

In-Solutions Global

POS Terminal Message Specifications

Version: 1.0

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1 Objective

The objective of this document is to provide a Terminal message specification supported as per ISG Switch Infrastructure. This document specifies the message structure, data elements and their values, required for an interface for transaction messages between card accepting POS Terminal and ISG Switch. The EDC terminal that dials to the ISG Switch needs to communicate in the described format.

The Terminal specification are constructed to process all types of transactions as mentioned below.

Sl#	Message	Request MTI	Response MTI	Processing Code
1	PURCHASE	0200	0210	00 a0 0x
2	CASH WITHDRAWAL	0200	0210	01 a0 0x
3	PURCHASE WITH CASH BACK	0200	0210	09 a0 0x
4	CASH BACK	0200	0210	09 a0 0x
5	PRE-AUTHORIZATION	0100	0110	00 a0 0x
6	SALE COMPLETION	0220	0230	00 a0 0x
7	BALANCE INQUIRY	0100	0110	31 a0 0x
8	REFUND	0220	0230	20 a0 0x
9	TIP ADJUSTMENT	0220	0230	02 a0 0x
10	OFF-LINE SALE	0220	0230	00 a0 0x
11	VOID TRANSACTION	0220	0230	02 a0 0x 22 a0 0x
12	REVERSAL	0400	0410	Same as Original transaction
13	SETTLEMENT	0500	0510	920000
14	SETTLEMENT AFTER BATCH UPLOAD	0500	0510	960000
15	BATCH UPLOAD	0320	0330	Same as Original transaction
16	KEY EXCHANGE	0800	0810	99 xx xx
17	CURRENCY CONVERSION TRANSACTION	0600	0610	91 a0 00

2 Audience

This message specification document is targeted towards Switch application development and QA teams, POS application development teams who should use the document to develop and test the switch platform.

This document can also be referenced by the other third-party POS application developers for interfacing their POS applications with transaction processing infrastructure of ISG.

3 General Message Validation Guidelines

ISG Switch will be validating only the mandatory fields and the conditional fields (when the conditions are satisfied) present in the incoming request messages. Any additional fields sent by the POS terminals are discarded or ignored by the host.

Similarly, POS Terminals have to validate the main mandatory fields in a response packet – Message Type ID(MTI), Processing Code(DE3), Primary Account Number (DE2, if present), Transaction Amount(DE4, if present), System Trace Audit Number (DE11), Time Local Transaction & Date Local Transaction(DE12 & DE13, only for online transactions), Network International Identifier(DE24), Response Code (DE39), Integrated Circuit Card Related Data (DE55 , if present) and Card Acceptor Terminal Identification(DE41).

The ISG Switch may send some additional data/fields in the response packet other than the ones specified in this document. In such cases, the terminal should accept the response packet and ignore/not validate those fields. When a field is marked as Optional the terminal need not validate the field. When a field is marked as Conditional/ Mandatory, the terminal should validate the field.

4 Message Structure

The message structure is as given below.

Message Structure	
Message Type Identifier	2 bytes
Bit Map	8 bytes
Data Elements	Variable

Each application message consists of three components in the following sequence - Message Type Identifier (MTI), Bit Map, and a variable number of data elements. The maximum data content of a message is 999 bytes

4.1 Message Type Identifier

The message type indicator is a four-digit numeric field which indicates the overall function of the message. The first and second digits identify the class of message. The third and fourth digits identify the message function and transmission mode. Four digits of the MTI is represented using two bytes with each nibble of the byte representing one digit.

- Position 1(The first digit) represents the Message version
- Position 2(Second digit) represents the message class
- Position 3(Third digit) represents the transmission mode
- Position 4(Fourth digit) represents the Message Origin

Message type definition:

Position 1	Meaning	Position 2	Message Class
0	ISO 8583 – 1987 version	0	Reserved by ISO
1	ISO 8583 – 1993 version	1	Authorization
2	ISO 8583 – 2003 version	2	Financial
3	Reserved by ISO	3	File update/transfer
4	Reserved by ISO	4	Reversal
5	Reserved by ISO	5	Reconciliation control/Settlement
6	Reserved by ISO	6	Administrative
7	Reserved by ISO	7	Fee collection message
8	National use	8	Network management

9	Private use	9	Reserved by ISO
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Position 3	Transmission Mode	Position 4	Message origin
0	Interactive Request	0	Acquirer original request
1	Interactive Response	1	Acquirer repeat request
2	Advice Request	2	Issuer original request
3	Advice Response	3	Issuer repeat request
4	Notification	4	Other original request
5	Notification Acknowledgement	5	Other repeat request
6	Instruction	6	Reserved by ISO
7	Instruction Acknowledgement	7	Reserved by ISO
8	Reserved for ISO use	8	Reserved by ISO
9	Reserved for ISO use	9	Reserved by ISO

When the transaction is initiated by POS, below table gives various transaction request and response message:

TYPE	MTI	MESSAGE
Authorization	0100	Authorization Request
	0110	Authorization Request Response
Financial Transactions	0200	Financial Transaction Request
	0210	Financial Transaction Request Response
	0220	Financial Transaction Advice
	0230	Financial Transaction Advice Response
File Update	0320	File Update/Transfer Advice
	0330	File Update/Transfer Advice Response
Reversal	0400	Reversal Request
	0410	Reversal Response
Reconciliation	0500	Card Acceptor Reconciliation/Settlement Request
	0510	Card Acceptor Reconciliation/Settlement Request Response
Network management	0800	Network Management Request
	0810	Network Management Request Response
Administrative	0600	Download/Upload Private data Request
	0610	Download/Upload Private data Response

4.2 Bitmap

In ISO 8583, a bitmap is a field or subfield within a message, which indicates whether other data elements or data element subfields are present elsewhere in the message.

A field is considered to be present only when the corresponding bit in the bitmap is set. For example, a hex with value 0x82 (decimal 130) is binary 1000 0010, which means fields 1 and 7 are present in the message and fields 2, 3, 4, 5, 6 and 8 are not.

Each application transaction includes one (1) bit map. A bit map consists of 64 bits numbered from the left starting with bit 1.

The first bit in the primary bitmap indicates whether the secondary bitmap is present or not. A secondary bitmap will be present only if any of the fields 65 to 128 is present in the message. As fields 65 to 128 are not present in case of POS transactions, secondary bitmap will be absent hence the first bit in the primary bitmap will be always set to 0.

Bit 1	Bit 2	Bit 3	Bit 4	Bit 64
Field 1 Secondary bitmap always '0'	Field 2 DE002_Primary _Account_Number	Field 3 DE003_Processing _Code	Field 4 DE004_Amount _Transaction		Field 64

4.3 Data Elements

Data elements are the individual fields carrying the transaction information. There are up to 128 data elements specified in the original ISO 8583:1987 standard, and up to 192 data elements in later releases. The 1993 revision added new definitions, deleted some, while leaving the message format itself unchanged.

Data Element characteristics - names, formats, attributes, and conditional code values - are described fully in the Transaction Data Format.

5 TRANSACTION DATA FORMATS

Bit	Data Element Name	Data Element Short Name	Attribute	Type
	Message_Type_ID	MTI	N 4	Fixed
	Bitmap		B 64	Fixed
02	DE002_Primary_Account_Number	PAN	N ..19	Variable
03	DE003_Processing_Code		N 6	Fixed
04	DE004_Amount_Transaction		N 12	Fixed
11	DE011_System_Trace_Audit_Number	STAN	N 6	Fixed
12	DE012_Time_Local_Transaction		N 6	Fixed
13	DE013_Date_Local_Transaction		N 4	Fixed
14	DE014_Date_Expiration		N 4	Fixed
22	DE022_Point-of-Service_Entry_Mode_Code	POS Entry Mode	N 3	Fixed
24	DE024_Network_International_Identifier	NII	N 3	Fixed
25	DE025_Point-of-Service_Condition_Code	POS Condition Code	N 2	Fixed
35	DE035_Track_2_Data		Z ..37	Variable
37	DE037_Retrieval_Reference_Number	RRN	An 12	Fixed
38	DE038_Authorization_Identification_Response	Auth Code	An 6	Fixed
39	DE039_Response_Code	RC	An 2	Fixed
41	DE041_Card_Acceptor_Terminal_Identification	TID	Ans 8	Fixed
42	DE042_Card_Acceptor_Identification_Code	MID	Ans 15	Fixed

43	DE043_Card_Acceptor_Name_Location		Ans	40	Fixed
45	DE045_Track_1_Data		Ans	..76	Variable
48	DE048_Additional_Data—Private		Ans	...999	Variable
52	DE052_Personal_Identification_Number_Data	PIN	B	64	Fixed
53	DE053_Security-Related_Control_Information		N	16	Fixed
54	DE054_Additional_Amounts		An	...120	Variable
55	DE055_Integrated_Circuit_Card_Related_Data	ICC/Chip data	B	...255	Variable
60	DE060_Private-Use_Field_1		Ans	...999	Variable
61	DE061_Private-Use_Field_2		Ans	...999	Variable
62	DE062_Private-Use_Field_3		Ans	...999	Variable
63	DE063_Private-Use_Field_4		Ans	...999	Variable

The data format column in the above table lists the data format and size of each data element. The field size is the number of data elements contained in the field. Variable length data fields are shown as ‘..’ or ‘...’ i.e. preceded by either two or three dots. The number of dots in a variable length field represents the number of digits used for representing the length field itself. In ‘..’ var field, length field has two digits where as ‘...’ var field, length has 3 digits. A ‘..’ field is also called as LLVAR field and a ‘...’ field is called as LLLVAR field. A LLVAR field’s maximum length can be 99 bytes whereas LLLVAR field can be maximum of 999 bytes.

