequest>			
merchantreference	String	O	Merchant can add a reference to cross reference responses relating to the same transaction
user	String	R	Merchant PayPal API username
pwd	String	R	Merchant PayPal API password
version	String	R	Version number of the NVP API service
signature	String	R	Merchant PayPal signature string
subject	String	O	Email address of a PayPal account that has granted permission to make this call. Set this parameter only if calling an API on a different user's behalf
returnurl	String	R	URL to which the customer's browser is returned after choosing to pay with PayPal. NOTE: PayPal recommends that the value be the final review page on which the customer confirms the order and payment or billing agreement. Character length and limitations: no limit.
cancelurl	String	R	URL to which the customer is returned if he does not approve the use of PayPal to pay. NOTE: PayPal recommends

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			that the value be the original page on which the customer chose to pay with PayPal or establish a billing agreement. Character length and limitations: no limit
amt	Decimal	R	The total cost of the transaction to the customer. If shipping cost and tax charges are known, include them in this value; if not, this value should be the current sub-total of the order. If the transaction includes one or more one-time purchases, this field must be equal to the sum of the purchases. If the transaction does not include a one-time purchase, this field can be set to 0. Limitations: Must not exceed $10,000 USD in any currency. No currency symbol. Must have two decimal places, decimal separator must be a period (.), and the optional thousands separator must be a comma (,).
currencycode	String	O	A three-character currency code for one of the currencies listed in PayPal-
maxamt	Decimal	O	The expected maximum total amount of the complete order, including shipping cost and tax charges. If the transaction does not include a one-time purchase, this field is ignored. Limitations: Must not exceed $10,000 USD in any currency. No currency symbol. Must have two decimal places, decimal separator must be a period (.), and the optional thousands separator must be a comma (,).
paymentaction	String	O	How to obtain payment: • 'Sale' indicates that this is a final sale for which payment is being requested. • 'Authorization' indicates that this payment is a basic authorisation subject to settlement with PayPal Authorisation & Capture. • 'Order' indicates that this payment is an order authorisation subject to settlement with PayPal Authorisation & Capture. If the transaction does not include a one-time purchase,

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			this field is ignored. NOTE: This value cannot be set to Sale in SetExpressCheckout request and then changed to Authorisation or Order on the final API DoExpressCheckoutPayment request. If the value is set to Authorisation or Order in SetExpressCheckout, the value may be set to Sale or the same value (either Authorisation or Order) in DoExpressCheckoutPayment. Character length and limit: Up to 13 single-byte alphabetic characters Default value: Sale
email	String	O	Email address of the buyer as entered during checkout. PayPal uses this value to pre-fill the PayPal membership sign-up portion of the PayPal login page. Character length and limit: 127 single-byte alphanumeric characters
desc		O	Description of items the customer is purchasing. Character length and limitations: 127 single-byte alphanumeric characters
custom	String	O	A free-form field for use, such as a tracking number or other value for PayPal to return on GetExpressCheckoutDetails response and DoExpressCheckoutPayment response.
invnum	String	O	A unique invoice or tracking number. PayPal returns this value on DoExpressCheckoutPayment response. If the transaction does not include a one-time purchase, this field is ignored. Character length and limitations: 127 single-byte alphanumeric characters
reqconfirmshipping	Integer	O	The value 1 indicates that the customer's shipping address is required on file with PayPal to be a confirmed address. NOTE: Setting this field overrides the setting specified in the Merchant Account Profile. Character length and limitations: One single-byte numeric character.

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			Allowable values: 0, 1 Default: 0
noshipping	Integer	O	The value 1 indicates that on the PayPal pages, no shipping address fields should be displayed whatsoever. Character length and limitations: One single-byte numeric character. Allowable values: 0, 1 Default: 0
addoverride	Integer	O	The value 1 indicates that the PayPal pages should display the shipping address set in this SetExpressCheckout request, not the shipping address on file with PayPal for this customer. Displaying the PayPal street address on file does not allow the customer to edit that address. Character length and limitations: One single-byte numeric character. Allowable values: 0, 1 Default: 0
token	String	O	A timestamped token by which to identify to PayPal that the merchant is processing this payment with Express Checkout. NOTE: The token expires after three hours. If the token is set in the SetExpressCheckout request, the value of the token in the response is identical to the value in the request. Character length and limitations: 20 single-byte characters
localecode	String	O	Locale of pages displayed by PayPal during Express Checkout. Character length and limitations: Any two-character country code. The following two-character country codes are supported by PayPal: • AU • DE • FR • IT • GB • ES • US Any other value will default to US.
pagestyle	String	O	This value corresponds to the HTML variable page_style for customising payment pages. The value is the same as the

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			Page Style Name chosen when adding or editing the page style from the Profile subtab of the My Account tab of the merchant PayPal account. Character length and limitations: 30 single-byte alphabetic characters.
hdrimg	String	O	URL for the image to appear at the top left of the payment page. The image has a maximum size of 750 pixels wide by 90 pixels high. PayPal recommends providing an image that is stored on a secure (https) server. If an image is not specified, the business name is displayed. Character length and limit: 127 single-byte alphanumeric characters
hdrbordercolor	String	O	Sets the border color around the header of the payment page. The border is a 2-pixel perimeter around the header space, which is 750 pixels wide by 90 pixels high. By default, the color is black. Character length and limitations: Six character HTML hexadecimal color code in ASCII
hdrbackcolor	String	O	Sets the background color for the header of the payment page. By default, the color is white. Character length and limitation: Six character HTML hexadecimal color code in ASCII
payflowcolor	String	O	Sets the background color for the payment page. By default, the color is white. Character length and limitation: Six character HTML hexadecimal color code in ASCII
channeltype	String	O	Type of channel: • Merchant: non-auction seller • eBayItem: eBay auction If the transaction does not include a one-time purchase, this field is ignored.
solutiontype	String	O	Type of checkout flow: • Sole: Express Checkout for auctions • Mark: normal Express Checkout If the transaction does not include a one-time purchase,

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			this field is ignored.
reqbillingaddress	Integer	O	A value of 1 indicates that the customer billing address should be returned in subsequent API calls. If the value is 0, the billing address is not returned.
billingtype	String	See description	Type of billing agreement. For recurring payments, this field is required and must be set to RecurringPayments.
billingagreementdescription	String	O	Description of goods or services associated with the billing agreement. PayPal recommends that providing a brief summary of the terms & conditions of the billing agreement.
billingagreementcustom	String	O	Custom annotation field for use. NOTE: This field is ignored for recurring payments.
paymenttype	String	O	Specifies type of PayPal payment required for the billing agreement, which is one of the following values. • 'Any' • 'InstantOnly' NOTE: This field is ignored for recurring payments.
Passing the shipping information is optional, however the optional/required settings here refer to if the merchant decides that this information is to be provided. If not providing shipping information, none of the below fields are included.			
shiptoname	String	R	Person's name associated with this shipping address. Character length and limitations: 32 single-byte characters
shiptostreet	String	R	First street address. Character length and limitations: 100 single-byte characters
shiptocity	String	R	Name of city. Character length and limitations: 40 single-byte characters
shiptostate	String	O	State or province. Character length and limitations: 40 single-byte characters Required for US addresses only.
shiptocountrycode	String	R	Country code. Character limit: Two single-byte characters.
shiptozip	String	R	U.S. Zip code or other country-specific postal code. Character length and limitations: 20 single-byte characters
shiptostreet2	String	O	Second street address. Character length and limitations: 100 single-byte characters
phonenum	String	O	Phone number. Character length and limit: 20 single-byte characters

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</paypalsetexpresscheckoutrequest>

9.2.2. SetExpressCheckout Response

Section/Fields	Type/Format	Description
<paypalsetexpresscheckoutresponse>		
merchantreference	String	Merchant can add a reference to cross reference responses relating to the same transaction
paypalrequestid	Decimal	Unique PayPal request identifier
token	String	A timestamped token by which to identify to PayPal that the merchant is processing this payment with Express Checkout. NOTE: The token expires after three hours. If the token is set in the SetExpressCheckout request, the value of the token in the response is identical to the value in the request. Character length and limitations: 20 single-byte characters
errorcode	String	Error identifier (Please see Appendix E for a full list of errors)
shortmessage	String	General message (Please see Appendix E for a full list of errors)
longmessage	String	Detailed message (Please see Appendix E for a full list of errors)
serveritycode	String	Severity of the error (Please see Appendix E for a full list of errors)
</paypalsetexpresscheckoutresponse>		

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9.2.3. GetExpressCheckoutDetails Request

Section/Fields	Type/Format	Optional / Required	Description
<paypalgetexpresscheckoutrequest>			
merchantreference	String	O	Merchant can add a reference to cross reference responses relating to the same transaction
user	String	R	Merchant PayPal API username
pwd	String	R	Merchant PayPal API password
version	String	R	Version number of the NVP API service
signature	String	R	Merchant PayPal signature string
subject	String	O	Email address of a PayPal account that has granted the merchant permission to make this call. Set this parameter only if calling an API on a different user's behalf
token	String	R	A timestamped token, the value of which was returned by SetExpressCheckout response. Character length and limitations: 20 single-byte characters Allowable values: An unexpired token
</paypalgetexpresscheckoutrequest>			

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9.2.4. GetExpressCheckoutDetails Response

Section/Fields	Type/Format	Description
<paypalgetexpresscheckoutresponse>		
merchantreference	String	Merchant can add a reference to cross reference responses relating to the same transaction
paypalrequestid	Decimal	Unique PayPal request identifier
token	String	The timestamped token value that was returned by SetExpressCheckout response and passed on GetExpressCheckoutDetails request. Character length and limitations: 20 single-byte characters
email	String	Email address of payer. Character length and limitations: 127 single-byte characters
payerid	String	Unique PayPal customer account identification number. Character length and limitations:13 single-byte alphanumeric characters.
payerstatus	String	Status of payer. Valid values are: • Verified • Unverified Character length and limitations: 10 single-byte alphabetic characters. Possible values: verified, unverified
salutation	String	Payer's salutation. Character length and limitations: 20 single-byte characters
firstname	String	Payer's first name. Character length and limitations: 25 single-byte characters
middlename	String	Payer's middle name. Character length and limitations: 25 single-byte characters
lastname	String	Payer's last name. Character length and limitations: 25 single-byte characters
suffix	String	Payer's suffix. Character length and limitations: 12 single-byte characters
countrycode	String	Payer's country of residence in the form of ISO standard 3166 two-character country codes. Character length and limitations: Two single-byte characters
business	String	Payer's business name.
shiptoname	String	Person's name associated with this address. Character length and limitations: 32 single-byte characters
shiptostreet	String	First street address. Character length and limitations: 100 single-byte characters
shiptostreet2	String	Second street address. Character length and limitations: 100 single-byte characters
shiptocity	String	Name of city. Character length and limitations: 40 single-byte characters

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shiptostate	String	State or province Character length and limitations: 40 single-byte characters
shiptocountrycode	String	Country code. Character limit: Two single-byte characters.
shiptozip	String	U.S. Zip code or other country-specific postal code. Character length and limitations: 20 single-byte characters
addressstatus	String	Status of street address on file with PayPal
custom	String	A free-form field for own use, as set in the Custom element of SetExpressCheckout request. Character length and limitations: 256 single-byte alphanumeric characters
invnum	String	An invoice or tracking number, as set in the element of the same name in SetExpressCheckout request . Character length and limitations: 127 single-byte alphanumeric characters
phonenum	String	Payer's contact telephone number. NOTE: PayPal returns a contact telephone number only if the Merchant account profile settings require that the buyer enter one. Character length and limitations: Field mask is XXX-XXX-XXXX (for US numbers) or +XXX XXXXXXXX (for international numbers)
billingaddressacceptedstatus	String	Whether or not the customer accepted the billing agreement. This value always returns 'Yes'.
errorcode	String	Error identifier (Please see Appendix E for a full list of errors)
shortmessage	String	General message (Please see Appendix E for a full list of errors)
longmessage	String	Detailed message (Please see Appendix E for a full list of errors)
serveritycode	String	Severity of the error (Please see Appendix E for a full list of errors)
</paypalgetexpresscheckoutresponse>		

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9.2.5. DoExpressCheckoutPayment Request

Section/Fields	Type/Format	Optional / Required	Description
<paypaldoexpresscheckoutrequest>			
merchantreference	String	O	Merchant can add a reference to cross reference responses relating to the same transaction
user	String	R	Merchant PayPal API username
pwd	String	R	Merchant PayPal API password
version	String	R	Version number of the NVP API service
signature	String	R	Merchant PayPal signature string
subject	String	O	Email address of a PayPal account that has granted permission to make this call. Set this parameter only if calling an API on a different user's behalf
token	String	R	The timestamped token value that was returned by SetExpressCheckout response and passed on GetExpressCheckoutDetails request. Character length and limitations: 20 single-byte characters
paymentaction	String	R	How to obtain payment: • 'Sale' indicates that this is a final sale for which payment is being requested. • 'Authorization' indicates that this payment is a basic authorisation subject to settlement with PayPal Authorisation & Capture. • 'Order' indicates that this payment is an order authorisation subject to settlement with PayPal Authorisation & Capture. If the transaction does not include a one-time purchase, this field is ignored. NOTE: This value cannot be set to Sale in SetExpressCheckout request and then change this value to Authorisation or Order on the final API DoExpressCheckoutPayment request. If the value is set to Authorisation or Order in

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			SetExpressCheckout, the value may be set to Sale or the same value (either Authorisation or Order) in DoExpressCheckoutPayment. Character length and limit: Up to 13 single-byte alphabetic characters Default value: Sale Allowable Values: • Authorization • Order • Sale Default: The transaction resulting from DoExpressCheckoutPayment request will be a final sale..
payerid	String	R	Unique PayPal customer account identification number as returned by GetExpressCheckoutDetails response. Character length and limitations: 13 single-byte alphanumeric characters.
amt	Decimal	R	Total of order, including shipping, handling, and tax. NOTE: Limitations: Must not exceed $10,000 USD in any currency. No currency symbol. Must have two decimal places, decimal separator must be a period (.), and the optional thousands separator must be a comma (,).
desc	String	O	Description of items the customer is purchasing. Character length and limitations: 127 single-byte alphanumeric characters
custom	String	O	A free-form field for use. Character length and limitations: 256 single-byte alphanumeric characters
invnum	String	O	An invoice or tracking number. Character length and limitations: 127 single-byte alphanumeric characters
notifyurl	String	O	The merchant's URL for receiving Instant Payment Notification (IPN) about this transaction. NOTE: If not specified in the request, the notification URL from the Merchant Profile is used, if one exists. Character length and limitations: 2,048 single-byte alphanumeric characters
itemamt	Decimal	O	Sum of cost of all items in this order.

