

1 General points

1. The TapLinX Java SDK can be used wherever JRE 1.8 or higher is supported, including desktop and web server applications.
2. Sample applications for desktop are included as part of the release package along with source code.
3. To use this SDK for any applications, library manager is the entry point for the SDK and hence it should be included along with required chip package. For example, if an application requires DESFire support; both license manager and desfire jars need to be included.
4. As NTAG413 DNA is a derivative of DESFire in spite of being named as NTAG413; to use NTAG413 DNA functionality, both license manager and desfire jars needs to be included.



Figure 1. TapLinX

2 Release contents

2.1 Version history

Table 1. Version history

Release date	Version
3 November 2025	5.0.0
11 July 2025	4.1.0
14 February 2025	4.0.0
28 June 2023	3.1.0
20 January 2023	3.0.0
05 August 2022	2.0
13 January 2022	1.9
27 January 2021	1.8
14 October 2019	1.7

2.2 Release folder structure

Table 2. Release folder structure

SL.No	File Name	Description
1	<i>TapLinx_Java_SDK_SCR.txt</i> <i>LA_OPT_NXP_Software_License.htm</i> <i>legalNotices</i>	TapLinx Java SCR document TapLinx Java License File Legal notices will have license files
2	<i>taplinx-java-5.0.0-RELEASE-jars.zip</i> <i>- Librarymanager-5.0.0-RELEASE.jar</i> <i>- Desfire-5.0.0-RELEASE.jar</i> <i>- Plus-5.0.0-RELEASE.jar</i> <i>- Ntag-5.0.0-RELEASE.jar</i> <i>- Icode-5.0.0-RELEASE.jar</i> <i>- Classic-5.0.0-RELEASE.jar</i> <i>- Ultralight-5.0.0-RELEASE.jar</i>	- Library manager must be included along with specific jar in the application dependencies - MIFARE DESFire, MIFARE DUOX Functionality - MIFARE Plus Functionality - NTAG Functionality - ICODE Functionality - MIFARE Classic Functionality - MIFARE Ultralight Functionality

3 New features

Version 5.0.0:

1. Added full support for Mifare DUOX.

Version 4.1.0:

1. Added Limited Support of MIFARE DUOX.

Version 4.0.0

1. Added support for ICODE 3 and ICODE 3TT Cards
2. Added Limited Support for MIFARE DUOX - Card Detection and ECC Originality Check 3.1.0

Version 3.1.0:

1. Added support to identify the manufacturing site of MIFARE DESFire EV3 and MIFARE DESFire EV3C with Get_Fab_Identifier API.
2. Added support for MIFARE DESFire EV3 [16K] variant. 3.0.0

Version 3.0.0:

1. Added TapLinx Java Offline License verification.
2. TapLinx Android and Java License verification is upgraded.
3. Bug Fixes. 2.0

Version 2.0:

1. Added support for one time online license verification and continuous to work in offline mode.
2. Bug Fixes 1.9

Version 1.9:

1. Added support for MIFARE DESFire EV3C card.
2. Added support for NTAG22x DNA cards, NTAG22x NDA SD cards.
3. Added support for MIFARE Ultralight AES cards 1.8.

Version 1.8:

1. Added support for NTAG 5 Boost, NTAG 5 Switch and NTAG 5 Link.
2. Added support for MIFARE DESFire EV3 card.
3. Added support for MIFARE Plus EV2 card 1.7.

Version 1.7:

1. Added support for DESFire Ev2 proximity check.
2. Added support for DESFire Light NDEF format. 1.6

Version 1.6:

1. Introduced Offline Local License Verification.
2. Added support for DESFire EV2 XL 1.5.

Version 1.5:

NA

Version 1.4:

1. Implemented a method for getting the current version of TapLinx.
2. Implemented authentication using predictable challenge for DESFireEV1 1.3.

Version 1.3:

1. Added support for INTAG213TagTamper 1.2.

Version 1.2:

NA

Version 1.1:

1. Added support for MIFARE Identity.
2. Added support for NTAG413 DNA.

4 Enhancements

Version 5.0.0:

NA

Version 4.1.0:

NA

Version 4.0.0:

NA

Version 3.1.0:

NA.

Version 3.0.0:

NA.

Version 2.0:

1. Added support for one time online license verification and continuous to work in offline mode 1.9.

Version 1.9:

1. Enhancements made for PLUS EV2 and DESFire EV2 to receive the MAC response 1.8.

Version 1.8:

NA.

Version 1.7:

NA.

Version 1.6:

1. Enhanced app registration by adding Offline Local License Verification, where user can use the TapLinx library without verifying the license Online, provided the offline verification key is genuine.
2. Replaced Google Analytics by Firebase Analytics 1.5.

Version 1.5:

1. Added ISO14443-L4 support to Identify for CID,NAD is supported in RATS response
2. Added Command exchange as per ISO14443-L4.
3. Added Implement Sample application using ISO14443-L4 implementation and using Plus EV1 card.
4. TapLinx- Value of Mirror Page and Mirror Byte is set to 0 if bytes required calculation is 0 in NTAG21X 1.4.

Version 1.4:

1. Add support for predictable challenge for DESFire EV1.
2. ISO File Id should be accepted Uniformly all the APIs and cards.
3. Refactoring of Sample Application source code 1.3.

Version 1.3:

1. Large Frame Size support in DESFire EV2 Family cards.
2. Updated clone detection for newly identified clone cards 222.
3. Split IDESFireEV2#getKeySetVersion in to two APIs IDESFireEV2#getAllKeySetVersion and IDESFireEV2#getKeyVersionFromKeySet 1.2.

Version 1.2:

NA

Version 1.1:

1. Getter methods are added to the FileSettings and its derived classes.
2. Strict length error check is added on responses from all the cards in the detection logic.
3. Symmetric originality check in DESFireEV2 is tested.
4. New ISO Select file API is added which returns FCI.
5. NTAG213 and Ultralight detection speed improvement.
6. FileSettings base class made abstract and hence users cannot create it directly.
7. Added support for MIFARE Identity and NTag413 DNA in sample application.
8. Merge InvalidArgumentException and UsageException to single exception and updated the javadoc suitably.
9. As NTAG413 DNA is a derivative of DESFire in spite of being named as NTAG413, and hence this will be under com.nxp.nfc.lib.desfire package. So import the desfire package to use the NTAG413 DNA.
10. “public void enableReaderMode(final int presenceCheckDelay, NfcAdapter.ReaderCallback readerCallback, int flags) throws NxpNfcLibException” API is added in the NxpNfcLib class to set the custom presence check delay on certain devices where presence check happens too often and cause issues in the session based communication with advanced cards like DESFire EV1 and EV2.

5 Bug fixes

Version 5.0.0:

1. Resolved issue with NTAG 5 cards where full memory could not be utilized for writing NDEF data.

Version 4.1.0:

NA

Version 4.0.0:

1. For NTAG5 cards, interface object is not updated on every tap within the same session is fixed 3.1.0.

Version 3.1.0:

NA

Version 3.0:

NA

Version 2.0:

1. For NTAG223DNASD and NATG224DNASD → ShowStoredTTStatus and ShowActualTTStatus API's are updating on a wrong byte.
2. For NTAG223DNA and NATG223DNASD → BlockLocking of Incorrect Pages id Fixed.
3. NTAG223DNA and NATG223DNASD → Locking of Incorrect Pages id Fixed.
4. For DESFire EV2J card → Issue with ApplicationKeySettings API.
5. For DESFire EV2J card → Issue in LinearRecordFile_PICC_AES_TestCase API is fixed.
6. For DESFireEV2J Card → Issue in NativeChainingReadWriteDataTestFactory_ISO API is fixed.
7. Issue with TapLinx continuing to send Additional Frames even if there is an error response returned during first frame is fixed.
8. For DESFire EV2/EV3 card → LengthError in read data, record, getValue, getFreeMemory commands is fixed.
9. For DESFire EV3 and DESFire EV3C cards → issue in getFileCounter API is fixed.
10. For DESFire EV3 and DESFire EV3C → SDMCtrRetAccessByte missing issue fixed.
11. For NTAG424 DNA card → Issue with ReadWriteNDEFTestCases Failure is fixed 21
12. ForPlusEV2 Card → Failure in SL1GetVersion and Read Signature commands is fixed 1.9.

Version 1.9:

1. For DESFire EV2 → CommitTransaction API to return TMC and TMV values.
2. For DESFire EV3 → Issue with ISO and AES Auth Types when using getFileSettings.
3. For DESFire EV2 → Issue with Read Records API.
4. For DESFire EV2 → Reading Large data from Record File.
5. Plus EV1 2k cards getting detected as PlusSL0 Card.
6. Classic Family cards are detected multiple times on Android 10 1.8.

Version 1.8:

1. Bug fixes with Proximity check on DESFire Ev2.
2. DESFire EV2 Read Signature API fails in the authenticated state (Native, ISO or AES).
3. Integrity error in Change Key settings using DESFire EV2 secure messaging.
4. For DESFire Ev2, Failed to append MAC while reading record file in Enciphered/MACed communication mode.
5. For DESFire Ev2, getFreeMemory() API fails after Secure Messaging & AuthenticateNonFirst is restricted by Key Length in DESFire EV2.

6. Bug fix for Read/Write NDEF and FormatT2T API in NTagI2CPlus and all T2T cards.
7. Bug fix on boundary values for Linear record API.
8. Fixed the Analytics performance issue on Authentication for DESFire EV2.
9. Handled Exceptions for the API's isCardPlusEV1 , isCardPlusEV1SL0 , isCardPlusEV1SL3 , isCardPlusSL0 and isCardPlusSL3 to provided valid user message 1.7.

Version 1.7:

1. Offline registration with TapLinx for Android 21 is failed – resolved 1.6.

Version 1.6:

1. Key diversification for AES with diversification input as 15 bytes is not valid – resolved.
2. User is unable to write NDEF message for MIFARE Ultralight card – resolved.
3. DESFire - Predictable Challenge AuthCounter is not getting increased – resolved.
4. Issue in isoSelect API (For Plus EV1) - resolved 1.5.

Version 1.5:

1. In a TapLinx Desktop Java Sample App, connected reader name is not displayed - resolved.
2. In a TapLinx Desktop Java Sample App, No Error message is shown when Reader is not connected and execute button is clicked- reader - resolved.
3. In a TapLinx Desktop Java Sample App, Application doesn't respond/hangs when card is not available on reader and execute button is clicked - resolved.
4. In a TapLinx Desktop Java Sample application → Response is shown as null when EV1 card is placed on reader and In Plus EV1 SL3 tab is selected. – resolved
5. In a TapLinx Desktop Java Sample App, Log communication doesn't change when user is navigated from one tab to another.
6. Android sample app after second tap null pointer exception is thrown – resolved.
7. Finalize keyset operation is failing after change key with integrity error – resolved.
8. In DESFire EV2, Linear and Cyclic Records Write /Read fails with Boundary Error - resolved.
9. TapLinx - WriteData on DESFireEV1 for file whose size is greater than 0xFF is failing - resolved.
10. TapLinx - Can not communicate with Mifare Plus EV1 SL1 with any sector moved to S1SL3Mix mode.
11. TapLinx - WriteData on DESFireEV1 for file whose size is greater than 0xFF is failing.
12. TapLinx - NTAG 413 DNA Interaction Counter not visible in Read flow 1.4.

Version 1.4:

1. Issue related to changeKeySettings at PICC level for DESFire EV1/2 cards in which key settings bitmap wrongly generated - Resolved.
2. Verified support for NTAG413 DNA and some bugs fixes related to file settings - Resolved.
3. Key Diversification for AES128, 2k3DES and 3k3DES verified and issue related to padding - Resolved.
4. For NTAG413 DNA getNFCCCounter was failing in TapLinx - Resolved.
5. For DESFire EV2, ChangeKey with diversified key giving integrity error - Resolved.
6. For DESFire EV2, Credit/Debit operations are failing after EV2 non-first authentication - Resolved.
7. For DESFire EV2, Read/Write data is giving length error in EV2 secure messaging - Resolved.
8. For DESFire EV2 ISO-Chaining was not working for writeData/Record commands - Resolved.
9. AuthStatus is not lost when new tag gets connected - Resolved.
10. For DESFire EV2, getValue() always sent with communicationMode = MACed - Resolved.
11. For DESFire, ISO select is failing with null pointer exception - Resolved.
12. For DESFire EV2, creating Transaction MAC File in DAM application returns length error - Resolved.
13. For DESFire EV2, not able to add Multiple file access rights while creating file - Resolved.

14. For DESFire, If Card or application is configured for 2k3DES and if user pass 16 bytes in authentication sometime invalid key length exception is thrown - Resolved.
15. Get Free Memory issue - Resolved.
16. TapLinx-Static Key authentication for getting Card UID for Diversified keys - Resolved.
17. For DESFire, file number issue - Resolved.
18. For DESFire, change Key issue in 3k3DES - Resolved.
19. For DESFire EV2, bug in transceive command - Resolved.
20. For NTAG I2C plus, in fastWrite(Data) API session register were not getting updated- Resolved.
21. For DESFire, Illegal Command Code using Predictable Challenge - Resolved 1.3.

