

**EMV® Specification Bulletin No. 261**  
**October 2021**

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## ***Implementation Options for EMV Book C-2***

***This Specification Bulletin contains modifications for the implementation choices of Book C-2 V2.10.***

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### ***Applicability***

This Draft Specification Bulletin applies to:

- *EMV Contactless Specifications for Payment Systems, Book C-2, Kernel 2 Specification, Version 2.10, March 2021*
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### ***Effective Date***

- January 1<sup>st</sup> 2022
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### ***Description***

This Specification Bulletin introduces the following changes:

- The following functionality is no longer supported:
  - Torn Transaction Recovery
  - Offline Balance Reading
  - STOP Signal
- Data exchange, IDS and SDS are introduced as new implementation option. The IDS and Torn Transaction Recovery implementation option is no longer supported.

## **Specification Changes**

### **Torn Transaction Recovery**

#### **Section 4.4 – Torn Transaction Log**

The Torn Transaction Log is no longer implemented.

#### **Table 4.9 – Discretionary Data for an EMV Mode Transaction**

Remove *Torn Record*

#### **Section 5.9 – Recover AC**

The command is no longer used so the section is deleted.

#### **Section 6.3 – State 1 Idle**

Symbols S1.4, S1.5 and S1.6 are no longer implemented.

#### **Section 6.11 – States 4, 5 and 6 Common Processing**

Symbols S456.43, S456.44, S456.47, S456.48 and S456.49 are no longer implemented.

#### **Section 6.15 – State 9 Waiting for Generate AC Response – 1**

Symbols S9.5, S9.11, S9.13, S9.14 and S9.15 are no longer implemented.

#### **Section 6.16 – State 10 Waiting for Recover AC Response**

State 10 is no longer implemented.

#### **Section 6.16 – State 11 Waiting for Generate AC Response – 2**

State 11 is no longer implemented.

#### **Section 6.19 – State 12 Waiting for Put Data Response Before Generate AC**

Symbols S12.13, S12.14, S12.17, S12.18 and S12.19 are no longer implemented.

### **Annex A – Data Dictionary**

The following data objects no longer exist:

- *DRDOL*
- *DRDOL Related Data*
- *Max Lifetime of Torn Transaction Log Record*
- *Max Number of Torn Transaction Log Records*
- *Torn Entry*
- *Torn Record*
- *Torn Temp Record*

## **Offline Balance Reading**

### **Table 4.9 – Discretionary Data for an EMV Mode Transaction**

Remove *Balance Read After Gen AC* and *Balance Read Before Gen AC*

### **Section 6.11.3 – States 4, 5 and 6 Common Processing**

Remove S456.34

### **Section 6.15.3 – State 9 Waiting for Generate AC Response -1 – Processing**

Remove S9.25

### **Section 6.17 – States 9 and 10 Common Processing**

In S910.75, remove *Balance Read After Gen AC* processing as follows:

#### **S910.75**

'Status' in *User Interface Request Data* := NOT READY

IF [(*Cryptogram Information Data* AND 'C0') = '40']

THEN

'Hold Time' in *User Interface Request Data* := *Message Hold Time*

~~IF [IsNotEmpty(TagOf(Balance Read After Gen AC))]~~

~~THEN~~

~~'Value Qualifier' in *User Interface Request Data* := BALANCE~~

~~'Value' in *User Interface Request Data* := *Balance Read After Gen AC*~~

~~IF [IsNotEmpty(TagOf(Application Currency Code))]~~

~~THEN~~

~~'Currency Code' in *User Interface Request Data* := *Application Currency*~~

~~Code~~

~~ENDIF~~

~~ENDIF~~

IF ['CVM' in *Outcome Parameter Set* = OBTAIN SIGNATURE]

THEN

[...]

## **Section 7 – Procedures**

The following procedures and states are no longer implemented:

- 7.1 Procedure – Pre-gen AC Balance Reading
- 7.2 State 16 – Waiting for Pre-gen AC Balance
- 7.3 Procedure – Post-gen AC Balance Reading
- 7.4 State 17 – Waiting for Post-gen AC Balance

## **Annex A – Data Dictionary**

The following data objects no longer exist:

- *Balance Read After Gen AC*
- *Balance Read Before Gen AC*

## **STOP Signal**

### **Section 6.3 – State 1 Idle**

Symbols S1.2 and S1.3 are no longer implemented.

### **Section 6.4 – State 2 Waiting for PDOL Data**

Symbols S2.2 and S2.4 are no longer implemented.

### **Section 6.5 – State 3 – Waiting for GPO Response**

Symbols S3.6 and S3.7 are no longer implemented.

### **Section 6.6 – State R1 – Waiting for Exchange Relay Resistance Data**

Symbols SR1.6, SR1.7 and SR1.8 are no longer implemented.

