# Gateway Requirements \_v2

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# ChangeLog

Date	Log	
2017-10-29	created	
2017-11-02	Add description about	
	offline cash-in, cash	
	out, shown in Chapter	
	6.7, 6.8, 6.9, 6,10,	
	6.11.	

## 1. Introduction

## 1.1. Purpose

This document is a description of the API Functions that BananaPay hope PeraHub can provide.

## 1.2. Target Audience

PeraHub developers And BananaPay Developers.

## 2. Overview

#### 2.1. Communication Protocal

**HTTPS POST** 

## 3. Definitions

#### 3.1. PeraHub

## 3.2. BananaPay(BNNP)

BNNP will open a company account in pera-hub.

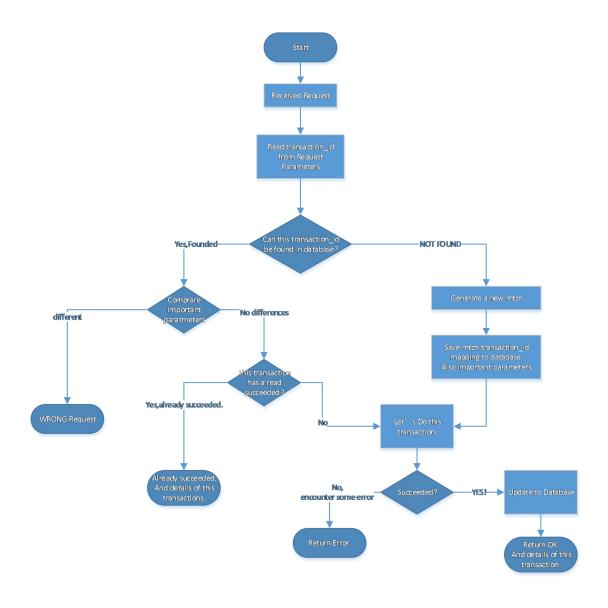
## 3.3. Message

## 3.4. Idempotent

*Idempotent* is a very important features to Transaction System, especially when this system having one than one modules.

To satisfy *Idempotent*, every request between system modules, must have one Unique identity, so we use *transaction\_id* and *mtcn*.

And common sequence of the system may be shown as below.



According the flow shown above, we can ensure that the duplicate request with the same transaction\_id can succeeded ONLY ONCE.

## 3.5. Transaction\_id

## 4. Message Overview

## 4.1. Message List

#### 4.1.1. Message Number

Message Number must follow the rule as "XXXX.YYY.ZZZ.NN",

- XXXX represents the system id, e.g. 'bnnp'
- YYY represents Message name, e.g. '101', this will diff message type.
- ZZZ is reserved, now should be filled as '001'
- NN represents the version no, now should be filled as '01'

### 4.1.2. Message List

No.	Msg No	MsgName	Msg	Need	Need
			Direction	Signature	statement
					check
1.	Bnnp.101.001.01	Authentication And	BNNP ->	Υ	N
		BindCard	pera hub		
2.	Bnnp.201.001.01	Payment after bind	BNNP->pera	Υ	Υ
			hub		
3.	Bnnp.301.001.01	Refund	BNNp->pera	Υ	Υ
			hub		
4.	Bnnp.402.001.01	Payment to bank	Bbnp->pera	Υ	Υ
5.	Bnnp.501.001.01	Transaction Query	BNNP->pera	Υ	N
			hub		
6.	Bnnp.502.001.01	Fee Inquiry	Bnnp->pera	Υ	N
			hub		
7.	bnnp.601.001.01	Offline Cash In By	pera-hub ->	Υ	Υ
		Pera-hub In paper form	bnnp		
8.	bnnp.602.001.01	Offline Cash-out By	perahub->bn	Υ	Υ
		perahub in paper form	np		
9.	bnnp.701.001.01	Offline Cash in by	pera-hub->b	Υ	Υ
		pera-hub in E-FORM	nnp		

10.	bnnp.702.001.01	offline cash-out by	perahub->bn	Υ	Υ
		perahub in E-FORM	np		
11.	bnnp.703.001.01	Query E-form	pera-hub ->	Υ	N
			bnnp		

## 4.2. Data Type

## 4.3. Data Requirements

## 4.4. Encoding

UTF-8

### 4.5. Reserved

# 5. Message Syntax

## 5.1. Overview

## 5.2. How to deal with exceptions

#### 6. API Functions

#### 6.1. Authentication And BindCard[Bnnp.101.001.01]

#### 6.1.1. Features

This API includes two parts: Authentication and BindCard.

