Internet Portal Payment Service

Integration Specification Document

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1. Introduction and references

The following document describes the service messages' specifications, which will be exchanged between customer internet services portal (*shall be referenced in the document as Portal*), and "e-finance" Internet Payment Service Gateway (*shall be referenced in the document as Payment Gateway*).

2. Process Work Flow

2.1 Portal Request Generation

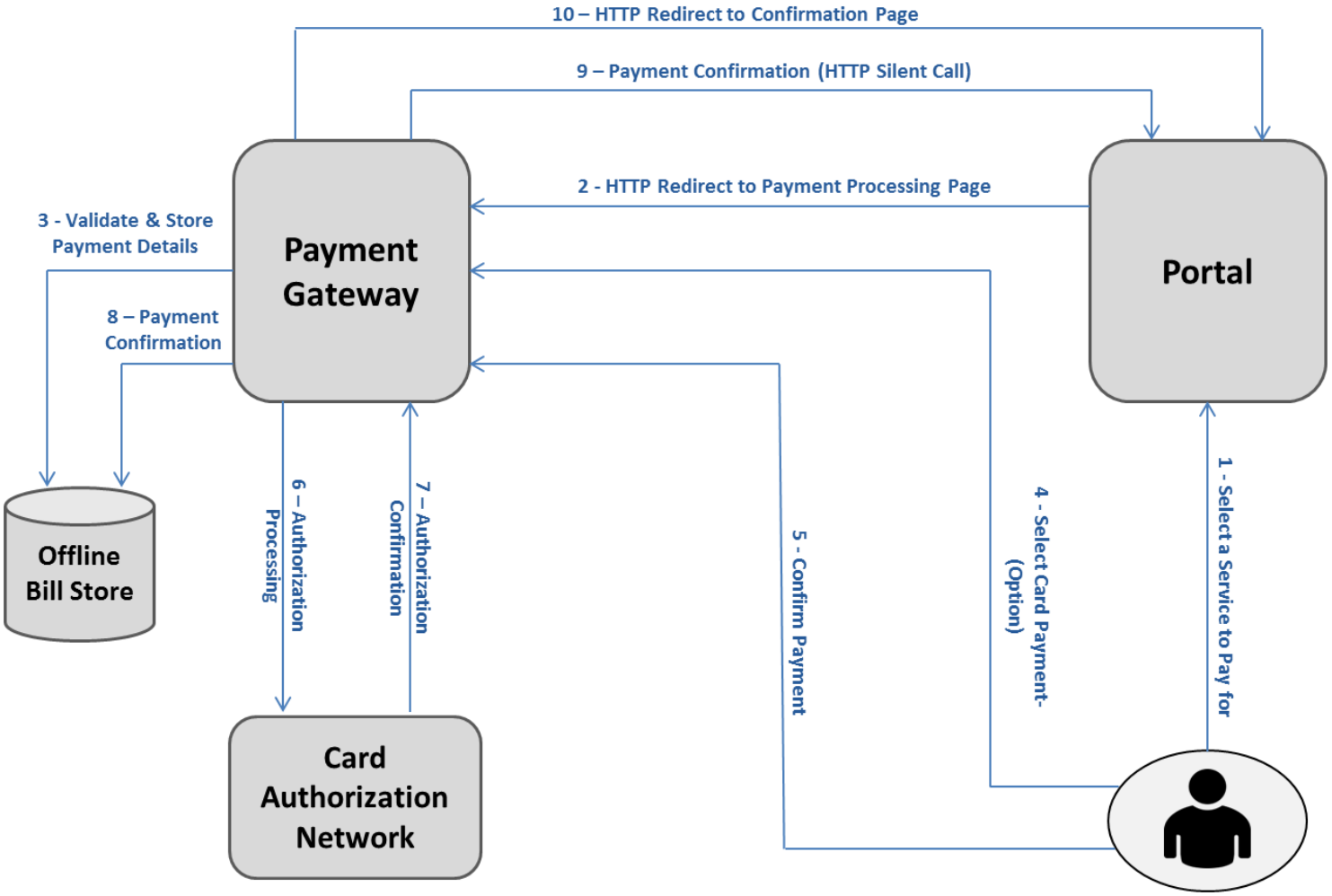
- The Portal's customer shall visit the Portal, and then select a service to pay for from the available hosted services.
- The payment module which is customized by the Portal owner shall collect all the data needed to complete the payment request, generate a unique identifier for the payment request, and store all the data for later payment completion processing.
- The Portal shall redirect the customer to the "Payment Gateway" request processing page by sending a "Payment Request Web Transfer Request", through an HTTP post, which must contain the payment request description, settlement amounts, and the request unique identifier "Sender Request Number".
- The Portal's customer can initiate payment request with other channel payment mechanism directly without visiting Payment Gateway through separate call.

