**VIRTUAL ACCOUNT CONNECTION MATERIAL**

**For Merchant**

**Hà nội 09/2018**

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# **History of update**

|  |  |  |  |
| --- | --- | --- | --- |
| Date of update | Updated by | Updated content | Version |
| 20/09/2018 | Bùi Văn Luận | Document creation | 1.0 |
| 27/12/2018 | Bùi Văn Luận | Change field name: account\_name => customer\_name | 1.1 |
| 11/03/2019 | Bùi Văn Luận | Des accept notification API |  |
|  |  |  |  |
|  |  |  |  |

# **Terms**

|  |  |  |
| --- | --- | --- |
| **STT** | **Thuật ngữ** | **Ý nghĩa** |
| 1 | V.A | Vitual Account |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

# **Steps integrate**

|  |  |  |  |
| --- | --- | --- | --- |
| **STT** | **Work** | **Active Epay** | **Active Merchant** |
| 1 | Send document connect and sample code | x |  |
| 2 | Integrate API register, Update info VA, Cancel register, exam status register (mapping) |  | x |
| 3 | Construct accept notification API | x |  |
| 4 | Integrate accept notification API |  | x |
| 5 | Integrate test (for testcase of EPAY) | x | x |
| 6 | Send info connect for production system | x |  |
| 7 | Test transaction in production system |  | x |
| 8 | Transaction confirm run correct in production system | x | x |

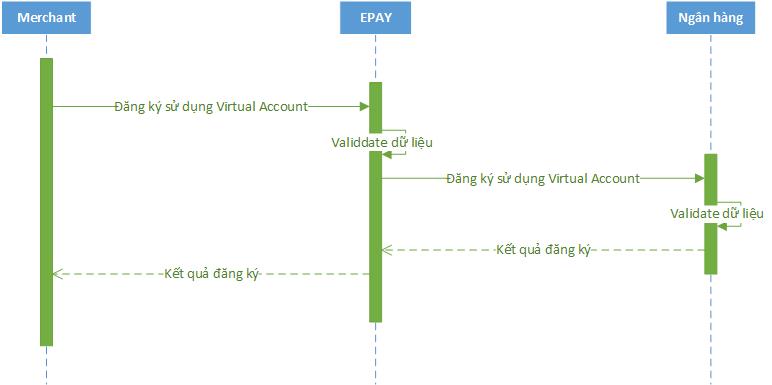
# **Info system test**

* **URL:** <http://42.113.207.131:10002/ApiResf_VirtualAccount/services/registerVA>
* **Link site merchant:** <http://42.113.207.131:9002/login>

# **Description of functions on API**

## ***Virtual Account Registration Function***

### ***Processing flow***



Registration result

Registration result

Validate data

Register for VA usage

Validate data

Register for VA usage

Process description:

1. Merchant calls Virtual account registration function, Epay decrypts and check data
2. Epay call to API of the bank to register for Virtual account usage for customer sent by Merchant
3. The bank returns registration result
4. Epay returns registration result to Merchant.

### ***Request***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Parameter** | **Mandatory** | **Data type/ length** | **Description** |
| 1 | pcode | Y | String | Registration function = **9000**  Identifying function on API. |
| 2 | merchant\_code | Y | String(50) | Code of Merchant, provided to Merchant through connection parameter Email |
| 3 | data | Y | String | Registration data, encrypted by 3DES, described in the following table |

