Visa R2P Bill Pay

BSP Functional Guide

Version 1.0

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1 Introduction

The purpose of this document is to provide an overview of Visa R2P and its ecosystem players and roles for Bill Pay services. This document will also serve as the user guide for the BSP to understand the functions of Visa R2P and to integrate the capabilities and features.

1.1 Document version

Version	Date	Updates
v1.0	26th June 2023	Final version

1.2 Audience

The audience for this document is business and technology teams of organizations that are interested in participating in Visa Request to Pay (R2P) solution:

- Biller Service Provider(s) (BSP) who directly integrate to Visa R2P
- Biller Service Provider Processor(s) (BSPP) who directly integrate to Visa R2P as technical service providers for Indirect BSPs
- Large Directly integrated Billers acting as their own BSP

Note:

- BSPPs can also act as their own BSP using the same technical integration
- Indirect BSPs will need to onboard to Visa R2P and VDP, however their technical integration will be via their BSPP (which is out of scope of this document)

1.3 Contact

Clients should contact their local Visa Representative for more information on the product.

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1.4 Key terms

Term	Definition
Alias	Unique Debtor Identifier used by Creditor to route Mandate and R2P Visa Messages registered in Visa R2P Platform by Debtor CSP. Alias supported are Mobile phone number and email address instead of their sensitive information such as bank account details.
Alias resolution	Alias resolution is the process to retrieve underlying details of the entity / person such as connected domain, account number etc. linked to the alias identifier shared by the user
ASPSP	Account Servicing Payment Service Providers (ASPSP) are fundamental to open banking. Encompassing banks, building societies and payments companies, ASPSPs provide and maintain financial accounts for their customers and Open Banking PISP transactions accountable for customer SCA and initiating funds transfer to the BSP/Biller recipient account based on instruction from CSP.
Biller	A business entity or a sole trader is requesting to pay a bill for providing products or services to its customer as a creditor
Biller Portal	Website / Portal where Billers submits bills to their respective Biller Service Providers.
Bill Presentment	The Bill presentment can be defined as the moment when the Bill is received by the Payer. It can be assumed that once created, the Bill is immediately sent and presented as there is no business need to delay this stage, even though for technical reason there could be a certain delay until the moment when it is made available to the Payer.
Bill Payment	Debtor or Consumer can select the payment option from the bill presentment and authorize the bill payment to the Creditor/ biller in the respective User interface i.e., mobile phone App or Web
Bill Payment User Interface	Mobile phone App or Website used by the Debtor / Consumer to Authorize the payment of bills presented.
BSP	Biller Service Provider provides R2P initiation, life-cycle management (LCM) and reconciliation services to Creditors.
BSPP	Biller Service Provider Processor, integrates to Visa R2P and processes/provides Visa R2P services to its BSP partners
Consumer	A consumer is a person or business, who consumed products and services from a biller, and is liable to pay for this upon Bill Pay request from a biller.
Creditor	The business who initiated R2P to their Debtor via BSP and is the ultimate recipient of payment from the Debtor through selected Settlement rail. Also referred to as Payee / Biller.
Creditor Agent	The Entity or Financial institution acting on behalf of (representing) the creditor with the A2A CC&S or core bill pay processing platform and receiving funds. In this document referred to as BSP.

Term	Definition
Credit Transfer	Non Realtime electronic payment service for sending and receiving payments supported by Visa R2P as DSS: ▪ ACCS in Canada ▪ SEPA in Finland ▪ BACS in UK
CSP	Consumer Service Provider, integrates to Visa R2P and provides R2P services to Debtors and Initiates payment through relevant settlement rail
CSPP	Consumer Service Provider Processor, integrates to Visa R2P and processes/provides Visa R2P services to its CSP partners
Debtor	Responds to R2P and (if approved) initiates a payment to Creditor using CSP user interface also referred to as Payer and Consumer
Debtor Agent	The Entity or Financial institution acting on behalf of (representing) the debtor with the A2A CC&S or core bill pay processing platform and paying funds. In this document referred to as CSP
Direct BSP	BSP that has direct technical integration to Visa R2P Platform.
Direct CSP	CSP that has direct technical integration to Visa R2P Platform.
DSS	Designated Settlement System are the funds transfer rails supported by the country scheme, Participant, Creditor or Debtor (e.g., Real time Payments, Credit Transfer or Cards)
Indirect BSP	Indirect BSP are the BSPs that use technical service provide (BSPP) to integrate into Visa R2P Platform.
Indirect CSP	Indirect CSP are the CSPs that use technical service provide (CSPP) to integrate into Visa R2P Platform.
Mandate	A mandate is link between the Creditor and the Debtor to allow the Creditor to issue Visa Request to Pay messages to the Debtor via secure unique reference id as a trusted Creditor.
Open Banking	Open banking is the practice of enabling secure interoperability in the banking industry by allowing third-party payment service and other financial service providers to initiate RTP transactions from banks and financial institutions. Open banking payments (PISP) can be initiated directly by CSP via TPP to Funding Bank (ASPSP).
Payment Initiation	The payment initiation is the process where a Payment instruction is generated and submitted to the Payment rail for processing based on Payer's approval. Even though not part of the RTP life cycle itself, is included to illustrate the close link it has with the RTP, as it uses payment data from the RTP and performed upon the Payer's action
Payment Notification	The payment notification is the process where the Payer's service provider (Debtor Agent/CSP) notifies the Payee's service provider (Creditor Agent/BSP) that Payment instruction has been executed.
Participant	A CSP, CSPP, BSP or BSPP
Payee	Refer to Creditor
Payer	Refer to Debtor

Term	Definition
PISP	A CSP acting as Payment Initiation Service Provider (PISP) provides an online service to initiate a payment at the request of the payment service user (Debtor) with respect to a payment account held at the Debtor's payment service provider (ASPSP). A PISP would need an explicit consent of the payment service user (Debtor) to provide this service. Originators (CSP) may make use of a PISP to initiate a SEPA Credit Transfer or Credit Int transaction.
Production (Prod)	Visa R2P Production environment is a live platform that allows Participants to integrate and interact with Live Participants using Visa R2P APIs.
Request to Pay (R2P)	A Request to pay is a digital request from a Creditor to Debtor with summary data of a bill or invoice including amount due and payment options.
RTP	A Request to pay is a digital request from a Creditor to Debtor with summary data of a bill or invoice including amount due and payment options.
Request for Extension	Payer requests for an extension of Due date for an R2P which needs to be approved by Payee
Sandbox (SBX)	An isolated Visa R2P environment with Production functionality that allows Participants to integrate, and self-test APIs against Visa Simulated counter parties and be accredited for production promotion.
Settlement	Settlement refers to the final and irrevocable discharge of an obligation of one bank in favor of another bank, in central bank money.
Visa Developer Platform (VDP)	Visa Developer Platform is a Gateway Service providing access to Visa R2P APIs and Crypto Services including mutual level encryption key (MLE) management. Also provide the access to technical documentation including functional guide, API spec, implementation guide, XSDs. **Note**: Currently restricted access to whitelisted clients
Visa R2P	A Request to Pay platform offer by Visa
Visa Client Support team (Visa CS Team)	Provides onboarding project support to Participants
Visa on-line (VOL)	Portal for registration of Participant administrators and system users to enable secure access to VDP and Visa R2P Participant Portal
Web Service Integration (WSI)	Web Service Integration is a Visa Gateway Service enabling Visa R2P initiating APIs outbound to Visa Participant onboarded endpoints.

1.5 Related Publications

- Visa R2P Bill Pay Service Description and Implementation Guide
- BSP API Specification Document
- BSP XML Deep Dive Overview
- BSP XSDs
- BSP Sample XMLs
- Creditor UX Guidelines

Note: all the latest publications will be available by market representative as the product is currently under restricted access for general availability.

2 Visa R2P Overview

Visa's R2P Service enables the end-to-end bill payment journey for stakeholders smoothly, effectively, and securely via an active-active ISO20022 base platform. Full suite of microservice APIs facilitates Participants creating Debtor and Creditor interfaces with minimal backend build.

A Creditor through their BSP, can link up with Debtors through their CSP and request their authorization to present bills. The Creditor subsequently initiates the bills as Visa R2P messages and CSP presents the bill to the Debtor through their preferred channel.

Debtors have a range of options to respond to Creditor requests including pay now, schedule the payment later, request for an extension of the due date and pay in full or partial via supported settlement rails subjected to Creditor configurations. Creditor receives confirmation of any changes during the R2P lifecycle and on debtor payment receives the underlying clearing and settlement reference id for end-to-end reconciliation.

Visa R2P API suite supports full life cycle management (LCM) of linking mandates and request to pay transactions including search Mandate list, search previous R2P requests, view R2P status updates and Cancel or Decline R2Ps. Participant also have access to secure portal to daily reconciliation reports and Mandate and R2P transaction details to support customer enquiries and reconciliation investigations.

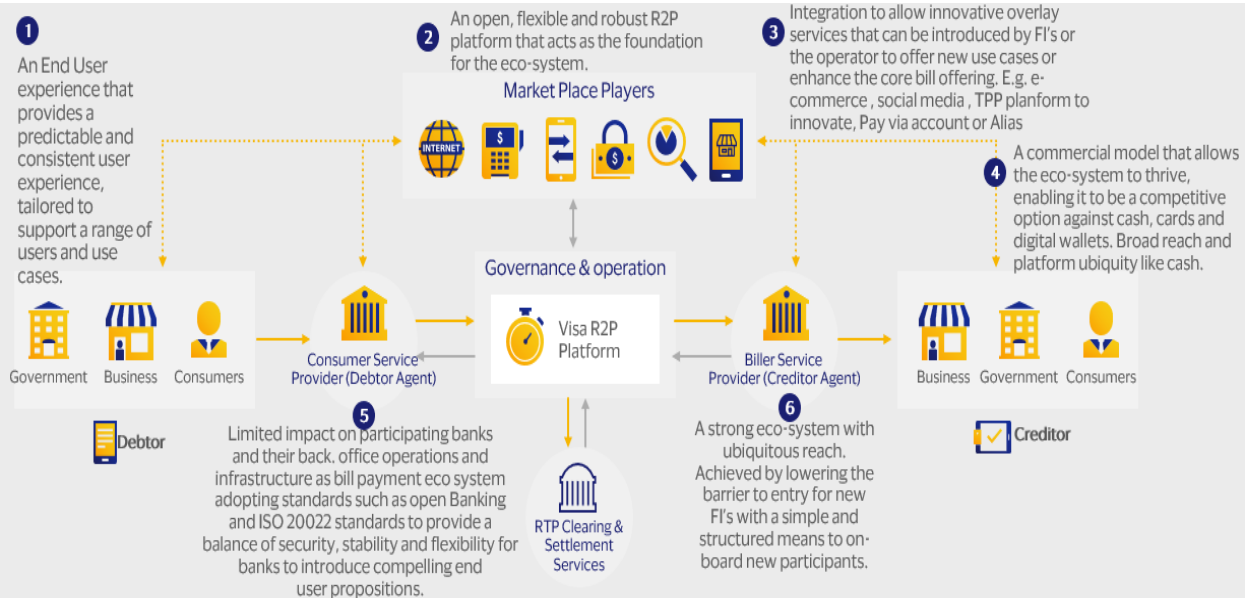

Diagram 1: Visa R2P Platform – The payment engine of the future

2.1 How Visa R2P works

Visa R2P is a messaging functionality that enables communication between a Creditor and a Debtor via BSP and CSP. Creditor can send messages to ask for payment, and debtor will be able to retrieve the payment request for a bill and decide to approve or decline the request.

