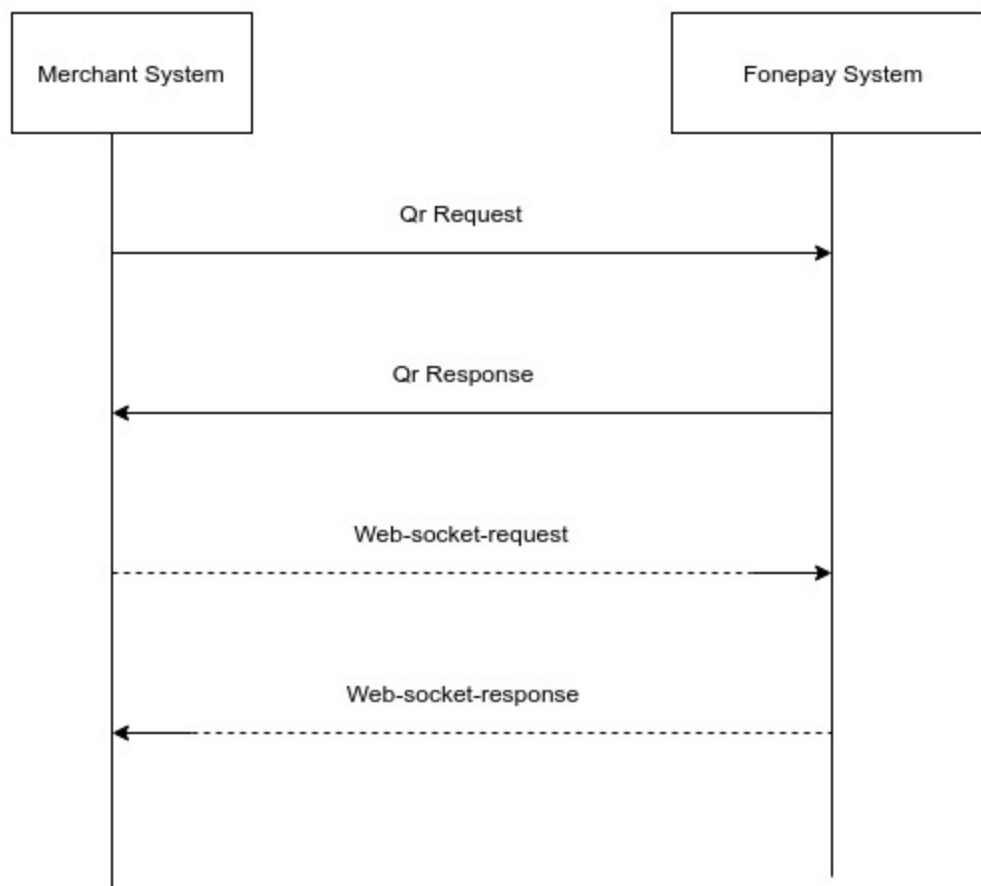


Merchant Integration through Device for online QR

Introduction

This document contains the standard specifications of the interface between the merchant System and fonepay system for generating QR data. The interface specification describes a technical level while communicating with a system through API's for QR data. Data exchanged which does not strictly match the format specified in this document will be rejected.

System Flow



Merchant System will send Qr request to fonepay system.

The fonepay system shall validate the request data and return the response to the merchant system.

The merchant system shall initiate the web-socket connection to receive transaction acknowledgement from a fonepay server.

Fonepay system will send Qr verification status and Payment notification whether the payment is approved, rejected or pending to merchant system through web-socket.

Implementation

Fonepay System URL:

Dev Serve(For Testing):<https://dev-merchantapi.fonepay.com/api>

Live Serve: <https://merchantapi.fonepay.com/api>

1. QR Request

Merchant need to send request from merchant System to Fonepay system.