User who has a pera-hub visa card can initiate an application in BNNP and fill required information, and BNNP post message to pera-hub.

Pera-hub check information is correct or not.

If information is correct, BNNP will request again and pera-hub complete the BindCard operation.

After BindCard operation, BNNP and perahub can indetify this user by bind\_serialno.

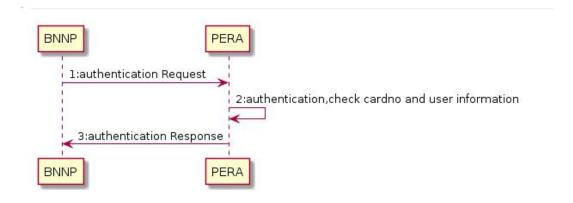
#### 6.1.2. Sequence diagram

#### 6.1.2.1. Authentication

At first, user fills up his information in BNNP APP, and post to bnnp.

BNNP post user's form to pera.

Pera check this form is correct or not.



#### 6.1.2.2. Bind-Card

Second, if 6.1.2.1 Authentication is successful, then bnnp will generate a bind\_serialno, and post request data to pera hub again.



## **6.1.3. Request Parameters**

Name	Туре	Required	Description
bind_serialno	Alpha:32	0	This filed is MUST when 6.1.2.2.
			In Request 6.1.1.1 leaves empty.
Mobile	Alpha:32	M	
Surname	Alpha:32		
Givenname	Alpha:32		
Middlename	Alpha:32		
Nationality	Alpha:32		
id	Alpha:32	М	Customer's national ID CardNo
idtype	Alpha:32	М	Customer's national ID Type
Wucardno	Alpha:32		At first, we support wu-card only.
			so pera-hub can validate user
			information and WU card
			account.
scene	Alpha	М	"authen": in case 6.1.2.1
			"bind" : in case 6.1.2.2

#### **6.1.4.** Response parameters

Name	Туре	Required	Description
bind_serialno	Alpha:32	0	This field is MUST when response
			to 6.1.2.2.
Utcn	Alpha:32	0	This field is MUST provided in the
			response to 6.1.2.2.
			This field should be generated by
			Perahub, only mapping to
			bind_serialno exactly 1:1.

#### 6.1.5. Questions

• What information is submit to Pera-hub when user apply a new Pera-hub Visa Card in pera-hub branch?

## 6.2. Payment after bind[Bnnp.201.001.01]

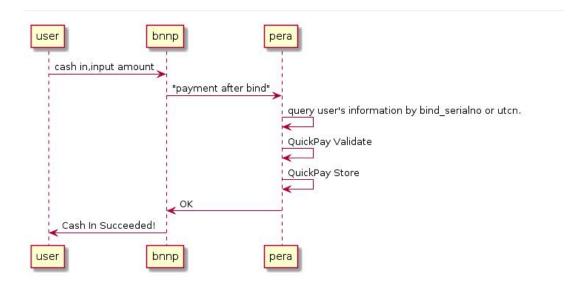
#### 6.2.1. Features

By this function, customer can transfer their money from their bank account to BNNP Company Account. Customer's bank account can be identified by the bind\_serialno or utcn.

When user want to pay to BNNP, user submit their request, and BNNP will post request data to perahub, and perahub give respond to BNNP.

This payment transactions record should be listed in T+1's 8.1 PaymentCheckFile.

### 6.2.2. Sequence diagram



## 6.2.3. Request parameters

Name	Туре	Required	Description
bind_serialno	Alpha:32	М	
utcn	Alpha:32	М	
transaction_id	Alpha:32	М	
principal_amount			Amount to Send
fixed_amount_flag			F if customer wants a fixed
			principal amount in the
			destination country and will not
			be subject to currency
			fluctuation.
			Otherwise N

## **6.2.4.** Response parameters

Name	Туре	Required	Description
transaction_id	Alpha:32	M	
mtcn			

new_mtcn		
advisory_text		Transaction Date and Time
filing_date		
filing_time		
pin_message		
other_message_1		
other_message_2		

## 6.3. Refund[Bnnp.301.001.01]

#### 6.3.1. Features

Function 6.3 *Refund* will be the opposite of Function 6.2 *Payment after bind*. In some case, BNNP should return money to one customer, we will call this Function Refund.