2.2 Payment Gateway Request Processing

- The "Payment Gateway" shall validate that the received request data is valid according to the service configuration from sender Portal, which includes, but is not limited to, the request authentication, settlement accounts validation, and "Sender Request Number" uniqueness.
- If the request is valid, the portal shall store the received request in the offline bill store with validity for one calendar day or according to the received expiry date, and generate a unique "Payment Request Number", which is unique all over the bill store, then a summary of the received request shall be displayed to the customer for review and to select one of the allowed payment mechanisms (Card Payment, Channel Payment), and confirm to proceed.
- The payment mechanism selection depends on the value of the amount to be collected, where each payment mechanism has a maximum and minimum value to be collected, which is suitable to the value of the fees that shall be collected from the customer in addition to the suitability of the channel to collect large or small payments. E.g. the "Card Payment" is much suitable for small amount payments due to the large fees to be paid by the customer for large amounts; while the "Channel Payment" has some retails channels that accept small payments, in addition to the bank branches that accept large payments, where each channel has its own fees schema.

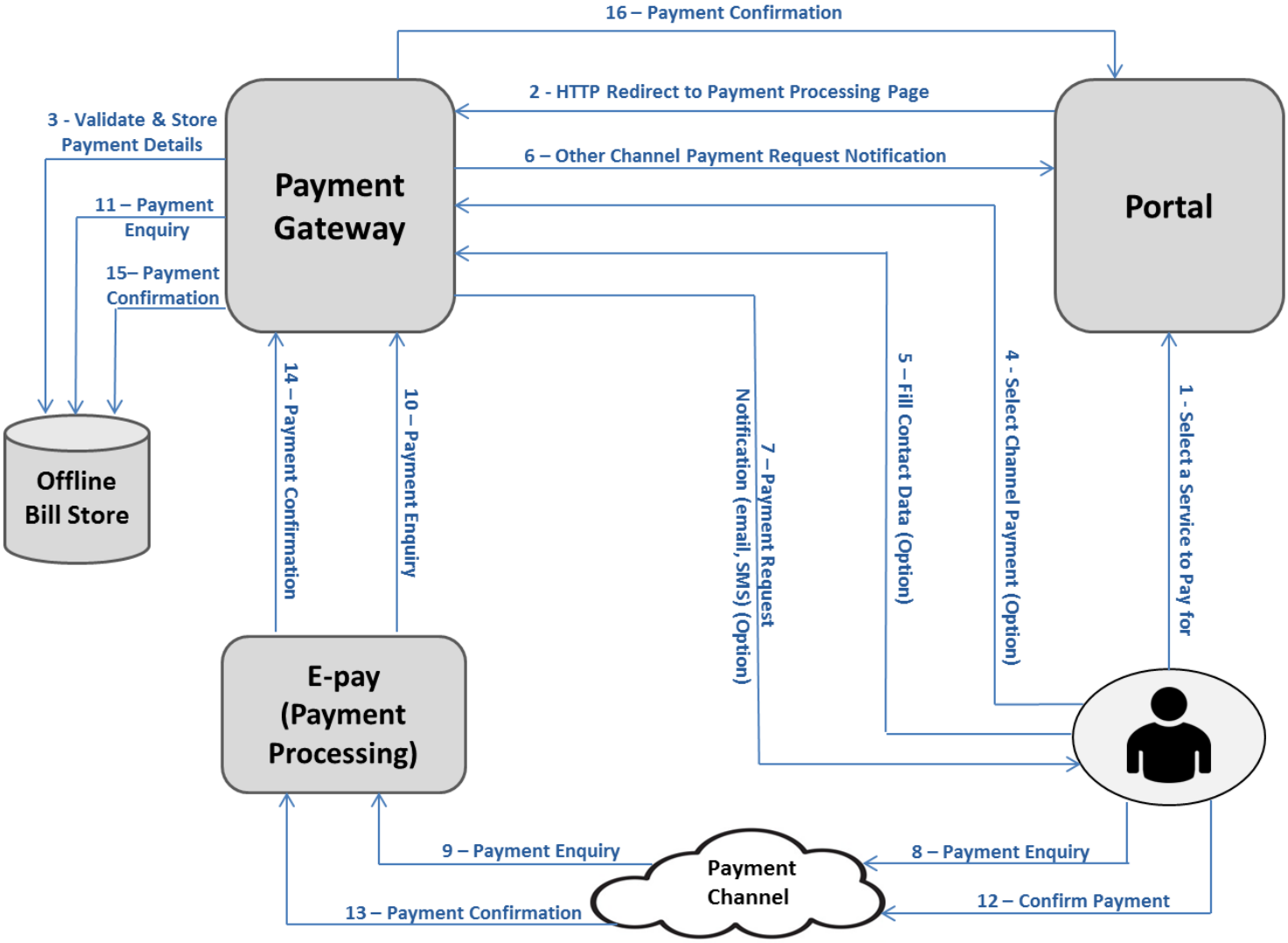
2.2.1 Card Payment Processing

- If the portal customer selects “Card Payment”, the customer shall proceed for card brand selection and confirmation. Based on the selected brand, the “Payment Gateway” shall calculate the required service collection fees.
- The “Payment Gateway” shall display a final confirmation to the customer that displays the request amounts (Collection, Service Fees, and Total Payment Amount), upon customer acceptance to complete the payment, customer will be directed to the card payment page.
- Once the customer card authorization is completed successfully, the offline bill store will be updated with the card authorization details, and payment request will be marked to move to the payment confirmation stage.



2.2.2 Channel Payment Processing

- If the portal customer selects “Channel Payment”, the customer shall be directed to complete his contact details (mobile number, and/or email) that shall be used to send details of the offline bill to the customer for later reference during the payment completion through the different payment channels provided by e-finance. E.g. sending an SMS including the generated payment request number.
