youtap

POS Terminal-Server Communication Protocol Specification

Software Development Specification

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VERSION HISTORY

Versions

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06/2012	Minor updates		1.1
13/05/2016	Structure and branding	Aida Chua	1.2
17/052019	Proofread Added 'Fees' to CustomerTransaction Added 'Fees' to TransferTransaction	John Wiltshire	1.3
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1 ACRONYMS

ASCII	American Standard Code for Information Interchange
CR	Carriage return character
IMEI	International mobile equipment identity
IMSI	International Mobile Subscriber Identity number
IP	Internet Protocol
LF	Line feed character
MSISDN	Mobile Station Integrated Services Digital Network
NFC	Near Field Communication
NVP	Name-value pair
POS	Point of Sale
SSL	Secure Socket Layer
TCP/IP	Transmission Control Protocol/Internet Protocol
USSD	Unstructured Supplementary Service Data

2 INTRODUCTION

This document describes the messaging protocol used between a point of sale terminal and the mobile money switch. These messages are used in order to instruct the server applications to perform functions such as login, authentication, customer and merchant transactions. The transactions may be oriented towards a mobile wallet or bank account or other financial service.

Point of Sale terminal is used in a wider definition than the traditional POS terminals in that it includes smart phones and potentially any other system capable of performing transactions with the server.

All communication between the client device and server consists of messages containing name-value pairs (NVPs). Some values communicated between the client device and server are mandatory where others are optional. A detailed list for each command is given in the sections that follow.

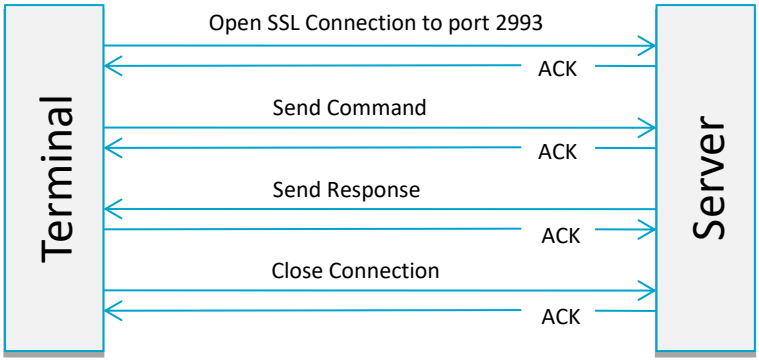
All communication uses TCP/IP and is encapsulated using SSL encryption. Each client has a public encryption key and a certificate with which to perform encryption and server authentication.

The preferred TCP/IP port used by the server for all inbound/outbound messages is port 2993, although any other port may be used as long as both client and server are configured to communicate on that port.

3 COMMUNICATION MECHANISM

The communication between the client (terminal) and server can be broken down into the following high-level steps:

1. Client opens a secure socket connection to the server and server acknowledges.
2. Client delivers its message as a set of NVPs and server acknowledges.
3. Server provides its response as a set of NVPs and client acknowledges.
4. Client closes the connection and the server acknowledges.



Note:

- The port used by the client may be any port.
- The connection need not be closed between commands but should be closed to preserve server resources if it is going to be idle for more than approximately 60 seconds.
- The command and response messages consist of a comma separated set of NVPs terminated by a LF or LF/CR combination. The LF signals the end of the message. These have the format: {name1}={value1},{name2}={value2}……..LF/CR
- A value field cannot contain a comma unless the field is enclosed between parentheses (), and cannot contain non-printable characters. Fields enclosed in parentheses are known as Aggregated NVPs and contain multiple related values separated by commas (e.g. CustomerData=(MSISDN=6421997706, NFCTag=A0FE346B, GivenName=Michael…….).
- The parameter names and possible values are described in the following sections.

4 MESSAGES

The messages sent between the client and server contains a comma separated list of NVPs. The ordering of these NVPs is unimportant and are denoted as:

- M - mandatory values must be provided in the message
- O - optional, may be omitted
- C - conditional, must be sent if the conditions for which they are valid are met.

Messages are always initiated from the client and the server responds.

Note: All PIN values in this document are shown as plain text PINs. Plain text may be used for test purposes, by agreement, **but it is not supported in production environments**. For production environments all PINs are sent using an encrypted pinblock agreed between the client and the server. In addition to the PIN the pinblock contains information which changes between transactions, such as date, time, unique transaction ID, thus ensuring that the pinblock cannot be 'replayed' in a subsequent transaction. Supported algorithms are:

- SHA-1 Hash (not recommended)
- SHA-256 Hash
- SHA-384 Hash
- SHA-512 Hash
- MD5 Hash (not recommended)
- RSA (where public key is provided to the client).
- AES
- 3DES

For example:

Algorithm: SHA-256

Pinblock (trxdate+trxID+PIN)

trxdate=20161221094302, trxID=0000003047, PIN=342312

The PIN is sent as SHA-2(20161221094302000000003047342312). For example:

MerchantPin=AA20388A211D917CF0D2A3819C4D8ADCC5AFA08E9F1C8E9035FC1022D7A8674A

Note: If the date and time of the transaction are used in the pin encryption algorithm then they must be included as parameters in the request message.

4.1 MESSAGE FORMATS

The following sections contain a description of each type of message.

4.1.1 Merchant Login

The Merchant Login command is used to log the merchant in to the terminal. It is the first command used and must be sent (and have an OK status response) before any others can be used.

4.1.1.1 Request

Field	Rq	Description	Example
MessageType	M	***'MerchantLogin'***, fixed value	See Fields common to request messages
TerminalId	M		
MerchantId	M		
TransactionId	M		
MerchantPin	M	Pass code used along with the Merchant ID number to log in	See MerchantPin

Request Example:

```
MessageType=MerchantLogin,TerminalId=21908856,MerchantPin=1234,MerchantId=86637,Tra
nsactionId=0000000955
```

4.1.1.2 Response

Field	Rq	Description	For more information see
MessageType	M	***'MerchantLoginResp'***, fixed value	Fields common to response messages
Status	M		
TransactionId	M		
CustomerId	M	Usually the same as the merchant Identifier sent in the request message.	CustomerId
PromoMsg	O	Promotional message	PromoMsg
MerchantName	O	Printed on the receipt	MerchantName
LoyaltyScheme	O	Flag indicates it the Merchant participates in a loyalty program	LoyaltyScheme
ProfileTags	M	Merchant functionality	ProfileTags
AllowedIdTypes	M	Identification types to select from	AllowedIdTypes
StaffPinEnabled	C	Enable staff PINs	StaffPin
CreateFlags	C	Enables the customer types that can be registered from this POS terminal. Note: Must be included if the New Customer Create menu is enabled, otherwise Customer Data NVP: CustomerType would be blank	CreateFlags

Response Example:

```
Status=0,CustomerId=86637,PromoMsg=Youtap the way to
pay!,TransactionId=0000000319,ProfileTags=(MenuA=0000,MenuB=000F,MenuC=007F,MenuD=0
01F,MenuE=003F,MenuF=01FF,MenuG=
000F),StaffPinEnabled=1,CreateFlags=0001,AllowedIdType=7,MessageType=MerchantLoginR
esp
```

4.1.2 Staff Login

In some cases, it may be desirable that an individual staff member have his/her own login (e.g. at a supermarket store). If this is required, the terminal will receive an indication of this from the server and may then collect the staff credentials for login.

4.1.2.1 Request

Field	Rq	Description	For more information see
MessageType	M	***'StaffLogin',*** fixed value	See Fields common to request messages
TerminalId	M		
MerchantId	M		
TransactionId	M		
StaffPin	M	Staff member's PIN number	StaffPin

Request Example:

```
MessageType=StaffLogin,TerminalId=21908856,MerchantId=86637,StaffPin=135,Transactio
nId=0000000957
```

4.1.2.2 Response

Field	Rq	Description	For more information see
MessageType	M	***'StaffLoginResp',*** fixed value	Fields common to response messages
Status	M		
TransactionId	M		
ProfileTags	M	NVP. Merchant Menu definitions can be altered when staff login is performed	ProfileTags

Response Example:

```
Status=1,TransactionId=0000000957,Message=Staff Pin Not Found,
ProfileTags=(MenuA=0000,MenuB=000F,MenuC=007F,MenuD=001F,MenuE=003F,MenuF=01FF,Menu
G= 000F),MessageType=StaffLoginResp
```

4.1.3 Get Balance

Requests a balance for the merchant account or customer bank or mobile money account.

4.1.3.1 Request

Field	Rq	Description	For more information see
MessageType	M	'**BalanceGet',** fixed Value	Fields common to request messages
TerminalId	M		
MerchantId	M		
TransactionId	M		
MerchantPin	C		
CustomerData	C	NVP	Customer Data
BalanceType	M	Which balance to get	BalanceType

Request Example:

- Merchant Balance:
  `MessageType=BalanceGet,TransactionId=0000000081,TerminalId=98944138,Merchant Id=021333333,MerchantPin=2580,BalanceType=MERCHANT`
- Customer Balance:
  `MessageType=BalanceGet,TransactionId=0000000050,TerminalId=98944138,Merchant`

```
Id=021333333,CustomerData=(NFCTagId=04E8550ABA2980D0,MobMonPin=655321),Balan
ceType=CUSTOMER
```

- Customer Bank Balance:
```
MessageType=BalanceGet,TransactionId=0000000083,TerminalId=98944138,Merchant
Id=021333333,CustomerData=(NFCTagId=04E8550ABA2980D0,BankIntegrationPin=5555
),BalanceType=BANK
```

4.1.3.2 Response

Field	Rq	Description	For more information see
MessageType	M	**BalanceGetResp',** fixed Value	Fields common to response messages
Status	M		
TransactionId	M		
DspData	M	List of balances in the correct display format	DspData
Balance		Deprecated	Balance
TopupBalance		Deprecated	TopupBalance

Response Example:

- Merchant Balances:
```
Status=0,TransactionId=0000000033,Balance=131.74,DspData=(MM. Bal
131.74),TopupBalance=0.0,MessageType=BalanceGetResp
```
- Customer Balance:
```
Status=0,TransactionId=0000000034,DspData=(MM. bal
101.02),MessageType=BalanceGetResp
```

4.1.4 Mini Statement

The mini statement can consist of a single request/response or multiple requests and responses depending on the block count returned from the server in response to the first request. Data received in multiple responses are first printed before the next block is requested.