Description of **data**:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Parameter** | **Mandatory** | **Data type/ length** | **Description** |
| 1 | map\_id | Y | String(100) | ID mapped to virtual account (for example: Student ID, user name, contract ID….) |
| 2 | amount | Y | Number | Allowed amount to be deposited to Virtual account |
| 3 | start\_date | Y | String(14) | The effective date of V.A, format: yyyymmdd000000 (Example: 20190328000000) |
| 4 | end\_date | Y | String(14) | The expiration date of V.A, format: yyyymmdd235959 (Example: 20251231235959)   |  |  | | --- | --- | | Káº¿t quáº£ hÃ¬nh áº£nh cho warning icon | Customer only can desposite to Virtual Account on about start\_date to end\_date. If the customer deposite beyond this time, the transaction will fail. | | Káº¿t quáº£ hÃ¬nh áº£nh cho warning icon | After end\_date time, the Virtual Account system will automatically cancel the expired Virtual Accounts, the V.As | |
| 5 | condition | Y | String(2) | Condition: 01: No condition; 02: accept the amount bigger or equal to “amount”; 03: accept the exact amount equal to “amount”; 04: accept the amount smaller or equal to “amount” |
| 6 | customer\_name | Y | String(50) | Name of V.A holder. Capitalized letters without tones: NGUYEN VAN A   |  |  | | --- | --- | | Káº¿t quáº£ hÃ¬nh áº£nh cho info icon | Merchant does not need to append the company name before the V.A account holder name because the system Virtual Account of EPAY will automatically add this parameter. Merchants only need to send this information to EPAY.  However, company name + account holder name must be <50 characters including white space. | |
| 7 | request\_id | Y | String(50) | Transaction ID, unique. Format: merchant\_code +”\_”+ serial number |
| 8 | bank\_code | Y | String(10) | Bank code of virtual account |
| 9 | extend | Y | String(no limit) | Described in the following table |

Description of **extend**:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Parameter** | **Mandatory** | **Data type/ length** | **Description** |
| 1 | phone | N | String(50) | Customer’s phone number |
| 2 | email | N | String(255) | Customer’s email |
| 3 | address | N | String(1024) | Customer address |
| 4 | id | N | String(50) | Customer’s ID number |

**Template of json request string:**

{"pcode":"9000","merchant\_code":"SAT","data":""}

**json request string after decryption:**

{"pcode":"9000","merchant\_code":"SAT","data":{"map\_id":"hnluanbv","amount":100000,"start\_date":"20180102000000","end\_date":"20180102000000","condition":"01","customer\_name":"BUI VAN LUAN","request\_id":"SAT2018018108334343","bank\_code":"WOORIBANK","extend":{"phone":"0945278384","email":"luanbv@vnptepay.com.vn","address":"Hoa binh","id":"222333444"}}}

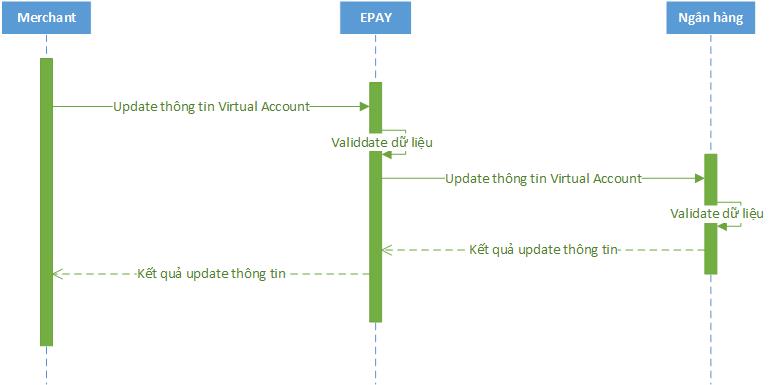
### ***Response***

json response string:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Parameter** | **Mandatory** | **Data type/ length** | **Description** |
| 1 | response\_code | Y | String(2) | ID of returned error |
| 2 | message | Y | String(1024) | Error description |
| 3 | account\_no | N | String(50) | Virtual account ID (response\_code = 00) |
| 4 | account\_name | N | String | Name of Virtual account(response\_code = 00) |
| 5 | bank\_code | N | String(50) | Bank code (response\_code = 00) |
| 6 | bank\_name | N | String(1024) | Bank name (response\_code = 00) |
| 7 | map\_id | N | String | Mapping code from mechant (response\_code = 00) |

## **Function of updating mapping information**

### ***Processing flow***



Validate data

Validate data

Info update result

Info update result

Update VA info

Update VA info

Description of process: Similar to the flow of Virtual Account Registration

### ***Request***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Parameter** | **Mandatory** | **Data type/ length** | **Description** |
| 1 | pcode | Y | String | Registration function = **9001**  Identifying function on API. |
| 2 | merchant\_code | Y | String(50) | Code of Merchant, provided to Merchant through connection parameter Email |
| 3 | data | Y | String | Registration data, encrypted by 3DES, described in the following table |