Version 1.3:

1. Add Failure Exceptions in ICODE DNA.
2. ChangeKey issue fixed for application level in DESFire EV2 card.
3. getKeySetVersion Method does not return the correct version fixed.
4. DESFire EV1/EV2 setConfiguration bug fixes.
5. IDESFireEV1.getFreeMemory() return invalid values fixed.
6. Plus SL1 do originality check should accept SL1CardAuthKey to perform originality check.
7. Misbehavior on wrong password on an Ultralight EV1.
8. Improvement for misusing TapLinx for attacks on an Ultralight EV1.
9. Mifare DESFire EV1/2 auth/read/identify problems on Samsung Galaxy S7/S7 Edge 1.2.

Version 1.2:

1. Issue related to DESFire EV1 standard file communication in encrypted mode resolved 1.1.

Version 1.1:

1. TapLinx sending an annoying popup if NFC is off is removed.
2. Desfire getting detected as Plus on certain devices is fixed.
3. Bug found in MISMART Application in EV2 secure messaging is fixed.
4. Fixed create cyclic record file creation API in DESFire.
5. Fixed ChangeKeySettings API for DESFire EV2 at application level.
6. In DESFireEV2, isoSelectFile does not returns FCI template.
7. In DESFireEV1, readNDEF is failing with exception format exception in ISO CommandSet mode.
8. NtagFactory#isNTAG203x API is fixed.

6 API signature changes

Version 5.0.0:

Table 3. Version 5.0.0 API signature changes

Class	Version 4.1.0	Version 5.0.0
MifareDUOX	writeData(int fileNo, byte[] crlVersion, int offset, byte[] data, byte[] crlSignature)	writeData(int fileNo, byte[] crlVersion, int offset, byte[] data, boolean is CRLSignatureRequired, PrivateKey caRootKey)
MifareDUOX	writeData(int fileNo, byte[] crlVersion, int offset, byte[] data, byte[] crlSignature, CommunicationType communicationType)	writeData(int fileNo, byte[] crlVersion, int offset, byte[] data, boolean is CRLSignatureRequired, PrivateKey caRootKey, CommunicationType communicationType)
MifareDUOX	changeMifareDUOXFileSettings(int fileNo, MifareDUOXFile.DUOXFileSettings duoxFileSettings)	changeFileSettings(int fileNo, MifareDUOXFile.DUOXFileSettings duoxFileSettings)
MifareDUOX	setConfigurationCryptoAPIManagement(CommunicationType commMode, byte accessCondition)	setConfigurationForCryptoAPIManagement(CommunicationType commMode, byte accessCondition)

Version 4.1.0:

Table 4. Version 4.1.0 API signature changes

Class	Version 4.0.0	Version 4.1.0
MifareDUOX	doOriginalityCheck()	doOriginalityCheck(File caFile)

Version 4.0.0:

NA

Version 3.1.0:

NA

Version 3.0.0:

Table 5. Version 3.0.0 API signature changes

Class	Version 2.0	Version 3.0.0
NTAG223DNASStatusDetect	int getCTTCurrentTrimValue()	Change in return type from CTTCurrentTrim Value to int.
NTAG223DNASStatusDetect	void setCTTCurrentTrimValue(int)	Change in signature from CTTCurrentTrim Value to int.
NTAG224DNASStatusDetect	int getCTTCurrentTrimValue()	Change in return type from CTTCurrentTrim Value to int.
NTAG224DNASStatusDetect	void setCTTCurrentTrimValue(int)	Change in signature from CTTCurrentTrim Value to int.
UltralightAES	void setNegativePwdLimit(byte)	Method was inherited from com.nxp.nfc.lib.ultralight.UltralightEV1, but is now defined locally.

Version 2.0:

Table 6. Version 2.0 API signature changes

Class	Version 1.9	Version 2.0
NTAG224DNA	void authenticate (IKeyData, KeyType)	void authenticate(IKeyData, NTAGKeyType)
NTAG224DNA	void programKey (KeyType, byte[])	void programKey(NTAGKeyType, byte[])
UltralightAES	void authenticate (IKeyData, KeyType)	void authenticate(IKeyData, UltralightKeyType)
UltralightAES	void programKey (IKeyData, KeyType)	void programKey(UltralightKeyType, byte[])

Version 1.9:

Table 7. Version 1.9 API signature changes

Class	Version 1.8	Version 1.9
desfire.EV3PICCCConfiguration Settings	void setVcTypeIdentifier(EV3VCTYPE Identifier)	void setVCTYPEIdentifier(VirtualCardType Identifier)

Version 1.8:

Table 8. Version 1.8 API signature changes

Class	Version 1.7	Version 1.8
IDESFireEV2	byte[] isoSelect(byte[], IKeyData)	Change in return type from void to byte[].
ValueFileConfigurationStructure	ValueFileConfigurationStructure getInstance(int, int, int, int, boolean, boolean)	Change from final to non-final.

Version 1.7:

NA

Version 1.6:

NA

Version 1.5:

Table 9. Version 1.5 API signature changes

Class	Version 1.3	Version 1.5
INTag413DNA	boolean verifySecureDynamicMessagingMac(byte[], byte[], byte[], byte[], byte[])	Change in signature from (byte[], byte[], byte[], IKeyData, byte[]) to (byte[], byte[], byte[], byte[], byte[]).

Version 1.4:

NA

Version 1.3:

Table 10. Version 1.3 API signature changes

Class	Version 1.3	Version 1.2
IplusEV1SL1	byte[] activateLayer4()	Void activateLayer4()
EV1ApplicationKeySettings	EV1ApplicationKeySettings(byte, byte)	EV1ApplicationKeySettings(byte[])
IDESFireEV1	byte getKeyVersion(int)	Byte[] getKeyVersion(int)

Version 1.2:

NA

Version 1.1:**Table 11. Version 1.1 API signature changes**

Class	Version 1.0	Version 1.1
DESFireFile.RecordFileSettings	public RecordFileSettings (final FileType type, final CommunicationType comSettings, final byte readAccess, final byte writeAccess, final byte readWriteAccess, final byte changeAccess, final int recordSize, final int maxNrOfRecords, final int currNoOfRecords)	public RecordFileSettings (final FileType type, final CommunicationType comSettings, final byte readAccess, final byte writeAccess, final byte readWriteAccess, final byte changeAccess, final int recordSize, final int maxNumberOfRecords, final int currentNumberOfRecords, final byte numberOfAdditionalAccessConditions, final byte[] numberOfAdditionalAccessRights)
DESFireFile.StdDataFileSettings	public StdDataFileSettings(final CommunicationType comSettings, final byte readAccess, final byte writeAccess, final byte readWriteAccess, final byte changeAccess, final int fileSize, final byte nrAddARS, final byte[] addAccessRights)	public StdDataFileSettings(final CommunicationType comSettings, final byte readAccess, final byte writeAccess, final byte readWriteAccess, final byte changeAccess, final int fileSize, final byte numberOfAdditionalAccessConditions, final byte[] numberOfAdditionalAccessRights)
DESFireFile.BackupDataFileSettings	public BackupDataFileSettings(final CommunicationType comSettings, final byte readAccess, final byte writeAccess, final byte readWriteAccess, final byte changeAccess, final int fileSize, final byte nrAddARS, final byte[] addAccessRights)	public BackupDataFileSettings(final CommunicationType comSettings, final byte readAccess, final byte writeAccess, final byte readWriteAccess, final byte changeAccess, final int fileSize, final byte numberOfAdditionalAccessConditions, final byte[] numberOfAdditionalAccessRights)
IPlusEV1SL1	void sectorSwitchToSL3(final IKeyData key, final int sectorCount, final Map<Integer, IKeyData> keyBBlockNumberMap)	void sectorSwitchToSL3(final IKeyData sectorSwitchKey, final Map<Integer, IKeyData> keyBBlockNumberMap);
IPlusEV1SL1	void sectorSwitchToSL1SL3Mix(final IKeyData key, final int sectorCount, final Map<Integer, IKeyData> blockNumberToKeyMap)	void sectorSwitchToSL1SL3Mix(final IKeyData sectorSwitchKey, final Map<Integer, IKeyData> blockNumberToKeyMap)
EV1ApplicationKeySettings	public Builder setAuthenticationRequiredForFileManagement(final boolean authenticationRequiredForFileManagement)	public Builder setAuthenticationRequiredForApplicationManagement(final boolean authenticationRequiredForApplicationManagement)
EV1PICCConfigurationSettings	public void setPICCConfigurations(final boolean useRandomID, final boolean disableFormatCommand)	public void setRandomIDAndFormatConfiguration(final boolean useRandomID, final boolean disableFormatCommand)
EV2PICCConfigurationSettings	public void setPICCConfigurations(final boolean authVCMandatory, final boolean pcMandatory)	public void setVCAndPICConfigurations(final boolean authVCMandatory, final boolean pcMandatory)
DESFireEV1	byte[] getCardUID()	byte[] getManufacturerUID()

7 Removed/Obsolete APIs

Version 5.0.0:

Table 12. Version 5.0.0 Removed/Obsolete APIs

Class	API	Alternative API
MifareDUOX	setConfigurationToEnableISOSelectFileECCBasedAuthentication(CurveID curveID)	setConfigurationForSecureMessagingConfiguration(boolean enableISOSelectFileFastUIDRetrieval, boolean enableFreeAccessOverI2C, boolean enableEVChargingCardUnilateralAuth, boolean enableISOSelectFileIntegratedECCBasedAuthentication, boolean disableChainedWriting, CurveID curveID, byte appUIDEncKey)
MifareDUOX	setConfigurationToEnableEVChargingCardUnilateralAuth()	setConfigurationForSecureMessagingConfiguration(boolean enableISOSelectFileFastUIDRetrieval, boolean enableFreeAccessOverI2C, boolean enableEVChargingCardUnilateralAuth, boolean enableISOSelectFileIntegratedECCBasedAuthentication, boolean disableChainedWriting, CurveID curveID, byte appUIDEncKey)
MifareDUOX	setConfigurationToEnableISOSelectFileFastUIDRetrieval(byte appUIDEncKey)	setConfigurationForSecureMessagingConfiguration(boolean enableISOSelectFileFastUIDRetrieval, boolean enableFreeAccessOverI2C, boolean enableEVChargingCardUnilateralAuth, boolean enableISOSelectFileIntegratedECCBasedAuthentication, boolean disableChainedWriting, CurveID curveID, byte appUIDEncKey)

Version 4.1.0:

NA

Version 4.0.0:

NA

Version 3.1.0:

Table 13. Version 3.1.0 Removed/Obsolete APIs

Class	API	Alternative API
IPlusEV1	IPlusEV1SL3 getSL3SectorHelper()	Gets the Plus SL3 object which can be used to do SL3 operations on sectors that have been moved to SL3.
IPlusEV2	void proximityCheck(IKeyData, int)	1. Prepare Proximity Check. 2. Proximity Check. 3. Verify Proximity Check.

Version 3.0.0:

NA

Version 2.0:

Table 14. Version 2.0 Removed/Obsolete APIs

Class	API
IDESFireEV3	void updateRecord(int, int, int, byte[])
IDESFireEV3	void updateRecord(int, int, int, byte[])

Version 1.9:

Table 15. Version 1.9 Removed/Obsolete APIs

Class	API	Alternative API
ntag.ILogTag213215216	void setMemProtectionAndPwdVerificationForReadWriteAccess(byte, boolean) Now deprecated.	Use enablePasswordProtection or enableAesProtection API instead.