4.1.4.1 Request

Field	Rq	Description	For more information see
MessageType	M	'**LastTransactions',** fixed value	Fields common to request messages
TerminalId	M		
MerchantId	M		
TransactionId	M		
RequestBlock	M	Block number requested. For a large number of transaction more than one block may be needed	RequestBlock
TxnHistoryCount	M	Number of transactions to return	TxnHistoryCount
CustomerData	M	NVP	CustomerData
PrnDspFormat	M	The format that the data needs to be returned in	PrnDspFormat

Request Example:

```
MessageType=LastTransactions,TransactionId=0000000042,TerminalId=98944138,MerchantI
d=021333333,TxnHistoryCount=3,PrnDspFormat=P,RequestBlock=0,CustomerData=(NFCTagId=
04E8550ABA2980D0,MobMonPin=655321)
```

4.1.4.2 Response

Field	Rq	Description	For more information see
MessageType	M	**LastTransactionResp',** fixed Value	Fields common to response messages
Status	M		
TransactionId	M		
BlockCount	M	Number of blocks in the data	BlockCount
DspData	C	List of balances in display format or	DspData
DspData	C	in printer format depending on the requested format	PrnData

Response Example:

```
Status=0,TransactionId=0000000042,BlockCount=1,PrnData=(Printed at:
2013-07-08 08:20|08/07 07:26  021333333        12.00 C2MD|05/07 13:57  null
.00 COMM|05/07 13:57  021333333        -1.00
C2MW|),MessageType=LastTransactionsResp
```

4.1.5 Day end sales report

4.1.5.1 Request

Field	Rq	Description	For more information see
MessageType	M	'**DayEndReport',** fixed value	Fields common to request messages
TerminalId	M		
MerchantId	M		
TransactionId	M		
MerchantPin	M		MerchantPin
RequestBlock	M	Block number requested. For a large number of transaction more than one block may be needed	RequestBlock
TxnHistoryCount	M	Number of transactions to return	TxnHistoryCount
CustomerData	M	NVP	CustomerData
PrnDspFormat	M	The format that the data needs to be returned in always in printer fromat	PrnDspFormat

Request Example:

```
MessageType=DayEndReport,TransactionId=0000000044,TerminalId=98944138,MerchantId=64
21700700,MerchantPin=4040,PrnDspFormat=P,RequestBlock=0
```

4.1.5.2 Response

Field	Rq	Description	For more information see
MessageType	M	**DayEndReportResp',** fixed Value	Fields common to response messages
Status	M		
TransactionId	M		
BlockCount	M	Number of blocks in the data	BlockCount
PrnData	C	printer format support only	PrnData

Response Example:

```
Status=0,TransactionId=0000000327,BlockCount=1,PrnData=(PAYMENTS    NOOFTXNS
CURRENCY     AMOUNT_1   |100           2         XOF       182222.00CR |AirtelCD1     1
XOF           50.00CR |BillDST       4         XOF         2010.00CR |Topup         3
XOF          147.00CR |BNK_With      4         XOF   2336421591.00CR |Cust_Depo1    2
GHS            2.46DR |Purchase     1         GHS             2.31CR |C2MW          8
USD           72.00CR |NIGEL        5         XOF           455.00CR
|),MessageType=DayEndReportResp
```

4.1.6 Register Tag

Registers a subscriber tags or card PAN.

4.1.6.1 Request

Field	Rq	Description	For more information see
MessageType	M	'**RegisterTag'**, fixed value	Fields common to request messages
TerminalId	M		
MerchantId	M		
TransactionId	M		
TagType	M	Register this tag as the first tag, or subsequent tags, or replace the primary tag	TagType
TagOwnerName	M	To identify tag owner in SMS messages	TagOwnerName
ReplacingTagType	C	Indicates which tag to replace	ReplacingTagType
CustomerSearchData	M	NVP	Customer Search Data

Request Example:

- Command message using a Tag:
  `MessageType=RegisterTag,TransactionId=0000000052,TerminalId=98944138,MerchantId=021333333,TagType=PRIMARY,TagOwnerName=Joe,CustomerSearchData=(NFCTagId=045A2292F7238029,MSISDN=64211773279,MobMonPin=1234)`
- Command message using a Card PAN:
  `MessageType=RegisterTag,TransactionId=0000000091,TerminalId=98944138,MerchantId=021333333,TagType=PRIMARY,CustomerSearchData=(CardId=5221003110072689,CardExpiry=9901,MSISDN=64211773279,MobMonPin=1234)`

4.1.6.2 Response

Field	Format	Rq	Description	For more information see
MessageType **TransactionId** **Status**	String	M M M	Fixed Value **'RegisterTagResp'**	Fields common to response messages

Response Example:

```
Status=0,TransactionId=0000000066,MessageType=RegisterTagResp
```

4.1.7 Merchant Change PIN

Command to change the merchant's PIN.

4.1.7.1 Request

Field	Rq	Description	For more information see

MessageType **TerminalId** **MerchantId** **TransactionId**	M M M M	'**ChangeMerchantPin',** fixed value	Fields common to request messages
MerchantPin	M	Current Merchant PIN	MerchantPin
NewPin	M	New merchant PIN	NewPin

Request Example:

```
MessageType=ChangeMerchantPin,MerchantId=021333333,TransactionId=0000000093,Termina
lId=98944138,MerchantPin=2580,NewPin=1234
```

4.1.7.2 Response

Field	Rq	Description	For more information see
MessageType **TransactionId** **Status**	M M M	**'ChangeMerchantPinResp'** fixed value	Fields common to response messages

Response Example:

```
Status=0,TransactionId=0000000093,MessageType=ChangeMerchantPinResp
```

4.1.8 Customer Change PIN

Command to change the subscriber's PIN.

4.1.8.1 Request

Field	Rq	Description	For more information see
MessageType **TerminalId** **MerchantId** **TransactionId**	M M M M	'**ChangeCustomerPin',** fixed value	Fields common to request messages
CustomerData	M	NVP	Customer Data

Request Example:

```
MessageType=ChangeCustomerPin,TransactionId=0000000101,TerminalId=98944138,Merchant
Pin=2580,MerchantId=021333333,CustomerData=(NFCTagId=04E8550ABA2980D0,MobMonPin=655
321,NewMobMonPin=1234)
```

4.1.8.2 Response

Field	Rq	Description	For more information see
MessageType **TransactionId** **Status**	M M M	**'ChangeCustomerPinResp'** fixed value	Fields common to response messages

Response Example:

```
Status=0,TransactionId=0000000101,MessageType=ChangeCustomerPinResp
```

4.1.9 Customer Reset PIN

Command to reset the subscriber's PIN.

4.1.9.1 Request

Field	Rq	Description	For more information see
MessageType **TerminalId** **MerchantId** **TransactionId**	M M M M	'**ResetPin',** fixed value	Fields common to request messages
CustomerData	M	NVP	Customer Data
FingerData	M	Finger print	FingerData

Request Example:

```
MessageType=ResetPin,TransactionId=0000000110,TerminalId=98944138,MerchantId=021333
333,CustomerData=(NFCTagId=04E8550ABA2980D0,MobMonPin=1234),FingerData=464D52002032
3000000001080000000C0010E00C800C80100020853274069001AF50040AD002A65008025003AF40040A
E0040E300402900556D00804D0070DF0080960091E000808200995B00806C009CDD00802600B8780080
1D00BDF400406800C05C0040B200D15E00402900D68000402C00D9DD00402600DD8F00801900E19C004
02800E5E100406600EADA0040BC00EEDF00802100FCC200802600FCC800803100FEC700802E01025900
405C0104D10080AD010ED60080160110C10080020119C800801001193900801101 19C300800A011D3F0
0402E011ED100805D012C4A00803C0130530080880132D000802C0136CD0080D10145DD0080BC014CD5
0080C4015153000000
```

4.1.9.2 Response

Field	Rq	Description	For more information see
MessageType **TransactionId** **Status**	M M M	**'ResetPinResp'** fixed value	Fields common to response messages

Response Example:

```
Status=0,TransactionId=0000000110,MessageType=ResetPinResp
```

4.1.10 Customer Transaction

4.1.10.1 Request

Field	Rq	Description	For more information see
MessageType	M	'**CustomerTransaction',** fixed value	Fields common to request messages
TerminalId	M		
MerchantId	M		
TransactionId	M		
MerchantPin	C		MerchantPin
CustomerSearchData	M	NVP	Customer Search Data
PaymentType	M		PaymentType
WorkingCurrency	M		WorkingCurrency
WorkingAmount	M		WorkingAmount
IdData	C	NVP	IdData
FingerData	C		FingerData

Request Example:

```
MessageType=CustomerTransaction,TransactionId=0000000020,TerminalId=98944138,Mercha
ntId=021333333,MerchantPin=2580,CustomerSearchData=(MobMonPin=655321,NFCTagId=04E85
50ABA2980D0),PaymentType=C2MW,WorkingCurrency=NZD,WorkingAmount=1.25
```

4.1.10.2 Response

Field	Rq	Description	For more information see
MessageType	M	**'CustomerTransactionResp',** fixed value	Fields common to response messages
TransactionId	M		
Status	M		
PaymentTrailId	M		PaymentTrailID
CashOutVoucherNo	M	Cash out voucher number to be redeemed by non-Wallet holder	CashOutVoucherNo
Fee	O	Prints Fee value on receipt	FEE

Response Example:

```
Status=0,CustomerId=6421888888,TransactionId=0000000020,PaymentTrailId=216602,Messa
geType=CustomerTransactionResp
```

4.1.11 Merchant Transaction

4.1.11.1 Request

Field	Rq	Description	For more information see
MessageType	M	'**MerchantTransaction',** fixed value	Fields common to request messages
TerminalId	M		
MerchantId	M		
TransactionId	M		
MerchantPin	C		MerchantPin
ContactMSISDN	C		ContactMsisdn
CustomerSearchData	M	NVP	Customer Search Data
PaymentType	M		PaymentType
WorkingCurrency	M		WorkingCurrency
WorkingAmount	M		WorkingAmount
IdData	C	NVP	IdData
FingerData	C		FingerData
MNO	C		MNO

Request Example:

```
MessageType=MerchantTransaction,TransactionId=0000000017,TerminalId=98944138,Mercha
ntId=021333333,MerchantPin=2580,CustomerSearchData=(NFCTagId=04E8550ABA2980D0),Paym
entType=C2MD,WorkingCurrency=NZD,WorkingAmount=12.58
```

