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ID TECH Tag Reference Guide

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ID TECH

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ID TECH Tag Reference Guide

This document describes ID TECH proprietary TLV tags as used in a variety of products. It does not include industry-standard EMV tags defined by EMVCo.

Constructed vs. Primitive Tags

We distinguish between tags that are allowed to wrap other tags, and ordinary (primitive) tags that do not wrap other tags. When TLVs are nested, the outer (wrapper) tag is said to be *constructed*. The Value of the associated "wrapper" TLV is one or more TLVs.

Tags are specified in accordance with Basic Encoding Rules (BER-TLV), per Annex B, Book 3 of EMV 4.3, and obey the following conventions:

- All ID TECH proprietary tags will be 3 bytes long.
- Byte 1 will be FF if *constructed* or DF if *primitive*.
- Byte 2 shall have bit 8 set.
- Byte 3 shall not have bit 8 set, but shall have at least one other bit set. (Example: value 00 is not allowed.)
- All tag assignments start at DFED01 for primitive tags, or FFEE01 for constructed tags.

Format

b = binary

n = numeric

an = alpha-numeric

cn = compressed numeric

NOTE: All tag payloads should be assumed to be in raw binary format unless otherwise specified.

Abbreviations

ACT	Activate transaction
AR	ID TECH Advanced Reader series firmware
Cfg	Config
CL	Contactless
CONAIDS	Configurable AIDs
GR	ID TECH Global Reader series firmware
NEO	ID TECH NEO-series firmware

Primitive Tags

Tag	Name	Focus	Description	Format	Comments
DF891C	Interac Retry Limit	Vendi	Configured value for the total number of tap attempts during an Interac Mobile Debit (NFC) application transaction.	n1	Interac Card Used
DFED01	Merchant Category	SmartTap 2.1			
DFED02	POS Capabilities Bitmaps	SmartTap 2.1			
DFED03	Retry Times	SmartTap 2.1			
DFED04	Select OSE support	SmartTap 2.1			
DFED05	Skip Second Select support	SmartTap 2.1			
DFED06	Stop Payment if smart tap2.1 failed support	SmartTap 2.1			
DFED07	Pre-Signed support	SmartTap 2.1			
DFED08	Security Option	SmartTap 2.1			reserve for auto poll

Tag	Name	Focus	Description	Format	Comments
DFED09	Service Type	SmartTap 2.1			reserve for auto poll
DFED0A	Switch to determine if fallback reason should be output	QuickChip	the switch which controls weather to output fallback reason.The default switch is OFF	b-1	00 - switch is OFF, not output falback reason01 - switch is ON, output falback reason
DFED0B	Debug Flag for Interac	Vendi	When the card is terminated, it is necessary to perform all the steps of the card and send all card data to the host.	b-1	bit 0 - Enabled debug function.bit 1 - Disable " Enter PIN" Message
DFED0C	Default Transaction Type for Master card	VP3300	This tag is setting in Group0. When the Active command does not have tag 9C, the reader will use the tag to replance the tag 9c.	b-1	
DFED0D	Default Transaction Type for Visa card	VP3300	This tag is setting in Group0. When the Active command does not have tag 9C, the reader will use the tag to replance the tag 9c.	b-1	
DFED0E	Default Transaction	VP3300	This tag is setting in Group0. When	b-1	

Tag	Name	Focus	Description	Format	Comments
	Type for Amex card		the Active command does not have tag 9C, the reader will use the tag to replance the tag 9c.		
DFED0F	Default Transaction Type for Discover card	VP3300	This tag is setting in Group0. When the Active command does not have tag 9C, the reader will use the tag to replance the tag 9c.	b-1	
DFED10	Default Transaction Type for Interac card	VP3300	This tag is setting in Group0. When the Active command does not have tag 9C, the reader will use the tag to replance the tag 9c.	b-1	
DFED11	Enable Non-EMV tag	KIII	This tag is set in Group0. Default is 1.	b-1	0: Disable1: Enable
DFED12	Log tag for MCL	MCL Lab Test			
DFED13	Log tag for MCL	MCL Lab Test			

Tag	Name	Focus	Description	Format	Comments
DFED14	Log tag for MCL	MCL Lab Test			
DFED15	Log tag for MCL	MCL Lab Test			
DFED16	Log tag for MCL	MCL Lab Test			
DFED17	Log tag for MCL	MCL Lab Test			
DFED18	Poll Mode	Vendi	One byte payload. Sets Vendi Poll Mode (see Comments).	b	Value = 00 : Auto-Poll Value = 01 : Poll on Demand
DFED19	Enable LOG	MCL log enable	This tag is used to enable/disable log. Send with ACT.		Value = 00 : Disable LOG Value = 01 : Enable LOG
DFED20	Company Name	Augusta	Use for meta data for company name.	b - 16	Can store name of company who configured the device
DFED21	Configure Date	Augusta	Tracks the date the device was configured	b - 3	Format: yymmdd
DFED22	Current Configuration Version	Augusta	Stores unique serial number + versioning information used by the company	b - 32	Freeform tag. Used based on the customer preference.
DFED23	Quick Chip: ApplePay Terminal				

Tag	Name	Focus	Description	Format	Comments
	Application Version Number				
DFED24	Quick Chip: ApplePay Terminal Capabilities Information				
DFED25	Quick Chip: ApplePay VAS Filter				
DFED26	Quick Chip: ApplePay VAS Protocol				
DFED27	SmartTap Delimiter for Service Objects				
DFED28	SmartTap Service Type Requests				
DFED74	MC DE Log CAPDU Entry	VP8800	Contains C-APDU bytes for logging	b	
DFED75	MC DE Log RAPDU Entry	VP8800	Contains R-APDU bytes for logging	b	
DFED76	MC DE Logging Enable	VP8800	Indicates Data Exchange APDU Logging is enabled for Mastercard	b - 1	

Tag	Name	Focus	Description	Format	Comments
DFED77	ZIP PPSE Event Handling	VP8800	Defines the ZIP appropriate response to PPSE events	b - 4	See Combined Selection Supplement – PPSE Failure Mode spec.
DFED78	IDTech PPSE Event Handling	VP8800	Defines the IDtech appropriate response to PPSE events	b - 4	See Combined Selection Supplement – PPSE Failure Mode spec.
DFED79	Custom PPSE Event Handling	VP8800	Defines the Customer appropriate response to PPSE events	b - 4	See Combined Selection Supplement – PPSE Failure Mode spec.
DFED7A	Mastercard PPSE Event Handling	VP8800	Defines the Mastercard appropriate response to PPSE events	b - 4	See Combined Selection Supplement – PPSE Failure Mode spec.
DFED7B	Visa PPSE Event Handling	VP8800	Defines the Visa appropriate response to PPSE events	b - 4	See Combined Selection Supplement – PPSE Failure Mode spec.
DFED7C	Amex PPSE Event Handling	VP8800	Defines the Amex appropriate response to PPSE events	b - 4	See Combined Selection Supplement – PPSE Failure Mode spec.
DFED7D	Discover PPSE Event Handling	VP8800	Defines the Discover appropriate response to PPSE events	b - 4	See Combined Selection Supplement – PPSE Failure Mode spec.

Tag	Name	Focus	Description	Format	Comments
DFED7E	Interac PPSE Event Handling	VP8800	Defines the Interac appropriate response to PPSE events	b - 4	See Combined Selection Supplement – PPSE Failure Mode spec.
DFED7F	Default DRL	VP8800	Default Dynamic Reader Limits for XP 3.1	18 bytes	Contains 6 bytes each of Contactless Terminal Floor Limit, Transaction Limit and CVM Required Limit. Data from DF8123, DFEE34 and DF8126.
DFEE01	ApplePay VAS Protocol	Apple	ApplePay VAS, used to select between Full VAS protocol and URL VAS protocol.	b-1	This is a proprietary TLV always enclosed in the ApplePay VAS collective TLV FFEE06
DFEE02	ApplePay VAS Failure Report	Apple	ApplePay VAS, used to return the Error Code, SW1-SW2, RFState for a Failed VAS transaction embedded in the FFEE06.	b-4	This is a proprietary TLV always enclosed in the ApplePay VAS collective TLV FFEE06
DFEE03	ViVOtech Proprietary Suite	MVS	MVS		
DFEE04	TAC Online	Smart Tap	Being used by Smart Tap Kernel for Terminal Configuration (set in / picked up from Contact Group)		
DFEE05	Threshold Value for Biased Random Selection.	Smart Tap	Being used by Smart Tap Kernel for Terminal Configuration (set in / picked up		

Tag	Name	Focus	Description	Format	Comments
			from Contact Group)		
DFEE06	Target Percentage for Random Transaction Selection	Smart Tap	Being used by Smart Tap Kernel for Terminal Configuration (set in / picked up from Contact Group)		
DFEE07	Maximum Target Percentage for Random Transaction Selection	Smart Tap	Being used by Smart Tap Kernel for Terminal Configuration (set in / picked up from Contact Group)		
DFEE08	RID (in AR)	ACT	The RID to be used for the transaction. Passed from PPSE to the AID module in the ACT parameters	b-5	
DFEE09	Last 4 digits of Primary Account Number (PAN)	Discover	Discover Zip (DGI '7006')		
DFEE0A	Group 0 Initialize Flag	Kiosk III	Value = 00: not initialized.(If the tag is not found or Value is not 1, reader will initialize group 0 with default setting automatically when the power cycle is on)Value = 01: Initialized	1 byte	

Tag	Name	Focus	Description	Format	Comments
DFEE0B	Issuer Script Results	ACT, Smart Tap	Used in ViVOtech 2 Serial Interface (Activate Trans & Continue Trans Response). Also being used by Smart Tap Kernel for Terminal Configuration (set in / picked up from Contact Group).		
DFEE0C	Issuer Script Results	Contact	May be used in the future by Contactless		
DFEE0D	Force Transaction Online	ACT, Smart Tap	Being used in ViVOtech 2 Serial Interface (Activate Transaction Command). Also being used by Smart Tap Kernel for Terminal Configuration (set in / picked up from Contact Group)		
DFEE0E	Default DDOL	Smart Tap	Being used by Smart Tap Kernel for Terminal Configuration (set in / picked up from Contact Group)		
DFEE0F	Enable Revocation List Processing	Smart Tap	Being used by Smart Tap Kernel for Terminal Configuration (set in / picked up from Contact Group)		