Version 1.8:

Table 16. Version 1.8 Removed/Obsolete APIs

Class	API	Alternative API
DESFireFile.FileSettings	DESFireFile.FileSettings(FileType, CommunicationType, byte, byte, byte, byte)	Base class Constructor.
DESFireFile.FileType	byte mValue	holds the file mType enum value.
EV1ApplicationKeySettings.	Builder byte appKeyChangeAccessRight	
EV1ApplicationKeySettings.	Builder boolean appKeySettingsChangeable	
EV1ApplicationKeySettings.	Builder boolean appMasterKeyChangeable	
EV1ApplicationKeySettings.	Builder boolean authenticationRequiredForDirectoryConfigurationData	
EV1ApplicationKeySettings.	Builder boolean authenticationRequiredForFileManagement	
EV1ApplicationKeySettings.	Builder boolean isoFileIdentifierPresent	
EV1ApplicationKeySettings.	Builder KeyType keyTypeOfApplicationKeys	
EV1ApplicationKeySettings.	Builder int maxNumberOfApplicationKeys	

Version 1.7:

NA

Version 1.6:

Table 17. Version 1.6 Removed/Obsolete APIs

Class	API	Alternative API
INTAG5	getNTAG5(CustomModules)	No alternative

Version 1.5:

NA

Version 1.4:

Table 18. Version 1.4 Removed/Obsolete APIs

Class	API	Alternative API
IDESFireEV2	void authenticateEV2NonFirst (int, IKeyData, byte[])	void authenticateEV2NonFirst(int, IKeyData)

Version 1.3:

Table 19. Version 1.3 Removed/Obsolete APIs

Class	API	Alternative API
IMIFAREIdentity	byte[] commitTranscation()	byte[] commitTransaction()

Table 19. Version 1.3 Removed/Obsolete APIs...continued

Class	API	Alternative API
IDESFireEV2	byte[] getKeySetVersion()	byte[] getKeyVersionFromKeySet(), byte[] getAllKeySetVersion()

Version 1.2:

NA

Version 1.1:

Table 20. Version 1.1 Removed/Obsolete APIs

Class	API	Alternative API
IICodeDNA	readBuffer(), void challenge()	No alternative
IUltralightEV1	byte readVCSL()	No alternative
LibraryManager	void setLogger(final ILogger logger)	No alternative

8 Added class/APIs

Version 5.0.0:

Table 21. Version 5.0.0 Added class/APIs

Class	API Syntax	Description
MifareDUOX	setConfigurationForPICCConfiguration(boolean useLegacyRandomID, boolean enableRandomID, boolean disableFormatCommand)	Set Configuration for PICC Configuration use LegacyRandomID - Enable legacy random ID compatible with DESFire EV1 (UID0 = 0x80). enableRandomID - Enable random ID. See Bit 5 for UID0 configuration. Once enabled, Random ID cannot be disabled anymore, but the UID0 configuration can still be adapted. disableFormatCommand - Disable Format at PICC level only, once disabled cannot be enabled again.
MifareDUOX	setConfigurationForApplicationConfiguration(boolean disableFormatCommand)	Set Configuration for Application Configuration
MifareDUOX	setConfigurationForDefaultKeysUpdate(byte[] piccAppDefaultKeyData, byte piccAppDefaultKeyVersion)	Set Configuration for Default Keys Update
MifareDUOX	setConfigurationForATSUpdate(byte[] userDefinedATS)	Set Configuration for ATS Update
MifareDUOX	setConfigurationForSAKUpdate(byte sak1, byte sak2)	Set Configuration for SAK Update
MifareDUOX	setConfigurationForSecureMessagingConfiguration(boolean enableISOSelectFileFastUIDRetrieval, boolean enableFreeAccessOverI2C, boolean enableEVChargingCardUnilateralAuth, boolean enableISOSelectFileIntegratedECCBasedAuthentication, boolean disableChainedWriting, CurveID curveID, byte appUIDEncKey)	Set Configuration for Secure Messaging Configuration
MifareDUOX	setConfigurationForCapabilityData(byte VCTID, byte PDCap1_2, byte PDCap2_2, byte PDCap2_5, byte PDCap2_6)	Set Configuration for Capability Data.
MifareDUOX	setConfigurationForVCIIDorApplicationISODFNameRenaming(byte[] VCIIDorDFName, boolean is DelegatedApplication, byte[] DAMMac)	Set Configuration for VCIID or Application ISO DFName Renaming.
MifareDUOX	setConfigurationForATQAUpdate(byte[] userDefinedATQA)	Set Configuration for ATQA update.
MifareDUOX	setConfigurationForNFCManagement(boolean disableECDSASign, boolean disableECCBasedCardUnilateralAuthentication, boolean disableECCBasedMutualAndReaderUnilateralAuthentication, boolean disableAESBasedSymmetricAuthentication)	Set Configuration for NFC Management. Default value is all protocols supported in the manufacturing features selection map are enabled.
MifareDUOX	setConfigurationForI2CManagement(byte i2cTarget, boolean disableECDSASign, boolean disableECCBasedCardUnilateralAuthentication, boolean disableECCBasedMutualAndReaderUnilateralAuthentication, boolean disableAESBasedSymmetricAuthentication)	Set Configuration for I2C Management. Default value is all protocols supported in the manufacturing features selection map are enabled.

Table 21. Version 5.0.0 Added class/APIs...continued

Class	API Syntax	Description
MifareDUOX	setConfigurationForGPIOManagement(GPIO1Configuration, GPIO2Configuration, byte manageGPIOAccessCondition, byte readGPIOAccessCondition, byte[] AID, byte addManageGPIOAccessCondition, byte addReadGPIOAccessCondition)	Set Configuration GPIO Management
MifareDUOX	setConfigurationForCryptoAPIManagement(CommunicationType commMode, byte accessCondition)	Set Configuration for Crypto API Management
MifareDUOX	manageGPIOForOutputMode(int GPIONo, boolean pauseOrReleaseNFC, GPIOControl gpioControl, byte[] NFCPauseRespData, CommunicationType communicationType)	Manages the GPIO output if GPIOxMode is set to output.
MifareDUOX	manageGPIOForPowerDownstreamMode(int GPIONo, GPIO1Configuration.PowerDownstream powerDownstream, boolean executeMeasurement, boolean enablePowerDownstream, CommunicationType communicationType)	Manages the GPIO output if GPIOxMode is set to Power downstream.
MifareDUOX	manageGPIOForPowerDownstreamModeAutoWTX(int GPIONo, boolean enableAutoWTX, CommunicationType communicationType)	Manages the GPIO output if GPIOxMode is set to Power downstream.
MifareDUOX	setConfigurationForAuthenticationCounterAndLimitConfiguration(boolean enableAuthCtrOptionAuthEV2First, byte[] authCtrLimit)	Set Configuration for Authentication Counter and Limit Configuration.
MifareDUOX	setConfigurationForHALTAndWakeUpConfiguration(boolean enableGpioWakeUp, byte i2cWakeUpAddressByte, byte i2cSDAWakeUpCycles, boolean enableI2CTargetAddressWakeUp, boolean enableI2CSDACycleWakeUp, boolean enableNFCFieldWakeUpFromHalt, byte rdacSetting, boolean enableGPIO2reset, boolean enableGPIO1reset)	Set Configuration for HALT and Wake-up Configuration.
MifareDUOX	setConfigurationForLockConfigurations(boolean lockPICCConfiguration, boolean lockDefaultKeysUpdate, boolean lockATSUpdate, boolean lockSAKUpdate, boolean lockSecureMessagingConfiguration, boolean lockCapabilityData, boolean lockVCIIDOrApplicationISODFNameRenaming, boolean lockATQAUpdate, boolean lockNFCManagement, boolean lockI2CManagement, boolean lockGPIOManagement, boolean lockCryptoAPIManagement, boolean lockAuthenticationCounterAndLimitConfiguration, boolean lockHALTAndWakeUpConfiguration)	Set Configuration for Lock Configurations. Once a configuration is locked, it cannot be unlocked.
MifareDUOX	readGPIO(CommunicationType communicationType)	Returns the GPIO statuses
MifareDUOX	isoGetChallenge(final int expectedRndLength)	The isoGetChallenge command generates a random with the given length P1 and P2 are always set to 0x00
MifareDUOX	writeData(final int fileNumber, final int offset, final byte[] data)	The writeData command allows to write data to a Standard Data File or a Standard Backup File.

Table 21. Version 5.0.0 Added class/APIs...continued

Class	API Syntax	Description
MifareDUOX	writeData(final int fileNo, final int offset, final byte[] data, final CommunicationType communicationSettings)	The writeData command allows to write data to a Standard Data File or a Standard Backup File.
MifareDUOX	authenticateEV2First(final int cardKeyNumber, final IKeyData key, final byte[] pCDcap2)	Authenticate EV2 to the PICC using single AES. After this authentication EV2 secure messaging is used. This authentication is intended to be the first in a transaction.
MifareDUOX	authenticateEV2NonFirst(final int cardKeyNumber, final IKeyData key)	Non first is intended for any subsequent authentication after First authentication in a transaction
MifareDUOX	createApplication(final byte[] applicationID, final EV3 ApplicationKeySettings applicationSettings, final byte[] isoFileID, final byte[] dfName)	Creates new applications on the PICC. The application is initialized according to the given settings. The application keys of the active key set are initialized with the Default Application Key. Note: PICC Application (AID 0) has to be selected in advance. Takes the extra parameters ISO file ID and directory file name to facilitate ISO 7816-4 operations.
MifareDUOX	createApplication(final byte[] applicationID, final EV3 ApplicationKeySettings applicationSettings)	Creates new applications on the PICC. The application is initialized according to the given settings. The application keys of the active key set are initialized with the Default Application Key. Note: PICC Application (AID 0) has to be selected in advance.
MifareDUOX	credit(final int fileNumber, final int value, final CommunicationType communicationSettings)	The credit command allows to increase a value stored in a Value File. This command increases the current value stored in a file by a amount which is passes as a value parameter. Only positive values are allowed for the credit method.
MifareDUOX	credit(final int fileNumber, final int value)	The credit command allows to increase a value stored in a Value File. This command increases the current value stored in a file by a amount which is passes as a value parameter. Only positive values are allowed for the credit method.
MifareDUOX	debit(final int fileNumber, final int value)	The debit command allows decreasing a value stored in a Value File. the value parameter holds the "value" which is subtracted from the current value stored in the file. Only positive values are allowed for this method.
MifareDUOX	debit(final int fileNumber, final int value, final CommunicationType communicationSettings)	The debit command allows decreasing a value stored in a Value File. the value parameter holds the "value" which is subtracted from the current value stored in the file. Only positive values are allowed for this method.
MifareDUOX	limitedCredit(final int fileNumber, final int value)	The limitedCredit method allows a limited increase of a value stored in a Value File without having full Read and Write permission of the file. This feature can be enabled or disabled during value file creation. Note: The value for Limited Credit is limited to the sum of the Debit on this value file within the most recent transaction

Table 21. Version 5.0.0 Added class/APIs...continued

Class	API Syntax	Description
		containing at least one Debit. After executing the limitedCredit method the new limit is set to zero (0) regardless of the amount which has been re-booked. Therefore the limitedCredit method can only be used once after a Debit method is used.
MifareDUOX	limitedCredit(final int fileNumber, final int value, final CommunicationType communicationSettings)	The limitedCredit method allows a limited increase of a value stored in a Value File without having full Read and Write permission of the file. This feature can be enabled or disabled during value file creation. Note: The value for Limited Credit is limited to the sum of the Debit on this value file within the most recent transaction containing at least one Debit. After executing the limitedCredit method the new limit is set to zero (0) regardless of the amount which has been re-booked. Therefore the limitedCredit method can only be used once after a Debit method is used.
MifareDUOX	deleteApplication(final int applicationID, IKeyData piccDamMAckKey, final KeyType keyType)	Deletes delegated application of MifareDUOX. Authentication with KeyID.PICCDAMAuthKey or KeyID.NXPDAMAuthKey is required. Note: Application with ID 0 can't be deleted. This API is useful if you want to use integer form 3 byte application ID.
MifareDUOX	deleteApplication(final byte[] applicationID, IKeyData piccDamMAckKey, final KeyType keyType)	Deletes delegated application of MifareDUOX. Authentication with KeyID.PICCDAMAuthKey or KeyID.NXPDAMAuthKey is required. Note: Application with ID 0 can't be deleted. This API is useful if you want to use integer form 3 byte application ID.
MifareDUOX	deleteApplication(final int applicationID)	Deletes an application. Depending on PICC master key setting, authentication with master key may be required Note: Application with ID 0 can't be deleted. This API is use full if you want to use integer form 3 byte application ID.
MifareDUOX	deleteApplication(final byte[] applicationID)	Deletes an application. Depending on PICC master key setting, authentication with master key may be required Note: Application with ID 0 can't be deleted.
MifareDUOX	deleteFile(final int fileNumber)	Delete file method permanently deactivates a file within the file directory of the currently selected application.
MifareDUOX	format()	Format card - all applications and files will be deleted. Requires preceding authentication with PICC master key and selected application has to be 0.
MifareDUOX	formatT4T()	Formats the available free memory of the card (remaining memory after creating the NDEF File) as Type 4 Tag (T4T). Note: If the tag is already T4T formatted and T4T area size is needed to be changed, then format the tag to factory default and then use any of formatT4T() api.