4.1.11.2 Response

Field	Rq	Description	For more information see
MessageType	M	**'MerchantTransactionResp',** fixed value	Fields common to response messages
TransactionId	M		
Status	M		
CustomerId	M		CustomerId
VoucherPinNumber	C		VoucherPinNumber

PaymentTrailId	C		PaymentTrailID

Response Example:

```
Status=0,CustomerId=6421888888,TransactionId=0000000017,PaymentTrailId=216600,Messa
geType=MerchantTransactionResp
```

4.1.12 Customer Create

4.1.12.1 Request

Field	Rq	Description	For more information see
MessageType	M	***'CustomerCreate', f***ixed value	Fields common to request messages
TerminalId	M		
MerchantId	M		
TransactionId	M		
CustomerData	M	NVP	See Customer Data

Request Example:

- Command Message Subscriber:
  `MessageType=CustomerCreate,TransactionId=0000000015,TerminalId=98944138,Merc hantId=021333333,CustomerData=(GivenName=JOE,SurName=BLOGGS,DOB=19801225,Con tactPhone=64211883899,MobMonPin=1236,CustomerType=SUBSCRIBER)`
- Command Message Merchant:
  `MessageType=CustomerCreate,TransactionId=0000000062,TerminalId=98944138,Merc hantId=021333333,CustomerData=(GivenName=CM,SurName=DME,DOB=19750303,Contact Phone=64211773281,MobMonPin=1234,CustomerType=MERCHANT,AssignedTid=98911111)`

4.1.12.2 Response

Field	Rq	Description	For more information see
MessageType	M	***'CustomerCreateResp',*** fixed value	Fields common to response messages
TransactionId	M		
Status	M		
CustomerData	M	NVP	Customer Data

Response Example:

```
Status=0,TransactionId=0000000015,CustomerData=(CustomerId=64211773279,EmailAddress
=null,GivenName=JOE,SurName=BLOGGS,DOB=19801225,IdVerified=false),MessageType=Custo
merCreateResp
```

4.1.13 Customer Search

4.1.13.1 Request

Field	Rq	Description	For more information see
MessageType	M	***'CustomerSearch',*** fixed value	Fields common to request messages
MerchantId	M		
TransactionId	M		

CustomerSearchData	M		Customer Search Data

Request Example:

```
MessageType=CustomerSearch,TransactionId=0000000114,TerminalId=98944138,MerchantId=
021333333,CustomerSearchData=(MSISDN=6421700700)
```

4.1.13.2 Response

Field	Rq	Description	For more information see
MessageType	M	***'CustomerSearchResp'*** fixed value	Fields common to response messages
TransactionId	M		
Status	M		
CustomerRecNo	M	Number of records returned in the search results. Limit= 10	CustomerRecNo
CustomerId0..n **GivenName0..n** **SurName0..n** **DOB0..n** **MSISDN0..n** **IdVerified0..n** **EmailAddress0..n** **Gender0..n**		For each record these fields are repeated with the record number appended in the range 0 to CustomerRecNo-1 (0..n)	CustomerId GivenName Surname DOB MSISDN IdVerified EmailAddress Gender

Response Example:

```
IdVerified1=true,IdVerified0=true,TransactionId=0000000042,MessageType=CustomerSear
chResp,DOB2=19720303,MSISDN2=6421700702,CustomerId2=64217012150,CustomerId1=9327012
5654,DOB1=19720303,MSISDN0=6421700700,CustomerId0=64217012106,DOB0=19720303,Custome
rRecNo=3,SurName2=D,SurName1=D,MSISDN1=6421700701,GivenName2=C,SurName0=D,Status=0,
MSISDN0=6421700700,GivenName1=C,GivenName0=C,EmailAddress2=null,EmailAddress1=null,
EmailAddress0=null,IdVerified2=true
```

4.1.14 Identification Submit

Adds subscriber's identification details after registration.

4.1.14.1 Request

Field	Rq	Description	For more information see
MessageType	M	***'IdentifcationSubmit'***, fixed value	Fields common to request messages
TransactionId	M		
TerminalId	M		
MerchantId	M		
CustomerId	M	Returned in the ***CustomerCreateResp*** response	CustomerId
IdData	M	NVP	Customer Identification
CustomerData	C	Contains FingerData1, FingerData2 etc. Used when multiple fingerprints are needed for customer registration	CustomerData NVP
FingerData	C		See FingerData

Request Example:

```
MessageType=IdentificationSubmit,TransactionId=0000000016,TerminalId=98944138,Merch
antId=021333333,FingerData=464D52002032300000000126000000C0010E00C800C801000208642C
405E001E9D0040290026AD004035002E2100406600360F008074003AA3008089003AE4004062003EA80
```

```
08080004E9900407A00519F0080CA00514B0040A6005A6000409C005C7000401C005E3400405500622B
0080990068D80080860069A8004084006DAD0080900072CB0080340074B60080890076B600800A007D4
400808E007DBA008030008A3600400C00A84B00803500C84C0040C800C83B00807000D2410040D400C5
3600806100E04F00807600E24100401500E95700407E00E93B0040B000EA3500407900EC4A00407500E
D5500406100F65B00404A0100600080A2010C96004071011C740040C501222500409601329100800C01
32990040960146170040910158850000000,CustomerId=64211883899,IdData=(idType=1,idName=J
OE BLOGGS,idNumber=AA1245780923,idCountry=NZ,idExpiry=20150311)
```

4.1.14.2 Response

Field	Rq	Description	For more information see
MessageType **TransactionId** **Status**	M M M	***'IdentificationSubmitResp',*** Fixed Value	Fields common to response messages

Response Example:

```
Status=0,TransactionId=0000000016,MessageType=IdentificationSubmitResp
```

4.1.15 Exchange Rate Quote

4.1.15.1 Request

Field	Rq	Description	For more information see
MessageType	M	**'ExchangeQuotation',** fixed value	Fields common to request messages
MerchantId	M		
TransactionId	M		
TerminalId	M		
CustomerID	C	Must be included except for a TOPUP or a pay BILL transaction	CustomerId
PaymentType	M		PaymentType
SourceCurrency		Originating currency	SourceCurrency
DestinationCurrency		Destination currency	DestinationCurrency
WorkingCurrency		Currency the working amount is in	WorkingCurrency
CustomerData		NVP	Customer Data
WorkingAmount			WorkingAmount

Request Example:

```
MessageType=ExchangeQuotation,TransactionId=0000000964,TerminalId=21908856,Merchant
Id=86637,CustomerId=86637,PaymentType=DMM,SourceCurrency=NZD,DestinationCurrency=DT
OP,WorkingCurrency=NZD,WorkingAmount=1.00
```

4.1.15.2 Response

Field	Rq	Description	For more information see
MessageType **Status** **TransactionId**	M	**'ExchangeQuotationResp'** fixed value	Fields common to response messages
SendingAmountExclFees			SendingAmountExclFees
FxRate			FxRate
Fee			Fee
CostToSend			CostToSend
ReceivedAmount			ReceivedAmount
AuthData **CTALAmount0..n**	C	NVP with fields	AuthData

CTALId0..n			
AuthDataRecNo			AuthDataRecNo
MerchantFee			MerchantFee
MerchantSalePlusFee			MerchantSalePlusFee

Response Example:

- Command Response with AuthData:
  `MerchantFee=0.0,AuthData=(CTALAmount1=1000.0,CTALAmount0=0.0,CTALId1=100,CTALId0=102),SendingAmountExclFees=12.56,AuthDataRecNo=2,CostToSend=0.0,SourceCurrency=NZD,TransactionId=0000000012,Status=0,Fee=0.0,DestinationCurrency=NZD,FxRate=1.0,ReceivedAmount=12.56,WorkingAmount=12.56,MessageType=ExchangeQuotationResp,WorkingCurrency=NZD`
  `SendingAmountExclFees=1.0,CostToSend=6.0,SourceCurrency=NZD,TransactionId=0000000964,Status=0,Fee=5.0,DestinationCurrency=DTOP,FxRate=1.2488598,ReceivedAmount=1.25,WorkingAmount=1.0,MessageType=ExchangeQuotationResp,WorkingCurrency=NZD`

Note: Amounts above $0.0 require a PIN and amounts above $1000.00 require an additional fingerprint for identification.

4.1.16 Exchange transaction

4.1.16.1 Request

Field	Rq	Description	For more information see
MessageType	M	'**ExchangeTransaction'**, fixed value	Fields common to request messages
TransactionId	M		
TerminalId	M		
MerchantId	M		
StaffPin	M	Staff PIN or Merchant Pin if not available	StaffPin
CustomerId	M		CustomerId
PaymentType	M		PaymentType
SourceCurrency	M		SourceCurrency
DestCurrency	C		DestCurrency
WorkingCurrency	M		WorkingCurrency
WorkingAmount	M		WorkingAmount
SendingAmountExclFees	C		SendingAmountExclFees
FxRate	C		FxRate
Fee	C		Fee
CostToSend	C		CostToSend
ReceivedAmount	C		ReceivedAmount
BillPayeeID	C		BillPayeeId
BillPayeeReference	C		BillPayeeReference
ContactMsisdn	M		ContactMsisdn

Request Example:

- Command Message (Send Money):
  `MessageType=ExchangeTransaction,Date=06/03/2013,Time=12:38:04,TransactionId=0000000017,TerminalId=98378273,MerchantId=86637,StaffPin=123,CustomerId=86717,PaymentType=DMM,SourceCurrency=NZD,DestinationCurrency=DFJD,WorkingCurrency=NZD,WorkingAmount=1.00,SendingAmountExclFees=1.0,FxRate=1.3080636,Fee=5.0,CostToSend=6.0,ReceivedAmount=1.31,ContactMsisdn=6797012106`

- Command Message (Pay Bill):
  `MessageType=ExchangeTransaction,TransactionId=0000000019,TerminalId=98378273,MerchantId=86637,StaffPin=123,CustomerId=86717,PaymentType=BILL,SourceCurrency=NZD,DestinationCurrency=DFJD,WorkingCurrency=NZD,WorkingAmount=1.00,SendingAmountExclFees=1.0,FxRate=1.3080636,Fee=5.0,CostToSend=6.0,ReceivedAmount=1.31,ContactMsisdn=6797095009,BillPayeeID=99,BillPayeeReference=123456789012`

4.1.16.2 Response

Field	Rq	Description	For more information see
MessageType	M	'**ExchangeTransactionResp'**, fixed value	Fields common to response messages
TransactionId			
TerminalID			
MerchantId			
StaffPin			StaffPin
MerchantPin			MerchantPin
CustomerId			CustomerId

Response Example:

- Command Response (Send Money):
  `SendingAmountExclFees=0.1,CostToSend=5.1,SourceCurrency=NZD,TransactionId=0000000968,Status=0,Fee=5.0,DestinationCurrency=DTOP,FxRate=1.208574,ContactMsIsdn=6768807904,PaymentTrailId=137,ReceivedAmount=0.12,WorkingAmount=0.1,MessageType=ExchangeTransactionResp,WorkingCurrency=NZD`
- Command Response (Bill Payment):
  `SendingAmountExclFees=0.1,CostToSend=5.1,SourceCurrency=NZD,TransactionId=0000000973,Status=0,Fee=5.0,DestinationCurrency=DTOP,FxRate=1.208574,ContactMsIsdn=6768423707,PaymentTrailId=138,ReceivedAmount=0.12,WorkingAmount=0.1,MessageType=ExchangeTransactionResp,WorkingCurrency=NZD`

4.1.17 Transaction Search Request

A merchant can check the previous transaction's status.