Tag	Name	Focus	Description	Format	Comments
DFEE10	Terminal Languages Supported	Smart Tap	Being used by Smart Tap Kernel for Terminal Configuration (set in / picked up from Contact Group).		
DFEE11	Enable Transaction Logging	ACT, Smart Tap	Being used in ViVOtech 2 Serial Interface (Activate Transaction Command). Also being used by Smart Tap Kernel for Terminal Configuration.		
DFEE12	KSN	Cfg	Transaction Result (response) TDES/AES mode Data encryption Key (DUKPT Key) - KSN, 10 bytes Value.		Encryption Format data. (Reserved for existing products) FFEE12 is used by Kiosk3, Vendi and Unipay3/Unipay1.5.
DFEE13	TAC Default	Smart Tap	Being used by Smart Tap Kernel for Terminal Configuration (picked up from Contact Group)		
DFEE14	TAC Denial	Smart Tap	Being used by Smart Tap Kernel for Terminal Configuration (set in / picked up from Contact Group)		
DFEE15	Application Selection Indicator	Contact	Contact L2 command		Contact EMV L2

Tag	Name	Focus	Description	Format	Comments
DFEE16	DUKPT Key or MKSK Select for Online PIN Encrypted	Contact	Contact L2 command		Contact EMV L2
DFEE17	ICC Terminal Entry Mode	Contact	Contact L2 command		Contact EMV L2. This configures the output value for 9F39, which is the POS entry mode. If you include 9F39 in the DFEF5A tag, you can expect to see the contents of DFEE17 returned.
DFEE18	MSR Terminal Entry Mode	Contact	Contact L2 command		Contact EMV L2
DFEE19	Online DOL	Contact	Contact L2 command		Contact EMV L2
DFEE1A	Output data element	Contact	Contact L2 command		Contact EMV L2
DFEE1B	Authorization Request data elements	Contact	Contact L2 command		Contact EMV L2 See Appendix E.
DFEE1C	LCD Font Size	Cfg		b-1	
DFEE1D	Sensitive Data Mask	Cfg	NEO (K3, Vendi, Unipay III, Unipay1.5) and AR (VendIII) Secure Mode Configuration of encrypting and masking data	5 bytes	byte1: Pre-PAN clear data length, range 0-6 ,default 4 byte2: Post-PAN clear data length, range 0-6 ,default 4 byte3: Mask Character for ASCII Code Value, range 0x20-0x7E, default 0x2A(*) byte4: Mask Character for Hex Code Value, range 0x0A-0x0F, default 0x0C byte5: Expire date output option, 0x30=Mask, 0x31=NotMask, default 0x31.
DFEE1E	Terminal Configuration	Contact	Contact L2		Contact EMV L2 config. See Appendix A .
DFEE1F	Issuer Script Limit	Contact	Contact L2		Contact EMV L2 Control issuer script MAX limit.
DFEE20	ICC power on waiting time	Contact	Contact L2		Contact EMV L2 Detect card in waiting time.

Tag	Name	Focus	Description	Format	Comments
DFEE21	ICC L1 data transaction waiting time	Contact	Contact L2		Contact EMV L2 Do ICC L1 data exchange waiting time.
DFEE22	Driver (Menu, Get PIN, Get MSR) Timeout	Contact	Contact L2		Contact EMV L2 3 Values: Timeout For Menu (Seconds), Timeout For Get PIN (Seconds), Timeout For Get MSR (Seconds)
DFEE23	MSR all track data	Contact	Contact L2		Contact EMV L2 When fallback to MSR, MSR data will store the tag.
DFEE24	Force Acceptance	Contact	Contact L2		Contact EMV L2
DFEE25	ICC Response Code	NEO			See Appendix .
DFEE26	Encryption Status Information	NEO	Vendi (Encryption On Only), Unipay III, Unipay1.5		<p>Byte 1:</p> <p>Bit 4/3/0: Captured Data Type 0 0 0 = Contact Card 0 0 1 = Contactless Card / EMV 1 0 1 = Contactless Card / MSD 0 1 x = MSR Card</p> <p>Bit 2/1: Encryption Mode 0 0 = TDES 0 1 = AES 1 x = Refer to "Extended Encryption Mode"</p> <p>Bit 5: Reserved for Attribution Byte Extension.</p> <p>Bit 6/7: Encryption Status (For ViVOpay IDG) 0 0 = MSR/MSD off, EMV off 0 1 = MSR/MSD off, EMV on 1 0 = MSR/MSD on, EMV off 1 1 = MSR/MSD on, EMV on</p> <p>Byte 2: (Optional)</p> <p>Bit 3/2/1/0: Extended Encryption Mode 0 0 0 0 = TDES 0 0 0 1 = AES</p>

Tag	Name	Focus	Description	Format	Comments
					0 0 1 0 = TransArmor Algorithm 0 0 1 1 = Voltage Algorithm 0 1 0 0 = Visa FPE 0 1 0 1 = Verifone FPE Bit 4~6: Reserved Bit 7: 0 = Without MAC Verification Data 1 = With MAC Verification Data
DFEE27	MSR Control	Contact	Contact L2 CMD(60-10) in Unipay1.5		MSR Only Flag In contact EMV reader. Host need MSR transaction Only. 1: MSR only enabled. 0: MSR only disabled.
DFEE28	Terminal Capabilities - No CVM Required	MasterCard	MasterCard. Group 0 (Contactless)	b-3	
DFEE29	Terminal Capabilities - CVM Required	MasterCard	MasterCard. Group 0 (Contactless)	b-3	
DFEE2A	Threshold Value for Biased Random Selection (Interac)	Interac	IDG Get/Set Configuration (Not Group Specific) (Interac Parameter)		Value used in terminal risk management for random transaction selection.
DFEE2B	Maximum Target Percentage for Biased Random Selection (Interac)	Interac	IDG Get/Set Configuration (Not Group Specific) (Interac Parameter)		Value used in terminal risk management for random transaction selection.
DFEE2C	Target Percentage for Random Selection (Interac)	Interac	IDG Get/Set Configuration (Not Group Specific) (Interac Parameter)		Value used in terminal risk management for random transaction selection.
DFEE2D	Group Number / Fallback Group	CONAIDS	CONAIDS	n2-1	When the group cannot be derived from the Kernel ID Transaction Type Group this is the group that will be used.

Tag	Name	Focus	Description	Format	Comments
DFEE2E	Max AID Length	CONAIDS	CONAIDS	n2-1	
DFEE2F	AID Disabled	CONAIDS	CONAIDS	b-1	
DFEE30	Track Data Source	Clearing	Clearing Record	b-1	
DFEE31	DD Card Track 1	Clearing	Transaction and Clearing Record	b < 60	
DFEE32	DD Card Track 2	Clearing	Transaction and Clearing Record	b < 9	
DFEE33	Interac Receipt Required	Interac	Interac		
DFEE34	Terminal Contactless Transaction Limit	CONAIDS	CONAIDS	n12-6	
DFEE35	Visa Reader Risk Flags	CONAIDS	CONAIDS	b-3	
DFEE36	CVM Required Limit	CONAIDS	CONAIDS	n12-6	
DFEE37	UI Scheme	CONAIDS	CONAIDS	b-1	UI Scheme
DFEE38	Language Option for LCD	CONAIDS	CONAIDS	n2-1	
DFEE39	Force MagStripe	CONAIDS	CONAIDS	n2-1	
DFEE3A	TAC - Online	CONAIDS	CONAIDS	b-5	
DFEE3B	TAC - Default	CONAIDS	CONAIDS	b-5	
DFEE3C	TAC - Denial	CONAIDS	CONAIDS	b-5	
DFEE3D	Reader Contactless Floor Limit Data	CONAIDS	CONAIDS Group Tag	n12-6	Related to the AID indicating the limit for which the Terminal will ask the card to perform an online transaction if the amount of the transaction is greater than this limit. Terminal - Group Tag n12 - 6

Tag	Name	Focus	Description	Format	Comments
DFEE3E	Enable Exception List Processing	Smart Tap	Being used by Smart Tap Kernel for Terminal Configuration (set in / picked up from Contact Group)		
DFEE3F	Default TDOL	Smart Tap	Being used by Smart Tap Kernel for Terminal Configuration (set in / picked up from Contact Group)		
DFEE40	Message to be displayed by EMV Kernel on "PIN Try Limit Exceeded" condition	Smart Tap	Being used by Smart Tap Kernel for Terminal Configuration (set in / picked up from Contact Group)		
DFEE41	Message to be displayed by EMV Kernel on "Last PIN Try" condition	Smart Tap	Being used by Smart Tap Kernel for Terminal Configuration (set in / picked up from Contact Group)		
DFEE42	Message to be displayed by EMV Kernel on "Please Try Again" condition	Smart Tap	Being used by Smart Tap Kernel for Terminal Configuration (set in / picked up from Contact Group)		
DFEE43	Message to be displayed by EMV Kernel on "Call Your Bank" condition	Smart Tap	Being used by Smart Tap Kernel for Terminal Configuration (set in / picked up from Contact Group)		

Tag	Name	Focus	Description	Format	Comments
DFEE44	Application Capability	Cfg		b-2	
DFEE47	SoftCard Read Cmd Data	SoftCard	IDG Activate Transaction (Cmd)		
DFEE48	SoftCard Write Data	SoftCard	IDG Activate Transaction (Cmd)		
DFEE49	SoftCard Transaction Data	SoftCard	IDG Activate Transaction (Response)		
DFEE12	KSN of Data encryption Key				
DFEE23	MSR all track data		IDTech - DFEE23		
5A	Masked PAN		IDTech - 5A with Special Length		
DFEE4A	Registered Application Provider Identifier (RID)	CONAIDS	CONAIDS	b-5	
DFEE4B	Partial Selection Allowed	CONAIDS	CONAIDS	b-1	
DFEE4C	Application Flow	CONAIDS	CONAIDS	n2-1	
DFEE4D	Selection Features - GR 1.2.10	CONAIDS	CONAIDS AID section - Flags for application selection features for this AID.	b-1	
DFEE4E	Polling Options	ACT		b-1	If Bit 1 is '1', switch to MSR after CL failure in PPSE.
DFEE4F	Interface Support	CONAIDS	CONAIDS	b-1	Used to declare the AID as a Contact or Contactless AID. 01h = Contactless AID, 02h = Contact AID. If this Tag is missing, then the AID defaults to a Contactless AID.