- The customer contact details shall be stored with the offline bill record, and the customer will be re-directed to a page that displays the unique “Payment Request Number” generated by the Payment Gateway, in addition to a list of the channels that can be used to complete the payment with displayed button to back to “Portal”.
- Service provider (Portal’s Owner) can be configured to receive the generated Payment Request Number of channel payment request if needed
- Once the customer channel payment is confirmed successfully, the offline bill store will be updated with the channel processing authorization details, and payment request will be marked to move to the payment confirmation stage.



2.3 Payment Confirmation

- Once the collection process is completed the "Payment Gateway" payment confirmation module shall handle the offline stored bill trying to confirm the payment back to the bill originator. This confirmation shall be handled through an HTTP call "Payment Confirmation Request" that will be initiated from the "Payment Gateway" to the "Portal "to confirm the successful payment collection.
- Portal will manage to respond back to the Payment Gateway with the successful processing of the payment confirmation.
- In case of "Card Payment", after the success of the payment confirmation first trial, "Payment Gateway" will redirect the customer to the Portal by sending "Payment Confirmation Web Transfer Request", where the Portal shall display a successful payment confirmation message.

- While in case of first trial failure to confirm the payment to the Portal, the "Payment Gateway" shall display a message that the payment is completed and shall be processed by the Portal owner within 24 hours, while The "Payment Gateway" shall continue trying to confirm the payment till it receives a successful confirmation.
- In case failure accrued during payment amount collecting "Payment Gateway" will try to notify "Portal" with failure reason by silent call, in case "Portal" notified successfully "Payment Gateway" will redirect to "Portal" in case failing to notify "Payment Gateway" will display customize message to inform user with failure reason
- In case of "Channel Payment", The "Payment Gateway" shall continue trying to confirm the payment silently till it receives a successful confirmation.

3. Services list

The below set of messages will be used during payment request processing between the "Portal" and the "Payment Gateway":

1- Payment Request Web Transfer (Web HTML Redirect)
2- Channel Payment Request (Web Service Call)
3- Payment Confirmation (HTTP Call)
4- Payment Confirmation Web Transfer (Web HTML Redirect)
5- Payment Status Inquiry (HTTP Call)

4. Service Message Specification

All the services will be processed online with synchronous HTTP calls, and will have authentication mechanism over an HTTPS tunneled connection.