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			Limitations: Must not exceed $10,000 USD in any currency. No currency symbol. Must have two decimal places, decimal separator must be a period (.), and the optional thousands separator must be a comma (,).
shippingamt	Decimal	O	Total shipping costs for this order. NOTE: Character length and limitations: Must not exceed $10,000 USD in any currency. No currency symbol. Regardless of currency, decimal separator must be a period (.), and the optional thousands separator must be a comma (,). Equivalent to nine characters maximum for USD.
handlingamt	Decimal	O	Total handling costs for this order. NOTE: Character length and limitations: Must not exceed $10,000 USD in any currency. No currency symbol. Regardless of currency, decimal separator must be a period (.), and the optional thousands separator must be a comma (,). Equivalent to nine characters maximum for USD.
taxamt	Decimal	O	Sum of tax for all items in this order. NOTE: Character length and limitations: Must not exceed $10,000 USD in any currency. No currency symbol. Regardless of currency, decimal separator must be a period (.), and the optional thousands separator must be a comma (,). Equivalent to nine characters maximum for USD.
currencycode	String	O	A three-character currency code for one of the currencies listed in PayPal-Supported Transactional Currencies.
paypalexpressitems	paypalexpressitems	O	
Passing the shipping information is optional, however the optional/required settings here refer to if the merchant decides that this information is to be provided. If not providing shipping information, none of the below fields are included			
shiptoname	String	R	Person's name associated with this address. Character length and limitations: 32 single-byte characters
shiptostreet	String	R	First street address. Character length and

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			limitations: 100 single-byte characters
shiptocity	String	R	Name of city. Character length and limitations: 40 single-byte characters
shiptostate	String	O	State or province. Character length and limitations: 40 single-byte characters Required for US addresses only.
shiptocountrycode	String	R	Country code. Character limit: Two single-byte characters
shiptozip	String	R	U.S. ZIP code or other country-specific postal code. Character length and limitations: 20 single-byte characters
shiptostreet2	String	O	Second street address. Character length and limitations: 100 single-byte characters
shiptophonenumber	String	O	Phone number. Character length and limit: 20 single-byte characters
</paypaldoexpresscheckoutrequest>			

9.2.6. PayPal ExpressItem

Section/Fields	Type/Format	Optional / Required	Description
<paypalexpressitem>			
name	String	O	Item name. Character length and limitations: 127 single-byte characters
number	String	O	Item number. Character length and limitations: 127 single-byte characters
qty	Integer	O	Item quantity. Character length and limitations: Any positive integer
taxamt	Decimal	O	Item sales tax. Limitations: Must not exceed $10,000 USD in any currency. No currency symbol. Must have two decimal places, decimal separator must be a period (.), and the optional thousands separator must be a comma (,).
amt	Decimal	O	Cost of item Limitations: Value can be positive, negative or zero and must not exceed $10,000 USD in any currency. No currency

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			symbol. Must have two decimal places, decimal separator must be a period (.), and the optional thousands separator must be a comma (,).
ebayitemnumber	String	O	Auction item number Character length: 765 single-byte characters
ebayitemauctiontxnid	String	O	Auction transaction identification number Character length: 255 single-byte characters
ebayitemorderid	String	O	Auction order identification number Character length: 64 single-byte characters
</paypalexpressitem>			

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9.2.7. DoExpressCheckoutPayment Response

Section/Fields	Type/Format	Description
<paypaldoexpresscheckoutresponse>		
merchantreference	String	Merchant can add a reference to cross reference responses relating to the same transaction
paypalrequestid	Decimal	Unique PayPal request identifier
token	String	The timestamped token value that was returned by SetExpressCheckout response and passed on GetExpressCheckoutDetails request. Character length and limitations:20 single-byte characters
transactionid	String	Unique transaction ID of the payment. NOTE: If the PaymentAction of the request was Authorisation or Order, this value is the merchant's AuthorizationID for use with the Authorization & Capture APIs. Character length and limitations:19 single-byte characters Possible values: Transaction specific
transactiontype	String	The type of transaction Character length and limitations:15 single-byte characters Possible values: • Cart • Express-checkout
paymenttype	String	Indicates whether the payment is instant or delayed. Character length and limitations: Seven single-byte characters Possible values: • None • eCheck • Instant
ordertime	String	Time/date stamp of payment Possible values: Transaction specific
amt	Decimal	The final amount charged, including any shipping and taxes from the Merchant Profile. Character length and limitations: Does not exceed $10,000 USD in any currency. No currency symbol. Regardless of currency, decimal separator is a period (.), and the optional thousands separator is a comma (,). Equivalent to nine characters maximum for USD. Possible Values: Transaction specific
currencycode	String	A three-character currency code for one of the currencies listed in PayPay-Supported Transactional Currencies.
feeamount	Decimal	PayPal fee amount charged for the transaction. Character length and limitations: Does not exceed $10,000 USD in any currency. No currency symbol. Regardless of

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		currency, decimal separator is a period (.), and the optional thousands separator is a comma (,). Equivalent to nine characters maximum for USD. Possible values: Transaction specific
settleamount	Decimal	Amount deposited in the merchant's PayPal account after a currency conversion. Possible values: Transaction specific
taxamount	Decimal	Tax charged on the transaction. Character length and limitations: Does not exceed $10,000 USD in any currency. No currency symbol. Regardless of currency, decimal separator is a period (.), and the optional thousands separator is a comma (,). Equivalent to nine characters maximum for USD. Possible values: Transaction specific
exchangerate	Decimal	Exchange rate if a currency conversion occurred. Relevant only if billing in their non-primary currency. If the customer chooses to pay with a currency other than the nonprimary currency, the conversion occurs in the customer's account. Character length and limitations: a decimal that does not exceed 17 characters, including decimal point Possible values: Transaction specific
paymentstatus	String	Status of the payment: • Completed: The payment has been completed, and the funds have been added successfully to the merchant's account balance. • Pending: The payment is pending. See the PendingReason element for more information.
pendingreason	String	The reason the payment is pending: • None: No pending reason • Address: The payment is pending because the customer did not include a confirmed shipping address and the Payment Receiving Preferences is set such that the merchants wants to manually accept or deny each of these payments. To change these preference, go to the Preferences section of the Profile. • eCheck: The payment is pending because it was made by an eCheck that has not yet cleared. • Intl: The payment is pending because the merchant holds a non-U.S. account and does not have a withdrawal mechanism. This payment must be manually accepted or denied from the Account Overview.

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		• Multi-currency: There is no balance in the currency sent, and the Payment Receiving Preferences are not set to automatically convert and accept this payment. This payment must be manually accepted or denied. • Verify: The payment is pending because the merchant is not yet verified. It is necessary to verify the merchant account before accepting this payment. • Other: The payment is pending for a reason other than those listed above. For more information, contact PayPal customer service.
reasoncode	String	The reason for a reversal if TransactionType is reversal: • None: No reason code • Chargeback: A reversal has occurred on this transaction due to a chargeback by the customer. • Guarantee: A reversal has occurred on this transaction due to the customer triggering a money-back guarantee. • Buyer-complaint: A reversal has occurred on this transaction due to a complaint about the transaction from the customer. • Refund: A reversal has occurred on this transaction because the customer has been given a refund. • Other: A reversal has occurred on this transaction due to a reason not listed above.
redirectrequired	String	Flag to indicate whether to redirect the customer to back to PayPal after completing the transaction. NOTE: Use this field only if using giropay or bank transfer payment methods in Germany.
errorcode	String	Error identifier (Please see Appendix E for a full list of errors)
shortmessage	String	General message (Please see Appendix E for a full list of errors)
longmessage	String	Detailed message (Please see Appendix E for a full list of errors)
serveritycode	String	Severity of the error (Please see Appendix E for a full list of errors)
</paypaldoexpresscheckoutresponse>		

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9.2.8. DoAuthorization Request

Section/Fields	Type/Format	Optional / Required	Description
<paypaldoauthorizationrequest>			
merchantreference	String	O	Merchant can add a reference to cross reference responses relating to the same transaction
user	String	R	Merchant PayPal API username
pwd	String	R	Merchant PayPal API password
version	String	R	Version number of the NVP API service
signature	String	R	Merchant PayPal signature string
subject	String	O	Email address of a PayPal account that has granted permission to make this call. Set this parameter only if calling an API on a different user's behalf
transactionid	String	R	The value of the order's transaction identification number returned by PayPal. Character length and limits: 19 single-byte characters maximum
amt	Decimal	R	Amount to authorize. Limitations: Value is a positive number which cannot exceed $10,000 USD in any currency. No currency symbol. Must have two decimal places, decimal separator must be a period (.), and the optional thousands separator must be a comma (,).
transactionentity	String	O	Type of transaction to authorize. The only allowable value is Order, which means that the transaction represents a customer order that can be fulfilled over 29 days.
currencycode	String	O	A three-character currency code for one of the currencies listed in PayPay-Supported Transactional Currencies.
</paypaldoauthorizationrequest>			

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9.2.9. DoAuthorization Response

Section/Fields	Type/Format	Description
<paypaldoauthorizationresponse>		
merchantreference	String	Merchant can add a reference to cross reference responses relating to the same transaction
paypalrequestid	Decimal	Unique PayPal request identifier
transactionid	String	An authorisation identification number. Character length and limits: 19 single-byte characters
Amt	Decimal	The amount specified in the request.
currencycode	String	A three-character currency code for one of the currencies listed in PayPal Supported Transactional Currencies.
errorcode	String	Error identifier (Please see Appendix E for a full list of errors)
shortmessage	String	General message (Please see Appendix E for a full list of errors)
longmessage	String	Detailed message (Please see Appendix E for a full list of errors)
serveritycode	String	Severity of the error (Please see Appendix E for a full list of errors)
</paypaldoauthorizationresponse>		

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9.2.10. DoCapture Request

Section/Fields	Type/Format	Optional / Required	Description
<paypaldocapturerequest>			
merchantreference	String	O	Merchant can add a reference to cross reference responses relating to the same transaction
user	String	R	Merchant PayPal API username
pwd	String	R	Merchant PayPal API password
version	String	R	Version number of the NVP API service
signature	String	R	Merchant PayPal signature string
subject	String	O	Email address of a PayPal account that has granted permission to make this call. Set this parameter only if calling an API on a different user's behalf
authorizationid	String	R	The authorisation identification number of the payment to capture. This is the transaction id returned from DoExpressCheckoutPayment or DoDirectPayment. Character length and limits: 19 single-byte characters maximum.
amt	Decimal	R	Amount to capture. Limitations: Value is a positive number which cannot exceed $10,000 USD in any currency. No currency symbol. Must have two decimal places, decimal separator must be a period (.), and the optional thousands separator must be a comma (,).
currencycode	String	O	A three-character currency code for one of the currencies listed in PayPay-Supported Transactional Currencies.
completetype	String	R	The value Complete indicates that this the last capture intended to be made. The value NotComplete indicates an intention to make additional captures. NOTE: If Complete, any remaining amount of the original authorised transaction is automatically voided and all remaining open authorisations are voided. Character length and limits: 12 single-byte alphanumeric characters
invnum	String	O	An invoice number or other identification number that is displayed to the merchant and customer in his transaction history. NOTE: This value on DoCapture will overwrite a value previously set on DoAuthorization. NOTE: The value is recorded

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			only if the authorisation being captured is an order authorisation, not a basic authorisation. Character length and limits: 127 single-byte alphanumeric characters
note	String	O	An informational note about this settlement that is displayed to the payer in email and in his transaction history. Character length and limits: 255 single-byte characters
softdescriptor	String	O	The soft descriptor is a per transaction description of the payment that is passed to the consumer's credit card statement. If a value for the soft descriptor field is provided, the full descriptor displayed on the customer's statement has the following format: <PP * | PAYPAL *><Merchant descriptor as set in the Payment Receiving Preferences><1 space><soft descriptor> The soft descriptor can contain only the following characters: • Alphanumeric characters • - (dash) • * (asterisk) • . (period) • (space) If using any other characters (such as ","), an error code is returned. The soft descriptor does not include the phone number, which can be toggled between the merchant's customer service number and PayPal's customer service number. The maximum length of the total soft descriptor is 22 characters. Of this, either 4 or 8 characters are used by the PayPal prefix shown in the data format. Thus, the maximum length of the soft descriptor passed in the API request is: 22 - len(<PP * | PAYPAL *>) - len(<Descriptor set in Payment Receiving Preferences> + 1) For example, assume the following conditions: • The PayPal prefix toggle is set to PAYPAL * in PayPal's admin tools • The merchant descriptor set in the Payment

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		Receiving Preferences is set to EBAY. • The soft descriptor is passed in as JanesFlowerGifts LLC • The resulting descriptor string on the credit card would be: PAYPAL *EBAY JanesFlow
</paypaldocapturerequest>		

9.2.11. DoCapture Response

Section/Fields	Type/Format	Description
<paypaldocaptureresponse>		
merchantreference	String	Merchant can add a reference to cross reference responses relating to the same transaction
paypalrequestid	Decimal	Unique PayPal request identifier
authorizationid	String	The authorisation identification number specified in the request. Character length and limits: 19 single-byte characters maximum
transactionid	String	Unique transaction ID of the payment. Character length and limitations: 17 single-byte characters
parenttransactionid	String	Parent or related transaction identification number. This field is populated for the following transaction types: • Reversal. Capture of an authorised transaction. • Reversal. Reauthorisation of a transaction. • Capture of an order. The value of ParentTransactionID is the original OrderID. • Authorisation of an order. The value of ParentTransactionID is the original OrderID. • Capture of an order authorisation. • Void of an order. The value of ParentTransactionID is the original OrderID. Character length and limits: 16 digits in xxxx-xxxx-xxxx-xxxx format
receipttid	String	Receipt identification number Character length and limits: 16 digits in xxxx-xxxx-xxxx-xxxx format
transactiontype	String	The type of transaction • Cart • Express-checkout Character length and limitations: 15 single-byte characters
paymenttype	String	Indicates whether the payment is instant or delayed. Character length and limitations: Seven single-byte characters
ordertime	String	Time/date stamp of payment. For example: 2006-08-15T17:23:15Z.
currencycode	String	A three-character currency code for one of