4.1.17.1 Request

Field	Rq	Description	For more information see
MessageType **TerminalId** **MerchantId** **TransactionId**	M	'**TransactionSearch'**, fixed value	Fields common to request messages
TransactionSearchData	M	NVP	Transaction Search Data

Request Example:
`MessageType=TransactionSearch,Date=01/07/2013,Time=13:16:40,TransactionId=0000000091,TerminalId=98944138,MerchantId=021333333,TransactionSearchData=(TransactionDate=20130701131621,TransactionId=0000000090,TerminalId=98944138),App=v1.5b4`

4.1.17.2 Response

Field	Rq	Description	For more information see

MessageType	M	**'TransactionSearch*Resp'*,** fixed value	Fields common to response messages
Status	M		
TransactionId	M		
TransactionData	M	NVP	Transaction Data

Response Example:

```
Status=0,TransactionId=0000000091,TransactionData=(TransactionType=MERCHANTTRANSACT
ION,TransactionDate=20130701131631,SearchTxnStatus=0,MerchantId=021333333,CustomerI
d=6421888888,PaymentType=C2MD,PaymentTrailId=212656,WorkingCurrency=NZD,WorkingAmou
nt=25.0),MessageType=TransactionSearchResp
```

4.1.18 Customer Update Request

This message is used when a customer needs to correct or change their details.

4.1.18.1 Request

Field	Rq	Description	For more information see
MessageType	M	'**CustomerUpdate'** fixed value	Fields common to request messages
TerminalId			
MerchantId			
TransactionId			
CustomerData	M	NVP	Customer Data
IdData	C	Subscriber ID data NVP fields used are as required by ID type. This may not be present if the entry is skipped.	See Customer Identification
FingerData	C		See **Error! Reference source not found.**

Request Example:

```
MessageType=CustomerUpdate,TransactionId=0000000011,TerminalId=98944138,MerchantId=
021333333,CustomerData=(GivenName=M,SurName=E,DOB=19720403,MSISDN=64211773279,Email
Address=ME@YOUTAP.COM,CustomerId=64211773279),FingerData=464D5200203230000000000FC00
0000C0010E00C800C8010002085525407A0019D400404100262300405900026D200404E0029BE0040560
029BD0040C2002CCF004045002EC1004065002EDB0040380035CB00405A0035C8004068003ACF0040AA
007D390080CD0081340040AC008A32008059009143004094 00A1380080E200A1B800804C00A24E00405
D00A24800406600A83C00406200AA4200405D00AD5400405000BC5E00808900C5A600403D00CA600080
6D00DD860080B200DE2C00406500E27800806D00E47600408900E89D0040A600E8A900806E00EA23004
08000FD260040AE0100B80040850102860080B9010CC50080C501112E000000
```

4.1.18.2 Response

Field	Rq	Description	For more information see
MessageType	M	**'CustomerUpdateData*Resp'*,** fixed value	Fields common to response messages
Status			
TransactionId			

Response Example:

```
Status=0,TransactionId=0000000011,MessageType=CustomerUpdateResp
```

4.1.19 Register additional Customer Data

In some cases, it may be required that customers register additional finger prints for identification purposes. At least one additional fingerprint is needs to be added and up to three can be accepted.

4.1.19.1 Request

Field	Rq	Description	For more information see
MessageType	M	'**CustomerAdditionalData'**, fixed value	Fields common to request messages
TerminalID	M		
MerchantId	M		
TransactionId	M		
SubscriberAddress	M	NVP	Subscriber Address
CustomerData	M	NVP	For more information see Customer Data

Request Example:


```
MessageType=CustomerAdditionalData,TransactionId=0000000072,TerminalId=98944138,Mer
chantId=021333333,CustomerData=(NFCTagId=0493F222BD26803C,FingerData1=464D520020323
0000000011A000000C0010E00C800C801000208622A805500129F00408C0019830040B900197300806D
0028A30040C8002A6C0040360039AF004042003C24004078003C1000809E003DEA0080760045AB0040D
D0050570040920054A00040AA0061E000806900642D00809C0068AC0080A00068BE0040C800685B0080
A60069D6004030006C370040A10074BA0080AA0079C1008021008E4800402600B4510080E600C03B008
05400C85100809100CA4100408200D44C00409200DC4500409E00E03700809400E24500409600E44C00
803600ED5A0040C800EE2900408200F15F00406900FD620080BE01029A0040920118770040E2011A240
080B6012A900080D9012A9D0040B601421B0040AA014E80000000,FingerData2=464D5200203230000
00000FC000000C0010E00C800C8010002085E2540960025680040450030 0B0080660036E50040400038
A60040A6004D53008058004E9F0040320059280040CA005C4200406E005DDB004065005ECA004050006
4A900406100649E00406D0064D400408A00655700405E006AAF0040650070B400806D0076BA00800E00
B94D0040C200B9350080A200BC3900804C00C4410040AE00C83300403C00CC4A00404E00D5450080560
0D83900408900DC2F00405000DD2F00404D00E05300403900E65A00402200F06000807900F99800404C
010D7400409D011022008094012 09C0040710121950040720 1361B00409101401F000000011A240080B
6012A900080D9012A9D0040B601421B0040AA014E80000000,FingerData3=464D52002032300000000
120000000C0010E00C800C801000208612B403500399E00808E0045FC00402C0059B00080780059EC00
405D005A06004040005D1A004085006C6E00402000723000 40AD00725300402E00742E0080600074A30
04058007DA30040640082E70040620088C7008062008CBC008079008DCE0080BE00923F008042009425
0040590095B700800E0096BD0080690098C800804A00A1B300406C00A4CD00406900B0C700801A00B93
F0080A900BE4500404000C13900805900C1BE00409800C14A00804D00D5BD0080C000D53800401000F1
4200409D00F83D00403E010E3F00802801184900404601284500804E01283C004055012D3200404E012
E3D00404A01325B00406101489900409901482C008044014E68000000),
SubscriberAddress=(AddressLine=37 Ireland
st,City=Auckland,State=Waikato,Country=NZ),App=v1.5b4
```


4.1.19.2 Response

Field	Rq	Description	For more information see
MessageType	M	***'CustomerAdditionalDataResp'***, fixed value	Fields common to response messages
Status			
TransactionId			

Response Example:

```
Status=0,TransactionId=0000000011,MessageType= CustomerAdditionalDataResp'
```

4.1.20 Link Account

A Subscriber might want to link their bank account with their mobile money account and transfer money in both directions as well as get their bank balance.

4.1.20.1 Request

Field	Rq	Description	For more information see
MessageType	M	Fixed Value ***'LinkAccount'***	Fields common to request messages
TransactionId	M		
TerminalID	M		
MerchantId	M		
CustomerData	M	NVP	See Customer Data

Request Example:

```
MessageType=LinkAccount,TransactionId=0000000086,TerminalId=98944138,MerchantId=021
333333,CustomerData=(BankAccountNo=1234567890000,LinkType=L,MobMonPin=1234,BankPin=
5678,NFCTagId=0493F222BD26803C)
```

4.1.20.2 Response

Field	Rq	Description	For more information see
MessageType	M	***'LinkAccountResp'***, fixed value	Fields common to response messages
TransactionId			
Status			

Response Example:

```
Status=3,TransactionId=0000000086,Message=Invalid account or incorrect
PIN,MessageType=LinkAccountResp
```

4.1.21 Customer Login

The Customer Login command is used to log the customer to the server. It is the equivalent of MerchantLogin and intended to be used when the terminal is a smart phone and the user is the actual customer. The purpose is to retrieve a profile which will be used by the smart phone application to display a menu. In this case the smart phone application is user centric rather than merchant centric.

4.1.21.1 Request

Field	Rq	Description	Example
MessageType	M	***'CustomerLogin'***, fixed value	See Fields common to request messages
TerminalId	M	IMEI	
MerchantId	M	Empty or the actual CustomerId if it is available	
TransactionId	M		
CustomerSearchData	M	Must be present so that the server can identify the Customer that logs in. Must contain the pin	IMSI=8964200000000000000,MobMonPin=1234

Request Example:

```
MessageType=CustomerLogin,TerminalId=
353720054752163,MerchantPin=1234,MerchantId=,TransactionId=0000000955,
CustomerSearchData=(IMSI=896420000000000000,MobMonPin=1234)
```

4.1.21.2 Response

Field	Rq	Description	For more information see
MessageType	M	***'CustomerLoginResp'***, fixed value	Fields common to response messages
Status	M		
TransactionId	M		
CustomerId	M	The CustomerId looked up by the server	CustomerId
PromoMsg	O	Promotional message	PromoMsg
ProfileTags	M	Merchant functionality	ProfileTags

Response Example:

```
Status=0,CustomerId=64220000000,TransactionId=0000000319,
ProfileTags=(MenuD=0000,MenuA=0000,MenuB=0000,MenuC=003F,MenuF=0000,MenuE=0000),Mes
sageType=CustomerLoginResp
```

4.1.22 Atomic Customer Create

4.1.22.1 Request

Field	Rq	Description	For more information see
MessageType	M	***'AtomicCustomerCreate'***, fixed value	Fields common to request messages
TerminalId	M		
MerchantId	M		
TransactionId	M		
CustomerData	M	NVP	See Customer Data
SubscriberAddress	M	NVP	Subscriber Address
IdData	M	NVP	See IdData

