PayNet Quick Response Code Standard (PayNet QR)
Merchant-Presented Mode

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Revision History

Version No.	Date of Update	Summary of Change	Updated By
1.0	6/7/2017	Initial Creation	Ahmad Husaini Ahamad Zakeri

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1.0　Introduction

1.1　Purpose

This document provides:

- Brief description of the merchant presented QR Code payment flow.
- Requirements for the QR Code displayed by the merchant, including format and content.

The processing of the QR Code by a mobile application and the network messages as a result of this processing are out of scope of this document.

1.2　Scope

This document includes:

- The format of the merchant presented QR Code

This document excludes:

- The consumer presented QR Code;
- QR Code transactions, message & settlement requirements; and
- QR application & terminal requirements

The requirements for the QR Code displayed by the Merchant, including its format and content, are described in the EMV® QR Code Specification for Payment Systems (EMV QRCPS) Merchant-Presented Mode.

1.3　Reference

The PayNet QR Code Standard is referenced to the following publications:

- EMV® QR Code Specification for Payment Systems (EMV QRCPS) Merchant-Presented Mode
- EMV Book 4 Version 4.3 - EMV Integrated Circuit Card Specifications for Payment Systems - Book 4 Cardholder, Attendant, and Acquirer Interface Requirements
- ISO3166 – Codes for the representation of names of countries and their subdivisions—Part 1: Country codes, using two-letter country codes
- ISO4217 - Codes for the representation of currencies and funds
- ISO18245 - Retail financial services - Merchant category codes

Any later versions of these publications will be applied in this document unless specified.

1.4   Abbreviations

Abbreviations	Description
ANS	Alphanumeric with Special Character
BLE	Bluetooth Low Energy
C	Conditional
CRC	Cyclic Redundancy Check
NFC	Near Field Communication
M	Mandatory
ID	Identifier of the Data Object
Issuer	Entity that opens a saving account, current account or e-money account for a consumer
N	Numeric
O	Optional
QR	Quick Response
S	String

Table 1: Abbreviations

1.5   Presence of Data Objects

For the presence of data objects, the following notation is used:

M: Mandatory—shall always be present
C: Conditional—shall be present under certain conditions
O: Optional—may be present

1.6   Format Conventions

The value of a data object encoded in the EMV® Merchant-Presented QR Code has one of the formats as listed in **Table 2**.

Format	Meaning
Numeric (N)	Values can be represented by all digits, from "0" to "9". The numeric includes ten (10) characters in total.
Alphanumeric Special (ANS)	Values can be represented by the Common Character Set as defined in EMV Book 4. The Alphanumeric Special alphabet includes ninety-six (96) characters in total and includes the numeric alphabet and punctuation.
String (S)	Values represented by any precomposed character(s) defined in [Unicode]

Table 2: Format Convention

2.0 Overview

A merchant presented QR Code payment transaction enables consumers to make payment for purchases using a merchant generated and displayed QR Code based on the merchant's details. For example, it can be used to transfer funds to a merchant account designated by the Merchant Account Information over a payment network in exchange for goods and services provided by the merchant.

Consumer may download an Issuer mobile application on their mobile phones that has the capability to scan a merchant presented QR Code and initiate a payment transaction. This mobile application may be an existing mobile banking application from an Issuer. In both cases, the request to process the payment transaction will be directed to the Issuer managing the account from which the funds will be debited.

2.1   PayNet QR Data Object

Name	ID	Format	Length (Decimal)	Presence	Description
Payload Format Indicator	"00"	N	02	M	Version "01"
Point of initiation method	"01"	N	02	M	11 – QR Static Code 12 – QR Dynamic Code
Merchant Account Information	"26" – "27"	ANS	Variable up 99	M	Please see **Table 4** for details
Merchant Category Code	"52"	N	04	M	As defined in ISO18245
Transaction Currency Code	"53"	N	03	M	As defined in ISO4217 Use 458 for Malaysian Ringgit
Transaction Amount	"54"	ANS, limited to numeric and the "." symbol	Var. up to 13	C	This amount is expressed as how the value appears: Amount "100.00" is defined as "100.00", "95.50" is defined as "95.50" or "88.856" is defined as "88.856"
Tip or Convenience Indicator	"55"	N	02	O	01: Indicates that Consumer should be prompted to enter Tip 02: Indicates that the merchant would mandatorily charge a flat convenience fee 03: Indicates that merchant would charge a percentage convenience fee
Value of Convenience Fee Fixed	"56"	ANS, limited to numeric and the "." symbol	Var. up to 13	C	The Value of Convenience Fee Fixed must be present if the data object ID "55" is present with a value of 02. Otherwise this data object must be absent. Example; Amount "100.00" is defined as "100.00" or amount "99.85" is defined as "99.85" Note: 0 is not a valid value
Value of Convenience Fee Percentage	"57"	ANS, limited to numeric and the "." symbol	Var. up to 05	C	The Value of Convenience Fee Fixed must be present if the data object ID "55" is present with a value of 03. Otherwise this data object must be absent. Example;

