



Near Field Communication (NFC) Technology with Jordan Mobile Payment (JoMoPay)

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Abbreviations

Abbreviation	Meaning
CBJ	Central Bank of Jordan
JoMoPay	Jordan Mobile Payment
NFC	Near Field Communication
PSP	Payment Service Provider
POS	Point of Sale
EMV	Europay, MasterCard and Visa
PCI-DSS	Payment Card Industry – Data Security Standard
RF	Radio Frequency
PIN	Personal Identification Number
NDEF	NFC Data Exchange Format

Definitions

Definition	Meaning
Central Bank	Central Bank of Jordan.
Jordan Mobile Payment	The electronic system operated and regulated by the Central Bank; in which the banks, companies and beneficiaries of service are registered for the purposes of exchanging financial transactions; and through which the net financial positions is worked out and credited, as appropriate, to the accounts of banks or settlement banks or debited to the accounts of banks or settlement banks; and all transactions effected through which are documented.
Near Field Communication	NFC technology enables simple and safe two-way interactions between electronic devices, allowing consumers to perform contactless transactions, access digital content, and connect electronic devices with a single touch.
Payment Service Provider	The bank or financial company that connected with JoMoPay and provide mobile payment servicers.
Point of Sale	It is the point at which a customer makes a payment to the merchant in exchange for goods or services.
Europay, MasterCard and Visa	A global standard for inter-operation of integrated circuit cards (IC cards or "chip cards") and IC card capable point of sale (POS) terminals and automated teller machines (ATMs), for authenticating credit and debit card transactions.
Payment Card Industry – Data Security Standard	Provides an actionable framework for developing a robust payment card data security process -- including prevention, detection and appropriate reaction to security incidents.
Payment Service Provider Acquirer	The bank or financial company that connected with JoMoPay and provide the POS for merchants, processing payments, and enabling customers to make payments to the merchant in exchange for goods or services.

Assumptions

- Any PSP that wants to issue (NFC) tags or provide (NFC POS) must get the CBJ approval.
- The party that wants to provide an (NFC) service must be a (PSP) on the JoMoPay.
- The party that wants to provide (NFC POS) must be a (PSP) on the JoMoPay.
- The merchant obtaining (NFC POS) must be a client at the PSP acquirer and register on JoMoPay.
- The PIN must be entered on the (NFC POS) and it may be different than the JoMoPay wallet PIN.
- The acceptance device (NFC POS) must support PIN or/and PIN-less transactions.
- The NFC POS must support multiple currencies.

NFC TAGs

The NFC tag must comply with the following specifications:

- **Compliance:** NFC Forum tag type #4.
- **Operating:** Distance: 10 mm.
- **RF Interface:** ISO 14443 (A&B)-2.
- **Initialization:** ISO 14443 (A&B)-3.
- **Protocol:** ISO 14443-4, ISO 7816-4.
- **Data Structure:** NDEF Formatted.
- **Authentication:** Must be online authentication.
- **Personalization:** Tag must be personalized just similar an “contactless Card” and must contain all fields required for JoMoPay (see later).
- **Physical Shape &Dimensions:** Tag must conform to the shape, thickness, and dimensions specification set by CBJ that will be finalized soon.
- **Branding:** Tag must include the “JoMoPay” logo.

Acceptance Device (NFC POS)

The acceptance device (NFC POS) must comply with the following specification:

- **Compliance:** PCI-DSS or EMV (when online PIN authentication is required)
- **Standard:** ISO 14443 A & B Cards / Tags.
- **Protocol:** ISO 14443-4, ISO 7816-4.
- **Operating Distance:** 10 mm.
- **Authentication:** must be online authentication.
- **Sound/Buzzer:** optional.
- **LCD Display/LED:** optional.
- **RF Interface:** ISO 14443 (A&B)-2.
- **Initialization:** ISO 14443 (A&B)-3.

NFC Tag Issuance Process

NFC tag issuance process must comply with the following outline:

1. The generation and distributing of PIN must comply with best practices similar to cards.
2. Ability to change the PIN through the client’s PSP or agent directly.
3. The issuer then must personalize the tag with wallet-holder data as required by JoMoPay as the following:

- a. **PSP ID:** the ID of the issuer (mandatory)
- b. **Wallet-holder Name:** full name (optional)
- c. **NFC Tag ID:** 18-digit unique ID must be distributed as the following: (mandatory)

PSP Issuer ID (4 digits)	Country Cod (3 digits)	Customer Mobile Number (9 digits)	Tag sequence number (2 digits)
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- d. **NFC Tag Expiration Date:** expiration date of tag (mm/yyyy) (mandatory)
4. Once the NFC tag is fully personalized, it needs to be activated linking the Issuer to the NFC tag, and to the wallet-holder

NFC Transaction Flow

The following is an outline of a typical transaction flow grouped by processing stage:

NFC Tag to NFC POS:

1. NFC POS reads all the needed information (fields) from the NFC tag using the “Read” command as per (ISO 8716-4).
2. NFC POS checks the expiry date of the NFC tag. If NFC tag is expired, then the transaction is automatically aborted.
3. Merchant then introduces the amount of the transaction in the NFC POS if required.
4. NFC POS checks if the amount is less than the limit set by CBJ and configured on NFC POS
 - a. If amount is more than the limit established, NFC POS will ask for a PIN.
 - b. If amount is less than the limit established, NFC POS will automatically allow the transaction to go online without PIN.

NFC POS to PSP Acquirer

5. NFC POS sends transaction data to the PSP Acquirer. The sent data must be encrypted by the public key of the PSP Acquirer, The sent data must include all the data fields required by JoMoPay to complete the transaction:
 - a. Transaction amount.
 - b. Transaction currency code (ISO format).
 - c. Encrypted PIN. (if required)
 - d. PSP Issuer ID (i.e. JoMoPay PSP ID of Issuer).
 - e. Merchant ID (i.e. JoMoPay PSP ID of merchant).
 - f. Tag ID (18-digit unique ID).
6. The PSP Acquirer decrypts the data using its private key and sends it to JoMoPay according to JoMoPay rules.

Communication Back

7. PSP Acquirer received the response from PSP Issuer through JoMoPay then the PSP Acquirer send response back to NFC POS.
8. NFC POS displays result to merchant/wallet-holder.

Message Fields

The message that will be forwarded by PSP Acquirer to JoMoPay must contain at least the following data:

Data Field	Optional/ Mandatory
NFC TAG ID	Mandatory
Transaction Amount	Mandatory
Transaction Currency Code	Mandatory
PIN	Optional
JoMoPay PSP ID	Mandatory
Merchant Mobile Number	Mandatory
Customer Mobile Number	Mandatory

NFC Smart Application

1. The application must be configured to have a readable distance not more than 10 mm or by tapping the two devices together.
2. The emulation must pass the following data - at least - to NFC POS:

Data Field	Optional/ Mandatory
Transaction Amount	Mandatory
Transaction Currency Code	Mandatory
PIN	Optional
JoMoPay PSP ID	Mandatory
Merchant Mobile Number	Mandatory
Customer Mobile Number	Mandatory

NFC Transaction Flow Diagram