Request Example:

```
MessageType=AtomicCustomerCreate,TransactionId=0000000070,TerminalId=98944138,Merch
antId=93703333333,CustomerData=(GivenName=ADA,SurName=LOVELACE,DOB=18151225,Contact
Phone=93700000007,MobMonPin=1234,CustomerType=AGENT,AssignedTid=12457808,FingerData
1=464D52002032300000000011A000000C0010E00C800C801000208612A4096000DF10040AC00186E004
0220025AC00402D002922004062002D0F008071002E9E0080860030EA0040C800425600807D004C9B00
808A0050D30040840052A600805100562B0040B000585E004015005A33004091005AD9004085005DB00
0808D0066B70080300069BD008091006ABE00802E00823F0080CD00AE3B00803500BC4E00807400BC43
0040DA00BC3400806200CD4D00407800D0470040B600D13200807D00D44D00808200D53C00801900E05
B00803800E25C00806900E25E00803600E5E800404D00F0660080A500F4990040780109780040CA010C
250080BD011C9E00409D011D9400409D01321A0040B801411E004099014488000000),IdData=(idTyp
e=1,idName=ADA LOVELACE,idNumber=12345678A,idCountry=GB,idExpiry=20251212),
SubscriberAddress=(AddressLine=37 Ireland
st,City=Auckland,State=Waikato,Country=NZ)
```

4.1.22.2 Response

Field	Rq	Description	For more information see

MessageType	M	***'AtomicCustomerCreateResp',*** fixed value	Fields common to response messages
TransactionId	M		
Status	M		
CustomerData	M	NVP	Customer Data

Response Example:

```
Status=0,CustomerId=93700000007,TransactionId=0000000070,CustomerData=(IdVerified=false,EmailAddress=null,CustomerId=93700000007,SurName=LOVELACE,GivenName=ADA,DOB=18151225),MessageType=AtomicCustomerCreateResp]
```

4.1.23 MifCardCheck

4.1.23.1 Request

Field	*Rq*	*Description*	*For more information see*
MessageType	*M*	***'MifCardCheck',*** fixed value	*Fields common to request messages*
TerminalId	*M*		
MerchantId	*M*		
TransactionId	*M*		
CustomerData	*M*	NFCTagId	*See Customer Data*
CardType	*M*	Type of card	CardType
Context	*M*	Context of the Mifare message	Context
CardData	*M*	*Card sector records.*	CardData

Request Example:

```
MessageType=MifCardCheck,TransactionId=0000000053,TerminalId=98944138,MerchantId=3333333333333,CardType=MIFARECLASSIC,Context=MEePurse,CustomerData=(NFCTagId=521BFD5B),CardData=(S0=(ID=0000,B=0,D=521BFD5BEF880400C1851495553048116000040015008107732 0BB88BB88BB88BB880000000000000000000000000000000000000000696789C1000000000000))
```

4.1.23.2 Response

Field	Rq	Description	For more information see
MessageType	M	***'MifCardCheckResp',*** fixed value	Fields common to response messages
TransactionId	M		
Status	M		
CommandList	M	Commands to execute on the card	CommandList

Response Example:

```
Status=0,CommandList=(C1=(C=R,S=2,B=0,A=3,KA=a0a1a2a3a4a5),C2=(C=R,S=5,B=0,A=3,KA=f1e80209022d),C3=(C=R,S=6,B=0,A=3,KA=f1e80209022d),C4=(C=R,S=7,B=0,A=3,KA=f1e802090222d),C5=(C=R,S=8,B=0,A=3,KA=f1e80209022d)),TransactionId=0000000050,MessageType=MifCardCheckResp
```

4.1.24 EPurse Check

4.1.24.1 Request

Field	Rq	Description	For more information see
MessageType	M	***'EPurseCheck'***, fixed value	Fields common to request messages
TerminalId	M		
MerchantId	M		
TransactionId	M		
CustomerData	M	NFCTagId	See Customer Data
CardType	M	Type of card	CardType
CardData	M	Aggregation of sectors and blocks read from the card as specified in MifCardCheck response	CardData

Request Example:

```
MessageType=EPurseCheck,TransactionId=0000000300,TerminalId=98944138,MerchantId=333
33333333,CardType=MIFARECLASSIC,CustomerData=(NFCTagId=521BFD5B),CardData=(S2=(ID=0
015,B=0,D=040120240100802907000000000000002689840000108799860000000000000007000000
00000305DE2542C1F48DC4E),S5=(ID=88BB,B=0,D=2101202401A61C020000006600000000000000
0000000000000000000000000000000000000000E2B224F741680332A),S6=(ID=88BB,B=0,D=0000000
000000000000000000000000E0FFFF7F1F000080E0FFFF7F19E619E6E0FFFF7F1F000080E0FFFF7F19
E619E6),S7=(ID=88BB,B=0,D=A5C2EE96DCB74BCE067AE692CB76F57C8258D00240480232442203208
218BD024048023244F60120E69B4B925FD22F3A),S8=(ID=88BB,B=0,D=329C0E08715E3605DD12381C
E0925C148218D0024048023244A20F008218BD024048023244F6012036BAFD5BB13C81D2))
```

4.1.24.2 Response

Field	Rq	Description	For more information see
MessageType	M	***'EPurseCheckResp'***, fixed value	Fields common to response messages
TransactionId	M		
Status	M		
EPurseBalance	C	Balance remaining on the purse	EPurseBalance
EPurseCurrency	C	Currency of the balance amount	EPurseCurrency

Response Example:

```
Status=0,TransactionId=0000000300,EPurseCurrency=FJD,MessageType=EPurseCheckResp,EP
urseBalance=22.46.
```

4.1.25 EPurse Transaction

4.1.25.1 Request

Field	*Rq*	*Description*	*For more information see*
MessageType	M	**'*EPurseTransaction*'**, fixed value	*Fields common to request messages*
TerminalId	M		
MerchantId	M		
TransactionId	M		
PaymentType	M	TOPUP - for top up transactions CP2MP – for purchase	PaymentType
WorkingCurrency	M	Local currency	WorkingCurrency
WorkingAmount	M	Local currency amount	WorkingAmount
CustomerData	M	NFCTagId	See Customer Data
CardType	M	Type of card	CardType
CardData	M	NFC Card application records	CardData

Context	M	Context of the Mifare message	Context

Request Example:

```
MessageType=EPurseTransaction,TransactionId=0000000303,TerminalId=98944138,Merchant
Id=33333333333,CardType=MIFARECLASSIC,PaymentType=TOPUP,CustomerData=(NFCTagId=521B
FD5B),CardData=(S2=(ID=0015,B=0,D=040120240100802907000000000000002689840000108799860
60000000000000070000000000305DE2542C1F48DC4E),S5=(ID=88BB,B=0,D=2101202401A61C02
0000006600000000000000000000000000000000000000000000000000000000E2B224F741680332A),S
6=(ID=88BB,B=0,D=0000000000000000000000000000000E0FFFF7F1F000080E0FFFF7F19E619E6E0
FFFF7F1F000080E0FFFF7F19E619E6),S7=(ID=88BB,B=0,D=A5C2EE96DCB74BCE067AE692CB76F57C8
258D00240480232442032082l8BD024048023244F60120E69B4B925FD22F3A),S8=(ID=88BB,B=0,D=
329C0E08715E3605DD12381CE0925C148218D0024048023244A20F008218BD024048023244F6012036B
AFD5BB13C81D2)),WorkingCurrency=NZD,WorkingAmount=1.10,Context=MEePurse
```

4.1.25.2 Response

Field	Rq	Description	For more information see
MessageType	M	***'EPurseTransactionResp',*** fixed value	Fields common to response messages
TransactionId	M		
Status	M		
EPurseBalance	C	Purse balance	EPurseBalance
EPurseCurrency	C	Currency of the purse balance	EPurseCurrency
			KB
CardWriteData		NVP	**Error! Reference s ource not found.**
WriteReference	M	Transaction sequence reference number	WriteReference
PaymentTrailId	C	Third party transaction ID number	PaymentTrailID
CommandList	C	Commands perform on the card	CommandList

Response Example:

```
EPurseBalance=7.55,EPurseCurrency=FJD,CommandList=(C1=(C=D,S=6,B=1,A=1,KB=1ac8f8993
5d3),C2=(C=W,S=7,B=0,D=bd1a3d3b9ab62c488b1f6cb4a1b83a1c00000000000000000000000007b58
81024048023244ce0b20d132049a1aa3def1,KB=1ac8f89935d3),C3=(C=B,S=6,B=1,DB=2,KB=1ac8f
89935d3)),TransactionId=0000000014,Status=0,WriteReference=5976024341534212100,Paym
entTrailId=5976024341534212100,MessageType=EPurseTransactionResp
```

4.1.26 MifareCardWriteNotification

Indicates the resulting prepaid card update status.

4.1.26.1 Request

Field	*Rq*	*Description*	*For more information see*
MessageType	M	***'MifCardWriteNotification,*** fixed value	*Fields common to request messages*
TerminalId	M		
MerchantId	M		
TransactionId	M		
CardType	M	Type of card	CardType
Context	M	Context of the Prepaid card message	
CustomerData	M	NFC Tag ID	*See Customer Data*
CommandStatus	M	Status of the NFC Card write operation	CommandStatus

WriteReference	M	Transaction sequence reference number	WriteReference

Request Example:

```
MessageType=MifCardWriteNotification,TransactionId=0000000030,TerminalId=98378265,M
erchantId=8888888888888,CardType=MIFARECLASSIC,Context=MEePurse,CustomerData=(NFCTa
gId=521BFD5B),WriteReference=5976024341534212105,CommandStatus=NOTOK
```

4.1.26.2 Response

Field	Rq	Description	For more information see
MessageType	M	***'MifCardWriteNotificationResp,*** fixed value	Fields common to response messages
TransactionId	M		
Status	M		

Response Example:

```
Status=0,TransactionId=0000000030,MessageType=MifCardWriteNotificationResp
```

4.1.27 EPurseTransactionAuthorize

Requesting approval from the server to perform a purse transaction with an EPurse card.