Table 21. Version 5.0.0 Added class/APIs...continued

Class	API Syntax	Description
MifareDUOX	getFreeMemory()	Returns the available bytes on the PICC.
MifareDUOX	getAuthStatus()	current authentication status.
MifareDUOX	getCardDetails()	CardDetails object containing card information.
MifareDUOX	getCommandSet()	This API returns the current command set in use. - Native - ISO In ISO there is two modes one is ISO Wrapped mode and another is ISO Standard mode. Please Ensure you close and connect the connection before Switching from Native or ISO Wrapped mode to ISO Standard mode.
MifareDUOX	getDFName()	Returns the ISO/IEC 7816-4 DF-Names of all the active applications on PICC.
MifareDUOX	getFABIdentifier()	This API retrieves the FAB Identifier by sending getVersion and checking SW Minor version. If SW Minor Version 0x00, retrieve FAB ID from Get Version part3 byte. If SW Minor Version 0x01, then send the command 0x60 0x01 to retrieve FAB ID. Option byte 0x01 can only be set for products with SW Minor Version 0x01 onwards.
MifareDUOX	getFileIDs()	Returns all file IDs of the selected application. Authentication with master key may be required to do this operation
MifareDUOX	getISOFileIDs()	This method returns the 2 byte ISO/IEC 7816-4 File Identifiers of all active files within the currently selected application.
MifareDUOX	getReader()	Gets the underlying reader responsible for exchanging APDUs.
MifareDUOX	getValue(final int fileNumber)	The getValue command allows to read the currently stored value from Value Files.
MifareDUOX	getValue(final int fileNumber, final Communication Type communicationSettings)	The getValue command allows to read the currently stored value from Value Files.
MifareDUOX	getVersion()	This methods returns manufacturing related version data of the PICC.
MifareDUOX	isoSelectFileEFunderDF(final byte[] elementaryFile ID)	This command implements the ISO/IEC 7816-4 compatible select command.
MifareDUOX	isoSelectMasterFile()	This command implements the ISO/IEC 7816-4 compatible select command and selects the master file.
MifareDUOX	isoSelectFile(final byte[] fileID, final byte selection Control)	This command implements the ISO/IEC 7816-4 compatible select command. The registered ISO AID of MIFARE DESFire itself is "D2760000850100". When Selecting this application the MF is selected. This is done in order to ensure compliance with future micro controller cards having a MIFARE DESFire emulation inside.
MifareDUOX	isoSelectFile(final boolean isPICCMasterFile, final byte selectionControl, final boolean isReturnFCI, final byte[] data)	This command implements the ISO/IEC 7816-4 compatible select command. The registered ISO AID of MIFARE DESFire itself

Table 21. Version 5.0.0 Added class/APIs...continued

Class	API Syntax	Description
		is "D2760000850100". When Selecting this application the MF is selected. This is done in order to ensure compliance with future micro controller cards having a MIFARE DESFire emulation inside.
MifareDUOX	readData(final int fileNumber, final int offset, final int length)	The readData commands allows to read data from a Standard Data File or a Backup Data File.
MifareDUOX	readData(final int fileNumber, final int offset, final int length, final CommunicationType communicationSettings, final int fileSize)	The readData commands allows to read data from a Standard Data File or a Backup Data File.
MifareDUOX	selectApplication(final int application1, final int application2)	selects application1 as primary application and application2 as secondary application
MifareDUOX	selectApplication(final byte[] applicationID)	This method is used to select one specific application for further access.
MifareDUOX	selectApplication(final int application)	This method is used to select one specific application for further access. This method is useful if you want to use integer form of 3 byte application ID.
MifareDUOX	setCommandSet(CommandSet cmdSet)	This API Changes the Command set mode , Supported command set modes are - Native - ISO In ISO there is two modes one is ISO Wrapped mode and another is ISO Standard mode. Please Ensure you close and connect the connection beforeSwitching from Native or ISO Wrapped mode to ISO Standard mode.
MifareDUOX	ev2ChangeKey(final int keySetNumber, final int cardKeyNumber, final KeyType keyType, final byte[] oldKey, final byte[] newKey, final byte newKey Version)	Depending on the currently selected AID, this command updates a key of the PICC or of one specified application key set. NOTE: oldkey and newKey is taken as byte array instead of IKeyData.This is because changing the the Key in the card require actual key bytes. IKeyData represents the secure key object which may be in the secure environment [like HSM (Hardware secure module)] where we cant get the key contents always.
MifareDUOX	commitReaderId(final byte[] tMRI)	Commits a ReaderID for the ongoing transaction. This will allow a backend to identify the attacking merchant in case of fraud detected.
MifareDUOX	commitTransaction()	The commitTransaction command allows to validate all previous write access on Backup Data Files, Value Files and Record Files within one application.
MifareDUOX	commitAndGetTransactionMac()	This function commits the current ongoing transaction, if any operation in Transaction fails it roll backs.
MifareDUOX	abortTransaction()	The abortTransaction commands allows to invalidate all previous write access on backup Data Files, Value Files and Record Files within one application. This command is used to cancel a transaction without losing the current

Table 21. Version 5.0.0 Added class/APIs...continued

Class	API Syntax	Description
		authenticated status. Hence reducing the need for re-selecting and re-authentication of the application.
MifareDUOX	getApplicationIDs()	Returns the application identifiers of all active applications on a PICC. Authentication with master key may be required to run this API Note: PICC Application (AID 0) has to be selected in advance.
MifareDUOX	getFileCounters(int fileNumber)	The GetFileCounters command supports retrieving of the current values associated with the SDMReadCtr related with a StandardData file after enabling Secure Dynamic Messaging.
MifareDUOX	isoReadRecords(final byte recordNumber, final byte referenceControl, final int bytesToRead)	This command implements the ISO/IEC 7816-4 compatible read records command.
MifareDUOX	isoAppendRecord(final byte recordNumber, final byte referenceControl, final byte[] data)	This command implements the ISO/IEC 7816-4 compatible append record command. If a back up data file is used the MifareDUOX issues an implicit Commit transaction command. This ensures that every update of the binary file is treated as transaction.
MifareDUOX	writeRecord(final int fileNumber, final int offsetInRecord, final byte[] data)	The writeRecord command allows to write a record in a Cyclic or Linear Record File.
MifareDUOX	writeRecord(final int fileNumber, final int offsetInRecord, final byte[] data, final CommunicationType communicationSettings)	The writeRecord command allows to write a record in a Cyclic or Linear Record File.
MifareDUOX	readRecords(final int fileNo, final int offsetRecords, final int noOfRecords)	The readRecords command allows to read out a set of complete records from a Cyclic or Linear Record File.
MifareDUOX	readRecords(final int fileNumber, final int offsetRecords, final int numberOfRecords, final int recordSize, final CommunicationType communicationSettings, final int filesize)	The readRecords command allows to read out a set of complete records from a Cyclic or Linear Record File.
MifareDUOX	updateRecord(final int fileNumber, final int recordNo, final int offsetInRecord, final byte[] data)	The updateRecord command allows to update a record in a Cyclic or Linear Record File.
MifareDUOX	updateRecord(final int fileNumber, final int recordNo, final int offsetInRecord, final byte[] data, final CommunicationType communicationSettings)	The updateRecord command allows to update a record in a Cyclic or Linear Record File.
MifareDUOX	clearRecordFile(final int fileNumber)	The clearRecordFile allows to reset a Cyclic or Linear Record File to the empty state. Need to call the CommitTransaction method to take effect of clearing Or AbortTransaction to invalidate the clearance.
MifareDUOX	clearRecordFile(final int fileNumber, final CommunicationType communicationSettings)	The clearRecordFile allows to reset a Cyclic or Linear Record File to the empty state. Need to call the CommitTransaction method to take effect of clearing Or AbortTransaction to invalidate the clearance.
MifareDUOX	getCardPlatform()	This api will return the PLATFORM used for the cards

Table 21. Version 5.0.0 Added class/APIs...continued

Class	API Syntax	Description
MifareDUOX	isoReadBinary(final int offset, final int bytesToRead)	This method implements the ISO/IEC 7816-4 compatible read binary command. The read is done from the elementary file or directory file already selected
MifareDUOX	isoReadBinary(final byte[] fileID, final int offset, final int bytesToRead)	This method implements the ISO/IEC 7816-4 compatible read binary command.
MifareDUOX	isoUpdateBinary(final byte[] fileID, final int offset, final byte[] data)	This command implements the ISO/IEC 7816-4 compatible update binary command. Only 55 bytes of data is written at once from the given offset. If the Back up data file is used the Mifare DUOX issues an implicit commit transaction command This ensures that every update of a binary file is treated as a transaction.
MifareDUOX	activateSecondaryApplication()	If two applications are selected, this API activates secondary application for future application operations
MifareDUOX	deActivateSecondaryApplication()	If two applications are selected, this API de-activates secondary application and activates primary application for future application operations
MifareDUOX	initializeKeySet(final byte keySetNumber, final KeyType keyType)	Depending on the currently selected application, initialize the key set with specific index This command initializes the key set with KeySetNo as following: sets the type of the key set to the given KeySetType sets the key set version to 0x00 sets the content of all keys of the key set to the value and version of the corresponding key in the AKS (Active Key Set). If required due to KeySetType of different length, the corresponding key is padded with zero bytes or truncated to the targeted length. Parity bits of the source key are not adapted during this copy operation. If the PICC level has been selected, then Cmd. InitializeKeySet is rejected. If the SAI is set and no second application is selected, the command is rejected. The InitializeKeySet requires active authentication with KeyID.AppChangeKey or KeyID.AppMasterKey according to the AppKey Settings If KeySetNo is 0x00, the command is rejected as it is forbidden to initialize the AKS. A KeySetNo bigger than the number of key set in the application is also not accepted. If the targeted KeySetType is not supported by the application, the command is rejected. This happens if targeting KeyType.3TDEA, while the MaxKeySize set during application creation was only 16 bytes.
MifareDUOX	finalizeKeySet(final byte keySetNumber, final byte keySetVersion)	Finalizes the application key set This command finalizes the key set targeted by KeySetNo by setting the key set version to the given KeySet Version. The key set version value is chosen by the application owner and should be determined in accordance to the rules specified below. Once

Table 21. Version 5.0.0 Added class/APIs...continued

Class	API Syntax	Description
		one or more key sets beside the AKS have been finalized within an application. The AKS can then be updated to point to another key set through a Cmd.RollKeySet. This action is called key set rolling. Rolling to a key set is restricted and has to fulfilled some rules specified as following. Key set version rule: The key set version of the key set targeted by RollKeySet has to be strictly bigger than the key set version of the AKS. Therefore it is also not possible to roll into key sets before they are finalized as these will always have key set version 0x00. Key set type rule: The key set targeted by Cmd.RollKeySet has to have a key type stronger or equal than the AKS key type. If the preceding rules are fulfilled the key set rolling can take place. The AKS is updated to point to the targeted key set. The key set numbering of all key sets is changed relatively to the new AKS that receives key set number 0. The current authentication status is invalidated moving the PICC into VCState.DFNotAuthenticated. Any ongoing transaction is aborted. Previous AKS and all key sets with key set version smaller than the new AKS are considered to be invalid targets for RollKeySet because they do not fulfill the key set version rule.
MifareDUOX	rollKeySet(final byte keySetNumber)	This command changes the AKS to point to the key set currently targeted with the given Key SetNo. After successful execution, the keys of the new AKS are from then on available for authentication. Any active authentication is canceled and the PICC is set to DFNotAuthenticated. Any ongoing transaction is aborted as if executing AbortTransaction. If the PICC level is selected, RollKeySet is rejected. If the SAI is set and no second application is selected, the command is rejected. Rules defined in initializeKeySet API description have to be fulfilled. Otherwise the command is rejected. The command is also rejected if the targeted key set is of type KeyType.3TDEA, while EV1 secure messaging has been disabled for this application or at PICC level. RollKeySet needs an active authentication with the AppRollKey, as configured in the AppKeySetSettings. If KeySetNo is 0x00 or bigger than the number of key set in the application, the command is not accepted.
MifareDUOX	setPICCFrameSize(final PICCFrameSize piccframesize)	Sets the desired PICC frame size to 256 or 64. Use this API to enable ISO chaining by setting PICCFrameSize to PICC_FRAME_SIZE_256. Use this API to enable Native chaining by setting PICCFrameSize to PICC_FRAME_SIZE_64.
MifareDUOX	changeKeySettings(EV1KeySettings keySettings)	Depending on the currently selected AID, this command changes the PICCKeySettings of the PICC or the AppKeySettings of the application

Table 21. Version 5.0.0 Added class/APIs...continued

Class	API Syntax	Description
MifareDUOX	changeKey(int keyNo, KeyType keyType, byte[] oldKey, byte[] newKey, byte keyVersion)	Depending on the currently selected AID, this command update a key of the PICC or of an application AKS
MifareDUOX	getDerivedNXPDAMKey(final IKeyData masterKey, final byte[] uid)	This API derives the NXP DAM key using the master key and UID.
MifareDUOX	proximityCheck(IKeyData vcProximityKey, int numOf iterations)	The API performs the 3 operations: Prepare Proximity Check: The PD is prepared to perform the Proximity Check by drawing a 7-byte random number RndR. Proximity Check: The PD answers with a prepared random number at the published response time in Cmd. PreparePC This command may be repeated up to 8 times splitting the random number for different time measurements. Verify Proximity Check: The random numbers are verified using cryptographic methods. Note: vc ProximityKey can be NULL when authentication type is AuthType. AES/ authenticateEV2First or authenticateEV2NonFirst. vcProximityKey passed is not considered if in authenticated state in Auth Type. AES/ authenticateEV2First or authenticateEV2NonFirst.
MifareDUOX	createDelegatedAppSymmetricAuth(final byte[] applicationID, final EV3ApplicationKeySettings ev3 ApplicationSettings, final DelegatedApplication Settings delegatedApplicationSettings, final byte[] encryptionKey, final byte[] delegatedMac)	Creates delegated applications on the PICC with limited memory consumption. The application is initialized according to the given settings. The application keys of the active key set are initialized with the provided delegated initial key via encKey Note: PICC Application (AID 0) has to be selected in advance.
MifareDUOX	createDelegatedAppSymmetricAuth(final byte[] applicationID, final EV3ApplicationKeySettings ev3 ApplicationSettings, final DelegatedApplication Settings delegatedApplicationSettings, final byte[] encryptionKey, final byte[] delegatedMac, final byte[] isoFileID, final byte[] dfName)	Creates delegated applications on the PICC with limited memory consumption. The application is initialized according to the given settings. The application keys of the active key set are initialized with the provided AppDAMDefaultKey. Note: PICC Application (AID 0) has to be selected in advance. Takes the extra parameters ISO file ID and directory file name to facilitate ISO 7816-4 operations.
MifareDUOX	createDelegatedAppAsymmetricAuth(final byte[] applicationID, final EV3ApplicationKeySettings ev3 ApplicationSettings, final DelegatedApplication Settings delegatedApplicationSettings, final byte[] init Key, final byte initKeyVersion)	Creates delegated applications on the PICC with limited memory consumption. The application is initialized according to the given settings. The application keys of the active key set are initialized with the provided AppDAMDefaultKey. Note: PICC Application (AID 0) has to be selected in advance. Takes the extra parameters ISO file ID and directory file name to facilitate ISO 7816-4 operations.
MifareDUOX	createDelegatedAppAsymmetricAuth(final byte[] applicationID, final EV3ApplicationKeySettings ev3 ApplicationSettings, final DelegatedApplication Settings delegatedApplicationSettings, final byte[] init Key, final byte initKeyVersion, final byte[] isoFileID, final byte[] dfName)	Creates delegated application in VCState. AuthenticatedECC