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		the currencies listed in PayPal Supported Transactional Currencies
amt	Decimal	The final amount charged, including any shipping and taxes from the Merchant Profile.
feeamt	Decimal	PayPal fee amount charged for the transaction
settleamt	Decimal	Amount deposited in the merchant's PayPal account if there is a currency conversion.
taxamt	Decimal	Tax charged on the transaction, if any
exchangerate	Decimal	Exchange rate if a currency conversion occurred. Relevant only if billing in the customer's non-primary currency. If the customer chooses to pay with a currency other than the non-primary currency, the conversion occurs in the customer's account. Character length and limitations: a decimal multiplier
paymentstatus	String	Status of the payment. The status of the payment: • None: No status • Canceled-Reversal: This means a reversal has been canceled. For example, if a dispute was won with the customer, and the funds for the transaction that was reversed have been returned to the merchant. • Completed: The payment has been completed, and the funds have been added successfully to the merchant's account balance. • Denied: The payment was denied. This happens only if the payment was previously pending because of possible reasons described for the PendingReason element. • Expired: the authorisation period for this payment has been reached. • Failed: The payment has failed. This happens only if the payment was made from the customer's bank account. • Pending: The payment is pending. See the PendingReason field for more information. • Refunded: The payment was refunded. • Reversed: A payment was reversed due to a chargeback or other type of reversal. The funds have been removed from the merchant's account balance and returned to the buyer. The reason for the reversal is specified in the ReasonCode element. • Processed: A payment has been accepted. • Voided: An authorisation for this transaction has been voided.
errorcode	String	Error identifier (Please see Appendix E for

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		a full list of errors)
shortmessage	String	General message (Please see Appendix E for a full list of errors)
longmessage	String	Detailed message (Please see Appendix E for a full list of errors)
serveritycode	String	Severity of the error (Please see Appendix E for a full list of errors)
</paypaldocaptureresponse>		

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9.2.12. DoVoid Request

Section/Fields	Type/Format	Optional / Required	Description
<paypaldovoidrequest>			
merchantreference	String	O	Merchant can add a reference to cross reference responses relating to the same transaction
user	String	R	Merchant PayPal API username
pwd	String	R	Merchant PayPal API password
version	String	R	Version number of the NVP API service
signature	String	R	Merchant PayPal signature string
subject	String	O	Email address of a PayPal account that has granted permission to make this call. Set this parameter only if calling an API on a different user's behalf
authorizationid	String	R	The value of the original authorisation identification number returned by a PayPal product. IMPORTANT: If voiding a transaction that has been reauthorised, use the ID from the original authorisation, and not the reauthorisation. Character length and limits: 19 single-byte characters
note	String	O	An informational note about this void that is displayed to the payer in email and in his transaction history. Character length and limits: 255 single-byte characters
</paypaldovoidrequest>			

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9.2.13. DoVoid Response

Section/Fields	Type/Format	Description
<paypaldovoidresponse>		
merchantreference	String	Merchant can add a reference to cross reference responses relating to the same transaction
paypalrequestid	Decimal	Unique PayPal request identifier
authorizationid	String	The authorisation identification number specified in the request. Character length and limits: 19 single-byte characters
errorcode	String	Error identifier (Please see Appendix E for a full list of errors)
shortmessage	String	General message (Please see Appendix E for a full list of errors)
longmessage	String	Detailed message (Please see Appendix E for a full list of errors)
serveritycode	String	Severity of the error (Please see Appendix E for a full list of errors)
</paypaldovoidresponse>		

9.2.14. RefundTransaction Request

Section/Fields	Type/Format	Optional / Required	Description
<paypalrefundtransactionrequest>			
merchantreference	String	O	Merchant can add a reference to cross reference responses relating to the same transaction
user	String	R	Merchant PayPal API username
pwd	String	R	Merchant PayPal API password
version	String	R	Version number of the NVP API service
signature	String	R	Merchant PayPal signature string
subject	String	O	Email address of a PayPal account that has granted permission to make this call. Set this parameter only if calling an API on a different user's behalf
transactionid	String	R	Unique identifier of a transaction Character length and limitations: 17 single-byte alphanumeric characters
refundtype	String	R	Type of refund being made: • Other • Full • Partial
amt	Decimal	O	Refund amount. Amount is required if RefundType is Partial. NOTE: If RefundType is Full, do not set Amount.
currencycode	String	O	A three-character currency code for one of the currencies listed in PayPal Supported Transactional

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			Currencies
note	String	O	Custom memo about the refund. Character length and limitations: 255 single-byte alphanumeric characters
</paypalrefundtransactionrequest>			

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9.2.15. RefundTransaction Response

Section/Fields	Type/Format	Description
<paypalrefundtransactionresponse>		
merchantreference	String	Merchant can add a reference to cross reference responses relating to the same transaction
paypalrequestid	Decimal	Unique PayPal request identifier
currencycode	String	A three-character currency code for one of the currencies listed in PayPal Supported Transactional Currencies
refundtransactionid	String	Unique transaction ID of the refund. Character length and limitations:17 single-byte characters
netrefundamt	Decimal	Amount subtracted from PayPal balance of original recipient of payment to make this refund
feerefundamt	Decimal	Transaction fee refunded to original recipient of payment
grossrefundamt	Decimal	Amount of money refunded to original payer
errorcode	String	Error identifier (Please see Appendix E for a full list of errors)
shortmessage	String	General message (Please see Appendix E for a full list of errors)
longmessage	String	Detailed message (Please see Appendix E for a full list of errors)
serveritycode	String	Severity of the error (Please see Appendix E for a full list of errors)
</paypalrefundtransactionresponse>		

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9.2.16. DoReauthorization Request

Section/Fields	Type/Format	Optional / Required	Description
<paypaldoreauthorizationrequest>			
merchantreference	String	O	Merchant can add a reference to cross reference responses relating to the same transaction
user	String	R	Merchant PayPal API username
pwd	String	R	Merchant PayPal API password
version	String	R	Version number of the NVP API service
signature	String	R	Merchant PayPal signature string
subject	String	O	Email address of a PayPal account that has granted permission to make this call. Set this parameter only if calling an API on a different user's behalf
authorizationid	String	R	The value of a previously authorised transaction identification number returned by PayPal. Character length and limits: 19 single-byte characters maximum
amt	Decimal	R	Amount to reauthorise. Limitations: Value is a positive number which cannot exceed $10,000 USD in any currency. No currency symbol. Must have two decimal places, decimal separator must be a period (.), and the optional thousands separator must be a comma (,).
currencycode	String	O	A three-character currency code for one of the currencies listed in PayPay-Supported Transactional Currencies.
</paypaldoreauthorizationrequest>			

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9.2.17. DoReauthorization Response

Section/Fields	Type/Format	Description
<paypaldoreauthorizationresponse>		
merchantreference	String	Merchant can add a reference to cross reference responses relating to the same transaction
paypalrequestid	Decimal	Unique PayPal request identifier
authorizationid	String	A new authorisation identification number. Character length and limits:19 single-byte characters
errorcode	String	Error identifier (Please see Appendix E for a full list of errors)
shortmessage	String	General message (Please see Appendix E for a full list of errors)
longmessage	String	Detailed message (Please see Appendix E for a full list of errors)
serveritycode	String	Severity of the error (Please see Appendix E for a full list of errors)
</paypaldoreauthorizationresponse>		

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10. Stored Value Solutions (SVS)

10.1. SVS Functionality

Stored Value Solutions provide prepaid services to merchants. Commidea support SVS' branded prepaid cards which are used to:

- Reward and incentivise employees, customers, and partners
- Improve foot traffic to your locations
- Increase brand awareness
- Facilitate new promotional and co-branding opportunities
- Allow easy gift card acceptance across multiple point-of-sale systems

Prepaid cards are accepted the same way as any standard electronic funds transfer card through Commidea's XML Gateway.

10.2. SVS Message Types

10.2.1. SVS Request

The Stored Value Solutions (SVS) Request type contains all the information required to process a transaction using an SVS card.

Section/Fields	Type/ Format	Length	Optional / Required	Description
<svsrequestmessage>				
messagetype	Integer		M	**0** Balance Enquiry ***1** Pre-Authorization Message **2** Redemption Message ***3** Tip Message **4** Cancellation **5** Merchandise Return Message **6** Card Recharge Message ***7** Pre-Authorisation Completion Message ***8** Card Activation Message **9** Issue Gift Card ***10** Issue Virtual Gift Card Message ***11** Reversal Message ***12** Network Message **13** Cash Back Message * Reserved for future use, not currently available
stan	String	6	O	Systems trace audit number. Example: 123456. *For the original transaction this should be left blank and will be generated automatically. The*

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				original STAN must be passed in with reversals
offlineauthcode	String	10	O	Offline Authorisation Code
cardnumber	String	19	O	SVS card number
track1	String		O	Track 1
track2	String		O	Track 2
transactionamount	Decimal	6	O	Transaction amount, e.g. 9.99
transactioncurrency	String	3	O	Currency Code (ISO 4217) for transaction (e.g. 826 = Pound Sterling)
transactiondate	String	8	O	Transaction date: YYYYMMDD – e.g. 20110110
transactiontime	String	6	O	Transaction time: HHMMSS - e.g. 175732
invoicenumber	String	8	O	Client assigned value which may be used to represent an order number or reference for the transaction, e.g. INV01
merchantname	String	50	O	Merchant name
merchantnumber	String	6	M	SVS Merchant number
storenumber	String	10	O	Store number
divisionnumber	String	5	M	Division number
routingid	String	19	M	Routing ID
</svsrequestmessage>				

10.2.2. SVS Response

The SVS Response type contains all the result information from an SVS request.

Section/Fields	Type/ Format	Length	Description
<svsresponsemessage>			
id	Decimal		The request ID
responsecode	String	2	**Code** — **Return Description** **01** Approval **02** Inactive Card **03** Invalid Card Number **04** Invalid Transaction Code **05** Insufficient Funds **06** No Previous Authorisations **07** Invalid Message **08** No Card Found **09** Insufficient Funds due to Outstanding pre-authorisation. **10** Denial – No previous authorisation **11** No Authorization number **12** Invalid Authorization number **13** Maximum single recharge exceeded **14** Maximum working balance exceeded **15** Host Unavailable **16** Invalid Card Status **17** Unknown dealer/Store Code - Special edit **18** Maximum number of recharges exceeded **19** Invalid card verification value **20** Invalid PIN number / PIN Locked **21** Card already issued **22** Card not issued **23** Card already used **24** Manual Transaction not allowed **25** Mag Stripe read not valid **26** Transaction type unknown **27** Invalid tender type **28** Invalid customer type **29** n/a **30** Max number of redemption exceeded **31** Invalid currency code

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			32 Invalid server id (restaurant only – server ID code is invalid) **33** Frozen card or Unknown **34** Invalid amount (transaction amount does not match the pre-valued card dollar amount) **99** Route does not exist for the routingID supplied
responsemessage	String		Description e.g. "Approved"
stan	String	6	Systems trace audit number. Example: 123456.
transactionamount	Decimal	6	Transaction amount supplied within request: E.g. 9.99
balanceamount	Decimal	6	Balance amount remaining on the SVS card
conversionrate	Decimal	8	Conversion rate. E.g. 1.000000
cardcurrencycode	String	3	826 (Numeric translation of GBP)
</svsresponsemessage>			

10.3. Part Payments

Commidea supports SVS' "Part Payment" functionality on both Terminal and XML solutions. However, please note that this functionality will require additional logic to be put in place within the merchant's integration. Should an SVS transaction be initiated using an SVS card which does not contain enough funds to pay off the entire balance, a separate transaction will be required to clear the remaining balance.

In order to monitor for such an occurrence within the XML solution, the integration should take note of the 'TransactionAmount' within the 'ProcessMsgResponse'. This value should be compared to the original 'TransactionAmount' from the 'SVSRequestMessage', with the difference equating to the remaining balance in a scenario where there are insufficient funds on the SVS card to pay the balance off in full. When a balance remains as per the above, the merchant's system should return the customer to a checkout page which details the remaining amount to be paid and provides the option to input additional payment details, which could be either a different SVS card number or a credit/debit card number for a standard EFT transaction.

***Commidea Best Practice*:** it is recommended that a balance enquiry is processed after the transaction amount has been finalised. This will ensure that the SVS card provided by the cardholder has sufficient funds before processing the transaction. In a scenario where the card does not contain sufficient funds, the merchant can make the cardholder aware of this prior to processing the transaction, and inform the cardholder that a further payment will be required.

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11. Token Gateway

11.1. Token Registration Process

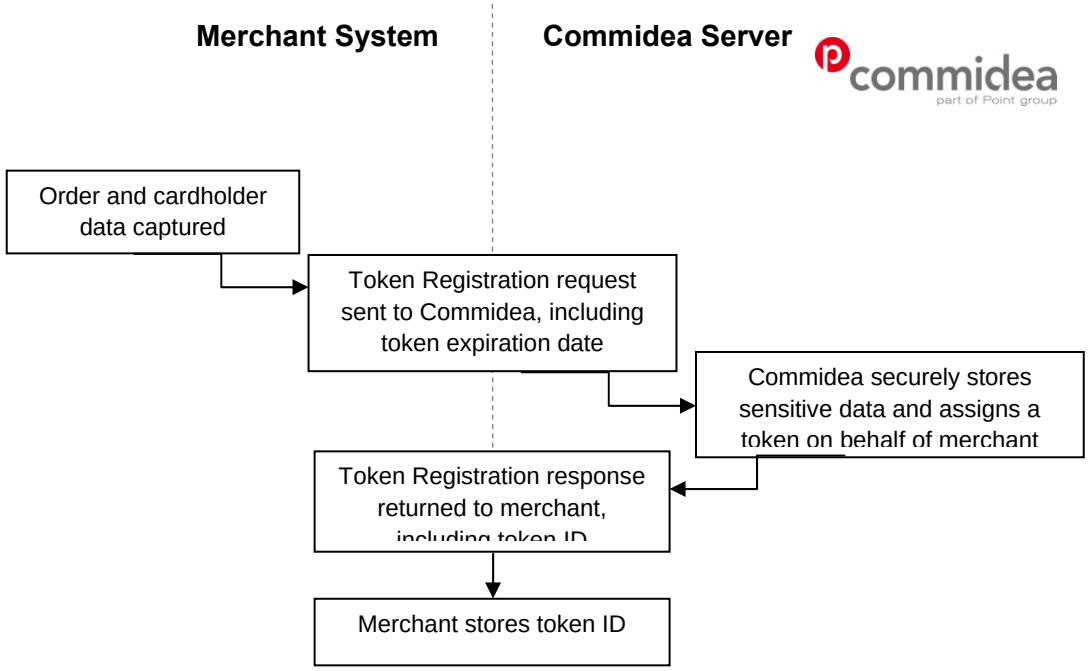
To register a token a request should be created containing all the information required, which will include the card number, expiry date as well as boolean values to control the transaction types allowed for the token. A response will then be returned containing a TokenID. This should be stored, and can be provided in a transaction request (see section 5.2.1) to request for the stored details to be sourced and utilised to provide payment details for the transaction.