Description of **data**:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Parameter** | **Mandatory** | **Data type/ length** | **Description** |
| 1 | map\_id | Y | String(100) | ID mapped to virtual account (for example: Student ID, user name, contract ID….) |
| 2 | account\_no | Y | String(50) | Virtual account number |
| 3 | customer\_name | N | String(200) | Name of VA |
| 4 | amount | N | Number | Allowed amount to be deposited to Virtual account |
| 5 | start\_date | N | String(14) | The effective date of V.A, format: yyyymmddhhmiss |
| 6 | end\_date | N | String(14) | The expiration date of V.A, format: yyyymmddhhmiss |
| 7 | condition | N | String(2) | Condition: 01: No condition; 02: accept the amount bigger or equal to “amount”; 03: accept the exact amount equal to “amount”; 04: accept the amount smaller or equal to “amount” |
| 8 | account\_name | N | String(200) | Name of V.A holder. Capitalized letters without tones: NGUYEN VAN A |
| 9 | request\_id | Y | String(50) | Transaction ID, unique. Format: merchant\_code +”\_”+ serial number |
| 10 | extend | N | String(no limit) | Described in the following table |

Description of **extend**:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Parameter** | **Mandatory** | **Data type/ length** | **Description** |
| 1 | phone | N | String(50) | Customer’s phone number |
| 2 | email | N | String(255) | Customer’s email |
| 3 | address | N | String(1024) | Customer address |
| 4 | id | N | String(50) | Customer’s ID number |

**Encryption string:**

{"pcode":"9001","merchant\_code":"HOME\_CREDIT","data":""}

**String after decryption:**

{"pcode":"9001","merchant\_code":"HOME\_CREDIT","data":{"map\_id":"hnluanbv","amount":2000000,"start\_date":"20171001235959","end\_date":"20181001235959","condition":"02","customer\_name":"BUI VAN LUAN","request\_id":"111222333444","account\_no":"900000000008","extend":{"phone":"0888130826","email":"builuanhb@gmail.com","address":"Phu Do","id":"111222333"}}}

### ***Response***

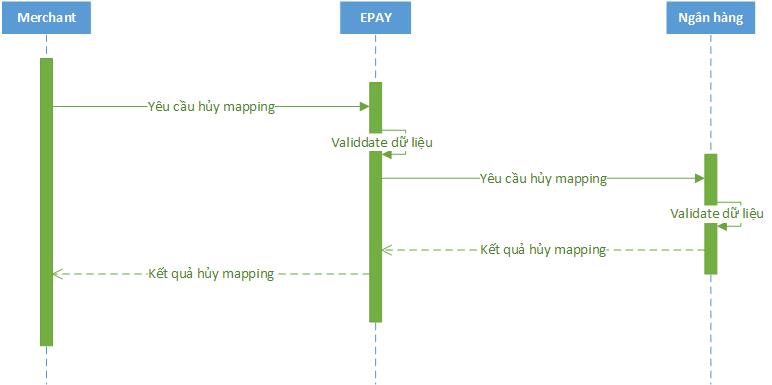
|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Parameter** | **Mandatory** | **Data type/ length** | **Description** |
| 1 | response\_code | Y | String(2) | ID of returned error |
| 2 | message | Y | String(1024) | Error description |

## **Function of mapping cancelation**

To avoid waste V.A accounts when there is no need to use, Merchant uses this function to cancel Mapping. Virtual Account account after mapping cancel will be released and can map with another map\_id of the same Merchant (This Virtual Account account of Merchant will not be use for other Merchants)

|  |  |
| --- | --- |
| Káº¿t quáº£ hÃ¬nh áº£nh cho warning icon | EPAY will automatically cancel the map with the V.As for 6 months if no deposit transactions generated |

### ***Processing flow***



Validate data

Validate data

Mapping cancelation result

Mapping cancelation result

Mapping cancelation request

Mapping cancelation request

Description of process: Similar to the flow of Virtual Account Registration

### ***Request***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Parameter** | **Mandatory** | **Data type/ length** | **Description** |
| 1 | pcode | Y | String | Registration function = **9002**  Identifying function on API. |
| 2 | merchant\_code | Y | String(50) | Code of Merchant, provided to Merchant through connection parameter Email |
| 3 | data | Y | String | Registration data, encrypted by 3DES, described in the following table |

