

8 Customers card and SAM file structures and data elements

8.1 Customers card

8.1.1 Overview

File	Description
DF "IEP"	
ISF	Internal Secret File containing keys for el. purse function
EF _{IEP}	Purse specific parameters
EF _{BAL}	Purse balance
EF _{PARAM}	Additional parameters
EF _{PLOG}	Purchase log data
DF "POS"	
ISF	Internal Secret File containing keys for Debit-POS
EF _{POS}	Debit-POS function operating parameters
EF _{POSPAR}	Debit-POS function defining parameters
EF _{POSLOG}	Debit-POS log data
DF "ECH"	
ISF	Internal Secret File containing keys for el. cheque
EF _{ECH}	Cheque specific parameters
EF _{BAL}	Cheque balance
EF _{PARAM}	Additional parameters

EF _{PLOG}	Purchase log data
--------------------	-------------------

8.1.2 Master file (“root directory”)

File ID	Dedicated-/Elementary Files Data Elements	Type Format	Total Length	Description
3F 00	MF		269	
00 01	EF_PHASE	1	3	Transparent
	P_IEP	2h	1	Version Number card IEP application
	P_POS	2h	1	Version Number card POS application
	P_ATM	2h	1	Version Number card ATM application
00 02	EF_SCN	1	36	Transparent
	SERVICE	4h	2	Requested or Supported Service
	ISO_305	1-19n	10	Cardholder Id. Number for the current file
	ISO_307	3n	2	Cardholder id. seq. number for the current file
	ISO_309	YYYDDD	3	Effective Date
	ISO_310	YYYDDD	3	Expiry Date of card
	AWS	2n	1	User key
	LKZ	2n	1	Limit identifier
	DUPL_NUM	2n	1	Duplicate Number
	SECTOR_ID	2n	1	Sector Identifier
	PIN_CHANGE	2h	1	PIN Change Allowed indicator
	VK_PIN_RST	4h	2	Key version used for resetting the PIN
ISO_405	YYYDDD	3	Date latest on-line authorisation	

	59PAN_ID	4h	2	Identifier of bank group sharing the 59PAN file
	VK_PIN_PRES	4h	2	Key version used for encrypting the PIN
	VK_RSA	4h	2	Key version of RSA keys
00 03	EF_CERT	1	64	Transparent
	CARD_CERT	128h	64	Card Certificate (using RSA)
00 04	EF_CARD_NR	1	8	Transparent
	CARD_NR	16h	8	Unique Card Number
01 05	EF_TFIELD	1	2	Cyclic
	NT_ICC	4h	2	Customers card transaction counter

8.1.3 “Subdirectory” for electronic purse

FID	Dedicated-/Elementary Files Data Elements	Type Format	Total Length	Description
DF 01	DF_IEP		707	
01 01	EF_IEP	1	38	Transparent
	PP_IEP	CCCSSS (6n)	3	Purse Provider id for an IEP
	IEP	10h	5	IEP serial number
	ALG_IEP_PSAM	2h	1	Cryptographic Algorithm used by the IEP/PSAM
	VK_IEPL_OFF	4h	2	Offline Key Version used for IEP load
	DEXP_IEP	YYYYDD	3	Expiry date of IEP
	DACT_IEP	YYYYDD	3	Activation Date of an IEP
	DDEA_IEP	YYYYDD	3	Deactivation Date of an IEP

	AM_IEP_PSAM	2h	1	Authentication Mode IEP/PSAM
	CURR_IEP	3n	2	Actual Currency for an IEP
	BALMAX_IEP	8h	4	Maximum Balance of an IEP
	UA_IEP	2h	1	Activation Status of an IEP
	VK_IEPP_OFF	4h	2	Offline Key Version used for IEP purchase
	VK_IEPL_ON	4h	2	S4 Key Version used for IEP load
	VK_IEPP_ON	4h	2	Online Key Version used for IEP purchase
	POOL_ID	4h	2	Pool Identifier
	BAL_IEP_CS	4h	2	Checksum on the BAL_IEP data element
01 02	EF_BAL	1	4	Transparent
	BAL_IEP	8h	4	Balance of an IEP
01 04	EF_PLOG	8	8x33	Cyclic
	TRT	2h	1	Transaction Type
	NT_ICC	4h	2	Transaction Number
	MTOT_IEP	8h	4	Total Transaction Amount for a Purchase
	M_PDA	8h	4	Transaction Amount
	CURR_PDA	3n	2	Actual Currency
	PSAM	8h	4	PSAM number
	NT_TK	8h	4	Transaction Number for a Terminal Card
	CC_ICC	4h	2	Completion Code of the Cardholder Card
	DIS_DAT	12h	6	Discretionary Data
	BAL_IEP	8h	4	Balance of IEP
01 10	EF_PARAM	1	1	Transparent
	IEP_PARAM	2h	1	Electronic purse parameter including IEP lock

