

## DuitNow Online Banking/Wallets

[</>](#) See also API reference for DuitNow Online Banking/Wallets

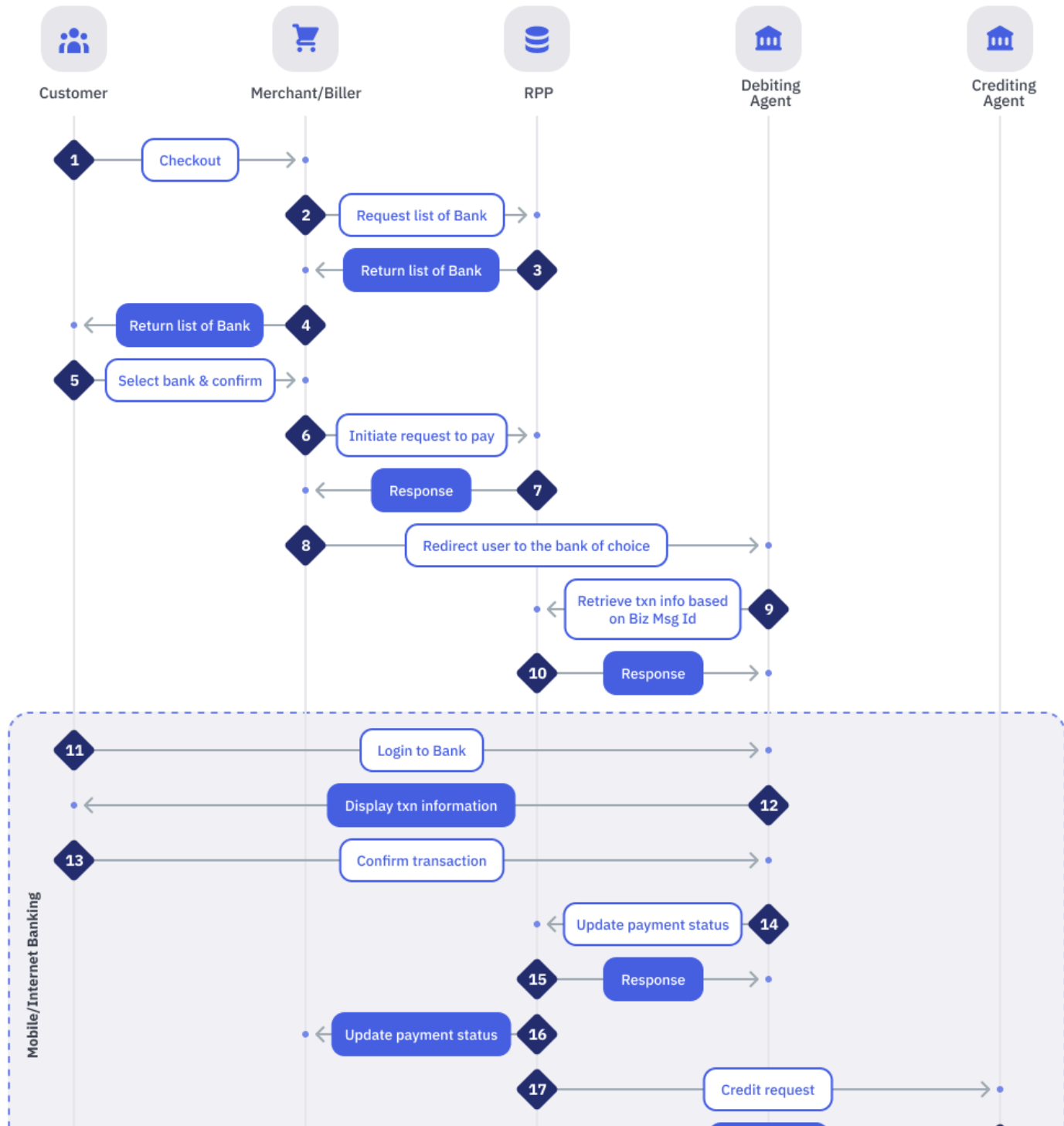
[Check API](#) >

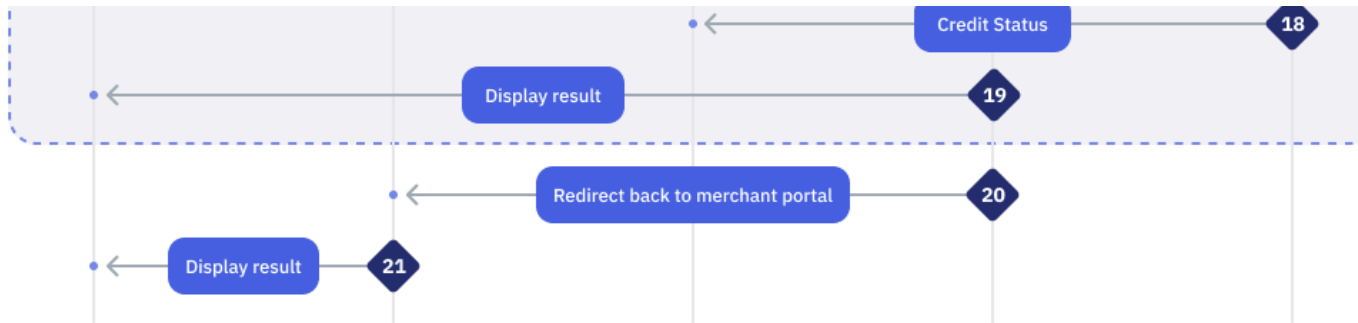
### Introduction

DuitNow Online Banking/Wallets allow customer to make payment to Merchant from their preferred bank or wallet.

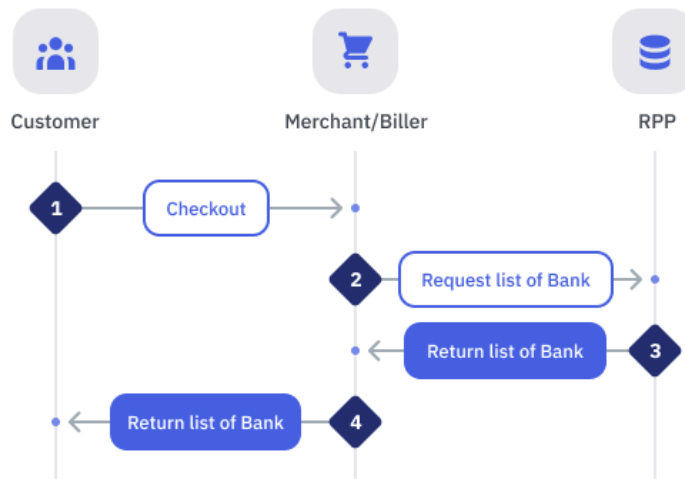
From Merchant portal or mobile apps, customer will choose their preferred bank or wallet. Customer will then get redirect to the bank or wallet they choose, approve the transaction, get redirect back to Merchant and the transaction is completed.

The figure below explains in detail the end-to-end process of DuitNow Online Banking/Wallets.





## Request List of Banks Flow (Steps 1-4)



| Step | Sender   | Receiver | Process  |
|------|----------|----------|--|
| 1    | Customer | Merchant | Customer selects to checkout with Request-to-Pay   |
| 2    | Merchant | RPP      | Merchant performs the following: <ul style="list-style-type: none"> <li>• Submit request for list of banks</li> <li>• Start the timer</li> </ul> |

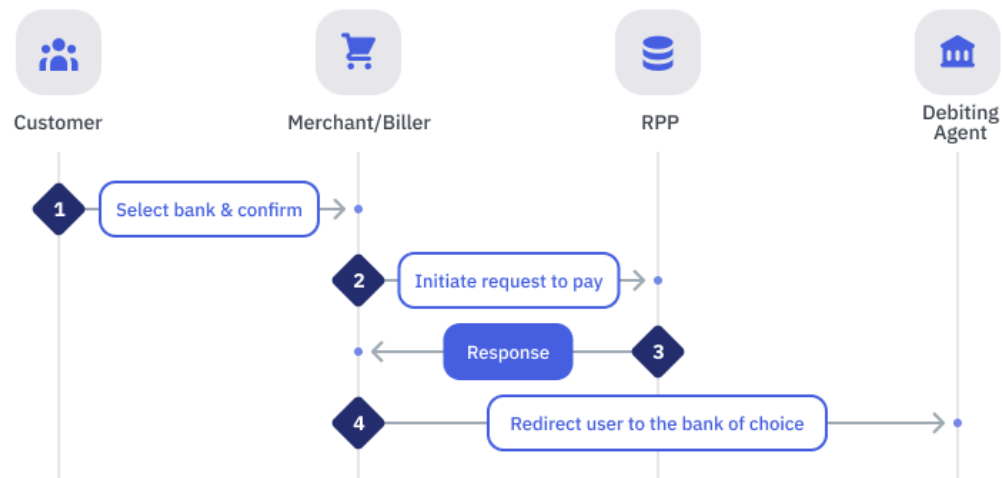
| Step | Sender   | Receiver | Process   |
|------|----------|----------|---|
| 3    | RPP      | Merchant | <p>RPP performs the following:</p> <ul style="list-style-type: none"> <li>• Message Logging</li> <li>• Message Validation <ul style="list-style-type: none"> <li>◦ Message Format validation</li> <li>◦ Digital Signature verification</li> </ul> </li> </ul> <p>If any of the Message Validation fails, RPP will</p> <ul style="list-style-type: none"> <li>• Send a REJECT response to Merchant</li> </ul> <p>If all validations are successful, RPP will</p> <ul style="list-style-type: none"> <li>• Send List of Banks response to Merchant</li> </ul>           |
| 4    | Merchant | Customer | <p>Merchant performs the following:</p> <ul style="list-style-type: none"> <li>• Stop the timer</li> <li>• Message Validation <ul style="list-style-type: none"> <li>• Message Format Validation</li> <li>• Digital Signature Verification</li> </ul> </li> </ul> <p>If all validations are successful, Merchant will</p> <ul style="list-style-type: none"> <li>• For successful List of Banks response received, <ul style="list-style-type: none"> <li>◦ Display list of banks</li> </ul> </li> <li>• For unsuccessful List of Banks response received,</li> </ul> |