Table 21. Version 5.0.0 Added class/APIs...continued

Class	API Syntax	Description
MifareDUOX	generateEncryptedDelegatedAppDefaultKey(final IKeyData encryptionKey, final KeyType keyType, final byte[] defaultKey, final byte defaultKeyVersion)	Creates delegated applications in VCState. AuthenticatedECC
MifareDUOX	generateDelegatedAppMAC(final byte[] application ID, final EV3ApplicationKeySettings ev3Application Settings, final DelegatedApplicationSettings delegatedApplicationSettings, final byte[] encryption Key, final IKeyData delegatedAppMACKey, final KeyType keyType)	This helper method generates the delegated application initial encryption key.
MifareDUOX	generateDelegatedAppMAC(final byte[] application ID, final EV3ApplicationKeySettings ev3Application Settings, final DelegatedApplicationSettings delegatedApplicationSettings, final byte[] encryption Key, final IKeyData delegatedApplicationMACKey, final KeyType keyType, final byte[] isoFileID, final byte[] dfName)	Generates the MAC on user issued delegated application parameters. Takes the parameters ISO file ID and directory file name to facilitate ISO 7816-4 operations.
MifareDUOX	getKeyVersion(byte keyNo)	Gets the version of key with keyNo of selected application. Note: If application 0 has been selected, only key number 0 is valid.
MifareDUOX	getKeyVersionFromSpecificKeySet(byte keyNo, byte keySetNo)	Get the version of Key from specific keySet of selected application. Note: If application 0 has been selected, only key number 0 is valid.
MifareDUOX	getKeyVersionForVCProximityKey()	Gets the version of Application specific KeyID. VCProximityKey if available at application level.
MifareDUOX	getKeySetVersions()	Retrieves the all key set versions of selected application.
MifareDUOX	getDelegatedInfo(final short DelegatedApplication SlotNo)	Gets the information about the delegated application at the given slot number.
MifareDUOX	cryptoRequestEcho(byte[] addDataBytes, CommunicationType communicationType)	Echos provided command data
MifareDUOX	cryptoRequestECCSign_Initialize(byte algorithm, byte keyNo, byte[] inputData, CommunicationType communicationType)	Executes an ECC signature generation. Initialize
MifareDUOX	cryptoRequestECCSign_Update(byte[] inputData, CommunicationType communicationType)	Executes an ECC signature generation. Update
MifareDUOX	cryptoRequestECCSign_Finalize(byte[] inputData, CommunicationType communicationType)	Finalize get ECC Signature
MifareDUOX	cryptoRequestECCSign_OneShotWithRawData(byte algorithm, byte keyNo, byte[] inputData, CommunicationType communicationType)	Executes an ECC signature generation.
MifareDUOX	cryptoRequestECCSign_OneShotWithHash(byte algorithm, byte keyNo, byte[] inputData, CommunicationType communicationType)	Executes an ECC signature generation.
MifareDUOX	getKeySettings()	Get key settings allows to get the configuration information on the PICC and Application master key configuration settings. In addition it returns the Maximum number of keys which can be stored within the selected application.

Table 21. Version 5.0.0 Added class/APIs...continued

Class	API Syntax	Description
MifareDUOX	getKeySettings(byte option)	This command retrieves the PICCKeySettings of the PICC, the AppKeySettings of the application, or meta-data of certain key types
MifareDUOX	getConfiguration()	Retrieves configuration aspects of the card or the application. Manufacturer configuration data is returned
MifareDUOX	getConfiguration(byte option)	Retrieves configuration aspects of the card or the application.

Version 4.1.0:

Table 22. Version 4.1.0 Added class/APIs

Class	API Syntax	Description
MifareDUOX	isoInternalAuthenticate(int privateKeyNo, byte[] rndA, byte[] optsA)	This API executes Asymmetric card-unilateral authentication.
MifareDUOX	isoGeneralAuthenticateFinal(int caRootKeyNo, Auth Method authMethod, byte[] certA, int certFileNo, int privateKeyNo, byte[] ePublicB, byte[] privateKeyA, byte[] caPublicKeyB, CurveID curveID)	This API executes Asymmetric mutual or reader-unilateral authentication. This is the first part initiating the authentication.
MifareDUOX	setConfigurationToEnableISOSelectFileECCBased Authentication(CurveID curveID)	Enable ISOSelectFile integrated ECC-based authentication. Internally uses SetConfiguration Option 0x04 and enables Bit 3 of SMConfigB byte.
MifareDUOX	setConfigurationForDUOX(byte option, byte[] data)	Configures several aspects of the card or the application
MifareDUOX	setConfigurationToEnableEVChargingCardUnilateral Auth()	Enable EV Charging card-unilateral authentication and related commands. This option is only supported at application level. Internally uses SetConfiguration Option 0x04 and enables Bit 4 of SMConfigB byte.
MifareDUOX	setConfigurationToEnableISOSelectFileFast UIDRetrieval(byte appUIDEncKey)	Enable ISOSelectFile fast UID retrieval. This option is only supported at application level. Internally uses SetConfiguration Option 0x04 and enables Bit 6 of SMConfigB byte.
MifareDUOX	setConfigurationCryptoAPIManagement(CommunicationType commMode, byte accessCondition)	Crypto API Management
MifareDUOX	exportKey(int keyNo, CommunicationType comm Mode)	Exports the public key value of a KeyID.CARoot Key
MifareDUOX	generateKeyPair(int keyNo, CurveID curveID, byte[] keyPolicy, byte writeAccess, byte[] kucLimit, CommunicationType commMode)	Creates a private key entry by generating a key pair, the private key is securely stored on-card and the public key is returned using ManageKey Pair (0x46) command
MifareDUOX	importPrivateKey(int keyNo, CurveID curveID, byte[] keyPolicy, byte writeAccess, byte[] kucLimit, byte[] privateKey, CommunicationType commMode)	Imports the provide private key using ManageKey Pair (0x46) command

Table 22. Version 4.1.0 Added class/APIs...continued

Class	API Syntax	Description
MifareDUOX	updateMetaDataForKeyPair(int keyNo, CurveID curveID, byte[] keyPolicy, byte writeAccess, byte[] kucLimit, CommunicationType commMode);	Update only the metadata, that is, KeyPolicy and access rights, of an existing key entry using ManageKeyPair (0x46) command. This will not affect the current key value. For metadata update, also WriteAccess as configured for the targeted key entry is required. Command is rejected if the CurveID is not set to the curve associated with the current key.
MifareDUOX	getKeyPolicyBytes(boolean freezeKeyUsage, boolean unilateralAuthentication, boolean mutualAuthentication, boolean transactionSignature, boolean secureDynamicMessaging, boolean cryptoRequest);	Helper API to generate Key Policy bytes for ManageKeyPair API.
MifareDUOX	manageCARootKey(int keyNo, CurveID curveID, byte[] accessRights, byte writeAccess, byte readAccess, boolean enableCRL, byte crlFileNo, byte[] crlFileAID, byte[] publicKey, byte[] issuer, CommunicationType commMode);	Creates or updates a public key entry for storing a KeyID.CARootKey
MifareDUOX	getAccessConditionsBytes(boolean AC00, boolean AC01, boolean AC02, boolean AC03, boolean AC04, boolean AC05, boolean AC06, boolean AC07, boolean AC08, boolean AC09, boolean AC0A, boolean AC0B, boolean AC0C, boolean AC0D);	Helper API to generate Key Policy bytes. An access condition can be associated with any key number (0x0 . . . 0xD), even if those do not exist as a symmetric key within the targeted application. The latter can still be obtained via an asymmetric authentication.
MifareDUOX	createFile(final int fileNumber, final MifareDUOXFile.DUOXFileSettings duoxFileSettings)	Creates a file within a Mifare DUOX application.
MifareDUOX	createFile(final int fileNumber, final byte[] isoFileID, final MifareDUOXFile.DUOXFileSettings duoxFileSettings);	Creates a file within a Mifare DUOX application. This API allows flexibility to use ISO file ID. This method also accepts the ISO file ID that is used in ISO 7816-4 operations.
MifareDUOX	getFileSettingsForMifareDUOX(int fileNo)	The getDuoxFileSettings command allows to get information on the properties of a specific DUOX file. The information provided by this command depends on the type of the file which is queried.
MifareDUOX	writeData(int fileNo, byte[] crlVersion, int offset, byte[] data, byte[] crlSignature)	The writeData command allows to write data to a Standard Data File or a Backup Data File.
MifareDUOX	writeData(int fileNo, byte[] crlVersion, int offset, byte[] data, byte[] crlSignature, CommunicationType communicationType)	The writeData command allows to write data to a Standard Data File or a Backup Data File.
MifareDUOX	doOriginalityCheck(File caFile)	Checks originality of the tag by reading ca certificate from the tag and validating against the CA file retrieved from NXP.
MifareDUOX	extractCAID(byte[] certificateBytes)	Helper API to extract CAID from certificate bytes read from the tag.
MifareDUOX	VDEWriteData(byte[] data)	The command VDE_WriteData, Writes data to FileType.StandardData with FileNo 0x01, and eventually lock the file. to lock the file use VDELock() API

Table 22. Version 4.1.0 Added class/APIs...continued

Class	API Syntax	Description
MifareDUOX	VDELock()	The command VDELock, locks the FileType. StandardData with FileNo 0x01, and internally uses VDEWriteData API
MifareDUOX	VDEReadData(byte fileNum, byte[] expectedLength)	Reads data from FileType.StandardData with FileNo 0x00 or 0x01.
MifareDUOX	changeMifareDUOXFileSettings(int fileNo, MifareDUOXFile.DUOXFileSettings duoxFileSettings)	This command changes the access parameters of an existing file. the Change only succeeds if the current access rights for "Change Access Rights" is different from never.
MifareDUOX	VDEECDSASign(byte[] data, byte[] expectedLength)	Generates and ECDSA signature over a 32-byte challenge.
Mifare DUOXFile. DUOXFile Settings	toByteArray(final DUOXFileSettings fileSettings)	gets the byte array for file settings.
Mifare DUOXFile. DUOXFile Settings	getType()	return FileType Allowable file types
Mifare DUOXFile. DUOXFile Settings	getComSettings()	return CommunicationType Allowable settings
Mifare DUOXFile. DUOXFile Settings	getReadAccess()	return readAccess. Returned values are from 0x00 to 0xF
Mifare DUOXFile. DUOXFile Settings	getWriteAccess()	return writeAccess. Returned values are from 0x00 to 0xF
Mifare DUOXFile. DUOXFile Settings	getReadWriteAccess()	return readWriteAccess. Returned values are from 0x00 to 0xF
Mifare DUOXFile. DUOXFile Settings	getChangeAccess()	return changeAccess. Returned values are from 0x00 to 0xF
Mifare DUOXFile. DUOXDataFile Settings	toByteArray(final DUOXDataFileSettings fileSettings)	gets the byte array for file settings
Mifare DUOXFile. DUOXDataFile Settings	getFileSize()	return file size of the data Files

Table 22. Version 4.1.0 Added class/APIs...continued

Class	API Syntax	Description
Mifare DUOXFile. DUOXDataFile Settings	getNumberOfAdditionalAccessConditions()	Number of additional access conditions sets (not including the 1st and mandatory one) of the targeted file.
Mifare DUOXFile. DUOXDataFile Settings	getNumberOfAdditionalAccessRights()	return numberOfAdditionalAccessRights
Mifare DUOXFile. DUOXDataFile Settings	isSDMEnabled()	Returns the boolean value Secure Messaging Value Enabled or Not
Mifare DUOXFile. DUOXDataFile Settings	setSDMEnabled(boolean SDMEnabled)	Sets the value for Secure Messaging
Mifare DUOXFile. DUOXDataFile Settings	isUIDMirroringEnabled()	return Returns the boolean value UID Mirroring Value Enabled or Not
Mifare DUOXFile. DUOXDataFile Settings	setUIDMirroringEnabled(boolean UIDMirroring Enabled)	Sets the value for UID Mirroring
Mifare DUOXFile. DUOXDataFile Settings	isSDMReadCounterEnabled()	return Returns the boolean value Read Counter Value Enabled or Not
Mifare DUOXFile. DUOXDataFile Settings	setSDMReadCounterEnabled(boolean SDMRead CounterEnabled)	Sets the value for SDM Read Counter
Mifare DUOXFile. DUOXDataFile Settings	isSDMReadCounterLimitEnabled()	Read Counter Limit Value Enabled or Not
Mifare DUOXFile. DUOXDataFile Settings	setSDMReadCounterLimitEnabled(boolean SDMReadCounterLimitEnabled)	Sets the value for SDM Read Counter Link
Mifare DUOXFile. DUOXDataFile Settings	isSDMEncryptFileDataEnabled()	Encrypt Data File Value Enabled or Not
Mifare DUOXFile. DUOXDataFile Settings	isGpioStatusEnabled()	is GPIO Status Enabled or Not