4.1 Payment Request Web Transfer Call format

The following is the detailed description of the payment request initiation request format that shall be prepared by the "Portal", and sent to the "Payment Gateway" through a web page redirection request.

Call Name:	**PaymentRequestInitiation**
Request Document:	**PaymentRequestInitiationReq**
Web Transfer Request	**HTTP Web Transfer Parameters**

4.1.1 “Payment Request Initiation” Request Object Specification

The following is the specification of the “PaymentRequestInitiationReq” object which represents the content of the bill that shall be transferred and stored in the bill store, and be sent as one of the parameters of the web transfer request.

Index	Element	Card.	Represent\Type	Description
1.	PaymentRequestInitiationReq	[1..1]	<PaymentRequestInitiationReq>	Object Header
1.1.	PaymentRequestInitiationReq\Sender	[1..1]	<Sender>	Sender Object
1.1.1.	PaymentRequestInitiationReq\Sender\ Id	[1..1]	varchar(8)	Sender ID
1.1.2.	PaymentRequestInitiationReq\Sender\ Name	[1..1]	varchar (100)	Sender Institution Name
1.1.3.	PaymentRequestInitiationReq\Sender\ RandomValue	[1..1]	varchar(36)	Random generated value, min 10 digits, and must be unique for the whole service time
1.1.4.	PaymentRequestInitiationReq\Sender\ Password	[1..1]	varchar(40)	Base64Encoded, the RSA Encrypted value of Password, where the password will be provided by e-finance.
1.2.	PaymentRequestInitiationReq\ SenderRequestNumber	[1..1]	varchar(36)	Sender Request Number “sequence number generated from sender unique per payment request”, and not related to the invoice number.
1.3.	PaymentRequestInitiationReq\ SenderInvoiceNumber	[0..1]	varchar(36)	Sender internal invoice number.
1.4.	PaymentRequestInitiationReq\ ServiceCode	[1..1]	varchar(8)	Service Code related to the payment request, in which the fees will be calculated based on what is (Provided by e-finance).

1.5.	PaymentRequestInitiationReq\ Description	[0..1]	varchar(250)	The request description that shall be used later to be displayed to the customer. If not present, it will not be displayed.
1.6.	PaymentRequestInitiationReq\ SettlementAmounts	[1..N]	<SettlementAmounts>	List of amounts to be collected and their corresponding settlement accounts.
1.7.	PaymentRequestInitiationReq\ SettlementAmounts\ SettlementAccountCode	[1..1]	Number(8)	Sender Related Account Code to be used for the amount settlement (Provided by e-finance).
1.8.	PaymentRequestInitiationReq\ SettlementAmounts\ Description	[0..1]	varchar(250)	A description of the amount to be collected. Optional, shall be used for settlement reporting only.
1.9.	PaymentRequestInitiationReq\ SettlementAmounts\ Amount	[1..1]	Money	Payment Request Collection Amount.
1.10.	PaymentRequestInitiationReq\Currency	[1..1]	"EGP"	Payment Request Collection Currency
1.11.	PaymentRequestInitiationReq\ PaymentMechanism	[0..1]	<PaymentMechanism>	Optional, and shall be used if the customer selects the Payment Mechanism at the portal side. If exists, customer will not be asked for the Payment mechanism
1.11.1.	PaymentRequestInitiationReq\ PaymentMechanism\ Type	[1..1]	"Card", "Channel", "MobileWallet"	Payment Mechanism selected by the customer
1.11.2.	PaymentRequestInitiationReq\ PaymentMechanism\ Card	[0..1]	<Card>	Optional, and will be used in case of Type=Card, reflects the card brand selected by the customer. If exists, customer will not be asked for the card brand

