# POSA – API Developer Guide

# Version 1.0.2

*Point of sales activation*

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# Version Control

| Rev No | Author | Changes | Date | Approved |
|---|---|---|---|---|
| **1.0.0** | Vincent Seaborne | Initial draft document developed and submitted for review. | 2022/11/11 | |
| **1.0.1** | Vincent Seaborne | Revision, correction and additions. Adding library repository paths. | 2023/06/15 | |
| **1.0.2** | Vincent Seaborne | Transaction retrieval functions. Correction of definitions and field naming / types. | 2025/07/08 | R de Breyn |

## Documentation location

The API documentation is constantly updated as new requirements or features are added.

The only authorized location for this documentation is:

https://downloads.paythem.net/05_API_Libraries/

If you receive this documentation via email or other means, please immediately check the above link to confirm you have received the latest.

# PayThem VVS System overview

The PayThem VVS system is a JSON based, REST-like API service. It enables 3rd parties to consume web services provided by PayThem via the VVS Platform.

3rd party clients can connect to PayThem's Virtual Voucher System (VVS) to expand their current offerings or build new applications via direct integration with PayThem's available warehouse of vouchers or POSA services. Through this, the client can retain their own identity and branding while expanding their own product offerings within their own application environment, including point of sales activation.

## Security and encryption

All communication with the VVS system has multiple layers of encryption, authentication and verification. To secure all transactions, all communications are via an SSL secured URL and must be used with the HTTP POST method (unless the documentation clearly specifies otherwise).

When implementing the API:

- Clients must ensure, when communicating with the VVS system, that the PayThem SSL certificate is valid.
- Only parameters of HTTP POST will be processed. GET / DELETE / PUT / all others are ignored, and overuse may trigger security measures which can cause IP addresses to be banned.
- VVS API supports the following encryption protocols:
    - OpenSSL AES-CBC-256-OPENSSL
- **For an extra layer of security, we require each API consuming client to provide us with the public (internet) static IP address of the source server from which API calls will be made. Any calls from any other IP addresses will be ignored and could lead the account to be blocked and the IP address blacklisted. DDNS and DHCP IP addresses will not be accepted.**
- The client's server's time zone and a timestamp in format "yyyy-mm-dd H:i:s" format must be inserted into each query to prevent replay attacks. Please ensure your time zone and time is set correctly, preferably by a NTP service to minimize risk. A maximum of 30 second deviation from our servers will be tolerated before errors are raised.
- All character encoding must be UTF-8 based.
- Each client takes full responsibility for the safeguarding of their encryption keys. Production encryption keys will be shared in two parts, to separate client staff.
- Multiple API accounts can be created per client, each with their own encryption keys, static IP addresses and authentication credentials. Each API account will use the customer's global account balance for purchases.
- HTTP compression is enabled on our servers and is preferred / recommended.

## Environments

PayThem provides two separate environments for client access.

| Environment | Purpose |
|---|---|
| **Demo** | • For testing connectivity between client system and VVS and testing functionality of VVS.<br>• All information is similar to Production environment, but all vouchers issued and requests are not honoured. |
| **Production** | • Production environment where all data is real time and all vouchers are real vouchers and POSA requests are honoured and completed.<br>• Each voucher / POSA has a real monetary value and account balances reflect real values.<br>• Client must provide a static, public IP address for additional security.<br>• Client to provide an estimated number of calls to be performed per hour to enable our rate limiter functionality. |

## Environment endpoints

| Environment | URL Endpoint |
|---|---|
| **Demo** | https://vvsdemo.paythem.net/API/54346/ |
| **Production** | https://vvs.paythem.net/API/54346/ |

When using one of our provided libraries, the library requires two parameter that defines which environment and API service the current call will use.

## Libraries and examples

The Postman collection can be downloaded from the same location as the documentation.

## Accounts and users

During client subscription process, each client is provided with an account. Within this account, different API users can be created, allowing for different application environments to be created by the client. These API users can either be standard or POSA users, but not both.

For example: API00001 can be used from client server SERVER01 and API00002 can be used from client server SERVER02.

During API calls, each call will require a username and password to be included in the encrypted "CONTENT" parameter, as described below.

Each API user can have different IP whitelisting and max voucher returned requirements.

## Public & Private tokens

Each environment has its own, unique public key, private key, username and password combinations.

**It is crucial to note that the Demo environment's information will not work on Production environment and repeated posting with incorrect details will lead to the account being locked out and the source IP blacklisted.**

During an account's API user creation process, PayThem will provide the client with:

- Public key – Passed unencrypted with each query, base64 encoded.
- Private key – used to encrypt JSON parameters before posting to API server.
- Username – encrypted into each post.
- Password – encrypted into each post.