Merchant need to send POST request with following details:

Example:

<https://FonepaySystemURL/api/merchant/merchantDetailsForThirdParty/thirdPartyDynamicQrDownload>

Replace Fonepay System URL with Dev Serve (For Testing)

<https://dev-merchantapi.fonepay.com/convergent-merchant-web/api/merchant/merchantDetailsForThirdParty/thirdPartyDynamicQrDownload>

<wss://dev-ws.fonepay.com/convergent-webSocket-web/merchantEndPoint>

OR Replace Fonepay System URL with Live Serve

<https://merchantapi.fonepay.com/api/merchant/merchantDetailsForThirdParty/thirdPartyDynamicQrDownload>

<wss://ws.fonepay.com/convergent-webSocket-web/merchantEndPoint>

#. QR Request Parameters

Field Name	Format	Length	Condition	Description
amount	N	1-10	mandatory	The value shall only include (numeric) digits "0" to "9" and may contain a single "." character as the decimal mark. When the amount includes decimals, the "." character shall be used to separate the decimals from the integer value.
remarks1	AN	1-25	mandatory	Narration of the transaction.
remarks2	AN	1-25	mandatory	If additional narration is needed, it can be sent in this field.

prn	ANS	1-20	mandatory	Product Number.This should be unique for all request
merchantCode	AN	1-15	mandatory	Merchant Code provided by fonepay system
dataValidation	ANS		mandatory	Signature (HMAC_SHA512 Hash)
username	ANS	1-55	mandatory	Username provided by fonepay system
password	ANS	1-25	mandatory	Password provided by fonepay system
taxAmount		should not be more than amount	Optional	Tax amount
taxRefund		should not be more than tax Amount	Optional	Amount to refund to customer

HMAC Signature For qr request

To Generate Data Validation Token (DV) generate HMAC_SHA512 with Key for HMAC_SHA512=>Secret Key which can be found in your merchant profile page after you login.

Note: Do not share Secret Key with other and do not store where other may easily find them like frontend app of website, generate HMAC_SHA512 in backend and store Secret Key it in backend.

HMAC For Request Without Tax Refund Amount

Message for HMAC_SHA512=>

AMOUNT,PRN,MERCHANT-CODE,REMARKS1,REMARKS2

Replace Param above with actual value.

Note: Value is separated by comma and value should not be URL encoded.

For Example:

Key=> a7e3512f5032480a83137793cb2021dc

Message =>14,5d76d323-d1f6-4a38-8231-0063f9581c98,NBQM,test1,test2

So our Data Validation Token (DV) is

43d2f0939e58e038c3122cc1e65f86af01998dce3e9f70a41a664dc0dbd45dfd74b4c4cbb77afef8a5ae9854ab48fcbd7edfc93156f663a8c60f28830eaca7d7

HMAC For Request with Tax Refund Amount

Message for HMAC_SHA512=>

AMOUNT,PRN,MERCHANT-CODE,REMARKS1,REMARKS2,TAXAMOUNT,TAXREFUND

Replace Param above with actual value.

Note: Value is separated by comma and value should not be URL encoded.

For Example:

Message => 1000,prn1,test2,remarks1,remarks2,120,12

sample code:

```

public String generateHash(String secretKey, String message) {
    Mac sha512_HMAC = null;
    String result = null;
    try {
        byte[] byteKey = secretKey.getBytes("UTF-8");
        final String HMAC_SHA512 = "HmacSHA512";
        sha512_HMAC = Mac.getInstance(HMAC_SHA512);
        SecretKeySpec keySpec = new SecretKeySpec(byteKey, HMAC_SHA512);
        sha512_HMAC.init(keySpec);
        result = bytesToHex(sha512_HMAC.doFinal(message.getBytes("UTF-8")));
        return result;
    } catch (Exception e) {
        log.error("Exception while Hashing Using HMAC256");
        return null;
    }
}

private static String bytesToHex(byte[] bytes) {
    final char[] hexArray = "0123456789ABCDEF".toCharArray();
    char[] hexChars = new char[bytes.length * 2];
    for (int j = 0; j < bytes.length; j++) {
        int v = bytes[j] & 0xFF;
        hexChars[j * 2] = hexArray[v >>> 4];
        hexChars[j * 2 + 1] = hexArray[v & 0x0F];
    }
    return new String(hexChars);
}