There are two versions of the Token Registration process:

- TKI
  card scheme name not returned from token registration, legacy message type

- TKI2
  message type added which returns a different response depending upon success or failure of the registration process, including returning the card scheme name of the registered details should the process be successful

Both message formats are detailed below. An overview of the registration process is shown in the below diagram:



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11.2. Token Message Types

11.2.1. Registration Request (TKI)

The Token Registration Request type contains all the information required to register a token.

The Message Type is TKI and the namespace is TOKEN.

Section/Fields	Type/Format	Mandatory/ Optional/ Conditional	Description
<tokenregistrationrequest>			
merchantreference	String	O	Merchant can add a reference to cross reference responses relating to the same transaction
pan	String	M	Card number
expirydate	String	M	Card expiry month and year (YYMM) (Only required when card is keyed, can be calculated from Track2)
startdate	String	C	Card start date month and year (MMYY) Only required for Diners Club International, some Maestro, some Solo and some Laser cards. Not required if Track2 data supplied
Please note the format difference between the expiry and start dates are intentional			
issuenumber	String	C	1 or 2 digit card issue number as shown on the front of the card. Only required by some Switch, Solo and Laser cards. Required only when card is keyed
purchase	Boolean	M	Allow purchase txn type
refund	Boolean	M	Allow refund txn type
cashback	Boolean	M	Allow cashback txn type
tokenexpirationdate	String	M	Last date on which the token can be utilised. Format of date to be: DDMMCCYY
</tokenregistrationrequest>			

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11.2.2. Token Registration Response (TKI)

The Token Registration Response type contains all the result information from a token registration request.

The Message Type is TOKENRESPONSE and the namespace is TOKEN.

Section/Fields	Type/Format	Description
<tokenregistrationresponse>		
tokenid	Decimal	Unique identifier for registered PAN
merchantreference	String	Merchant can add a reference to cross reference responses relating to the same transaction
errorcode	Integer	This is an error code indicating what type of error occurred, if any, while processing the transaction. See Appendix E for error codes
errormsg	String	This is a text field used to give as short text description of the error code
</tokenregistrationresponse>		

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11.2.3. Registration Request (TKI2)

The Token Registration Request type contains all the information required to register a token, and ensures that the card scheme name is returned within the response message.

The Message Type is TKI2 and the namespace is TOKEN.

Section/Fields	Type/Format	Mandatory/ Optional/ Conditional	Description
<tokenregistrationrequest>			
merchantreference	String	O	Merchant can add a reference to cross reference responses relating to the same transaction
pan	String	M	Card number
expirydate	String	M	Card expiry month and year (YYMM) (Only required when card is keyed, can be calculated from Track2)
startdate	String	C	Card start date month and year (MMYY) Only required for Diners Club International, some Maestro, some Solo and some Laser cards. Not required if Track2 data supplied
Please note the format difference between the expiry and start dates are intentional			
issuenumber	String	C	1 or 2 digit card issue number as shown on the front of the card. Only required by some Switch, Solo and Laser cards. Required only when card is keyed
purchase	Boolean	M	Allow purchase txn type
refund	Boolean	M	Allow refund txn type
cashback	Boolean	M	Allow cashback txn type
tokenexpirationdate	String	M	Last date on which the token can be utilised. Format of date to be: DDMMCCYY
</tokenregistrationrequest>			

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11.2.4. Token Registration Response (TKI2) – Success

When the TKI2 token registration request is successful, the following message is returned.

The Message Type is TOKENRESPONSE and the namespace is TOKEN.

Section/Fields	Type/Format	Description
<tokenregistrationresponse>		
tokenid	Decimal	Unique identifier for registered PAN
merchantreference	String	Merchant can add a reference to cross reference responses relating to the same transaction
cardschemename	String	Returns the card scheme name for the card registered within the request
</tokenregistrationresponse>		

11.2.5. Token Registration Response (TKI2) – Failure

Should the TKI2 token registration request fail, the following message is returned.

The Message Type is TOKENRESPONSE and the namespace is TOKEN.

Section/Fields	Type/Format	Description
<tokenregistrationresponse>		
merchantreference	String	Merchant can add a reference to cross reference responses relating to the same transaction
errorcode	Integer	This is an error code indicating what type of error occurred, if any, while processing the transaction. See Appendix E for error codes
errormsg	String	This is a text field used to give as short text description of the error code
</tokenregistrationresponse>		

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12. Ukash Message Types

The Message Type for Ukash requests is UKASH and the namespace is UKASH.

12.1. Ukash GetSettleAmount Request

Section/Fields	Type/Format	Description
<ukashrequest >		
merchantreference	String Varchar(50)	Merchant can add a reference to cross reference responses relating to the same transaction
requesttype	String Varchar(50)	The request type; ukashgetsettleamount
ukashlogin	String Char(20)	This is a login name that will be supplied to the merchant by Ukash to send with each transaction sent to the Ukash gateway
ukashpassword	String Char(20)	This is the password for the Ukash login name, which will be supplied to the merchant by Ukash
transactionid	String Char(20)	This is a unique reference to the transaction, which must be supplied by the merchant. It must be unique across the merchant's ukashLogin. E.g. for gaming clients, the format of the transactionId must be casinoId_TransNo
brandid	String Char(20)	Ukash will supply a brand id to the merchant for each of the brands he wishes to differentiate between. The appropriate brand id must then be sent through on each transaction request
vouchernumber	String Char(19)/ Char(16)	This is the number printed on the voucher or card, the number will be 19 digits for vouchers and 16 digits for cards.
vouchervalue	decimal	This is the value of the voucher presented in 2 decimal points
basecurr	String Char(3)	This is the currency in which the product/service is being sold. It is the merchant base currency for the transaction. It must be given in the character ISO standard. Refer to Appendix B to verify
vouchercurrproductcode	String Char(3)	7-9 digits of voucher number
</ukashrequest>		

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12.2. Ukash PartSpendVoucher Request

Section/Fields	Type/Format	Description
<ukashrequest >		
merchantreference	String Varchar(50)	Merchant can add a reference to cross reference responses relating to the same transaction
requesttype	String Varchar(50)	The request type; ukashpartspendvoucher
ukashlogin	String Char(20)	This is a login name that will be supplied to the merchant by Ukash to send with each transaction sent to the Ukash gateway
ukashpassword	String Char(20)	This is the password for the Ukash login name, which will be supplied to the merchant by Ukash
transactionid	String Char(20)	This is a unique reference to the transaction, which must be supplied by the merchant. It must be unique across the merchant's ukashLogin. E.g. for gaming clients, the format of the transactionId must be casinoId_TransNo
brandid	String Char(20)	Ukash will supply a brand id to the merchant for each of the brands he wishes to differentiate between. The appropriate brand id must then be sent through on each transaction request
vouchernumber	String Char(19)/ Char(16)	This is the number printed on the voucher or card, the number will be 19 digits for vouchers and 16 digits for cards.
vouchervalue	decimal	This is the value of the voucher presented in 2 decimal points
ticketvalue	Decimal	This is the value, which the merchant wishes to charge from the voucher or account. It is presented in 2 decimal points in the merchant base currency.
basecurr	String Char(3)	This is the currency in which the product/service is being sold. It is the merchant base currency for the transaction. It must be given in the character ISO standard. Refer to Appendix B to verify
merchdatetime	String Char(19)	This is the Merchant's time stamp of the transaction. Format "yyyy-mm-dd hh:mm:ss"
redemptiontype	String Char(1)/Char(2)	This indicates what the transaction is being used for. See Section 7.9 for redemption Types. The numeric identifier must be supplied
vouchercurrproductcode	String Char(3)	7-9 digits of voucher number
</ukashrequest>		

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12.3. Ukash FullValueVoucher Request

Section/Fields	Type/Format	Description
<ukashrequest>		
merchantreference	String Varchar(50)	Merchant can add a reference to cross reference responses relating to the same transaction
requesttype	String Varchar(50)	The request type; ukashfullvaluevoucher
ukashlogin	String Char(20)	This is a login name that will be supplied to the merchant by Ukash to send with each transaction sent to the Ukash gateway
ukashpassword	String Char(20)	This is the password for the Ukash login name, which will be supplied to the merchant by Ukash
transactionid	String Char(20)	This is a unique reference to the transaction, which must be supplied by the merchant. It must be unique across the merchant's ukashLogin. E.g. for gaming clients, the format of the transactionId must be casinoId_TransNo
brandid	String Char(20)	Ukash will supply a brand id to the merchant for each of the brands he wishes to differentiate between. The appropriate brand id must then be sent through on each transaction request
vouchernumber	String Char(19)/ Char(16)	This is the number printed on the voucher or card, the number will be 19 digits for vouchers and 16 digits for cards.
vouchervalue	decimal	This is the value of the voucher presented in 2 decimal points
basecurr	String Char(3)	This is the currency in which the product/service is being sold. It is the merchant base currency for the transaction. It must be given in the character ISO standard. Refer to Appendix B to verify
merchdatetime	String Char(19)	This is the Merchant's time stamp of the transaction. Format "yyyy-mm-dd hh:mm:ss"
redemptiontype		This indicates what the transaction is being used for. See Section 7.9 for redemption Types. The numeric identifier must be supplied
vouchercurrproductcode	String Char(3)	7-9 digits of voucher number
</ukashrequest>		

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12.4. Ukash PartSpendAccount Request

Section/Fields	Type/Format	Description
<ukashrequest>		
merchantreference	String Varchar(50)	Merchant can add a reference to cross reference responses relating to the same transaction
requesttype	String Varchar(50)	The request type; ukashpartspendaccount
ukashlogin	String Char(20)	This is a login name that will be supplied to the merchant by Ukash to send with each transaction sent to the Ukash gateway
ukashpassword	String Char(20)	This is the password for the Ukash login name, which will be supplied to the merchant by Ukash
transactionid	String Char(20)	This is a unique reference to the transaction, which must be supplied by the merchant. It must be unique across the merchant's ukashLogin. E.g. for gaming clients, the format of the transactionId must be casinoId_TransNo
brandid	String Char(20)	Ukash will supply a brand id to the merchant for each of the brands he wishes to differentiate between. The appropriate brand id must then be sent through on each transaction request
vouchernumber	String Char(19)/ Char(16)	This is the number printed on the voucher or card, the number will be 19 digits for vouchers and 16 digits for cards.
ukashpin	String Char(4)	This is the Pin number printed on the Ukash Card. 4 digit value, field is required for all card based transactions
vouchervalue	decimal	This is the value of the voucher presented in 2 decimal points
ticketvalue	Decimal	This is the value, which the merchant wishes to charge from the voucher or account. It is presented in 2 decimal points in the merchant base currency.
basecurr	String Char(3)	This is the currency in which the product/service is being sold. It is the merchant base currency for the transaction. It must be given in the character ISO standard. Refer to Appendix B to verify
merchdatetime	String Char(19)	This is the Merchant's time stamp of the transaction. Format "yyyy-mm-dd hh:mm:ss"
redemptiontype		This indicates what the transaction is being used for. See Section 7.9 for redemption Types. The numeric identifier must be supplied
vouchercurrproductcode	String Char(3)	7-9 digits of voucher number
</ukashrequest>		

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12.5. Ukash FullSpendAccount Request

Section/Fields	Type/Format	Description
<ukashrequest>		
merchantreference	String Varchar(50)	Merchant can add a reference to cross reference responses relating to the same transaction
requesttype	String Varchar(50)	The request type; ukashfullspendaccount
ukashlogin	String Char(20)	This is a login name that will be supplied to the merchant by Ukash to send with each transaction sent to the Ukash gateway
ukashpassword	String Char(20)	This is the password for the Ukash login name, which will be supplied to the merchant by Ukash
transactionid	String Char(20)	This is a unique reference to the transaction, which must be supplied by the merchant. It must be unique across the merchant's ukashLogin. E.g. for gaming clients, the format of the transactionId must be casinoId_TransNo
brandid	String Char(20)	Ukash will supply a brand id to the merchant for each of the brands he wishes to differentiate between. The appropriate brand id must then be sent through on each transaction request
vouchernumber	String Char(19)/ Char(16)	This is the number printed on the voucher or card, the number will be 19 digits for vouchers and 16 digits for cards.
ukashpin	String Char(4)	This is the Pin number printed on the Ukash Card. 4 digit value, field is required for all card based transactions
vouchervalue	decimal	This is the value of the voucher presented in 2 decimal points
basecurr	String Char(3)	This is the currency in which the product/service is being sold. It is the merchant base currency for the transaction. It must be given in the character ISO standard. Refer to Appendix B to verify
mercdatetime	String Char(19)	This is the Merchant's time stamp of the transaction. Format "yyyy-mm-dd hh:mm:ss"
redemptiontype		This indicates what the transaction is being used for. See Section 7.9 for redemption Types. The numeric identifier must be supplied
vouchercurrproductcode	String Char(3)	7-9 digits of voucher number
</ukashrequest>		

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12.6. TransactionEnquiry Request

Used to check if there is an issue with the Ukash server, and there is a requirement to check with Ukash if the transaction was successful or not.

