Australian Payments Network
Connect Inspire Thrive

MPM QR Code

Industry Standard specifications

Australian Payments Network

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1 Background

1.1 Purpose of the Industry Standard for Merchant-Presented Mode QR

The purpose of the Industry Standard for Merchant-Presented Mode QR code (hereafter MPM QR) is to offer the Australian market an interoperable QR solution to Payers and Payees. The Industry Standard MPM QR code is free to use and not mandatory.

1.2 Benefits

A Payee (for example a merchant) can present a single QR code which supports all payment methods that the Payee accepts to Payers. Payers can scan the QR with their app of choice, select their payment method of choice and have a consistent user experience when paying, using a MPM QR code.

1.3 Terminology and terms

The Industry Standard MPM QR uses a few conventions when referring to specification, see the two tables below.

Shall	Defines a product or system capability which is mandatory
May	Defines a product or system capability which is optional or a statement which is informative only and is out of scope for this specification.
Should	Defines a product or system capability which is recommended.

Table 1 Terminology

Term	Meaning
Industry Standard MPM QR	Specifications as presented in this document.
MPM QR	The functionality of the Merchant Presented QR code
EMV QRCPS	Specifications as presented in EMV® QR Code Specification for Payment Systems (EMV QRCPS) Merchant-Presented Mode Version 1.1 November 2020

Table 2 Terms for Standards

1.4 Relevant documentation

The Industry Standard MPM QR should be read in conjunction with the EMV QRCPS and the EMV Merchant-Presented QR Guidance and Examples Version 1.0 November 2018 (see here)

1.5 Availability of Industry Standard MPM QR

The Industry Standard MPM QR is available for use by any organisation that has interest in offering MPM QR code solutions.

2 Actors

The actors are the entities that provide and use the MPM QR code.

2.1 Actors and contractual relationships

The Industry Standard for MPM QR code presupposes contractual relationships between the actors (see Figure 1 Contractual relationships between the actors"). These contractual relationships should reflect the requirements of the Industry Standard MPM QR.

A Payer and Payee may have contracts with a Payment Service Provider (PSP) and an Institution or both. For example, the Payer may use the App of a Payer PSP and has an account with another Payer Institution.

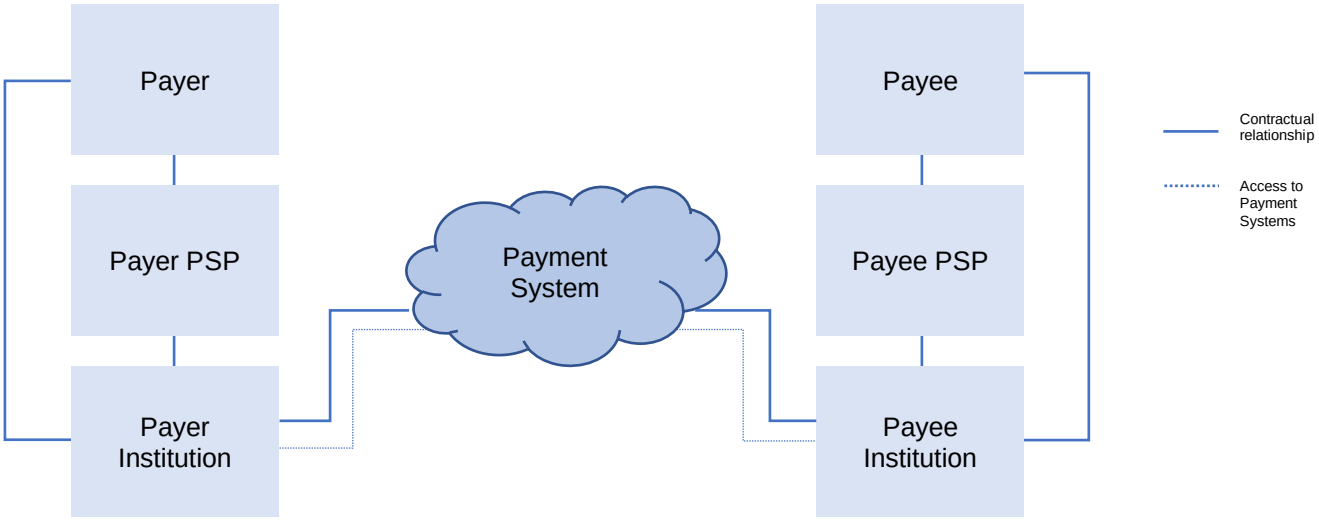

Figure 1 Contractual relationships between the actors

2.2 Definitions of actors

#	Actor	Definition
1	Payer	A legal or natural entity making a QR payment. A Payer may have one (or multiple) contractual relationship(s) with the Payer PSP, the Payer Institution or both. Example: • The Payer may be a consumer using a Trusted App on a mobile device to scan a QR or a business scanning a QR using ERP software.
2	Payee	A legal or natural entity accepting the MPM QR payment. A Payee may have one (or multiple) contractual relationship(s) to a Payee PSP or Payee Institution to enable the MDM QR code functionality. Example: • Multi store retailer • Small business