The following rules apply to the data elements within a message:

1. All data elements begin on a byte boundary.
2. Fixed length “n” type fields with an odd length are right justified to a byte boundary, and zero-filled on the left. For example, a field type “n3” field will occupy 2 bytes, and the most significant nibble of the first byte will be 0.
3. Lengths of variable length fields are represented in binary coded decimal (BCD), right justified to a byte boundary, and zero-filled on the left.
4. The length indicator for a variable length field is a count of the number of data elements to follow. It does not include the length of the length indicator.
5. The variable length Primary Account Number field, field 2, with an odd length is left justified within the field and “zero” filled.

5.1 Data Attributes

Below table describes the formats of various data elements used in the above table.

Attribute Abbreviation	Meaning	Size
A	Alphabetic characters from A to Z, a to z	Each data element represents 1 byte
N	Numeric digits from 0 to 9	Each data element represents 1 nibble (2 data elements = 1 byte)
S	Special Characters	Each data element represents 1 byte
An	Alpha numeric - Alphabetic and numeric characters (0-9, a-z, A-Z)	Each data element represents 1 byte

As	Alpha special - Alphabetic and special characters	Each data element represents 1 byte
Ns	Numeric special - Numeric and special characters	Each data element represents 1 byte
Ans	Alpha numeric special - Alphabetic, numeric and special characters (All characters)	Each data element represents 1 byte
MM	Month, 01 to 12	
DD	Day, 01 to 31	
YY	Year, 00 to 99	
YYYY	Year, 0000 to 9999	
Hh	Hour, 00 to 23	
Mm	Minute, 00 to 59	
Ss	Seconds, 00 to 59	
L, LL, LLL	Length of the field as on one, two or three decimal digits	
VAR	Variable length field	
5	Fixed length of five characters	
..37	Variable length up to maximum 37 characters. All variable length fields will in addition contain two or three positions at the beginning of the field to identify the number of positions following to the end of that field.	
B	Binary data	Each data element represents 1 bit. (8 data elements = 1 byte)
Z	Track 2 data, as read from the magnetic strip.	Each data element represents 1 nibble (2 data elements = 1 byte)

5.2 Data Request/Response Codes

Below table gives the field requirements in various transaction messages.

Code	Meaning	Details
M	Mandatory	Mandatory field. Transaction will be declined if the field is not present in the request message or terminal may decline the response given by the host if the mandatory field is not present. If terminal declines host approved transactions due to mandatory fields missing, terminal must send a reversal transaction for the same.
O	Optional	Optional field, transaction will be processed without this field also. Usually contains some information
C	Conditional field	Conditional field. When the condition mentioned against field is satisfied, field becomes mandatory
[Blank]	Field not required	Field is not required.

6 TRANSACTION FORMATS

6.1 SALE / CASH WITHDRAWAL / PURCHASE WITH CASHBACK / CASHBACK

Bit	Data Element Name	Attribute	Req	Resp	Comment
	Message_Type_ID	N 4	0200	0210	
	Bitmap	B 64	M	M	
02	DE002_Primary_Account_Number	N ..19	C		Will be present if Track2 is not present. The primary account number is included when the transaction is entered manually via the keyboard. This field will be encrypted using the line encryption key.
03	DE003_Processing_Code	N 6	00a000 01a000 09a000	00a000 01a000 09a000	Sale – 00a000 Cash – 01a000 Cash back/Sale with Cash back – 09a000
04	DE004_Amount_Transaction	N 12	M	O	If Amount is present in the response, it will be checked against the request message amount.
11	DE011_System_Trace_Audit_Number	N 6	M	M	Request and Response STAN should be same
12	DE012_Time_Local_Transaction	N 6		M	Format HHMMSS
13	DE013_Date_Local_Transaction	N 4		M	Format MMDD
14	DE014_Date_Expiration	N 4	C		Will be present only for key entered transactions
22	DE022_Point-of-Service_Entry_Mode_Code	N 3	M		
24	DE024_Network_International_Identifier	N 3	M	M	
25	DE025_Point-of-Service_Condition_Code	N 2	M		
35	DE035_Track_2_Data	Z ..37	C		Will be present only if card is swiped or tapped or chip inserted and transaction is initiated. This field should be encrypted using the line encryption key.
37	DE037_Retrieval_Reference_Number	An 12		M	
38	DE038_Authorization_Identification_Response	An 6		C	Present only if field 39 is 00.
39	DE039_Response_Code	An 2		M	

41	DE041_Card_Acceptor_Terminal_Identification	Ans	8	M	M	Terminal ID
42	DE042_Card_Acceptor_Identification_Code	Ans	15	M		Merchant ID
45	DE045_Track_1_Data	Ans	76	O		Optional
52	DE052_Personal_Identification_Number_Data	B	64	C		For Card transaction. To be sent whenever online PIN Verification is required.
53	DE053_Security-Related_Control_Information	N	16	C		Will be present only if PIN is present in the message. Contains the KSN
54	DE054_Additional Amounts	N	12	C		For cash back transactions contains cash back amount
55	DE055_Integrated_Circuit_Card_Related_Data	B	...255	C	C	For EMV Cards. Applicable only for EMV Transactions and contact less payment transactions
60	DE060_Private-Use_Field_1	Ans	...999	C		
61	CVV2/CVC2/4DBC	Ans	...999	C		Only Numeric. When CVV2 / CVC2 / 4DBC value is key-entered at the terminal by the Merchant. This field will be line encrypted using the line encryption key.
62	Invoice Number	N	6	M		
63	Additional Data	Ans	...999	C	C	Request Message in TLV format 1. Hardware serial no 2. Terminal Batch number. 3. In case of non-DCC transactions Transaction currency code (TLV format) In case of DCC transactions DCC data (Amount in Local currency, Exchange Rate and Currency Code) in TLV format (Please refer the section TLV FORMAT FOR DATA ELEMENTS for more details)

					Response Message in TLV format 1. Transaction ID
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Note:

1. **Cash Advance Transaction:** Sale Authorization request message originating from a Terminal that belongs to a Merchant with MCC = 6010 should be treated as a Cash Advance transaction.

2. **Sale with Cash back or Cash back:** No adjustment sale is permitted. Void of this transaction is allowed. No offline transactions is permitted.

For **Sale & Cash Back transactions**, Field 4 will be equal to Sale + Cashback Amount. Field 54 will contain only Cash Back.

For **Cash Back** transactions, field 4 will be equal to field 54 where ever applicable

6.2 PRE-AUTHORIZATION

Bit	Data Element Name	Attribute	Req	Resp	Comment
	Message_Type_ID	N 4	0100	0110	
	Bitmap	B 64	M	M	
02	DE002_Primary_Account_Number	N ..19	C		Will be present if Track2 is not present. The primary account number is included when the transaction is entered manually via the keyboard. This field will be encrypted using the line encryption key.
03	DE003_Processing_Code	N 6	00a000	00a000	
04	DE004_Amount_Transaction	N 12	M	O	If Amount is present in the response, it will be checked against the request message amount.
11	DE011_System_Trace_Audit_Number	N 6	M	M	Request and Response STAN should be same.
12	DE012_Time_Local_Transaction	N 6		M	Format HHMMSS
13	DE013_Date_Local_Transaction	N 4		M	Format MMDD
14	DE014_Date_Expiration	N 4	C		Will be present only for key entered transactions
22	DE022_Point-of-Service_Entry_Mode_Code	N 3	M		
24	DE024_Network_International_Identifier	N 3	M	M	
25	DE025_Point-of-Service_Condition_Code	N 2	M		