Section/Fields	Type/Format	Description
<ukashrequest>		
merchantreference	String Varchar(50)	Merchant can add a reference to cross reference responses relating to the same transaction
requesttype	String Varchar(50)	The request type; ukashtransactionenquiry
ukashlogin	String Char(20)	This is a login name that will be supplied to the merchant by Ukash to send with each transaction sent to the Ukash gateway
ukashpassword	String Char(20)	This is the password for the Ukash login name, which will be supplied to the merchant by Ukash
transactionid	String Char(20)	This is a unique reference to the transaction, which must be supplied by the merchant. It must be unique across the merchant's ukashLogin. E.g. for gaming clients, the format of the transactionId must be casinoId_TransNo
brandid	String Char(20)	Ukash will supply a brand id to the merchant for each of the brands he wishes to differentiate between. The appropriate brand id must then be sent through on each transaction request
vouchernumber	String Char(19)/ Char(16)	This is the number printed on the voucher or card, the number will be 19 digits for vouchers and 16 digits for cards.
ukashpin	String Char(4)	This is the Pin number printed on the Ukash Card. 4 digit value, field is required for all card based transactions
vouchervalue	decimal	This is the value of the voucher presented in 2 decimal points
basecurr	String Char(3)	This is the currency in which the product/service is being sold. It is the merchant base currency for the transaction. It must be given in the character ISO standard. Refer to Appendix B to verify
merchdatetime	String Char(19)	This is the Merchant's time stamp of the transaction. Format "yyyy-mm-dd hh:mm:ss"
redemptiontype		This indicates what the transaction is being used for. See Section 7.9 for redemption Types. The numeric identifier must be supplied
vouchercurrproductcode	String Char(3)	7-9 digits of voucher number
</ukashrequest>		

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12.7. Ukash Response

The Message Type for the Ukash response is UKASH and the namespace is TRM.

Section/Fields	Type/Format	Description
<ukashresponse>		
requesttype	String Varchar(50)	The request type
amountreference	String Char(255)	Merchants using the GetSettleAmount method need only fill in this tag. All other merchants should send a blank string in this tag.
mktransactionID	Decimal	Unique transaction ID
txcode	Integer	This is a transaction status/return code. It determines whether the voucher was successfully redeemed or not. A “0” means that the voucher was successfully redeemed. Any other code will reflect an unsuccessful redemption due to an invalid voucher or an error. See Section 7.8 for possible return codes
txdescription	String Char(255)	This is a text field used to give a short text description of the transaction status/return code
transactionid	String Char(20)	The transactionId is returned as reference to link the request and response XML
settleamount	Decimal	This is the value of the transaction in the base currency
accountbalance	Decimal	The account balance in the currency of the account. Applicable to account based transactions only.
accountcurrency	String Char(3)	This is the currency the card account. It will be given in the character ISO standard.
changeissuevouchernumber	String Char(19)	For ticket price redemption, this is the voucher number for the change. For full value redemption, this will be blank
changeissuevouchercurr	String Char(3)	This is the currency of the change issue voucher. It will be given in the character ISO standard. Refer to Appendix B
changeissueamount	Decimal	This is the value of the change presented in 2 decimal places. For full value redemption, this will be blank
changeissueexpirydate	String Char(10)	This is the expiry date for the change issue voucher in the format yyyy-mm-dd
issuedvouchernumber	String Char(19)	For issued vouchers this is the new voucher number. This tag will only be returned for IssueVoucher transactions.
issuedvouchercurr	String Char(3)	The currency of the issued voucher. It will be given in the character ISO standard. Refer to Appendix B. This tag will only be returned for IssueVoucher transactions.
issuedamount	Decimal	This is the value of the issued voucher presented in 2 decimal places. This tag will only be returned for IssueVoucher transactions.
issuedexpirydate	String Char(10)	This is the expiry date for the issued voucher in the format yyyy-mm-dd. This tag will only be returned for IssueVoucher transactions.
ukashtransactionid	String Char(50)	This is a unique reference to the transaction
currencyconversion	Boolean	This flag indicates whether currency

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		conversion took place. For full value redemption, currency conversion may occur to determine the settleAmount in the base currency. For ticket price redemption, currency conversion may occur to determine the ticket price in the currency of the voucher
errcode	Integer	This is an error code indicating what type of error occurred, if any, while processing the transaction. See Section 7.10 for possible error codes
errdescription	String Char(255)	This is a text field used to give a short text description of the error code
</ukashresponse>		

12.8. Ukash Return Code List

Type of Message	Message Code	Message Description	Comments
Transaction Status	0	Accepted	Redemption successful
	1	Declined	Redemption unsuccessful
	99	Failed	An error occurred during the processing of the transaction hence the system could not successfully complete the redemption of the voucher.

12.9. Ukash Transaction Type List

Code	Description	Comments
1	Cash Withdrawal	Normal Redemption transactions. Voucher or account will be debited with the currency and amount.
2	Account Deposit	
3	Product/Service Purchase	
4	Issue Voucher	Issues Voucher based on the currency and value
8	Void Transaction	Voids a Transaction made in the last 60 seconds.
20	Account Add	Add amount to Ukash account. Used only for Top up and Top Down Cards.
21	Account Subtract	Subtracts amount from Ukash account. Used only for Top up and Top Down Cards.
22	Transaction Enquiry	Returns the state of a transaction that was executed in the last 48 hours.

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12.10. Ukash Error Code List

Type of Error	Error Code	Error Description
Incoming XML Error	100	Invalid incoming XML
Data Validation Error	200	Non numeric Voucher Value
	201	Base Currency not 3 characters in length
	202	Non numeric Ticket Value
	203	Invalid BrandId
	204	Invalid MerchDateTime
	205	Invalid transactionId: greater than 20 characters
	206	Invalid Redemption Type
	207	Negative Ticket Value not allowed
	208	No decimal place given in Ticket Value
	209	No decimal place given in Voucher Value
	210	Negative Voucher Value not allowed
	211	Invalid or unsupported voucher product code
	212	AmountReference with TicketValue not allowed
	213	No ukashNumber supplied
	214	No transactionId supplied
	215	No brandId supplied
	216	Ticket Value cannot be greater than Voucher Value without Currency Conversion
	217	Base Currency and Voucher currency do not match.
	218	Brand not configured to Issue Vouchers
	219	Invalid Voucher Number
	221	Multiple Transactions found
	222	Unknown transaction status
	223	No transaction found.
Card Validation Error	250	The transaction cannot proceed with a user supplied PIN, and none was supplied,
	251	The supplied PIN had the incorrect format, e.g. was not 4 numeric characters
	252	PIN supplied with a transaction is incorrect (I.e. does not match the required pin recorded on file)
	253	PIN supplied with a transaction is incorrect and has resulted in the failure count reaching the maximum
	254	The Account has been blocked as a result of a validation/verification check failure
Login and Password	300	Invalid Login and/or Password
Login, Password and BrandID	301	Invalid Login and/or BrandID
Currency Conversion Not Supported	400	Required Currency Conversion not supported
Currency Conversion Error	500	Error In Currency Conversion
	501	Converted Settle Amount greater than Voucher Value
General Error	800	Max duration between getSettleAmount and Redemption exceeded.
	801	Invalid amountReference Submitted
Technical Error	900	Technical Error. Please contact Ukash Merchant Support
	999	Ukash Server Error. Please contact Commidea Merchant Helpdesk

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12.11. Ukash Product Codes

Region	Country	State	Currency	General Issues (020-200)	Cash Back Issues (201-400)	Gambling Restricted (401-600)	Reserved (601-800)	Reserved (801-999)
United Kingdom	United Kingdom	United Kingdom	GBP	001	201	401	601	801
Europe	Europe	Europe	EUR	011	211	411	611	811
Europe	Poland	Poland	PLN	151	351	551	751	951
Europe	Austria	Austria	EUR	021	221	421	621	821
Europe	Belgium	Belgium	EUR	022	222	422	622	822
Europe	Finland	Finland	EUR	023	223	423	623	823
Europe	France	France	EUR	024	224	424	624	824
Europe	Germany	Germany	EUR	025	225	425	625	825
Europe	Greece	Greece	EUR	026	226	426	626	826
Europe	Ireland	Ireland	EUR	027	227	427	627	827
Europe	Italy	Italy	EUR	028	228	428	628	828
Europe	Luxembourg	Luxembourg	EUR	029	229	429	629	829
Europe	Netherlands	Netherlands	EUR	030	230	430	630	830
Europe	Portugal	Portugal	EUR	031	231	431	631	831
Europe	Spain	Spain	EUR	011	211	411	611	811
Europe	Switzerland	Switzerland	CHF	033	233	433	633	833
Europe	Denmark	Denmark	DKK	034	234	434	634	834
Europe	Sweden	Sweden	SEK	035	235	435	635	835
Europe	Czech Republic	Czech Republic	CZK	036	236	436	636	836
Europe	Norway	Norway	NOK	037	237	437	637	837
Europe	Romania	Romania	RON	038	238	438	638	838
Europe	Hungary	Hungary	HUF	039	239	439	639	839
Europe	Bulgaria	Bulgaria	BGL	040	240	440	640	840
Europe	Estonia	Estonia	EEK	041	241	441	641	841
North America	USA	USA	USD	99	299	499	699	899
North America	USA	Alabama	USD	100	300	500	700	900
North America	USA	Alaska	USD	101	301	501	701	901
North America	USA	Arizona	USD	102	302	502	702	902
North America	USA	Arkansas	USD	103	303	503	703	903
North America	USA	California	USD	104	304	504	704	904
North America	USA	Colorado	USD	105	305	505	705	905
North America	USA	Connecticut	USD	106	306	506	706	906
North America	USA	Delaware	USD	107	307	507	707	907
North America	USA	Florida	USD	108	308	508	708	908
North America	USA	Georgia	USD	109	309	509	709	909
North America	USA	Hawaii	USD	110	310	510	710	910
North America	USA	Idaho	USD	111	311	511	711	911
North America	USA	Illinois	USD	112	312	512	712	912
North America	USA	Indiana	USD	113	313	513	713	913

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North America	USA	Iowa	USD	114	314	514	714	914
North America	USA	Kansas	USD	115	315	515	715	915
North America	USA	Kentucky	USD	116	316	516	716	916
North America	USA	Louisiana	USD	117	317	517	717	917
North America	USA	Maine	USD	118	318	518	718	918
North America	USA	Maryland	USD	119	319	519	719	919
North America	USA	Massachusetts	USD	120	320	520	720	920
North America	USA	Michigan	USD	121	321	521	721	921
North America	USA	Minnesota	USD	122	322	522	722	922
North America	USA	Mississippi	USD	123	323	523	723	923
North America	USA	Missouri	USD	124	324	524	724	924
North America	USA	Montana	USD	125	325	525	725	925
North America	USA	Nebraska	USD	126	326	526	726	926
North America	USA	Nevada	USD	127	327	527	727	927
North America	USA	New Hampshire	USD	128	328	528	728	928
North America	USA	New Jersey	USD	129	329	529	729	929
North America	USA	New Mexico	USD	130	330	530	730	930
North America	USA	New York	USD	131	331	531	731	931
North America	USA	North Carolina	USD	132	332	532	732	932
North America	USA	North Dakota	USD	133	333	533	733	933
North America	USA	Ohio	USD	134	334	534	734	934
North America	USA	Oklahoma	USD	135	335	535	735	935
North America	USA	Oregon	USD	136	336	536	736	936
North America	USA	Pennsylvania	USD	137	337	537	737	937
North America	USA	Rhode Island	USD	138	338	538	738	938
North America	USA	South Carolina	USD	139	339	539	739	939
North America	USA	South Dakota	USD	140	340	540	740	940
North America	USA	Tennessee	USD	141	341	541	741	941
North America	USA	Texas	USD	142	342	542	742	942
North America	USA	Utah	USD	143	343	543	743	943
North America	USA	Vermont	USD	144	344	544	744	944
North America	USA	Virginia	USD	145	345	545	745	945
North America	USA	Washington	USD	146	346	546	746	946
North America	USA	West Virginia	USD	147	347	547	747	947
North America	USA	Wisconsin	USD	148	348	548	748	948
North America	USA	Wyoming	USD	149	349	549	749	949

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South America	Argentina	Argentina	ARS	152	352	552	752	952
North America	Canada	Canada	CAD	153	353	553	753	953
Africa	South Africa	South Africa	ZAR	150	350	550	750	950

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13. Troubleshooting

This section has been included in the manual to provide integrators with information to help resolve any issues.

13.1. Deserialization Errors

When the elements which make up the XML document are populated with the necessary data, if the 'Type' of each is not adhered to then deserialization errors can occur.

Essentially, the information provided does not meet the format requirements and, when the XML document has been programmatically checked, it could not be parsed correctly.

An example of this would be:

If the 'Track2' element were to be populated with data that does not match the predefined type, (in this case, the track2 data should consist of a numeric value), then a deserialization error will be produced. The error will detail which element(s) contained the mismatch, which enables the problem to be resolved by checking what information was passed and comparing this to the required type.