| Step | Sender | Receiver | Process   |
|------|--------|----------|---|
|      |        |          | <ul style="list-style-type: none"> <li>◦ Display an error message on the customer screen</li> </ul> |

## Exception Handling

| Step | Event  | Action  |
|------|--|---|
| 2, 3 | Timeout (Merchant gets no response from RPP) | <p>RPP:</p> <ul style="list-style-type: none"> <li>• If RPP received the request and processed it, but RPP's response failed to return to Merchant at Step 3, then the transaction is logged. If RPP never received the request, no action on RPP side</li> </ul> <p>Merchant:</p> <ul style="list-style-type: none"> <li>• Merchant may send the request again by sending a new request</li> </ul> |
| 2, 3 | Rejection                                    | <p>RPP:</p> <ul style="list-style-type: none"> <li>• RPP receives the request and rejected it due to validation error e.g. Merchant is not authorized to request List of Banks</li> </ul> <p>Merchant:</p> <p>-</p>   |

## Request-to-Pay Flow (Steps 5-8)



| Step | Sender   | Receiver | Process  |
|------|----------|----------|--|
| 1    | Customer | Merchant | Customer selects a bank  |
| 2    | Merchant | RPP      | Merchant will perform the following: <ul style="list-style-type: none"> <li>• Authorize and validate Request-to-Pay request</li> <li>• Send Request-to-Pay request to RPP</li> <li>• Start the timer</li> </ul>                        |
| 3    | RPP      | Merchant | RPP performs the following <ul style="list-style-type: none"> <li>• Message Logging                             <ul style="list-style-type: none"> <li>◦ Digital Signature Validation Message Format Validation</li> </ul> </li> </ul> |

| Step | Sender | Receiver | Process  |
|------|--------|----------|--|
|      |        |          | <ul style="list-style-type: none"> <li>• Message Validation</li> <li>• Business Validation <ul style="list-style-type: none"> <li>◦ Timeout Validation</li> <li>◦ Payment Validation Check</li> <li>◦ Date Expiry Check</li> <li>◦ Merchant ID Validation</li> <li>◦ Merchant Product ID</li> </ul> </li> </ul> <p>If any of the Message Validation fails, RPP will</p> <ul style="list-style-type: none"> <li>• Send a REJECT response to Merchant</li> </ul> <p>If any of the Business Validation fails, RPP will</p> <ul style="list-style-type: none"> <li>• Send a NEGATIVE response to Merchant</li> </ul> <p>If all validations are successful, RPP will</p> <ul style="list-style-type: none"> <li>• Lookup and populate Creditor Account ID and Crediting Agent based on Merchant ID and Merchant Product ID</li> <li>• Generate Signature with End-to-End ID</li> <li>• Store Transaction Information in Request-to-Pay Staging Table</li> <li>• Send an ACCEPTED response back to Merchant with End-to-End ID and Signature</li> </ul> <p>Note:</p> |

| Step | Sender               | Receiver          | Process   |
|------|----------------------|-------------------|---|
|      |                      |                   | <ul style="list-style-type: none"> <li>Timeout is set at 20 seconds</li> </ul>  |
| 4    | Merchant /<br>Biller | Debiting<br>Agent | <p>Merchant performs the following:</p> <ul style="list-style-type: none"> <li>Stop the timer</li> <li>Message Validation <ul style="list-style-type: none"> <li>Message Format Validation</li> <li>Digital Signature Verification</li> </ul> </li> </ul> <p>If all validations are successful, Merchant will:</p> <ul style="list-style-type: none"> <li>Redirect Customer to the selected bank</li> <li>Send Signature and End-to-End ID to Debiting Agent</li> </ul> |