Tag	Name	Focus	Description	Format	Comments
DFEE50	Special Flow	ACT	IDG Activate Transaction (Cmd)		For defining special pre/post-PPSE flows for SoftCard and other non-payment Apps.
DFEE51	Amex Terminal Capability (used for Amex only)	Amex	A stand in for 9F6D in GR based products, since that tag is used in Visa for something different.	b-1	
DFEE52	Transaction CVM	Clearing	Transaction and Clearing Record	b-1	
DFEE53	Exclude from Processing	CONAIDS	CONAIDS	b-1	Indicates that this AID should not be considered as a Terminal Supported AID for the specified operations. Bit 0 (LSB): Exclude from PPSE Processing Flag. Bit 1: Exclude from Trial & Error Processing Flag
DFEE54	Kernel ID Transaction Type Group List	CONAIDS	CONAIDS - Kernel ID Transaction Type Group List is a variable length list of 3 byte elements with a maximum size in the GR of 24 bytes, which is 8 triplets. Each triplet containing a supported Kernel ID, a transaction type and a group. This list defines the supported Kernel ID's and each triplet defines which group to use if that specific kernel and transaction type is requested.	b-24	CONAIDS tag to support Combined Selection. (CONAIDS only.)
DFEE55	RID			b-5	

Tag	Name	Focus	Description	Format	Comments
DFEE56	Activate Trans for DESFireViVOComm Flows	DesFire			
DFEE57	Reader Primary Language	Cfg	IDG Get/Set Configuration (Not Group Specific)		
DFEE58	Reader Secondary Language	Cfg	IDG Get/Set Configuration (Not Group Specific)		
DFEE59	Default Kernel ID	CONAIDS	CONAIDS - AID section - Kernel ID to use if the card does not provide a Kernel ID or provides one that is length 0.	n2-1	CONAIDS tag to support Combined Selection. (CONAIDS only.)
DFEE5A	TLV Exclusion List	ACT	ViVOTech Proprietary. IDG Act Trans w/ Encryption (02-05, 02-15)		
DFEE5B	Terminal Entry Capability	Cfg	ViVOTech Proprietary	n2-1	Used only to communicate the Terminal Entry Capability to the POS Value 5 - Support VSDC Contact Chip Value 8 - Doesn't support VSDC Contact Chip (So if TTQ set to support contact chip, this value will set to 5, otherwise 8). Up to four byte BCD period representing microseconds of delay that the RF field will be deactivated during a Mobile CVM Processing Try Again.
DFEE5C	RF Deactivate Period	Cfg	ViVOTech Proprietary	b-4	Up to four byte BCD period representing microseconds of delay that the RF field will be deactivated during a Mobile CVM Processing Try Again.

Tag	Name	Focus	Description	Format	Comments
DFEE5D	D-PAS Issuer Script Response status	Discover	ViVOtech Proprietary		
DFEE5E	Transaction Timing Information	ACT	ViVOtech Proprietary Used only in the Activate Transaction Command	b-1	For updated modules, this tag is used to enable the collection of transaction timing data, for one transaction, when it is provided in the Activate Transaction Command. The actual timing data will be provided in the Activate Transaction Response.
DFEE5F	Encrypted PAN for remote PIN Pad	ACT	ViVOpay Proprietary (SRED)		Used for PIN Pad Pairing. See "Serial Interface Supplement - PIN Pad Pairing" and "Serial Interface Supplement - Enhance Activate Transaction SRED".
DFEE60	Product ID	MVS	MVS		
DFEE61	Processor ID	MVS	MVS		
DFEE62	Main Firmware Build ID	MVS	MVS		
DFEE63	CB Enhanced DDA Indicator (same block as DF03)	Visa	Visa Proprietary		aka DF03
DFEE64	CB Wave 2 CVM Requirements (same block as DF04)	Visa	Visa Proprietary		
DFEE65	Build ID Num (Cxx)	MVS	MVS		
DFEE66	SVN Number	MVS	MVS		
DFEE67	Specific Features Switch	Cfg	Enables for misc features: CVN17, Track1 and Track2 in response.	b-3	
DFEE68	Enable or Disable STOP	MasterCard	MChip 3.0 STOP command support		Because the STOP command processing requires us to receive a serial comm and inside the

Tag	Name	Focus	Description	Format	Comments
	command processing				transaction loop, it could affect timing. This is especially true for SELECT PPSE. So, we will implement a flag that will turn it on/off.
DFEE69	ConfigureProprietaryTags	MasterCard	MChip 3.0 requirement. Not used in AR		This tag will encapsulate a list of proprietary TLVs. These proprietary TLVs may be configured and they may be used to supply information for DOLs.
DFEE6A	Enable/Disable Comm Error Recovery		GR	b-1	Enables (1) or Disables (0) the communications error handling in which the reader institutes a UI message delay and begins a new transaction automatically. Normally on this feature may have to be disabled to pass certain MChip3 Torn Transaction tests (with multiple transactions) for some reason not completely understood, perhaps Eval tool timing?
DFEE6B	Terminal IFD	Cfg		an-8	
DFEE6C	FTP Phase 2 Mode Options		TR3-FTP Phase 2	b-1	Bit flags to enable or disable specific Phase 2 functionality.
DFEE6D	Mode 3 Match AID		TR3-FTP Phase 2		Provides the kernel with an AID to match in Mode 3 which is a Bridge Mode to allow Distance Based travel using some special cards before this mode is generally available with bank cards.
DFEE6E	Torn Transaction Log Clean Interval (minutes)	Cfg	IDG Get/Set Configuration (Not Group Specific)		M/Chip 3.0
DFEE6F	Timestamp Data		TR3-FTP Phase 2		Allows numbered list of transaction point timestamps to be returned to the terminal. Transaction point numbers are defined in the Design Spec.
DFEE70	Loyalty Program ID	Discover	IDG Get/Set Configurable		

Tag	Name	Focus	Description	Format	Comments
			Group (DPAS Parameter)		
DFEE71	Value Added Tax 1	Discover	IDG Get/Set Configurable Group (DPAS Parameter)		
DFEE72	Value Added Tax 2	Discover	IDG Get/Set Configurable Group (DPAS Parameter)		
DFEE73	Merchant Category Code	Discover	IDG Get/Set Configurable Group (DPAS Parameter)		
DFEE74	Discover Optional Features	Discover	IDG Get/Set Configurable Group (DPAS Parameter)		
DFEE75	Communications Error Message Delay	Cfg	System Level TLV used for the Communications Error Message Delay configuration parameter. Unit of measure: milliseconds.	n6-3	Min value 500ms, BCD characters
DFEE76	TVR from GenAC	Clearing	This variable contains the value of the TVR at the instant of sending it to ICC during GenAC. Tag 95 contains the Final TVR that is sent to the terminal. These tag values may or may not match. It is possible that the reader sets bits in the TVR between	b-5	

Tag	Name	Focus	Description	Format	Comments
			GenAC response and end of ODA (examples: ICC_DATA_MISSING, CDA_FAILED, SDA_FAILED, ODA_NOT_PERFORMED, etc.).		
DFEE77	ViVOpay MSR Custom Data Output Tag	Clearing	This TLV denotes the custom data output from MSR transactions		
DFEE78	MC Timing Performance Enable	GR	This TLV is a 1-byte value which toggles the MasterCard timing performance behavior, so it avoids using EEPROM read access so the transaction runs faster (in general this will save ~30msec because Group 1 is pre-loaded into RAM and not loaded from EEPROM).		
DFEE79	Card Disable Mask	CoinCo	TENTATIVE: used in CoinCo experimental firmware to provide a mask of card types from PCC.h to be disabled (ignored) during polling	b-2	

Tag	Name	Focus	Description	Format	Comments
DFEE7A	Card Disable Interval	CoinCo	TENTATIVE: used in CoinCo experimental firmware to define the number of 100ms 'ticks' the CL interface remains disabled during polling after disabled card is presented.	b-1	
DFEE7B	Serial Port (UART) Inter-character Timeout Period	Cfg	AR (2.1.5)		Maximum time, in milliseconds, between characters of a receive sequence. When no characters are received for this length of time SERD will consider Message Complete. Default is 2000 (2 seconds). Two byte value allows 0 to 65535 ms, a value of 0 disables the timeout function, i.e. things will work as they did prior to AR 2.1.5.
DFEE7C	Auto Switch Feature	Cfg			
DFEE7D	Track Formatting Feature	Cfg			
DFEE7E	Burst Mode	Cfg		b-1	Used only in AR 2.1.4 and previous.
DFEE7F	Improved Collision Detection & Media Removal Feature	Cfg	This is a byte value, range of 0-255. If 0, Improved Collision Feature is disabled & EMEA Anti-Collision Feature is enabled. Reader polls normally. If 1, Improved Collision Feature is enabled &		

Tag	Name	Focus	Description	Format	Comments
			EMEA Feature is disabled. Reader polls normally. If 2 to 255, Improved Collision Feature is enabled & EMEA Feature is disabled. Reader does additional polling to verify each polling event, i.e., multiple successful reads are required before reader acknowledges a successful read.		
DFEF01	2nd usage: Remaining Candidates	Cfg	Identifies how many candidates are left on the candidate list.		
DFEF02	2nd usage: Single application flow in all candidates flag	Cfg	Identifies if all candidates on the candidate list has the same application flow.		
DFEF03	GMEDs Data	GMAD	Transaction and Clearing Record (GMAD)		
DFEF04	MSR Encryption Option	Cfg	Forced encryption setting for each track	b-1	Bit 0: T1 force encrypt. Bit 1: T2 force encrypt. Bit 2: T3 force encrypt. Bit 3: T3 force encrypt when card type is 0x80. Default value should be 0x08. Refer to "80000403-001 Enhanced Encrypted MSR Data Output Format" specification. Reserved for MSR Options.