1) The XML document 'TRecord' contains PAN information that doesn't satisfy the type requirements:

```
....

<PAN>CardNumber</PAN>

....
```

2) A deserialization error is returned within the 'InternalError' tag, detailing which field caused the issue (in this case 'PAN'):

```
<?xml version="1.0" encoding="utf-8"?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
<soap:Body>
<CardTxnResponse xmlns="https://www.commidea.webservices.com">
<CommideaTxnResponse>
<StdResponse />
<InternalError>[16277] TransactionProcessor.DeserializeXml: Bad Format in
TRecord_Pan</InternalError>
</CommideaTxnResponse>
</CardTxnResponse>
</soap:Body>
</soap:Envelope>
```

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13.2. Contact Information

Should there be a need to contact Commidea for help, please use the below contact details:

In a Test Environment:

Implementations

implementations@commidea.com

08444 828 273

In a Live Environment:

Merchant Helpdesk

helpdesk@commidea.com

08444 828 222

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APPENDIX A – Website Testing Script

To aid developers before Commidea integration testing is performed; please follow the table below to ensure that all recommendations and requirements have been met:

Test/Scenario	Description/Reasoning	Test Result
Perform a normal transaction	Ensure solution processes transactions correctly Check the modifiers used to mark the transaction are correct, e.g. 'Purchase' (1) and 'Keyed Customer Not Present E-Commerce' (12). These may differ for different scenarios. A transaction can be marked with more than one modifier	PASS / FAIL PASS / FAIL
Perform a voice referral transaction (value ends in 2p)	Ensure voice referral transactions are rejected with a <Command> of 2 (rejected) for websites Check referral message does not say the transaction has been "declined". Use "unsuccessful, as the scenario is different from that of declines	PASS / FAIL PASS / FAIL
Process a declined transaction (value ends in 5p)	Ensure solution reacts correctly to declined transactions, including supplying an appropriate a message	PASS / FAIL
Process a transaction where the response is comms down (value ends in 7p)	A situation may arise whereby a response of 'Comms Down' maybe returned by the service. This must be catered for by the integration.	PASS / FAIL
Check for SSL certificate	Must be installed on the site to ensure credit card information is handled securely	PASS / FAIL
Navigating between payment forms disabled	Secure information from website pages should be cleared once the page is left, or returning using the 'Back' button should be disabled	PASS / FAIL
Process a transactions with various issue numbers	The issue number field should allowing processing of cards with issue numbers ranging from 1-99, including 01. Ensure leading 0's are not removed after submission	PASS / FAIL
Process a transaction using a card number with 13 digits	This is the least amount of digits a card number can consist of (13)	PASS / FAIL
Process a transaction with a Maestro card	This is the greatest amount of digits a card number can consist of (19)	PASS / FAIL
Process a transaction with 20 alpha characters as a card number	The card number field should validate locally and reject any attempts to enter more than 19 characters. Entry of alpha characters in this field should be disabled	PASS / FAIL
Process a transaction using invalid start date, expiry date and issue number	All fields should be validated locally, ensure that invalid start date, expiry date and issue number entry is disabled (formatting the field accordingly)	PASS / FAIL
In the event of a transaction confirmation response not being received, resend the confirmation	Confirmation should be resent rather than creating a new transaction if no confirmation response is received. This avoids duplicating orders	PASS / FAIL
Process a transaction using a CV2 value of '000' (if applicable)	This test will check leading 0's are not being removed from the record before it is sent to Commidea. On the test system, '000' is the only CV2 value accepted	PASS / FAIL
Process a transaction using an AMEX	This will ensure that the CV2 field allows entry of up to 4	PASS / FAIL

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card (if applicable)	digits, which is a requirement for processing AMEX cards. Please note that AMEX cards do now support 3 digit CSC values	
Process a transaction using AVS information (if applicable)	Test scenarios whereby different AVS data is used. Here are three tests to perform with the relevant test data listed: i) 'Matched' – 10;ME156LH ii) 'Partial Match' – 11;ME156LH iii) 'Not Matched' – 11;ME167LH (or any other address)	PASS / FAIL PASS / FAIL PASS / FAIL

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APPENDIX B – Currency Code ISO 4217

Currency	Code	Num	Locations using this currency
Afghani	AFN	971	Afghanistan
Algerian dinar	DZD	012	Algeria
Argentine peso	ARS	032	Argentina
Armenian dram	AMD	051	Armenia
Aruban guilder	AWG	533	Aruba
Australian dollar	AUD	036	Australia, Australian Antarctic Territory, Christmas Island, Cocos (Keeling) Islands, Heard and McDonald Islands, Kiribati, Nauru, Norfolk Island, Tuvalu
Azerbaijanian manat	AZN	944	Azerbaijan
Bahamian dollar	BSD	044	Bahamas
Bahraini dinar	BHD	048	Bahrain
Baht	THB	764	Thailand
Balboa	PAB	590	Panama
Bangladeshi taka	BDT	050	Bangladesh
Barbados dollar	BBD	052	Barbados
Belarusian ruble	BYR	974	Belarus
Belize dollar	BZD	084	Belize
Bermudian dollar (customarily known as Bermuda dollar)	BMD	060	Bermuda
Bolivian Mvdol (funds code)	BOV	984	Bolivia
Boliviano	BOB	068	Bolivia
Brazilian real	BRL	986	Brazil
Brunei dollar	BND	096	Brunei, Singapore
Bulgarian lev	BGN	975	Bulgaria
Burundian franc	BIF	108	Burundi
Canadian dollar	CAD	124	Canada
Cape Verde escudo	CVE	132	Cape Verde
Cayman Islands dollar	KYD	136	Cayman Islands
Cedi	GHS	936	Ghana
CFA Franc BCEAO	XOF	952	Benin, Burkina Faso, Côte d'Ivoire, Guinea-Bissau, Mali, Niger, Senegal, Togo
CFA franc BEAC	XAF	950	Cameroon, Central African Republic, Congo, Chad, Equatorial Guinea, Gabon
CFP franc	XPF	953	French Polynesia, New Caledonia, Wallis and Futuna
Chilean peso	CLP	152	Chile
Chinese Yuan	CNY	156	China (Mainland)
Code reserved for testing purposes	XTS	963	
Colombian peso	COP	170	Colombia
Comoro franc	KMF	174	Comoros
Convertible marks	BAM	977	Bosnia and Herzegovina
Cordoba oro	NIO	558	Nicaragua
Costa Rican colon	CRC	188	Costa Rica
Croatian kuna	HRK	191	Croatia
Cuban convertible peso	CUC	931	Cuba
Cuban peso	CUP	192	Cuba
Czech Koruna	CZK	203	Czech Republic
Dalasi	GMD	270	Gambia
Danish krone	DKK	208	Denmark, Faroe Islands, Greenland
Denar	MKD	807	Macedonia
Djibouti franc	DJF	262	Djibouti
Dobra	STD	678	São Tomé and Príncipe
Dominican peso	DOP	214	Dominican Republic
East Caribbean dollar	XCD	951	Anguilla, Antigua and Barbuda, Dominica, Grenada, Montserrat, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines
Egyptian pound	EGP	818	Egypt
Ethiopian birr	ETB	230	Ethiopia
Euro	EUR	978	Austria, Belgium, Cyprus, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Malta, Netherlands,

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			Portugal, Slovakia, Slovenia, Spain, Andorra, Kosovo, Monaco, Montenegro, San Marino, Vatican
European Composite Unit (EURCO) (bond market unit)	XBA	955	
European Monetary Unit (E.M.U.-6) (bond market unit)	XBB	956	
European Unit of Account 17 (E.U.A.-17) (bond market unit)	XBD	958	
European Unit of Account 9 (E.U.A.-9) (bond market unit)	XBC	957	
Falkland Islands pound	FKP	238	Falkland Islands
Fiji dollar	FJD	242	Fiji
Forint	HUF	348	Hungary
Franc Congolais	CDF	976	Democratic Republic of Congo
Gibraltar pound	GIP	292	Gibraltar
Gold (one troy ounce)	XAU	959	
Guarani	PYG	600	Paraguay
Guinea franc	GNF	324	Guinea
Guyana dollar	GYD	328	Guyana
Haiti gourde	HTG	332	Haiti
Hong Kong dollar	HKD	344	Hong Kong Special Administrative Region
Hryvnia	UAH	980	Ukraine
Iceland krona	ISK	352	Iceland
Indian rupee	INR	356	Bhutan, India
Iranian rial	IRR	364	Iran
Iraqi dinar	IQD	368	Iraq
Israeli new sheqel	ILS	376	Israel
Jamaican dollar	JMD	388	Jamaica
Japanese yen	JPY	392	Japan
Jordanian dinar	JOD	400	Jordan
Kenyan shilling	KES	404	Kenya
Kina	PGK	598	Papua New Guinea
Kip	LAK	418	Laos
Kroon	EEK	233	Estonia
Kuwaiti dinar	KWD	414	Kuwait
Kwacha	MWK	454	Malawi
Kwacha	ZMK	894	Zambia
Kwanza	AOA	973	Angola
Kyat	MMK	104	Myanmar
Lari	GEL	981	Georgia
Latvian lats	LVL	428	Latvia
Lebanese pound	LBP	422	Lebanon
Lek	ALL	008	Albania
Lempira	HNL	340	Honduras
Leone	SLL	694	Sierra Leone
Lesotho loti	LSL	426	Lesotho
Liberian dollar	LRD	430	Liberia
Libyan dinar	LYD	434	Libya
Lilangeni	SZL	748	Swaziland
Lithuanian litas	LTL	440	Lithuania
Malagasy ariary	MGA	969	Madagascar
Malaysian ringgit	MYR	458	Malaysia
Manat	TMT	934	Turkmenistan
Mauritius rupee	MUR	480	Mauritius
Metical	MZN	943	Mozambique
Mexican peso	MXN	484	Mexico
Mexican Unidad de Inversion (UDI) (funds code)	MXV	979	Mexico
Moldovan leu	MDL	498	Moldova
Moroccan dirham	MAD	504	Morocco, Western Sahara
Naira	NGN	566	Nigeria
Nakfa	ERN	232	Eritrea
Namibian dollar	NAD	516	Namibia
Nepalese rupee	NPR	524	Nepal

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Netherlands Antillean guilder	ANG	532	Netherlands Antilles
New Taiwan dollar	TWD	901	Taiwan and other islands that are under the effective control of the Republic of China (ROC)
New Zealand dollar	NZD	554	Cook Islands, New Zealand, Niue, Pitcairn, Tokelau
Ngultrum	BTN	064	Bhutan
No currency	XXX	999	
North Korean won	KPW	408	North Korea
Norwegian krone	NOK	578	Norway, Bouvet Island, Queen Maud Land, Peter I Island
Nuevo sol	PEN	604	Peru
Ouguiya	MRO	478	Mauritania
Pa'anga	TOP	776	Tonga
Pakistan rupee	PKR	586	Pakistan
Palladium (one troy ounce)	XPD	964	
Pataca	MOP	446	Macau Special Administrative Region
Peso Uruguayo	UYU	858	Uruguay
Philippine peso	PHP	608	Philippines
Platinum (one troy ounce)	XPT	962	
Pound sterling	GBP	826	United Kingdom, Crown Dependencies (the Isle of Man and the Channel Islands), certain British Overseas Territories (South Georgia and the South Sandwich Islands, British Antarctic Territory and British Indian Ocean Territory)
Pula	BWP	072	Botswana
Qatari rial	QAR	634	Qatar
Quetzal	GTQ	320	Guatemala
Rial Omani	OMR	512	Oman
Riel	KHR	116	Cambodia
Romanian new leu	RON	946	Romania
Rufiyaa	MVR	462	Maldives
Rupiah	IDR	360	Indonesia
Russian rouble	RUB	643	Russia, Abkhazia, South Ossetia
Rwanda franc	RWF	646	Rwanda
Saint Helena pound	SHP	654	Saint Helena
Samoan tala	WST	882	Samoa
Saudi riyal	SAR	682	Saudi Arabia
Serbian dinar	RSD	941	Serbia
Seychelles rupee	SCR	690	Seychelles
Silver (one troy ounce)	XAG	961	
Singapore dollar	SGD	702	Singapore, Brunei
Solomon Islands dollar	SBD	090	Solomon Islands
Som	KGS	417	Kyrgyzstan
Somali shilling	SOS	706	Somalia
Somoni	TJS	972	Tajikistan
South African rand	ZAR	710	South Africa
South Korean won	KRW	410	South Korea
Special Drawing Rights	XDR	960	International Monetary Fund
Sri Lanka rupee	LKR	144	Sri Lanka
Sudanese pound	SDG	938	Sudan
Surinam dollar	SRD	968	Suriname
Swedish krona/kronor	SEK	752	Sweden
Swiss franc	CHF	756	Switzerland, Liechtenstein
Syrian pound	SYP	760	Syria
Tanzanian shilling	TZS	834	Tanzania
Tenge	KZT	398	Kazakhstan
Trinidad and Tobago dollar	TTD	780	Trinidad and Tobago
Tugrik	MNT	496	Mongolia
Tunisian dinar	TND	788	Tunisia
Turkish lira	TRY	949	Turkey, Northern Cyprus
Uganda shilling	UGX	800	Uganda
UIC franc (special settlement currency)	XFU	Nil	International Union of Railways
Unidad de Fomento (funds code)	CLF	990	Chile
Unidad de Valor Real	COU	970	Colombia
United Arab Emirates dirham	AED	784	United Arab Emirates

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United States dollar (next day) (funds code)	USN	997	United States
United States dollar (same day) (funds code) (one source[*who?*] claims it is no longer used, but it is still on the ISO 4217-MA list)	USS	998	United States
US dollar	USD	840	American Samoa, British Indian Ocean Territory, Ecuador, El Salvador, Guam, Haiti, Marshall Islands, Micronesia, Northern Mariana Islands, Palau, Panama, Puerto Rico, Timor-Leste, Turks and Caicos Islands, United States, Virgin Islands, Bermuda (as well as Bermudian Dollar)
Uzbekistan som	UZS	860	Uzbekistan
Vatu	VUV	548	Vanuatu
Venezuelan bolívar fuerte	VEF	937	Venezuela
Vietnamese đồng	VND	704	Vietnam
WIR euro (complementary currency)	CHE	947	Switzerland
WIR franc (complementary currency)	CHW	948	Switzerland
Yemeni rial	YER	886	Yemen
Zimbabwe dollar	ZWL	932	Zimbabwe
Złoty	PLN	985	Poland

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APPENDIX C – Country Codes ISO 3166

Official country names used by the ISO 3166/MA	Numeric	Alpha-3	Alpha-2
Afghanistan	004	AFG	AF
Åland Islands	248	ALA	AX
Albania	008	ALB	AL
Algeria	012	DZA	DZ
American Samoa	016	ASM	AS
Andorra	020	AND	AD
Angola	024	AGO	AO
Anguilla	660	AIA	AI
Antarctica	010	ATA	AQ
Antigua and Barbuda	028	ATG	AG
Argentina	032	ARG	AR
Armenia	051	ARM	AM
Aruba	533	ABW	AW
Australia	036	AUS	AU
Austria	040	AUT	AT
Azerbaijan	031	AZE	AZ
Bahamas	044	BHS	BS
Bahrain	048	BHR	BH
Bangladesh	050	BGD	BD
Barbados	052	BRB	BB
Belarus	112	BLR	BY
Belgium	056	BEL	BE
Belize	084	BLZ	BZ
Benin	204	BEN	BJ
Bermuda	060	BMU	BM
Bhutan	064	BTN	BT
Bolivia	068	BOL	BO
Bosnia and Herzegovina	070	BIH	BA
Botswana	072	BWA	BW
Bouvet Island	074	BVT	BV
Brazil	076	BRA	BR
British Indian Ocean Territory	086	IOT	IO
Brunei Darussalam	096	BRN	BN
Bulgaria	100	BGR	BG
Burkina Faso	854	BFA	BF
Burundi	108	BDI	BI
Cambodia	116	KHM	KH
Cameroon	120	CMR	CM
Canada	124	CAN	CA
Cape Verde	132	CPV	CV
Cayman Islands	136	CYM	KY
Central African Republic	140	CAF	CF
Chad	148	TCD	TD
Chile	152	CHL	CL
China	156	CHN	CN
Christmas Island	162	CXR	CX
Cocos (Keeling) Islands	166	CCK	CC
Colombia	170	COL	CO
Comoros	174	COM	KM
Congo	178	COG	CG
Congo, Democratic Republic of the	180	COD	CD
Cook Islands	184	COK	CK
Costa Rica	188	CRI	CR
Côte d'Ivoire	384	CIV	CI
Croatia	191	HRV	HR
Cuba	192	CUB	CU
Cyprus	196	CYP	CY
Czech Republic	203	CZE	CZ
Denmark	208	DNK	DK
Djibouti	262	DJI	DJ