```

#. JSON Message Sample

Json format that merchant system should generate while sending Qr request and the response generated by the fonepay system as:

<https://merchantapi.fonepay.com/convergent-merchant-web/api/merchant/merchantDetailsForThirdParty/thirdPartyDynamicQrDownload>

Request:

```

{
    "amount": "14",
    "remarks1": "test1",
    "remarks2": "test2",
    "prn": "5d76d323-d1f6-4a38-8231-0063f9581c98",
    "merchantCode": "NBQM",
    "dataValidation":
    "43d2f0939e58e038c3122cc1e65f86af01998dce3e9f70a41a664dc0dbd45dfd74b4c4cbb77afef8a5ae9854ab48fcbd7edfc93156f663a8c60f28830eaca7d7",
    "username": "9861101076",
    "password": "admin123456"
}

```

Success Response:

```

{
    "message": "successful",
    "qrMessage": "00020101021215313791052400520446000000NBQM:29226400011fonepay.com0104NBQM020329206061367695204541153035245402145802NP5911Fonepaytest6008District62210703292021098418456336304d3f7",
    "status": "CREATED",
    "statusCode": 201,
    "success": true,
    "thirdpartyQrWebSocketUrl": "wss://dev-ws.fonepay.com/convergent-webSocket-web/merchantEndPoint/Td35588c2d9a647f28f4959f96f905bec/NBQM/Y"
}

```

Sample Request For Request with tax refund :

Note: HMAC for Request With tax refund should include taxAmount and taxRefund

Check HMAC For Request with Tax Refund Amount

```
{
  "amount": "14",
  "taxAmount": "5",
  "taxRefund": "3",
  "remarks1": "test1",
  "remarks2": "test2",
  "prn": "{{prn}}",
  "merchantCode": "NBQM",
  "dataValidation": "{{MerchantThirdpartyDV}}",
  "username": "9861101076",
  "password": "admin123456"
}
```

Failure Response:

```
{
  "documentation": "Merchant request Exception",
  "errorCode": 406,
  "message": "Data Validation Failed"
}

{
  "documentation": "Merchant request Exception",
  "errorCode": 406,
  "message": "Invalid Merchant Code"
}

{
  "documentation": "Merchant request Exception",
  "errorCode": 406,
  "message": "Invalid username"
}
```

2. WEB SOCKET CONNECTION

Web socket connection can be established to communicate between server and browser to get Qr verification notification and Payment Status.

After getting message from websocket merchant should call **Check QR Request Status api**.

For the Web Socket implementation

Merchant System need to establish websocket connection using thirdpartyQrWebSocketUrl from json response during merchant qr request .

<wss://dev-ws.fonepay.com/convergent-webSocket-web/merchantEndPoint/Td35588c2d9a647f28f4959f96f905bec/NBQM/Y>

Note For live websocket url will be

<wss://ws.fonepay.com/>

#. Web Socket json message on Qr Verified & Qr Payment

When the customer scan the Qr and makes payment, server will send Qr verification and payment request as given below;

Qr Verification Response	<pre>{ "merchantId": 70, "deviceId": "Td35588c2d9a647f28f4959f96f905bec", "transactionStatus": "{\"success\":true,\"message\":\"VERIFIED\", \"qrVerified\":true}" }</pre>
Qr Payment Response	<p><u>Payment Success:</u></p> <pre>{ "merchantId":70, "deviceId":"Td35588c2d9a647f28f4959f96f905bec", "transactionStatus":{"remarks1":"test1","remarks2":"test2","transactionDate":"Apr 11, 2019 1:43:23 PM","productNumber":"5d76d323-d1f6-4a38-8231-0063f9581c98","amount":"14","message":"Request Complete","success":true,"commissionType":"CHARGE","commissionAmount":0.0,"totalCalculatedAmount":14.0,"paymentSuccess":true}" }</pre> <p>-----</p> <p><u>Payment Failed (Cancel By User)</u></p> <pre>{ "merchantId":70, "deviceId":"postMan", "transactionStatus":{"remarks1":"test","remarks2":"test", "transactionDate":"Dec 14, 2018 5:13:02 PM","productNumber":"VVEpostManPrn108461","amount":"10","message":"Request Failed","success":true,"commissionType":"CHARGE","commissionAmount":0.0,"totalCalculatedAmount":10.0,"paymentSuccess":false}" }</pre>