1.11.2.1	PaymentRequestInitiationReq\ PaymentMechanism\ Card\ Type	[1..1]	“MasterCard”, ”Visa”	Optional, and will be used in case of Type=Card, reflects the card brand selected by the customer. If exists, customer will not be asked for the card brand
1.11.3.	PaymentRequestInitiationReq\ PaymentMechanism\ Channel	[0..1]	<Channel>	Optional, and will be used in case of Type=Channel. If exists, either mobile number and/or email must exist, and customer will not be asked for his contact details.
1.11.3.1.	PaymentRequestInitiationReq\ PaymentMechanism\ Channel\ MobileNumber	[0..1]	Text(11)	Customer’s mobile number that shall be used to send the payment request details.
1.11.3.2.	PaymentRequestInitiationReq\ PaymentMechanism\ Channel\ Email	[0..1]	varchar(50)	Customer’s email address that shall be used to send the payment request details.
1.11.4.	PaymentRequestInitiationReq\ PaymentMechanism\ MobileWallet	[0..1]	<MobileWallet>	Optional, and will be used in case of Type=MobileWallet.
1.11.4.1.	PaymentRequestInitiationReq\ PaymentMechanism\ MobileWallet\ MobileNumber	[0..1]	Text(11)	Customer’s mobile number that shall be used to pay through associated wallet
1.12.	PaymentRequestInitiationReq\ RequestExpiryDate	[0..1]	YYYYMMDDHHMMSS	The time in which the offline stored bill will expire. If not present, “Payment Gateway” configured expiry period will apply.
1.13.	PaymentRequestInitiationReq\ PaymentConfirmationURL	[0..1]	varchar(200)	Payment Confirmation URL
1.14.	PaymentRequestInitiationReq\ PaymentConfirmationRedirectURL	[0..1]	varchar(200)	Payment Confirmation Redirect URL
1.15.	PaymentRequestInitiationReq\ IP	[1..1]	varchar(20)	Client Browser IP

1.16.	PaymentRequestInitiationReq\ User Unique Identifier	[0..1]	varchar(40)	User national id or equivalent unique user identifier number. This parameter is used for card tokenization

4.1.2 "Payment Request Initiation" Web Transfer Request Parameters

The following is the list of parameters that shall be sent as part of the payment request initiation page redirect process from the "Portal" to the "Payment Gateway", where the "Payment Request Initiation" Object previously described shall be sent as a parameter.

S.	Parameter	Type	Description
1.	SenderID	varchar(8)	Sender Institution ID
2.	RandomSecret	varchar(256)	Randomly generated AES key encrypted under e-finance public key, Base64 Encoded
3.	RequestObject	varchar(500)	"Payment Request Initiation" object data AES encrypted using the RandomSecret, Base64 Encoded.
4.	HashedRequestObject	varchar(500)	Hash of "Payment Request Initiation" object data AES encrypted using the RandomSecret, Base64 Encoded.(hashing using SHA2)

4.2 Channel Payment Request Web Service Call

The following is the detailed description of the channel payment request web service request and response format through web service without redirect to Efinance Payment gateway.

Call Name:	**OtherChannelPaymentRequestInitiation**
Request Parameter:	**OtherChannelPaymentRequestInitiationRequest**
Response Parameter:	**OtherChannelPaymentRequestInitiationResponse**

4.2.1 "OtherChannelPaymentRequestInitiationRequest" Web service Request Parameter

The following is the content of the web service request object that will be sent from the "Portal" to the "Payment Gateway", where the "Payment Request Initiation" Object previously described will be used in this object content.

S.	Parameter	Type	Description
1.	SenderID	varchar(8)	Sender Institution ID
2.	RandomSecret	varchar(256)	Randomly generated AES key encrypted under e-finance public key, Base64 Encoded
3.	RequestObject	varchar(500)	"Payment Request Initiation" object data AES encrypted using the RandomSecret, Base64 Encoded.
4.	HashedRequestObject	varchar(500)	Hash of "Payment Request Initiation" object data AES encrypted using the RandomSecret, Base64 Encoded.(hashing using SHA2)

4.2.2 "Payment Request Initiation Response" web service response Object Specification

The following is the specification of the "PaymentRequestInitiationRes" object.

Index	Element	Card.	Represent\Type	Description
1.	PaymentRequestInitiationRes	[1..1]	<PaymentRequestInitiationRes>	Object Header
1.1.	PaymentRequestInitiationRes\Sender	[1..1]	<Sender>	Sender Object
1.1.1.	PaymentRequestInitiationRes\Sender\ Id	[1..1]	varchar(8)	Sender ID
1.1.2.	PaymentRequestInitiationRes\Sender\ Name	[1..1]	varchar (100)	Sender Institution Name
1.1.3.	PaymentRequestInitiationRes\Sender\ RandomValue	[1..1]	varchar(36)	Random generated value, min 10 digits, and must be unique for the whole service time
1.1.4.	PaymentRequestInitiationRes\Sender\ Password	[1..1]	varchar(40)	Base64Encoded, the RSA Encrypted value of Password , where the password will be provided by e-finance.
1.2.	PaymentRequestInitiationRes\ OriginalSenderRequestNumber	[1..1]	varchar(36)	Sender Request Number "sequence number generated from sender unique per payment request", and not related to the invoice number.