4.1.27.1 Request

Field	*Rq*	*Description*	*For more information see*
MessageType	M	***'EPurseTransactionAuthorize,*** fixed value	*Fields common to request messages*
TerminalId	M		
MerchantId	M		
TransactionId	M		
CardType	M	Type of card	CardType
Context	M	Context of the Prepaid card message	
CustomerData	M	NFC Tag ID	*See Customer Data NVP*
MerchantPin	M	MerchantPin	MerchantPin
PaymentType	M	TOPUP - for top up transactions CP2MP – for payment CARDINIT – for card formatting	PaymentType
WorkingCurrency	M	LocalCurrency set on the terminal	
WorkingAmount	M	EPurse Transaction Amount expressed in Working currency	
EPurseData	M	EPurse Details	EPurseData
EPurseLog	M	The EPurseLog raw data to be written on the card	

Request Example:

```
MessageType=EPurseTransactionAuthorize,TransactionId=0000000030,TerminalId=98378265
,MerchantId=8888888888888,CardType=MIFARECLASSIC,Context=MEePurse,CustomerData=(NFC
TagId=39BD361E),EPurseLog=965BBB400600840000000009487656701DAD313DC01CDBB9AB34955C16
F8E98CA,PaymentType=TOPUP,WorkingAmount=100,Date=03/05/2016,Time=12:29:11,MERCHANTP
IN=****,App=v1.8b73a,WorkingCurrency=IDR,EPurseData=(EPurseId=39BD361E,EPurseCurren
cy=IDR,EPurseBalance=95807,EPurseCounter=7ffffff0)
```

4.1.27.2 Response

Field	Rq	Description	For more information see
MessageType	M	***'EPurseTransactionAuthorizeResp,*** fixed value	Fields common to response messages
TransactionId	M		
Status	M		
WriteReference	C		WriteReference
PaymentTrailId	C		PaymentTrailId

Response Example:

```
Status=0,TransactionId=0000000030,MessageType=EPurseTransactionAuthorizeResp,Paymen
tTrailId=968701470000016,WriteReference=968701470000016
```

4.1.28 FileUploadNotification

Indicates a file was uploaded to the file server

4.1.28.1 Request

Field	*Rq*	*Description*	*For more information see*
MessageType	M	***'FileUploadNotification,*** fixed value	*Fields common to request messages*
TerminalId	M		
MerchantId	M		
TransactionId	M		
FileDescriptor	M		FileDescriptor

Request Example:

```
MessageType=FileUploadNotification,TransactionId=0000000030,TerminalId=98378265,Mer
chantId=8888888888888,FileDescriptor=(Name=offline_20160503194229_94876567.txt,Info
Type=PURSELOGS)
```

4.1.28.2 Response

Field	Rq	Description	For more information see
MessageType	M	***'FileUploadNotificationResp,*** fixed value	Fields common to response messages
TransactionId	M		
Status	M		

Response Example:

```
Status=0,TransactionId=0000000030,MessageType=FileUploadNotificationResp
```

4.2 Message fields

Field	Format	Description	Example
A	Numeric	Amount - For read/write the number of blocks. For increment/decrement the value to increment/decrement	A=3
AddressLine	String	Street or postal address	10 Victoria street

AllowedIdTypes	Hex	Each ID type has a bit that when set enables the ID to appear on the menu of ID's that a subscriber can select from. Bit 1 – Passport, Bit 2 – Drivers Licence Bit 3 – Tazkira Bit 4 – National ID Bit 5 – Taxation Bit 6 – Photo ID	0007
AID	Hex	NFC Card Application Identification number	30B2
App	String	May be used to identify the application version of software on the terminal (e.g. to use different session flows for different versions)	V1.5b11
SCount	Numeric	Number of sector records included in the message	3
AssignedTid	Numeric	Assigned terminal ID for Merchant and Agent registration	98915268
AuthData	NVP	Contains records for each identification tier setting the amount and the identification required for amounts exceeding the amount threshold.	See NVP descriptions
AuthDataRecNo	Numeric	Number of records in the AuthData NVP	3
AverageMessageRoundTrip	Float	Average number of milliseconds for a client device to send and receive a response between Ping commands	3332.000
B	Numeric	MIF Block number that relative to the sector for reading or writing. E.G.for Mifare classic it could be 0, 1, 2, 3	B=2
Balance	Currency	Account Balance for the customer or merchant	514.00
BalanceType	String	Requested balances: CUSTOMER – return the customer mobile money balance BANK – Return the customer bank balance if a bank account has been linked MERHANT – return the merchant's balance	Merchant
BankAccountNo	Numeric	Subscribers bank account number that needs to be linked/unlinked from their mobile money account.	01234567890000
BankPin	Numeric	Bank account PIN	99999
Barcode1	Numeric	Number printed as a 10 digit barcode with start and stop asterisk characters	7845578
Barcode2	Numeric	Number printed as a 10 digit barcode with start and stop asterisk characters	123
BatteryLevel	Numeric	Client device's battery level if appropriate as a percentage of the fully charged level	100
BillPayeeId	Numeric	Bill payee reference number from the Billpayee tables	119
BillPayeeReference		Consists of a number of concatenated fields depending on the bill payee requirements. Each field is separate as shown: YY|ZZ|7|2	Joe|Bloggs|5|1A
BlockCount	Numeric	Number of blocks that makes up the data to be sent to the client device (for the mini statement)	3
C	String	Command –	C=R

		R-Read, W-Write, B-Backup value block, D-Decrement a value block, I-Increment value block	
CommandList	NVP	Commands to execute on the card	CommandList
C1..n	String	Command group number - Indicates the sequence the command groups are to be executed in	C5
Country	String	Residential country name	Holland
Context	String	Context of the Prepaid card message. Values are: MEePurse – Mifare ePurse	MEePurse
CardData	NVP	Contains Mifare card data	**Error! Reference source not found.**
CardType	Numeric	Card Type values are: MIFARECLASSIC	MIFARECLASSIC
CardId	Numeric	Copied from Track 2, personal account number (PAN)	5221003110072689
CardExpiry	Numeric	Copied from Track 2, card expiry date yymm	9901
CashOutVoucherNo	String	Cash out voucher number returned from the POS server to the terminal	899756323342
City	String	Name of the City	Hamilton
CreateFlags	Bitmap	16 bit number used to enable the customer types that can be registered using the customer create command. Each bit enables a customer type. If only a single type is enabled the type is automatically set, otherwise a menu is presented for selection during subscriber registration Bit 1 – Subscriber Bit 2 – Merchant Bit 3 – Agent Bit 4 – Super Agent Bit 5 – MM Staff Note: If no CreateFlags are set the New customer create menu does not appear	0001
CTALAmount	Numeric	Threshold amount above which the ID specified in CTALId needs to be requested.	$1000.00
CTALId	Numeric	ID needed for amounts above the threshold specified in CTALAmount 100 – Finger print required 101 – Registered ID document 102 – Customer PIN	102
CommandStatus	String	Indicates the card update status.Values are Success – OK Failure - NOTOK	NOTOK
ContactPhone	Phone	Customer contact phone number	6421700700
CostToSend	Currency		4.65
CustomerSearchData	NVP		Customer Search Data
CustomerData	NVP		Customer Data
CustomerId	Numeric	The numeric Customer Identifier.	86637
ContactMsisdn	Phone	Customer contact phone number	6421700700
CustomerRecNo	Numeric	Number of customer records contained in the customer search data NVP	3
CustomerType	String	Fixed values are: 'SUBSCRIBER', 'MICROMERCHANT', 'MERCHANT', 'AGENT', 'SUPERAGENT', 'MMSTAFF'	AGENT

D	Hex	Aggregation of block data in a specified sector starting from the specified block	60000400150081077320BB88BB88BB88
DB	Numeric	Destination block for backup operations	DB=2
Date	Numeric	Date in format DDMMYYYY. May be set by terminal (e.g. if it is in a different time zone from the server)	13012012
DestCurrency	String	Three character ISO4217 currency code	
DestinationCurrency	Currency	Three character ISO4217 currency code	NZD
DOB	Numeric	Date of birth in YYYYMMDD format	19800131
DspData	String	A list of appropriately formatted items for display purposes separated by the field separator character (pipe) '|'	(MM. Bal - 6840.87|Bank Bal 20.65)
EPurseBalance	Numeric	Balance remaining on the EPurse	22.46
EPurseCurrency	String	Currency string of the EPurse balance	FJD
EmailAddress	String	Subscribers email address	JoeBlogss@Youtap.com
Fee	Currency	Subscriber fee or commission collected on a transaction	4.30
FingerData	Hex	Primary finger print data in `BCT_ISO_FMR` format	**Error! Reference source not found.**
FingerData1	Hex	First additional finger print data in `BCT_ISO_FMR` format	**Error! Reference source not found.**
FingerData2	Hex	Second additional finger print data in `BCT_ISO_FMR` format	**Error! Reference source not found.**
FingerData3	Hex	Third additional finger print data in `BCT_ISO_FMR` format	**Error! Reference source not found.**
FxRate	Float	Foreign exchange rate	1.2083
Gender	String	Customer Gender (M or F)	F
GivenName	String	Subscriber's first name	Joe
ID	Hex	Application ID	88BB
IdData	NVP		Customer Identification
idExpiry	Numeric	Date on which the ID expires in format YYYYMMDD.	20200912
idCountry	String	2 character ISO country code where the ID was issued	NZ
idIssue	Numeric	Date on which the ID was issued in format YYYYMMDD. This is currently mostly used for ID type 2	20010314
idName	String	Subscriber's first name and surname	Joe Bloggs
idNumber	Alphanumeric	Number corresponding to the ID type. D type 1 - Passport number. ID type 2 - Drivers Licence number ID type 3 - Tazkira details which is an aggregation of ID number/Logbook No/Page no/Registration No. E.g. 153206/5/25/90	DC125562
idIssuerName	String	Name of the organization that issued the ID	Google
idType	Numeric	Supported ID types are: 1 – Passport 2 – Drivers Licence 3 – Tazkira ID 4 – National ID 5 - Taxation	2