					"0.06" indicates that the convenience fee percentage is 0.06% and must be calculate as transaction amount * 0.06% Note: Valid value "0.01"-"99.99"
Country Code	"58"	ANS	02	M	As defined by ISO3166 Use "MY" for Malaysia
Merchant Name	"59"	ANS	Var. up to 25	M	
Merchant City	"60"	ANS	Var. up to 15	M	
Postal Code	"61"	ANS	05	M	Must be 5 numeric values
Additional Data Field Template	"62"	S	Variable Up to 99	O	Additional information beyond that mentioned above may be required in certain cases. This information may be either presented by the merchant or Acquirer or the consumer may be prompted for entry on the app. For consumer prompt, the value field of Tag would be 3 asterisks i.e. ***. The acquirer / merchant should provide only minimum information in order to avoid making the size of data onerous. The length of each tag is variable up to 26 characters and overall it is not to exceed the maximum of 99 characters for the total size of the Additional Data Field. Please see **Table 3** for Data Object
Merchant Information – Language Template	"64"	S	Var. up to 99	O	The Merchant Information—Language Template includes merchant information in an alternate language and may use a character set different from the Common Character Set. If the ID "64" is present, the Language Preference (ID "00") and Merchant Name (ID "01") must be present
"00" Language Preference				M	
"01" Merchant Name – Alternate Language				M	
"02" Merchant City – Alternate Language				O	
Cyclic Redundancy Check (CRC)	"63"	ANS	04	M	

2.1.1   Additional Data Field Template (IDs "62")

2.1.1.1   If present, the Additional Data Field Template shall contain at least 1 data object.

2.1.1.2   If present, the content of the data object value for IDs "01" to "08" shall be either "***" or a value defined by the merchant. The presence of "***" indicates that the mobile application is responsible for obtaining the necessary information.

Name	ID	Format	Length	Presence	Description
Bill Number	"01"	ANS	Variable up to 25	O	Invoice number or bill number
Mobile Number	"02"	ANS	Variable up to 25	O	To be used for mobile number
Store Label	"03"	ANS	Variable up to 25	O	A distinctive number associated to a store
Loyalty Number	"04"	ANS	Variable up to 25	O	Loyalty card number as provided
Reference Label	"05"	ANS	Variable up to 25	O	Any value as defined by merchant or Acquirer in order to identify the transaction
Consumer Label	"06"	ANS	Variable up to 25	O	To be used to identify a specific consumer
Terminal Label	"07"	ANS	Variable up to 25	O	To be used to identify a specific terminal
Purpose of Transaction	"08"	ANS	Variable up to 25	O	Consumer to input a value describing the purpose of the transaction
Additional Consumer Data Request	"09"	ANS	Variable up to 03	O	Mobile application to provide the requested information in order to complete the transaction
Payment System Specific	"50"-"99"	S		O	RFU for Payment Network

Table 3: Additional Data Field Template for ID "62"

2.1.2   Merchant Account Information (IDs "26"-"27")

2.1.2.1   The Merchant Account Information template shall be used when the payment system corresponding to the Merchant Account Information is explicitly identified in the template

Name	ID	Format	Length	Presence	Description
Application Identifier (AID)	"00"	ANS	14	M	MCCS AID: A0000006150001
Acquirer ID	"01"	ANS	Var. up to 06	M	Acquirer ID Please see **Table 5** for details
Merchant ID	"02"	ANS	Var. up to 28	M	Merchant Identification assigned by Acquirer Note: Acquirer must maintain Database link for Merchant ID with Merchant Account Number
Mobile Number	"03"	ANS	Var. up to 15	O	

Table 4: Merchant Account Information (IDs "26" – "27")

2.1.3   Acquirer ID (IDs "01")

2.1.3.1   The Acquirer ID value defined must be used using the ID and Code as below:

Acquirer ID	Name
501664	Affin Bank Berhad
504374	Alliance Bank (M) Berhad
564169	AmBank Berhad
432134	Al-Rajhi Bank
603346	Bank Islam Malaysia Berhad
589267	Bank Kerjasama Rakyat Malaysia Berhad
564167	Bank Muamalat Malaysia Berhad
589373	Bank Pertanian Malaysia Berhad (Agrobank)
420709	Bank Simpanan Nasional
501854	CIMB Bank Berhad
589170	Citibank Berhad
588830	Hong Leong Bank Berhad
589836	HSBC Bank Berhad
639406	Kuwait Finance House
588734	Malayan Banking Berhad
504324	OCBC Bank Berhad
564162	Public Bank Berhad
564160	RHB Bank Berhad
539981	Standard Chartered Malaysia Berhad
519469	United Overseas Bank Malaysia Berhad

Table 5: Acquirer ID (IDs "01")

2.1.3   Acquirer ID (IDs "01")

3.0 Example

3.1 QR Code Conventions

ID	Input Character	Meaning
Payload Format Indicator	"000201"	Version 01
Point of Initiation Method	"010212"	Dynamic QR Code
Cyclic Redundancy Check	"6304FFFD"	Checksum

3.2 Merchant Account Information

ID	Input Character	Meaning
Merchant Account Information	"2641"	
AID	"0014A0000006150001"	Application Identifier – "A0000006150001"
Acquirer ID	"0106501664"	Acquirer – Affin Bank
Merchant ID	"0209123456789"	Merchant ID – "123456789" *Note: Acquirer will link to the Merchant ID and Merchant Account Number*
Merchant Category Code	"52049999"	9999 - Government Agency
Transaction Currency Code	"5303458"	458 – Malaysian Ringgit
Transaction Amount	"540510.00"	Amount – 10.00
Country Code	"5802MY"	"MY" – Malaysia
Merchant Name	"5909QRCSDNBHD"	QRC Sdn Bhd
Merchant City	"6005BANGI"	City – Bangi
Postal Code	"610543650"	Postcode – 43650

000201010212264100014A00000061500010106501664020912
34567895204999953034585405100582MY5909QRCSDN
BHD6005BANGI6105436506304FFFD