Description of **data**:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Parameter** | **Mandatory** | **Data type/ length** | **Description** |
| 1 | map\_id | Y | String(100) | ID mapped to virtual account (for example: Student ID, user name, contract ID….) |
| 2 | request\_id | Y | String(50) | Transaction ID, unique. Format: merchant\_code +”\_”+ serial number |
| 3 | account\_no | Y | String(50) | Virtual account number |

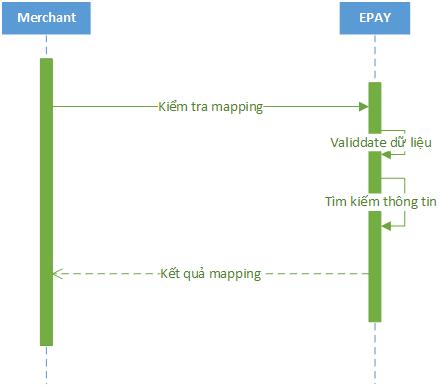
### ***Response***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Parameter** | **Mandatory** | **Data type/ length** | **Description** |
| 1 | response\_code | Y | String(2) | ID of returned error |
| 2 | message | Y | String(1024) | Error description |

## **Function of mapping status view**

Purpose: Checking if the mapping transaction is successful or not.

### ***Processing flow***



Inquiry

Validate data

Mapping status result

Check mapping status

Description of process:

1. Merchant creates request for mapping transaction status view
2. Epay checks data
3. Epay inquires data in Database of Epay
4. Epay returns mapping result to Merchant

### ***Request***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Parameter** | **Mandatory** | **Data type/ length** | **Description** |
| 1 | pcode | Y | String | Registration function = **9099**  Identifying function on API. |
| 2 | merchant\_code | Y | String(50) | Code of Merchant, provided to Merchant through connection parameter Email |
| 3 | data | Y | String | Registration data, encrypted by 3DES, described in the following table |

Description of **data:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Parameter** | **Mandatory** | **Data type/ length** | **Description** |
| 1 | request\_id | Y | String(50) | Transaction ID, unique. Format: merchant\_code +”\_”+ serial number |

### ***Response***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Parameter** | **Mandatory** | **Data type/ length** | **Description** |
| 1 | response\_code | Y | String(2) | ID of returned error |
| 2 | message | Y | String(1024) | Error description |
| 3 | account\_no | N | String(50) | Virtual account ID (response\_code = 00) |
| 4 | account\_name | N | String | Name of Virtual account(response\_code = 00) |
| 5 | bank\_code | N | String(50) | Bank code (response\_code = 00) |
| 6 | bank\_name | N | String(1024) | Bank name (response\_code = 00) |
| 7 | map\_id | N | String | Mapping code from mechant (response\_code = 00) |

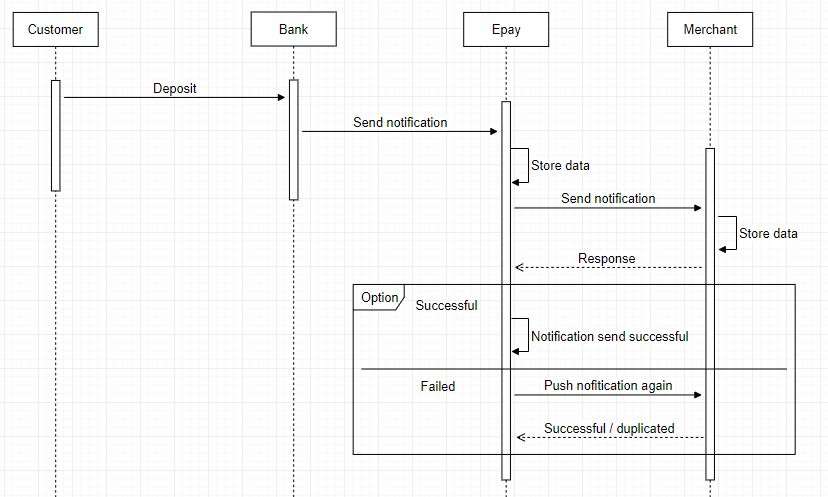
## **Error code table (Func 6.1, 6.2, 6.3, 6.4)**

|  |  |
| --- | --- |
| **Error code** | **Description** |
| 00 | Successful |
| 01 | Duplication in request Id => When receiving this message, Merchant calls function **“Mapping status view”** to check if the transaction is successful or not. |
| 02 | Message request is in incorrect format |
| 03 | Transmitted information is incorrect, having message informing which information is incorrect |
| 04 | Customer already successfully mapped previously |
| 13 | Unsuccessful (without knowing the reason) |