One Payment may refunded more than one times, and the sum of the refunded amount SHOULD NOT exceed the amount payed in older payment.

THE REFUND should be listed in the account check file on T+1 Day.

### 6.3.2. Sequence diagram

### **6.3.3.** Request parameters

Name	Туре	Required	Description
Ori_transaction_id	Alpha:32	M	Transaction_id of older payment.
Ori_Mtcn		М	Mtcn mapping with
			transaction_id, returned by
			perahub in function payment.
Ori_principal_amount			Payed by customer in older
			payment.
Transaction_id	Alpha:32	M	Refund_id is generated by BNNP,
			and must be exactly only one in
			the system.
principal_amount		М	The part of principal_amount, in
			this request,this part of money

will be return to customer.	
-----------------------------	--

#### **6.3.4.** Response parameters

Name	Туре	Required	Description
transaction_id	Alpha:32	М	Transaction_id of older payment.
mtcn		М	Mtcn mapping with
			transaction_id, returned by
			perahub in function payment.
principal_amount			Payed by customer in older
			payment.
refund_id	Alpha:32	М	Refund_id is generated by BNNP,
			and must be exactly only one in
			the system.
refund_amount		М	The part of principal_amount, in
			this request,this part of money
			will be return to customer.
refund_mtcn		М	Generated by perahub, and
			mapping with refund_id by 1:1 .

### 6.3.5. Questions

How about the fee? Let's talk about this later.

## 6.4. Payment-to-Bank[Bnnp.402.001.01]

### 6.4.1. Features

This function will transfer money to some bank account shown in request parameters. And this function seems like FUNCTION 3.2.3.3. SendMoney: Direct to Bank.

When BNNP call this function, perahub acts 3.2.3.3. SendMoney: Direct to Bank AND 3.2.3.4. SendMoney: Direct to Bank Store. But the sender's information are fixed to BNNP Company bank account.

Receivers' information will be provided in request parameters.

Besides, BNNP will post parameters transaction\_id, pera-hub should store transaction\_id, when BNNP retry to call this function use the same transaction\_id ,pera-hub MUST transfer money ONLY ONCE.

### **6.4.2.** Sequence diagram

### **6.4.3.** Request parameters

Name	Туре	Required	Description
transaction_id	Alpha:32	M	
principal_amount			Amount to Send
fixed_amount_flag			F if customer wants a fixed
			principal amount in the
			destination country and will not
			be subject to currency
			fluctuation.
			Otherwise N
Bank_name		M	
Bank_code		M	
Account_number		М	
Bank_location		M	
Account_suffix		M	
Receiver_addr_line		С	
Receiver_addr_line2		С	
Receiver_city		С	
Receiver_state		С	
Receiver_postal_code		С	

### **6.4.4.** Response parameters

Name	Tyne	Required	Description
INGITIC	I I y p c	i nequired	Description

transaction_id	Alpha:32	М	
mtcn			
new_mtcn			
advisory_text			Transaction Date and Time
filing_date			
filing_time			
pin_message			
other_message_1			
other_message_2			

## 6.5. Transaction Query[Bnnp.501.001.01]

- 6.5.1. Features
- 6.5.2. Sequence diagram
- **6.5.3.** Request parameters
- **6.5.4.** Response parameters
- 6.6. Fee Inquiry[Bnnp.502.001.01]
- 6.6.1. Features
- **6.6.2. Sequence diagram**
- **6.6.3. Request parameters**
- **6.6.4.** Response parameters

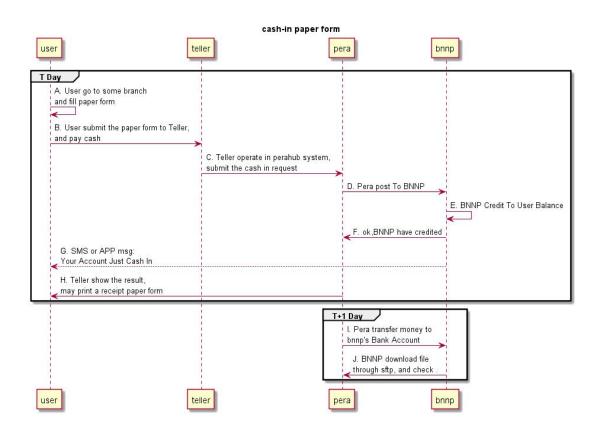
# 6.7. Offline Cash In By Pera-hub In paper form[bnnp.601.001.01]

#### 6.7.1. Features

When pera-hub post user's information,mtcn,amount and other information to BNNP through this function, BNNP will fully trust perahub and credit amount to user's balance immediately.