Tag	Name	Focus	Description	Format	Comments
DFEF05	CVMRequiredLimit_JCBScheme	Visa	Visa Proprietary (VisaWave), JCB		Visa aka DF01
DFEF06	CB Display Offline Funds Indicator (same block as DF05)	Visa	Visa Proprietary		aka DF05
DFEF07	CB Terminal Type (same block as 9F35)	Visa	Visa Proprietary		aka 9F35
DFEF08	Generic Name String	MVS	MVS		
DFEF09	Serial Finite State Machine Version	MVS	MVS		
DFEF0A	Generic Numeric	MVS	MVS		
DFEF0B	Generic Specification String	MVS	MVS		
DFEF0C	System Information Suite	MVS	MVS		
DFEF0D	Generic Implementation String	MVS	MVS		
DFEF0E	Serial Protocol Version	MVS	MVS		
DFEF0F	Serial Protocol Suite	MVS	MVS		
DFEF10	L1 Paypass Version	MVS	MVS		
DFEF11	L1 LCR Version	MVS	MVS		
DFEF12	VIUDS Scheme IDs Supported	Visa	VTPS/VIUDS		Allows up to 4 - 4 byte scheme ID's. 16 bytes, 4 bytes per Scheme ID, hexadecimal

Tag	Name	Focus	Description	Format	Comments
DFEF13	VIUDS Scheme ID Selection Criteria	Visa	VTPS/VIUDS		0 = Select all matching, 1 = Select first matching. 1 byte, numeric
DFEF14	Transaction Finite State Machine Version	MVS	MVS		
DFEF15	L2 Card App Version	MVS	MVS		
DFEF16	TLV available				
DFEF17	Track 1 Data	Clearing	Contactless Card Transaction Result (response)		Track 1 Data. DiscoverZip, Visa MSD, Amex, PBOC
DFEF18	Track 2 Data	Clearing	Contactless Card Transaction Result (response)		Track 2 Data. DiscoverZip, Visa MSD, Amex, PBOC
DFEF19	Unpredictable Number Range	Amex	KIII - Customer specific		This tag decides the range of unpredictable number; if UN is greater than this value, UN can MOD the range.
DFEF1B	L2 Card App Suite	MVS	MVS		
DFEF1A	TLV available				
DFEF1C	User Experience Version	MVS	MVS		
DFEF1D	User Experience Suite	MVS	MVS		
DFEF1E	Encrypted Sensitive Tags	Clearing			Single encrypted blob that when decrypted will contain multiple tag sensitive data. KSN DFEE12 needed for decryption
DFEF1F	Auto authenticate	Contact	Do authenticate card after Start Transaction without the need for command		Byte 1: Auto authenticate option Byte 2: Force online option

Tag	Name	Focus	Description	Format	Comments
DFEF20	MAC option in response data	Contact	Add MAC message to the response for EMV L2 command		
DFEF21	BIN	White List	Used to define the BIN to be used for the White List	ASCII	May contain wildcards
DFEF22	AID	White List	Used to define the AID to be used for the White List	ASCII	May contain wildcards
DFEF23	HMAC	White List	The HMAC provided to authenticate the origin of the White List	binary	SHA-256, RCF-2104
DFEF24	HMAC KSN	Contact	The DUKPT KSN for the MAC key used in HMAC calculation	binary	
DFEF25	Output Data Format Select	UniPayIII	Select Vivopay or ICC encrypt output format in Auto mode	binary	
DFEF26	MSR fallback	Spectrum Pro	Allow MSR fallback in EMV L2 transaction	binary	
DFEF27	Online capability	Spectrum Pro	Select whether support Online or not	binary	
DFEF29	LCD Delay Time	Cfg		b-2	
DFEF2A	Serial heartbeat Required	Cfg			
DFEF2B	Display Unsupported Card	Cfg	To display a Fail message or an Insert/Swipe message based on terminal config.		

Tag	Name	Focus	Description	Format	Comments
DFEF2C	Terminal AID List	Vendi	When select PPSE Fail, reader will follow this tag one by one resend select AID to card.	binary	0: Disable 1: Enable
DFEF2D	Online Authentication Data	Kiosk III	CUP application, Including Online Authentication Data(TLVs) from issuer.	TLVs	
DFEF2E	Terminal Transaction Log	Kiosk III	Including transaction log which might be used in Terminal Risk Management.	binary	Byte 1: PAN length Byte 2~21: PAN Hash(sha1) Byte 22~34: Amount (ASCII code) Byte 35: PAN sequence number Byte 36~42: Transaction Date(ASCII code, value of tag 9A)
DFEF2F	CUP configuration	Kiosk III		binary	
DFEF30	White List	Kiosk III	Support UPI	binary	
DFEF31	Black List	Kiosk III	Support UPI	binary	
DFEF32	Auto-Switch	UniPay III	Used in command 02-40 response. (TLV output format)	binary	Data Format reference neo spec. (Auto switch section) Byte 1: Card Type Byte 2: Serial Number Other: UID or AID
DFEF33	Online PIN Block	Kiosk III			
DFEF34	Antenna Detection Switch	Kiosk III			
DFEF35	Communications Watchdog Period	AR	Defines a period, in seconds, for a software watchdog timer that automatically	binary	Two bytes. 0 = feature disabled. 1 - 65535 seconds timeout.

Tag	Name	Focus	Description	Format	Comments
			generates a system reboot if V2 serial communications are not periodically received to reset it. Initially inserted in AR 2.1.5 for customer as a method to automatically reset Vend III readers that hang for an unknown reason.		
DFEF36	Media Control & Status Tracking	Kiosk II	Used to control media presentation/removal, and report the status of same	binary	Data format = 4 bytes SEE NOTE FOLLOWING THIS TABLE
DFEF37	Interface Select		Interface Select Tag. This tag can select transaction interface of reader.	binary	Interface Select. Bit 0: MSR Bit 1: Contactless Bit 2: Contact
DFEF38	Timeout for Next Command		In a contact transaction need 2 or 3 commands to completed. This tag is define timeout of next command.	binary	Two bytes.(Unit: Sec)
DFEF39	Network Indicate		When transaction go online, then need this tag to indicate network is ok or fail.	binary	0: Network is failed. 1: Network is Okay.
DFEF3A	Reader Behavior Mode	Kiosk2	Reader can operate in one of		Has 2 permissible values: 00 - NORMAL

Tag	Name	Focus	Description	Format	Comments
			<p>two possible modes.</p> <p>NORMAL: Kiosk2 BL and Image both operate normally, as they do currently.</p> <p>COMPATIBLE:</p> <ul style="list-style-type: none"> - BL will not execute flash ISP commands. It will only simulate them and acknowledge them. - Main Image will exhibit command behaviors compliant with GR 1.1.0, even though it is new firmware. 		01 - COMPATIBLE
DFEF3B	Autopoll Transaction Separation Interval	Kiosk2	<p>This is configurable, defaults to 0. After a transaction (successful or unsuccessful), the reader will not begin the next transaction until this interval has expired.</p> <p>In milliseconds, so 0001 = 1 msec, 000A = 10 msec, 1388 = 5000 msec.</p> <p>This is a system tag, and is configurable via</p>	binary	Default value = 0000

Tag	Name	Focus	Description	Format	Comments
			the 04-00 command.		
DFEF3C	Fallback support and Timeout for waiting next command	NEO2.0	Used in Activate Transaction Command (02-40), decide CT transaction Fallback support and Timeout for waiting next command.	3 byte	Byte 1: Fallback support Byte 2~3: Timeout for next command (Unit: Sec)
DFEF3D	Legacy Tag Support	NEO 2.0	Enable support for legacy tags on older products	1 Byte	Byte1bit0: Support Old TLVs
DFEF40	Ascii-code encryption Tag57 TLV	UniPay CPR 41665-1			Original - The Value of 57 A1 18 is encrypted data for 57 11 43 35 12 89 62 82 19 87 D1 21 22 01 00 00 00 00 00 (Pad 0x00) New: Change 57 11 xx ... xx to Ascii-code 35 37 31 31 34 33 33 35 31 32 38 39 62 82 31 39 38 37 3D 31 32 31 32 32 30 31 30 30 30 30 30 30 30 30 30 30 (Hex D --> '=' (0x3D)) Encrypt the Ascii-code (Pad 0x00) to be 48 bytes data yy yy yy..... yy yy yy Use this New Tag to create TLV data - DFEF40 30 yy yy yy yy yy yy
DFEF41	MAC Verification Data for SRED	SRED	NGA Protocol Products - Augusta S, Augusta S	16 Bytes	Encrypted EMV L2 output data must with MAC Verification Data while "Verify Encryption Output Data Option" is On.
DFEF42	MAC Verification KSN for SRED	SRED	NGA Protocol Products - Augusta S, Augusta S	10 Bytes	Encrypted EMV L2 output data must with MAC Verification Data while "Verify Encryption Output Data Option" is On.