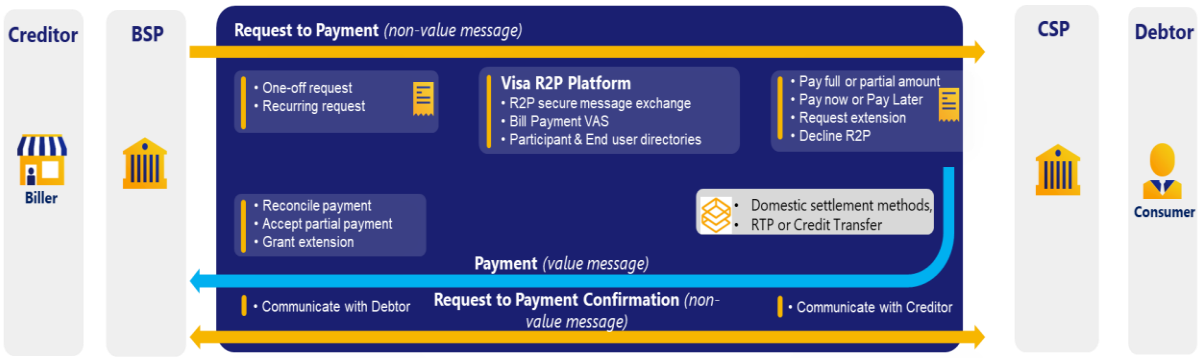

Diagram 2: What is Request to Pay (R2P) - Bill Pay Use case

If Debtor decides to pay, then CSP initiates the payment via DSS outside the Visa R2P platform. CSP then initiates Visa R2P confirmation along with DSS payment reference for reconciliation purpose.

2.2 Actors

Visa R2P follows four-party model, there are several types of actors involved in the R2P user journey, they are:

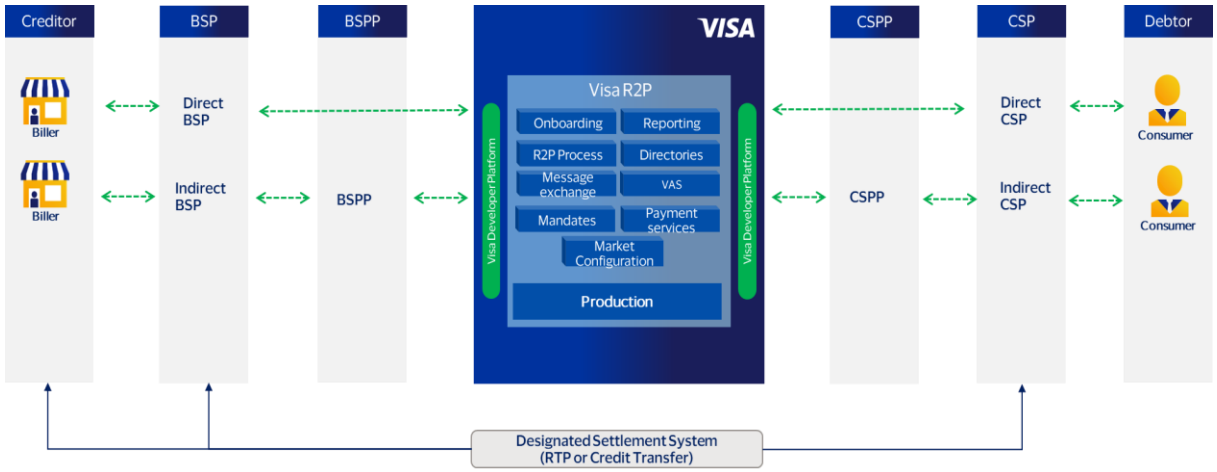

Diagram 3: Visa R2P – Four party model

- **BSP:** Biller Service Provider provides R2P initiation, life-cycle management (LCM) and reconciliation services to Creditors. It can connect either directly to Visa R2P or via BSPP.
- **BSPP:** Biller Service Provider Processor, integrates to Visa R2P and processes/provides Visa R2P services to its BSP partners.
- **Creditor:** The business who initiated R2P to their Debtor via BSP and is the ultimate recipient of payment from the Debtor through selected Settlement rail.

- **CSP:** Consumer Service Provider provides R2P services to Debtors and Initiates payment through relevant settlement rails. It can connect either directly to Visa R2P or via CSPP.
- **CSPP:** Consumer Service Provider Processor, integrates to Visa R2P and processes/provides R2P services to its CSP partners.
- **Debtor:** Responds to R2P and (if approved) initiates a payment to Creditor using CSP user interface.
- **Visa Request to Pay Platform** – Visa platform that connects different Service Providers and manages the lifecycle of the Request to Pay.
- **DSS Payment Initiation Service:** Realtime or Credit Transfer payment service for sending and receiving payments.

2.3 Use cases

Visa R2P currently enables two flavors of R2P use cases described below:

R2P solutions of options to address different creditor segment and debtor segments need

Use Case	Creditor	Debtor	Visa Solutions Options
Mandate R2P	Utility Companies, Subscription Services, Service Providers who provides recuring services to a Debtor based on Visa R2P Mandate	▪ Automatically receive R2Ps from a secure known Creditor. ▪ Controls payment timing from DSS and Amount in line with Creditor Configurations	▪ Debtor authorizes Creditor Mandate to receive Regular R2Ps ▪ Creditor submits Mandate Linked R2P and Debtor is notified. ▪ Debtor view R2P and decide to pay
Debtor Alias based R2P	Small business - One off or infrequent Service provider (e.g., Jon the Plumber)	▪ R2Ps received based on Debtor passing Alias to new Creditor. ▪ Controls payment timing from DSS and Amount in line with Creditor Configurations	▪ Creditor submits R2P with Debtor Alias, and Debtor is notified the new R2P. ▪ Debtor view R2P and decide to pay

2.4 Eco-system diagram

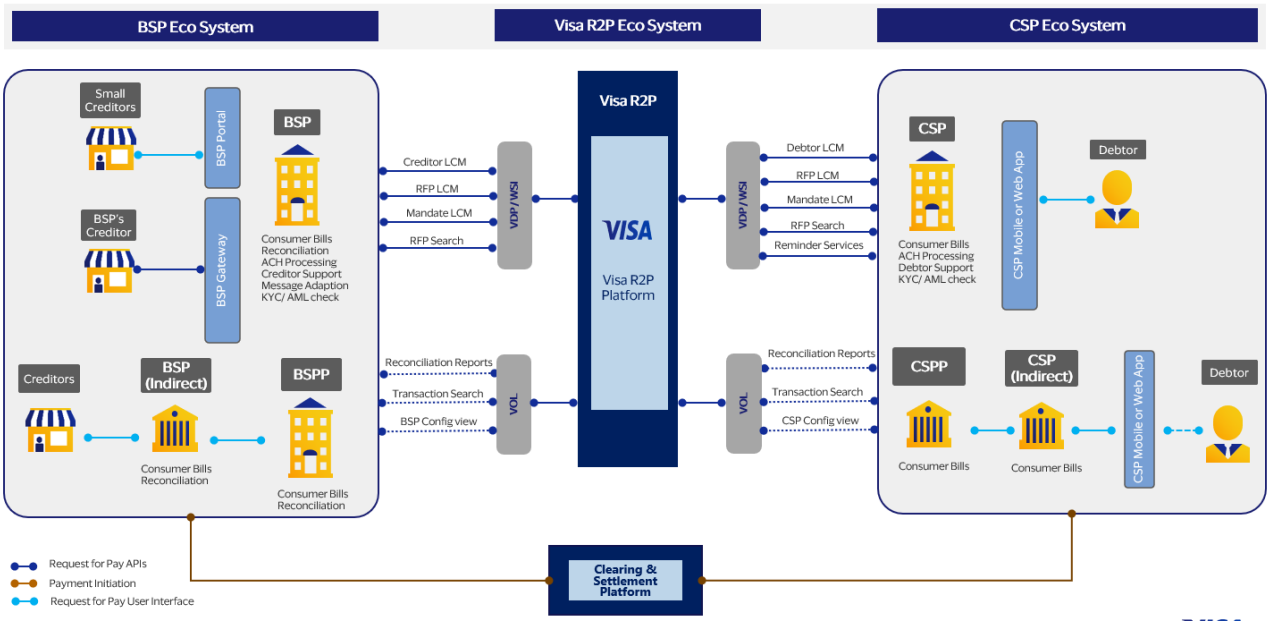

Diagram 4: Visa R2P – Eco system diagram

3 Onboarding onto Visa R2P

The BSP is first onboarded onto Visa R2P so they can connect to Visa R2P via VDP and access the available features. Onboarding is initially into Visa R2P sandbox and following accreditation transitioned to Production. The Visa Client Support team assists BSPs during the entire onboarding process with dedicated onboarding / implementation manager to support with any queries.

3.1 BSP onboarding

BSPs are required to be onboarded onto Visa R2P as per one or more of the defined roles (e.g., Biller Service Provider) for them to subscribe to their corresponding features.

Please refer below diagram for Visa R2P platform onboarding & Visa Developer Portal (VDP) onboarding:

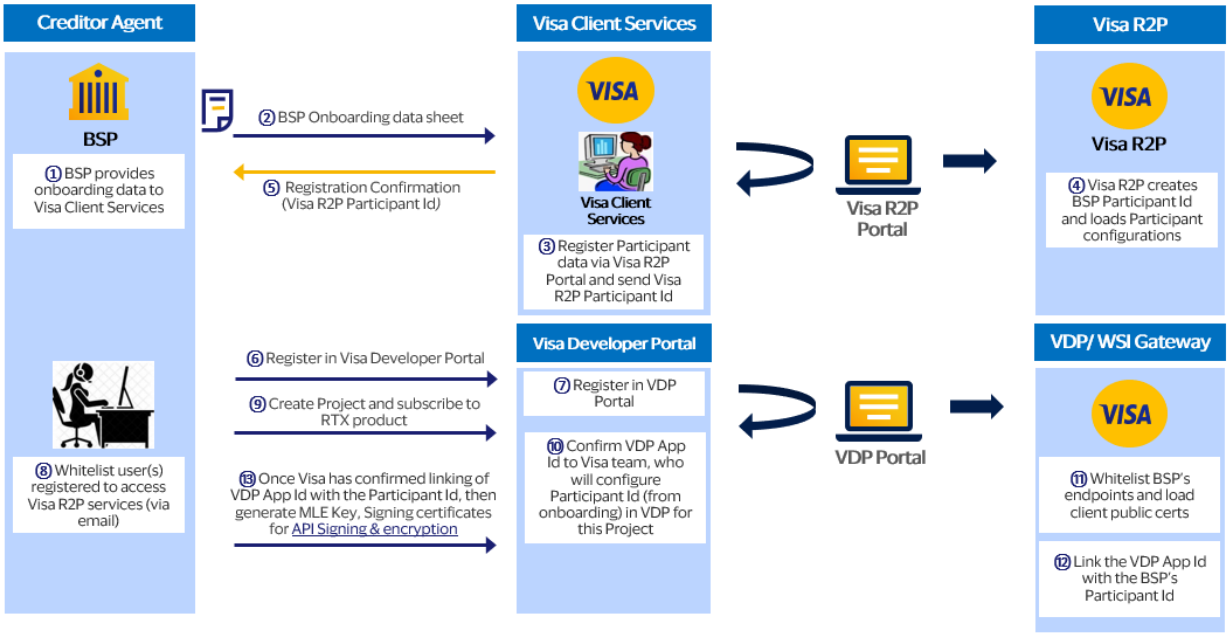

Diagram 5: Visa R2P – Participant onboarding

3.1.1 Visa R2P Platform Onboarding

BSP reference data and specific configurations (including subscribed features/APIs and associated end points) will be collected by the Visa Client Services team and onboarded onto the Visa R2P through the Operator Portal.