Table 22. Version 4.1.0 Added class/APIs...continued

Class	API Syntax	Description
Mifare DUOXFile. DUOXDataFile Settings	setSDMEncryptFileDataEnabled(boolean SDMEncryptFileDataEnabled)	Sets the value for SDM Encrypt File Data
Mifare DUOXFile. DUOXDataFile Settings	setGpioStatusEnabled(boolean gpioStatusEnabled)	Sets the value for GPIO Status Enabled
Mifare DUOXFile. DUOXDataFile Settings	getSdmAccessRights()	SDM Access Rights.
Mifare DUOXFile. DUOXDataFile Settings	setSdmAccessRights(byte[] sdmAccessRights)	
Mifare DUOXFile. DUOXDataFile Settings	getUidOffset()	Offset of mirrored UID within the file (0x00...(File Size - UID Length)).
Mifare DUOXFile. DUOXDataFile Settings	setUidOffset(byte[] uidOffset)	
Mifare DUOXFile. DUOXDataFile Settings	getSdmReadCounterOffset()	Offset of mirrored SDM read counter within the file. (0x00 to (FileSize - SDMReadCtrLength)); FFFFFFh if no SDMReadCounter mirroring
Mifare DUOXFile. DUOXDataFile Settings	setSdmReadCounterOffset(byte[] sdmReadCounter Offset)	
Mifare DUOXFile. DUOXDataFile Settings	getPiccDataOffset()	Offset of mirrored PICC data within the file (0x00.. (FileSize - PICC data Length)).
Mifare DUOXFile. DUOXDataFile Settings	setPiccDataOffset(byte[] piccDataOffset)	
Mifare DUOXFile. DUOXDataFile Settings	getGpioStatusOffset()	
Mifare DUOXFile. DUOXDataFile Settings	setGpioStatusOffset(byte[] gpioStatusOffset)	

Table 22. Version 4.1.0 Added class/APIs...continued

Class	API Syntax	Description
Mifare DUOXFile. DUOXDataFile Settings	getSdmMacInputOffset()	Offset in the file where the SDM MAC computation starts (0x00...SDMMACOffset).
Mifare DUOXFile. DUOXDataFile Settings	setSdmMacInputOffset(byte[] sdmMacInputOffset)	
Mifare DUOXFile. DUOXDataFile Settings	getSdmEncryptionOffset()	Offset of SDMENCFFileData mirror position (SDMMACInputOffset...(SDMMACOffset-32)).
Mifare DUOXFile. DUOXDataFile Settings	setSdmEncryptionOffset(byte[] sdmEncryptionOffset)	
Mifare DUOXFile. DUOXDataFile Settings	getSdmEncryptionLength()	Length of the SDMENCFFileData (32...(SDMMACOffset-SDMENCOffset)).
Mifare DUOXFile. DUOXDataFile Settings	setSdmEncryptionLength(byte[] sdmEncryptionLength)	
Mifare DUOXFile. DUOXDataFile Settings	getSdmMacOffset()	Offset of SDMMAC mirror position.
Mifare DUOXFile. DUOXDataFile Settings	setSdmMacOffset(byte[] sdmMacOffset)	
Mifare DUOXFile. DUOXDataFile Settings	getSdmReadCounterLimit()	SDMReadCtrLimit value.
Mifare DUOXFile. DUOXDataFile Settings	setSdmReadCounterLimit(byte[] sdmReadCounterLimit)	
Mifare DUOXFile.Std DataFileSettings DUOX	toByteArray(final StdDataFileSettingsDUOX fileSettings)	This method generates byte array for creating standard data file based on the input file settings
Mifare DUOXFile. CRLFileSettings	getFileSize()	file size of the data Files.

Table 22. Version 4.1.0 Added class/APIs...continued

Class	API Syntax	Description
Mifare DUOXFile. CRLFileSettings	getNumberOfAdditionalAccessConditions()	Number of additional access conditions sets (not including the 1st and mandatory one) of the targeted file.
Mifare DUOXFile. CRLFileSettings	getNumberOfAdditionalAccessRights()	Sets of access conditions to update the 2nd up to (numberOfAdditionalAccessConditions+1)th set of the file.
Mifare DUOXFile. CRLFileSettings	isCRLSignMonotonicCRLVersionRequired()	
Mifare DUOXFile. CRLFileSettings	setCRLSignMonotonicCRLVersionRequired(boolean CRLSignMonotonicCRLVersionRequired)	
Mifare DUOXFile. CRLFileSettings	isCRLVersionRequiredToIncrementBy1()	
Mifare DUOXFile. CRLFileSettings	setCRLVersionRequiredToIncrementBy1(boolean CRLVersionRequiredToIncrementBy1)	
Mifare DUOXFile. CRLFileSettings	isCertificateRevocationDisabled()	
Mifare DUOXFile. CRLFileSettings	setCertificateRevocationDisabled(boolean certificateRevocationDisabled)	
Mifare DUOXFile. CRLFileSettings	getCSNSize()	
Mifare DUOXFile. CRLFileSettings	setCSNSize(byte CSNSize)	
Mifare DUOXFile. CRLFileSettings	getCRLSignatureKey()	
Mifare DUOXFile. CRLFileSettings	setCRLSignatureKey(byte CRLSignatureKey)	
Mifare DUOXFile. CRLFileSettings	toByteArray(final CRLFileSettings fileSettings)	
Mifare DUOXFile.Value FileSettings	toByteArray(final MifareDUOXFile.ValueFileSettings fileSettings)	gets the byte array for file settings.
Mifare DUOXFile.Value FileSettings	getNumberOfAdditionalAccessConditions()	Number of additional access conditions sets (not including the 1st and mandatory one) of the targeted file.
Mifare DUOXFile.Value FileSettings	getNumberOfAdditionalAccessRights()	Sets of access conditions to update the 2nd up to (numberOfAdditionalAccessRights+1)th set of the file.

Table 22. Version 4.1.0 Added class/APIs...continued

Class	API Syntax	Description
Mifare DUOXFile.Value FileSettings	isLimitedCreditValueEnabled()	true if limited credit is enabled , otherwise false.
Mifare DUOXFile.Value FileSettings	isGetFreeValueEnabled()	true if get free value is enabled , otherwise false.
Mifare DUOXFile.Value FileSettings	getUpperLimit()	upper limit of the value file.
Mifare DUOXFile.Value FileSettings	getLowerLimit()	Lower limit of the value in value file.
Mifare DUOXFile.Value FileSettings	getInitialValue()	initial value in the file.
Mifare DUOXFile . RecordFile Settings	toByteArray(final MifareDUOXFile.RecordFile Settings filesettings)	gets the byte array for file settings.
Mifare DUOXFile . RecordFile Settings	getCurrentNumberOfRecords()	No of actual records in record file.
Mifare DUOXFile . RecordFile Settings	getMaxNumberOfRecords()	Maximum number of records can be stored in this file.
Mifare DUOXFile . RecordFile Settings	getRecordSize()	Size in bytes of each record.
Mifare DUOXFile . RecordFile Settings	getNumberOfAdditionalAccessConditions()	Number of additional access conditions sets (not including the 1st and mandatory one) of the targeted file.
Mifare DUOXFile . RecordFile Settings	getNumberOfAdditionalAccessRights()	Sets of access conditions to update the 2nd up to (numberOfAdditionalAccessRights+1)th set of the file.
Mifare DUOXFile . LinearRecord FileSettings	toByteArray(final DESFireFile.RecordFileSettings filesettings)	gets the byte array for file settings.
Mifare DUOXFile . CyclicRecord FileSettings	toByteArray(final MifareDUOXFile.RecordFile Settings filesettings)	gets the byte array for file settings.
Mifare DUOXFile .	getTMKeyVersion()	

Table 22. Version 4.1.0 Added class/APIs...continued

Class	API Syntax	Description
DUOXTransaction MacFileSettings		
Mifare DUOXFile . DUOXTransaction MacFileSettings	setTMKeyVersion(byte tmKeyVersion)	
Mifare DUOXFile . DUOXTransaction MacFileSettings	isTMExclFileMapEnabled()	
Mifare DUOXFile . DUOXTransaction MacFileSettings	setTMExclFileMapEnabled(boolean TMExclFileMap Enabled)	
Mifare DUOXFile . DUOXTransaction MacFileSettings	isTransactionMacMode()	
Mifare DUOXFile . DUOXTransaction MacFileSettings	setTransactionMacMode(boolean transactionMac Mode)	
Mifare DUOXFile . DUOXTransaction MacFileSettings	isTransactionSignatureMode()	
Mifare DUOXFile . DUOXTransaction MacFileSettings	setTransactionSignatureMode(boolean transaction SignatureMode)	
Mifare DUOXFile . DUOXTransaction MacFileSettings	getTransactionSignatureKeyNo()	
Mifare DUOXFile . DUOXTransaction MacFileSettings	setTransactionSignatureKeyNo(byte transaction SignatureKeyNo)	
Mifare DUOXFile . DUOXTransaction MacFileSettings	getTMExclFileMap()	
Mifare DUOXFile . DUOXTransaction MacFileSettings	setTMExclFileMap(byte[] TMExclFileMap)	
Mifare DUOXFile . DUOXTransaction MacFileSettings	getKeyType()	

Table 22. Version 4.1.0 Added class/APIs...continued

Class	API Syntax	Description
Mifare DUOXFile . DUOXTransaction MacFileSettings	setKeyType(KeyType keyType)	
Mifare DUOXFile . DUOXTransaction MacFileSettings	isTMCLimitEnabled()	
Mifare DUOXFile . DUOXTransaction MacFileSettings	setTMCLimitEnabled(boolean TMCLimitEnabled)	
Mifare DUOXFile . DUOXTransaction MacFileSettings	getTmcLimit()	
Mifare DUOXFile . DUOXTransaction MacFileSettings	setTmcLimit(byte[] tmcLimit)	
Mifare DUOXFile . DUOXTransaction MacFileSettings	toByteArray(final MifareDUOXFile.DUOXTransaction MacFileSettings fileSettings)	
MifareDUOXFile SettingsHelper	toByteArray(final MifareDUOXFile.DUOXFileSettings fileSettings)	
MifareDUOXFile SettingsHelper	generateFileSettingBitMapForMifareDUOX(byte[] file SettingBitMap, MifareDUOXFile.DUOXFileSettings fileSettings)	
MifareDUOXFile SettingsHelper	retrieveAdditionalAccessRightsInfo(byte[] fileSettings BitMap, int index)	
MifareDUOXFile SettingsHelper	parse(byte[] rawFileSetting)	
MifareDUOXFile SettingsHelper	getDuoTransactionMacFileSettings(byte[] rawFile Setting)	

Version 4.0.0:

Table 23. Version 4.0.0 Added class/APIs

Class	API Syntax	Description
DESFireFactory	getMifareDUOX	This API Returns a Mifare DUOX Object
DESFireFactory	isCardMifareDUOX	This API Request to fetch MIFARE DUOX Status
DESFireUtil	decodeASN1AndExtractPublicKey(byte[] asn1Data)	
DESFireUtil	decodeASN1AndExtractCertSignature(byte[] asn1 Data)	
MifareDUOX	doOriginalityCheck()	This API allows to Check Originality of the card