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Dominica	212	DMA	DM
Dominican Republic	214	DOM	DO
Ecuador	218	ECU	EC
Egypt	818	EGY	EG
El Salvador	222	SLV	SV
Equatorial Guinea	226	GNQ	GQ
Eritrea	232	ERI	ER
Estonia	233	EST	EE
Ethiopia	231	ETH	ET
Falkland Islands (Malvinas)	238	FLK	FK
Faroe Islands	234	FRO	FO
Fiji	242	FJI	FJ
Finland	246	FIN	FI
France	250	FRA	FR
French Guiana	254	GUF	GF
French Polynesia	258	PYF	PF
French Southern Territories	260	ATF	TF
Gabon	266	GAB	GA
Gambia	270	GMB	GM
Georgia	268	GEO	GE
Germany	276	DEU	DE
Ghana	288	GHA	GH
Gibraltar	292	GIB	GI
Greece	300	GRC	GR
Greenland	304	GRL	GL
Grenada	308	GRD	GD
Guadeloupe	312	GLP	GP
Guam	316	GUM	GU
Guatemala	320	GTM	GT
Guernsey	831	GGY	GG
Guinea	324	GIN	GN
Guinea-Bissau	624	GNB	GW
Guyana	328	GUY	GY
Haiti	332	HTI	HT
Heard Island and McDonald Islands	334	HMD	HM
Holy See (Vatican City State)	336	VAT	VA
Honduras	340	HND	HN
Hong Kong	344	HKG	HK
Hungary	348	HUN	HU
Iceland	352	ISL	IS
India	356	IND	IN
Indonesia	360	IDN	ID
Iran, Islamic Republic of	364	IRN	IR
Iraq	368	IRQ	IQ
Ireland	372	IRL	IE
Isle of Man	833	IMN	IM
Israel	376	ISR	IL
Italy	380	ITA	IT
Jamaica	388	JAM	JM
Japan	392	JPN	JP
Jersey	832	JEY	JE
Jordan	400	JOR	JO
Kazakhstan	398	KAZ	KZ
Kenya	404	KEN	KE
Kiribati	296	KIR	KI
Korea, Democratic People's Republic of	408	PRK	KP
Korea, Republic of	410	KOR	KR
Kuwait	414	KWT	KW
Kyrgyzstan	417	KGZ	KG
Lao People's Democratic Republic	418	LAO	LA
Latvia	428	LVA	LV
Lebanon	422	LBN	LB
Lesotho	426	LSO	LS
Liberia	430	LBR	LR

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Libyan Arab Jamahiriya	434	LBY	LY
Liechtenstein	438	LIE	LI
Lithuania	440	LTU	LT
Luxembourg	442	LUX	LU
Macao	446	MAC	MO
Macedonia, the former Yugoslav Republic of	807	MKD	MK
Madagascar	450	MDG	MG
Malawi	454	MWI	MW
Malaysia	458	MYS	MY
Maldives	462	MDV	MV
Mali	466	MLI	ML
Malta	470	MLT	MT
Marshall Islands	584	MHL	MH
Martinique	474	MTQ	MQ
Mauritania	478	MRT	MR
Mauritius	480	MUS	MU
Mayotte	175	MYT	YT
Mexico	484	MEX	MX
Micronesia, Federated States of	583	FSM	FM
Moldova, Republic of	498	MDA	MD
Monaco	492	MCO	MC
Mongolia	496	MNG	MN
Montenegro	499	MNE	ME
Montserrat	500	MSR	MS
Morocco	504	MAR	MA
Mozambique	508	MOZ	MZ
Myanmar	104	MMR	MM
Namibia	516	NAM	NA
Nauru	520	NRU	NR
Nepal	524	NPL	NP
Netherlands	528	NLD	NL
Netherlands Antilles	530	ANT	AN
New Caledonia	540	NCL	NC
New Zealand	554	NZL	NZ
Nicaragua	558	NIC	NI
Niger	562	NER	NE
Nigeria	566	NGA	NG
Niue	570	NIU	NU
Norfolk Island	574	NFK	NF
Northern Mariana Islands	580	MNP	MP
Norway	578	NOR	NO
Oman	512	OMN	OM
Pakistan	586	PAK	PK
Palau	585	PLW	PW
Palestinian Territory, Occupied	275	PSE	PS
Panama	591	PAN	PA
Papua New Guinea	598	PNG	PG
Paraguay	600	PRY	PY
Peru	604	PER	PE
Philippines	608	PHL	PH
Pitcairn	612	PCN	PN
Poland	616	POL	PL
Portugal	620	PRT	PT
Puerto Rico	630	PRI	PR
Qatar	634	QAT	QA
Réunion	638	REU	RE
Romania	642	ROU	RO
Russian Federation	643	RUS	RU
Rwanda	646	RWA	RW
Saint Helena	654	SHN	SH
Saint Kitts and Nevis	659	KNA	KN
Saint Lucia	662	LCA	LC
Saint Pierre and Miquelon	666	SPM	PM
Saint Vincent and the Grenadines	670	VCT	VC

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Samoa	882	WSM	WS
San Marino	674	SMR	SM
São Tomé and Príncipe	678	STP	ST
Saudi Arabia	682	SAU	SA
Senegal	686	SEN	SN
Serbia	688	SRB	RS
Seychelles	690	SYC	SC
Sierra Leone	694	SLE	SL
Singapore	702	SGP	SG
Slovakia	703	SVK	SK
Slovenia	705	SVN	SI
Solomon Islands	090	SLB	SB
Somalia	706	SOM	SO
South Africa	710	ZAF	ZA
South Georgia and the South Sandwich Islands	239	SGS	GS
Spain	724	ESP	ES
Sri Lanka	144	LKA	LK
Sudan	736	SDN	SD
Suriname	740	SUR	SR
Svalbard and Jan Mayen	744	SJM	SJ
Swaziland	748	SWZ	SZ
Sweden	752	SWE	SE
Switzerland	756	CHE	CH
Syrian Arab Republic	760	SYR	SY
Taiwan, Province of China	158	TWN	TW
Tajikistan	762	TJK	TJ
Tanzania, United Republic of	834	TZA	TZ
Thailand	764	THA	TH
Timor-Leste	626	TLS	TL
Togo	768	TGO	TG
Tokelau	772	TKL	TK
Tonga	776	TON	TO
Trinidad and Tobago	780	TTO	TT
Tunisia	788	TUN	TN
Turkey	792	TUR	TR
Turkmenistan	795	TKM	TM
Turks and Caicos Islands	796	TCA	TC
Tuvalu	798	TUV	TV
Uganda	800	UGA	UG
Ukraine	804	UKR	UA
United Arab Emirates	784	ARE	AE
United Kingdom	826	GBR	GB
United States	840	USA	US
United States Minor Outlying Islands	581	UMI	UM
Uruguay	858	URY	UY
Uzbekistan	860	UZB	UZ
Vanuatu	548	VUT	VU
Venezuela	862	VEN	VE
Viet Nam	704	VNM	VN
Virgin Islands, British	092	VGB	VG
Virgin Islands, U.S.	850	VIR	VI
Wallis and Futuna	876	WLF	WF
Western Sahara	732	ESH	EH
Yemen	887	YEM	YE
Zambia	894	ZMB	ZM
Zimbabwe	716	ZWE	ZW

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APPENDIX D – Performing a LUHN Check

The following steps are involved in this calculation:

Step 1 Double the value of alternate digits beginning with the first right hand digit (low order).

Step 2 Add the individual digit comprising the products obtained in Step 1 to each of the unaffected digits in the original number.

Step 3 Subtract the total obtained in Step 2 from the next higher number ending in 0 (this is the equivalent of calculating the “ten complement” of the low order digit (unit digit) of the total). If the total obtained in Step 2 is a number ending in zero (30, 40, etc.), the check digit is 0.

Example:

Account Number without check digit 4929 123 123 12

Step 1

4	9	2	9	1	2	3	1	2	3	1	2
	X2		X2		X2		X2		X2		X2
4	18	2	18	1	4	3	2	2	6	1	4

Step 2

4+1+8+2+1+8+1+4+3+2+2+6+1+4= 47

Step 3

50 – 47 = 3

Therefore check digit is 3 and complete card number is 4929 123 123 123

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APPENDIX E – Commidea Error Codes

Error Code	General Description	Additional Technical Description (if required)	Recommended Action
0001	Unspecified error		Contact Commidea
0002	Invalid transaction type	An example of this could be a Refund being passed when the site are not set up to do so. A trace of what was passed will be in the system log.	Use alternative method for transaction type.
0003	Invalid card / invalid Track2	General card error. Track2 must either be ;PAN=YYMMsss……?x or just the PAN.	Re-enter card number or re-swipe card
0004	Card scheme not recognised	The card Issuer Identification Number (IIN) has not been located in the IIN table. The IIN is typically the first 4 to 6 digits of the card number.	Prompt for alternate method of payment
0005	Card scheme not accepted	The card has been identified, but the card scheme is not accepted at the given site.	Reject Transaction
0006	Invalid card number (lcd)	The LUHN check digit is incorrect (the card has been mis-keyed or mis-swiped).	Re-enter card number or re-swipe card
0007	Invalid card number length	The length of the PAN is incorrect for the given card scheme.	Re-enter card number or re-swipe card
0008	Invalid card number (pcd)	The pen-ultimate check digit is invalid.	Re-enter card number or re-swipe card
0009	Expired card		Prompt for alternate method of payment
0010	Card not yet valid		Prompt for alternate method of payment
0011	Invalid card service code	The Track2 service code is invalid.	Prompt for alternate method of payment
0012	File or XML missing or wrong format	A required file or XML is missing or has wrong format.	Contact Commidea
0013	File permanently locked	A file required by the EFT library was still locked after EFT FIO TRIES attempts.	Contact Commidea
0014	Out of memory	The library has failed to allocate sufficient heap.	Contact Commidea
0015	Account number does not exist	The requested account number does not exist.	Check the account number configuration of the system, ensuring it matches that configured within WinTI
0016	Value exceeds ceiling limit	Purchase value exceeds card scheme ceiling limit	Prompt for alternative method of payment. Arrange to increase ceiling limits
0017	Cashback exceeds ceiling limit	Cashback value exceeds card scheme ceiling limit	Revise transaction cash-back value
0018	Transaction currency is invalid	The transaction currency code is invalid or incorrect for the given site.	
0019	Lay aways are not allowed	Attempt to lay away invalid / lay aways are not allowed	
0020	Lay away already stored	Attempt to lay away a transaction where there is already a transaction laid away on that card	Prompt for alternate method of payment
0021	EFT system not configured	The EFT system has not been configured	
0022	Internal error, buffer too small	A buffer is too small	
0023	Unknown comms device type	Invalid / unknown communications device type	Check communications configuration
0024	Configuration file is invalid	Configuration file is invalid / bad format	Check system configuration
0025	No valid accounts	There are no valid accounts specified in the TillInfo.cfg	Check system configuration
0026	Invalid channel	Invalid channel	Check> · 2 transactions aren't being passed down the same channel. · 2 tills aren't using the same channel number.

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			· WinTI EFTChans within the registry has enough available channels set (Socket mode only).
0027	System error –module not loaded	System error (Track2 check module has not been loaded)	
0028	General transaction error		Re-enter transaction
0029	Transaction store unavailable	Transaction store unavailable	Check Live Store. Check hard disk space.
0030	Unspecified error	Unspecified error	Check system log for indication of error.
0031	Unspecified error:2	Transaction cancelled	Channel available for next transaction
0032	Library not open	EFT library is unavailable	
0033	Possible text for error: <fieldname> (<fieldno>) should be X to Y characters in length. <fieldname> out of range, should be X to Y. <fieldname> out of tolerance, is X, should be X +/- Z. Line discount not available for Cendant cards. Line count (X) doesn't match header -> CPC lines (Y). Separate post and packing only on Amex cards. Where <fieldname> = part number, part description, commodity code, unit of measure, quantity, net value, VAT amount, gross value, PAN, PO number, customer number, customer name, customer VAT no, destination zip, destination country code, order date, original invoice number, cost centre, invoice net amount, invoice VAT amount, post and packing VAT, invoice gross or transaction total. Invalid CPC data	The error message is made up of a combination of text (1 to 6) with the applicable field name inserted, as applicable. For example: Net value out of tolerance, is 123.45, should be 123.00 +/- 1	
0034	Modifier field invalid/missing	As the modifier is passed within the T record the host software is likely to be the cause of this	
0035	Invalid card / invalid Track 1	Track 1 is invalid	Re-swipe card
0036	Invalid card / invalid Track 3	Track 3 is invalid	Re-swipe card
0037	Invalid / missing expiry date	The expiry date is either invalid or missing. If key entered, the format should be MMYY	Re-enter expiry date or re-swipe card
0038	Invalid / missing issue number	The issue number is either invalid (value or length) or missing	Re-enter issue number or re-swipe card
0039	Invalid / missing start date	The start date is either invalid or missing. If key entered, the format should be MMYY.	Re-enter start date or re-swipe card
0040	Purchase/refund value bad or missing	The transaction value is either invalid or missing	Re-enter transaction
0041	Cash-back value bad or missing	The cash-back value is either invalid or missing	Re-enter transaction
0042	Auth code value bad or missing	The authorisation code is either invalid or missing	
0043	Cheque account number value bad or missing	The cheque account number is either invalid or missing	Re-enter cheque account number
0044	Invalid cheque sort code	The cheque sort code is either invalid or missing	Re-enter sort code
0045	Invalid / missing cheque number		Re-enter cheque number
0046	Invalid / missing cheque type		Re-enter cheque type
0047	Invalid EFT serial number	The EFT serial number is either invalid or missing in the .Cnf file	Re create *.cnf
0048	Unexpected CPC data	Purchasing card invoice data has been presented for a non-	Re-enter transaction without invoice data or prompt for a valid Purchasing