Please find the attached Onboarding sheet below:

BSP%20Participant%20onboarding_17Feb2:

Visa Client Service team validates the onboarding sheet manually and lets the Participant know for any missing information. Visa Client Service team then onboards the Participant data into Visa R2P Platform and shares the Visa Participant ID via secured PGP email.

3.1.2 Visa Developer Portal onboarding

To enable the services via Visa R2P, BSPs are required to be registered in the VDP if not already done.

VDP is Visa's gateway for clients to utilize application program services (APIs) provided by various Visa applications. VDP allows clients to review the API specs for products and services offered by Visa, develop and test against the sandbox environment for these applications, get accredited and promoted to production.

Please refer to *Visa R2P - Bill Pay Service Description and Implementation Guide* and *https://developer.Visa.com* for further information on API connectivity and testing with VDP.

3.2 BSP roles

Following table describes the participant role as BSP and Visa R2P onboarding:

Participant Model	Participant role	Processor role	Visa R2P entity onboarding	Visa R2P Technical onboarding	VDP Project onboarding
BSP Direct	BSP	N/A	BSP role	BSP receiving endpoints & public certs	BSP VDP App id BSP MLE key
BSP Indirect	BSP	BSPP *(not currently developed as technical role by Visa R2P)*	BSP role	Option 1 – reuse BSPP public certs & BSP receiving endpoints Option 2 – create alternative BSPP endpoints for Indirect BSP	BSP VDP App id BSP MLE key

Following table describes the participant role vs API entity id:

Participant Model	Participant role	Processor role	BAH	Payload Group header	Payload Transaction
BSP Direct	BSP	N/A	To/From Id = BSP Participant Id	Initiating Party Id = BSP Participant Id	Debtor Agent Id = BSP Participant Id
BSP Indirect	BSP	BSPP *(not currently developed as technical role by Visa R2P)*	To/From Id = BSP Participant Id	Initiating Party Id = BSP Participant Id	Debtor Agent Id = BSP Participant Id

4 Creditor Life cycle management

Creditors/Billers are the end users of the ecosystem who will request payment of their bills or subscriptions for products or services provided. Creditors can be onboarded by its BSP. The responsibility for KYC and AML checks on their Creditors/Billers remain with BSP.

The enrollment and amendment of billers is done in real-time through API's exposed by Visa R2P to the BSP for direct integration.

Validation of key business rules are performed on the submission of these enrolment and amendment requests and validation failures are notified immediately to avoid the delay.

4.1 Feature variances

The BSP enrolls Creditors onto Visa R2P and manage their lifecycle. The life-cycle management of the Creditor is done in real-time through following API's exposed by Visa R2P to the BSP. Validation of key business rules is performed on the submission of the requests. Any validation failures are notified immediately with respective error code details

Debtor LCM	API - Business Service Name	Originator	Receiver
Creditor Enrolment	MerchantEnrolmentRequest	BSP	Visa R2P
	MerchantEnrolmentResponse	Visa R2P	BSP
Creditor Amendment	MerchantAmendmentRequest	BSP	Visa R2P
	MerchantAmendmentResponse	Visa R2P	BSP

4.2 State Transition Model

Visa R2P maintains Creditor states based on their lifecycle APIs request as illustrated below:

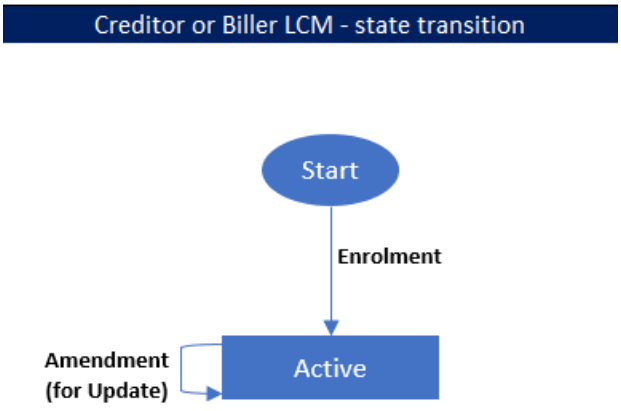

Diagram 6: Creditor LCM – State transition model

4.3 Creditor Enrolment

Creditors can be enrolled by BSP (Creditor Agent). XML APIs are exposed to the BSPs for direct integration. Visa R2P Creditor Id need to be stored for future Mandate and R2Ps.

Validation of key business rules is performed on the submission of the requests. Any validation failures are notified immediately to avoid the delay in enrolment process.

4.3.1 Creditor enrolled via BSP portal or website

Steps below highlight typical opt-in flow for Creditor enrolment via BSP portal:

1. Creditor login into BSP portal
2. Navigate to Bill Manager or Bill Management section
3. Or use new R2P promotional message
4. Creditor can read about R2P service explanation
5. Creditor proceed to enroll for Visa R2P bill pay services
6. Creditor read the terms and conditions and accept to proceed with enrollment
7. BSP initiates Creditor enrolment API to Visa R2P, and with validated Creditor details and BSP unique Creditor Id
8. On receive of successful Creditor enrolment API response as accepted, and UI updated with Creditor successfully enrolled into Visa R2P bill pay services

4.3.2 Creditor enrolment flow

The below diagram describes the enrolment flow for the Creditor to Visa R2P using the *MerchantEnrolmentRequest* API.

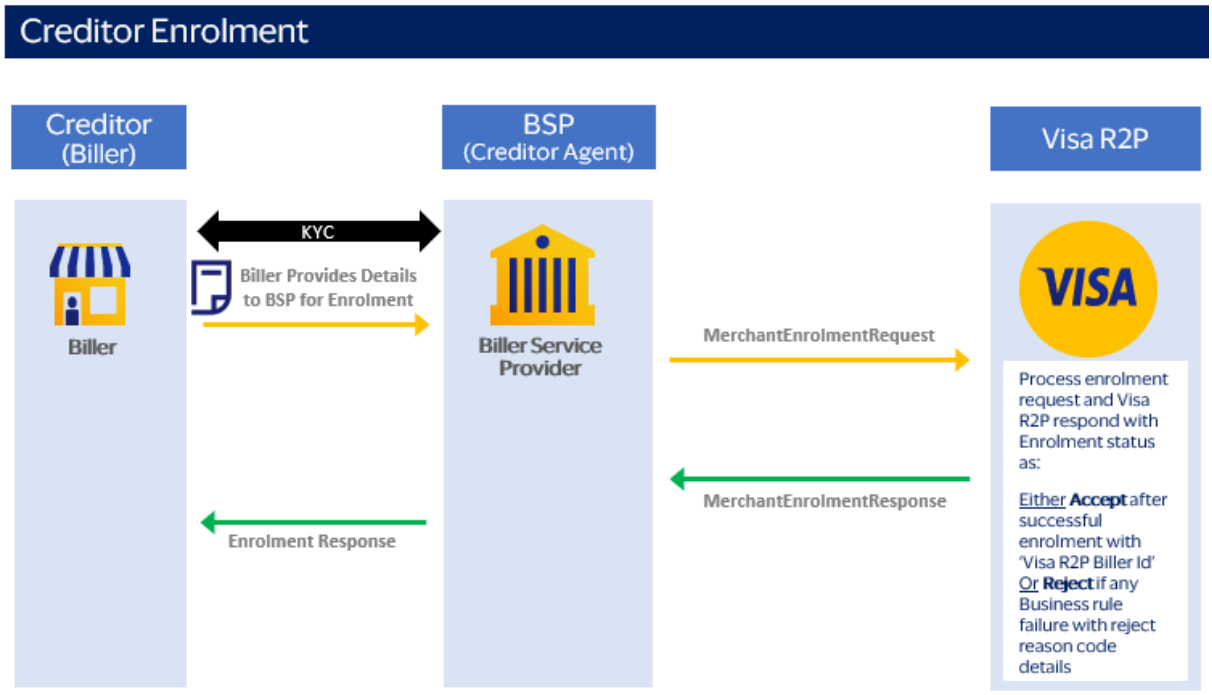

Diagram 7: Creditor enrolment flow

4.4 Creditor Amendment

Creditor can amend their profile data including account details or DSS via BSP. Merchant Amendment API will be exposed to the BSPs for direct integration. BSP can amend Creditor who are already enrolled with Visa R2P and in active status.

The below diagram describes the flow for amendment of the Creditor already participating in Visa R2P using the *MerchantAmendmentRequest* API. Once approved in the platform the changes are effective immediately.

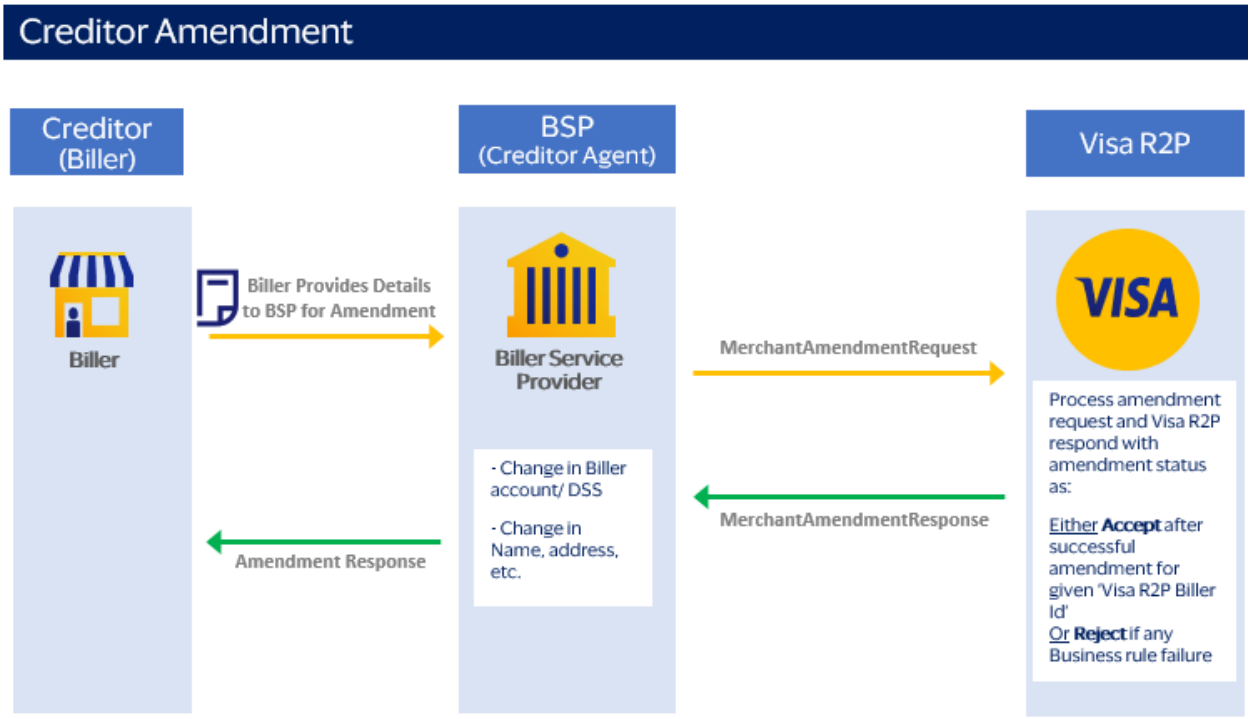

Diagram 8: Creditor amendment flow

Merchant Amendment Request API is a full snapshot of Creditor details after updates. Please refer to API Specification document for more details about amend parameters.