Note: check paymentSuccess of transactionStatus from websocket response

```
{
  "traceId":17015,"remarks1":"test1","remarks2":"test2","transactionDate":"Apr 11, 2019 1:43:23 PM","productNumber":"5d76d323-d1f6-4a38-8231-0063f9581c98","amount":"14","message":"Request Complete","success":true,"commissionType":"CHARGE","commissionAmount":0.0,"totalCalculatedAmount":14.0,"paymentSuccess":true
}
```

3. Check QR Request Status

Merchant should verify the qr status after web socket notification or

Merchant can check qr request status if Merchant does not get response from web socket connection.

Merchant need to send POST request with following details:

Example:

<https://FonepaySystemURL/api/merchant/merchantDetailsForThirdParty/thirdPartyDynamicQrGetStatus>

Replace Fonepay System URL with Dev Serve (For Testing)

<https://dev-merchantapi.fonepay.com/convergent-merchant-web/api/merchant/merchantDetailsForThirdParty/thirdPartyDynamicQrGetStatus>

OR Replace Fonepay System URL with Live Serve

<https://merchantapi.fonepay.com/api/merchant/merchantDetailsForThirdParty/thirdPartyDynamicQrGetStatus>

#. Check QR Request Parameters

Field Name	Format	Length	Condition	Description
prn	ANS	1-50	mandatory	Product Number. prn send during qr request
merchantCode	AN	1-15	mandatory	Merchant Code provided by fonepay system
dataValidation	ANS		mandatory	Signature (HMAC_SHA512 Hash)
username	ANS	1-55	mandatory	Username provided by fonepay system
password	ANS	1-25	mandatory	Password provided by fonepay system

HMAC Signature For Check QR Request

To Generate Data Validation Token (DV) generate HMAC_SHA512 with Key for HMAC_SHA512=>Secret Key which can be found in your merchant profile page after you login.

Note: Do not share Secret Key with other and do not store where other may easily find them like frontend app of website, generate HMAC_SHA512 in backend and store Secret Key it in backend.

Message for HMAC_SHA512=>

PRN,MERCHANT-CODE

Replace Param above with actual value.

Note: Value is separated by comma and value should not be URL encoded.

For Example:

Key=> a7e3512f5032480a83137793cb2021dc

Message => 5d76d323-d1f6-4a38-8231-0063f9581c98,NBQM

So our Data Validation Token (DV) is

de5fd3bbbd7d36c766a47c0a137e41de7587028d2f6e3deacb5bebe30992326876a6fba4f9ccfd55a1d302a81aba94733d6c1db04f749483be63b619a9b032b7

#. JSON Message Sample

Json format that merchant system should send while sending **Check QR Request** and the response generated by the fonepay system as:

<https://dev-merchantapi.fonepay.com/convergent-merchant-web/api/merchant/merchantDetailsForThirdParty/thirdPartyDynamicQrGetStatus>

Request:

```
{
  "prn": "5d76d323-d1f6-4a38-8231-0063f9581c98",
  "merchantCode": "NBQM",
  "dataValidation":
    "de5fd3bbbd7d36c766a47c0a137e41de7587028d2f6e3deacb5bebe30992326876a6fba4f9ccfd55a1d302a81aba94733d6c1db04f749483be63b619a9b032b7",
  "username": "9861101076",
  "password": "admin123456"
}
```

Success Response:

```
{
  "fonepayTraceld": 17404,
  "merchantCode": "NBQM",
  "paymentStatus": "success",
  "prn": "5d76d323-d1f6-4a38-8231-0063f9581c98"
}
```