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		Purchasing Card (where invoice data is not valid/required)	Card
0049	Transaction already confirmed or rejected	Attempt to confirm or reject a transaction, which has already been confirmed or rejected	
0050	Copy protection failure	Could be a permission problem on the PC	
0051	Post confirm reversal not allowed for PWCB or Cash Advance (reserved for future use)	Attempt to perform a post confirm reversal on a PWCB or Cash Advance has been dis-allowed (as post confirm reversals are not supported when cash is involved)	Reverse transaction manually (as cash is involved)
0052	Transaction data supplied in post conf rev not consistent with store (reserved for future use)	The details supplied in the post confirm reversal message is not consistent with the data stored for the transaction to be reversed	
0053	Transaction already void	Attempt to perform a post transaction reversal has failed because the transaction has already been voided/reversed	
0054	Card on hot list	The card number is on the locally stored host list (received from the acquirer and/or entered by the customer). The card must be rejected	Prompt for alternate method of payment
0055	Attempt to confirm a declined transaction	The format of the confirmation message is invalid (confirming a declining transaction). The confirmation message should contain a command value of 2 (reverse/reject) and not a value of 1 (confirm).	
0056	EFT_ERR_BAD_CV2	CV2 is invalid	Check CV2 and re-enter
0057	EFT_ERR_BAD_AVS	AVS is invalid	Check AVS and re-enter
0058	Invalid Merchant Details	Merchant Details passed in XML Gateway are Invalid.	Check both the GUID and Passcode information that being passed to the XML Gateway
0059	Invalid Mobile Number Format	The Mobile Number format passed is incorrect	Please check and re-enter the mobile number supplied.
0060	Invalid/missing bank account number	The bank account number within the supplied T-Record is incorrect.	Check the bank number being passed and re-enter as necessary.
0062	Token does not exist or invalid token for this merchant system	The Token ID supplied is incorrect or invalid for the merchant system	Check the Token ID is correct and for use with the current merchant system
0064	Unexpected / Invalid Authorisation Response	Unexpected / Invalid Authorisation Response from M-Voucher Host	Please contact Commidea Support
0065	Invalid voucher target type	The Target Voucher Type is invalid (M-Voucher)	Please contact Commidea Support
0066	Invalid Refund Pin	The refund pin entered is invalid	Please enter the correct refund pin if continues to fail, please contact Commidea Support
0067	Report Not Supported	The Report ID supplied is either invalid or does not correspond to a report that is supported	Check the Report ID that is being passed
0068	Report Failed	Integrated report failed	Contact Commidea
0069	Gratuity value exceeded	Check Gratuity Value	Check Gratuity Value
0070	Invalid Capture Not Supported	Check Ocius settings	Capture Method Not Set correctly
0071	Cashback not allowed by card	Card does not allow cashback	Use a different card or proceed without cashback
0072	Cash advance not allowed by card	Card does not allow cash advance	Use a different card
0073	Max refund value exceeded	Refund transaction value is greater than the maximum refund value set on the account	Reduce transaction value
0074	Bill Already Complete	The bill being cancelled is already completed and therefore cannot be cancelled.	N\A
0075	No ETU accounts	Attempt to process ETU transaction without ETU accounts being present on terminal	Contact Commidea
0076	Card is online only	Attempt to process an online only card whilst offline	Check network or use another card

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0077	Cancel Failed - In Payment on xxx.xxx.xxx.xxx	Attempt to cancel a lodged Bill failed, usually locked on a specific terminal	Leave for configured amount of time before retrying cancel routine.
0078	Login failed	User ID or PIN is incorrect	Check login details and try again
0079	Confirmation Status Unknown	An invalid confirmation response has been received or the confirmation message to be sent was not saved	
0080	Bill Reference Already Exists	Attempt to lodge a Bill into I-Link that already exists	Clear the original Bill, or re-send this one using an alternative reference.
0081	Print Report Failed	The request report failed to generate or print	Check printer settings, network connection and try again.
0082	Network Error	Error in Network	Check network.
0083	Invalid Record	Invalid Record	The record received is invalid.
0084	PED User already logged in	A Login command has been received, but a user is already logged in	Log the terminal off first, or simply pass a transaction.
0085	PED User not logged in	The terminal needs to be logged in	Send a login command to the terminal, or manually login using the on-screen prompts, then re-send the transaction.
0086	Submission of offline transactions failed	The submission of the offline stored transactions have failed.	The transactions will still be stored on the terminal. Re-try, and if still having problems contact The Merchant Helpdesk.
0087	Problem in network	There has been a problem in the network.	
0088	Voice Referral Timeout	The voice referral transaction has taken too long.	Re-try or cancel.
0089	Invalid Account ID	Invalid Account ID	
0090	Service Not Allowed	Service code not supported	Use another card, or cancel the transaction
0091	Card Not Accepted	Card type not accepted	Use another card, or cancel the transaction
0092	Unknown Card	Unknown card type	Use another card, or cancel the transaction
0093	Not In IIN Range	Unknown card type	Use another card, or cancel the transaction
0094	Application Blocked	The terminal cannot accept this card type	Use another card, or cancel the transaction
0095	Card Blocked	The card has been blocked.	Use another card, or cancel the transaction.
0096	Card Error	There is a problem with the Card	Re-try or use another card.
0097	Authorisation Error	The authorisation process has been interrupted or is not responding.	Check ILink & WinTI are running – or when using ICP, contact Commidea Merchant Helpdesk.
0098	Unknown Client Unknown Transaction Source Unknown Message	When using transaction processing, if no POS Routing has been configured for the IP Address or File Name where the transaction originates from, ILink does not know where to send the transaction. It therefore rejects it with this message.	Configure POS routing for that Point Of Sale.
0099	Transaction/Bill Cancelled	When a transaction has been cancelled by the user, the system or an ICC card, this error message will be sent.	
0100	Pin Bypass Failed	ICC Card does not allow Pin Bypass.	Use another card.
0101	Invalid Terminal Country Code'	The Terminal Country Code passed is invalid	Please check the ISO Country Codes table and make sure the code being passed is correct.
0102	User has no permissions on specified account	Check account permissions in WebCom.	Please contact Commidea Support
0103	Invalid Currency Code'	The Currency Code passed is invalid.	Please check the ISO Currency Codes table and make sure the code being passed is correct.
0104	Invalid EMV Terminal Type'	The EMV Terminal Type passed is invalid	Please check the EMV Terminal Type that is being passed is valid.
0105	Unknown Message Type	The message type received by server side is not recognised	Please contact Commidea Support
0106	General Enqueue Error	General Commidea Enqueueing	Please contact Commidea Support

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		Error	
0107	Transaction Confirmation Error	The transaction confirmation has errored.	Please retry the confirmation and if continues to fail please contact Commidea Support
0108	Payer Auth Error	The Payer Auth has encountered an error.	Please check the error message response and contact Commidea support.
0109	Ukash Auth Error	The Ukash transaction has encountered an error.	Please check the error message response and Contact Commidea Support.
0110	Encryption Failure	An error has occurred in the data encryption.	Please contact Commidea Support
0111	Unable to build Auxillary Data Record	The auxillary data record failed to build correctly	Please contact Commidea Support
0112	Transaction rejection error	The attempt to reject the transaction has errored	Please retry the rejection and if continues to fail please contact Commidea support
0113	Unknown Terminal	The terminal\PTID is not recognised	Please contact Commidea Support
0114	Invalid Download Type	The download type is invalid	Please contact Commidea Support
0115	Terminal Registration Failed	The attempt to register the terminal has failed	Please retry the registration if it continues to fail, please contact Commidea Support
0116	Terminal has been deactivated	The terminal has been marked as deactivated.	Please contact Commidea Support
0117	Comms down	Acquirer has been blocked in the database as acquirer is not processing any authorisations (comms down)	Please contact Commidea Support
0118	M-Voucher Service Unavailable	This is when the terminal is in offline mode at the start of a transaction, and cannot connect to the hosted server to allow M-Voucher	Please contact Commidea Support
0119	Barclays Bonus Service Unavailable	Error response when Comms failure between server application and XLS Host experienced.	Please contact Commidea Support
0120	Token Server Error	The Token Server has encountered an error	Please contact Commidea Support
0121	Purchase transaction type not allowed on token	The token provided does not allow purchase transactions	Please supply another token that allows purchase transactions
0122	Refund transaction type not allowed on token	The token provided does not allow refund transactions	Please supply another token that allows refund transactions
0123	Cashback transaction type not allowed on token	The token provided does not allow cashback transactions	Please supply another token that allows cashback transactions
0124	Token expired	The token provided has passed its expiry date	Please register a new token
0125	Invalid TokenID	The token provided is invalid	Please supply another token or contact Commidea Support
0126	Token has no Txn Type Permissions	The Token Registration has no transaction permissions	Please resubmit the token request with transaction permissions enabled
0127	Invalid Token expiration date	The token expiration date provided is invalid	Please resubmit the token request with a valid token expiration date
0128	ProcessingDB Missing or Invalid	The processing database that is passed in the client header is either missing or invalid.	Please check that the message you are sending has the processing database set in the client header and that it is valid (as per the transaction\payer auth request)
0129	Invalid Original Barclays Gift Transaction ID	The Original Gift Transaction ID provided is invalid	Please check the Original Transaction ID and try again.
0130	Invalid Barclays Gift Configuration	Your Barclays Gift Configuration is invalid	Please check the configuration and download to the terminal. If the problem continues please contact support.
0131	Barclays Gift Service Unavailable	The Barclays Gift Service is temporarily unavailable	Please contact Commidea Support
0132	Merchant Reference Required	Your current configuration requires a Merchant Reference to be passed.	Please re-submit the transaction with the Merchant Reference populated.
0133	Account On File Not Allowed	Terminal is operating in offline mode	Please check that the terminal is online Please check the configuration of the account

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		Account does not allow Account On file CNP transactions EFT transaction capture method does not support registration of details for Account On File processing	Check the transaction details that you have passed.
0134	Card not allowed to be keyed	The card scheme doesn't allow processing of keyed card numbers	Use another card, or cancel the transaction
0135	Timeout Waiting for Card	A timeout has occurred whilst waiting for the card and Transactions has been cancelled	Reprocess Transaction.
0137	Present Cash Advance Transaction As Purchase	The card presented does not support cash advance and needs to be represented as a purchase txn.	Reprocess Transaction as a purchase
0138	Gratuity Value Incorrect	Check Gratuity Value	Check Gratuity Value
0139	Transaction Timeout	The application has timed out waiting for a Barclays Gift response	Please check whether the gift request has gone through and if necessary please try again.
0140	Schedule Payment registration failed.	The scheduled payment registration has failed.	Please attempt to re-register the scheduled payment or contact Commidea Support
0141	Ocius migration failed	The Ocius migration failed on the database because the migration has not been setup / enabled	Contact Commidea to arrange for migration
0150	Invalid PayPoint Configuration	The PayPoint configuration that you have setup is invalid.	Please contact Commidea Support
0151	No PayPoint Accounts	There are no PayPoint accounts available.	Please contact Commidea Support
0152	PayPoint Service Unavailable	The PayPoint service is currently unavailable	Please retry the payment or contact Commidea support
0153	PayPoint Download Required	A PayPoint download is required	Please perform a configuration file update to your terminal
0154	PayPoint Account Extraction Failed	PayPoint account file extraction has failed.	Please retry the download if it continues to fail please contact Commidea Support
0155	PayPoint Transaction Type Not Allowed	The PayPoint transaction type provide is not allowed	Please check the Transaction Type supplied and correct
0156	Invalid PayPoint TopUp Type	The PayPoint TopUp type provided is invalid	Please check the TopUp Type supplied and correct
0157	Invalid PayPoint Service Provider	The PayPoint Service Provider provided is invalid	Please check the Service Provider supplied and correct
0158	Invalid PayPoint Scheme	The PayPoint Scheme provided is invalid	Please check the Scheme supplied and correct
0159	Invalid PayPoint Scheme Option	The PayPoint Scheme Option provided is invalid	Please check the Scheme Option supplied and correct
0160	Invalid PayPoint Amount	The PayPoint Amount provided is invalid	Please check the Amount supplied and correct
0161	No PinPad Available	The PinPad is currently unavailable	Please check the PinPad is available for use, please contact Commidea Support if the problem persists.
0189	Invalid refund password	An invalid refund password has been supplied during the transaction, and was rejected by the database	Please contact Commidea Support
0999	Token Server Error	Start date or issue data supplied is incorrect or missing	Please check you are passing the appropriate required fields
1000	Generic Error	Generic Capture Error	Please contact Commidea Support
1001	Merchant Supplied Bad Data	The information supplied in the post is incorrect	Please check the data that you are sending and retry.
1002	Bad Source URL	The source URL is unrecognised	Please contact Commidea Support
1003	Attempting to use a TokenID and a PAN at the same time	A TokenID and PAN were received for the same transaction	Please check the data that is being passed
1004	Curl Error	Communication Error	Please contact Commidea Support
1005	Couldn't Extract Error Code from Response	The error code returned could not be extracted	Please contact Commidea Support
1006	Failed to Retrieve System Config	PayPage has failed to retrieve your System Configuration	Please contact Commidea Support
1007	Unusual Data Supplied (Possible Attack)	The data that has been supplied is suspicious	Please check the data that you are sending and contact Commidea support

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1008	Failed to Retrieve Session Data	PayPage has failed to retrieve your session data	Please retry the payment or contact Commidea support
1009	Failed to Create New Session	PayPage has failed to create a new session	Please retry the payment or contact Commidea support
1010	Bad SessionID received from end user	The sessionID provided by the front end is incorrect.	Please check the data that you are sending and retry.
1011	Bad PIN received from end user	The PIN provided by the front end is incorrect.	Please check the data that you are sending and retry.
1012	Session Finished	The session that you are trying to use has already finished.	Please retry the payment or contact Commidea support
1013	Failed to extract PA Data	An error has occurred trying to decrypt\extract the Payer Auth data	Please retry the payment or contact Commidea support
1014	Session Expired	The session that you are trying to use has expired.	Please retry the payment or contact Commidea support

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