5 Mandate Management

A mandate is link between the Creditor and the Debtor to allow the Creditor to issue Visa Request to Pay messages to the Debtor via secure unique reference id as a trusted Creditor.

Creditors initiate mandates to Debtors based on Alias (e.g., mobile number or email address) via the BSP. BSPs use the API's exposed by Visa R2P to support the mandate initiation and CSP confirmation. Upon submission of the mandate, Visa R2P creates a unique Mandate Reference Id and processes and routes the mandate to the respective CSP for the Debtor.

The mandate request is presented to the Debtor by the CSP's Consumer app/UI interface. The Debtor is then expected to accept or reject the mandate. Upon acceptance or rejection of the mandate request, the CSP communicates this to Visa R2P via the Mandate Confirmation API; Visa R2P then provides the mandate confirmation to the BSP.

Once a mandate is active, Creditor send related R2Ps to the debtor using the unique Mandate Reference Id instead of using any debtor alias.

5.1 Feature variances

The Mandate Management feature supports the below services:

- Initiate Mandate by the Creditor to Debtor
- Confirm Mandate by Debtor to Creditor
- Mandate suspension by Debtor to Creditor
    - Suspension blocks Creditor to send R2P message as trusted Creditor using the Mandate Id or requesting new mandate to the same Debtor
    - Note – Creditor can still send R2P message using Debtor alias as an untrusted Creditor

Mandate LCM	API - Business Service Name	Originator	Receiver
Mandate initiation from BSP	MandateInitiationReqFrBSP	BSP	Visa R2P
	MandateInitiationRespToBSP	Visa R2P	BSP
Mandate confirmation to BSP	MandateInitiationConfToBSP	Visa R2P	BSP
	MandateInitiationConfRespFrBSP	BSP	Visa R2P
Mandate suspension to BSP	MandateSuspensionReqToBSP	Visa R2P	BSP
	MandateSuspensionRespFrBSP	BSP	Visa R2P

5.2 State Transition Model

Visa R2P maintains mandate states based on triggered mandate lifecycle APIs as illustrated below.

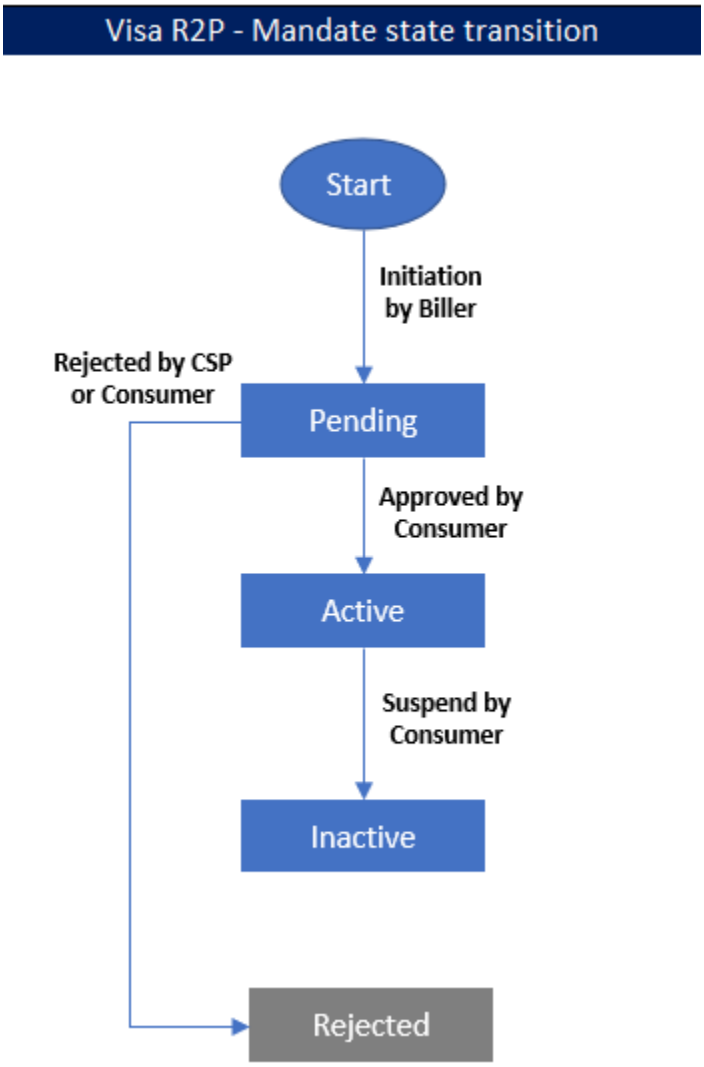

Diagram 9: Mandate LCM – state transition model

5.3 Initiate Mandate by Creditor to Debtor

Creditor can initiate Mandates to their corresponding Debtor based on their alias (e.g., Mobile number or E-mail Address). The mandate initiation request includes basic details such as the Biller, BSP, Consumer, CSP and a Mandate unique id. Refer to the *API Specification document* for further details. Note – this is open ended mandate without any expiry or payment schedule.

Upon submission of a mandate by BSP, Visa R2P process the mandate request and create a new unique Visa R2P Mandate Id and send to BSP in the mandate initiation response message and

routes the mandate request to the respective CSP for a Debtor. The mandate request is notified to the Debtor by the relevant channel e.g., Push Notification, Text, email etc.

The CSP either can accept or decline the message with below options:

- **Accept** – with pre-consent from Debtor (e.g., Debtor has accepted all mandate arrangement with the CSP or central directory). Visa R2P will send Mandate confirmation notification to BSP
- **Accept with Confirm later** – providing response later i.e., after confirmation with Debtor
- **Reject** – with reason code and reason description, e.g., Debtor account relationship closed. Mandate will be moved to the terminal state. Visa R2P will send Mandate confirmation notification to BSP

The below diagram describes the flow for mandate initiation by the Creditor to the Debtor through Visa R2P:

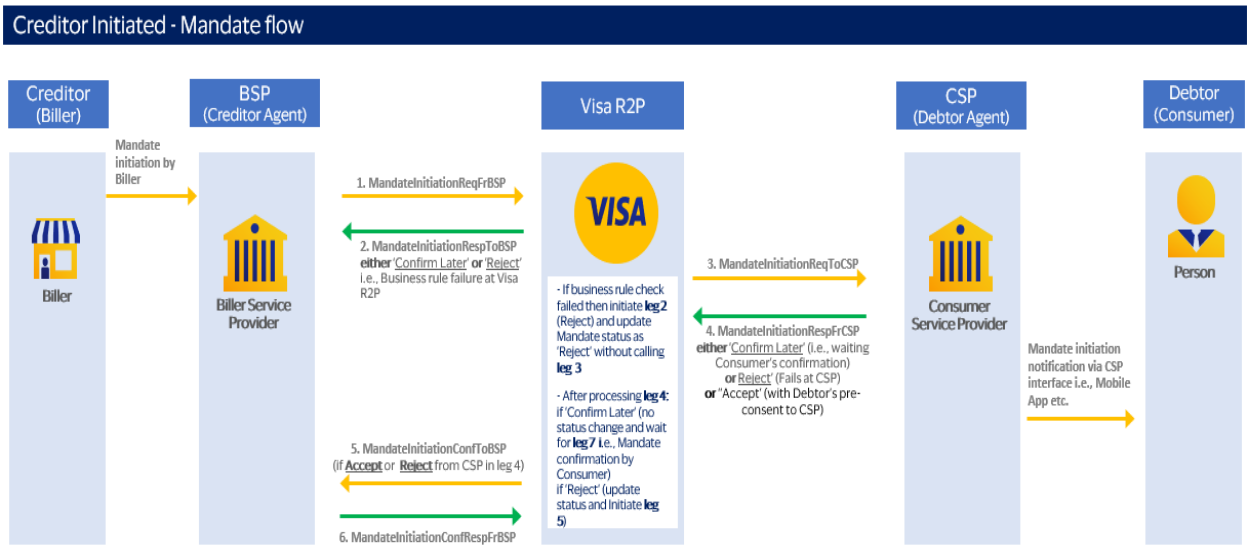

Diagram 10: Creditor initiated mandate flow

5.4 Mandate Confirmation by Debtor

If CSP has responded "Confirm later" in the initial Mandate request flow and notify to the Debtor that the mandate is awaiting approval. After Debtor's confirmation CSP sends Mandate confirmation to Visa R2P. Visa R2P will update the mandate status and notify confirmation to the BSP.

The below diagram describes the flow for mandate confirmation flow by the Debtor to the Creditor through Visa R2P:

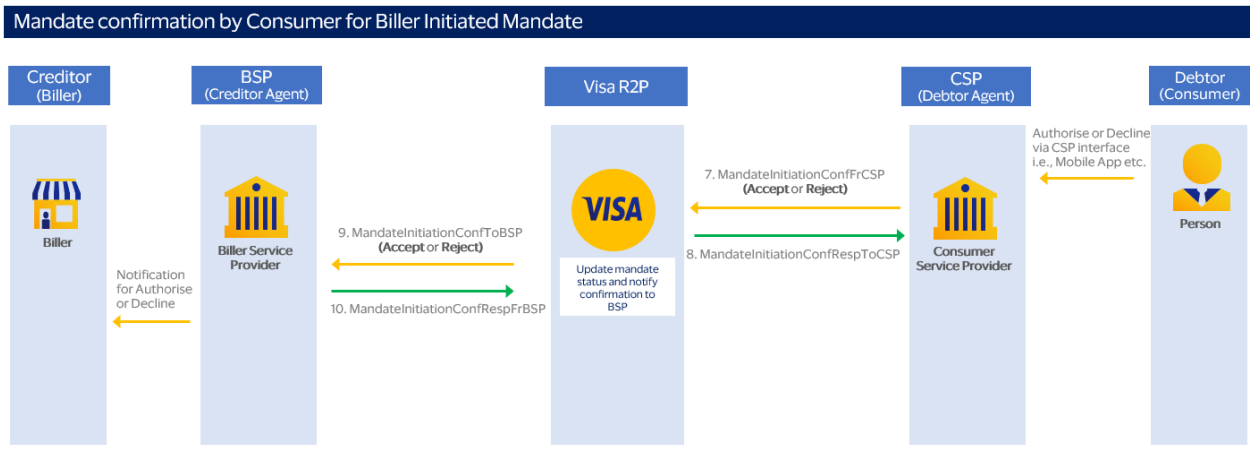

Diagram 11: Mandate confirmation flow

5.5 Mandate Suspension by Debtor

Debtor can suspend their existing agreement with a Creditor anytime for various reasons. This service will enable the Debtor to suspend a mandate and after successful suspension any subsequent request for payment by the Creditor with reference to this mandate will be rejected by the Visa R2P platform.