> ***IMPORTANT****: It is the client's responsibility to keep all public, private, username and password details secure and hidden from your end users and non-critical staff. If your credentials are compromised (knowingly or unknowingly) PayThem will not be held liable for any damages.*

# API definition

Relates to the creation of a valid call to the PayThem API service.

## Outbound call headers

| Header | Content |
|---|---|
| **X-Public-Key** | PUBLIC_KEY as provided by PayThem |
| **X-Hash** | HMAC hash generated from the pre-encrypted, JSON encoded string using SHA256 and the PRIVATE_KEY as provided by PayThem |
| **X-Sourceip** | Public, static IP of server or firewall |

## Outbound call JSON structure

A brief overview of the minimum values that are required in the un-encrypted, unencoded JSON that is generated by the libraries and examples. PayThem supplied libraries may also add additional fields.

```
{
   "API_VERSION": "1.0.2", // 1.0.2 is current protocol version
   "SERVER_URI": "",  // As per documentation. Libraries will auto-insert this field.
   "SERVER_TIMESTAMP": "yyyy-mm-dd H:i:s",  // Server time stamp
   "SERVER_TIMEZONE": "", // Time zone in Region/City format
   "SOURCE_IP": "",  // Public, static IP of server or firewall
   "PUBLIC_KEY": "", // Public key as supplied by PayThem
   "USERNAME": "", // Username as supplied by PayThem
   "PASSWORD": "", // Password as supplied by PayThem
   "HASH_STUB": "10 random alpha-numeric", // Required.
   "ENCRYPT_RESPONSE": false, // Enable content encryption of response.
   "FUNCTION": "Function to call",
   "PARAMETERS": [
      // Parameter list as per documentation of current FUNCTION
   ]
}
```

Please note the FUNCTION parameter above. Below the different calls are defined and the correct wording for this parameter is defined.

## Outbound call Parameter explanation

Parameter required:

- M = Mandatory
- O = Optional

Auto? = Auto-inserted by libraries.

| Field | Req. | Auto? | Description |
|---|---|---|---|
| **API_VERSION** | M | Y | [string] The version of the protocol that is being used. This is equivalent to the version of this document. |
| **SERVER_URI** | M | Y | [string] The environment URL as defined in “Environments endpoints”. |
| **SERVER_TIMESTAMP** | M | Y | [string] Local server time for the time zone the server is in. If this is set, TIME_ZONE also needs to be set. Timestamp must be in “CCYY-MM-DD HH:MM:SS” format. |
| **SERVER_TIMEZONE** | M | Y * | [string] Format of: “Region/CityOrCountry”, e.g., “Asia/Qatar”. Please request the correct TZ specifications from us if you have any doubts. Certain libraries will auto-populate this value. |
| **SOURCE_IP** | M | | [string] Public, static IP of server, proxy or firewall. Will be used to check IP whitelisting on multiple layers in conjunction with other parameters. |
| **HASH_STUB** | M | Y | [string] Randomly generated alpha-numeric string of minimum 10 characters. |
| **ENCRYPT_RESPONSE** | M | Y | [boolean/false] Enable content encryption of response sent from PayThem API service. Response from server will be encrypted with the PRIVATE_KEY of the client. |
| **FUNCTION** | M | Y | [string] The requested function, as defined in this document. |
| **USERNAME** | M | Y | PayThem supplied username. |
| **PASSWORD** | M | Y | Paythem supplied password. |
| **PUBLIC_KEY** | M | Y | PayThem supplied public key. |
| **PARAMETERS** | O | Y | [array] Default empty array. Named parameter key/value of the function. Documentation per function below. |

## HTTP POST

The structure of the HTTP POST variables:

| Parameter | Description |
|---|---|
| **PUBLIC_KEY** | Mandatory. PayThem supplied public key. |
| **CONTENT** | Mandatory. Base64 encoded encrypted JSON string containing all post body parameters. |
| **ZAPI** | The Initialization Vector (IV) value used to encrypt the CONTENT when using OpenSSL. This identifies to the server that OpenSSL is being used.<br>IV is a randomly generated, 16 length, alpha-numeric string. |
| **ENC_METHOD** | Optional. The encoding type used. ('AES-CBC-256-OPENSSL') |

## Creating CONTENT field

1. Create array with required parameters.
2. Convert to JSON string.
3. Create HMAC hash (used in headers).
4. Encrypt JSON string.
5. Encode encrypted string to base64.

This functionality is taken care of by the library.

## Type handling

### Dates & time

During VVS API posts, dates are converted from and to client's time zone automatically to UTC.

***IMPORTANT:*** *be sure that your time zone is correctly set and that your server time is not out from international atomic time by more than 29 seconds. Else, determine and pass the time as needed to allow for proper usage.*

IMPORTANT: All dates passed from client to server and server to client will be in the format "CCYY-MM-DD HH:MM:SS". (example: 2025-01-01 13:15:56)

### Encoding

All content must be UTF-8.