8.1.4 “Subdirectory” for Debit-POS

FID	Dedicated-/Elementary Files Data Elements	Type Format	Total Length	Description
DF 03	DF_POS		362	
00 01	EF_POS	1	12	Transparent
	ISO_403	2h	1	Number of consecutive performed off-line txs
	ISO_407	8h	4	Total off-line amount
	ISO_410	YYDDDD	3	Revolving credit cycle begin
	ISO_411	8h	4	Amount remaining this cycle
00 02	EF_POSPAR	1	26	Transparent
	ISO_317_316	4n	2	Currency Exponent and Code
	ISO_401	8h	4	Floor Limit
	ISO_402	2h	1	Maximum number of off-line authorisations
	ISO_404	4h	2	Maximum days off-line
	ISO_406	8h	4	Maximum total off-line amount
	ISO_406_TERM	8h	4	Maximum total off-line amount (for term. use)
	ISO_408	8h	4	Revolving credit limit
	ISO_409	2h	1	Revolving credit cycle length
	VK_ON	4h	2	Key version used for On-Line Services
	VK_OFF	4h	2	Key version used for Off-Line Services
	00 03	EF_POSLOG	8	8x28
NT_ICC		4h	2	Transaction Number
ISO_504		YYDDDD	3	Transaction Date

ISO_505	HHMM	2	Transaction Time
ISO_506	1-40an	12	Card acceptor name and location
ISO_511	8h	4	Transaction Amount (Original Currency)
ISO_512	3n	2	Original Currency Code
PIN_COUNTS	2n	1	PIN Counter status
CC_ICC	4h	2	Completion Code from the Cardholder Card

8.1.5 “Subdirectory” for electronic cheque

The structure of this dedicated file is the same as for the IEP.

FID	Dedicated-/Elementary Files Data Elements	Type Format	Total Length	Description
DF 05	DF_ECH		707	DF for electronic cheque
01 01	EF_ECH	1	38	Transparent
	PP_ECH	CCSSS (6n)	3	Purse Provider for an ECH
	ECH	10h	5	ECH serial number
	ALG_ECH_PSAM	2h	1	Cryptographic Algorithm used by the ECH/PSAM
	VK_ECHL_OFF	4h	2	Offline Key Version used for ECH load
	DEXP_ECH	YYYDDD	3	Expiry date of an ECH
	DACT_ECH	YYYDDD	3	Activation Date of an ECH
	DDEA_ECH	YYYDDD	3	Deactivation Date of an ECH
	AM_ECH_PSAM	2h	1	Authentication Mode ECH/PSAM
CURR_ECH	3n	2	Actual Currency for an ECH	

	BALMAX_ECH	8h	4	Maximum Balance of an ECH
	UA_ECH	2h	1	Activation Status of an ECH
	VK_ECHP_OFF	4h	2	Offline Key Version used for ECH purchase
	VK_ECHL_ON	4h	2	S4 Key Version used for ECH load
	VK_ECHP_ON	4h	2	Online Key Version used for ECH purchase
	POOL_ID	4h	2	Pool Identifier
	BAL_ECH_CS	4h	2	Checksum on the BAL_ECH data element
01 02	EF_BAL	1	4	Transparent
	BAL_ECH	8h	4	Balance of the ECH
01 04	EF_PLOG	8	8x33	Cyclic
	TRT	2h	1	Transaction Type
	NT_ICC	4h	2	Transaction Number
	MTOT_ECH	8h	4	Total Transaction Amount for a Purchase
	M_PDA	8h	4	Transaction Amount
	CURR_PDA	3n	2	Actual Currency
	PSAM	8h	4	PSAM number
	NT_TK	8h	4	Transaction Number for a Terminal Card
	CC_ICC	4h	2	Completion Code from the Cardholder Card
	DIS_DAT	12h	6	Discretionary Data
	BAL_ECH	8h	4	Balance of an ECH
01 10	EF_PARAM	1	1	Transparent
	ECH_PARAM	2h	1	Electronic purse parameter including ECH lock