Failed Response:

```
{
  "fonepayTraceld": 17420,
  "merchantCode": "NBQM",
  "paymentStatus": "failed",
  "prn": "654df0eb-0740-43cf-b95a-9fdf0ff811a9"
}
```

Pending Response:

```
{
  "fonepayTraceld": 17327,
  "merchantCode": "NBQM",
  "paymentStatus": "pending",
  "prn": "59f0f450-c7c0-46d0-886e-fba3fdb2fa52"
}
```


After payment has been successful ,merchant needs to call following api for providing information IRD in a next day

Merchant need to send POST request with following details:

Example:

<https://FonepaySystemURL/api/merchant/merchantDetailsForThirdParty/thirdPartyPostTaxRefund>

Replace Fonepay System URL with Dev Serve (For Testing)

<https://dev-merchantapi.fonepay.com/convergent-merchant-web/api/merchant/merchantDetailsForThirdParty/thirdPartyPostTaxRefund>

OR Replace Fonepay System URL with Live Serve

<https://merchantapi.fonepay.com/api/merchant/merchantDetailsForThirdParty/thirdPartyPostTaxRefund>

#. QR Request Parameters

Field Name	Format	Length	Condition	Description
fonepayTraceId	N		mandatory	Fonepay Trace ID provided in fonepay response
transactionAmount	N	1-10	mandatory	The value shall only include (numeric) digits "0" to "9" and may contain a single "." character as the decimal mark. When the amount includes decimals, the "." character shall be used to separate the decimals from the integer value.
merchantPRN	ANS	1-20	mandatory	Product Number send by merchant during qr request
invoiceNumber	ANS	1-50	mandatory	Merchant Invoice Number (Should be unique)
invoiceDate	AN	10	mandatory	Nepali Date (Format: YYYY. MM.DD)
merchantCode	AN	1-15	mandatory	Merchant Code provided by fonepay system
dataValidation	ANS		mandatory	Signature (HMAC_SHA512 Hash)
username	ANS	1-55	mandatory	Username provided by fonepay system
password	ANS	1-25	mandatory	Password provided by fonepay system

HMAC Signature For Post Refund Request

To Generate Data Validation Token (DV) generate HMAC_SHA512 with Key for HMAC_SHA512=>Secret Key which can be found in your merchant profile page after you login.

HMAC For Request

Message for HMAC_SHA512=>

fonepayTraceld,merchantPRN,invoiceNumber,invoiceDate,transactionAmount,merchantCode

Replace Param above with actual value.

Note: Value is separated by comma and value should not be URL encoded.

For Example:

Key=> a7e3512f5032480a83137793cb2021dc

Message => 35132,e85d2ae7-e342-4a1c-81d7-536867a6720e,IN2_e85d2ae7-e342-4a1c-81d7-536867a6720e,2076.09.29,14,NBQM

So our Data Validation Token (DV) is 4b3fbd3dbfdf2e6d5a2999e8ace63e3b47153dd91c4c17846ef473b12211b0df4acc9e9dc4f814530880f977f665bccc7f1555310918a1d0ff2a57097b4eb8a4

Request:

```
{
  "fonepayTraceld": "35132",
  "merchantPRN": "e85d2ae7-e342-4a1c-81d7-536867a6720e",
  "invoiceNumber": "IN2_e85d2ae7-e342-4a1c-81d7-536867a6720e",
  "invoiceDate": "2076.09.29",
  "transactionAmount": "14",
  "merchantCode": "NBQM",
  "dataValidation":
    "4b3fbd3dbfdf2e6d5a2999e8ace63e3b47153dd91c4c17846ef473b12211b0df4acc9e9dc4f814530880f977f665bccc7f1555310918a1d0ff2a57097b4eb8a4",
  "username": "9861101076",
  "password": "admin123456"
}
```

Response:

```
{"fonepayTraceld":35132,"message":"Tax Refund Request Sucess","success":true}
```

Error Response Example:

```
{
  "documentation": "Merchant request Exception",
  "errorCode": 406,
  "message": "Invoice Number already exists."
}
```