And in T+1 Day, BNNP will check the AccountCheckFile and the Company Bank Account Statement .

### 6.7.2. Sequence diagram



- a. User walk in pera-hub's branch, fill a paper form.
  - User MUST provide their mobile-no and cash-in amount exactly right.
- Also user should provide other information as CentralBank demanded, such as ID card,name,birthday.
  - b. User submit paper form to a teller, and pay cash.

- c. Teller of pera-hub check the form, receive cash and submit request to pera-hub system.
- d. Pera-hub post data to BNNP by this function, and bnnp will credit to this user's balance.
- e. BNNP check the request is valid or not. If valid, credit to user's balance.
- f. BNNP return 'ok'.
- g. BNNP push APP MSG or SMS to user's mobile.
- h. Teller show cash-in result to user, print paper receipt if needed.
- i. Pera-hub transfer money to BNNP's Bank Account
- j. BNNP check the bank account statement .

#### 6.7.3. Request parameters

Name	Туре	Required	Description
Mtcn	Alpha:32	MUST	Pera-hub generate this number, this field just like transaction_id in payment after bind.
			In this cash-in process, this mtcn should keep the same.
total_amount		М	The amount customer has payed in cash to teller, MUST NOT be 0 .
principle_amount		M	The amount should be credited to customer's balance account in BNNP, identified by <i>mobile</i> , MUST NOT be 0.
fee_amount		M	This amount received by PeraHub as fee, may be 0.  Anytime, total_amount MUST EQUAL TO principle_amount+fee_amount.
user_information		M	user_information, we can discuss about this later, may need fields like:  Surname Givenname Middlename Nationality id id idtype

#### 6.7.4. Response parameters

Name	Туре	Required	Description
transaction_id	Alpha:32	М	Generated by BNNP, and this
			transaction_id will be mapping to
			mtcn one by one.
mtcn			equals to request
mobile			equals to request
credited_balance			Amount credited to customer's
			account this time

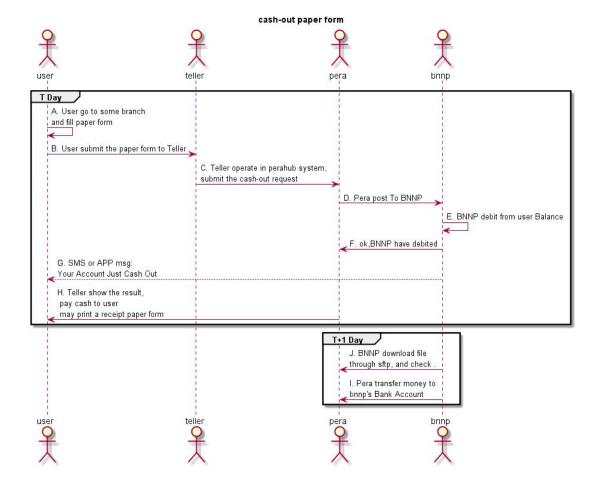
# 6.8. Offline Cash-Out By Pera-hub In paper form[bnnp.602.001.01]

#### 6.8.1. Features

When pera-hub post user's information,mtcn,amount and other information to BNNP through this function, BNNP will fully trust perahub and debit amount from user's balance account immediately.

And in T+1 Day, BNNP will check the AccountCheckFile and pay money to perahub's company bank account.

### 6.8.2. sequence diagram



## 6.8.3. Request parameters

Name	Туре	Required	Description
Mtcn	Alpha:32	MUST	Pera-hub generate this number,
			this field just like transaction_id in
			payment after bind.
			In this cash-in process, this mtcn
			should keep the same.
Mobile	Alpha:32	М	
total_amount		M	The amount customer has payed
			in cash to teller, MUST NOT be 0 .
principle_amount		M	The amount should be credited to
			customer's balance account in
			BNNP, identified by <i>mobile</i> , MUST
			NOT be 0 .
fee_amount		M	This amount received by PeraHub
			as fee, may be 0.