Tag	Name	Focus	Description	Format	Comments
DFEF43	Local TZ/DST information.		The local timezone & daylight saving information of the transaction time.	4 Bytes	Byte1: +/-, indicate current timezone is ahead or behind UTC. Byte2: HH, hours of the time difference with UTC. Byte3: MM, minutes of the time difference with UTC. Byte4: Flag for daylight saving, set 1 to indicate daylight saving enabled.
DFEF44	Combination Options	JCB	See JCB specification for more details	2 bytes	See JCB_Contactless_Terminal_Spec_v1.3 for details
DFEF45	Removal Timeout	JCB	The time after which cardholder is asked to remove the card	2 bytes	See JCB_Contactless_Terminal_Spec_v1.3 for details
DFEF46	ACT Pass Response DOL	Cfg	Used to define the additional TLV/'s desired for the ACT Pass response.	T&L's	See ACT Response DOL specification
DFEF47	CDA Hash Input	DPAS CL2.5:C6 PayPass CL2.5:C2	Stores the CDA Hash Input data.	<= 1024 bytes	Tag used to store the CDA Hash Input data in the TLV Database. Used by ModTLV:HandleDOL() in the TlvDb static library to pickup that data when indicated and append to the other DOL data.
DFEF48	Indicate - retrieve transaction result again due to Output RAM is Not enough.	Contact Reader	RAM Not enough situation - Augusta with TransArmor or Augusta S with TransArmor	n bytes	If RAM is Not enough, the Tag Value will be tailed in Transaction Result or response of "Retrieve Transaction Result" Command. If RAM is enough, the Tag Value will be not exist.
DFEF49	Outcome Parameter Set	JCB	combination of transaction Outcome Parameters	9 bytes	See JCB_Contactless_Terminal_Spec_v1.3 , EMV Book A 6.2 for details
DFEF4A	User Interface Request Data	JCB	combination fo transaction User Interface Request Data	14 bytes	See JCB_Contactless_Terminal_Spec_v1.3 , EMV Book A 7.1 for details

Tag	Name	Focus	Description	Format	Comments
DFEF4B	MSR Equivalent Data Option		Terminal setting for MSR Equivalent Data Tag DFEF4D	3 bytes	See Appendix B .
DFEF4C	MSR Equivalent Data Track Lengths		Track(s) data length for MSR Equivalent Data Tag DFEF4D	6 bytes	<Track 1 Length><Track 2 Length><Track 3 length><PAN length><RFU><RFU> Length of 0 indicates track disabled in DFEF4B or data not available. This tag also serves as an indicator of which data element was found first when "Only First Element Found" is enabled in DFEF4B.
DFEF4D	MSR Equivalent Data		MSR Equivalent Data reconstructed from existing EMV tags. Alpha-numeric format.	an	Data populated with element(s) according to configuration tag DFEF4B
DFEF4E	ACT MSD Response DOL	Cfg	Used to define the additional TLV/'s desired for the ACT MSD response.	T&L's	See ACT Response DOL specification
DFEF4F	ACT Decline Response DOL	Cfg	Used to define the additional TLV/'s desired for the ACT Decline and Failed responses.	T&L's	See ACT Response DOL specification
DFEF50	Terminal Interchange Profile (JCB)	JCB	It's a terminal configuration replacement for 9F53 in JCB, since that tag is used in MasterCard and Interac for something different.	3 bytes	See JCB_Contactless_Terminal_Spec_v1.3 for details

Tag	Name	Focus	Description	Format	Comments
DFEF51	Bypass EMV Completion Output	Contact		1 byte	01 = Suppress Output (DFEF510101)
DFEF52	Re-FallBack times	Contact	Used for Re-FallBack implementation times setting.	1 byte	If this TLV data is not in "Transaction Command", default is 5 times. The value size will be 3 (DFEF520103) ~10(DFEF52010A). If Value is not 3~10, use 5 times.
DFEF53	Dynamic Reader Limits	XP 3.1 to start with	Used to provide a kernel with a variety of reader limits that may vary depending on the card brand.	var	For XP 3.1 this list is 16 sets of Transaction, Floor and CVM Required limits (3 each).
DFEF54	SmartTap AID Index	Kiosk III	Used to select SmartTap AID	1 byte	00 : use AID A0 00 00 04 76 D0 00 01 01 01: use AID A0 00 00 04 85 10 01 01 01
DFEF55	Kernel Specific Features	Cfg	This TLV will contain whatever appropriate feature switches for the kernel dataset that it has been configured in. Meaning in Expresspay it may have different meanings than in Visa or MC or etc..	var	Defined per card brand kernel. Used ONLY in the datasets.
DFEF56	Retry Limit	Interac	Total number of taps allowed before transaction is terminated.	1 byte	Maximum (and default value) is 3.
DFEF57	Firmware Version No.		Encodes firmware version info (ASCII).	var	In QuickChip products, specify this tag in DFEF5A (see below) if you want it to appear in transaction output.

Tag	Name	Focus	Description	Format	Comments						
DFEF58	Current KSN of PIN Encryption DUKPT	VP8800									
DFEF59	Terminal Data Setting - Default Amount	QuickChip									
DFEF5A	Terminal Data Setting - Tags to Return	QuickChip									
DFEF5B	Mask for Tag5A	QuickChip									
DFEF5C	Mask for Tag56	QuickChip									
DFEF5D	Mask for Tag57	QuickChip									
DFEF5E	Mask for Tag 9F6B	QuickChip									
DFEF5F	Mask for Tag FFEE13	QuickChip									
DFEF60	Mask for Tag FFEE14	QuickChip									
DFEF61	Error Code	QuickChip			<p>NOTE: The list below is not exhaustive. For the complete list, see Appendix D of this guide.</p> <table border="1"> <tbody> <tr> <td>F2 20</td> <td>Insert ICC again / Swipe (used for all other fallback)</td> </tr> <tr> <td>F2 21</td> <td>Prompt Fallback (used for case of no matching AID)</td> </tr> <tr> <td>F2 22</td> <td>Counter reached/almost exhausted</td> </tr> </tbody> </table>	F2 20	Insert ICC again / Swipe (used for all other fallback)	F2 21	Prompt Fallback (used for case of no matching AID)	F2 22	Counter reached/almost exhausted
F2 20	Insert ICC again / Swipe (used for all other fallback)										
F2 21	Prompt Fallback (used for case of no matching AID)										
F2 22	Counter reached/almost exhausted										

Tag	Name	Focus	Description	Format	Comments
DFEF62	Allow MSR Swipe data from ICC Card	QuickChip	Determine if an ICC must be attempted to be read first, or if it will be allowed to return MSR Swipe data instead (non-fallback) before attempting to read ICC.	1 byte	If value = 0x00, then any MSR swipe with an ICC card requires the card to be inserted instead of returning MSR swipe data. MSR swipe data from an ICC card can only be captured in a fallback situation. If value = 0x01, any card swiped (MSR or ICC) will return MSR swipe data.
DFEF63	Tags To Read Yet	MasterCard	Used in the implementation of Data Exchange. Defined in CL25:C2, A.1.152.	var	
DFEF64	Referral timeout		When showing referral message, waiting time for key entry.	2 bytes	
DFEF65	Device Estimated Transmission Time for Relay Resistance R-APDU	MasterCard	Indicates the time the Card expects to need for transmitting the EXCHANGE RELAY RESISTANCE DATA R-APDU. The Device Estimated Transmission Time For Relay Resistance R-APDU is expressed in units of hundreds of microseconds.	2 bytes	
DFEF66	Device Relay Resistance Entropy	Mastercard	Random number returned by the Card in response to the EXCHANGE RELAY RESISTANCE DATA command	4 bytes	

Tag	Name	Focus	Description	Format	Comments
DFEF67	Measured Relay Resistance Processing Time	Mastercard	Contains the time measured by the Kernel for processing the EXCHANGE RELAY RESISTANCE DATA command. The Measured Relay Resistance Processing Time is expressed in units of hundreds of microseconds.	2 bytes	Update: K
DFEF68	Min Time For Processing Relay Resistance APDU	Mastercard	Indicates the minimum estimated time the Card requires for processing the EXCHANGE RELAY RESISTANCE DATA command. The Min Time For Processing Relay Resistance APDU is expressed in units of hundreds of microseconds.	2 bytes	Update: K/RA Only value is returned by Card.
DFEF69	RRP Counter	Mastercard	Represents the number of times the EXCHANGE RELAY RESISTANCE DATA command has been sent to the Card within one transaction.	1 byte	
DFEF6A	Terminal Relay Resistance Entropy	Mastercard	Contains a Kernel challenge (random) to be used in the value field of the	4 bytes	Update: K

Tag	Name	Focus	Description	Format	Comments
			EXCHANGE RELAY RESISTANCE DATA command.		
DFEF6B	Stop Payment if error	SmartTap2.1	Setting of Stop Payment if error	1 byte	
DFEF6C	Use PreSigned Key	SmartTap2.1	Setting of PreSigned Key	1 byte	
DFEF6D	Max Time For Processing Relay Resistance APDU	Mastercard	Indicates the maximum estimated time the Card requires for processing the EXCHANGE RELAY RESISTANCE DATA command. The Max Time For Processing Relay Resistance APDU is expressed in units of hundreds of microseconds.	2 bytes	Update: K/RA Only value is returned by Card.
DFEF6E	USB-KB Output Data Postfix			0~8 bytes	
DFEF6F	Inter-character Delay for USB-KB Interface			1 bytes	
DFEF70	VP8800 dual interface interference prevention mechanism fine-tune parameters.	VP8800/cfg	ID TECH Proprietary.	4 bytes	b31~b28(4 bits): AS3911 "Wake-up Timer Control Register" wur/wut2~0. b27~b24(4 bits): AS3911 "Amplitude Measurement Config Register" am_d3~0. b23~b16(8 bits): Calibration IDG Command: Target Amplitude Value. b15~b12(4 bits): AS3911 "Antenna Calibration Control

Tag	Name	Focus	Description	Format	Comments
					Register" tre_3~0. b11~b08(4 bits) : CTLS/MSR Identification Algorithm: Delta Threshold Value. b07~b00(8 bits) : CTLS/MSR Identification Algorithm: No. of Amplitude Samples.
DFEF71	Waiting ICC insert time	contact EMV L2		2 bytes	wait ICC card insert time when MSR card's service code is 2/6,unit is second
DFEF72	Pre-poll card mechanism control in ACT cmd & config setting	VP8800/cfg	ID TECH Proprietary. If this tag not present in the ACT cmd, the tag stored in config will be referred, if this tag present in the ACT cmd, it will get rid of the tag stored in config.	1 byte	0: disable pre-poll card mechanism, 1: enable pre-poll card mechanism others: auto mode. It will enable pre-poll card mechanism under the combination below: (1) Contactless + MSR (2) Contactless + Contact (3) Contactless + Contact + MSR
DFEF73	Transaction Message Type	Kiosk III		1 byte	b8~b4: RFU b3: Reversal Message b2: Confirm Message b1: Authorisation Message
DFEF74	Reference amplitude value	VP8800/cfg	While pre-poll contactless card mechanism enabled, we will get the current amplitude value. If the difference between current amplitude and reference amplitude is larger or equal to	2 byte	reference amplitude value

Tag	Name	Focus	Description	Format	Comments
			<p>reference delta value, it means card detected, will go to poll card stage immediately.</p> <p>The value of this tag cannot be set via IDG command, it only set through reference amplitude calibration process.</p>		
DFEF75	Reference delta value	VP8800/cfg	<p>For pre-poll contactless card mechanism.</p> <p>Smaller value means the event of card detected will be triggered easily.</p>	1 byte	delta value
DFEF76	Transaction Interface Type to activate	NEO2.0	Used in Activate Transaction Command (02-40), to decide which interface (Contact/MSR/Contactless) will be activated.	1 byte	
DFEF77	Timeout for waiting next command	NEO2.0	Used in Activate Transaction Command (02-40), decide Timeout for waiting next command.	1 byte	Unit of measure is seconds.