35	DE035_Track_2_Data	Z	..37	C		Will be present only if card is swiped or tapped or chip inserted and transaction is initiated. This field should be encrypted using the line encryption key.
37	DE037_Retrieval_Reference_Number	An	12		M	
38	DE038_Authorization_Identification_Response	An	6		C	Present only if field 39 is 00.
39	DE039_Response_Code	An	2		M	
41	DE041_Card_Acceptor_Terminal_Identification	Ans	8	M	M	Terminal ID
42	DE042_Card_Acceptor_Identification_Code	Ans	15	M		Merchant ID
45	DE045_Track_1_Data	Ans	76	O		Optional
52	DE052_Personal_Identification_Number_Data	B	64	C		For Card transaction. To be sent whenever online PIN Verification is required.
53	DE053_Security-Related_Control_Information	N	16	C		Will be present only if PIN is present in the message. Contains the KSN.
55	DE055_Integrated_Circuit_Card_Related_Data	B	...255	C	C	For EMV Cards. Applicable only for EMV Transactions and contact less payment transactions.
60	DE060_Private-Use_Field_1	Ans	...999	C		
61	CVV2/CVC2/4DBC	Ans	...999	C		Only Numeric. When CVV2 / CVC2 / 4DBC value is key-entered at the terminal by the Merchant. This field will be line encrypted using the line encryption key.
62	Invoice Number	N	6	M		
63	Additional Data	Ans	...999	C	C	Request Message in TLV format 1. Hardware serial no 2. Terminal Batch number. 3. In case of non-DCC transactions Transaction currency code (TLV format) In case of DCC

					transactions DCC data (Amount in Local currency, Exchange Rate and Currency Code) in TLV format (Please refer the section TLV FORMAT FOR DATA ELEMENTS for more details) Response Message in TLV format 1. Transaction ID
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Note:

Pre Authorization transactions stored in the separate batch in Terminal and when a normal batch goes for settlement, these transactions will not be submitted. They will get submitted only after the Pre Authorization completion.

6.3 PRE-AUTH COMPLETION / SALE COMPLETION

Bit	Data Element Name	Attribute	Req	Resp	Comment
	Message_Type_ID	N 4	0220	0230	
	Bitmap	B 64	M	M	
02	DE002_Primary_Account_Number	N ..19	C		Only when Track2 is not present. The primary account number is included when the transaction is entered manually via the keyboard. PAN is mandatory in case of advice transactions. Field is encrypted using the line encryption key
03	DE003_Processing_Code	N 6	00a000	00a000	
04	DE004_Amount_Transaction	N 12	M	O	Amount is verified when included in response.
11	DE011_System_Trace_Audit_Number	N 6	M	M	Request and Response STAN should be same
12	DE012_Time_Local_Transaction	N 6	M		Format HHMMSS
13	DE013_Date_Local_Transaction	N 4	M		Format MMDD
14	DE014_Date_Expiration	N 4	M		
22	DE022_Point-of-Service_Entry_Mode_Code	N 3	M		Same as original transaction
24	DE024_Network_International_Identifier	N 3	M	M	
25	DE025_Point-of-Service_Condition_Code	N 2	M		

35	DE035_Track_2_Data					
37	DE037_Retrieval_Reference_Number	An	12	M	M	RRN of Pre-Authorization transaction (From original Response)
38	DE038_Authorization_Identification_Response	An	6	M		From Original Response.
39	DE039_Response_Code	An	2	M	M	From Original Response.
41	DE041_Card_Acceptor_Terminal_Identification	Ans	8	M	M	Terminal ID
42	DE042_Card_Acceptor_Identification_Code	Ans	15	M		Merchant ID
45	DE045_Track_1_Data	Ans	76			
52	DE052_Personal_Identification_Number_Data	B	64			
53	DE053_Security-Related_Control_Information	N	16			
54	DE054_Additional_Amounts	N	12			
55	DE055_Integrated_Circuit_Card_Related_Data	B	...255	C	C	For EMV Cards. Applicable only for EMV Transactions and contact less payment transactions. If original Pre-Authorization transaction contains chip data, same data should be populated here with minor changes (instead of ARQC, TC should be present)
60	DE060_Private-Use_Field_1	Ans	...999	C		
61	CVV2/CVC2/4DBC	Ans	...999	M		Service code (3 digits). Will come only if card is swiped or chip inserted. This field is encrypted using the line encryption key
62	Invoice Number	N	6	M		Should be same as original authorization
63	Additional Data	Ans	...999	C	C	Request Message in TLV format 1. Hardware serial no 2. Terminal Batch number. 3. In case of non-DCC transactions Transaction currency code (TLV format)

					<p>In case of DCC transactions DCC data (Amount in Local currency, Exchange Rate and Currency Code) in TLV format (Please refer the section TLV FORMAT FOR DATA ELEMENTS for more details) Response Message in TLV format</p> <p>1. Transaction ID</p>
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Note: The Sale Completion transaction is to complete the Pre Authorization transaction for the actual amount of the bill. The transaction stores in the normal batch and settle with the host at the time of settlement.

6.4 BALANCE INQUIRY

Bit	Data Element Name	Attribute	Req	Resp	Comment
	Message_Type_ID	N 4	0100	0110	
	Bitmap	B 64	M	M	
02	DE002_Primary_Account_Number	N ..19	C		Will be present if Track2 is not present. The primary account number is included when the transaction is entered manually via the keyboard. This field will be encrypted using the line encryption key.
03	DE003_Processing_Code	N 6	31a000	31a000	
04	DE004_Amount_Transaction	N 12		M	Contains the balance amount.
11	DE011_System_Trace_Audit_Number	N 6	M	M	
12	DE012_Time_Local_Transaction	N 6		M	Format HHMMSS
13	DE013_Date_Local_Transaction	N 4		M	Format MMDD
14	DE014_Date_Expiration	N 4	C		If track2 is not present. Will be present only for key entered transactions
22	DE022_Point-of-Service_Entry_Mode_Code	N 3	M		
24	DE024_Network_International_Identifier	N 3	M	M	
25	DE025_Point-of-Service_Condition_Code	N 2	M		

35	DE035_Track_2_Data	Z	..37	C		Will be present only if card is swiped or tapped or chip inserted and transaction is initiated. This field should be encrypted using the line encryption key.
37	DE037_Retrieval_Reference_Number	An	12		M	
38	DE038_Authorization_Identification_Response	An	6		O	
39	DE039_Response_Code	An	2		M	
41	DE041_Card_Acceptor_Terminal_Identification	Ans	8	M	M	Terminal ID
42	DE042_Card_Acceptor_Identification_Code	Ans	15	M		Merchant ID
45	DE045_Track_1_Data	Ans	76			
52	DE052_Personal_Identification_Number_Data	B	64	C		For Card transaction. Will be present, if online PIN is entered.
53	DE053_Security-Related_Control_Information	N	16	C		Will be present only if PIN is present in the message. Contains the KSN
54	DE054_Additional Amounts					
55	DE055_Integrated_Circuit_Card_Related_Data	B	...255	C	O	For EMV Cards. Applicable only for EMV Transactions and contact less payment transactions
60	DE060_Private-Use_Field_1	Ans	...999			
61	CVV2/CVC2/4DBC	Ans	...999			
62	Invoice Number	N	6			
63	Additional Data	Ans	...999		C	Response Message in TLV format 1. Transaction ID

6.5 REFUND – ONLINE

Bit	Data Element Name	Attribute	Req	Resp	Comment
	Message_Type_ID	N 4	0200	0210	
	Bitmap	B 64	M	M	
02	DE002_Primary_Account_Number	N ..19	M		Will be present only for key entered transactions. This field is encrypted using the line encryption key.

03	DE003_Processing_Code	N	6	20a000	20a000	
04	DE004_Amount_Transaction	N	12	M	O	If amount is included in the response, it should be same as request
11	DE011_System_Trace_Audit_Number	N	6	M	M	Request and Response STAN should be same
12	DE012_Time_Local_Transaction	N	6	M		Format HHMMSS
13	DE013_Date_Local_Transaction	N	4	M		Format MMDD
14	DE014_Date_Expiration	N	4	M		Will be present only for key entered transactions
22	DE022_Point-of-Service_Entry_Mode_Code	N	3	M		
24	DE024_Network_International_Identifier	N	3	M	M	
25	DE025_Point-of-Service_Condition_Code	N	2	M		
35	DE035_Track_2_Data					
37	DE037_Retrieval_Reference_Number	An	12		M	
38	DE038_Authorization_Identification_Response	An	6	M		Will be present only if field 39 is 00
39	DE039_Response_Code	An	2		M	
41	DE041_Card_Acceptor_Terminal_Identification	Ans	8	M	M	Terminal ID
42	DE042_Card_Acceptor_Identification_Code	Ans	15	M		Merchant ID
45	DE045_Track_1_Data	Ans	76			
52	DE052_Personal_Identification_Number_Data	B	64	C		Will be present for all online PIN entered transactions.
53	DE053_Security-Related_Control_Information	N	16	C		Will be present only if PIN is present in the message. Contains the KSN
54	DE054_Additional_Amounts	N	12			
55	DE055_Integrated_Circuit_Card_Related_Data	B	...255	C		For EMV Cards. Applicable only for EMV Transactions and contact less payment transactions.
60	DE060_Private-Use_Field_1	Ans	...999			
61	CVV2/CVC2/4DBC	Ans	...999	C		Only Numeric. When CVV2 / CVC2 / 4DBC value is key-entered at the terminal by the Merchant
62	Invoice Number	N	6	M		
63	Additional Data	Ans	...999	C	C	Response Message in TLV format