		Anytime, total_amount MUST EQUAL TO principle_amount+fee_amount.
user_information	M	user_information, we can discuss about this later, may need fields like:  Surname Givenname Middlename Nationality id id idtype

## 6.8.4. Response parameters

Name	Туре	Required	Description
transaction_id	Alpha:32	М	Generated by BNNP, and this
			transaction_id will be mapping to
			mtcn one by one.
mtcn			equals to request
mobile			equals to request
debited_balance			Amount credited to customer's
			account this time

# 6.9. Offline Cash in by pera-hub in E-FORM[bnnp.701.001.01]

#### 6.9.1. Features

As shown In 6.7 Cash In paper-form, customer and the teller must fill many information, and customer can do this only in the branch, and teller will operate a lot in pera-hub system.

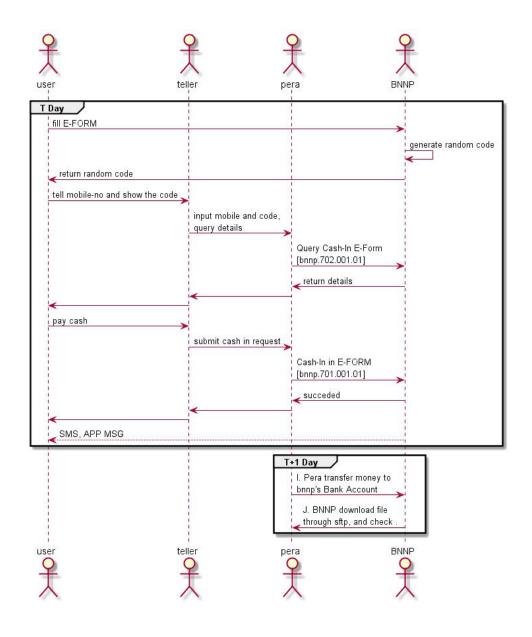
This function will help customer and teller cash-in much easier.

When a customer want cash-in, he can fill form in his APP, and BNNP will generate a random code. Customer tell his mobile-no to teller, and show this code.

Teller can query all form details by mobile-no and code.

After that, teller can receive cash from customer, and operate in pera system to credit to customers' balance .

#### 6.9.2. Sequence diagram



## 6.9.3. Request parameters

Name	Туре	Required	Description
mtcn	Alpha:32	MUST	Pera-hub generate this number,
			this field just like transaction_id in
			payment after bind.
			In this cash-in process, this mtcn
			should keep the same.
transaction_id		MUST	This field is returned in Query
			Cash-In E-Form[bnnp.703.001.01].
total_amount		М	The amount customer has payed
			in cash to teller, MUST NOT be 0.
principle_amount		М	The amount should be credited to
			customer's balance account in
			BNNP, identified by <i>mobile</i> , MUST
			NOT be 0 .
fee_amount		M	This amount received by PeraHub
			as fee, may be 0.
			Anytime, total_amount MUST
			EQUAL TO
			principle_amount+fee_amount.
user_information		M	user_information, we can discuss
			about this later, may need fields
			like :
			● Surname
			Givenname
			Middlename
			Nationality
			● id
			• idtype

## **6.9.4.** Response parameters

Name	Туре	Required	Description
mtcn	Alpha:32	MUST	Pera-hub generate this number,

		this field just like transaction_id in payment after bind.
		In this cash-in process, this mtcn should keep the same.
transaction_id	MUST	This field is returned in <i>Query</i> Cash-In E-Form[bnnp.703.001.01].
total_amount	М	The amount customer has payed in cash to teller, MUST NOT be 0 .
principle_amount	М	The amount should be credited to customer's balance account in BNNP, identified by <i>mobile</i> , MUST NOT be 0.
fee_amount	М	This amount received by PeraHub as fee, may be 0.
		Anytime, total_amount MUST EQUAL TO principle_amount+fee_amount.