Tag	Name	Focus	Description	Format	Comments
			Use for some sequence transactions. Example: wait "Contact Authenticate Transaction Command" after "Contact Start Transaction Command"		
DFEF78	EMV contact L2 display messages option	Contact L2	Option to send display messages to host even if reader already has a display. Request from Cale for Spectrum Pro/L100.	1 byte	0: Disable 1: Enable
DFEF79	PIN block format (when TDES)	VP8800/Cfg	Used for choosing PIN block format when TDES is used for encryption.	1 byte	possible values: 0 or 3
DFEF7A	Enable Apple Pay Check	VENDi/cfg	Enable a flag for send 'SELECT OSE' to check Apple Pay	1 byte	0: Disable 1: Enable
DFEF7B	Apple Pay Status	VENDi	If enable tag DFEF7A then response 1 for read Apple pay else response 0.	1 byte	0: RF Card, or not enable Tag DFEF7A 1: Apple Pay
DFEF7C	Track Bit Encoding	VP8800/MSR	Returned by the MSR module and containing the track encoding information.	1 byte	

Tag	Name	Focus	Description	Format	Comments
DFEF7D	Re-power on times	Contact L2	For control the times of re-power on ICC card before fall back to MSR	1 byte	range :1-5, default is 3
DFEF7E	Fallback response code list	Contact L2	For control the fallback when the response code is in this list	var	list of the response codes. when the transaction result response code is in this list, then do fallback.
DFEF7F	VISA ODA/Online indicator	KIII	This tag is used to indicate the ODA/Online result of VISA.	1 byte	Bit 7 – ODA/Online performed: 1 performed, 0 Not performed Bit 6 – RFU Bit 5 – RFU Bit 4 – RFU Bit 3 – fDDA performed: 1 performed, 0 Not performed Bit 2 – fDDA failed: 1 Failed, 0 Succeed Bit 1 – SDA performed: 1 performed, 0 Not performed Bit 0 – SDA failed: 1 Failed, 0 Succeed

Note for Tag DFEF36:

Byte 1: Control Byte

8	7	6	5	4	3	2	1	NOTES
-	-	-	-	-	-	-	X	0 – Disable Media Detection Reporting 1 – Enable Media Detection Reporting

-	-	-	-	-	-	X	-	0 – Disable Media Removal Reporting 1 - Enable Media Removal Reporting
0	0	0	0	0	0	-	-	RFU

Byte 2: Status Byte 1

8	7	6	5	4	3	2	1	NOTES
-	-	-	-	-	-	-	X	0 – RF Field Deactivated 1 – RF Field Activated
-	-	-	-	-	-	X	-	0 – No CL Media Detected 1 – CL Media Detected
-	-	-	-	-	X	-	-	0 – CL Media Removed 1 – CL Media Still Present
-	-	-	-	X	-	-	-	0 – No CT Media Detected 1 – CT Media Detected
-	-	-	X	-	-	-	-	0 – CT Media Removed 1 – CT Media Still Present
-	-	X	-	-	-	-	-	0 – No effect 1 – PollForToken aborted
0	0	-	-	-	-	-	-	RFU

Byte 3: Status Byte 2 - RFU

Byte 4: Status Byte 3 - RFU

Constructed Tags

Tag	Name	Focus	Description	Format	Comments
FFEE01	ViVOpay TLV Group Tag		ViVOpay Proprietary Tag. Transaction (Cmd+Rsp)	TLVs	
FFEE02	ViVOpay Pre-PPSE Special Flow Group Tag	Special Flow	Transaction (response)	TLVs	Encapsulating Tag. Contains TLVs returned by "Special Flow" apps invoked during Pre-PPSE Processing
FFEE03	ViVOpay Post-PPSE Special Flow Group Tag	Special Flow	Transaction (response)	TLVs	Encapsulating Tag. Contains TLVs returned by "Special Flow" apps invoked during Post-PPSE Processing
FFEE04	M/Chip3 Intermediate Message Data	MasterCard	M/Chip 3 specific	TLVs	This tag will hold any intermediate MSG signals issued by Process K during the transaction and included in the ACT response, if enabled, for L2 verification of MSG signal data. It is also used to enable this functionality. If sent in the ACT command Signal Data capture will be enabled for that transaction and this tag will then be returned in the ACT response if any data was added to it during the transaction.
FFEE05	M/Chip3 Intermediate Message Marker	MasterCard	M/Chip 3 specific		This tag is used inside FFEE04 to delineate the individual signals (MSG or OUT) that are added.
FFEE06	ApplePay VAS Container	Apple	ApplePayVAS	TLVs	This TLV is used to pass through ApplePay VAS proprietary TLV's. May be provided in the ACT and in the transaction response.
FFEE07	Encrypted Sensitive Tags	Clearing		TLVs	Constructed tag with individually encrypted sensitive tags. KSN DFEE12 needed for decryption
FFEE08	Masked Tags	Clearing		TLVs	Constructed tag with individual masked tags

FFEE09	Fixed Fare Amounts		TR3-FTP Phase 2	TLVs	Constructed tag that contains associated pairs of Amount, Auth. (9F02) and RIDs. Kernel uses Amount, Auth. from a table when the related RID is detected.
FFEE0A	BIN Range	White List	Contains two BIN's (DFEF21). Any BIN including and between the first BIN and second BIN is considered to be nonfinancial regardless of content.	TLVs	No wild cards allowed.
FFEE0B	AID Range	White List	Contains two AID's (DFEF22). Any AID including and between the first AID and second AID is considered to be nonfinancial regardless of content.	TLVs	No wild cards allowed.
FFEE0C	White List	White List	List of the BIN's and the AID's and ranges of BIN's and AID's that will be used to determine if sensitive SRED data will be evaluated. i.e if in the white list they are assumed non financial.	TLV's	
FFEE0D	Torn Temp Record	Mastercard	Temporary (List) constructed tag used to hold intermediate Torn Transaction Log entries. Mirrors the object as defined in the specification.	TLVs	

FFEE10	ViVOpay MChip Group Tag	MasterCard	Is this TLV exposed via the serial interface??? If yes then which commands ... Act Trans (Cmd or Resp)? Get/Set Config? Get/Set Con-Groups?	TLVs	MChip 3.0
FFEE11	ViVOpay Discover Group Tag	Discover	???	TLVs	Discover DPAS
FFEE12	Cash Reader Risk Record	Visa	Holds the tags for cash transaction reader risk parameters	TLVs	Replaces functionality of now obsolete 04-0C command.
FFEE13	Cashback Reader Risk Record	Visa	Holds the tags for cashback transaction reader risk parameters	TLVs	Replaces functionality of now obsolete 04-0D command.
FFEE14	DRL Record 1	Visa	Holds the tags for reader risk record.	TLVs	One of four tags to replace functionality of now obsolete 04-0E command.
FFEE15	DRL Record 2	Visa	Holds the tags for reader risk record.	TLVs	One of four tags to replace functionality of now obsolete 04-0E command.
FFEE16	DRL Record 3	Visa	Holds the tags for reader risk record.		One of four tags to replace functionality of now obsolete 04-0E command.
FFEE17	DRL Record 4	Visa	Holds the tags for reader risk record.		One of four tags to replace functionality of now obsolete 04-0E command.
FFEE18	Tags To Write Yet Before GenAC	Mastercard	used in Data Exchange (see CL25:C2)		
FFEE19	Tags To Write Yet After GenAC	Mastercard	used in Data Exchange (see CL25:C2)		

FFEE1A	Terminal App DET Data	Mastercard	used in Data Exchange (see CL25:C2)		Each DET signal's data should be wrapped in this tag in a Continue Transaction Command.
FFEE20	Apple VAS Merchant ID setting container	KIII, AppleVAS	This construct contains several Merchant ID structures (FFEE21)		
FFEE21	Apple VAS Merchant ID setting	KIII, AppleVAS	This constructed tag contains Merchant ID structure's content: 9F25, 9F29.		
FFEE69	ViVOpay Proprietary Tag List	Amex Discover Interac Mastercard Visa	This construct contains a list of proprietary tags that happen during the transaction.	TLVs	<p>This was originally added for Mastercard PayPass 3.0.2. In MC; this TLV is a Group TLV and included in Group 1. The user can set it with 'expected' TLV and the MC app can interact with/modify these TLV if encountered during the transaction. Unrecognized tags that actually show up and are also expected are then returned to the POS.</p> <p>For all other apps (Amex, Discover, Interac, Visa), this is NOT a Group TLV. Instead it is created dynamically by the reader during the transaction. This TLV will only contain unrecognized TLVs that are found inside the Template Tag BFOC during PPSE or Final Select.</p>

Appendix A: Contact EMV Config Values (Tag DFEE1E)

Contact Terminal Configuration (Default: F0 DC 3C F0 C2 9E 94 00).