IdVerified	String	Fixed values are: 'true' or 'false' and are returned in the CustomerCreateResp	true
IMEI	Numeric	Mobile equipment identity number	012390001171991
IMSI	Numeric	Subscriber Identity number	530240102075769
KA	Hex	Key A - use to read a sector	a0a1a2a3a4a5
KB	Hex	Key B – used to read/write a sector	d3f7d3f7d3f7
LinkType	String	Indicates if the bank account should be linked or unlinked L – Link U - Unlink	L
LoyaltyScheme	Numeric	Indicates if a merchant belongs to a Loyalty scheme. This enables the terminal to points as the amount currency for purchases 1 – merchant participates in a loyalty scheme 0 – merchant does not participate in a loyalty scheme	0
MaxMessageRoundTrip	Float	Maximum round trip in milliseconds during the last ping message period	3332
MenuA	Bitmap	16 bit number	0001F
MenuB	Bitmap	16 bit number	00FF
MenuC	Bitmap	16 bit number	03FF
MenuD	Bitmap	16 bit number	0007
MenuE	Bitmap	16 bit number	0013
MenuF	Bitmap	16 bit number	0003
MenuG	Bitmap	16 bit number	0001
MenuH	Bitmap	16 bit number	001F
MerchantCommission	Currency		4.30
MerchantFee	Currency		0.40
MerchantId	Numeric	The Identifier for the merchant (e.g. mobile phone number or unique merchant number)	6421700700
MerchantName	String	Merchant name printed on the receipt	Kabul Store
MerchantPin	Numeric	Merchant numeric PIN. Usually 4 digits but may be more or less. In production systems it is encoded in a pinblock	9999
MerchantSalePlusFee	Currency		20.40
MessageType	String	Fixed message types identifying the message. See individual messages for the type values	
Message	String	If the status is non-zero then this parameter is sent and could be displayed/printed on the client device.	'POS Terminal Not Found'
MinMessageRoundTrip	Float	Minimum round trip in milliseconds during the last ping message period	3332
MobileMoneyOperator	String	Mobile Money operator name for Send Money	CitiBank
MNO	String	Mobile Network operator name for Top ups etc.	2degrees
MobMonPin	Numeric	Mobile Money account PIN	9999
MSISDN	Phone	Subscriber mobile phone number	6421700700
NewMobMonPin	Numeric	New mobile money account PIN	9867
NewPin	Numeric	New numeric PIN. Usually 4 digits but may be more or less.	8888
NFCTagId	Hex	NFC Card serial number	0493F222BD26803C

PaymentTrailID	Numeric	Transaction ID number generated by a third party system the used to trace a transaction.	9856732021
PaymentType	String	DMM – send money or Forex lookup TOPUP – Topup BILL – Bill payment Merchant local transactions: C2MP – (payment) money transfer from a customer's mobile money account to a merchants account C2MW – (withdrawal) money transfer from a customer's mobile money account to a merchants account C2MD – cash deposit from customer to merchant C2CW – transfer from a customer's mobile money account to the customers linked bank account C2CD – transfer from a customer's linked bank account to a customer's mobile money account M2CT – Subscriber uses mobile money account to purchase mobile phone airtime top-up. PINTOP– Subscriber uses mobile money account to purchase mobile phone airtime top-up voucher/PIN. SNDMON – Subscriber uses mobile money account to send money to other subscribers or non-subscribers CSHTOP – Subscriber uses Cash to send mobile phone airtime to any mobile phone user including himself/herself CSHVOUT - Subscriber transfers a cash amount to a non-mobile money subscriber CSHVOUR – Non-mobile money wishes to withdraw from a cash amount previously transferred to him/her. CP2MP – Prepaid card purchase INTXF – Mei Tan OUTTXF - Mei Tan C2CD - Mei Tan	TOPUP
PrnData	String	A list of appropriately formatted items for printing purposes separated by the field separator character (pipe) '|'	(Printed at: 2013-07-04 07:13|04/07 06:15 021333333 12.00 C2MD|01/07 13:16 021333333 25.00 C2MD|27/06 11:34 - 12.00 C2MT|)
PrnDspFormat	String	Indicates if the transaction data returned should be formatted for the display or printer D – Display P - Printer	D
ProfileTags	NVP	A set of bitmap tags which determine what functions available allowed on the Merchant's POS terminal.	See Merchant Profiles
PromoMsg	String	If sent this message will printed at the foot of all Customer receipts printed	'Thank-You'

ReceivedAmount	Currency		
ReplacingTagType	Hex	Tag type to replace PRIMARY – first tag SECONDARY- subsequent tags	PRIMARY
RequestBlock	Numeric	The client request the block number to be sent. The first block is zero. See BlockCount returned from the server	0
S	Numeric	Sector used in to act upon	S=2
SB	Numeric	Source block for backup operations	SB=1
S0..n	Numeric	Sector number	S=1
CardAIDSector0..n	String	Contains the NFC Card sector data for the specified AID	
SendingAmountExclFees	Currency		12.00
ServiceOperator	String	Service provider for the SIM card in the client device	2degrees
SignalStrength	Numeric	The Client device's radio modem signal strength as a percentage at the time of sending the terminal data	81
SimId	Numeric	SIM card identification number inserted into the client device	8964240001020757693
SMSMessage	NVP	Encapsulates the mobile number and text message to send	SMS Message
SMSMsisdn	Phone	Mobile number that the text message is sent to	+6421700700
SMSText	String	SMS text limited to 140 characters	Youtap. Your account has been credited with AFN 1.24.
SourceCurrency	Currency		NZD
StaffPin	Numeric	Staff members PIN number. In production systems this is encrypted within a pinblock	1237
State	String	Residential state or province	Waikato
Status	Numeric	Status code values 2 and 3 are displayed and code values 1 and 4 are printed. 0 – Successful 1 – System error 2 – Provisioning error 3 – Input error 4 – Declined If the status is not successful the **Message** field must be present in the response message explaining the error.	Status=2 Message=POSTerminal Not Found
Surname	String	Subscriber's last name	Bloggs
TagOwnerName	String	Tag owner name set when registering tags used when sending sms messages	Joe
TagType	Hex	Tag type to register PRIMARY – first tag SECONDARY- subsequent tags REPLACE – new tag to replace the selected tag	PRIMARY
Time	Time	Time in format HH24:MM:SS. May be set by terminal (e.g. if it is in a different time zone from the server)	16:41:43
TerminalId	Numeric	The Terminal Identifier. A Unique value associated with the terminal (e.g. PTID for a Verifone POS terminal or IMEI for a smart phone).	98964412
TerminalStatusData	NVP	Terminal message time averages and other data	
TopupBalance	Currency	Merchant topup balance	1235.00

TransactionDate	Numeric	Last financial transaction's date and time YYYY MMDDhhmmss	20130613080017
TransactionId	Numeric	10 digit identifier generated by the client to identify each transaction. Uniqueness is not enforced by the server	0000000098
TransactionSearchData	NVP		Transaction Search Data
TransactionType	String	Describes the searched transaction type	MERCHANTTRANSACTION
TransactionData	NVP		Transaction Data
TxnHistoryCount	String	Number of days that the transaction history is for D1 – one day D5 – five days D10 – ten days D15 – fifteen days D20 – twenty days M1 – one month Currently only specifies the number of transactions	D1
VoucherPinNumber	Numeric	Top up voucher/PIN number	9895246789
WorkingAmount	Currency	Transaction amount in the specified currency	102599
WorkingCurrency	Currency	Three character ISO4217 currency code If a source and destination currency is used this holds the currency that the amount was entered in	AFN
WriteReference	Numeric	Reference number returned to indicate which card update operation was performed	597602434153421210 0
Name	String	Used to convey a name for an information element. Relative to context or aggregation element	
InfoType	String	Used to categorize an information element. Relative to the context or aggregation element. Predefined values to be used	

4.3 Common message fields

4.3.1 Fields common to request messages

Field	Description	For more information see
MessageType	Command type	The individual messages
Date	Local date that the transaction was created on	Date
Time	Local time that the transaction was created on	Time
TransactionId	Generated by the client for each Transaction sent	TransactionId
MerchantPin	Merchant numeric PIN. Usually 4 digits but may be more or less. It is encrypted in production systems	MerchantPin
TerminalID	The client device Identifier. A Unique value associated with the client deviceI (e.g. PTID for a Verifone POS terminal or IMEI for a smart phone).	TerminalI
MerchantId	The Identifier for the merchant (e.g. mobile phone number or unique merchant number)	MerchantId

App	May be used to identify the application version of software on the terminal (e.g. to use different session flows for different versions)	App

4.3.2 Fields common to response messages

Field	Description	For more information see
MessageType	Same as request message type with 'Resp' appended	The individual messages
TransactionId	This is the same as the transaction ID sent in the original request	TransactionId
Status	0 – successful, For other values see the description of status codes	Status
Message	Description of status codes other than zero	Message
SMSMessage	SMS message to send from the POS terminal to the specified mobile phone	SMS Message

4.4 NVP Aggregation formats

4.4.1 CardData

Aggregation of sectors and block data.

Field	Rq	Description	For more information see
S0..n	M	Sector number	S0..n
ID	M	Application ID	ID
B	M	Start block of the data	B
D	M	Card Sector data aggregation of blocks in sector number starting from the specified block	D

Example:

```
CardData=(S2=(ID=0015,B=0,D=040120240100802907000000000000002689840000010879986000000000000007000000000000305DE2542C1F48DC4E),S5=(ID=88BB,B=0,D=2101202401A61C02000000660000000000000000000000000000000000000000000000000000000000E2B224F741680332A),S6=(ID=88BB,B=0,D=00000000000000000000000000000000E0FFFF7F1F000080E0FFFF7F19E619E6E0FFFF7F1F000080E0FFFF7F19E619E6),S7=(ID=88BB,B=0,D=A5C2EE96DCB74BCE067AE692CB76F57C8258D00240480232442203208218BD024048023244F60120E69B4B925FD22F3A),S8=(ID=88BB,B=0,D=329C0E08715E3605DD12381CE0925C148218D0024048023244A20F008218BD024048023244F6012036BAFD5BB13C81D2))
```

4.4.2 Subscriber Address

Fields used to send a subscriber's address details.

Field	Rq	Description	For more information see
Addressline	C	Residential street address	AddressLine
City	C	Residential city	City
State	C	Residential state	State
Country	C	Residential country	Country

Example:

```
SubscriberAddress=(AddressLine=39Ireland Street,City=Auckland,Country=NZ,State=Waikato)
```

4.4.3 SMS Message

Fields used to send a SMS text from the client.

Field	Rq	Description	For more information see
SMSMsisdn	C	Mobile number	SMSMsisdn
SMSText	C	SMS Text	SMSText

Example:

```
SMSMessage=(SMSMsisdn=+6421888888,SMSText=Youtap. Your account has been credited
with AFN 1.24.)
```

4.4.4 Customer Data

Encapsulates customer related data. Fields are used as required by individual messages.