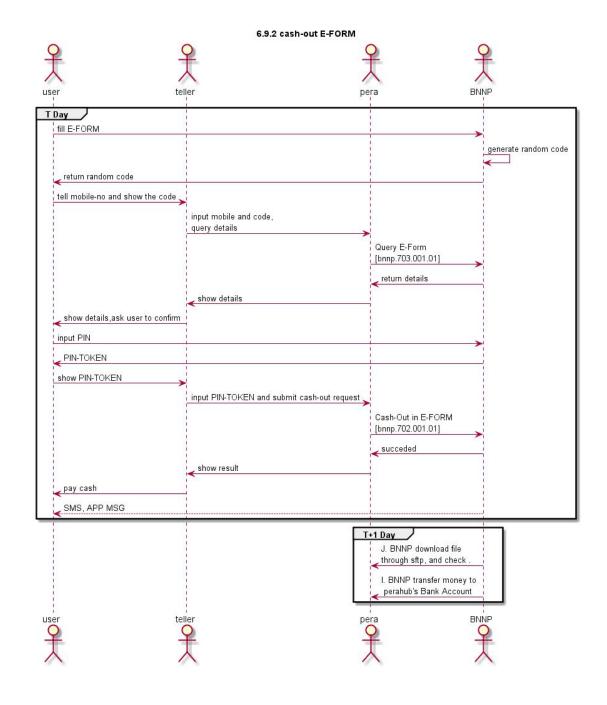
# 6.10. offline cash-out by perahub in E-FORM [bnnp.702.001.01]

#### **6.10.1.** Features

This function can help customer get cash in perahub branch and debit from their BNNP 's balance.

The teller pay cash to customer, and in T+1 Day, BNNP will pay total amount to pera-hub.

## 6.10.2. Sequence diagram



## **6.10.3.** Request parameters

Name	Туре	Required	Description
PIN-TOKEN		MUST	Customer will show this to teller.
mtcn	Alpha:32	MUST	Pera-hub generate this number, this field just like <i>transaction_id</i> in payment after bind.

		In this cash-out process, this mtcn
		should keep the same.
transaction_id	MUST	This field is returned in Query
		Cash-In E-Form[bnnp.703.001.01].
total_amount	M	The amount should be debited
		from customer's balance account
		in BNNP, identified by <i>mobile</i> ,
		MUST NOT be 0 .
principle_amount	M	The amount should be given to
		customer in cash.
fee_amount	M	This amount received by PeraHub
		as fee, may be 0.
		Anytime, total_amount MUST
		EQUAL TO
		principle_amount+fee_amount.
user_information	M	user_information, we can discuss
		about this later, may need fields
		like:
		Surname
		Givenname
		Middlename
		Nationality
		• id
		● idtype

## **6.10.4.** Response parameters

Name	Туре	Required	Description
mtcn	Alpha:32	MUST	Pera-hub generate this number, this field just like transaction_id in payment after bind.  In this cash-in process, this mtcn should keep the same.
transaction_id		MUST	This field is returned in <i>Query Cash-In E-Form[bnnp.703.001.01]</i> .
total_amount		М	The amount customer has payed in cash to teller, MUST NOT be 0 .

principle_amount	M	The amount should be credited to
		customer's balance account in
		BNNP, identified by <i>mobile</i> , MUST
		NOT be 0 .
fee_amount	M	This amount received by PeraHub
		as fee, may be 0.
		Anytime, total_amount MUST
		EQUAL TO
		principle_amount+fee_amount.

## 6.11. Query E-form[bnnp.703.001.01]

#### **6.11.1.** Features

As described in *Features of Cash-In In E-FORM and Features of Cash-Out In E-FORM*, BNNP will return all form details, and pera-hub can stored this form details as central-bank demanded.

### **6.11.2.** Sequence diagram

shown in 6.9.2.

### **6.11.3.** Request parameters

Name	Туре	Required	Description
Mobile	Alpha:32	M	
code		M	Customer will show this to teller.

## **6.11.4.** Response parameters

Name	Туре	Required	Description
transaction_id		MUST	Transaction_id generated by
			BNNP.
total_amount		М	The amount customer has payed
			in cash to teller, MUST NOT be 0 .
principle_amount		M	The amount should be credited to

			customer's balance account in BNNP, identified by <i>mobile</i> , MUST
			NOT be 0 .
fee_amount		M	This amount received by PeraHub
			as fee, may be 0.
			Anytime, total_amount MUST
			EQUAL TO
			principle_amount+fee_amount.
user_information		M	user_information, we can discuss
			about this later, may need fields
			like :
			Surname
			Givenname
			Middlename
			Nationality
			• id
			● idtype
order_state	int	М	this order state:
			• init:1
			• succeeded:2
			• closed:9

# 7. Exceptions

## 8. AccountCheckFile

## 8.1. PaymentCheckFile

# Append A

## A.1 TrxCtgyCd

# **Append B**

- **B.1 SysRtnCd**
- **B.2 BizStsCd**

# **Append C**

**C.1 Reserved Words**