					1. Transaction ID
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Note: The Refund transaction should be sent as a request to the host immediately and should not wait for next online transaction

6.6 TIP ADJUST

Bit	Data Element Name	Attribute	Req	Resp	Comment
	Message_Type_ID	N 4	0220	0230	
	Bitmap	B 64	M	M	
02	DE002_Primary_Account_Number	N ..19	M		
03	DE003_Processing_Code	N 6	02a000	02a000	Request message and Response message processing code should be same
04	DE004_Amount_Transaction	N 12	M		New transaction amount after adding Tip amount
11	DE011_System_Trace_Audit_Number	N 6	M	M	Same as original Request
12	DE012_Time_Local_Transaction	N 6	M		Format HHMMSS Same as original Request
13	DE013_Date_Local_Transaction	N 4	M		Format MMDD Same as original Request
14	DE014_Date_Expiration	N 4	M		
22	DE022_Point-of-Service_Entry_Mode_Code	N 3	M		Same as original Request
24	DE024_Network_International_Identifier	N 3	M	M	
25	DE025_Point-of-Service_Condition_Code	N 2	M		Same as original Request
35	DE035_Track_2_Data	Z ..37			
37	DE037_Retrieval_Reference_Number	An 12	M	M	Request contains original transaction RRN
38	DE038_Authorization_Identification_Response	An 6	M		Same as original Request.
39	DE039_Response_Code	An 2	M	M	
41	DE041_Card_Acceptor_Terminal_Identification	Ans 8	M	M	Terminal ID
42	DE042_Card_Acceptor_Identification_Code	Ans 15	M		Merchant ID
45	DE045_Track_1_Data	Ans 76			
52	DE052_Personal_Identification_Number_Data	B 64			

53	DE053_Security-Related_Control_Information	N	16			
54	DE054_Additional_Amounts	N	12	M		Tip Amount
55	DE055_Integrated_Circuit_Card_Related_Data	B	...255	C		For EMV Cards. Applicable only for EMV Transactions and contact less payment transactions
60	Original Amount	Ans	...999	M		Host authorized amount
61	CVV2/CVC2/4DBC	Ans	...999			
62	Invoice Number	N	6	M		Same as original Request.
63	Additional Data	Ans	...999	C	C	Request Message in TLV format 1. Hardware serial no 2. Terminal Batch number.

Note: The Tip Adjust transaction is used to notify the host that there has been an addition to the amount of a previous transaction. TIP Adjust transaction is not allowed for Purchase with Cash back transactions and Cash back transactions. The TIP Adjust transaction should be sent as a request to the host immediately and should not wait for next online transaction.

6.7 OFF-LINE SALE (ONLINE)

Bit	Data Element Name	Attribute	Req	Resp	Comment
	Message_Type_ID	N	4	0220	0230
	Bitmap	B	64	M	M
02	DE002_Primary_Account_Number	N	..19	M	
03	DE003_Processing_Code	N	6	00a000	00a000
					Request and Response message processing code should be same.
04	DE004_Amount_Transaction	N	12	M	O
					If amount is included in the response, it should be same as the request message amount
11	DE011_System_Trace_Audit_Number	N	6	M	M
					Request and Response STAN should be same
12	DE012_Time_Local_Transaction	N	6	M	
					Format HHMMSS
13	DE013_Date_Local_Transaction	N	4	M	
					Format MMDD
14	DE014_Date_Expiration	N	4	M	
22	DE022_Point-of-Service_Entry_Mode_Code	N	3	M	
24	DE024_Network_International_Identifier	N	3	M	M
25	DE025_Point-of-Service_Condition_Code	N	2	M	

35	DE035_Track_2_Data	Z	..37			
37	DE037_Retrieval_Reference_Number	An	12		M	
38	DE038_Authorization_Identification_Response	An	6	C		If the transaction is approved offline by the EMV card the Authorization Response field (Field 38) will be all spaces. In all other cases Authorization Response field should not be all zeros.
39	DE039_Response_Code	An	2	C	M	If the transaction is approved offline by the EMV card, field 39 of request packet should have the value 'Y1' or 'Y3'. Host will echo back the same in the field 39 of response message.
41	DE041_Card_Acceptor_Terminal_Identification	Ans	8	M	M	Terminal ID
42	DE042_Card_Acceptor_Identification_Code	Ans	15	M		Merchant ID
45	DE045_Track_1_Data	Ans	76			
52	DE052_Personal_Identification_Number_Data	B	64			
53	DE053_Security-Related_Control_Information	N	16			
54	DE054_Additional Amounts	N	12			
55	DE055_Integrated_Circuit_Card_Related_Data	B	...255	C	C	For EMV Cards. Applicable only for EMV Transactions and contact less payment transactions
60	DE060_Private-Use_Field_1	Ans	...999			
61	CVV2/CVC2/4DBC	Ans	...999	C		Service code (3 digits). Will come only if card is swiped or chip inserted. This field is encrypted using the line encryption key
62	Invoice Number	N	6	M		
63	Additional Data	Ans	...999	C	C	Request Message in TLV format 1. Hardware serial no 2. Terminal Batch number.

Note: The Off-Line transaction should be sent as a request to the host immediately and should not wait for next online transaction. Offline transaction is not allowed for Cash Back and Purchase with Cash back transactions.

6.8 REVERSAL

Bit	Data Element Name	Attribute	Req	Resp	Comment
	Message_Type_ID	N 4	0400	0410	
	Bitmap	B 64	M	M	
02	DE002_Primary_Account_Number	N ..19	M		
03	DE003_Processing_Code	N 6	M	M	Same as original transaction processing code
04	DE004_Amount_Transaction	N 12	M	O	
11	DE011_System_Trace_Audit_Number	N 6	M	M	Same as original request
12	DE012_Time_Local_Transaction	N 6		M	Format HHMMSS
13	DE013_Date_Local_Transaction	N 4		M	Format MMDD
14	DE014_Date_Expiration	N 4	M		
22	DE022_Point-of-Service_Entry_Mode_Code	N 3	M		Same as original request
24	DE024_Network_International_Identifier	N 3	M	M	
25	DE025_Point-of-Service_Condition_Code	N 2	M		Same as original request
35	DE035_Track_2_Data	Z ..37			
37	DE037_Retrieval_Reference_Number	An 12		M	
38	DE038_Authorization_Identification_Response	An 6		O	
39	DE039_Response_Code	An 2		M	
41	DE041_Card_Acceptor_Terminal_Identification	Ans 8	M	M	Terminal ID
42	DE042_Card_Acceptor_Identification_Code	Ans 15	M		Merchant ID
45	DE045_Track_1_Data	Ans 76			
52	DE052_Personal_Identification_Number_Data	B 64			
53	DE053_Security-Related_Control_Information	N 16			
54	DE054_Additional_Amounts	N 12	C		If present in the original transaction request
55	DE055_Integrated_Circuit_Card_Related_Data	B ...255	C		DE 55 to be included in reversal only in case of EMV transactions
60	DE060_Private-Use_Field_1	Ans ...999			
61	CVV2/CVC2/4DBC	Ans ...999			
62	Invoice Number	N 6	M		Same as original request
63	Additional Data	Ans ...999	C	C	Same as original request

Note: The reversal transaction if generated should be sent as a request to the host immediately and should not wait for next online transaction.