Field	Rq	Description	For more information see
BankAccountNo	C	Subscribers bank account number that needs to be linked/unlinked from their mobile money account.	BankAccountNo
MobMonPin	C	Mobile money account PIN	MobMonPin
BankPin	C	Bank account PIN number. In production systems this is encrypted within a pinblock	BankPin
EmailAddress	C	Subscriber email address	EmailAddress
ResidentialAddress	C	Subscriber residential address	Address
State	C	Subsribers residential State	State
City	C	Subsribers residential City	City
Country	C	Subsribers residential Country	Country
NFCTagId	C	NFC Card ID number	NFCTagId
GivenName	C	Subscribers first name	GivenName
Surname	C	Subscribers surname	Surname
DOB	C	Date of birth in YYYYMMDD format	DOB
CustomerId	C	Subscribers ID number created during registration	CustomerId
MSISDN	C	Mobile phone number	MSISDN
CardId	C	Magnetic card track 2 account number. 16 to 19 digits	CardId
CardExpiry	C	Magnetic card track 2 expiry date	CardExpiry
ContactPhone	C	Customer Type	CustomerType
Gender	C	Customer Gender	Gender
CustomerType	C	Type of customer to register	CustomerType
IdVerified	C	Subscriber ID verified or not	IdVerified
NewMobMonPin	C	New mobile money account PIN for a PIN change. In production systems this is encrypted within a pinblock	NewMobMonPin
FingerData1	C	First additional finger print data	FingerData1
FingerData2	C	Second additional finger print data	FingerData2
FingerData3	C	Third additional finger print data	FingerData3
LinkType	C	Links or unlinks a bank account from mobile money account 'L' – link account 'U' – Unlink account	L

Example:

```
CustomerData=(GivenName=H,SurName=P,DOB=19931023,Email=hp@youtap.com,ContactPhone=0
22123456)
```

4.4.5 Merchant Profiles

A set of 16-bit bitmap tags that determine which functions are available to the merchant. All are conditional on the functions required by the merchant.

Field	Format	Rq	Description	Example
MenuA	Bitmap	C	Foreign Transactions	0000

MenuB	Bitmap	C	Local Transactions	000F
MenuC	Bitmap	C	Merchant Services	007F
MenuD	Bitmap	C	Customer Services	001F
MenuE	Bitmap	C	Bank Services	003F
MenuF	Bitmap	C	Registrations	01FF
MenuG	Bitmap	C	Top-ups	000F
MenuH	Bitmap	C	Prepaid Cards	001F

Example:
`ProfileTags=(MenuA=0000,MenuB=000F,MenuC=007F,MenuD=001F,MenuE=003F,MenuF=01FF,MenuG=000F,MenuH=001F)`

4.4.6 Customer Identification

Field	Rq	Description	For more information see
idType	M	Type of identification	idType
idCountry	M		idCountry
idName	M		idName
idNumber	M		idNumber
idIssue	C		idIssue
idExpiry	C		idExpiry
idIssuerName	C	Issuer name for photo ID	idIssuerName

Example:
`IdData=(idType=1,idName=Joe,Bloggs,idNumber=12345678DC,idCountry=NZ,idExpiry=20251212)`

4.4.7 Customer Search Data

Field	Rq	Description	For more information see
GivenName	C	Customer first name	GivenName
SurName	C	Customer last name	Surname
DOB	C	Date of birth	DOB
CustomerID	C	Customer identifier	CustomerId
NFCTagID	C	Customer tag identifier	NFCTagId
MSISDN	C	Mobile phone number	MSISDN
CardId	C	Card PAN from track 2, if used instead a the NFC Card ID	CardId
CardExpiry	C	Card expiry date from track 2	CardExpiry
MobMonPin	C	Mobile money account pin	MobMonPin
IMSI	C	Another identifier for the customer, used in the context of smart mobile phone application	IMSI

4.4.8 Transaction Search Data

Field	Rq	Description	For more information see
TransactionDate	M	Last financial transaction's date	TransactionDate
TransactionId	M	Receipt number from the last transaction	TransactionId
TerminalId	M	Terminal ID the transaction was done on	TerminalId

Example:
`TransactionSearchData=(TransactionDate=20130613080017,TransactionId=0000000032,TerminalId=98944138)`

4.4.9 Transaction Data

Field	Rq	Description	For more information see
TransactionType	M	Text describing the type of transaction	TransactionType
TransactionDate	M	Date and time the transaction was performed on	TransactionDate
SearchTxnStatus	M	Status of the searched transaction	Status
SearchTxnMessage	M	Message text if the status was non-zero	Message
MerchantID	M	Merchant identification number	MerchantId
CustomerID	M	Customer identification number	CustomerId
PaymentType	M	Payment type	PaymentType
PaymentTrailId	C	If a third party trail ID occurred in the transaction	PaymentTrailID
WorkingCurrency	M	Transaction currency	WorkingCurrency
WorkingAmount	M	Transaction amount	WorkingAmount

Example:

```
TransactionData=(TransactionType=MERCHANTTRANSACTION,TransactionDate=20130613080022
,SearchTxnStatus=0,MerchantId=021333333,CustomerId=6421888888,PaymentType=C2MT,Paym
entTrailId=212604,WorkingCurrency=AFN,WorkingAmount=1.2)
```

4.4.10 Terminal Status Data

Field	Rq	Description	For more information see
BatteryLevel	C	Battery level if appropriate for the client device type	BatteryLevel
AverageMessageRoundTrip	M	Average message round trip time	AverageMessageRoundTrip
MaxMessageRoundTrip	M	Maximum message round trip time	MaxMessageRoundTrip
MinMessageRoundTrip	M	Minimum message round trip time	MinMessageRoundTrip
SignalStrength	C	GPRS signal strength if appropriate for the POS terminal type	SignalStrength
IMSI	C	International Mobile Subscriber Identity	IMSI
IMEI	C	International mobile equipment identity number	IMEI
ServiceOperator	C	SIM card service operator	ServiceOperator
SimId	C	SIM card serial number if inserted	SimId

Example:

```
TerminalStatusData=(BatteryLevel=100,AverageMessageRoundTrip=3332.000,MaxMessageRou
ndTrip=3332,MinMessageRoundTrip=3332,SignalStrength=81,IMSI=530240102075769,IMEI=01
2390001171991,ServiceOperator=2degrees,SimId=8964240001020757693)
```

4.4.11 AuthData

Contains a number of threshold amounts and required identification records for a single transaction following the exchange quote. If the transaction amount exceeds the threshold amount the subscriber is prompted to enter the specified ID.

Field	Req	Description	For more information see
CTALAmount0..n	C	Threshold amount	CTALAmount
CTALId0..n	C	ID required if this threshold is exceeded	CTALId

Example: `AuthData=(CTALAmount1=1000.0,CTALAmount0=0.0,CTALId1=100,CTALId0=102)`

4.4.12 CommandList

Field	Rq	Description	For more information see
C1..n	M	Command group number sequence	C1..n
C	M	Command	C
S	M	Sector on which the command acts upon	S
B	M	Starting block number relative to the sector number	B
A	M	Amount	A
KA	C	Key A	KA
KB	C	Key B	KB
SB	C	Source Block	SB
DB	C	Destination block	DB

Example:

```
CommandList=(C1=(C=R,S=2,B=0,A=3,KA=a0a1a2a3a4a5),C2=(C=R,S=5,B=0,A=3,KA=f1e80209022d),C3=(C=R,S=6,B=0,A=3,KA=f1e80209022d),C4=(C=R,S=7,B=0,A=3,KA=f1e80209022d),C5=(C=R,S=8,B=0,A=3,KA=f1e80209022d))
```

4.4.13 EPurseData

Aggregation of purse information extracted or to be written on the purse card.

Field	Rq	Description	For more information see
EPurseId	M	PurseIdentifier	Unique purse identifier
EPurseCurrency	M	Currency	The currency code associated with the purse balance
EPurseBalance	M	Monetary value	The purse value
EPurseCounter	M	Security counter of the card/purse	

Example:

```
EPurseData=(EPurseId=39BD361E,EPurseCurrency=IDR,EPurseBalance=95807,EPurseCounter=7ffffff0)
```

4.4.14 FileDescriptor

Contains information about a file that has been uploaded/downloaded.

Field	Req	Description	For more information see
Name	M	The file name	
InfoType	M	Classifying the information in the file	

Example:

```
FileDescriptor=(Name=offline_20160503120133_94876567.txt,InfoType=PURSELOGS)
```

4.5 Biometric data format

4.5.1 Finger print

Field	Format	Description
FingerData **FingerData1** **FingerData2** **FingerData3**	Hex	Finger print biometric data in `BCT_ISO_FMR format`

Example:

```
FingerData=464D52002032300000000EA000000C0010E00C800C80100020862228052002 1A1004026
00312100807D003CE7008075004E9B0040BC00505300407100 51A00080760052E3008078005AB100408
2005ADC00400E00613300407800 61A700404A00622A0040A200685A008082006AD1004079006CB10080
280072BB0080800075B7008085007CBE00802600883900 80BE00BE3B00802A00C44D0040CC00CC34008
06600CD3F00805600DA4D00406900DD4500807200E23A0040A600E23000806900E54400405600F15C00
403E00FA60008096010496004064011574004 0B901182300408C012A91000000
```

4.6 Bitmap fields

All bitmap fields are in ASCII HEX format.

4.7 CreateFlags

Field	Description	Example
Subscriber	Device can register subscribers	0001
Merchant	Merchant has no registering capabilities	0002
Agent	Agent can register: Merchants, Micro Merchant, Subscriber	0004
Super agent	Super agent can register: Agents, Merchant, Micro Merchant, Subscribers	0008
MM Staff	Can register: MM Staff, Super Agent, Agent, Merchant, Micro Merchant, Subscribers	0010

Example: `CreateFlags=001F`

4.8 Data Formats

Data name	Format	Description	Example
Numeric	0123456789	ASCII Numeric	“12”
Currency	01234567890.+-	ASCII, Amount with decimal point “123.50”	“123.50” = $124.50
Float	0123456789.		“1.2345”
String	ASCII printable characters		“Abc123#”
Hex	0123456789ABCDEFabcdef	ASCII Hexadecimal	“003F”
Phone	0123456789+		+6421700700
Time	0123456789:		“22:13:00”
Alphanumeric	01234567890abcdefghijklmnopqrstuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ	ASCII Alpha numeric	“DC12345678”
Bitmap	Hex value where each bit represents an on/off flag	00000000 00001010	“0A”