The suspension request from the Debtor will be notified to the Creditor, so that they can take appropriate action regarding future bill presentments.

- Any new linked R2P messages initiated under the mandate from the Creditor to the Debtor via Visa R2P will be 'Rejected'.
- Any existing R2P message initiated prior to mandate suspension will remain 'Active'. Based on the reason of suspension the CSP may choose to update the individual 'Active' R2P transaction.
- Once suspended, Mandate cannot be unsuspended.
- Any new mandate request from same Creditor to same Debtor will be rejected
- R2P based on Debtor alias can be send from the same Creditor to same Debtor

The below diagram describes the flow when a CSP suspend the mandate on behalf of the Debtor. Once approved in Visa R2P, the changes become effective immediately.

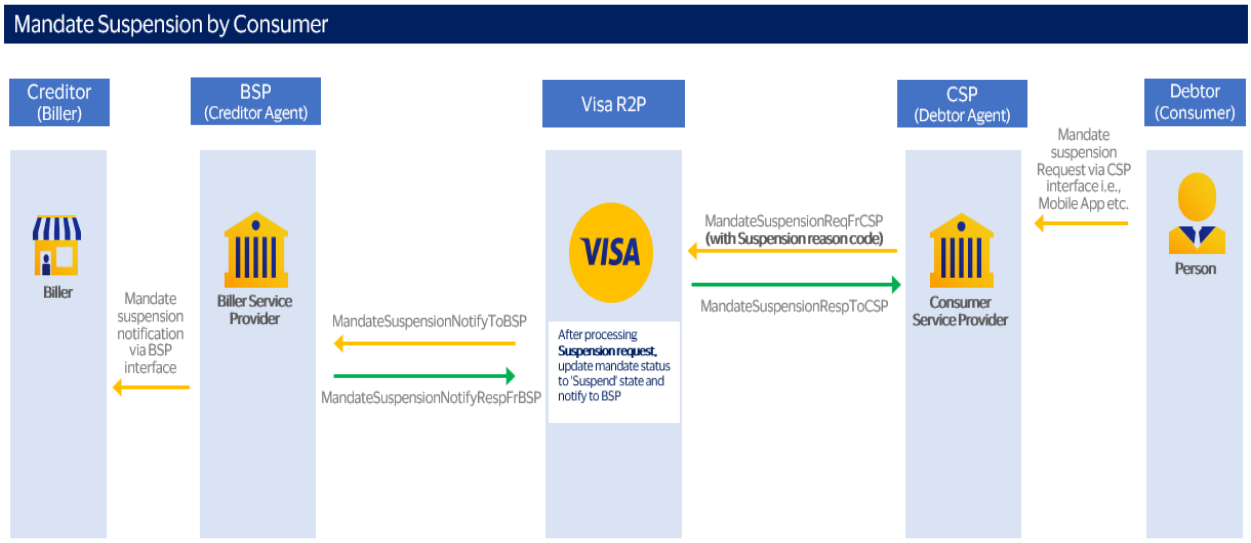

Diagram 12: Mandate suspension flow

6 Request to pay

Request to Pay message is a payment request from the Creditor to the Debtor with information such as the amount requested for payment, due date and reference information required by the Creditor for effective reconciliation purposes.

The BSP sends R2P message through Visa R2P platform to the CSP for delivery to the Debtor. A R2P message can be linked

- to an authorized mandate – uniquely linking BSP and Creditor to CSP and Debtor
- or Debtor alias (e.g., email or mobile), Visa R2P platform resolves the alias in-flight to identify the associated CSP and Debtor. If alias is not registered, then the R2P is declined by Visa R2P.

Visa R2P forwards the message to the CSP who notifies the Debtor. The Debtor subsequently responses to the R2P message with the following options:

- R2P Confirmation
  - Accept and pay now full amount
  - Accept and pay now partial amount (subject to feature support by the Creditor)
  - Decline
  - Accept and pay later i.e., with expected amount and payment date either on 'Due date' or 'Given date' (R2P remains active with pending R2P settlement)
- R2P Settlement (for Pay Later R2P confirmation)
  - Accept and pay full amount
  - Accept and pay partial amount (subject to feature support by the Creditor)
  - Decline
- Update R2P (prior to R2P confirmation)
  - Request extension of the payment due date
  - Request change to R2P Bill Amount
  - Creditor can either accept (R2P will be updated with the revised date or amount) or decline (R2P will remain active with original date and amount)

To support R2P message handling and processing, Visa R2P provides following additional functions:

- View R2P List from BSP – with defined searchable parameters e.g., date range, R2P status and Debtor
- Cancel R2P from BSP in circumstances where associated Creditor bill has moved to terminal state via alternate channel (e.g., Declined, Paid, Cancelled, Bill Update, Duplicate or Disputed) and R2P is no longer valid

Visa R2P is payment type agnostic including RTP, Credit Transfer and CSP initiated Open Banking.

6.1 Feature variances

To support R2P message handling and processing by the Creditor, Visa R2P provides the BSP with R2P following functions:

R2P LCM	API - Business Service Name	Originator	Receiver
Initiate R2P by the Creditor to Debtor	InitiateLinkedRFPReqFrBSP	BSP	Visa R2P
	InitiateLinkedRFPRespToBSP	Visa R2P	BSP
R2P Confirmation from Debtor	RFPConfirmationToBSP	Visa R2P	BSP
	RFPConfirmationRespFrBSP	BSP	Visa R2P
Settlement Confirmation from Debtor	SttlmConfirmationToBSP	Visa R2P	BSP
	SttlmConfirmationRespFrBSP	BSP	Visa R2P
Update R2P by the Debtor	UpdateRFPReqToBSP	Visa R2P	BSP
	UpdateRFPRespFrBSP	BSP	Visa R2P
Update R2P Confirmation from Creditor	UpdateRFPConfFrBSP	BSP	Visa R2P
	UpdateRFPConfRespToBSP	Visa R2P	BSP
View R2P List from BSP	RFPListReqFrBSP	BSP	Visa R2P
	RFPListRespToBSP	Visa R2P	BSP
Cancel R2P by Creditor to Debtor	CancelRFPReqFrBSP	BSP	Visa R2P
	CancelRFPRespToBSP	Visa R2P	BSP

Please refer to the BSP *API Specification document* for more details on these APIs.

6.2 State Transition Model

Visa R2P state life cycle as illustrated below:

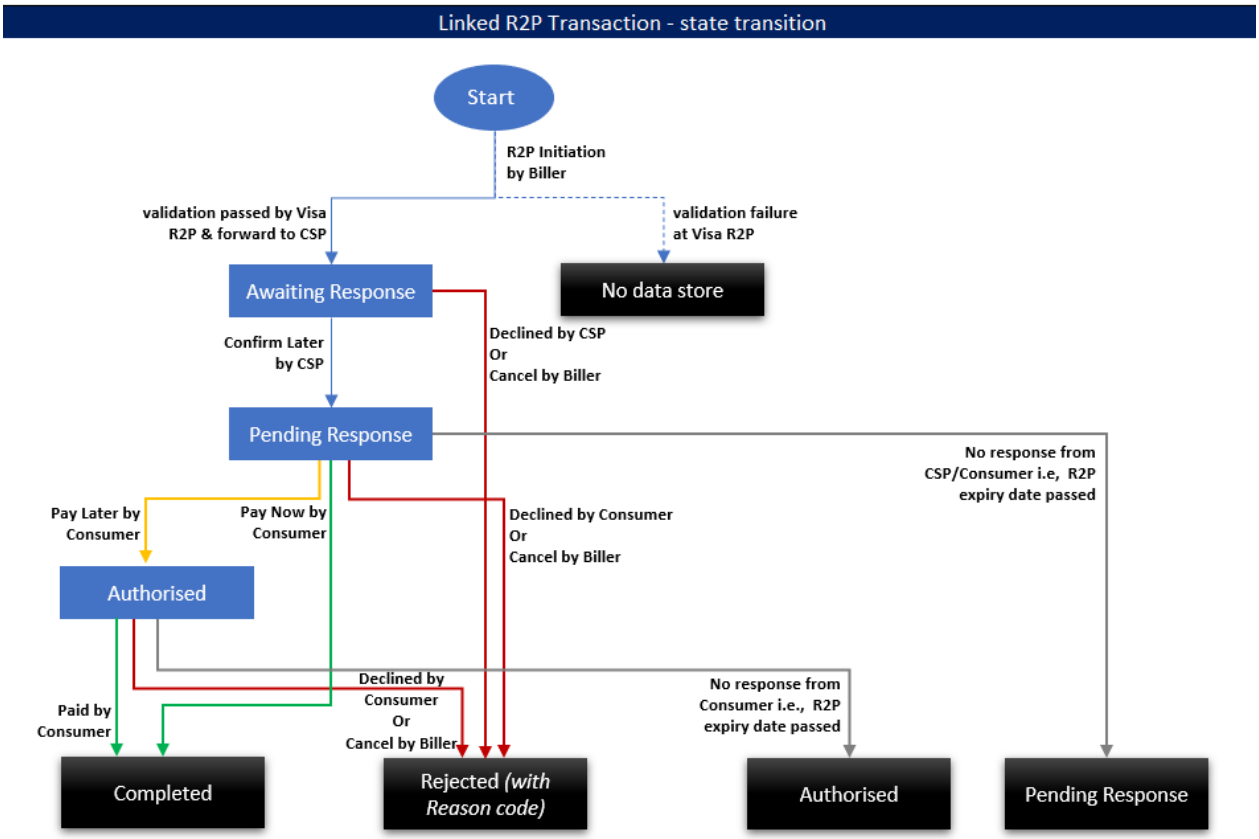

Diagram 13: R2P LCM – state transition model

Note: Terminal states of 'Authorised' and 'Pending Response' require the CSP to validate the expiry date is less than or equal to the current date and the physical state is 'Authorised' and 'Pending Response'.