### **Section 6.8 – State 4 Waiting for EMV Read Record Response**

Symbols S4.7 and S4.8 are no longer implemented.

### **Section 6.9 – State 5 Waiting for Get Data Response**

Symbols S5.7 and S5.8 are no longer implemented.

### **Section 6.10 – State 6 Waiting for EMV Mode First Write Flag**

Symbols S6.2 and S6.4 are no longer implemented.

### **Section 6.12 – State 7 Waiting for Mag-stripe Read Record Response**

Symbols S7.7 and S7.8 are no longer implemented.

### **Section 6.13 – State 8 Waiting for Mag-stripe First Write Flag**

Symbols S8.3 and S8.4 are no longer implemented.

### **Section 6.15 – State 9 Waiting for Generate AC Response 1**

Symbol S9.3 is no longer implemented.

### **Section 6.19 – State 12 Waiting for Put Data Response Before Generate AC**

Symbols S12.3 and S12.7 are no longer implemented.

### **Section 6.20 – State 13 Waiting for Put Data Response Before Generate AC**

Symbol S13.7 is no longer implemented.

### **Section 6.21 – State 14 Waiting for CCC Response - 2**

Symbol S14.7 is no longer implemented.

### **Section 6.22 – State 15 Waiting for Put Data Response After Generate AC**

Symbol S15.3 is no longer implemented.

## **DE/DS Implementation Option**

### **Section 3.2**

The IDS & Torn transaction recovery implementation option is no longer supported and replaced by the Data Exchange and Data Storage implementation option:

Data Exchange and Data Storage	This Implementation Option gives the implementer the choice to build Kernel 2 with or without support for Data Exchange, IDS and SDS. This Implementation Option is referenced as DE/DS.
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### **Section 4.1.3 – TLV Database – Services**

The service UpdateWithDetData(Terminal Sent Data) is only implemented for the DE/DS Implementation Option.

### **Table 4.9 – Discretionary Data for an EMV Mode Transaction**

*DS Summary 3, DS Summary Status, Post-Gen AC Put Data Status, and Pre-Gen AC Put Data Status* are only included for the DE/DS Implementation Option.

### **Section 5.1 – C-APDU Commands**

The APDUs GET DATA and PUT DATA are only implemented for the DE/DS Implementation Option.

### **Section 6.3.1 – State 1 Idle – Local Variables**

Missing PDOL Data Flag is only implemented for the DE/DS Implementation Option.

### **Section 6.3.3 – State 1 Idle – Processing**

Symbols S1.10, S1.11, S1.12, S1.15, S1.16, S1.16.1, S1.17, S1.18, S1.19, S1.20, S1.21, S1.22 and S1.23 are only implemented for the DE/DS Implementation Option.

### **Section 6.4 – State 2 Waiting for PDOL Data**

State 2 is a state specific to data exchange processing and is only implemented for the DE/DS Implementation Option.

### **Section 6.5.1 – State 3 – Waiting for GPO Response – Local Variables**

Sync Data is only implemented for the DE/DS Implementation Option.

### **Section 6.5.3 – State 3 – Waiting for GPO Response – Processing**

Symbols S3.2, S3.3, S3.76, S3.77 and S3.78 are only implemented for the DE/DS Implementation Option.

### **Section 6.7.3 – States 3, R1 – Common Processing**

Symbols S3R1.1, S3R1.2, S3R1.3, S3R1.4, S3R1.10, S3R1.11, S3R1.12, S3R1.13, S3R1.14, S3R1.15, S3R1.16, S3R1.18 and S3R1.21 are only implemented for the DE/DS Implementation Option.

In S3R1.17, the ELSE branch goes to S3R1.20 if DE/DS is not implemented.

### **Section 6.8.1 – State 4 – Waiting for EMV Read Record Response – Local Variables**

Sync Data is only implemented for the DE/DS Implementation Option.

### **Section 6.8.3 – State 4 Waiting for EMV Read Record Response – Processing**

Symbols S4.1, S4.2, S4.15, S4.16, S4.17, S4.18, S4.28, S4.29, S4.30, S4.31, S4.32 and S4.33 are only implemented for the DE/DS Implementation Option.

In S4.25, the THEN branch goes to S4.34 if DE/DS is not implemented.

In S4.36, the THEN branch goes to S4.19 if DE/DS is not implemented.

In S4.37, the ELSE branch goes to S4.19 if DE/DS is not implemented.

### **Section 6.9 – State 5 Waiting for Get Data Response**

State 5 is a state specific to SDS processing and is only implemented for the DE/DS Implementation Option.

### **Section 6.10 – State 6 Waiting for EMV Mode First Write Flag**

State 6 is a state specific to SDS processing and is only implemented for the DE/DS Implementation Option.