#	Actor	Definition
3	Merchant Presented QR code	A QR code (Quick Response code) is a two-dimensional barcode. The QR code can be a static or dynamic QR code presented by the Payee to the Payer containing the relevant information to initiate a (payment) transaction in conformance with the Industry Standard MPM QR. The QR Code is a registered trademark of DENSO WAVE.
4	Trusted App	An application from a Payer PSP or Payer Institution. The Application could be a mobile App or other form of Application. In case of a mobile application the Trusted App is vetted by the App Store, Play Store or other mobile operating system app-store. For other Apps the control and distribution may be via another trusted provider. A Trusted App is in conformance with the Security and Privacy Guidelines and Branding Guideline. A Trusted App may contain the Payer credentials and may request (additional) authorisation and authentication of the Payer. Examples: • Mobile Banking App • Multi store retailer app • ERP scanning software
5	Payer Institution	The Payer Institution manages the account of the Payer and is authorised to pay the transaction amount to the Payee. The Payer institution initiates and processes the QR based payment on behalf of the Payer, providing the Payer with the Trusted App to scan a merchant presented QR. The Payer Institution has direct (system) access to the Payment System and as such subject to the compliance of specific rules and regulations of the individual Payment Systems and licenses of the competent authorities Example: • Card Issuers • Banks
6	Payer PSP	The Payer Payment Service Provider offers products and solutions to the Payer, like the Trusted App and payment initiating services. The management of the account is still performed by the Payer Institution. The Payer PSP has a contractual relationship with the Payer Institution for (system) access to the individual Payment Systems with matching (usually lighter) license requirements from the competent authorities. Examples: • Wallet Providers • Issuers of cards with a sponsorship from a direct issuer
7	Payee Institution	The Payee Institution has a direct contractual agreement with the Payee to generate the QR, accept the payment and settle the funds on the Payees account. The Payee Institution has direct (system) access to the Payment System and as such subject to the compliance of specific rules and regulations of the Payment Systems and licenses of the competent authorities. Examples: • Acquirers of cards payments • Banks
8	Payee PSP	The Payee has a direct contractual agreement with the Payee Payment Service Provider to generate the QR. The Payee is using the product and services of the PSP for the acceptance of the individual Payment Systems. The management of the account and related funds is still performed by the direct Payee Institution.

#	Actor	Definition
		The Payee PSP has no direct access to the Payment System with matching (usually lighter) license requirements from the competent authorities. Examples: ○ payment Gateways providing one set of APIs for online QR based payments for different Payment Systems ○ POS Terminal Provider.
9	Payment System[1]	A Payment System (or framework) refers to the rules, processes, and procedures for transferring funds from one account to another (known as clearing) and for settlement. The payment systems can cover various payment methods as: cards or real time payments. Payment systems can be based on a 3 or 4 corner model.
10	Network	The entities (Payment System, Initiating Institution and Receiving Institution) as a total providing all the messaging features, clearing and settlement services.

Table 3 Overview of Actors

Note:

- For the Industry Standard for MPM QR code the requirements treat the PSP and the Institution as the same unless specified. Unless stated otherwise, when 'Payer Institution' or 'Payee Institution' is used, it can be replaced by 'Payer PSP' and 'Payee PSP' respectively.
- In some cases the term "merchant" or "consumer" is used in the Industry Standard and not "Payee" or "Payer", when it refers to data object definitions of EMV (for instance the data object "Additional Consumer Data Request ") or in case of terms like "consumer presented" and "merchant-presented") to preserve the original intended definitions.

[1] In the EMV MPM specifications, Payment Systems is not formally described, but used as Payment Network in the narrow sense as in the Industry Standard MPM QR.

3 Payment flow

The **payment flow** below is an example for illustration purposes, as in practice it may be different per Payment System. All Payment Network messages (step 3 -10) and the scanning of QR are considered to be defined by the relevant actors. The scope of the **Industry Standard** is the QR payload (see also 4 Scope Industry Standard MPM QR).