6.3 Initiate R2P by Creditor to Debtor

A Request to Pay (R2P) message is a payment request created by the BSP sent to the Visa R2P with information includes such as the Creditor Name & Id, BSP Id, Debtor Alias or Mandate Id, Requested Amount, Due Date, Creditor approved payment options such as does the Creditor allow the Debtor to extend the due date or submit a partial payment.

Visa R2P forward the R2P initiation request to CSP including Destination account and DSS as per below logic diagram.

Note:

1. Alias linked, or mandate linked R2P follow the same DSS logic

2. If there are multiple DSS match for R2P message R2P initiation request message to CSP will include multiple DSS and destination account details.

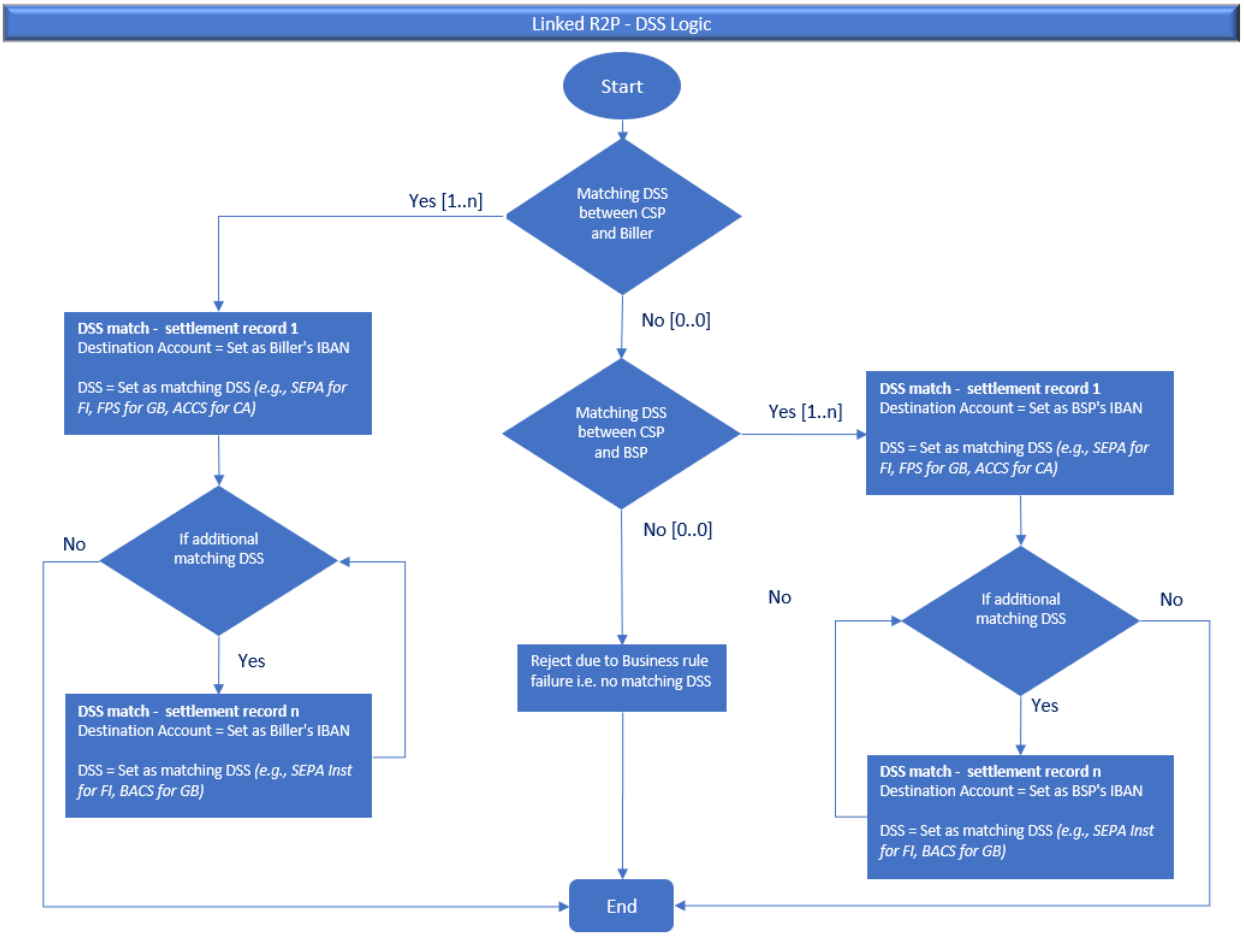

Diagram 14: Initiate R2P request to CSP – DSS logic

Please refer to the *BSP API Specification* document for more details about these parameters. Visa R2P centralised services exposed through microservice API's (recommended model), therefore no R2P data store require by CSP.

The CSP sync response to the message with below options:

- Accept – Confirm Later, no additional messages sent to BSP
- Decline – with reason code and reason description, Visa R2P notify 'Decline' to BSP as R2P Confirmation message and R2P moved to terminal state.

CSP notifies Debtor via mobile app notifications that R2P has been received. Notification includes embedded link for app secure login with R2P Txn Id to allow contextual routing to view R2P.

The below diagram describes the flow for a Linked R2P initiation:

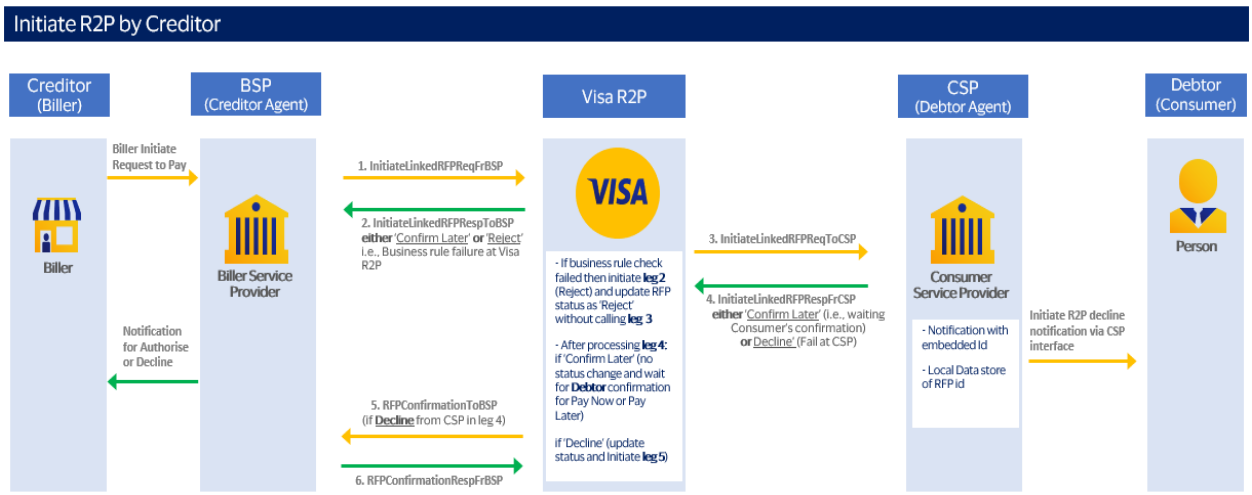

Diagram 15: Initiate R2P flow

6.4 R2P confirmation by Debtor

R2P transaction is in Confirm Later status, then this R2P Confirmation by Debtor flow would be triggered whenever the Debtor chooses to respond. The Debtor would have option to Pay Now/ Pay Later / Decline/ Update the R2P

- Pay Now – Based on Creditor's configuration, Debtor choose to pay full or pay partial via selected account. Confirmation of payment to Visa R2P occurs after CSP has completed the financial transaction through one of the common payment methods supported by both Creditor & Debtor and recorded the 'Clearing & Settlement Reference Identifier' in the R2P confirmation payload message. R2P will be updated to terminal state of 'Settled'
- Pay Later – Debtor has selected future date when they expect to Settle the R2P, CSP response with 'Given date' in the R2P confirmation payload message and R2P Status as moved to 'Pending Settlement' state (See section Settlement confirmation by Debtor)
- Decline – Debtor chosen to 'Decline' the R2P with specific reason e.g., Pay by other method. CSP respond with Decline and reason code in the R2P confirmation payload message and R2P moved to terminal state of 'Not Settled'
- Update –Debtor chosen to request a 'due date extension' or 'amount change' or 'both' for a R2P, CSP will send 'Update R2P' request to BSP via Visa R2P for Biller to accept/ reject decision on the requesting updates for R2P (see section Update R2P for Debtor for more details)

Visa R2P is payment type agnostic including RTP and ACH.

The below diagram describes a R2P Confirmation flow for the response from the CSP on behalf of the Debtor to the BSP through Visa R2P for the Creditor.

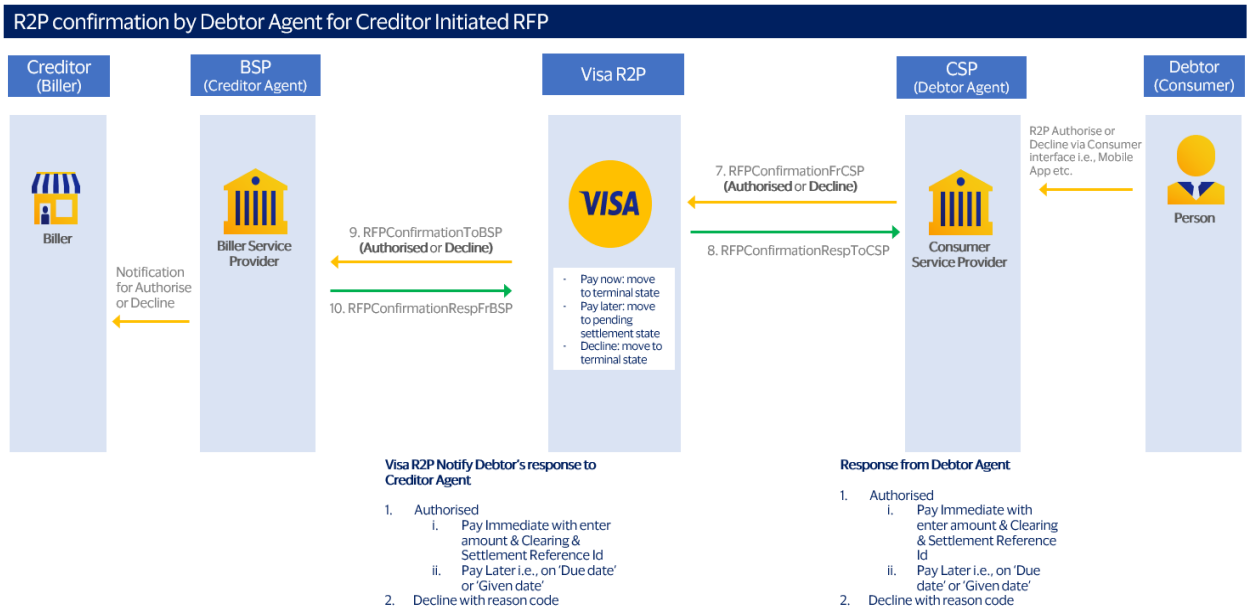

Diagram 16: R2P confirmation flow

6.5 Settlement Confirmation by Debtor

If the CSP had responded with 'Pay Later' in the R2P confirmation message and R2P is in status 'Pending Settlement'. When Debtor choose to 'pay now' or 'decline' the R2P Transaction; Settlement Confirmation flow will be triggered by the CSP

- Pay now – Based on Creditor's configuration, Debtor choose to pay full or pay partial via selected account. Settlement confirmation of payment to Visa R2P occurs after CSP has completed the financial transaction through one of the common payment methods supported by both Creditor & Debtor and recorded the 'Clearing & Settlement Reference Identifier' in the Settlement confirmation payload message. R2P will be updated to terminal state of 'Settled'
- Decline - Debtor chosen to 'Decline' the R2P with specific reason e.g., Pay by other method. CSP respond with Decline and reason code in the Settlement confirmation payload message and R2P moved to terminal state of 'Not Settled'

Visa R2P notify Settlement Confirmation to BSP with appropriate payload.