## **Accept Balance fluctuation notification of Merchant**

This API is built by Merchant to receive notifications when a Virtual account deposited

### ***Processing flow***



Description of process:

1. Customer use mode deposit: counter, mobile banking, internet banking for desposit of account Virtual
2. Bank send balance fluctuation notify to Epay
3. Epay receive and exam data, then Epay send notify to Merchant
4. Merchant receive and exam balance
   1. Case successful: Merchant receive notify of balance changes
   2. Case fail: Merchant don’t receive notify, Epay send try again balance fluctuation notify to Merchant

### ***Request***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Parameter** | **Data type** | **Mandatory** | **Desc** |
| 1 | RequestId | String (50) | Y | Request ID gennarate by EPAY, Format: PartnerCode + EP + YYYYMMDD + Random. |
| 2 | RequestTime | String (18) | Y | Merchant request time (host date time): YYYY-MM-DD HH:MM:SS |
| 3 | BankTranTime | String (18) | N | The time that End user deposit money to Virtual account:  YYYY-MM-DD HH:MM:SS |
| 4 | ReferenceId | String (50) | Y | Reference Id: gennarate by EPAY. Merchant have to make this parameter unique key in Merchant system.   |  |  | | --- | --- | | Káº¿t quáº£ hÃ¬nh áº£nh cho warning icon | Merchant requests that this field be unique key, not save same because EPAY has a process that automatically repels push transactions that have not been successful, otherwise it will lead to Merchant receiving the same transaction repeatedly. | |
| 5 | MapId | String (50) | Y | Contract number/customerId/…  It’s |
| 6 | Amount | Number | Y | The amount that customer deposit to Virtual account |
| 7 | Signature | String (200) | Y | Input: RequestId|ReferenceId|RequestTime |Amount| Fee |
| 8 | MerchantCode | String(50) | Y | Merchant code |
| 9 | Fee | Number | Y | Fee |
| 10 | VaName | String(50) | Y | Virtual account name |
| 11 | VaAcc | String(50) | Y | Virtual account number |
| 12 | BankCode | String(6) | N | Bank code of Virtual account |
| 13 | BankName | String(50) | N | Bank name of Virtual account |

### ***Request sample***

{

"RequestID" : "1537512895604088499",

"MerchantCode":"FANTUAN ",

"Amount":"1000000",

"Fee":"0",

"MapId":"hnluanbv115",

"VaAcc":"900000002",

"VaName":"NGUYEN VAN A",

"BankCode":"970436",

"BankName":"WOORIBANK",

"RequestTime" : "2018-09-21 13:54:55",

"BankTranTime " : "2018-09-20 10:54:55",

"ReferenceId":"SAT2018092641537502715094",

"Signature":"19C9FED634CEDD647029066CDB32891A6830A1CD9B91614B70D36B8F65FFAA0E7EF5236F5B365033B7EC73C00B12CDAE83FD4CA8BFF79793DD5D9FC925966C95DF60FD3F34FD89364783F3FF8BCFE623205652B762550FF24E82DEFFD6872446CDCA57C397DA51D670F244BBB8B6BDBF6261989CDED335403A4116766C321BBC"

}

### ***Response***

|  |  |  |  |
| --- | --- | --- | --- |
| **No** | **Parameter** | **Data type** | **Description** |
| 1 | ResponseCode | Int (4) | ID of returned error |
| 2 | ResponseMessage | String (200) | Error description |

### ***Error table***

|  |  |
| --- | --- |
| Error code | **Description** |
| 200 | Push notify successful to Merchant |
| 99 | Timeout |
| 11 | Fail |
| 102 | Duplication in request Id (Merchant accepted Notification befor) |
| 103 | Signature wrong |
| 110 | PartnerCode wrong |
| 124 | The required field is not entered, any missing field will be specified in Message |
| 125 | Amount wrong |
|  |  |

## ***List of connected banks***

|  |  |  |
| --- | --- | --- |
| **STT** | **Bank code** | **Bank name** |
| 1 | WOORIBANK | WOORI BANK Vietnam |
| 2 |  |  |