1.3.	PaymentRequestInitiationRes\ PaymentRequestNumber	[1..1]	varchar(36)	Authorizer Request Number.
1.4.	PaymentRequestInitiationRes\Currency	[1..1]	"EGP"	Payment Request Collection Currency
1.5.	PaymentRequestInitiationRes\ OriginalPaymentRequestAmount	[1..1]	Money	Original Request Payment Total Amount
1.6.	PaymentRequestInitiationRes\ CollectionFeesAmount	[1..1]	Money	Service Collection Fees Amount
1.7.	PaymentRequestInitiationRes\ TotalAuthorizationAmount	[1..1]	Money	Payment Amount Collected from the Customer
1.8.	PaymentRequestInitiationRes\ ResponseCode	[1..1]	Varchar(3)	Response Code
1.9.	PaymentRequestInitiationRes\ ResponseMessage	[1..1]	varchar(200)	Response Message

4.2.3 "OtherChannelPaymentRequestInitiationResponse" Web service Response Object

The following is the content of the web service response object, where the "Payment Request Initiation Response" Object previously described will be used in the content.

S.	Parameter	Type	Description
1.	SenderID	varchar(8)	Sender Institution ID
2.	PaymentResponseObject	varchar(500)	"Payment Request Initiation Response" object data AES encrypted using the RandomSecret, Base64 Encoded.
3.	HashedPaymentResponseObject	varchar(500)	Hash of "Payment Request Initiation Response" object data AES encrypted using the RandomSecret, Base64 Encoded.(hashing using SHA2)

4.3 Payment Confirmation Web Call format

The following is the detailed description of the "Payment Confirmation" call format that will be called by the "Payment Gateway" to inform the "Portal" that the referenced payment has been collected successfully or (failed by amount collector based on service provider configuration).

Call Name:	**PaymentConfirmation**
Input Parameter:	**PaymentConfirmationRequest**
Response:	**HTTP Response (200)**

4.3.1 Payment Confirmation Request Object Specification

The following is the specification of the "PaymentConfirmationRequest" object which represents the input parameter of the call.

Index	Element	Card.	Represent\Type	Description
1.	PaymentConfirmationRequest	[1..1]	< PaymentConfirmationRequest >	Object Header
1.1.	PaymentConfirmationRequest\Sender	[1..1]	< Sender >	Sender
1.1.1.	PaymentConfirmationRequest\ Sender\ID	[1..1]	varchar (8)	Sender ID
1.1.2.	PaymentConfirmationRequest\ Sender\Name	[1..1]	varchar (100)	Sender Institution Name
1.1.3.	PaymentConfirmationRequest\ Sender\RandomValue	[1..1]	varchar(36)	Random generated value, min 10 digits, and must be unique for the whole service time
1.1.4.	PaymentConfirmationRequest\ Sender\Password	[1..1]	varchar(40)	Base64Encoded, the RSA Encrypted value of Password , where the password will be provided by e-finance.
1.2.	PaymentConfirmationRequest\ SenderRequestNumber	[1..1]	varchar(36)	Original Sender Request is echo of the "Sender Request Number" sent in the request call