The below diagram describes a R2P Settlement Confirmation flow initiated by the CSP on behalf of the Debtor to the BSP through Visa R2P for the Creditor.

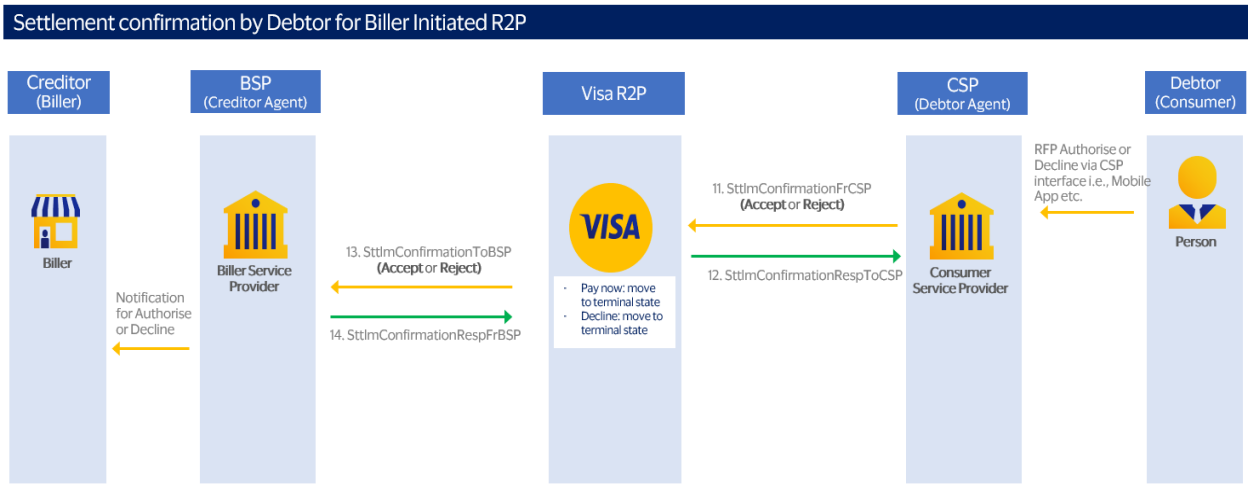

Diagram 17: Settlement confirmation flow

6.6 Update R2P by Debtor

The Update R2P flow applies when the Debtor had chosen to request a change to a R2P, CSP will send 'Update R2P' request to BSP for their approval/ decline decision on for requesting any of the following changes in the existing R2P

- Request for 'Due date extension'
- Request for 'Bill Amount change'
- Request for both 'Due date extension' and 'Bill Amount change'

Please refer to the *CSP API Specification* document for more details about these parameters.

BSP/ Creditor can approve the Update R2P request for the changes to be effective. If Request for either 'Due date extension' or 'Bill Amount change' then Creditor can:

- Accept request
- Decline request

If Request for both 'Due date extension' and 'Bill Amount change' then Creditor can:

- Accept request for 'Due date extension' and Decline 'Bill Amount change'
- Decline request for 'Due date extension' and Accept 'Bill Amount change'
- Accept for Request for both 'Due date extension' and 'Bill Amount change'
- Decline for Request for both 'Due date extension' and 'Bill Amount change'

On accepting the update R2P 'Due date' request Creditor agrees to the new R2P parameters (Due date) and must update their internal systems. Update on 'Due date' need to be before or equal to 'R2P Expiry date'. If the extension to 'Due date' is agreed the 'R2P Expiry date' remains unalter. If the Update R2P request is declined by Creditor via BSP, the original R2P parameters for 'Due date' will continue to be applicable and the R2P remains in an active state

On accepting the update R2P 'Bill amount change' request Creditor agrees to the new R2P parameters (amount) and must update their internal systems. If the Update R2P request is declined by Creditor via BSP, the original R2P parameters for amount will continue to be applicable and the R2P remains in an active state.

Pending BSP update Confirmation, R2P continues to reflect the existing due date and/or Bill amount parameters.

The below diagram describes an Update R2P flow initiated by the CSP on behalf of the Debtor to the BSP through Visa R2P for the Creditor.

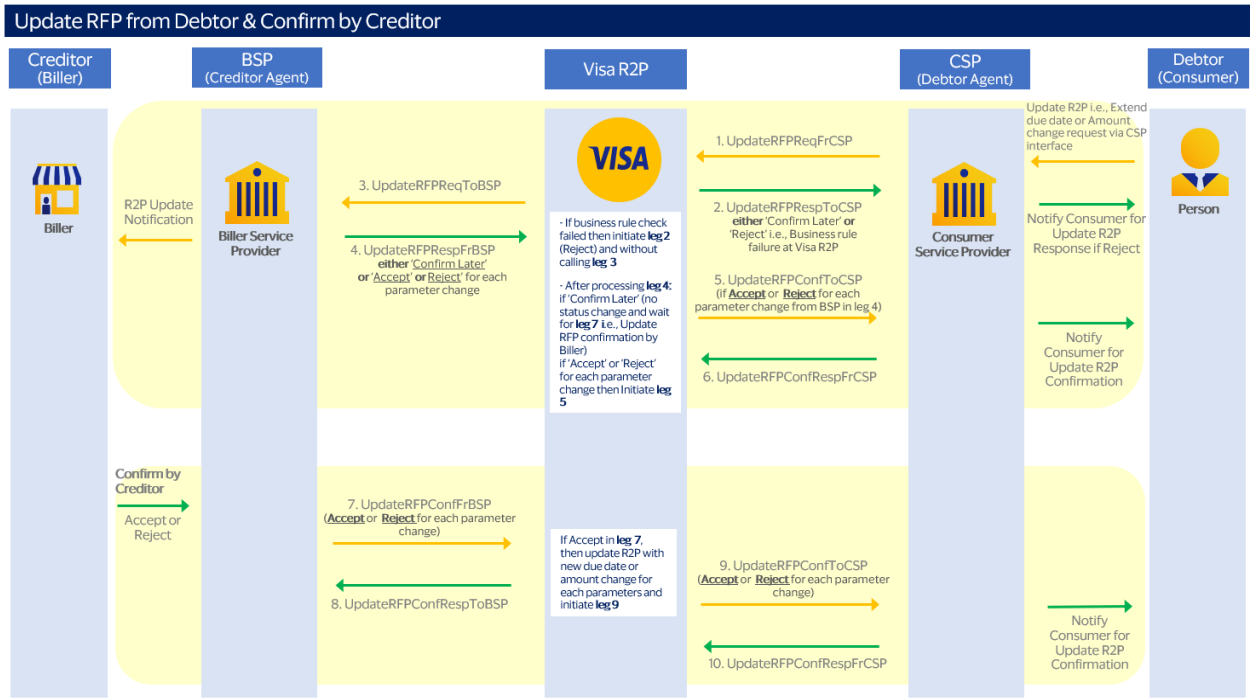

Diagram 18: Update R2P and confirmation flow

6.7 View R2P List by Creditor

This flow describes a View R2P List between the Creditor and Visa R2P. The Creditor can search for their existing R2P at any time based on search parameters e.g., due date range, R2P status. This service will enable the Biller to view a list of all their R2P's and further retrieve details of a specific R2P.

View R2P List API allows user to select search parameters e.g., Visa R2P Debtor Id, Due date range, R2P status etc. and can get list of R2P's as per matching search criteria. Please refer to *BSP API Specification* document for more details about the parameters

- BSP can search for their existing R2Ps anytime for various reasons. This service will enable the Debtor to view a list of all their R2Ps.
- View R2P List API allow to use certain search parameters e.g., Visa R2P Debtor Id, Due date range, R2P status. and can get list of R2Ps as per matching search criteria
- View R2P List response will include R2P transaction Id, four party details, Amount, R2P status
- Visa R2P will respond with R2P list including up to 50 R2P records with the number of pages if the total search results exceed 50 records.

Response that exceeds 50 records has Last Page Ind = False. Option to either (a) reset selection criteria to a more focused record set or (b) resend the same request with the separate addition of each page number up to and including the total number of pages stated in the initial response. e.g., if total page number = 4, then submit 3 additional requests for Page number 2, 3 & 4.

The below diagram describes the View R2P List flow by the BSP.

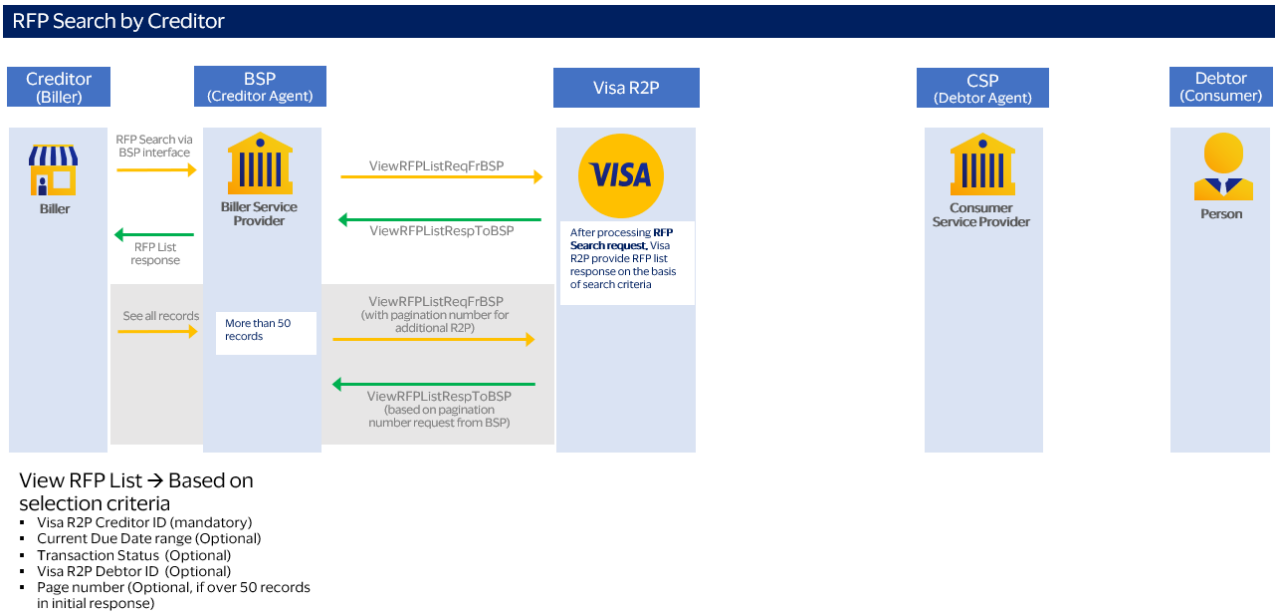

Diagram 19: R2P search flow

6.8 Cancel R2P by Creditor to Debtor

Creditor can cancel existing R2P with a Debtor for various reasons. This service will enable the Creditor to cancel a R2P, if the R2P is not in a terminal state i.e., Completed or Rejected. On successful cancellation of the RFP, Debtor will not be able to take any actions (like Payment, update) on the R2P.