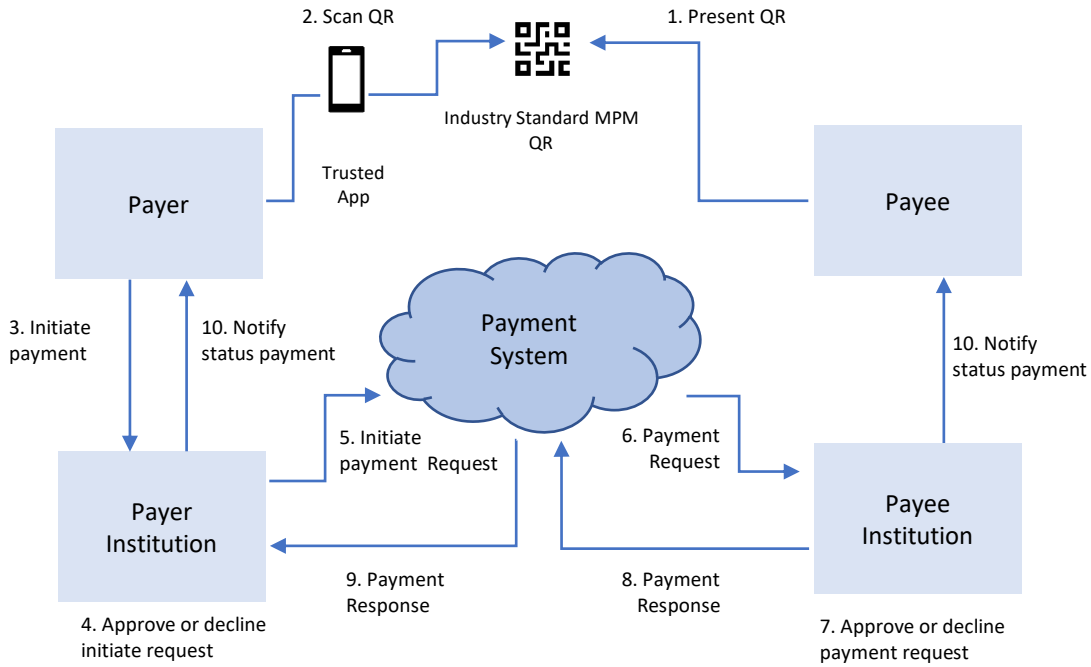

Figure 2 MPM QR Payment flow and actors

Step	Actor	Action	Description	Comments
1	Payee	Present QR	Payee presents the Industry Standard MPM QR to the Payer with the required Payer information and relevant payment details.	• The Payee Institution provides QR generation services to the Payee. The QR may be dynamic or static. For example: ○ Dynamic QR for POS based solutions ○ API to generate a QR on a customer display. • For a static QR the Payee Institution may provide an order and printing service via a merchant portal.
2	Payer	Scan QR	Payer scans the MPM Industry Standard QR with a Trusted App	• The Trusted App may prompt the Payer to provide details like the amount or additional information as bill number and loyalty ID.
3	Payer	Initiate Payment	Payer validates payment details as presented in the Trusted App, approves the payment and the data is submitted by the App to the Payer Institution.	• The Trusted App of the Payer Institution may request specific authorisation and authentication by the Payer to approve the payment or a request additional information on the identity of the Payer.
4	Payer Institution	Approve or decline initiate request	The Payer Institution validates the Payer request, secures or withdraws the	• The Payer Institution may decline the request from the Payer due to insufficient balance on the Payer

Step	Actor	Action	Description	Comments
			amount from the Payer account	account or first load funds to the wallet account of the Payer. • In case of a Payer PSP the request to Initiate the payment may be forwarded to the Payer Institute to secure the funds.
5	Payer Institution	Initiate Payment Request	The Payer Institution sends the request to the Payment System.	• The Payment System specifies the request format (for example an ISO format or a specific push payment API). • The Payment System will route the transaction to the relevant Payee Institution.
6	Payment System	Request Initiate Payment	The Payment System forwards the Request to the Payee Institution for validation.	
7	Payee Institution	Approve or decline payment request	Payee Institution validates the Payment Request on behalf of the Payee.	• If the Payee Institution approves the Payment Request the funds will be transferred to the account of the Payee based on the rules and regulations of the Payment System and the commercial agreements with the Payee.
8	Payee Institution	Payment Response	The Payee Institution sends a response (decline or approval) to the Payment System	• The Payment System specifies the request format
9	Payment System	Payment Response	The Payment System sends a response (decline or approval) to the Payer Institution.	• The Payment System specifies the request
10	Payee Institution	Notify Payment Status	The Payee Institution notifies the Payee of the status of the payment	• The status notification may be related to the actual transfer of the funds to the Payee account or a notification that the transaction has been processed successfully to a device (POS/cash-register) or both. • The timing and message format of the notification is decided by the Payment System and the Payee Institution.
11	Payer Institution	Notify Payment Status	The Payer Institution notifies the Payer of the status of the payment.	• The notification will mostly be part of the Trusted App features to inform the Payer of the actual deduction of the funds or a notification that the transaction has been processed successfully or failed. • The timing and message format of the notification is decided by the payment system and the Payer Institution.

Table 4 Payment flow step by step

4 Scope Industry Standard MPM QR

The Industry Standard MPM QR describes the specifications of the merchant presented QR code. The specifications of the Industry Standard MPM QR use the "EMV® QR Code Specification for Payment Systems (EMV QRCPS)".

4.1 In Scope

The Industry Standard MPM QR describes the following:

- The actors within the QR ecosystem
- Governance of the QR ecosystem
- The use of Templates as part of the EMV QRCPS[2]
- The data objects as defined by EMV QRCPS
- Default values of the data object
- Guidelines on security, branding and Template configuration

4.2 Out of scope

The Industry Standard MPM QR does not specify requirements for the following:

- The specific data objects (value/length/presence) within the Templates for the Payment Systems:
  - Payment Systems should provide the documentation of the specific data objects within the allowed Templates defined by the Industry Standard MPM QR
  - The Template Configuration Guideline should be used
  - The Globally Unique Identifier in the Template is a mandatory data object defined by EMV QRCPS
- The payment processing related messages for authorisation, clearing and settlement.
  - It is assumed that the Payment System should provide the specifications.
  - Notifications to the Payer and Payee on the status of the payment are within the domain of the Payment System and respective Payer and Payee Institutions.
- The processing of the QR code by the Trusted App and the subsequent messages between the Trusted App and the relevant Actors
  - The Industry Standard MPM QR does specify the QR code, its content and format.
- Payment System specific rules and regulations for onboarding Payers and Payees, Know Your Customer process of Payers and Payees, authorisation and authentication of payments, chargebacks and complaints.
- The products that the respective Actors offer to the Payers and the Payees.

[2] The individual Payment System shall provide the required data objects for the Templates

5 Role AusPayNet within the Industry Standard MPM QR

The Purpose of AusPayNet is to promote confidence in payments and maintain Interoperability, security, and a consistent user experience for all MPM QR participants.

AusPayNet will commit to keeping the specifications up to date and will review the requirements for greater governance on a quarterly basis.

5.1 Guidelines

To promote and maintain Interoperability, security and a consistent user experience, Payment Systems should use the Industry Standard MPM QR, and the Guidelines as summarized in the table:

#	Reference	Purpose
1	Paragraph 6 QR Payload Requirements	To specify the data objects within the allowed Templates
2	Paragraph 7 Template Configuration Guideline	To support an interoperable configuration for all individual Payment Systems and keep QR size as acceptable as possible.
3	Paragraph 8 Security and Privacy Guideline	To validate if a Payment Systems has the policies and risk measures in place to keep the overall MPM QR ecosystem secure
4	Paragraph 9 Branding Guideline	To offer the Payer and Payee a consistent user experience.

Table 5 Overview of Guidelines to be used for validation request to AusPayNet

Payment Systems are responsible to provide the documentation to their Payer and Payee Institutions.