6.9 VOID TRANSACTION

Void of Sale/Cash Advance/Cash back/Sale with cash back/Pre-Authorization/Offline Sale/Refund

Bit	Data Element Name	Attribute	Req	Resp	Comment
	Message_Type_ID	N 4	0220	0230	
	Bitmap	B 64	M	M	
02	DE002_Primary_Account_Number	N ..19	M		This field will be line encrypted using the line encryption key.
03	DE003_Processing_Code	N 6	02a000 22a000	02a000 22a000	02a000 – Void of Sale/Cash Advance/Cash back/Sale with cash back/Pre-Authorization/Offline Sale 22a000 – Void of Refund
04	DE004_Amount_Transaction	N 12	M	O	Amount should be always 0
11	DE011_System_Trace_Audit_Number	N 6	M	M	Should be same as original request
12	DE012_Time_Local_Transaction	N 6	M		Format HHMMSS
13	DE013_Date_Local_Transaction	N 4	M		Format MMDD
14	DE014_Date_Expiration	N 4	M		
22	DE022_Point-of-Service_Entry_Mode_Code	N 3	M		Should be same as original request
24	DE024_Network_International_Identifier	N 3	M	M	
25	DE025_Point-of-Service_Condition_Code	N 2	M		Should be same as original request
35	DE035_Track_2_Data	Z ..37			
37	DE037_Retrieval_Reference_Number	An 12	M	M	Request contains original transaction RRN
38	DE038_Authorization_Identification_Response	An 6	M		Should be same as original request
39	DE039_Response_Code	An 2	M	M	
41	DE041_Card_Acceptor_Terminal_Identification	Ans 8	M	M	Terminal ID
42	DE042_Card_Acceptor_Identification_Code	Ans 15	M		Merchant ID
45	DE045_Track_1_Data	Ans 76			
52	DE052_Personal_Identification_Number_Data	B 64			
53	DE053_Security-Related_Control_Information	N 16			

54	DE054_Additional Amounts	N	12	C		If present in the original transaction request
55	DE055_Integrated_Circuit_Card_Related_Data	B	...255	C		Applicable only for EMV Transactions and contact less payment transactions. Should be same as original transaction.
60	Original Amount	Ans	...999	M		Original Amount before Void
61	CVV2/CVC2/4DBC	Ans	...999			
62	Invoice Number	N	6	M		Same as original request
63	Additional Data	Ans	...999	C	C	Same as original request

Note: The Void transaction if generated should be sent as a request to the host immediately and should not wait for next online transaction.

6.10 SETTLEMENT / SETTLEMENT AFTER BATCH UPLOAD

Bit	Data Element Name	Attribute	Req	Resp	Comment
	Message_Type_ID	N4	0500	0510	
	Bitmap	B64	M	M	
03	DE003_Processing_Code	N6	920000 960000	920000 960000	920000 – Direct Settlement. 960000 – Settlement after batch upload
11	DE011_System_Trace_Audit_Number	N6	M	M	
12	DE012_Time_Local_Transaction	N6		M	Format HHMMSS
13	DE013_Date_Local_Transaction	N4		M	Format MMDD
24	DE024_Network_International_Identifier	N3	M	M	
37	DE037_Retrieval_Reference_Number	An12		M	
38	DE038_Authorization_Identification_Response	An6			
39	DE039_Response_Code	An2		M	
41	DE041_Card_Acceptor_Terminal_Identification	Ans8	M	M	Terminal ID
42	DE042_Card_Acceptor_Identification_Code	Ans15	M		Merchant ID
60	Batch Number	Ans...999	M	O	Settlement batch number
61	Terminal Data and Time	Ans...999		M	To set the proper date and time in the terminal: Format - YYYYMMDDHHMM
62	POS Application Details	Ans...999	M		Request Message:

					<p>1. POS Device and Model Details. Device and Model should be separated by the field separator \$ (Max 20 Bytes)</p> <p>2. Field separator \$ (1 Byte)</p> <p>3. Application Name and Version number of the Terminal application in. Application Name and Version number separated by field separator \$ (Max 15 bytes)</p> <p>4. Field separator \$ (1 Byte)</p> <p>5. OS Name and Version Number. OS Name and Version Number are separated by field separator \$ (Max 20 bytes)</p> <p>6. Field separator \$ (1 Byte)</p> <p>7. Terminal application version as given by ISG during certification (padded with trailing spaces) (Max 10 bytes)</p> <p>8. Field separator \$ (1 Byte)</p> <p>9. Primary Authorization Phone Number – as configured in the terminal (Max 15 bytes)</p> <p>10. Field separator \$ (1 Byte)</p> <p>11. Secondary Authorization Phone Number – as configured in the terminal (Max 15 bytes)</p> <p>12. Field separator \$ (1 Byte)</p> <p>13. IMEI Number (Max 25 bytes)</p> <p>14. Field separator \$ (1 Byte)</p>
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					15. SIM number (Max 25 bytes) 16. Field separator \$ (1 Byte) 17. Terminal Hardware Serial Number (Max 15 bytes)
63	Settlement Totals	Ans ...999	C	C	Request Message: Settlement Totals: 1. Debit Count (5 bytes) 2. Debit Amount (15 Bytes) 3. Credit Count (5 bytes) 4. Credit Amount (15 Bytes)

6.11 BATCH UPLOAD

Bit	Data Element Name	Attribute	Req	Resp	Comment
	Message_Type_ID	N 4	0320	0330	
	Bitmap	B 64	M	M	
02	DE002_Primary_Account_Number	N ..19	M		This field is encrypted using the line encryption key
03	DE003_Processing_Code	N 6	M	M	Should be same as original transaction
04	DE004_Amount_Transaction	N 12	M	O	Same as original transaction; in case the original transaction is adjusted, Original transaction amount including the adjusted amount should be sent in this field.
11	DE011_System_Trace_Audit_Number	N 6	M	M	
12	DE012_Time_Local_Transaction	N 6	M		Format HHMMSS Same as original transaction
13	DE013_Date_Local_Transaction	N 4	M		Format MMDD Same as original transaction
14	DE014_Date_Expiration	N 4	M		
22	DE022_Point-of-Service_Entry_Mode_Code	N 3	M		Should be same as original transaction
24	DE024_Network_International_Identifier	N 3	M	M	Should be same as original transaction

25	DE025_Point-of-Service_Condition_Code	N	2	M		Should be same as original transaction
35	DE035_Track_2_Data	Z	..37			
37	DE037_Retrieval_Reference_Number	An	12	M	M	Should be same as original transaction
38	DE038_Authorization_Identification_Response	An	6	M		Should be same as original transaction
39	DE039_Response_Code	An	2	M	M	
41	DE041_Card_Acceptor_Terminal_Identification	Ans	8	M	M	Terminal ID
42	DE042_Card_Acceptor_Identification_Code	Ans	15	M		Merchant ID
45	DE045_Track_1_Data	Ans	76			
52	DE052_Personal_Identification_Number_Data	B	64			
53	DE053_Security-Related_Control_Information	N	16			
54	DE054_Additional_Amounts	N	12	C		Mandatory only if cash back amount is present
55	DE055_Integrated_Circuit_Card_Related_Data	B	...255	C		Only for EMV transactions. Applicable only for EMV Transactions and contact less payment transactions. Should be same as original transaction
60	Original Message Data	Ans	...999	M		- MTI of Original transaction (4 bytes) - STAN of Original transaction (6 Bytes) - RRN of Original transaction (12 Bytes) - Transaction ID (15 chars). (Only if original transaction is an online transaction)
61	Service code	Ans	...999	C		Service code (3 digits), only if card is swiped/chip inserted.
62	Invoice Number	N	6	M		Should be same as original transaction
63	Additional Data	Ans	...999	C	C	Request Message in TLV format 1. Hardware serial no 2. Terminal Batch number. 3. In case of non-DCC transactions

					<p>Transaction currency code (TLV format)</p> <p>In case of DCC transactions DCC data (Amount in Local currency, Exchange Rate and Currency Code) in TLV format (Please refer the section TLV FORMAT FOR DATA ELEMENTS for more details)</p>
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6.12 KEY EXCHANGE

Bit	Data Element Name	Attribute	Req	Resp	Comment
	Message_Type_ID	N 4	0800	0810	
	Bitmap	B 64	M	M	
03	DE003_Processing_Code	N 6	990100 990200 990300	990100 990200 990300	990100 – IPEK Key Exchange 990200 – Line encryption Master Key Exchange 990300 – Line Encryption Session Key Exchange
11	DE011_System_Trace_Audit_Number	N 6	M	M	
37	DE037_Retrieval_Reference_Number	An 12		M	
39	DE039_Response_Code	An 2		M	
41	DE041_Card_Acceptor_Terminal_Identification	Ans 8	M	M	Terminal ID
42	DE042_Card_Acceptor_Identification_Code	Ans 15	M		Merchant ID
62	Private Key	Ans ...999	C		Contains IPEK, Line Encryption Master Key or Line Encryption Session Key or depending on the processing code
63	Additional Data	Ans ...999	M		<p>Request Message in TLV format</p> <p>1. Hardware serial no</p>