Following is the list of cancellation reason code used by Creditor to Debtor:

Code Value	Code Name	Code Definition
AM09	WrongAmount	Amount is not the amount agreed or expected.
BE16	InvalidDebtorIdentificationCode	Debtor or Ultimate Debtor identification code missing or invalid.
DT01	InvalidDate	Invalid date (for example, wrong or missing settlement date).
DUPL	DuplicatePayment	Payment is a duplicate of another payment.
MODT	ModifiedTransaction	The underlying transaction in relation to an RTP was modified.
PAID	TransactionAlreadyPaid	The underlying transaction in relation to an RTP was already paid (via other means).
TECH	TechnicalProblem	Cancellation requested following technical problems resulting in an erroneous transaction.
AC02	InvalidDebtorAccountNumber	Debtor account number invalid or missing.
DRTP	DuplicationRequestToPay	Duplication of a request-to-pay message.

The Cancellation request from the Creditor will be notified to the Debtor for their reference. Any subsequent disagreements on this between the two parties must be handled outside the Visa R2P platform.

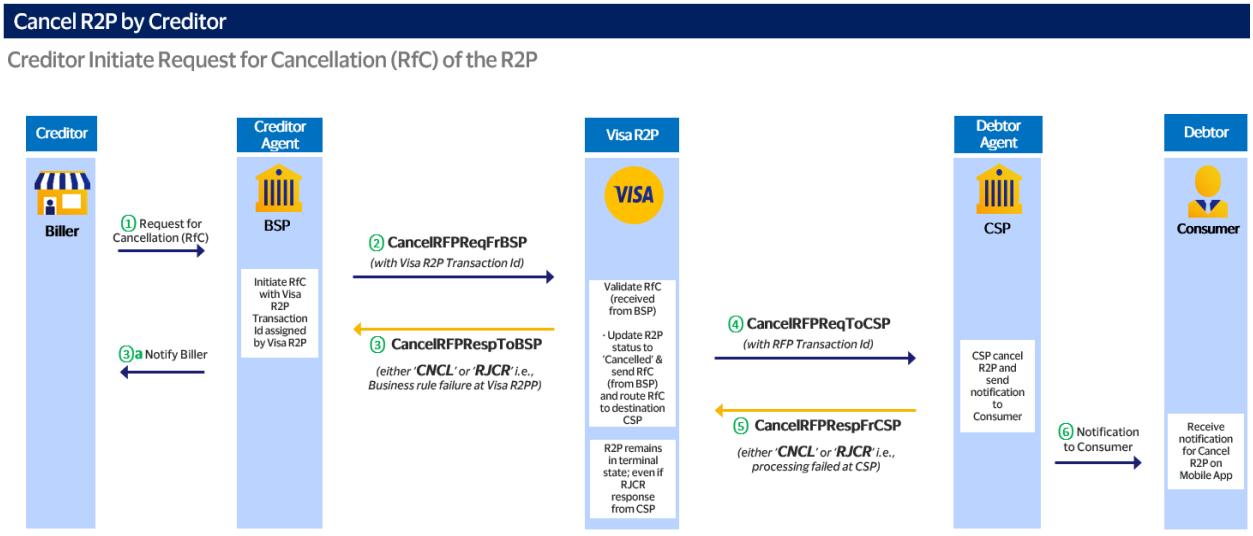

Diagram 20: Cancel R2P flow

7 API Library

7.1 API Design

Visa R2P provides ISO20022 XML based proprietary APIs for its services. The APIs are constructed with

- App Header for carrying Standard 2way TLS/SSL Credentials (e.g., Host Name, Certificate, Key and Password)
- JSON Wrapper with HTTP Network Header
- Encrypted ISO20022 XML payload
    - Business Application header
    - Signed ISO20022 XML Message

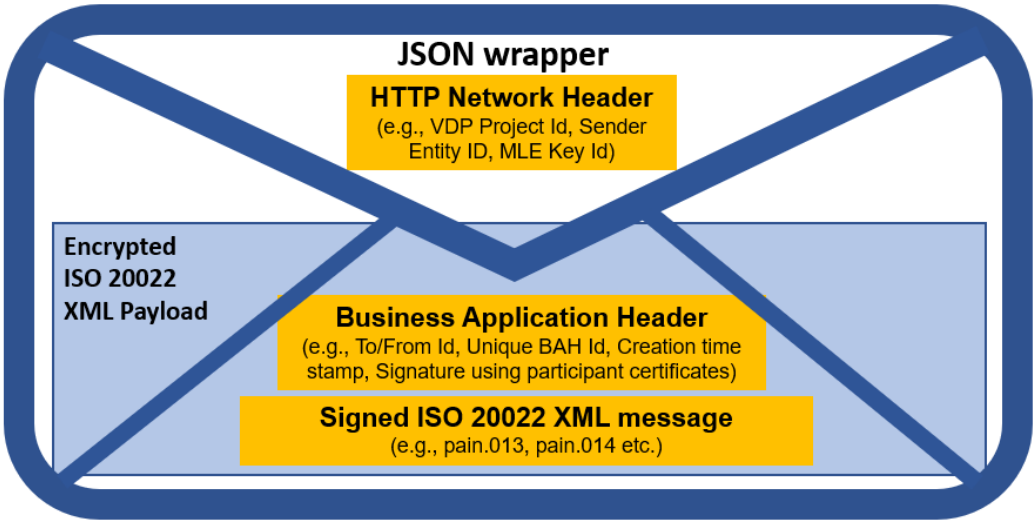

Diagram 21: API design inside JSON wrapper

Business Application Header

The Business Application Header (BAH) provides a bridge between the more technical, network header and the actual payment instruction i.e., detailed information on the network header and signature of messages.

A BAH is required for all ISO 20022 messages sent through the Visa R2P, whether sent by Visa R2P participants, or by the Visa R2P application. It carries processing information such as origin, destination, timestamp, service mode, and signature.

7.2 List of APIs for BSP

Domain Name	API Name	Business Service Name	Originator	Receiver	Sync/ Async	Message format	
						XML	JSON
Creditor LCM	Merchant Enrollment	MerchantEnrolmentRequest	BSP	Visa R2P	Sync	Yes	Yes
		MerchantEnrolmentResponse	Visa R2P	BSP			
	Merchant Amendment	MerchantAmendmentRequest	BSP	Visa R2P	Sync	Yes	Yes
		MerchantAmendmentResponse	Visa R2P	BSP			
Mandate LCM	Mandate Initiation	MandateInitiationReqFrBSP	BSP	Visa R2P	Sync	Yes	No
		MandateInitiationRespToBSP	Visa R2P	BSP			
	Mandate Initiation Confirmation	MandateInitiationConfToBSP	Visa R2P	BSP	Sync	Yes	No
		MandateInitiationConfRespFrBSP	BSP	Visa R2P			
	Mandate Suspension Request	MandateSuspensionNotifyToBSP	Visa R2P	BSP	Sync	Yes	No
		MandateSuspensionNotifyRespFrBSP	BSP	Visa R2P			
RFP LCM	Initiate Linked RFP	InitiateLinkedRFPReqFrBSP	BSP	Visa R2P	Sync	Yes	No
		InitiateLinkedRFPRespToBSP	Visa R2P	BSP			
	RFP Confirmation	RFPConfirmationToBSP	Visa R2P	BSP	Sync	Yes	No
		RFPConfirmationRespFrBSP	BSP	Visa R2P			
	Settlement Confirmation	SttlmConfirmationToBSP	Visa R2P	BSP	Sync	Yes	No
		SttlmConfirmationRespFrBSP	BSP	Visa R2P			
	Update RFP	UpdateRFPReqToBSP	Visa R2P	BSP	Sync	Yes	No
		UpdateRFPReqRespFrBSP	BSP	Visa R2P			
	Update RFP Confirmation	UpdateRFPConfFrBSP	BSP	Visa R2P	Sync	Yes	No
		UpdateRFPConfRespToBSP	Visa R2P	BSP			
	View RFP List Request	ViewRFPListFrBSP	BSP	Visa R2P	Sync	Yes	No
		ViewRFPListRespToBSP	Visa R2P	BSP			
	Cancel RFP	CancelRFPReqFrBSP	BSP	Visa R2P	Sync	Yes	No
		CancelRFPRespToBSP	Visa R2P	BSP			

Note: BSP can only selects either XML or JSON suite of APIs.

7.3 Security

All Visa R2P messages are transmitted through Mutual SSL Authentication using public/private keys. In addition, message-level encryption is done on individual messages using individual participant encryption keys.

In line with Participant onboarding to VDP, they would have created

- Visa MLE Keys
- Uploaded Participant or use Visa Signing Certificates

These keys and certificates are used in line with the table below:

Message Initiator	Message Receiver	Initiator Encryption Key	Receiver De-encryption Key	Initiator Signing Key	Receiver Signature Verification Key
Participant	Visa R2P	Visa Public	Visa Private	Participant Private	Participant Public
Visa R2P	Participant	Participant Public	Participant Private	Visa Private	Visa Public

Message Initiated by Participant to Visa R2P		
JSON Header	**Key Id**	Visa Public Key Id from VDP *(used for Encryption)*
	Content Type	application/json
	Correlation Id	Ignore
	App Id	Ignore
	Entity Id	Ignore

Message Initiated from Visa R2P to Participant		
JSON Header	**Key Id**	Participant Public Key Id from VDP *(used for Encryption)*
	Content Type	application/json
	Correlation Id	Unique Id for investigation
	App Id	N/A
	Entity Id	Visa R2P Participant id

7.4 Message Signing

Visa R2P follows the ISO recommended message digital signature mechanism for maintaining data integrity and non-repudiation.

All incoming messages need to be digitally signed by the Participants with their private key which will be validated by Visa R2P using their public key and vice versa.

For ISO 20022 XML formatted Visa R2P messages, a W3C Signature is used. The signed data is part of signature section of BAH header, however for the ISO 20022 based JSON messages, a JWS signature is used.

7.5 Message encryption

Visa APIs adhere to Message level encryption (MLE) standards which encrypts the messages containing sensitive information like card numbers.

Visa uses IBM DataPower middleware for requests between a caller and the Visa APIs. DataPower decrypts the message received from a caller and passes the message to the Visa APIs. Similarly, the response received from a Visa API is processed by DataPower and passed to the caller. DataPower expects messages from a caller to be encrypted in a specific format and algorithm; specifically, the request JSON must be encrypted using JSON Object Signing and Encryption (JOSE).