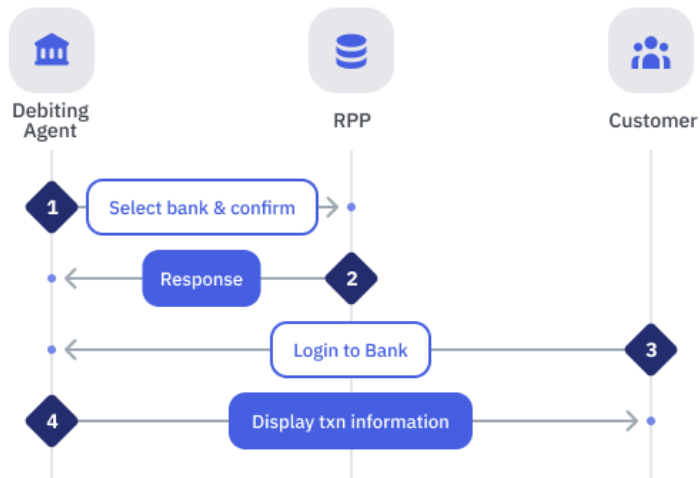
## Exception Handling

| Step | Event  | Action   |
|------|--|--|
| 2, 3 | Timeout (Merchant gets no response from RPP) | <p>RPP:</p> <ul style="list-style-type: none"> <li>If RPP received the request and processed it, but RPP's response failed to send to Merchant at Step 3, then the Request-to-Pay transaction is logged with <b>PENDING</b> status, but is orphaned in the table, as it cannot be referenced</li> <li>If RPP never received the request, no action on RPP side</li> </ul> <p>Merchant:</p> |



| Step | Event     | Action   |
|------|-----------|--|
|      |           | <ul style="list-style-type: none"> <li>• Merchant shall not send a repeat or duplicate request</li> <li>• Merchant can send an enquiry to check the status of the Request-to-Pay</li> <li>• Merchant shall send a new request to re-initiate the transaction</li> </ul>  |
| 2, 3 | Rejection | <p>RPP:</p> <ul style="list-style-type: none"> <li>• RPP logs reject, returns reject status to Merchant. If RPP responds with reject after storing a pending Request-to-Pay record in table, the record will be orphaned, no reference to it will be sent back to Merchant in the rejection response</li> </ul> <p>Merchant:</p> <ul style="list-style-type: none"> <li>• -</li> </ul> |

## Retrieve Transaction Info Flow (Steps 9-12)



| Step | Sender         | Receiver       | Process   |
|------|----------------|----------------|---|
| 1    | Debiting Agent | RPP            | <p>Debiting Agent performs the following:</p> <ul style="list-style-type: none"> <li>• Validate Signature sent by Merchant</li> <li>• Send Retrieve Transaction Info Request based on End-to-End ID</li> <li>• Start Timer</li> </ul>   |
| 2    | RPP            | Debiting Agent | <p>RPP performs the following</p> <ul style="list-style-type: none"> <li>• Message Logging</li> <li>• Message Validation               <ul style="list-style-type: none"> <li>◦ Message Format Validation</li> <li>◦ Digital Signature Validation</li> </ul> </li> <li>• Business Validation</li> </ul> |

| Step | Sender         | Receiver       | Process  |
|------|----------------|----------------|--|
|      |                |                | <ul style="list-style-type: none"> <li>◦ Timeout Validation</li> <li>◦ Payment Validation Check</li> <li>◦ Check Request-to-Pay Staging Status</li> </ul> <p>If any Message Validation fails, RPP will</p> <ul style="list-style-type: none"> <li>• Send a REJECT response to Debiting Agent</li> </ul> <p>If any Business Validation fails, RPP will</p> <ul style="list-style-type: none"> <li>• Send a NEGATIVE response to Debiting Agent</li> </ul> <p>If all validations are successful, RPP will</p> <ul style="list-style-type: none"> <li>• Lookup Transaction Info based on End-to-End ID from Staging Table</li> <li>• Return Retrieve Transaction Info Response</li> </ul> |
| 3    | Customer       | Debiting Agent | <p>Customer login into their mobile/internet banking portal of Debiting Agent</p> <ul style="list-style-type: none"> <li>• Customer allowed to retry if failed to login</li> </ul>   |
| 4    | Debiting Agent | Customer       | <p>Debiting Agent performs the following:</p> <ul style="list-style-type: none"> <li>• Perform Login Validation</li> </ul> <p>If validation fails Debiting Agent will</p> <ul style="list-style-type: none"> <li>• Display error code to customer</li> </ul>   |