8.2 Terminal card file structure and data elements

8.2.1 Master File (“root directory”)

FID (File ID)	Master-/Elementary-File, Data Element	Type and Format	Total Length [Byte]	Description
3F 00	MF		1319	Master file
00 01	EF_TK_NR	T	4	Terminal card identifier
	PSAM	8h	4	Terminal card ID
00 02	EF_PHASE	T	6	Current version of card software
	P_IEP	2h	1	Phase number for the IEP
	P_POS	2h	1	Phase number POS
	P_ATM	2h	1	Phase number ATM
	P_VERS	2h	1	Version number of Hard- and Software
	P_FUNCT	4h	2	Bitmap, indicating supported messages
00 03	EF_SCN_FIX	T	22	TK data (normally not changed)
	DEXP_TK	YYYDDD	3	Date of expiration of the TK
	DACT_TK	YYYDDD	3	Date of activation of an TK
	TERM_ID	16h	8	Terminal identifier
	59PAN_ID	4h	2	ID of bank group sharing the 59PAN file
	VK_UPDATETK_MAC	4h	2	Key version for deriving KS_UPD_MAC
	VK_UPDATETK_ENC	4h	2	Key version for deriving KS_UPD_ENC
	VK_UPDATETK_SIG	4h	2	Key version for deriving KS_UPD_SIG

00 04	EF_SCN_VAR	T	63	TK data (changeable)
	VK_IEPP_OFF	4h	2	Offline key version for IEP purchase
	VK_IEPP_ON	4h	2	Online key version for IEP purchase
	VK_POS_OFF	4h	2	Key version for offline POS
	VK_POS_ON	4h	2	Key version for online POS
	VK_ATM_OFF	4h	2	Key version for offline ATM
	VK_ATM_ON	4h	2	Key version for online ATM
	VK_IEPL_OFF	4h	2	Key version for offline IEP load
	VK_IEPL_ON	4h	2	Key version for online IEP load
	AID_IEP	16h	8	Appl. ID IEP
	AID_POS	16h	8	Appl. ID POS
	AID_ATM	16h	8	Appl. ID ATM
	AID_ECH	16h	8	Appl. ID ECH (on dual purse card)
	EF_CERT_FID	4h	2	EF_CERT File Identifier
	EF_APSS_FID	4h	2	EF_APSS File identifier
	SERVICE	4h	2	Requested or supported service
	IEP_POS_SWITCH	8h	4	Threshold value for proposed service (400,00)
	RSA_ANF_PROB	2h	1	RSA checking ratio
	SIGN_CHECK_TK	2h	1	Signature check by TK
	SHOW_BALANCE	2h	1	Show balance indicator
VK_PIN_RST	4h	2	Key version, used for resetting the PIN	
00 05	EF_TFIELD	C	4	Transaction number
nup	NT_TK	8h	4	Transaction number for a PSAM

00 06	EF_NI_FIELD	C	2	NI
nup	NI	4h	2	Number of transactions
00 07	EF_NC_FIELD	C	2	NC
nup	NC	4h	2	Reconciliation number
00 08	EF_UPDATETK_NO	C	2	Contains Number of update
nup	UPDATE_TK_NO	4h	2	Sequential number of the TK update
00 0A	EF_KEY_INFO	Lf	46x12	KIDs and further infos of all SAM keys
	KEY_ID	10h	5	Key identifier
	KEY_PURPOSE	8h	4	Key purpose
	KEY_POINTER	2h	1	Pointer on the position of the key
	NT_SESSION	4h	2	Transaction number for a KS generation
00 0B	EF_BANKTERM	T	32	Contains bank terminal specific datas
	BIN	16h	8	Bank Identification Number
	BT_ID	6h	3	Bank terminal ID
	CHECK_BAC	8h	4	Check BAC
	CHECK_PIN	8h	4	Check PIN
	RFU_13Byte	26h	13	Free memory for future applications
00 0C	EF_BITMAP_EXT	Lf	16x14	Contains bitmap and corresponding ranges
	AID	16h	8	Application identifier
	FID	4h	2	File identifier
	KID	2h	1	Key identifier
	BIT_3RD	2h	1	Bit position in BITMAP_3RD
	OL	2h	1	Lower offset byte
	Le	2h	1	Length of expected response data
00 0D	EF_ATR	T	15	Contains the ATR historical bytes