1.3.	PaymentConfirmationRequest\ PaymentRequestNumber	[1..1]	varchar(36)	Authorizer Request Number Which is generated in fees inquiry response
1.4.	PaymentRequestInitiationRes\ PaymentRequestTotalAmount	[1..1]	Money	Original Request Payment Total Amount
1.5.	PaymentRequestInitiationRes\ CollectionFeesAmount	[1..1]	Money	Service Collection Fees Amount
1.6.	PaymentConfirmationRequest\ CustomerAuthorizationAmount	[1..1]	Money	Payment Amount Collected from the Customer
1.7.	PaymentConfirmationRequest\ AuthorizationCode	[1..1]	varchar(50)	External Entities Payment Authorization Code
1 8.	PaymentConfirmationRequest\ TransactionNumber	[1..1]	varchar(50)	Payment Gateway Transaction Number
1.9.	PaymentConfirmationRequest\ AuthorizingMechanism	[1..1]	“Card”, “Channel”, “MobileWallet”	Customer Selected Payment Mechanism
1.10.	PaymentConfirmationRequest\ AuthorizingInstitution	[1..1]	varchar(50)	Institution that performed the authorization
1 11.	PaymentConfirmationRequest\ AuthoriztionDateTime	[1..1]	DateTime	Paid payment Authorization Date and Time
1.12.	PaymentConfirmationRequest\ ReconciliationDate	[1..1]	Date (YYYYMMDD)	Payment Reconciliation Date
1.13.	PaymentConfirmationRequest\ IsConfirmed	[0..1]	“Yes”, “No”	Highlights if the payment is already confirmed by a previous HTTP silent call or not.

4.3.2 Payment Confirmation Silent Call Format

The following is the detailed description of the payment confirmation silent call format. The below parameters should be sent in http request as silent call the parameters are sufficient to allow the portal to be notified that the payment confirmed successfully. Also used to send the nonfiction of channel payment request creation. for successful payment, the Payment gateway will continue to send http request notification until receive successful response code from portal (successful response code is “000” otherwise consider notification failed where payment gateway continues to send until have successful response code from portal)

S.	Parameter	Type	Description
1.	SenderID	varchar(8)	Original Sender Institution ID
2.	SenderRequestNumber	varchar(36)	Original Sender Request is echo of the "Sender Request Number"sent in the request call.
3.	RequestObject	varchar(500)	"Payment Confirmation Request" object data AES encrypted using the RandomSecret, Base64 Encoded. Portal must verify that the "SenderRequestNumber " is matched.
4.	SignedRequestObject	varchar(500)	Signing of encrypted RequestObject using Payment Gateway Private Key

4.3.3 Payment Confirmation Web Transfer Call format

The following is the detailed description of the payment confirmation web transfer HTML redirection request format, which similar to payment confirmation silent call format; the mentioned parameters shall be exchanged as HTTP form parameters, where the form shall be auto posted based on a java script automated call. The parameters are sufficient to allow the portal to display a confirmation message.

S.	Parameter	Type	Description
1.	SenderID	varchar(8)	Original Sender Institution ID
2.	SenderRequestNumber	varchar(36)	Original Sender Request is echo of the "Sender Request Number"sent in the request call.
3.	RequestObject	varchar(500)	"Payment Confirmation" object data AES encrypted using the RandomSecret, Base64 Encoded. Portal must verify that the "SenderRequestNumber " is matched.
4.	SignedRequestObject	varchar(500)	Signing of encrypted RequestObject using Payment Gateway Private Key

4.4 Payment Status Inquiry Web Call

The following is the detailed description of the payment status inquiry request format that shall be prepared by the "Portal", and sent to the "Payment Gateway" through a silent call.

Note: We enforce TLS v1.2 as the default security protocol for HTTPS communications. So, be advised to use it while instantiating Payment Status Inquiry web call if you are not using Payment Gateway Helper.

To support TLS v1.2 in your code, Add the following line before instantiating the web call:

ServicePointManager.SecurityProtocol = (SecurityProtocolType)3072 | SecurityProtocolType.Tls | SecurityProtocolType.Ssl3;

Call Name:	**PaymentStatusInquiryRequest**
Request Document:	**PaymentStatusInquiryReq**
Web Transfer Request	**HTTP Web Transfer Parameters**

4.4.1 "Payment Status Inquiry Request" Object Specification

The following is the specification of the "PaymentStatusInquiryReq" object shall be sent as one of the parameters of Payment Status Inquiry Request.

Index	Element	Card.	Represent\Type	Description
1.	PaymentStatusInquiryReq	[1..1]	< PaymentStatusInquiryReq >	Object Header
1.1.	PaymentStatusInquiryReq \Sender	[1..1]	<Sender>	Sender Object
1.1.1.	PaymentStatusInquiryReq \Sender\ Id	[1..1]	varchar(8)	Sender ID
1.1.2.	PaymentStatusInquiryReq \Sender\ Name	[1..1]	varchar (100)	Sender Institution Name
1.1.3.	PaymentStatusInquiryReq \Sender\ RandomValue	[1..1]	varchar(36)	Random generated value, min 10 digits, and must be unique for the whole service time
1.1.4.	PaymentStatusInquiryReq \Sender\ Password	[1..1]	varchar(40)	Base64Encoded, the RSA Encrypted value of Password , where the password will be provided by e-finance.