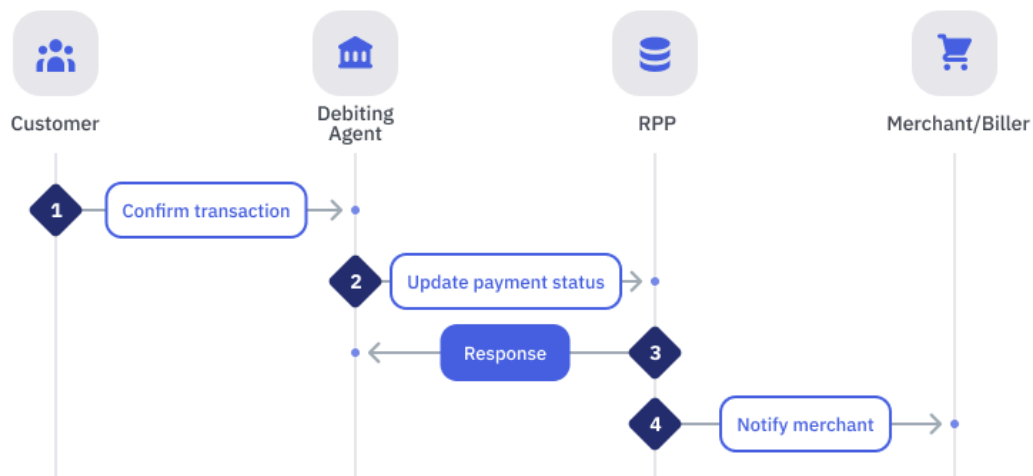
| Step | Sender | Receiver | Process  |
|------|--------|----------|--|
|      |        |          | <ul style="list-style-type: none"> <li>• Send a Cancel Request-to-Pay to RPP</li> </ul> <p>If validation is successful</p> <ul style="list-style-type: none"> <li>• Display Transaction Information to customer</li> </ul> |

## Exception Handling

| Step | Event  | Action   |
|------|--|--|
| 1, 2 | Timeout (Debiting Agent gets no response from RPP) | <p>RPP:</p> <ul style="list-style-type: none"> <li>• If RPP received the request and processed it, but RPP's response failed to return to Debiting Agent at Step 2, then the transaction is logged, and the <b>PENDING</b> Request-to-Pay status may be updated to <b>RETRIEVED</b></li> <li>• If RPP never received the request, no action on RPP side</li> </ul> <p>Debiting Agent:</p> <ul style="list-style-type: none"> <li>• Debiting Agent may re-request after a timeout. RPP shall return the transaction info if the transaction status still in <b>PENDING</b> or <b>RETRIEVED</b> state</li> </ul> |
| 1, 2 | Rejection  | <p>RPP:</p> <ul style="list-style-type: none"> <li>• RPP may reject based on parameter validation, in this case the <b>PENDING</b> status Request-to-Pay record remains at status</li> </ul>   |

| Step | Event | Action  |
|------|-------|---|
|      |       | <b>PENDING</b><br><br>Debiting Agent: <ul style="list-style-type: none"> <li>-</li> </ul> |

## Update Payment Status Flow (Steps 13-16)



| Step | Sender   | Receiver       | Process   |
|------|----------|----------------|---|
| 1    | Customer | Debiting Agent | Customer performs the following <ul style="list-style-type: none"> <li>Confirm transaction information</li> <li>Request update transaction status to Pending Authorisation</li> </ul> |

| Step | Sender         | Receiver       | Process  |
|------|----------------|----------------|--|
| 2    | Debiting Agent | RPP            | <p>Debiting Agent performs the following</p> <ul style="list-style-type: none"> <li>• Validate Customer response</li> <li>• Any other validation</li> <li>• Send an update payment status request to RPP</li> <li>• Start the timer</li> </ul>   |
| 3    | RPP            | Debiting Agent | <p>RPP performs the following</p> <ul style="list-style-type: none"> <li>• Message Logging</li> <li>• Message Validation <ul style="list-style-type: none"> <li>◦ Message Format Validation</li> <li>◦ Digital Signature Validation</li> </ul> </li> <li>• Business Validation <ul style="list-style-type: none"> <li>◦ Timeout Validation</li> <li>◦ Payment Validation Check</li> <li>◦ Check Request-to-Pay Staging Status</li> </ul> <p>If any Message Validation fails, RPP will</p> <ul style="list-style-type: none"> <li>• Send a REJECT response to Debiting Agent</li> </ul> <p>If any Business Validation fails, RPP will</p> <ul style="list-style-type: none"> <li>• Send a NEGATIVE response to Debiting Agent</li> </ul> <p>If all validations are successful, RPP will</p> <ul style="list-style-type: none"> <li>• Update Request-to-Pay Staging table status to; <ul style="list-style-type: none"> <li>◦ <b>PDAU</b> – Pending Authorisation, OR</li> </ul> </li> </ul> </li> </ul> |