Table 23. Version 4.0.0 Added class/APIs...continued

Class	API Syntax	Description
MifareDUOX	retrieveSignatureB()	
IIcode	inventory	This method to be used when AFI flag is not set and AFI value is not required in parameters
ICode3	getTotalMemory()	To get total memory
ICode3	getUserMemory()	To get user memory
ICode3	getConfigMemory()	To get Configuration memory
ICode3	fastReadMultipleBlocks()	To Read data from multiple blocks
ICode3	readSingleBlock()	To Read data from Single block
ICode3	writeSingleBlock()	To Write data from Single block
ICode3	readMultipleBlocks()	To Write data from multiple blocks
ICode3	readConfigurationBlock()	To Read Configuration block
ICode3	readProtectionForPageL()	To Read Protect Page L
ICode3	writeProtectionForPageL()	To Write Protect Page L
ICode3	lockPointerControlForPageL()	To Lock Pointer control for page L
ICode3	readProtectionForPageH()	To Read Protect Page H
ICode3	writeProtectionForPageH()	To Write Protect Page H
ICode3	lockPointerControlForPageH()	To Lock Pointer control for page H
ICode3	setPasswordConfigMemory()	To set Password For Configuration Memory
ICode3	isT5T()	
ICode3	disableNFCMirror()	To Disable NFC mirror
ICode3	enableUIDMirror()	To Enable UID mirror
ICode3	enableNFCCounterMirrorAndUIDMirror()	To Enable NFC Counter Mirror and UID Mirror
ICode3	setProtectionPointer()	To Set Protection Pointer
ICode3	disableLockBlock()	To Disable Lock Block
ICode3	getMultipleBlockSecurityStatus()	To get Security Status of Multiple Blocks
ICode3	setNFCMirrorStartBlock()	To set NFC mirror Start Block
ICode3	setNFCMirrorStartByte()	To set NFC mirror Start Byte
ICode3	writePasswordConfigurationMemory()	To Write Password for Configuration Memory
ICode3	writeSignature()	To write Signature
ICode3	setOriginalitySignatureLengthDefault()	To set default Originality check signature length
ICode3	enableCommandBasedCounterMode()	To enable command based counter mode
ICode3	enableNFCCounterMode()	To enable NFC Counter Mode
ICode3	writeCIDBytes()	To Write CID Bytes
ICode3	resetCounter()	To Reset Counter
ICode3	pickRandomId()	To Pick Random ID
ICode3	setPrivacyMode()	To set Privacy Mode
ICode3	checkPrivacyMode()	To Check Privacy mode

Table 23. Version 4.0.0 Added class/APIs...continued

Class	API Syntax	Description
ICode3	lockPasswordConfigMemory()	To Lock Password Configuration Memory
ICode3	disableWriteConfig()	To disable Write Configuration
ICode3	lockLockPointerBytes()	To Lock LockPointer Bytes
ICode3	enableConfigPasswordProtection()	To enable Configuration Password Protection
ICode3	lockPageProtectionBytes()	To Lock Page Protection Bytes
ICode3	lockSignature()	To Lock Signature
ICode3	lockEAS()	To Lock EAS
ICode3	getEasStatus()	To get EAS Status
ICode3	passwordProtectAFI()	To Password Protect AFI
ICode3	passwordProtectEas()	To Password Protect EAS
ICode3	lockCIDBytes()	To Lock CID Bytes
ICode3	disableCounterPreset()	To disable counter Preset
ICode3	lockBlock()	To lock Block
ICode3	easAlarm()	To set EAS Alarm
ICode3	setNFCRetryMode()	To set NFC Retry mode
ICode3	inventoryRead()	To read Inventory
ICode3	fastInventoryRead()	To Read Inventory in faster datarate
ICode3TT	enableNFCCounterUIDTagTamperMsgMirror()	To Enable NFCCounter,UIDTagTamperMessage Mirror
ICode3TT	enableNFCCounterUIDTagTamperMsgTagTamperStatusMirror()	To Enable NFCCounter,UIDTagTamperMsgTagTamperStatusMirror
ICode3TT	enableStoreTagTamper()	To Enable Store Tag Tamper
ICode3TT	readTT()	To read TagTamper message
ICode3TT	showTTStatus()	To Show the TagTamper Message
ICode3TT	lockTTOpenMsg()	To Lock TagTamper Open Message
ICodeFactory	getICode3()	To get ICODE3 details
ICodeFactory	getICode3TT()	To get ICODE3TT details
ICodeFactory	isTagICode3()	To verify whether Card is ICODE3
ICodeFactory	sTagICode3TT()	To verify whether Card is ICODE3TT
ICodeUtility	isAFIFlagSet()	To verify whether AFI flag is set
ICodeUtility	validateDataRateFlagSetOnly()	To validate DataRateFlagSetOnly
ICodeUtility	validateBlockNum()	To Validate Block Number
ICodeUtility	validateGetMultipleBlockSecurityStatusParams()	To Validate GetMultipleBlock Security Status Parametres
ICodeUtility	validateByteNumber()	To Validate Byte Number
ICodeUtility	validateCounterValue()	To Validate Counter Value
ICodeUtility	validateBlockNumForMultipleRead()	To Validate Block Number For MultipleRead

Table 23. Version 4.0.0 Added class/APIs...continued

Class	API Syntax	Description
ICodeUtility	inventoryCommandValidations()	To Validate Inventory command
ICodeUtility	updateBitValueAtPosition()	To update Bit Value at Position
ICodeUtility	getBitValueAtPosition()	To get Bit Value at Position
ICodeUtility	verifyCIDBytesLength()	To verify CID Bytes Length
ICodeUtility	validateOriginalitySignatureLength()	To Validate Originality Signature Length
ICodeUtility	validateOptionFlagNotSet()	To Validate whether Option Flag Not set
ICodeUtility	validateOptionFlagSet()	To Validate whether Option Flag set
ICodeUtility	validateNullValue()	To validate Null Value
ICodeUtility	validateIfCidCompareEnabled()	To Validate If CID Compare is enabled
ICodeUtility	validateTTStatusCondition()	To Validate Tag Tapmer status condition

Version 3.1.0:

Table 24. Version 3.1.0 Added class/APIs

Class	API Syntax	Description
IPlusEV1	void authenticateFirst(int, IKeyData, byte[])	This API Performs first authenticate
IPlusEV1	void authenticateNonFirst(int, IKeyData)	Performs non first authenticate
DESFireUtil	void checkIfApplicationSelected(int)	Check if application selected, throw exception if no application is selected
DESFireUtil	int updateKeyNumOrFileNumIfSAIEnabled(int, int, int)	Update Key Number or File Number if Secondary Application is active
IDESFireEV3	String getFABIdentifier()	This API retrieves the FAB Identifier by sending getVersion and checking SW Minor version.
IPlusEV1SL3	void proximityCheck(IKeyData, int)	Prepare, perform and verify Proximity Check
IPlusEV1SL1	byte[] readSignature()	Retrieve the ECC originality check signature
IPlusEV1SL1	byte[] readTransactionMac(int)	Reads the TransactionMac data from TransactionMACBlock
IPlusEV1SL1	void resetAuth()	Resets the authentication session Performs a Reset Auth command
IPlusEV1SL1	int sectorNumberToBlockNumberForAESKeys(byte)	Helper to convert from sector number to block number which store corresponding AES 128 keys
IPlusEV1SL1	boolean vcSupportLastISOL3(byte[], byte[])	Check if the Virtual Card Concept is supported, communicate PCD capabilities and retrieve the UID This command is supported only in Layer 3

Version 3.0.0:

Table 25. Version 3.0.0 Added class/APIs

Class	API Syntax	Description
NTAG22xTagTamperStatus	byte[] getCounterValue2_ext()	
NTAG22xTagTamperStatus	byte getCttCfilt()	

Table 25. Version 3.0.0 Added class/APIs...continued

Class	API Syntax	Description
NTAG22xTagTamperStatus	byte getCttCurrTrim()	
NTAG22xTagTamperStatus	byte[] getDifferenceMeasurement	
NTAG22xTagTamperStatus	byte getMeasDbIRange()	
UltralightAES	void setNegativeAuthLimit(int)	This API allows to set a negative authentication limit value {(0 < limit < 1022)}

Version 2.0:

Table 26. Version 2.0 Added class/APIs

Class	API Syntax	Description
IDESFireEV1	void isoExternalAuthenticate(int, KeyType)	Authenticate the PCD (second part of ISO7816-4 authentication) If the previous command was not ISOGet Challenge, isoExternalAuthenticate command will be rejected
IDESFireEV1	void isoGetChallenge(KeyType, IKeyData)	Get a challenge (first part of ISO7816-4 authentication) Once the ISO/IEC7816-4 authentication has been initiated, it must be completed with ISOExternal Authenticate and ISOInternalAuthenticate
IDESFireEV1	void isoInternalAuthenticate(int, KeyType)	Authenticate the PICC (third part of ISO7816-4 authentication) If the previous command was not Cmd.ISOExternalAuthenticate, isoInternalAuthenticate command will be rejected
IDESFireEV2	CARDPLATFORM getCardPlatform()	This API will return the PLATFORM used for DESFIRE cards
IDESFireEV2	void isoSelect(byte[])	Selects the given IID or DF name as per ISO 7816 terminology Use this API if the AuthVCMandatory is set to false which means the response of the data is not expected and no need to call IsoExternalAuthenticate api
IDESFireEV2	void updateRecord(int, int, int, byte[])	The updateRecord command allows to update a record in a Cyclic or Linear Record File
DESFireUtil	boolean isValidResponse(byte[], CommandSet)	Check if it is valid Response or not

Version 1.9:**Table 27. Version 1.9 Added class/APIs**

Class	API Syntax	Description
IDESFireEV3C	void changeDESFireEV3CFileSettings(int, EV3CFileSettings)	This API changes the access parameters of an existing file
IDESFireEV3C	void changeToMFStateKilled()	This methods changes the MiFare Classic Support State Unlocked to Killed
IDESFireEV3C	byte[] computeMFCLicenseMAC(byte[], byte[], IKeyData)	This methods changes the MiFare Classic Support State Unlocked to Killed
IDESFireEV3C	byte[] constructMFCLicense(EV3CMFCMappingBlockSettings[])	This methods constructs the MFC License
IDESFireEV3C	void createFile(int, byte[], EV3CFileSettings)	Creates a file within a DESFire EV3C application
IDESFireEV3C	void createFile(int, EV3CFileSettings)	Creates a file within a DESFire EV3C application
IDESFireEV3C	void createMFCMapping(int, EV3CMFCMappingFileSettings, EV3CMFCMappingBlockSettings[], byte[], byte[])	This methods creates Mifare Classic Mapping in the file
IDESFireEV3C	void enableMFCLicenseMACKey(byte[], byte[])	This methods enables MFC License MAC Key
IDESFireEV3C	EV3CFileSettings getDESFireEV3CFileSettings(int)	This API gets the information on the properties of a specific DESFireEV3C file
IDESFireEV3C	byte[] getFileCounters(int)	This API retrieves the current values associated with the SDMReadCtr related with a StandardData file after enabling Secure Dynamic Messaging
IDESFireEV3C	EV3CMFCState getMifareClassicCardState()	This methods checks card for the MiFare Classic Support State Unlocked or Killed

Table 27. Version 1.9 Added class/APIs...continued

Class	API Syntax	Description
IDESFireEV3C	void restoreTransfer(int, int, boolean, boolean)	This methods copies the value from one FileType.Value file to another
IDESFireEV3C	void restrictMFCUpdate(EV3CMFCMappingBlockSettings[], byte[], byte[])	This methods restricts Mifare Classic Update in the Classic Blocks
IDESFireEV3C	void restrictMFCUpdate(EV3CMFCValuePairConfiguration[], byte[], byte[])	This methods restricts Mifare Classic Update in the Classic Blocks
IPlusEV1SL3	byte[] commitReaderIDWithTMRIPrev(int, byte[])	Commits a Reader ID for the ongoing transaction
IPlusSL3	byte[] decrementTransferForTmcTmvValue(boolean, int, int, int)	Decrement followed by a transfer on a value block
IPlusSL3	byte[] incrementTransferForTmcTmvValue(boolean, int, int, int)	Increment followed by transfer on a value block
IPlusSL3	byte[] transferForTmcTmvValue(boolean, int)	Transfers the contents of the transfer buffer to the specified address
IPlusSL3	byte[] writeForTmcTmv(WriteMode, int, byte[])	Writes the data to the given block number
Crypto	IAsymmetricCryptoGram getECDSASecp192CryptoGram()	
DESFireUtil	boolean isCommunicationTypePlainIfmIsAuthenticated(EV3CFileSettings)	Is Communication type plain authenticated
DESFireUtil	boolean isCommunicationTypePlainIfmIsNotAuthenticated(EV3CFileSettings)	Is Communication type plain not authenticated

Table 27. Version 1.9 Added class/APIs...continued

Class	API Syntax	Description
NTagFactory	INTAG223DNA getNTAG223DNA(CustomModules)	@param support Modules Custom Modules object holds all the user customized or library default modules for sharing across the card objects
NTagFactory	INTAG223DNAStatusDetect getNTAG223DNAStatusDetect(CustomModules)	@param support Modules Custom Modules object holds all the user customized or library default modules for sharing across the card objects
NTagFactory	INTAG224DNA getNTAG224DNA(CustomModules)	@param support Modules Custom Modules object holds all the user customized or library default modules for sharing across the card objects
NTagFactory	INTAG224DNAStatusDetect getNTAG224DNAStatusDetect(CustomModules)	@param support Modules Custom Modules object holds all the user customized or library default modules for sharing across the card objects
NTagFactory	boolean isTagNTAG223DNA(CustomModules)	helper method to check if the tag under operation is NTAG223DNA or not
NTagFactory	boolean isTagNTAG223DNAStatusDetect(CustomModules)	helper method to check if the tag under operation is NTAG223DNA StatusDetect or not
NTagFactory	boolean isTagNTAG224DNA(CustomModules)	helper method to check if the tag under operation is NTAG224DNA or not
NTagFactory	boolean isTagNTAG224DNAStatusDetect(CustomModules)	helper method to check if the tag under operation is NTAG224DNA StatusDetect or not