	ATR_HIST_DATA	30h	15	Historical characters of TK-ATR
--	---------------	-----	----	---------------------------------

8.2.2 “Subdirectory” for electronic purse and electronic cheque

FID (File ID)	Dedicated-/Elementary-File, Data Element	Type and Format	Total Length [Byte]	Description
DF 01	DF_IEPP D0 40 00 00 06 00 00 02		1022	Terminal data for for IEP purchase transactions
00 01 nup	EF_POOL_LOG_1	C	16	Log of the last xx reconciliations for Pool 1
	TM(1)	8h	4	Accumulated amount of payment
	S5(1)	8h	4	Signature
	TM(1)	8h	4	Accumulated amount of payment
	S5(1)	8h	4	Signature
00 02 nup	EF_POOL_LOG_2	C	16	Log of the last xx reconciliations for Pool 2
	TM(1)	8h	4	Accumulated amount of payment
	S5(1)	8h	4	Signature
	TM(1)	8h	4	Accumulated amount of payment
	S5(1)	8h	4	Signature
.
.
00 ... nup	EF_POOL_LOG_n	C	16	Log of the last xx reconciliations for Pool n
	TM(n)	8h	4	Accumulated amount of payment

	S5(n)	8h	4	Signature
	TM(n)	8h	4	Accumulated amount of payment
	S5(n)	8h	4	Signature
.
00 13 nup	EF_POOL_LOG_20	C	16	Log of the last xx reconciliations for Pool 19
	TM(20)	8h	4	Accumulated amount of payment
	S5(20)	8h	4	Signature
	TM(20)	8h	4	Accumulated amount of payment
	S5(20)	8h	4	Signature
00 14 nup	EF_POOL_LOG_20	C	16	Log of the last xx reconciliations for all ECH transactions
	TM(20)	8h	4	Accumulated amount of payment
	S5(20)	8h	4	Signature
	TM(20)	8h	4	Accumulated amount of payment
	S5(20)	8h	4	Signature
00 15 nup	EF_POOL	Lf	20x20	Pool totals + latest S5 signature
	NT_TK	8h	4	Transaction number for a TK
	NC	4h	2	Reconciliation number
	NI	4h	2	Number of transactions
	TM	8h	4	Pool total amount
	POOL_ID	4h	2	Pool identifier (BCD coded)
	S5	8h	4	Total amount signature
	POOL_EDC	4h	2	EDC over NT_TK, NC, NI, TM, P._ID, S5

00 16	EF_IEP	T	20	IEP application data
	PP_PSAM	CCCSSS	3	Purse provider identifier
	CURR_PDA_1	3n	2	Actual Currency for a PDA
	CURR_PDA_2	3n	2	Actual Currency for a PDA
	CURR_PDA_3	3n	2	Actual Currency for a PDA
	CURR_PDA_4	3n	2	Actual Currency for a PDA
	CURR_PDA_5	3n	2	Actual Currency for a PDA
	SINGLE_TX_LIMIT	8h	4	Single transaction recording threshold (250,00)
	SINGLE_TX_PROB	2h	1	Single transaction checking ratio
	ALG_IEP_PSAM	2h	1	Crypto algorithm used by the IEP/PSAM
AM_IEP_PSAM	2h	1	Authentication mode IEP/PSAM	
00 17 nup	EF_IEPP_LOG	C	4x41	Log of the last 2 IEP purchase transactions
	TRT	2h	1	Transaction type
	CARD_NR	16h	8	Unique card number of ICC
	NT_ICC	4h	2	Transaction number of ICC
	MTOT_PSAM	8h	4	Total transaction amount (as reg. by CAD)
	NT_TK	8h	4	Transaction number for a TK
	BAL_IEP	8h	4	Balance of an IEP
	NI	4h	2	Number of transactions
	NC	4h	2	Reconciliation number
	S4	8h	4	Online transaction signature
	S6	8h	4	Terminal transaction signature
	CC_TK (CC_CERT)	4h	2	Completion code from TK_RSA_ANF
	CC_TK	4h	2	Completion code from TK_IEP
RED_NUMBER	4h	2	Number of the redlist	