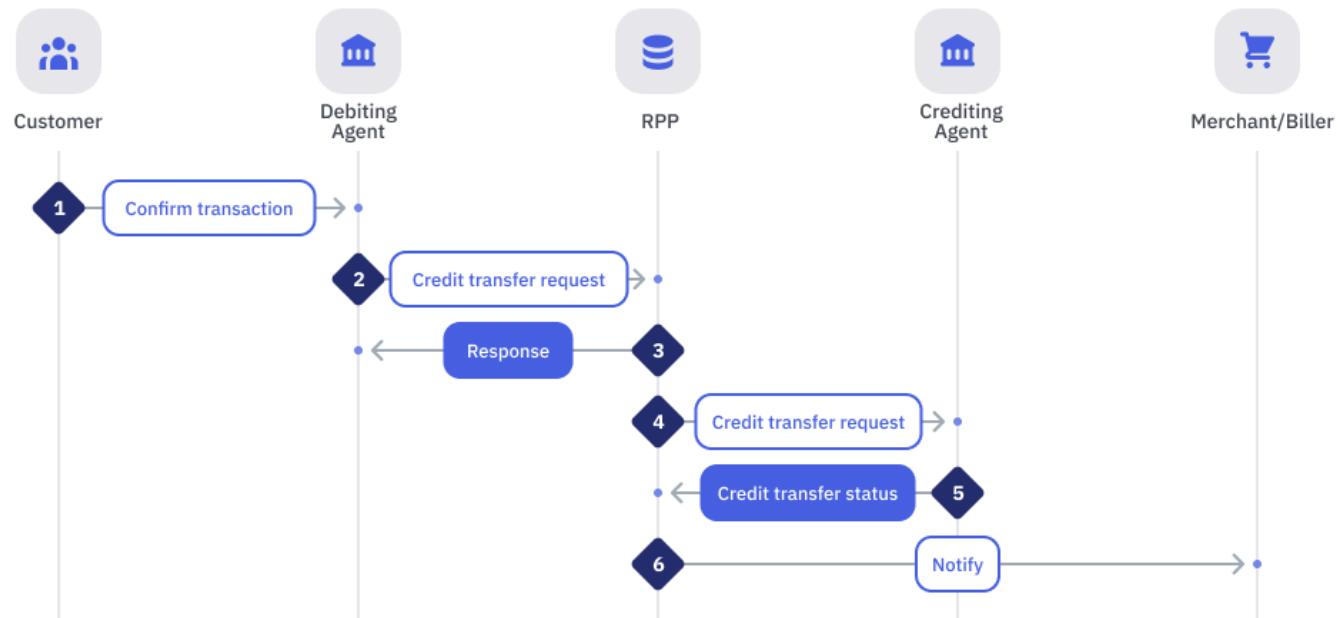
| Step | Sender | Receiver | Process   |
|------|--------|----------|---|
|      |        |          | <ul style="list-style-type: none"> <li>◦ <b>RJCT</b> – Rejected</li> <li>• Return Transaction Status Response</li> </ul>                                      |
| 4    | RPP    | Merchant | <p>RPP performs the following:</p> <ul style="list-style-type: none"> <li>• Notify Merchant of Update Payment Status via Merchant Notification API</li> </ul> |

## Exception Handling

| Step | Event  | Action   |
|------|--|--|
| 2, 3 | Timeout (Debiting Agent gets no response from RPP) | <p>RPP:</p> <ul style="list-style-type: none"> <li>• RPP may or may not have updated the <b>RETRIEVED</b> status of Request-to-Pay to <b>COMPLETED</b></li> </ul> <p>Debiting Agent:</p> <ul style="list-style-type: none"> <li>• Request may be sent again by Debiting Agent but may be rejected if Request-to-Pay status had been updated by previous timed-out request</li> </ul> |
| 2, 3 | Rejection  | <p>RPP:</p> <ul style="list-style-type: none"> <li>• If field validation error, RPP sends an error message to Debiting Agent (at Step 3) with details of field validation</li> </ul>   |

| Step | Event | Action  |
|------|-------|---|
|      |       | <p>failure, and the request message is logged in the reject log</p> <ul style="list-style-type: none"> <li>If Session/Business Rule validation failure or other error within session: Transaction is logged, and RPP sends response with rejection status/reason code to Debiting Agent</li> </ul> <p>Debiting Agent:</p> <ul style="list-style-type: none"> <li>Debiting Agent has rejection information so can process accordingly</li> </ul> |

## Credit Transfer Flow (Steps 13-18)





| Step | Sender         | Receiver       | Process  |
|------|----------------|----------------|--|
| 1    | Customer       | Debiting Agent | <p>Customer performs the following</p> <ul style="list-style-type: none"> <li>• Confirm transaction information</li> </ul>   |
| 2    | Debiting Agent | RPP            | <p>Debiting Agent performs the following</p> <ul style="list-style-type: none"> <li>• Validate Customer Response</li> <li>• Any other validation <ul style="list-style-type: none"> <li>◦ Debit customer</li> <li>◦ Send an update payment status request to RPP</li> <li>◦ Start the timer</li> </ul> </li> </ul>   |
| 3    | RPP            | Debiting Agent | <p>RPP performs the following</p> <ul style="list-style-type: none"> <li>• Message Logging</li> <li>• Message Validation <ul style="list-style-type: none"> <li>◦ Message Format Validation</li> <li>◦ Digital Signature Validation</li> </ul> </li> <li>• Business Validation <ul style="list-style-type: none"> <li>◦ Timeout Validation</li> <li>◦ Payment Validation Check</li> <li>◦ Check Request to Pay Staging Status</li> <li>◦ Minimum Amount Check</li> <li>◦ Maximum Amount Check</li> </ul> </li> </ul> |