1.2.	PaymentStatusInquiryReq \ SenderRequestNumber	[1..1]	varchar(36)	Sender Request Number "sequence number generated from sender unique per payment request", and not related to the invoice number.

4.4.2 Payment Status Inquiry Request Call format

The following is the detailed description of the payment status inquiry request format; the mentioned parameters should be sent in http request as silent call. The parameters are sufficient to allow the portal to inquiry about payment request using sender request number

S.	Parameter	Type	Description
1.	SenderID	varchar(8)	Sender Institution ID
2.	RandomSecret	varchar(256)	Randomly generated AES key encrypted under e-finance public key, Base64 Encoded
3.	PaymentStatusInquiryRequestObject	varchar(500)	"PaymentStatusInquiryRequestObject" object data AES encrypted using the RandomSecret, Base64 Encoded.
4.	HashedPaymentStatusInquiryRequestObject	varchar(500)	Hashed "PaymentStatusInquiryRequestObject" object data AES encrypted using the RandomSecret, Base64 Encoded.

4.4.3 Payment Status Inquiry Response Call

The following is the detailed description of the payment status inquiry response format; the mentioned parameters should be sent in http response in silent call

4.4.4 "Payment Status Inquiry Response" Object Specification

Index	Element	Card.	Represent\Type	Description
1.	PaymentStatusInquiryResponseObject	[1..1]	< PaymentStatusInquiryResponseObject >	Object Header
1.1.	PaymentStatusInquiryResponseObject \ PaymentRequestObject	[1..1]	<PaymentRequestInitiationReq>	Payment Request Initiation" object

1.2.	PaymentStatusInquiryResponseObject \ PaymentConfirmationObject	[1..1]	< PaymentConfirmationRequest >	"Confirmation Request" Object
1.3.	PaymentStatusInquiryResponseObject\ PaymentRequestStatusObject	[1..1]	< PaymentRequestStatus >	"Payment Request Status" Object

4.4.5. "Payment Request Status" Object Specification

The following is the specification of the "PaymentRequestStatus"

Index	Element	Card.	Represent\Type	Description
1.	PaymentRequestStatus	[1..1]	< PaymentRequestStatus >	Object Header
1.1.	PaymentRequestStatus \Code	[1..1]	Varchar(2)	Status Code
1.2..	PaymentRequestStatus \Name	[1..1]	varchar(200)	Status Name

4.4.6. "Payment Status Inquiry Response Call Format

The following is the detailed description of the payment status inquiry response format that shall be prepared by "Payment Gateway" through a silent call.

S.	Parameter	Type	Description
1.	SenderID	varchar(8)	Sender Institution ID
2.	PaymentStatusInquiryResponseObject	varchar(500)	"Payment Request Initiation" object data AES encrypted using the RandomSecret, Base64 Encoded.
3.	SignedPaymentStatusInquiryResponseObject	varchar(500)	Signing of encrypted PaymentStatusInquiryResponseObjectusing Payment Gateway Private Key

4.4.7 Payment Status Lookup

S.	Code	Name
1.	01	Registered
2.	03	Ready for Collect Payment Amount
3.	04	Processed successfully
4.	12	Processed Failed

5. Security Notes:

5.1. All incoming and outgoing requests are encrypted using AES with key size of 256 bit and this key is RSA encrypted under E-Finance's public key certificate.

5.2. For verification purposes, all requests are hashed using SHA2.

5.3. AES Specifications:

5.3.1. Block Mode: CBC
5.3.2. Padding: PKCS7
5.3.3. Encryption Key Size: 32 bytes
5.3.4. Initialization Vector Size: 16 bytes
5.3.5. Block Size: 16 bytes
5.3.6. Random Secret is a 64 bytes' byte array which holds the AES key in the first 32 bytes and the IV in the remaining 16 bytes, the byte array is then encoded to a Base64 string.

5.4. RSA Specifications:

5.4.1. Block Mode: ECB
5.4.2. Padding: PKCS1