6 QR Payload Requirements

The description of the QR Payload data object consists of the following:

#	Name of ID	Description
1	ID	Data object ID under the Root For example, Payload Format Indicator “00”
2	Sub-ID	ID encapsulated within a Template For example, Bill Number “01” is a sub-ID within Template Additional data with ID “62” Sub-ID is not present in the table if not applicable
3	Format	N = Numeric Ans = Alphanumeric Special S = String
4	Length	Two-digit numeric value Shall have a value "01" to "99".
5	Value	When applicable 2 values are given: Example value between quotes, like “example” Example of the QR payload consisting of ID, Length, Value. The QR payload example can be recognised by “QR:” followed by the actual payload. The value is presented in **bold**
6	Presence	Presence as defined for the Industry Standard MPM QR M = Mandatory C = Conditional O = Optional
7	Comments	Explanation of the data object

Table 6 Overview of conventions for format/length/value

6.1 QR Conventions

The QR Conventions are as described by EMV QRCPS.

6.1.1 QR Code Conventions Table

Name ID	ID	Format	Length	Value	Presence	Comments
Payload Format Indicator	“00”	N	“02”	“01” QR:000**01**	M	Version of QR code Template Shall be the first data object in the QR Code
Point of Initiation Method	“01”	N	“02”	“11” or “12” QR:0102**11**	O	11=static QR 12=dynamic QR
Cyclic Redundancy Check (CRC)	“63”	Ans	“04”	“007B” QR: 6304**007B**	M	Shall be the last data object in the QR Code

Table 7 QR Conventions

6.1.2 QR Code Conventions specifications

The QR code convention Rules follow the EMV QRCPS.

6.2 Merchant Account Information

The Merchant Account Information Template has specific requirements for the Industry Standard MPM QR requirements described in the specifications paragraph. It concerns the reservation of Template IDs. Chapter 7 further explains the use of fixed and dynamic IDs.

6.2.1 Merchant Account Information table

Name ID	ID	Format	Length	Value	Presence	Comments
Reserved for Visa	"02"-"03"	ans	var. up to "99"	Defined by payment systems	M	At least one Merchant Account Information data object shall be present for "02"-"47"
Reserved for Mastercard	"04"-"05"					
Reserved by EMVCo	"06"-"08"					
Reserved for Discover	"09"-"10"					
Reserved for Amex	"11"-"12"					
Reserved for JCB	"13"-"14"					
Reserved for UnionPay	"15"-"16"					
Reserved by EMVCo	"17"-"25"					
Reserved for Payment Systems	"26" – "47"					Used dynamically by Payment Systems
Reserved by AusPayNet	"48"-"51"					Reserved by AusPayNet for Future Use

Table 8 Merchant account Information

6.2.2 Merchant Account Information Specifications.

The Merchant Account Information identifies the Payee for a specific Payment System.

Payment Systems shall use the range "26"- "47" to define the format and value unique and specific to individual Payment System. Each Payment System shall take one Template ID.

Payees or Payee Institutions creating QR codes using the range "26"- "47" shall dynamically and sequentially set these IDs for the Payment Systems that a Payee accepts.
Trusted Apps should rely on the use of the Globally Unique Identifier to identify the Payment System, since the Template ID itself may be different for a different Payee.
The ID is not fixed to a specific Payment System. In case a QR contains multiple Merchant Information Account IDs, these shall follow each other in sequential order starting from "26", then "27" etc.

Since the QR Code is required to not contain data objects that are RFU, the mobile application must ignore RFU data object IDs "48"-"51" and data object values if present in the QR Code (see EMV QRCPS).

6.3 Globally Unique Identifier (GUI)

The GUI of the Merchant Account Information Template has no additional requirements for the Industry Standard MPM QR requirements described in the specifications paragraph.

6.3.1 Data Object ID Allocation in Merchant Account Information Template - table

The example of Template ID 30 is used.

Name ID	ID	Sub-ID	Format	Length	Value	Presence	Comments

Globally Unique Identifier	“30”	“00”	ans	var. up to "32"	Example: “au.com.test” QR: “0032**au.com.test**”	M	One of the following: AID UUID Reverse domain
Payment network specific	“30”	"01"-"99"	S	Var.	Example: “1234567890” QR: “0110**1234567890**”	O	Association of data objects to IDs and type of data object is specific to the Globally Unique Identifier.

Table 9 Merchant account information Template 26 - 47

6.3.2 Merchant Account Information Data Object ID Specifications

The Merchant Account Information Template ID “26” – “47” shall contain a sub-ID "00" to uniquely identify the payment system.

The value of this data object shall contain one of the following, as specified by EMV QRCPS:

- An Application Identifier (AID)
- A [UUID] without the hyphen (-) separators
- A reverse domain name

The Payment System may specify the data-objects “01” – “99” (that is the sub-IDs) with respect to the format, length, value and presence. The total size of data within a Template shall not exceed maximum allowed length of “99”characters. See Merchant Account Information

Globally Unique Identifiers are not case sensitive.

6.4 Additional Merchant Information

The Merchant Account Information Template has specific Industry Standard MPM QR requirements described in the table and specification paragraph. It concerns default values.

6.4.1 Additional Merchant Information table

Name ID	ID	Sub ID	Format	Length	Value	Presence	Comments
Merchant Category Code	"52"		N	“04”	Example: “0000” QR: “52040000”	M	Reference QRCPS Where not available populate with “0000”
Country Code	"58"		ans	"02"	Example: “AU” QR: “5802**AU**”	M	Reference QRCPS Default value “AU”
Merchant Name	"59"		ans	var. up to "25"	Example: “mystore” QR: “5907**mystore**”	M	The “doing business as” name for the merchant, recognisable to the Payer.
Merchant City	"60"		ans	var. up to "15"	Example: “Sydney” QR: “6006**Sydney**”	M	City of operations for the merchant.