| Step | Sender | Receiver        | Process  |
|------|--------|-----------------|--|
|      |        |                 | <p>If any Message Validation fails, RPP will</p> <ul style="list-style-type: none"> <li>• Send a REJECT response to Debiting Agent</li> </ul> <p>If any Business Validation fails, RPP will</p> <ul style="list-style-type: none"> <li>• Send a NEGATIVE response to Debiting Agent</li> </ul> <p>If all validations are successful, RPP will</p> <ul style="list-style-type: none"> <li>• Update liquidity positions of both Crediting Agent and Debiting Agent</li> <li>• Update settlement totals</li> <li>• Update Request-to-Pay Staging table status to <b>SUCC</b> (Successful)</li> <li>• Return Payment Status Response with Merchant Redirect URL/App ID</li> <li>• Encrypts Debtor Account</li> <li>• Submits Credit Transfer Request to SAF</li> </ul> <p>Note:</p> <ul style="list-style-type: none"> <li>• Timeout is set at 20 seconds</li> </ul> |
| 4    | RPP    | Crediting Agent | <p>RPP performs the following</p> <ul style="list-style-type: none"> <li>• Check for SAF retry necessity base on the following parameters: <ul style="list-style-type: none"> <li>◦ SAF Maximum Distribution Rate (msg/sec) aka TPS</li> <li>◦ SAF Message Response Timer (sec)</li> </ul> </li> </ul>   |

| Step | Sender          | Receiver | Process  |
|------|-----------------|----------|--|
|      |                 |          | <ul style="list-style-type: none"> <li>◦ SAF Message Retry Limit</li> <li>◦ SAF Open Session Limit</li> <li>◦ SAF Timeout Count</li> <li>◦ SAF Pause Period (sec) after consecutive timeouts</li> </ul> <ul style="list-style-type: none"> <li>• If retry is required, <ul style="list-style-type: none"> <li>◦ Sends a repeat Credit Transfer Request to Crediting Agent</li> <li>◦ Starts the timer</li> </ul> </li> </ul> <p>Note:</p> <ul style="list-style-type: none"> <li>• SAF will automatically send requests to Debiting Agent up to the maximum number of retry</li> <li>• Once maximum retry has been exceeded with no response, Participant must check the Exceptional SAF Report</li> </ul> |
| 5    | Crediting Agent | RPP      | <p>Crediting Agent performs the following:</p> <ul style="list-style-type: none"> <li>• Message Validation <ul style="list-style-type: none"> <li>◦ Message Format Validation</li> <li>◦ Digital Signature Verification</li> </ul> </li> </ul> <p>If any Message Validation fails, Crediting will</p> <ul style="list-style-type: none"> <li>• Send a REJECT response to RPP</li> </ul>  |

| Step | Sender | Receiver | Process   |
|------|--------|----------|---|
|      |        |          | <p>If all validations are successful, Crediting Agent will</p> <ul style="list-style-type: none"> <li>• Send a SUCCESSFUL response to RPP</li> </ul>  |
| 6    | RPP    | Merchant | <p>RPP performs the following:</p> <ul style="list-style-type: none"> <li>• Notify Merchant of successful Payment via Merchant Notification API</li> </ul> <p>Note:</p> <ul style="list-style-type: none"> <li>• Merchant required to determine the date/time. However, by default RET/B2C 15min and COR/B2B is 5 days</li> </ul> |

## Exception Handling

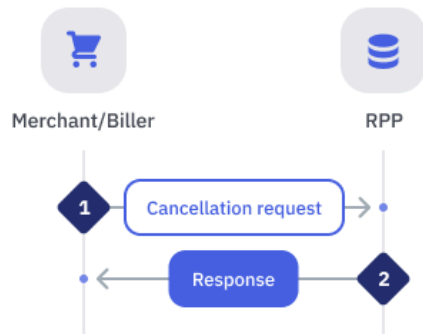
| Step | Event  | Action   |
|------|--|--|
| 2, 3 | Timeout (Debiting Agent gets no response from RPP) | <p>RPP:</p> <ul style="list-style-type: none"> <li>• RPP may or may not have updated the RETRIEVED status of the Request-to-Pay to COMPLETED</li> </ul> <p>Debiting Agent:</p> <ul style="list-style-type: none"> <li>• Debiting Agent has already debited the debtor before attempting the send of Credit Request. Debiting Agent may also perform a status enquiry to get the transaction status.</li> </ul> |

