ISO8583

Data Elements & Txn Types

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Syntax of a Data element

- All Data Elements must follow a syntax which determines the data types allowed for a variable and how the data to be parsed

Data Types

Type	Description
"a"	Alphabetics only (incl. blanks)
"n"	Numeric only
"an"	Alphanumeric
"as"	Alphabets + Special chars
"ans"	Alphabets + Numeric + Special chars
"ns"	Numeric + Special chars
"b"	Binary Data

Syntax

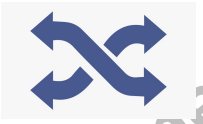
Type	Description
Fixed	DE is of fixed length
LLVAR *or* LLLVAR	DE is variable in length LL or LLL indicates the length of the variable data (LL if the length is 0-99 OR LLL if its 000-999) VAR indicates the data component For example: 0598762 for an LLVAR field indicates the length of the field is 5 & the data is 98762 Note: sometimes LL or LLL is designated as .. Or ... like "a.." Or "a..."

ISO8583: Data Categories

ISO8583

Card (Device) & Cardholder Data

Merchant & Acquirer Data



Transaction Data

- Txn Type & Methods
- Currency & Amounts Data
- Txn Ref Data

Card & Cardholder Data

DE #	Description	Data type & Syntax	Example
2	Card Number (PAN)	n..19 (Variable upto 19 digits)	164422556677889011
14	Card Expiration Date	n-4 (4 digits in YYMM format)	2312
23	Card Sequence Number	n-3 (3 digits fixed)	001
35	Track 2 Data	ans...37 (alphanumeric plus special chars upto 37 chars)	;1234567890123445=99011200XXXX00000000?*
45	Track 1 Data	ans...76 (alphanumeric plus special chars upto 76 chars)	%B1234567890123445^PADILLA/L.^99011200000000000000**XXX******?*

Merchant / Acquirer Data

DE #	Description	Data type & Syntax	Example
18	Merchant Category Code (MCC)	n-4 (4 digits fixed)	6011- ATM 5411 - Super Markets
19	Acquirer Country Code	n-3 (3-digit Country code as per ISO3166)	356 - India 036 - Australia
32	Acquirer Institution ID Code	n..11 or n..6 (Scheme assigned Code to Acquirer)	
37	Retrieval Ref #	an-12 (Fixed 12-digit number assigned by Acquirer for any future reference)	

Merchant / Acquirer Data

DE #	Description	Data type & Syntax	Example
41	Card acceptor terminal identification	ans-8 (Fixed 8 characters Alphanumeric + special characters)	Acquirer assigned Terminal ID
42	Card acceptor ID code	ans-15 (Fixed 15 characters Alphanumeric + special characters)	Merchant ID given by Acquirer
43	Card acceptor Name/Location	ans-40 (Fixed 40 characters Alphanumeric + special characters)	Merchant Name Merchant Street Address Merchant City Merchant State Merchant Country

Transaction Data: Txn Types & Methods

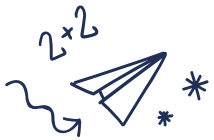
DE #	Description	Data type & Syntax	Valid values & Example
3	Processing Code	n-6 (Fixed 6 byte numeric) 3 parts Bytes 1-2: Transaction Type Bytes 3-4: From Account Bytes 5-6: To Account	Transaction Type (1-2) 00 = Purchase 01 = Withdrawal 20 = Return/Refund 28 = Payment 30 = Balance Inquiry Account Type: 00 = Default account 10 = Savings account 20 = Checking account 30 = Credit Card account Eg: 011000 = Withdrawal from savings account

Transaction Data: Txn Types & Methods

DE #	Description	Data type & Syntax	Valid values & Example
22	POS Entry mode	n-3 (Fixed 3 byte numeric) Bytes 1-2: PAN Entry mode Bytes 3: PIN Entry capability	PAN Entry mode: 90 = PAN Entry via Magstripe 05 = PAN Entry via Chip PIN Entry mode: 1 = Terminal has capability 2 = Terminal doesn't have capability Eg: 051 = Chip read Txn, where Terminal has PIN capability

Transaction Data: Txn Types & Methods

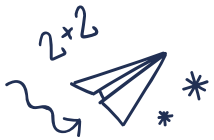
DE #	Description	Data type & Syntax	Valid values & Example
39	Response Code	an-2 (Fixed 2 byte alphanumeric)	00 = Approved 08 = Honor with ID (Say Signature) 05 = General decline 51 = Insufficient funds/Over Credit limit 54 = Expired Card



Transaction Data: Currency & Amounts

Transaction Amount can be overall categorized into 4 types

- **Transaction Amount:** Amount in the local currency of Acquirer.
- **Cardholder Billing Amount:** Transaction Amount in Issuer's currency
- **Settlement Amount:** Funds to be transferred from Acquirer to Issuer (in settlement currency)
- **Fees:** Any fees to be billed to cardholder



Transaction Data: Currency & Amounts

DE #	Description	Data type & Syntax	Valid values & Example
4	Transaction Amount	n-12 (12 byte numeric) Right aligned	USD 12.34 is passed as 000000001234
5	Settlement Amount		
6	Cardholder Billing Amount		
49	Transaction Currency Code	n-3 (3 byte numeric)	Currency codes as per ISO currency codes 356 = INR 840 = USD
50	Settlement Currency Code		
51	Billing Currency Code		

Transaction Data: Txn Ref Data

DE #	Description	Data type & Syntax	Valid values & Example
7	Transmission Date and Time	n-10 (10 byte numeric)	Time in MMDDhhmmss 1220102030 Dec 20th, 10:20:30 in UTC
11	System Audit Trace Number	n-6 (6 byte numeric)	Unique identifier for a transaction Generated by the Network
38	Authorization Code	ans-6 (6 byte alphanumeric + special characters)	Generated by Issuer (or by Scheme incase of stand-in) for approved txns

Key points

- Another important data element is DE55. This is for Chip data. It contains of the data from the chip & its interaction with Terminal and Results.
- Refer to specific Scheme Manual
    - MasterCard: Customer Interface Specification
    - Visa: Base I Technical Specification
    - RuPAY: Online Switching Interface Specification