Name ID	ID	Sub ID	Format	Length	Value	Presence	Comments
Postal Code	"61"		ans	var. up to "10"	Example: "2000" QR: "6104**2000**"	O	Zip code or Pin code or Postal code of the merchant.
Merchant Information—Language Template	"64"		S	var. up to "99"		O	Merchant Name and potentially other merchant related information in an alternate language, typically the local language.
Language Preference	"64"	"00"	ans	"02"	Example:"JA" QR: "0002**JA**"	M	Example to show in Japanese
Merchant Name—Alternate Language	"64"	"01"	S	var. up to "25"	Example: "良い飲食店" QR:"0105**良い飲食店**"	M	
Merchant City—Alternate Language	"64"	"02"	S	var. up to "25"		O	
RFU for EMVCo	"64"	"03"–"99"	S	var.			Data objects reserved for EMVCo

Table 10 Additional Merchant Information and Alternate language

6.5 Additional Merchant Information specification

The Industry Standard MPM QR has specific requirements for:

- If Merchant Category Code (ID "52") is not used within the context of a Payment System, then the value "0000" shall be used. If a Payment System supports MCC then the value shall not be "0000".
- The default value for Country Code "58" is AU. Other values are allowed and shall be conform the EMV QRCPS.
- The Merchant name ID "59" shall be presented to the Payer in the App.

6.6 Additional data objects

The Additional data objects has specific Industry Standard MPM QR requirements described in the specifications paragraph. It concerns the reservation of Template IDs.

6.6.1 Additional Data Template

Name ID	ID	Sub-[3]ID	Sub- ID	Format	Length	Value	Presence	Comments
Bill Number	"62"	"01"		ans	var. up to "25"	Example: "0123456" QR: "0107**0123456**"	O	Use *** to prompt Payer for input
Mobile Number	"62"	"02"		ans	var. up to "25 "	Example: "+316578399" QR: "0210**+316578399**"	O	Use *** to prompt Payer for input
Store Label	"62"	"03"		ans	var. up to "25"	Example: "merchantxStoreY" QR: "0314**merchantxStoreY**"	O	Use *** to prompt Payer for input
Loyalty Number	"62"	"04"		ans	var. up to "25"	Example: "***" QR: "0403***"	O	Use *** to prompt Payer for input

[3] The Additional Data Template has 2 layers of sub-IDs

Name ID	ID	Sub-[3]ID	Sub- ID	Format	Length	Value	Presence	Comments
Reference Label	"62"	"05"		ans	var. up to "25"	Example: "XYA019284834" QR: "0512XYA019284834"	O	Use *** to prompt Payer for input
Customer Label	"62"	"06"		ans	var. up to "25"	Example: "StudentID123" QR: "0612**StudentID123"**	O	Use *** to prompt Payer for input
Terminal Label	"62"	"07"		ans	var. up to "25"	Example: "01234567" QR: "0708**01234567**"	O	Use *** to prompt Payer for input
Purpose of Transaction	"62"	"08"		ans	var. up to "25"	Example: "International Data Package" QR: "0826**International Data Package**"	O	Use *** to prompt Payer for input
Additional Consumer Data Request	"62"	"09"		ans	var. up to "03"	Example: "AME" QR: "0903**AME**"	O	"A" = Address of the Payer • "M" = Mobile number of the Payer • "E" = Email address of the Payer
Merchant Tax ID	"62"	"10"		ans	var. up to "20"	Example: "999999999" QR: "1009**999999999**"	O	
Merchant Channel	"62"	"11"		ans	"03"	Example: "401" QR: "1103**401**"	O	See EMV QRCPS for complete set of allowed values • 4=Screen/Electronic - Merchant POS/POI • 0=At Merchant premises/registered address • 1=Unattended
RFU for EMVCo	"62"	"12"-"49"		S	var.		O	
Payment System specific templates.	"62"	"50"-"95"		S	var.		O	Used dynamically by Payment Systems
AusPayNet RFU		"96" – "99"		S	Var.		O	Reserved by AusPayNet for Future Use
Globally Unique Identifier			"00"	ans	var. up to "32"		M	
Payment System specific			"01"-"99"	S	var.		O	

Table 11 Additional data

6.6.2 Additional Data Template specifications

- Templates ID "96" – "99" are reserved by AusPayNet for future use. QR Code shall not contain data objects that are RFU.
- Within Additional Data Template "62", Payment Systems shall use the IDs "50" – "95" to define the format, value and presence specific to that the Payment System.
- Payment Systems shall not take more than one Template ID within Payment System Specific ID "50" – "95".

- Payment Systems should use the Payment System Specific Templates “50” – “95” taking into consideration that the length of the payment specific data objects is included into the total available characters of the Additional Data Template “62”.
- Payees creating QR codes using the range “50” – “95” shall dynamically and sequentially set the IDs for the Payment System that a Payee accepts.

6.7 Transaction value

The Transaction Value object ID are as described by EMV QRCPS. For currency a default value is assigned.