Byte 1:

b8	b7	b6	b5	b4	b3	b2	b1	Meaning
1	x	x	x	x	x	x	x	Key Pad support
x	1	x	x	x	x	x	x	LCD support
x	x	1	x	x	x	x	x	PIN Pad support
x	x	x	1	x	x	x	x	Print Support
x	x	x	x	0	x	x	x	RFU
x	x	x	x	x	0	x	x	RFU
x	x	x	x	x	x	0	x	RFU
x	x	x	x	x	x	X	0	RFU

Byte 2:

b8	b7	b6	b5	b4	b3	b2	b1	Meaning
1	x	x	x	x	x	x	x	PSE support
x	1	x	x	x	x	x	x	Cardholder confirmation
x	x	1	x	x	x	x	x	Preferred display order
x	x	x	1	x	x	x	x	Multi language
x	x	x	x	1	x	x	x	EMV language selection method
x	x	x	x	x	1	x	x	Default DDOL
x	x	x	x	x	x	0	x	RFU
x	x	x	x	x	x	x	0	RFU

Byte 3:

b8	b7	b6	b5	b4	b3	b2	b1	Meaning
0	x	x	x	x	x	x	x	RFU (Revocation of Issuer Public Key Certificate (DF26))

x	1	x	x	x	x	x	x	Manual action when CA PK loading fails
x	x	1	x	x	x	x	x	CA PK verified with check sum
x	x	x	1	x	x	x	x	Bypass PIN Entry
x	x	x	x	1	x	x	x	Subsequent bypass PIN Entry
x	x	x	x	x	1	x	x	Get data for pin try counter
x	x	x	x	x	x	0	x	RFU
x	x	x	x	x	x	x	0	RFU

Byte 4:

b8	b7	b6	b5	b4	b3	b2	b1	Meaning
1	x	x	x	x	x	x	x	Amount before CVM processing
x	1	x	x	x	x	x	x	Floor limit checking
x	x	1	x	x	x	x	x	Random transaction selection
x	x	x	1	x	x	x	x	Velocity checking
x	x	x	x	0	x	x	x	RFU (Transaction Log (DF11))
x	x	x	x	x	0	x	x	RFU (Exception File (DF27))
x	x	x	x	x	x	0	x	RFU
x	x	x	x	x	x	x	0	RFU

Byte 5:

b8	b7	b6	b5	b4	b3	b2	b1	Meaning
1	x	x	x	x	x	x	X	Terminal action code support
x	1	x	x	x	x	x	x	Terminal action code can be change
x	x	1	x	x	x	x	x	Terminal action code can be deleted or disable
x	x	x	1	x	x	x	x	Default Action code processing before 1st GAC

x	x	x	x	1	x	x	x	Default Action code processing after 1st GAC
x	x	x	x	x	1	x	x	TAC/IAC default process when unable to go online (Skipped)
x	x	x	x	x	x	1	x	TAC/IAC default process when unable to go online (Normal)
x	x	x	x	x	x	x	0	RFU

Byte 6:

b8	b7	b6	b5	b4	b3	b2	b1	Meaning
1	x	x	x	x	x	x	x	Forced Online support
x	1	x	x	x	x	x	x	Forced acceptance support
x	x	1	x	x	x	x	x	Advices support
x	x	x	1	x	x	x	x	Issuer referrals support
X	x	x	x	1	x	x	x	Batch data capture
x	x	x	x	x	1	x	x	Online data capture
X	x	x	x	x	x	1	x	Default TDOL
X	x	x	x	x	x	x	0	RFU

Byte 7:

b8	b7	b6	b5	b4	b3	b2	b1	Meaning
1	x	x	x	x	x	x	x	amount and pin entered on the same keypad
x	1	x	x	x	x	x	x	ICC/Magstripe reader combined
x	x	1	x	x	x	x	x	Magstripe read first
x	x	x	1	x	x	x	x	Support account type selection
x	x	x	x	1	x	x	x	On fly script processing
x	x	x	x	x	1	x	x	Internal date management
x	x	x	x	x	x	1	x	Reversal Mode (1)Unable go online (2) ARC Error

									0: (3) Online Approved but reader not approved. 1: (3) Online Approved but card response AAC.
x	x	x	x	x	x	x	x	0	RFU

Byte 8:

b8	b7	b6	b5	b4	b3	b2	b1	Meaning
x	x	x	x	x	x	x	x	RFU

Appendix B: Encrypted Track Data Status (Tag DFEF4B)

Byte 1:

8	7	6	5	4	3	2	1	NOTES
-	-	-	-	-	-	-	X	0 - Disable Track 3 Sentinels 1 - Enable Track 3 Sentinels
-	-	-	-	-	-	X	-	0 - Disable Track 2 Sentinels 1 - Enable Track 2 Sentinels
-	-	-	-	-	X	-	-	0 - Disable Track 1 Sentinels 1 - Enable Track 1 Sentinels
-	-	-	-	X	-	-	-	0 - Disable Track 3 1 - Enable Track 3
-	-	-	X	-	-	-	-	0 - Disable Track 2 1 - Enable Track 2
-	-	X	-	-	-	-	-	0 - Disable Track 1 1 - Enable Track 1
-	X	-	-	-	-	-	-	0 - Disable PAN 1 - Enable PAN
X	-	-	-	-	-	-	-	0 - All Data Elements Found 1 - Only First Element Found

Byte 2: RFU

Byte 3: RFU

1. If this tag does not exist in Terminal Settings, tags DFEF4C and DFEF4D will not be generated.

2. The default value of this tag shall be 0x12 = Track 2 enabled with Sentinels

Data Search Order

When **"Only First Element Found" (bit 8 = 1)**, Tag DFEF4D will be populated with a single data element according to the following search order

Track 2, Tag 57 (converted to alpha numeric format)

Track 2, Tag 9F6B

Track 2, Tag 5F22

Track 1, Tag 56

Track 1, Tag 5F21

PAN, Tag 5A (converted to alpha numeric format)

Track 3, Tag 58

Track 3, Tag 5F23

When **"All Data Elements Found" (BIT 8 = 0)**, Tag DFEF4D will be populated with a single instance of each requested data element, according to the following order

Track 1 requested (bit 6 = 1). Include first instance:

Tag 56 = Track 1 Equivalent

Tag 5F21 = Track 1, identical to the data coded

Track 2 requested (bit 5 = 1). Include first instance:

Tag 57 = Track 2 Equivalent (converted to alpha numeric format)

Tag 9F6B = Track 2 Data

Tag 5F22 = Track 2, identical to the data coded

Track 3 requested (bit 4 = 1). Include first instance:

Tag 58 = Track 3 Equivalent

Tag 5F23 = Track 3, identical to the data coded

PAN requested (bit 7 = 1). Include:

Tag 5A = PAN (converted to alpha numeric format)

Sentinels

For any found data element of Track1, Track2 or Track3, start and add sentinels shall be added according to bits 1, 2 and 3.

Compressed Numeric Elements

For any data element captured as compressed numeric, the following rules shall apply:

Padding (0xf) shall not be included.

Center separators 0xd shall be converted to 0x3d ("=").

Data shall be encoded as ASCII representation of binary data (example 0x123 = 0x313233 = "123").

Appendix C: Contact Response Code (Tag DFEE25)

Some commands produce response codes that may need to cause a message to display on a host device (such as a POS terminal) that communicates with an ID TECH reader. Such codes are wrapped in the DFEE25 tag. See also the Appendix (further below) on tag DFEF61, which covers additional contact EMV status codes.

The various response codes that you might encounter, and their meanings, are shown below. (See also note at the end of the table, regarding bit flags in the first byte of the response.)

NOTE: The first response byte has bit flags in the lower nibble. See explanation at end of table.

Contact Response Code and corresponding transaction result as below:

No.	Response Code(2Bytes)	Display on the LCD
1	0x00,0x00	APPROVED (offline)
2	0x00,0x01	DECLINED (offline)
3	0x00,0x02	APPROVED
4	0x00,0x03	DECLINED (See also the note following this table.)
5	0x00,0x04	GO ONLINE
6	0x00,0x05	CALL YOUR BANK
7	0x00,0x06	NOT ACCEPTED
8	0x00,0x07	USE MAGSTRIPE
9	0x00,0x08	TIME OUT
10	0x00,0x10	(start transaction success)
11	0x00,0x11	MSR Success
	0x00, 0x12	Card In
12	0x10, 0x01 (FILE_ARG_INVALID)	TERMINATE
13	0x10,0x02 (FILE_OPEN_FAILED)	TERMINATE
14	0x10,0x03 (FILE_OPERATION_FAILED)	TERMINATE
15	0x20, 0x01 (MEMORY_NOT_ENOUGH)	TERMINATE
16	0x30, 0x01 (SMARTCARD_OK)	TERMINATE

17	0x30, 0x02 (SMARTCARD_FAIL)	TERMINATE
18	0x30, 0x03 (SMARTCARD_INIT_FAILED)	TERMINATE
19	0x30,0x04 (FALLBACK_SITUATION)	TERMINATE
20	0x30, 0x05 (SMARTCARD_ABSENT)	TERMINATE
21	0x30,0x06 (SMARTCARD_TIMEOUT)	TERMINATE
22	0x30,0x07 (MSR_CARD_ERROR)	TERMINATE
	0x30, 0x10 (SSL2_ICCMSR_DATA_FALLBACK)	FALLBACK TO MSR
	0x30, 0x11 (SSL2_ICCMSR_DATA_SERVICE)	FALLBACK TO MSR
	0x30, 0x12 (SSL2_ICCMSR_CARD_ERROR)	CHIP ERROR (e.g., bad chip)
	0x30, 0x13 (SSL2_ICCMSR_TIMEOUT)	TIMEOUT AFTER FALLBACK
23	0x50, 0x01 (PARSING_TAGS_FAILED)	TERMINATE
24	0x50, 0x02 (CARD_DATA_ELEMENT_DUPLICATE)	TERMINATE
25	0x50, 0x03 (DATA_FORMAT_INCORRECT)	TERMINATE
26	0x50,0x04 (APP_NO_TERM)	NOT_ACCEPTED
27	0x50, 0x05 (APP_NO_MATCHING)	NOT_ACCEPTED
28	0x50,0x06	TERMINATE

	(MANDATORY_OBJECT_MISSING)	
29	0x50, 0x07 (APP_SELECTION_RETRY)	TERMINATE
30	0x50, 0x08 (AMOUNT_ERROR_GET)	TERMINATE
31	0x50, 0x09 (CARD_REJECTED)	TERMINATE
32	0x50, 0x10 (AIP_NOT_RECEIVED)	TERMINATE
33	0x50, 0x11 (AFL_NOT_RECEIVED)	TERMINATE
34	0x50, 0x12 (AFL_LEN_OUT_OF_RANGE)	TERMINATE
35	0x50, 0x13 (SFI_OUT_OF_RANGE)	TERMINATE
36	0x50, 0x14 (AFL_INCORRECT)	TERMINATE
37	0x50, 0x15 (EXP_DATE_INCORRECT)	TERMINATE
38	0x50, 0x16 (EFF_DATE_INCORRECT)	TERMINATE
39	0x50, 0x17 (ISS_COD_TBL_OUT_OF_RANGE)	TERMINATE
40	0x50, 0x18 (CRYPTOGRAM_TYPE_INCORRECT)	TERMINATE
41	0x50, 0x19 (PSE_BY_CARD_NOT_SUPPORTED)	TERMINATE
42	0x50, 0x20 (USER_LANGUAGE_SELECTED)	TERMINATE
43	0x50, 0x21 (SERVICE_NOT_ALLOWED)	NOT_ACCEPTED