6.13 CURRENCY CONVERSION TRANSACTION

Bit	Data Element Name	Attribute	Req	Resp	Comment
	Message_Type_ID	N 4	0600	0610	
	Bitmap	B 64	M	M	
02	DE002_Primary_Account_Number	N ..19	M		First 10 digits of the card number.
03	DE003_Processing_Code	N 6	91a000	91a000	
04	DE004_Amount_Transaction	N 12		C	Converted amount in Transaction currency.
11	DE011_System_Trace_Audit_Number	N 6	M	M	Request and Response STAN should be same
12	DE012_Time_Local_Transaction	N 6		M	Format HHMMSS
13	DE013_Date_Local_Transaction	N 4		M	Format MMDD
22	DE022_Point-of-Service_Entry_Mode_Code	N 3			
24	DE024_Network_International_Identifier	N 3	M	M	
37	DE037_Retrieval_Reference_Number	An 12		M	
38	DE038_Authorization_Identification_Response	An 6			
39	DE039_Response_Code	An 2		M	
41	DE041_Card_Acceptor_Terminal_Identification	Ans 8	M	M	Terminal ID
42	DE042_Card_Acceptor_Identification_Code	Ans 15	M		Merchant ID
60	DE060_Private-Use_Field_1	Ans ...999	C		
63	Additional Data	Ans ...999	C	C	Request Message in TLV format 1. DCC Indicator ('D' for DCC transaction.) 2. Amount in INR Response Message in TLV format 1. Transaction Type Indicator ('D' for DCC transaction.) 2. Amount in Local currency 3. Exchange rate 4. Markup percent 5. DCC Transaction currency code 6. Transaction currency name

					7. Number of decimals for DCC amount
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7 TLV FORMAT FOR DATA ELEMENTS

Data Element	TAG Value	Length	Comments
Transaction currency code	0001	3	Present in field 63 of 0100, 0200, 0400, 0220 messages
Transaction ID	0002	Max 15	Present in field 63 of 0110, 0210 messages
Transaction Type Indicator	0003	1	Values: 'D' for DCC transaction. 'E' for EMI transaction.
Invoice number	0004	6	Invoice Number
Terminal Batch number	0005	6	Terminal Batch number
Hardware serial number	0006	15	HW S/N number or PC POS or MPOS ID
Original Amount	0007	12	
Local or international card indicator	0008	1	0 – Local/Domestic card 1 – International card
Request Source indicator	0009	1	0 - Normal/not specified. 0 - POS 2 - PC POS 3 - MPOS 4 – IPG
Authorization Indicator	0010	1	Authorization source indicator V - VISA M - MasterCard D - MDS R - Rupay A – Amex E - EXTERNAL HOST O - ONUS S - Stand-in
Ticket number	0011	13	Airlines ticket no for airlines merchants, PNR number for Indian Railway merchants etc.
Fallback reason code	0012	3	Fallback reason code. Left padded with zeros.
Service Code	0013	3	
Amount in Local currency	0300	12	
Local currency code	0301	3	
Exchange rate	0302	8	First digit mentions the position of the decimal dot from the right. Ex: 35.5734 will be represented as 40355734
Markup percent	0303	4	% markup. 0789 is 7.89%
DCC Transaction currency code	0304	3	This field will be present in response of DCC conversion transaction.
Transaction currency name	0305	3	Ex: USD for currency code 840
Number of decimals for DCC	0306	1	Indicates the number of decimal digits in the converted

amount			amount.
Amount in INR	0307	12	
ECI	0401	2	
CAVV	0402	56	
XID	0403	56	
CVV2/CVC2	0404	3	
4DBC	0405	4	

8 TRANSACTION DATA FIELDS

8.1 DE002_Primary_Account_Number

Field 2 contains the number identifying the cardholder account or relationship. The Primary Account Number (PAN) contains the card account number when track 1 or track 2 is not available. Primary account number is mandatory for all key entered transactions. The terminal does not store the track information in the journal, therefore, the PAN is sent in all advice transactions (i.e. adjust, off-line, etc.). All financial transaction should either contains the card number or track 2 (or track 1) data.

8.2 DE003_Processing_Code

Field 3 contains a code that identifies the cardholder transaction type and the cardholder account types, if any, that are affected by the transaction. Field 3 is a fixed-length field for three data elements as follows.

Positions 1–2, Transaction Type: These positions contain a 2-digit code identifying the type of cardholder transaction or center function being processed.

Positions 3–4, Account Type (From): These positions contain a two-digit code identifying the account type affected by this transaction.

Positions 5–6, Account Type (To): These positions contain a 2-digit code that identifies the account type to which an account transfer is made.

Account information will be present in third and fourth digit of the processing code

Code	Account Selection
00	Default Account
10	Savings Account
20	Checking Account
30	Credit Facility
40	Universal Account

8.3 DE004_Amount_Transaction

Field 4 is the total amount of the transaction. This is a fixed-length field; lead zero fill is always required. When tip amount is entered in case of transactions from restaurants or hotels or cab service, this field contains the total amount including the tip amount provided tip amount is entered during the sale transaction itself.

8.4 DE011_System_Trace_Audit_Number

Field 11 is a number assigned by the message initiator that uniquely identifies a cardholder transaction and all the message types. STAN is generated automatically by the terminal. It is incremented for each transaction processed. The

same STAN is used in an authorization request and response, and in a subsequent reversal request and response. The terminal should never generate a STAN of 000000.

8.5 DE012_Time_Local_Transaction

Field 12 contains the time the transaction takes place, expressed in the local time of the card acceptor location. The time is in hhmmss format, where: hh = hours, mm = minutes, and ss = seconds.

8.6 DE013_Date_Local_Transaction

Field 13 contains the local month and day on which the cardholder originated the transaction. The date is in mmdd format, where: mm = month and dd = day.

8.7 DE014_Date_Expiration

Field 14 contains the year and the month after which the card expires. The date is in yymm numeric format, where yy = year (00–99) and mm = month (01–12). The card expiration date is located in the card's magnetic stripe (field 35 or 45). Field 14 is included when the track 1 or Track 2 data is not present.

8.8 DE022_Point-of-Service_Entry_Mode_Code

Field 22 contains a 4-digit code indicating the method used to enter the account number and card expiration date into the Terminal. This field is fixed-length with three subfields.

Positions 1–2, PAN and Date Entry Mode: A 2-digit code that identifies the actual method used to enter the cardholder account number and card expiration date. This code specifies whether the entire magnetic stripe is included in an authorization or financial request. Position 3, PIN Entry Capability: A 1-digit code that identifies the capability of terminal to capture PINs. This code does not necessarily mean that a PIN was entered or is included in this message.

Position 1 & 2	PAN Entry Mode	Position 3	PIN Entry Capability
00	Unknown	0	Unknown
01	Manual	1	Terminal can accept PIN
02	Magnetic stripe	2	Terminal cannot accept PIN
05	ICC, CVV can be checked		
07	Contactless EMV		
80	Fall back transaction		
90	Magnetic stripe as read from track 2		
91	Contactless Magnetic strip		

8.9 DE024_Network_International_Identifier

The NII is used to identify the acquiring host.

8.10 DE025_Point-of-Service_Condition_Code

Field 25 contains a code identifying transaction conditions at the point of sale or point of service. For messages that follow an original request, this code identifies the type of processing being done.

Code	Meaning
00	Normal transaction

01	Customer not present
03	Merchant Suspicious
04	ECR Interface
05	Card not present
06	Pre Authorization
08	Mail and/or telephone order
71	Card present mag stripe bad

8.11 DE035_Track_2_Data

Field 35 contains the information encoded on Track 2 of the magnetic stripe, including field separators but excluding beginning and ending sentinels and LRC characters. Field 35 is used in original authorization requests but not in responses, advice responses, or reversals. Its presence depends on the card program, and it is present only when Track 2 data has been read at the terminal.

8.12 DE037_Retrieval_Reference_Number

Field 37, Retrieval Reference number is a unique number generated for the transaction by the switch and is used during the life cycle management of the transaction. The terminal stores the reference number and includes it on all advice transactions. RRN number will be generated only for the new transactions like Sale (Purchase), Pre-Authorization and Refund. Life cycle management transactions like Void, Tip Adjust, Pre-Authorization completion uses the RRN of the corresponding original transactions.

8.13 DE038_Authorization_Identification_Response

Field 38 contains the authorization code provided by the issuer/authorization host when a transaction is approved or a “no reason to decline” code provided for successful verifications. Usually referred to as the Approval code. It is a 6 digits alpha numeric code

8.14 DE039_Response_Code

Field 39 contains a code that defines the response to a request or the message disposition. A 00 response code indicates a host approval status. All other values are non-approval or error responses.