6.7.1 Transaction value table

Name ID	ID	Sub ID	Format	Length	Value	Presence	Comments
Transaction Currency	"53"		N	"03"	Example: “036” QR: “5303**036**”	M	Default “036” Australia Dollar (AUS) as specified in ISO 4217 (see EMV QRCPS) Other values allowed.
Transaction Amount	"54"		ans	var. up to "13"	Example: “10.50” QR: “5405**10.50**”	C	Absent if the mobile application is to prompt the Payer to enter the transaction amount. Present otherwise. Amount is excluding the tips.
Tip or Convenience Indicator	"55"		N	"02"	Example: “01” QR: “5502**01**”	O	If present allowed values are "01", "02" or "03 (see Tip or Convenience Indicator EMV QRCPS)
Value of Convenience Fee Fixed	"56"		ans	var. up to "13"	Example: Payer is prompted thus no TLV element in QR.	C	Presence of these data objects depends on the presence and value of the Tip or Convenience Indicator.
Value of Convenience Fee Percentage	"57"		ans	var. up to "05"	Example: “10.50” QR: “5705**10.50**”	C	Presence of these data objects depends on the presence and value of the Tip or Convenience Indicator.

Table 12 Transaction value

6.7.2 Transaction value specifications

As described by EMV QRCPS:

- For both the static and the dynamic QR, the amount should be presented by the Payee or be absent so that Payer is prompted to enter the amount
- The Payer QR application should not allow the Payer to alter the Transaction Amount ID “54”. If the Transaction Amount is altered, then the merchant would receive a different amount than expected
- The Payer QR application should use the currency code ID “53” read from the merchant QR Code for the transaction, and should not use any default currency code that may be present in the QR application

6.8 EMV QRCPS Unreserved Templates

The EMV QRCPS Unreserved Templates are Reserved for Payment Systems and AusPayNet.

6.8.1 AusPayNet Reserved Templates

Name ID	ID	Sub ID	Format	Length	Value	Presence	Comments
Unreserved Templates for Payment Systems	"80"-"95"		S	Each var. up to "99"		O	Used dynamically by Payment Systems
AusPayNet reserved	"96"-"99"		S	Each var. up to "99"		O	AusPayNet reserved
Globally Unique Identifier		"00"	ans	var. up to "32"		M	
Context Specific Data		"01"-"99"	S	var.		O	

Table 13 AusPayNet reserved templates

6.8.2 AusPayNet Reserved templates rules

- Templates ID “96” – “99” are reserved by AusPayNet for future use. QR Code shall not contain data objects that are RFU.
- Payment Systems shall use the IDs “80” – “95” to define the format, value and presence specific to that Payment System.
- Payment Systems shall not take more than one ID within Payment System Specific ID “80” – “95”.
- Payees or Payee Institutions creating QR codes using the range “80” – “95” shall dynamically and sequentially set the IDs for the Payment System that a Payee accepts.

7 Template Configuration Guideline

Individual Payment System should use the Guideline to configure the Templates.

The Guideline uses the EMV specifications as described in EMV® QR Code Specification for Payment Systems (EMV QRCPS) MPM Version 1.1 November 2020.

7.1 Template considerations

For the Global Schemes, the Template IDs are fixed as defined in the EMV QRCPS. For domestic Payment Systems the Template IDs are dynamic within a defined range. The dynamic Template IDs allow for direct use of the specifications without the need for a Payment System to register for a fixed ID.
Also, the Templates contain a range “Reserved for Future Use” which, for instance, could be issued as fixed ID’s to payment systems in case there is a future need for this’

#	Template	Comments
1	Merchant Account Information Templates ID’s “26” – “47”	Payment Systems should first use the Merchant Account Information Template to add the data objects required for the processing of the QR payment. Recommendations: • Specify the Globally Unique Identifier • Specify for each data object the ID and length/value/presence • Validate that the size of the payload does not exceed the allowed 99 characters for the template • Use only one Template ID within the range available • In case 99 characters is not sufficient use the Unreserved Template Range. • Avoid using data objects already provided by EMV QRCPS specifications. • Avoid creating data objects in the Template that might be used for future use. • All Payments Systems should strive to keep the length and number of data objects limited since Payee and Payee Institutions may generate QR’s that contain multiple Payment Systems. The overall QR size shall not exceed 512 characters. • For Trusted Apps it should be easy to identify the Payment Systems relevant Globally Unique Identifier and the related data objects. • The Template ID may be different per payment unless a Payment System has a specific Merchant Account Information ID reserved in the Industry Standard MPM QR. The Payment System should rely on the Globally Unique Identifier to uniquely identify itself.
2	Unreserved Templates ID "80"-"95"	Payment Systems can use the Unreserved Template range to define their own products. Recommendations: • Specify the Globally Unique Identifier • Specify for each data object the ID and length/value/presence • Validate that the size of the payload does not exceed the allowed 99 characters for the template • Use only one Template ID within the range available • Avoid using data objects already provided by EMV QRCPS specifications. • Avoid creating data objects in the Template that might be used for future use. • All Payments Systems should strive to keep the length and number of data objects limited since Payee and Payee Institutions may generate QR’s that contain multiple Payment Systems. The overall QR size shall not exceed 512 characters. • For Trusted Apps it should be easy to identify the Payment Systems relevant Globally Unique Identifier and the related data objects • The Template ID may be different per payment. The Payment System should rely on the Globally Unique Identifier to uniquely identify itself.
3	Additional Data Template ID “62” – subrange "50"-"95"	Payment System should first use the Merchant Account Information Template and the Unreserved Templates and avoid using the Additional Data Template subrange "50"-"95".