00 19 nup	EF_RECONC_LOG	C	4x9	Reconciliation data not depend. on the pool
	TRT	2h	1	Transaction type
	NT_TK	8h	4	Transaction number for a TK
	NC	4h	2	Reconciliation number
	NI	4h	2	Number of transactions
00 1A nup	EF_RECOV_LOG	C	4x30	Recov. data of the IEP purchase transaction
	TRT	2h	1	Transaction type
	IEP	10h	5	Identifier for an IEP
	NT_ICC	4h	2	Transaction number
	BAL_IEP	8h	4	Balance of an IEP
	S1	8h	4	ICC signatue
	CC_TK (CC_CERT)	4h	2	Completion code from TK_CHECK_RSA
	POOL_ID	4h	2	Pool identifier
	CURR_IEP	3n	2	Actual currency for an IEP
	MTOT_IEP	8h	4	Total transaction amount for a purchase
	MTOT_PSAM	8h	4	Total transaction amount as reg. by the CAD
00 1B	EF_POOL_NX	Lf	20x4	Number of 'Completes' and 'Corrects'
	NX	8h	4	Number of transactions for a given pool

8.2.3 “Subdirectory” for Debit-POS

FID (File ID)	Dedicated-/Elementary-File, Data Element	Type and Format	Total Length [Byte]	Description
DF 02	DF_POS D0 40 00 00 08 00 00 02		190	Terminal data used for POS transactions
00 01	EF_ATMPOS	T	18	Data used by POS application
	ISO_506	1-40an	12	Card acceptor name and location
	ISO_512	3n	2	Original currency code (DM)
	ISO_401	8h	4	Floor limit (7.500,00))
00 02 nup	EF_ATMPOSLOG	C	4*43	Contains last POS transaction
	TRT	2h	1	Transaction type
	CARD_NR	16h	8	Unique card number
	NT_ICC	4h	2	Transaction number
	NT_TK	8h	4	Transaction number for a TK
	ISO_504	YYYDDD	3	Transaction date
	ISO_505	HHMM	2	Transaction time
	ISO_511	8h	4	Transaction amount
	PIN_COUNTS	2n	1	PIN counters
	VK_POS_ON	4h	2	Key version used for online POS
	S4	8h	4	Online transaction signature
	S6	8h	4	Terminal transaction signature
	CC_TK[1]	4h	2	Completion code from TK_INIT_POS
	CC_ICC	4h	2	Completion code from the ICC

	CC_TK[2]	4h	2	Completion code from TK_POS
	HOT_NUMBER	4h	2	Hotlist number

8.2.4 “Subdirectory” for terminal related parameters

FID (File ID)	Dedicated-/Elementary-File, Data Element	Type and Format	Total Length [Byte]	Description
DF 03	DF_TERM D0 40 00 00 07 00 00 02		44	Data related to the terminal itself
00 01	EF_TERM_CKT	T	24	Variable Terminal data
	RFU_2byte	4h	2	RFU
	HOT_LENGTH	4h	2	Number of hotlist records
	HOT_DATE	YYYYDD	3	Date of current hotlist
	HOT_NUMBER	4h	2	Number of the hotlist
	RFU_2byte	4h	2	RFU
	RED_LENGTH	4h	2	Number of redlist records
	RED_DATE	YYYYDD	3	Redlist date
	RED_NUMBER	4h	2	Redlist number
	TYPE_OF_DATATRANSFER	2h	1	How terminal communicates with the host
	ID_CHECK_TK	2h	1	ID card checking indicator
	RFU_4byte	8h	4	RFU
00 02	EF_TERM_DIS	T	20	File at the discretion of the terminal vendor
	Manufacturer Id	4h	1	Terminal vendor identifier

	RFU	2h	1	RFU
	NT_COLL	8h	4	Terminal transaction counter
	OPT_FUNCT	4h	2	Bitmap defining terminal functionality
	DIS_DAT_CKT	20	10	Discretionary data (terminal vendor)
	HW/SW-Version	4h	2	Terminal HW and SW version

--- end of file ---