Code	Message to display on terminal	Reason (wherever applicable)
00	APPROVED	APPROVED
01	CALL ISSUER	CALL ISSUER
02	CALL ISSUER	CALL ISSUER
03	CONTACT SERVICE PROVIDER	If Merchant / Terminal status is inactive / record not found / contains incorrect parameters
04	PICK UP CARD	Pick up the card
05	DO NOT HONOR TRANS DECLINED	Issuer declined transaction
06	DECLINED #06	General Decline
07	PICK UP CARD	Pickup card, special condition (other than lost or stolen)
08	APPROVED VERIFY ID & SIGNATURE	Honor with identification
09	PLEASE WAIT	Request in process
10	APPROVED IN PART	Partial approval (only if terminal supports)
11	APPROVED	VIP approval
12	INVALID TXN	Invalid Transaction
13	INVALID AMOUNT	Transaction Amount error

14	DECLINED #14	Decline
15	DECLINED #15	Decline
16	DECLINED #16	Declined due to insufficient funds
17	DECLINED #17	Declined due to customer cancellation
19	DECLINED #19	Re-enter transaction
20	DECLINED #20	Decline
21	DECLINED #21	Decline
22	DECLINED #22	Decline
23	DECLINED #23	Decline
24	DECLINED #24	Decline
25	DECLINED #25	Decline
26	DECLINED #26	Decline
27	DECLINED #27	Decline
28	DECLINED #28	Decline
29	DECLINED #29	Decline
30	FORMAT ERROR	Error in the message, mandatory fields are absent or contains invalid values
31	DECLINED #31	Decline
32	DECLINED #32	Decline
33	DECLINED #33	Decline
34	DECLINED #34	Decline
35	DECLINED #35	Decline
36	DECLINED #36	Decline
37	DECLINED #37	Decline
38	EXCESS PIN TRIES	EXCESS PIN TRIES
39	DECLINED #39	DECLINED # 39
40	DECLINED #40	DECLINED # 40
41	PICK UP CARD	Card reported lost, merchant should retain card
42	DECLINED #42	Decline
43	PICK UP CARD	Card reported stolen, merchant should retain card
44	DECLINED #44	Decline
45	DECLINED #45	Decline
46	DECLINED #46	Decline
47	DECLINED #47	Decline
48	DECLINED #48	Decline
49	DECLINED #49	Decline
50	DECLINED #50	Decline
51	IN SUFFICIENT FUNDS	Card declined due to funds not available
52	NO CHEKING ACCT	No checking account
53	NO SAVINGS ACCT	No savings account
54	EXPIRED CARD	EXPIRED CARD (If Expiry Date check is enabled for the BIN range)
55	INCORRECT PIN	Incorrect PIN entered
56	DECLINED #56	Decline
57	DECLINED #57	Transaction not permitted to cardholder
58	DECLINED #58	Decline
59	DECLINED #59	Decline
60	DECLINED #60	Decline
61	EXCEEDS AMT LMT	Exceeds velocity amount limits

62	RESTRICTED CARD	Restricted card
63	SECURITY ERR	Security violation
64	DECLINED #64	Decline
65	EXCEEDS COUNT	Exceeds velocity count limit
66	DECLINED #66	Decline
67	DECLINED #67	Declined
68	RETRY	Response received too late
69	DECLINED #69	Decline
70	DECLINED #70	Decline
71	DECLINED #71	Decline
72	DECLINED #72	Decline
73	DECLINED #73	Decline
74	DECLINED #74	Decline
75	EX-PIN TRIES	Available number of PIN retries exceeded
76	DECLINED #76	Decline
77	DECLINED #77	Decline
78	OLD ROC NOT FOUND	Original transaction not found
79	DECLINED #79	Decline
80	DECLINED #80	Decline
81	DECLINED #81	Decline
82	DECLINED #82	Decline
83	DECLINED #83	Decline
84	DECLINED #84	Decline
85	DECLINED #85	Decline
86	DECLINED #86	Decline
87	DECLINED #87	Decline
88	DECLINED #88	Decline
89	DECLINED #89	Decline
90	DECLINED #90	Decline
91	TRY AFTER 5MIN # 91	Issuer unavailable
92	TRY AFTER 5MIN #92	Destination not found for routing
93	DECLINED #93	Transaction declined due to violation of law
94	DECLINED #94	Decline
95	TOTALS MISMATCH	Totals Mismatch (Only for Settlements)
96	SYSTEM ERROR	Transaction could not be processed due to system issues
97	DECLINED #97	Decline
98	DECLINED #98	Decline
99	DECLINED #99	Decline
Y1	OFFLINE APPROVED 1	EMV transaction - Offline approved by terminal
Y3	OFFLINE APPROVED 3	EMV transaction - Unable to go online; Offline approved by terminal
Z1	OFFLINE DECLINED 1	EMV transaction - Offline declined at terminal
Z3	OFFLINE DECLINED 3	EMV transaction - Unable to go online; Offline declined at terminal

8.15 DE041_Card_Acceptor_Terminal_Identification

Field 41 contains a code that identifies the card acceptor terminal at the card acceptor location. For electronic point-of-sale or point-of-service (POS) terminals, when the ID is not unique to a specific terminal, Field 42—Card Acceptor

Identification Code can be used along with this field. Each terminal ID should be eight characters long and the terminal owner assigns it.

8.16 DE042_Card_Acceptor_Identification_Code

Field 42 contains the identifier of the card acceptor operating the point-of-sale or point-of-service terminal. Field 42 is used as a “merchant ID” to uniquely identify the merchant in the transaction request.

8.17 DE043_Card_Acceptor_Name_Location

Field 43 contains the name and location of the card acceptor, including the city name and country code. Field 43 has a single fixed-length format.

Positions 1–25, Card Acceptor Name: Merchant name as known to the cardholder; or, for original credit money transfers or enhanced prepaid loads, refer to requirements in the Usage section.

Positions 26–38, City Name: City where the customer transaction occurs.

Positions 39–40, Country Code: The 2-character alpha code in uppercase format for the country where the cardholder transaction occurs.

8.18 DE045_Track_1_Data

Field 45 contains the information encoded on Track 1 of the magnetic stripe, including field separators but excluding beginning and ending sentinels and LRC characters. Field 45 is used in original authorization requests but not in responses, advice responses, or reversals.

8.19 DE052_Personal_Identification_Number_Data

Field 52 contains a number assigned to a cardholder intended to uniquely identify that cardholder at the point of interaction. The use of the PIN is subject to bilateral agreement. The data element may contain the PIN itself or a derivative. This field is a fixed binary bytes field. This field is encrypted using DUKPT method. PIN should not be stored in the POS device as per the PCI mandate.

8.20 DE053_Security-Related_Control_Information

This field contains the Key serial number (KSN) whenever field 52 (i.e. PIN Block) is encrypted using the DUKPT method.

8.21 DE054_Additional_Amounts

Field 54 contains other amounts associated with the transaction. When processing restaurant transactions this field contains the tip. This field may contain fee amount if any fee is levied on the transaction. In case of purchase with cash back transactions, this field should contain the cash back amount. Transaction amount will be inclusive of this amount.

8.22 DE053_Security-Related_Control_Information

This field contains the Key serial number (KSN) whenever field 52 (i.e. PIN Block) is encrypted using the DUKPT method.

8.23 DE055_Integrated_Circuit_Card_Related_Data

Field 55, in ISO-8583 is Integrated Chip Data. This field contains integrated circuit card (ICC)-related data that is transmitted from the ICC to the card issuer and from the card issuer to the ICC. This field is carried in VSDC and Contactless Magnetic Stripe transactions and supports ICC data in TLV format.

This field is present in authorization (0100 and 0200), reversal (0400), authorization advice (0120 and 0220) and batch upload (0320) messages. The data is taken from a chip card presented by a cardholder at the POS device or from the device itself.

The following table shows the details of Field 55 EMV TAGs.

TAG	TAG NAME	FORMAT	REQ	RES	DESCRIPTION
71	Issuer Script Template 1	B ..128		O	It contains proprietary issuer data to be transmitted to the ICC before the second cryptogram is generated by the ICC.
72	Issuer Script Template 2	B ..128		O	It contains proprietary issuer data to be transmitted to the ICC after the second cryptogram is generated by the ICC.
82	Application Interchange Profile	B 2	M		Indicates the capabilities of the ICC to support specific functions. (2 bytes length).
84	Dedicated File Name	B ..16	O		Contains the name of the dedicated file as described in ISO/IEC 7816-4. Application Identifier (AID) / Dedicated File (DF) Name – Tag '84' - Taken from the application (application specific data)
91	Issuer Authentication Data	B ..16		C	Contains the data sent to the ICC for on line issuer authentication. Condition: If request contains Tag 9F10
95	Terminal Verification Results	B 5	M		Terminal Verification Result (TVR) – Tag '95' - Status of the different functions as seen by the terminal during the processing of a transaction.
9A	Transaction Date	B 3	M		Contains the date on which the transaction was authorized, in the form of six hexadecimal digits over three bytes (format YYMMDD).
9C	Transaction Type	B 1	M		Gives the type of transaction indicated to the ICC at authorization time.
5F2A	Transaction Currency code	N 3	M		Contains the Transaction currency code
5F34	PAN sequence number	N 2	C		PAN sequence number – retrieved from the card. Condition: If provided by ICC
9F02	Authorized Amount	B 6	M		Contains the authorized amount of the transaction, carried as 12 hexadecimal digits, over six bytes.
9F03	Other Amount	B 6	M		Contains a cash-back amount associated with the transaction, carried as 12 hexadecimal digits, over six bytes. Should be all zeros for non cash-back Rupay card transactions.