44	0x50, 0x22 (NO_TAG_FOUND)	TERMINATE
45	0x50, 0x23 (CARD_BLOCKED)	TERMINATE
46	0x50, 0x24 (LEN_INCORRECT)	TERMINATE
47	0x50, 0x25 (CARD_COM_ERROR)	TERMINATE
48	0x50, 0x26 (TSC_NOT_INCREASED)	TERMINATE
49	0x50, 0x27 (HASH_INCORRECT)	TERMINATE
50	0x50, 0x28 (ARC_NOT_PRESENCED)	TERMINATE
51	0x50, 0x29 (ARC_INVALID)	TERMINATE
52	0x50, 0x30 (COMM_NO_ONLINE)	TERMINATE
53	0x50, 0x31 (TRAN_TYPE_INCORRECT)	TERMINATE
54	0x50, 0x32 (APP_NO_SUPPORT)	TERMINATE
55	0x50, 0x33 (APP_NOT_SELECT)	TERMINATE
56	0x50, 0x34 (LANG_NOT_SELECT)	TERMINATE
57	0x50, 0x35 (TERM_DATA_NOT_PRESENCED)	TERMINATE
58	0x60, 0x01 (CVM_TYPE_UNKNOWN)	TERMINATE
59	0x60, 0x02	TERMINATE

	(CVM_AIP_NOT_SUPPORTED)	
60	0x60, 0x03 (CVM_TAG_8E_MISSING)	TERMINATE
61	0x60, 0x04 (CVM_TAG_8E_FORMAT_ERROR)	TERMINATE
62	0x60, 0x05 (CVM_CODE_IS_NOT_SUPPORTED)	TERMINATE
63	0x60, 0x06 (CVM_COND_CODE_IS_NOT_SUPPORTED)	TERMINATE
64	0x60, 0x07 (CVM_NO_MORE)	TERMINATE
65	0x60, 0x08 (PIN_BYPASSED_BEFORE)	TERMINATE
66	Error Result Code	TERMINATE

Note:

First response byte has bit flags as follows:

Bit 0 --- if transaction has advice, this bit is 1.

Bit 1 --- if transaction has reversal, this bit is 1.

Example:

DFEE25 02 02 03 **7** Reversal (02) + DECLINED (03)

Appendix D: Tag DFEF61 (Contact EMV Status Codes)

In addition to tag DFEE25 (see previous Appendix), contact EMV transactions on some devices (particularly those that have Quick Chip support in firmware) will produce status codes in DFEF61. When DFEF61 is present, inspect its two-byte payload and interpret the bytes as follows.

Error Code	Definition
0x0400	Related Key was not loaded
0x0410	Non-SRED Device need Load Manufacture Key and Firmware Key
0x0500	Key Same / Duplicate key detected
0x0702	PAN is Error
0x0F00	Encryption Or Decryption Failed
0x1001	file arg invalid
0x1002	file open failed
0x1003	file operation failed
0x2001	memory not enough
0x3001	smartcard OK
0x3002	smartcard fail
0x3003	smartcard init failed
0x3004	fallback situation
0x3005	smartcard absent
0x3006	smartcard timeout
0x3007	MSR card error
0x5001	parsing tags failed
0x5002	card data element duplicate
0x5003	data format incorrect
0x5004	app no term
0x5005	no matching AID
0x5006	mandatory object missing
0x5007	app selection retry
0x5008	amount error get

0x5009	card rejected
0x5010	AIP not received
0x5011	AFL not received
0x5012	AFL len out of range
0x5013	SFI out of range
0x5014	AFL incorrect
0x5015	Exp date incorrect
0x5016	Eff date incorrect
0x5017	ISS code table out of range
0x5018	Cryptogram type incorrect
0x5019	PSE by card not supported
0x5020	user language selected
0x5021	service not allowed
0x5022	no tag found
0x5023	card blocked
0x5024	length incorrect
0x5025	card communications error
0x5026	TSC not increased
0x5027	hash incorrect
0x5028	arc not presenced
0x5029	ARC invalid
0x5030	comm no online
0x5031	tran type incorrect
0x5032	app not supported
0x5033	app not selected
0x5034	lang not selected
0x5035	term data not present
0x5036	Card blocked

0x5500	No RKI-KEK
0x5501	RKI-KEK STOP
0x5504	Validate Authentication Code Error
0x5505	Encrypt Or Decrypt data failed
0x5506	Not Support the New Key Type
0x5507	New Key Index is Error
0x5508	Step Error
0x5509	Remote Key Injection Timeout (Latest Command is Timeout)
0x550A	MAC Error
0x550B	Key Usage Error
0x550C	Mode Of Use Error
0x550F	Other Error
0x6000	Save or Config Failed / Or Read Config Error, Flash Error
0x6001	CVM type unknown
0x6002	CVM aip not supported
0x6003	CVM tag 8E missing
0x6004	CVM tag 8E format error
0x6005	CVM code is not supported
0x6006	CVM cond code is not supported
0x6007	CVM no more
0x6008	PIN bypassed before
0x6200	No Serial Number
0x6201	No White List
0x6900	Invalid Command – Protocol is right, but task ID is invalid
0x6A00	Unsupported Command – Protocol and task ID are right, but command is invalid
0x6A01	Unsupported Command – Protocol and task ID are right, but command is invalid – In this State

0x6B00	Unknown parameter in command – Protocol task ID and command are right, but parameter is invalid
0x6B10	ASN.1 Data Error
0x6C00	Unknown parameter in command – Protocol task ID and command are right, but length is out of the requirement.
0x7300	DUKPT is STOP (21 bit 1)
0x8100	Timeout
0x8200	Wrong operate step
0x8300	Decode MSR Error
0x8500	No Swipe MSR Card
0x2C02	No Microprocessor ICC seated
0x2C06	No card seated to request ATR
0x8B10	ICC error on power-up
0xE313	IO line low -- Card error after session start
0x9042	Invalid LCL-KEK
0x9046	Invalid Data encryption Key
0x9047	Do not support this key
0x9052	Invalid RKI-KEK
0x9054	TR31 checks failed
0x9055	DOMAC Verification Failed
0x9057	LCL-KEK exists
0xF002	ICC communication timeout
0xF003	ICC communication Error
0xF005	ICC Encrypted C-APDU Data Structure Length Error Or Format Error.
0xF200	AID List / Application Data does not exist
0xF201	Terminal Data does not exist
0xF202	TLV format is error
0xF203	AID List is full

0xF204	Any CA Key does not exist
0xF205	CA Key RID does not exist
0xF206	CA Key Index it not exist
0xF207	CA Key is full
0xF208	CA Key Hash Value is Error
0xF209	Transaction format error
0xF20A	The command will not be processing
0xF20B	CRL does not exist
0xF20C	CRL number exceed max number
0xF20D	Amount, Other Amount, Transaction Type are missing
0xF20E	The Identification of algorithm is mistake
0xF20F	No Financial Card
0xF210	In Encrypt Result state, TLV total Length is greater than Max Length
0xF211	ICC L2 is not in idle state

Appendix E: Tag DFEE1B

Tag DFEE1B can be supplied in Complete Transaction to enforce specific semantics surrounding approval, declines, or referral.

Normally, your online host (the approving processor or gateway) will provide Tag 8A as part of its response. The two-byte value in 8A needs to be a value the kernel understands; otherwise the kernel will change it to 'Z3' (0x5A33) in the Completion step.

In general, if you send a result code to the reader that is not recognized by the kernel, the kernel will change it to 'Z3' (0x5A33). For example: the kernel may not be recognizing result code 3035. Instead, it gets changed to 5A33 ('Z3').

Solution: You can use tag DFEE1B to define your three response codes: Approved/Referral/Decline.

DFEE1B is defined as 8 bytes long:

- Bytes 0/1 are for Approved Code
- Bytes 2/3 are for Referral Code
- Bytes 4/5 are for Declined Code
- Bytes 6/7 are Reserved for Future Use (RFU).

Example: If your online host uses 3030 as APPROVED, 3031 as REFERRAL, and 3035 as DECLINED, you would make sure the following TLV is included in your terminal settings:

```
DFEE1B 08 3030 3031 3035 0000
```

Once DFEE1B is properly defined with the DECLINE = 3035, then the kernel will recognize and properly process the transaction.

NOTE: You can set DFEE1B on a per-transaction basis, if need be. To set the tag on a per-transaction basis, send DFEE1B in the `emv_completeTransaction()` method of the Universal SDK, or provide DFEE1B in the "extra tags" of the Complete Transaction parameters in the Universal Demo app.

Rev.	Date	Change	Author
A	07/28/2016	First edition of document.	KT
B	7/28/2016	Removed most vendor names and deleted internal project code name (Foxtail). Edits for consistency. Eliminated duplicate tags and empty rows.	KT
B	7/29/2016	SmartSoft changed to Smart Tap. "Added for" removed. Removed a customer name. Removed "Tentative" tags. Fixed formatting issues.	KT
C	9/20/2016	Add new tags DFEF4B and subsequent.	KT
D	11/18/2016	Add Appendix for DFEE1E . Add new tags DFEF53 to DFEF65. Add new tags FFEE12 to FFEE17 and FFEE69.	KT
E	3/6/2017	Add tag DFEE25 (Response Codes), with its own Appendix.	KT
F	6/12/2017	Add Appendix D on tag DFEE1B usage. Add tags DFEF69 to DFEF7E.	KT
G	5/15/2018 4/15/2019	New tags in the DFEDxx range. New EMV status codes in Appendix. Corrected appendix reference in DFEE1B comments.	KT CB