### **Section 6.11.3 – States 4, 5 and 6 Common Processing**

Symbols S456.2, S456.3, S456.4, S456.5, S456.6, S456.7, S456.8, S456.9, S456.10, S456.11, S456.18, S456.19, S456.20.1, S456.20.2, S456.21, S456.22, S456.23, S456.42, S456.50 and S456.51 are only implemented for the DE/DS Implementation Option.

If DE/DS is not implemented, then S456.1 changes as follows:

```
IF      ['Next Cmd' in Next Cmd = READ RECORD]
THEN
    GOTO s4 – waiting for read record response
ELSE
    GOTO S456.12
ENDIF
```

In S456.16, the THEN branch goes to S456.24 if DE/DS is not implemented.

### **Section 6.12.1 – State 7 – Waiting for Mag-stripe Read Record Response – Local Variables**

Sync Data is only implemented for the DE/DS Implementation Option.

### **Section 6.12.3 – State 7 Waiting for Mag-stripe Read Record Response – Processing**

Symbols S7.1, S7.2, S7.14 and S7.15 are only implemented for the DE/DS Implementation Option.

In S7.12, the THEN branch goes to S7.16 if DE/DS is not implemented.

### **Section 6.13 – State 8 Waiting for Mag-stripe First Write Flag**

State 8 is a state specific to data exchange processing and is only implemented for the DE/DS Implementation Option.

### **Section 6.14.3 – States 7 and 8 Common Processing**

Symbols S78.1, S78.2, S78.3, S78.4, S78.5, S78.6, S78.7, S78.12, S78.13 and S78.14 are only implemented for the DE/DS Implementation Option.

In S78.10, the ELSE branch goes to S78.15 if DE/DS is not implemented.

### **Section 6.15.3 – State 9 Waiting for Generate AC Response 1 – Processing**

Symbols S9.6, S9.7, S9.8, S9.26 are only implemented for the DE/DS Implementation Option.

In S9.23, the THEN branch goes to S9.27 if DE/DS is not implemented.

### **Section 6.17.3 – States 9 and 10 – Common Processing**

Symbols S910.2, S910.2.2, S910.3, S910.3.1, S910.5, S910.8, S910.9, S910.10, S910.11, S910.12, S910.13, S910.14, S910.15, S910.16, S910.17, S910.18, S910.19, S910.33, S910.51, S910.52, S910.61, S910.62, S910.76, S910.77 and S910.78 are only implemented for the DE/DS Implementation Option.

In S910.1, the THEN branch goes to S910.2.1 if DE/DS is not implemented.

In S910.32, the THEN branch goes to S910.35 if DE/DS is not implemented.

### **Section 6.19 – State 12 Waiting for Put Data Response Before Generate AC**

State 12 is a state specific to SDS processing and is only implemented for the DE/DS Implementation Option.

### **Section 6.22 – State 15 Waiting for Put Data Response After Generate AC**

State 15 is a state specific to SDS processing and is only implemented for the DE/DS Implementation Option.

### **Section 7.6 – Procedure – Prepare Generate AC Command**

Symbols GAC.1, GAC.2, GAC.3, GAC.4, GAC.5, GAC.6, GAC.7, GAC.8, GAC.9, GAC.10, GAC.11, GAC.12, GAC.13, GAC.40, GAC.41, GAC.42, GAC.43, GAC.44, GAC.45, GAC.47 and GAC.48 are only implemented for the DE/DS Implementation Option.

### **Annex A – Data Dictionary**

The following data objects do not exist if DE/DS is not implemented:

- *Active Tag*
- *Data Needed*
- *Data To Send*
- *DS AC Type*
- *DS Digest H*
- *DSDOL*
- *DS ID*
- *DS Input (Card)*
- *DS Input (Term)*
- *DS ODS Card*
- *DS ODS Info*
- *DS ODS Info For Reader*
- *DS ODS Term*
- *DS Requested Operator ID*
- *DS Slot Availability*
- *DS Slot Management Control*
- *DS Summary 1*
- *DS Summary 2*
- *DS Summary 3*
- *DS Summary Status*
- *DS Unpredictable Number*
- *DSVN Term*
- *IDS Status*
- *Post-Gen AC Put Data Status*
- *Pre-Gen AC Put Data Status*
- *Proceed To First Write Flag*
- *Protected Data Envelope 1 – 5*
- *Tags To Read*
- *Tags To Read Yet*
- *Tags To Write After Gen AC*
- *Tags To Write Before Gen AC*
- *Tags To Write Yet After Gen AC*
- *Tags To Write Yet Before Gen AC*
- *Time Out Value*
- *Unprotected Data Envelope 1 – 5*

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