		Recommendations: • Specify the Globally Unique Identifier • Specify for each data object the ID and length/value/presence • Validate that the size of the payload does not exceed the allowed 99 characters for the template. Unlike the above mentioned Templates, the Additional Template 99 characters are not reserved for the Payment System. Merchants can add optional fields like Bill Number that might use the same Template 62. • Use only one Template ID within the range available • Avoid using data objects already provided by EMV QRCPS specifications. • Avoid creating data objects in the Template that might be used for future use. • All Payments Systems should strive to keep the length and number of data objects limited since Payee and Payee Institutions may generate QR's that contain multiple Payment Systems. The overall QR size shall not exceed 512 characters. • For Trusted Apps it should be easy to identify the Payment Systems relevant Globally Unique Identifier and the related data objects. • The Template ID may be different per payment. The Payment System should rely on the Globally Unique Identifier to uniquely identify itself.
4	Other data objects	Payments Systems should not change the length, format, or presence of other data objects outside the Templates. Specific Templates are reserved for the Payment Systems. For instance, data object Merchant Category Code (ID "52") shall remain mandatory even though it is not used by the Payment System (that is value "0000" shall be used).

Table 14 Guidelines on the use of Templates

8 Security and Privacy Guideline

Individual Payment Systems will have a set of requirements for their Payer and Payee Institutions concerning the security and privacy of data; this should include QR payments. Each Payment System should have controls in place to validate if their members/participants are compliant with these rules.

Payer Institutions (like Issuers, Banks) and Payee Institutions (like Acquires) are expected to comply with the requirements of the Payment System and to reflect these requirements in the respective agreements with their Payers and Payees.

#	Topic	Description
1	Quality of Merchant Data	• The Payment System should provide guidance, rules, or policies to ensure consistent use of Payer names, locations, and preferably merchant category code.
2	Use of Trusted App	• The Payment System should provide requirements to the Initiating Institution to use Trusted Apps. Trusted Apps are vetted by the App Store / Play Store, clearly recognisable to the Payer and Payee as App of the Payee Institution and should be the App scanning the MPM QR. • Use of the Trusted App (instead of the native camera) should be promoted to Payers and Payees. • The Trusted App should use the Industry Standard MPM QR code scheme. This QR code scheme does not contain any URL that can be used to link or route a Payer to another site or app.
3	Consistent User experience	The Payment System should provide requirements to the Payer Institution for consistent Payer Experience in the Trusted App: • The name of the Payee shall be shown to the Payer before the confirmation using a Payee name that is recognisable to the Payer. • The currency should always be shown to the Payer as a field closely related to the amount field. • The Payer should only be prompted for input in the App using the data objects specified in the Industry Standard MPM QR. • The logo(s) of the Trusted App, if known, may be added by the Payee Institution to the QR frame itself to increase Payer awareness of the supported Apps (see Branding Guidelines).
4	Personally Identifiable Information	• Payment Systems should provide guidance to prevent or minimise the risk to expose Personally Identifiable Information in the QR Payload. • Payment Systems should provide guidance, rules, or policies to control and manage the use of Personally Identifiable Information by the Payer Institutions and Payee Institutions.

Table 15 Guidelines on Security and Personally Identifiable Information

9 Branding Guideline

9.1 Branding of the Industry Standard MPM QR

The QR of the Industry Standard MPM QR should be easy to recognise and self-explanatory to the Payer. The Branding Guideline should be applied if the device or channel that is used to present the MPM QR to the Payer has the capability to present the requested data.

#	Data	Description
1	Payment Systems accepted by the Payee	• The Payer should be able to recognise all the individual Payment Systems that are supported by the Payee. • The official brand logos of the Payment System should be presented on the top of the frame of the QR (static and dynamic) and before the payment in case of dynamic QR. • In case of multiple Payment Systems, the order of the logos should be consistent with the way presented on other payment channels like POS or online. • The logo and logo names should be of equal size • The QR should not contain any logo of the Payment System inside the QR itself.
2	Payee Related Data	• The Payee Name should be visible on the QR frame and be consistent with the Payee Name shown in the App. • The Payee may present Additional Data on the QR frame like “Merchant City”, “Merchant ID” or “Terminal ID”. This data should reflect the QR Payload data.
3	QR related data	• Payees may add specific QR IDs on the frame of the QR for logistical reasons. • This data should preferably be not part of the QR payload data and only be for Payee to support the distribution and management of the QR itself. • Mostly applies to static QR
4	Payer related data (Instructions to the Payer)	• The frame of the QR should contain an actionable text like “scan to pay” • The QR frame may contain instructions to the Payer to explain how to pay.
5	Payee Institution Data	• The QR frame may contain the official logos of the Payee Institution providing Trusted Apps to promote and support the Trusted App.

Table 16 QR Branding: overview of Data visible on the QR (static and dynamic)

The Industry Standard MPM QR is not an acceptance brand and is not part of the QR branding. The EMV QR Payment Mark and QR Scan Icon are not mandatory to be used.

The Industry Standard MPM QR Template should be applied to static and dynamic QR:

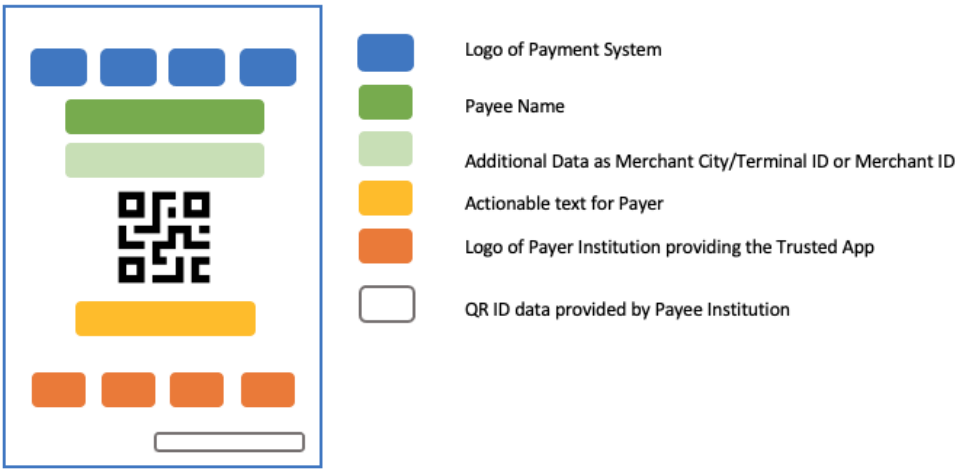

Figure 3 QR Template

9.2 Merchant QR Code Readability

EMV has provided some Guidelines and considerations that should be followed by Payment Systems. See "Merchant-Presented QR Guidance and Examples". A good readability of the QR has positive influence on the Payer acceptance and therefore Payment Systems should encourage the Payer Institutions and Payee Institutions to consider the following factors that improve readability:

