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Support of Extended Logical Channels

This Specification Bulletin Corrects the Class byte for the PUT TEMPLATE, GET TEMPLATE and SET MODE commands (PPSE application) as well as for the SET STATUS command (CMP application) to cater for the receipt of these commands on extended logical channels 4 to 19.

Applicability

This Specification Bulletin applies to:

- EMVCo Contactless Mobile Payment – Application Activation User Interface – Version 1.0 – December 2010

Related Documents

- EMVCo Contactless Mobile Payment Type Approval – Application Activation User Interface – Test Cases version 1.0.c, September 2013.
- Specification Update Bulletin No. 94 – Part 3: Class byte for PUT TEMPLATE, GET TEMPLATE and SET MODE commands
- ISO/IEC 7816-4:2005: "Identification cards - Integrated circuit cards - Part 4: Organization, security and commands for interchange"
- GlobalPlatform Card Specification, version 2.2, March 2006
- ETSI TS 102 221: Smart Cards; UICC-Terminal interface; Physical and logical characteristics

Effective Date

November 2015

Description

ISO/IEC 7816-4 defines a set of logical channels to an ICC card. Cards supporting multiple logical channels allow a card reader to interact with multiple applications on the ICC card in parallel, by establishing multiple logical channels which are multiplexed onto the same physical interface.

Logical channels (other than the basic channel 0) are typically not used between an ICC card and a payment terminal. However, they become important for the communications between a mobile device and a Secure Element. The Secure Element may support multiple applications, and there may need to be interaction between the mobile device and these applications in parallel. For example, the mobile device needs to periodically interact with the SIM application on a UICC, and this should not affect the operation of a payment application, or vice versa.

ISO/IEC 7816-4 encodes the logical channel number in the CLA byte of the command APDU. While prior versions of ISO/IEC 7816-4 enabled to support up to four logical channels (0 to 3) with the First CLA Byte Coding, ISO/IEC 7816-4:2005 introduces the Further CLA Byte Coding, supporting sixteen additional extended logical channels (channels 4 to 19). Several standards applicable to Secure Elements, such as GlobalPlatform Card Specification and ETSI/TS 102 221, have also endorsed the support of extended logical channels.

The First interindustry/proprietary CLA byte is coded as follows:

b8	b7	b6	b5	b4	b3	b2	b1	Meaning
0	0	0	0	-	-	-	-	Interindustry command defined in ISO/IEC 7816
1	0	0	0	-	-	-	-	Proprietary command
-	-	-	-	0	0	-	-	No secure messaging
-	-	-	-	0	1	-	-	Secure messaging - Proprietary
-	-	-	-	1	0	-	-	Secure messaging - ISO/IEC 7816 standard, command header not processed (no C-MAC)
-	-	-	-	1	1	-	-	Secure messaging - ISO/IEC 7816 standard, command header authenticated (C-MAC)
-	-	-	-	-	-	X	X	Logical channel number (0 to 3)

The Further interindustry/proprietary CLA byte is coded as follows:

b8	b7	b6	b5	b4	b3	b2	b1	Meaning
0	1	-	0	-	-	-	-	Interindustry command defined in ISO/IEC 7816
1	1	-	0	-	-	-	-	Proprietary command
-	-	0	-	-	-	-	-	No secure messaging
-	-	1	-	-	-	-	-	Secure messaging - ISO/IEC 7816 or proprietary
-	-	-	-	X	X	X	X	Logical channel number (4 to 19)

The AAUI document, corrected by Specification Update Bulletin 94, supports logical channels 0 to 3. However, given that more and more devices and Secure Elements support the Further CLA byte coding, extended logical channels 4 to 19 shall be supported as well for the APDUs that are exchanged with applications (PPSE, CMP application) over the Device Interface.

The above description affects the following in the AAUI document:

- Table B.9 (PPSE application, SELECT command message):
  The value for the CLA byte changes from'00'-'03' to '00'-'03', '40'-'4F'
- Table B.14 (PPSE application, PUT TEMPLATE command message):
  The value for the CLA byte changes from '80' to '80'-'83', 'C0'-'CF'
- Table B.18 (PPSE application, GET TEMPLATE command message):
  The value for the CLA byte changes from '80' to '80'-'83', 'C0'-'CF'
- Table B.21 (PPSE application, SET MODE command message):
  The value for the CLA byte changes from '80' to '80'-'83', 'C0'-'CF'
- Table C.24 (CMP Application, SET STATUS command message):
  The value for the CLA byte changes from '8x' to '80'-'8F', 'C0'-'CF', 'E0'-'EF'