					Mandatory for all rupay EMV card transactions and for other card types It is conditional.
9F09	Terminal Application Version Number	B	2	O	Contains the version number assigned by the payment system to the application.
9F10	Issuer Application Data	B	..32	C	Contains proprietary application data to be transmitted to the issuer in an online mode. Condition: If provided by the card
9F1A	Terminal Country Code	B	2	M	Contains the numeric code for the country where the terminal is located. It complies with ISO3166, it is carried as three hexadecimal digits over two bytes.
9F1E	Interface Device (IFD) Serial number	B	8	M	Contains a unique, permanent serial number assigned to the IFD by the manufacturer. This serial number is encoded as eight alphanumeric characters over eight bytes.
9F26	Application cryptogram	B	8	M	Contains the cryptogram computed by the ICC.
9F27	Cryptogram Information Data	B	1	M	Indicates the type of cryptogram and the actions to be performed by the terminal.
9F33	Terminal Capabilities	B	3	O	Indicates the card data input, customer verification method and security capabilities of the terminal.
9F34	Cardholder Verification Method Results	B	..4	O	Indicates the result of the last cardholder verification performed.
9F35	Terminal Type	B	1	O	Indicates the environment of the terminal, its communications capabilities and its operational control. This consists of two hexadecimal digits carried in one byte.
9F36	Application Transaction Counter (ATC)	B	2	M	Contains the value of a counter maintained by the ICC, which is used in the generation of the cryptogram.
9F37	Unpredictable Number	B	4	M	Contains a value, which is included in the generation of the cryptogram to provide variability and uniqueness.
9F41	Transaction Sequence Number	B	..4	O	It is a counter maintained by the terminal, which is incremented by one for each transaction. The value of counter is carried as up to eight hexadecimal digits in up to four bytes.
9F53	Transaction Category Code	B	1	O	Contains a code defining the industry sector in which the merchant operates.
9F5B	Issuer Script Result	B	..5	C	Contains result of Issuer script processing.

					Condition: If provided by ICC, to be sent in reversal, void, adjust, tip adjust, batch upload transactions.
9F6E	Form Factor indicator	B	2..128	C	FFI defines the types of consumer device used to conduct the transaction. Condition: If provided by contact less ICC
9F7C	Customer Exclusive data	B	2..128	C	CED offers issuers an opportunity to include value added services to Visa Paywave cards. Condition: If provided by contact less ICC

8.24 DE060_Private-Use_Field_1

8.24.1 Batch Number

The batch number is sent to the host in the settlement request message (message type 0500). Batch numbers is set during terminal initialization. Batch number range – 000001 to 999999. When the batch is successfully settled, batch number is incremented by 1. Terminal should send this value in TLV format.

8.24.2 Original Message Data

The original message data is used to carry data in the transaction upload (message type 0320) of the original transaction, since the message type and system trace audit number of the 0320 is not the same as the original transaction.

Message Type: 0320

Field	Attribute	Bytes	Values
Length Attribute	N3	2	'0022' - BCD length of data to follow
MTI	N4	4	MTI of Original transaction
STAN	N6	6	STAN of Original transaction
RRN	N12	12	RRN of Original transaction
Authorization source	Ans1	1	Authorization source (Space if not present)
Transaction ID	An15	15	Transaction ID

8.24.3 Original Amount

Message Type: 0220 and 0420

The original amount field is used to carry the amount of the transaction prior to a void or adjustment (message type 0220 and 0420). Terminal should send this field in TLV format.

8.25 DE061_Private-Use_Field_2

8.25.1 CVV2/CVC2/4DBC

CVV2/CVC2 is a 3-digit numeric value for Visa/MasterCard/Rupay respectively. DBC is a 4-digit numeric value applicable when present in the request packet for Amex authorizations.

Non Encrypted CVV2/CVC2/4DBC value				
Field	Attribute	Bytes	Bytes	Values
CVV2/CVC2				
Length Attribute	N	3	2	'0003' - BCD length of data to follow
CVV2/CVC2	An	3	3	Key entered value
4DBC				
Length Attribute	N	3	2	'0004' - BCD length of data to follow
4DBC	An	4	4	Key entered value

Encrypted CVV2/CVC2/4DBC value				
Field	Attribute	Bytes	Bytes	Values
CVV2/CVC2				
Length Attribute	N	3	2	'0008' - BCD length of data to follow
CVV2/CVC2	An	16	16	Encrypted CVV2 / CVC2 value
4DBC				
Length Attribute	N	3	2	'0008' - BCD length of data to follow
4DBC	An	16	16	Encrypted 4 DBC value

8.25.2 Terminal Date and Time

The host shall send the date and time in the settlement response packet (0510) to facilitate the terminal to set its real time clock with the right values.

Message Type: 0510

Field	Attribute	Bytes	Bytes	Values
Length Attribute	N	3	2	'0012' - BCD length of data to follow
Terminal Date and Time	N	12	12	Date and time in YYYYMMDDHHMM format

8.26 DE062_Private-Use_Field_3

8.26.1 Invoice Number

Invoice Number is a unique 6-digit number for a terminal transaction. It will be used by the HOST to locate the original transaction when adjustment/reversal is received. Invoice Number is present in all financial request packets except settlement request. Terminal should send this value in TLV format.

8.26.2 POS Application Details

Settlement Request data (MTI: 0500)

Field	Values
Max 20 Bytes	POS Device and Model Details. Device and Model should be separated by the field separator \$
1 Byte	Field separator \$
Max 15 bytes	Application Name and Version number of the Terminal application in. Application Name and Version number separated by field separator \$
1 Byte	Field separator \$
Max 20 bytes	OS Name and Version Number. OS Name and Version Number are separated by field separator \$
1 Byte	Field separator \$
Max 10 bytes	Terminal application version as given by ISG during certification (padded with trailing spaces)
1 Byte	Field separator \$
Max 15 bytes	Primary Authorization Phone Number – as configured in the terminal, padded with trailing spaces
1 Byte	Field separator \$
Max 15 bytes	Secondary Authorization Phone Number – as configured in the terminal
1 Byte	Field separator \$
Max 25 bytes	IMEI number
1 Byte	Field separator \$
Max 25 bytes	SIM number
1 Byte	Field separator \$
Max 15 bytes	Terminal Hardware Serial Number

8.26.3 Private Key (MTI: 0800)

8.26.3.1 Initial PIN Encryption Key (IPEK) and Line Encryption Master Key download:

Used in Key Exchange Message 0800 to download the initial PIN encryption key and Line Encryption Master Key.

Message Type - 0800

Field	Attribute	Bytes	Values
Length Attribute	N 3	2	'0032+X' - For 3 DES encryption - BCD length of data to follow
Transport Key	An 32	32	3 DES Transport Key (Encrypted using the public key of the switch)
Public Key Certificate serial number	N X	X	Exact length of this field depends on the certificate serial number length.

Message Type - 0810

Field	Attribute	Bytes	Values
Length Attribute	N 3	2	'00076'
IPEK Key	An 32	32	3 DES IPEK Key (Encrypted using the transport key)
Key Check Value	An 6	6	Key Check value of the key
Line Encryption Master Key	An 32	32	3 DES Line Encryption Master Key (Encrypted using the transport key)
Key Check Value	An 6	6	Key Check value of the LEK

8.27 DE063_Private-Use_Field_4

Request Message in TLV format for all messages other than settlement request packet

8.27.1 Transaction Request Message in TLV format for all transactions

1. Ticket number
2. Hardware serial no
3. Fallback reason code
4. Terminal Batch number
5. Transaction currency code - non-DCC transactions
6. DCC data - DCC transactions (Amount in Local currency, Exchange Rate and Currency Code etc.)
7. Authorization source
8. Transaction ID
9. Local or international card indicator

8.27.2 Settlement Totals:

The reconciliation totals are sent to the host in the settlement message (message type 0500). The totals are the capture, debit and authorized totals of the current open batch.

Message Type: 0500

Field	Attribute	Bytes	Values
Length Attribute	N 3	2	0LLL - BCD Length of data to follow
Total Currencies	N 2	2	Total number of currencies being settled, maximum 20 currencies
Currency Code	An 3	3	ISO currency code of the transaction currency 1
Sales Count	N 5	5	00000-99999
Sales Amount	N 15	15	\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$c
Refund Count	N 5	5	00000-99999

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Refund Amount	N	15	15	\$\$\$\$\$\$\$\$\$\$\$\$\$cc
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Note: Currency Code, Sales Count, Sales Amount, Refund Count, Refund Amount will repeat for each currency.