- Payment System should prevent dense QR codes so that Trusted App can scan read QRs more easily. The Template Configuration Guidelines should be used by the Payment Systems to prevent QR codes with irrelevant and redundant data
- Test the QR readability with a wide range and representative set of devices. Initiating Institutions providing the App should consider such a test approach.
- For printed static QR the type of paper can influence the readability of the QR.
- For QR on digital displays the contrast ratio and resolution should be considered for readability.
- The angle the Payer can make to scan a QR is important to the readability as well. Payee should be encouraged to install the QR or the display in an optimal position for the Payer to scan the QR.
- Error level L is recommended.

10 Supplementary issues

The Industry Standard for MPM QR does not cover the supplementary points covered in this section

10.1 Refunds

Refunds are covered by the rules and regulations of the Payment Systems. Refunds are initiated by the Payee. The EMV QRCPS specifications have no specifications for refunds. The Industry Standard MPM QR specifications cover “payer-initiated transactions”.

10.1.1 Refunds without a physical card

The Payee should rely on the refund solutions already provided by the Payee Institutions.
The Payee can select the original transaction (linked refund) in a merchant portal or via an API integration. In online use-cases a refund is linked to the original transaction due to fraud and risk reasons however cards and account to account schemes do allow unlinked refund whereby the original transaction is not mandatory to provide (credit transfers). Some omnichannel merchants use the stored credential of the Payer to execute a refund in case of an instore refund.

10.1.2 Refunds instore to a physical card

In the case of card present or proximity refunds such as instore POS refunds, there may be a need to present the card used in the original transaction. In these cases, the Payer presents the physical card stored in the wallet. There may be use cases where the Payer does not hold a physical card (forgotten or a virtual card only) and cash return or credit transfer is not an option. The consumer presented QR code may offer an opportunity to retrieve the required card data if merchants have integrated a scanning device solution.

10.1.3 Industry Standard on refunds

If the Industry requires the Payee to create a Refund QR that can be scanned by the Payee the specifications should be created within the Industry Standard MPM QR. EMV QRCPS specifications do not provide a solution for this.

10.2 Short QR Considerations

The Industry Standard may provide additional features to the EMV QRCPS based QR scheme.

A short QR may be introduced by using a Payload Format Indicator that is specific to the Industry Standard. The EMV Payload Indicator starts with “01”. The Industry Standard may decide to use an additional Payload Indicator like for example 9x. This Payload Indicator should trigger the Short QR scheme.

The short QR may support:
Less dense QR by using a reference ID to payment in the QR payload instead of the actual payment details.

- The short QR is mostly for dynamic QR whereby a Payee uses a Payee Institution to create a payment ID for the QR payload. The App will scan the QR and send the payment ID to the Payer Institution (Issuer/Wallet provider). The Payer Institution will send a request to a Switch to receive the associated payment data from the Payee Institution that created the QR with payment ID on behalf of the Payee.
- New actors like a Switch need to be introduced and described. The Apps needs to support a “Identify” request that allow to receive payment data from a backend rather than sending it to the Initiating Institution (as is described in the current flows).
- The Payment System processing messages may be different.

Higher security

- The Switch as a central component allows for the management of the encryption (keys) of data.
- The Payee Institution may sign the dynamic QR during creation and add a specific hash to the QR payload.
- The security is enhanced by a backend-oriented architecture based on reference IDs not exposing any sensitive data in the QR payload.

Additional use cases

- The QR can be more easily shown on POS due to the limited size
- Personal Identifiable Data may be used more securely allowing for other use case normally not supported in EMV QR.
- Rich Loyalty use cases like point redemption (changing the amount)

The short QR should be considered an addition and not a replacement of the Industry Standard MPM QR.

10.3 QR density

The Guidelines for the Template Configuration contribute to a QR code with a lower density.

10.4 Loyalty

Use cases for Loyalty can be supported, such as points collection. The Payer may be prompted by the App to add the loyalty ID to allow the Payee to add points to a specific loyalty account. The actors in the MPM QR ecosystem are free to integrate with Loyalty Service Providers. The App could contain loyalty cards and add post payment point calculation and other push notifications to enrich user customer experience.

For richer use cases there could be a specific Template within the Unreserved Template range. The data objects could be Industry wide in case multiple Payment Systems require the same or similar data objects. A shared Loyalty Template may prevent duplication of data objects and may support a more consistent user experience. The shared Loyalty Template may support data objects that require Payer interaction to indicate the use of loyalty points or coupons.

10.5 Basket / SKU

The Unreserved Template could be used to add data objects referring to basket or line items. The Template may be a generic Template for checkout since line items could be decoupled from the payment method.

The limit of 99 characters including the TLV overhead might pose a restriction on the number of line items, even if a string with separators would be used. The Industry Standard MPM QR could add more clarity on this when the participating members decide to align on these use cases.

The short QR might also provide more options to support these cases.

10.6 Surcharging

Not covered in this standard.

10.7 ATM withdrawals

Not covered in this standard.