Table 27. Version 1.9 Added class/APIs...continued

Class	API Syntax	Description
UltralightFactory	UltralightAES getUltralightAES(CustomModules)	@param custom Modules Custom Modules object holds all the user customized or library default custom Modules for sharing across the card objects
UltralightFactory	boolean isTagUltralightAES(CustomModules)	helper method to check if the tag under operation is UltralightAES or not
IDESFireEV3	void proximityCheckEV3(IKeyData, int)	The API performs the 3 operations: 1. Prepare Proximity Check: The PD is prepared to perform the Proximity Check by drawing a 7-byte random number RndR. 2.Proximity Check: The PD answers with a prepared random number at the published response time in Cmd.Prepare PC This command may be repeated up to 8 times splitting the random number for different time measurements. 3. Verify Proximity Check: The random numbers are verified using cryptographic methods.
IDESFireEV3	void updateRecord(int, int, int, byte[])	The updateRecord command allows to update a record in a Cyclic or Linear Record File
IDESFireEV3	void updateRecord(int, int, int, byte[], CommunicationType)	The updateRecord command allows to update a record in a Cyclic or Linear Record File
DESFireFactory	IDESFireEV3 getDESFireEV3(CustomModules)	Returns a DESFire EV3 Object
DESFireFactory	boolean isCardDESFireEV3(byte[])	Fetch DESFire EV3 Status

Table 27. Version 1.9 Added class/APIs...continued

Class	API Syntax	Description
DESFireUtil	boolean checkCommand(DESFireCommand)	Check commands
DESFireUtil	boolean isCommunicationTypePlainIfmIsAuthenticated(FileSettings)	Is Communication type plain authenticated
DESFireUtil	boolean isCommunicationTypePlainIfmIsNotAuthenticated(FileSettings)	Is Communication type plain not authenticated

Version 1.6:

Table 28. Version 1.6 Added class/APIs

Class	API Syntax	Description
IPlusEV1SL0	void authenticateNonFirst(int, IKey Data)	Performs non first authenticate
IPlusSL0	void authenticateNonFirst(int, IKey Data)	Performs non first authenticate
IPlusSL3	void authenticateNonFirst(int, IKey Data)	Performs non first authenticate
IDESFireEV1PredictableChallenge	byte[] getAuthenticationCounter()	Return current authentication counter value
IPlusEV1	void isoSelect(byte[], IKeyData)	Selects the given IID or DF name as per ISO 7816 terminology
LibraryManager	boolean isRegistered()	Returns true if registered
LibraryManager	void registerJavaApp(String)	Registers java app using local path for the license file generated during application registration

Version 1.5:

Table 29. Version 1.5 Added class/APIs

Class	API Syntax	Description
INTag210	boolean isPwdAuthenticated()	Returns true if the password is authenticated
INTag213215216	void setMemProtectionAndPwdVerificationForReadWriteAccess(byte, boolean)	This method is used to set AUTH0 byte (page address from which password verification is required) and PROT bit (defines the memory protection, read or read and write)
INTag213215216	void setPwdProtectionForReadWriteAccess(boolean)	This method is used to set PROT bit (defines the memory

Table 29. Version 1.5 Added class/APIs...continued

Class	API Syntax	Description
		protection, read or read and write)
INTag213215216	void setStartPageAddressForPwdAuth(byte)	This method is used to set AUTH0 byte (page address from which password verification is required)
INTag213TagTamper	boolean isPwdAuthenticated()	return true if the password is authenticated
INTag413DNA	boolean doAsymmetricOriginalityCheck(byte[])	Performs the Asymmetric originality check
INTag413DNA	byte[] readData(int, int, int, CommunicationMode, int)	The readData commands allows to read data from a Standard Data File
INTag413DNA	void writeData(int, int, byte[], CommunicationMode)	The writeData command allows to write data to a Standard Data File or a Standard Backup File
IUtility	String byteToHexString(byte[], String)	Converts the byte array to Hex String

Version 1.4:

Table 30. Version 1.4 Added class/APIs

Class	API Syntax	Description
DESFireEV1PredictableChallenge	authenticateHelper (int cardkeyNo, AuthType auth, KeyType type, IKeyData keyInfo)	Helper method to authenticate in predictable challenge flow
DESFireEV1PredictableChallenge	sendCommandAndGenerateRandomNumberB (byte [] cmd, AuthType authtype, KeyType keyType, IKeyData keyInfo)	Method to generate Random B based on Derived data for Predictable Challenge
DESFireEV1PredictableChallenge	generateCMACForNative (final byte[] data)	Method to generate CMA for Native auth type
DESFireEV1PredictableChallenge	generateCMACForISO (final byte [] data)	Method to generate CMA for ISO auth type
DESFireEV1PredictableChallenge	generateCMACForAES (final byte [] data)	Method to generate CMA for AES auth type

Table 30. Version 1.4 Added class/APIs...continued

Class	API Syntax	Description
NTag413DNA	getKeyVersion (int iKeyNo)	Depending on the currently selected AID and given key number parameter, return key version of the key targeted
LibraryManager	getTapLinxVersion()	Method to retrieve the current version of TapLinx library

Version 1.3:

Table 31. Version 1.3 Added class/APIs

Class	API Syntax	Description
SecureKeyGenerator	byte[] getCMACDiversifiedKeyBytes FromKeyBytes(byte[], byte[], KeyType)	Provides the CMAC based diversified key
SecureKeyGenerator	SecureKeyGenerator get Instance(CustomModules, Provider)	To Retrieve singleton instance
SecureKeyGenerator	IKeyData getKeyFromKeyBytes(byte[], KeyType)	Gives the Secure key object from the given key bytes
IPlusSL1	boolean doOriginalityCheck(IKeyData)	For Plus SL1 we need to use SL1 card authentication key to verify chip originality
IUltraLightEV1	void setNegativePwdLimit(byte)	Sets the Limitation of negative password verification attempts
UltraLightEV1	void setNegativePwdLimit(byte)	Sets the Limitation of negative password verification attempts
IMIFAREIdentity	byte[] commitTransaction()	Commits the transaction and reads back the TMV and TMC
IMIFAREIdentity	IReader getReader()	Returns reader associated with Mifare Identity
IMIFAREIdentity	List<byte[]> readOfflineTransaction()	Read offline transaction records
IMIFAREIdentity	byte[] selectVirtualCard(byte[], IKey Data, IKeyData)	This method allows to select Virtual card base on DF name
IMIFAREIdentity	void writeOfflineTransaction(Issue TransactionParams)	Issues the offline transaction
IdentityFCIInfoForC1Type	Complete Class	Utility class for decoding FCI information
MIFAREIdentityUtility	Complete Class	Utility class for decoding FCI information
PICCFramSize	Complete Class	Different PICC Frame size of DESFire Family cards
ICODEUtility	Complete Class	Utility class for ICODE operation
INTAG213TagTamper	Complete Class	New Tag supported

Table 31. Version 1.3 Added class/APIs...continued

Class	API Syntax	Description
INTAG213TagTamper.MirrorType	Complete Class	Different types of mirroring supported by NTAG213 Tag Tamper
IDESFireEV2	byte[] getKeyVersionFromKeySet(byte keyNumber , byte keySetNumber)	Get the version of Key from specific keySet of selected application Note: If application 0 has been selected, only key number 0 is valid
IDESFireEV2	byte[] getAllKeySetVersion ()	Retrieves the all key set versions of selected application

Version 1.2:

NA

Version 1.1:

Table 32. Version 1.1 Added class/APIs

Class	API Syntax	Description
IDESFireEV2	byte[] isoSelectFile(final boolean is PICCMasterFile, final byte selection Control, final boolean isReturnFCI, final byte[] data);	
IDESFireEV2	SubType getSubType();	
IDESFireEV2	IKeyData getDerivedSymmetric OriginalityKey(final IKeyData master Key, final byte originalityKeyNo, final byte[] uid);	
IDESFireEV2	byte[] commitReaderId(final byte[] tMRI)	
IDESFireEV2	byte[] commitAndGetTransactionMac()	
IDESFireEV2	void changeMISMARTKey(final int cardkeyNumber, final KeyType key Type, final byte[] oldKey, final byte[] newKey, final byte newKeyVersion);	
IDESFireEV2	void changeVCKey(final int cardkey Number, final byte[] oldKey, final byte[] newKey, final byte newKeyVersion);	
DESFireFile.FileSettings	FileType getType()	
DESFireFile.FileSettings	CommunicationType getComSettings()	
DESFireFile.FileSettings	getReadAccess()	
DESFireFile.FileSettings	getWriteAccess()	
DESFireFile.FileSettings	getReadWriteAccess()	
DESFireFile.FileSettings	getChangeAccess()	
DESFireFile.StdDataFileSettings	getNumberOfAdditionalAccess Conditions	
DESFireFile.StdDataFileSettings	getNumberOfAdditionalAccessRights	
DESFireFile. ValueFileSettings	isGetFreeValueEnabled()	

Table 32. Version 1.1 Added class/APIs...continued

Class	API Syntax	Description
DESFireFile. ValueFileSettings	getNumberOfAdditionalAccessConditions()	
DESFireFile. ValueFileSettings	getNumberOfAdditionalAccessRights()	
DESFireFile. ValueFileSettings	isLimitedCreditValueEnabled()	
DESFireFile. ValueFileSettings	isGetFreeValueEnabled()	
DESFireFile. ValueFileSettings	getUpperLimit()	
DESFireFile. ValueFileSettings	getLowerLimit()	
DESFireFile. ValueFileSettings	getInitialValue()	
DESFireFile. LinearRecordFileSettings & DESFireFile. CyclicRecordFile Settings	getCurrentNumberOfRecords()	
DESFireFile. LinearRecordFileSettings & DESFireFile. CyclicRecordFile Settings	getMaxNumberOfRecords()	
DESFireFile. LinearRecordFileSettings & DESFireFile. CyclicRecordFile Settings	getRecordSize()	
DESFireFile. LinearRecordFileSettings & DESFireFile. CyclicRecordFile Settings	getNumberOfAdditionalAccessConditions()	
DESFireFile. LinearRecordFileSettings & DESFireFile. CyclicRecordFile Settings	getNumberOfAdditionalAccessRights()	
EV2ApplicationKeySettings	setAppMasterKeyChangeable	
EV2PICCConfigurationSettings	public void setISO_DFNameForMiSmartApplication(final IKeyData keyData, final KeyType keyType, final byte[] oldISO_DFName, final byte[] newISO_DFName)	
DESFireFactory	public INTag413DNA getNTag413DNA(final CustomModules customModules)	
DESFireFactory	public boolean isCardNTag413DNA(final CustomModules customModulesObj)	

9 Removed classes

Version 5.0.0:

NA

Version 4.1.0:

NA

Version 4.0.0:

NA

Version 3.1.0:

NA

Version 3.0.0:

NA

Version 2.0:

NA

Version 1.9:

NA

Version 1.8:

NA

Version 1.7:

NA

Version 1.6:

1. INTAG5.java 1.5

Version 1.5:

NA

Version 1.4:

1. DESFireEV1PredictableChallenge.java
2. IDESFireEV1PredictableChallenge.java 1.3

Version 1.3:

NA

Version 1.2:

NA

Version 1.1:

1. InvalidArgumentException class is merged with UsageException to avoid ambiguity.

10 Known issues

Version 5.0.0:

NA

Version 4.1.0:

NA

Version 4.0.0:

NA

Version 3.1.0:

NA

Version 3.1.0:

NA

Version 3.0.0

Fixed the known issue mentioned in the Version 1.9.1 release.

Version 2.0

Fixed the known issue mentioned in the Version 1.9.1 release.

Version 1.9.1

TapLinx Java online License verification is not called if multiple Apps are running on same PC after one successful online TapLinx License verification of the App is done. Issue is replicable even when Apps is uninstalled and reinstalled again.

Version 1.9

Same as previous version.

Version 1.8

1. PLUS EV2 SL1 is not completely not supported, however PLUS Ev2 SL0 and SL3 are functional.
2. Configuration help API's are not available for NTAG Boost, Switch and Link.

11 Revision history

Table 33. Revision history

Document ID	Release date	Description
RN00264 v.3.0	13 November 2025	Editorial changes (typos, etc.) • Section 1 "General points": updated. • Section 2.1 "Version history": updated. • Section 2.2 "Release folder structure": updated. • Section 3 "New features": updated. • Section 4 "Enhancements": updated. • Section 5 "Bug fixes": updated. • Section 6 "API signature changes": updated. • Section 7 "Removed/Obsolete APIs": updated. • Section 8 "Added class/APIs": updated. • Section 9 "Removed classes": updated. • Section 10 "Known issues": updated.
RN00264 v.2.0	11 July 2025	Editorial changes (typos, etc.) Document title updated to "TapLinux Java SDK". • Section 1 "General points": updated. • Section 2.1 "Version history": updated. • Section 3 "New features": updated. • Section 4 "Enhancements": updated. • Section 5 "Bug fixes": updated. • Section 6 "API signature changes": updated. • Section 7 "Removed/Obsolete APIs": updated. • Section 8 "Added class/APIs": updated. • Section 9 "Removed classes": updated. • Section 10 "Known issues": updated. • Section "Contents" removed.
RN00264 v.1.0	18 February 2025	• Initial version

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