| Step | Event   | Action   |
|------|---|--|
|      |   | If no result is returned, then the request may be sent again by Debiting Agent   |
| 2, 3 | Rejection   | <p>RPP:</p> <ul style="list-style-type: none"> <li>• If field validation error, RPP sends an error message to Debiting Agent (at Step 3) with details of field validation failure, and the request message is logged in the reject log</li> <li>• If Session/Business Rule validation failure or other error within session: Transaction is logged, and RPP sends response with rejection status/reason code to Debiting Agent. Payment status notification (Not Approved) is sent to Merchant</li> </ul> <p>Debiting Agent:</p> <ul style="list-style-type: none"> <li>• Debiting Agent has already debited the debtor before attempting the send of Credit Request. Debiting Agent has rejection information so can process accordingly</li> </ul> |
| 4, 5 | Timeout (RPP gets no response from Merchant/Biller) | <p>RPP:</p> <ul style="list-style-type: none"> <li>• Sent by SAF, SAF will continue to re-send while timeout occurs on send attempts</li> </ul> <p>Merchant/Biller:</p> <ul style="list-style-type: none"> <li>• -</li> </ul>  |

| Step | Event     | Action  |
|------|-----------|---|
| 4, 5 | Rejection | <p>RPP:</p> <ul style="list-style-type: none"> <li>Sent by SAF, SAF will log the reject response received at 5 in SAF log and consider the request as sent</li> </ul> <p>Merchant/Biller:</p> <ul style="list-style-type: none"> <li>-</li> </ul> |

## Merchant Initiated Cancellation (After Step 8, before step 14)

After Step 8, a Merchant may initiate a Cancellation Request of the Request-to-Pay in the Redirect Flow. However, this request must be initiated before Step 14 where the customer would have already approved the transaction.



| Step | Sender   | Receiver | Process                              |
|------|----------|----------|--------------------------------------|
| 1    | Merchant | RPP      | Merchant will perform the following: |

| Step | Sender | Receiver | Process   |
|------|--------|----------|---|
|      |        |          | <ul style="list-style-type: none"> <li>• Sends a Cancellation Request to RPP</li> <li>• Starts the timer</li> </ul>   |
| 2    | RPP    | Merchant | <p>RPP performs the following</p> <ul style="list-style-type: none"> <li>• Message Logging</li> <li>• Message Validation <ul style="list-style-type: none"> <li>◦ Message Format Validation</li> <li>◦ Digital Signature Validation</li> </ul> </li> <li>• Business Validation <ul style="list-style-type: none"> <li>◦ Timeout Validation</li> <li>◦ Transaction Type Validation</li> <li>◦ Date Expiry Check</li> <li>◦ Check Request-to-Pay Staging Status</li> </ul> </li> </ul> <p>If any Message Validation fails, RPP will</p> <ul style="list-style-type: none"> <li>• Send a REJECT response to Merchant</li> </ul> <p>If any Business Validation fails, RPP will</p> <ul style="list-style-type: none"> <li>• Send a NEGATIVE response to Merchant</li> </ul> <p>If all validations are successful, RPP will</p> <ul style="list-style-type: none"> <li>• Inform DA to update the <b>PDAU</b> (Pending Authorisation) status to <b>CANC</b> (Cancel) and transaction updated to failed</li> </ul> |

| Step | Sender | Receiver | Process   |
|------|--------|----------|---|
|      |        |          | <ul style="list-style-type: none"> <li>• Change status of Request-to-Pay in staging table to <b>CANC</b> (Cancel)</li> <li>• Send an ACCEPTED response back to Merchant/Biller</li> </ul> |

## Exception Handling

| Step | Event                                       | Action  |
|------|---|---|
| 1, 2 | Timeout(Merchant gets no response from RPP) | <p>RPP:</p> <ul style="list-style-type: none"> <li>• -</li> </ul> <p>Merchant:</p> <ul style="list-style-type: none"> <li>• Merchant shall not send a repeat request after a timeout</li> <li>• Merchant can perform enquiry to check the status of the Request-to-Pay in the staging table</li> <li>• Merchant can send a new request</li> </ul>                     |
| 1, 2 | Rejection                                   | <p>RPP:</p> <ul style="list-style-type: none"> <li>• If field validation error, RPP sends an error message to Merchant at Step 2, with details of field validation failure, and the request message is logged in the reject log</li> <li>• If Session/Business Rule validation failure or other error within session: Transaction is logged, and RPP sends</li> </ul> |



| Step | Event | Action  |
|------|-------|---|
|      |       | <p>response with rejection status/reason code to Merchant at Step 2</p> <p>Merchant/Biller:</p> <ul style="list-style-type: none"><li>• Merchant has rejection information so can process accordingly</li></ul> |