## Response handling

If no response is returned, there could be a break in communications.

The response (once decoded / decrypted) will contain a JSON string containing the following fields:

- SERVER_TRANSACTION_ID
  The log ID of the client call. This is used to error check with PayThem support in the event of issues. All calls return a unique call ID.
- RESULT
  0 = No error, else a code representing an error encountered.
- ERROR_DESCRIPTION
  A human-legible error description.
- CONTENT
  A base64 encoded (and optionally encrypted, depending on call parameters) representing a JSON string relevant to the call made.

A PayThem library will base64 decode, decrypt and return a JSON string which can be passed to a JSON handler. Certain libraries, like PHP7.x, will return a JSON object. Please confirm with PayThem support before starting integration.

## Available API functions summary

| API Function | Description |
|---|---|
| **activate** | Activate a card using EAN and SERIAL of the physical card. |
| **cancel** | Cancel a card that has already been previously activated using EAN and SERIAL of the physical card. |
| **status** | Check the status of a card activation. |
| **transaction_ByTransactionID** | Retrieve a specific activation transaction by the initial transaction ID as returned by PayThem during the initial activation. |
| **transaction_ByReferenceID** | Retrieve a specific activation transaction by the client reference initially passed by client for the initial activation. |
| **transactions_ByDateRange** | Retrieve all transactions done during the specified date range. |

## Call Definitions

### Activate

Activate a card with specified EAN and serial number. All fields are mandatory.

FUNCTION: activate

| Parameter | Value | Type |
|---|---|---|
| VC_EAN | EAN13 number for the product | (string) 13 |
| VC_SERIAL | The serial located on the card | (string) 36 |
| CLIENT_REFERENCE | A reference to the transaction for logging | (string) 36 |
| VC_OUTLET | A unique reference of the outlet in the caller's system where the call originates from. | (string) |

#### *Response*

| Field | Description | Example |
|---|---|---|
| **POSA_ID** | Internal system ID for the POSA transaction | (int) 284 |
| **TRANSACTION_ID** | Internal system ID for the activation transaction call | (int) 24603168 |
| **TRANSACTION_ITEM_ID** | Internal system ID for the specific card transaction | (int) 30972823 |
| **FINANCIAL_ID** | Internal system ID for the activation transaction | (int) 33280832 |
| **CLIENT_REFERENCE_ID** | The client reference ID passed during activation call | (string) POSA_TEST_23 |
| **OEM_ID** | Internal system ID of the original manufacturer | (int) 37 |
| **OEM_Name** | Name if the original manufacturer | (string) Steam |
| **OEM_BRAND_ID** | Internal system ID for the product brand | (int) 6 |
| **OEM_BRAND_Name** | Name of the product brand | (string) Steam USA |
| **OEM_BRAND_Brand_Product_Format_ID** | Internal product format ID defining the output type of the card details | (int) 1 |
| **OEM_BRAND_Brand_Product_Format_Desc** | Human readable description of the brand card details | (string) PIN \\/ Serial \\/ Expiration |
| **OEM_BRAND_Brand_Product_Format_Fields** | The output card column fields for details | (string) OEM_VOUCHER_SERIAL,OEM_VOUCHER_PIN, OEM_VOUCHER_EXPIRATION_DATE |
| **OEM_PRODUCT_ID** | Internal system ID for the product | (int) 3151 |
| **OEM_PRODUCT_Name** | Name of the product | (string) Steam Wallets 1 USD POSA Test |

| | | |
|---|---|---|
| **OEM_PRODUCT_SellPrice** | The selling price of the product | (double) 1.00 |
| **OEM_PRODUCT_RedemptionInstructions** | The redemption instructions for the product / brand | (string) Log into your… |
| **OEM_PRODUCT_VVSSKU** | VVS Internal product stock keeping unit ( SKU ) | (string) STEAMUSA1USDPOSA TEST |
| **OEM_PRODUCT_EAN** | Product public European article number ( EAN ) | (string) 4059629033049 |
| **VOUCHERS** | An array of the card details returned from the activation call. | (array) |

## VOUCHERS array field definition

The response on all vouchers for activation calls

| Field | Description | Example |
|---|---|---|
| **VOUCHER_ID** | Internal system card (voucher) ID for new activation | (int) 36275390 |
| **ACTIVATION_MSA_ID** | Internal reference number for card activation calls process to card provider. | (int) 5818349 |
| **DATETIME** | The date time that the product was activated. | (string) 2025-01-01 15:10:58 |
| **PROVICER_REFERENCE** | The reference for the voucher from the provider | (string) 686BC7526349 |
| **SERIAL** | The initial serial number passed during activation. | (string) 0103107000154 |
| **SALES_REFERENCE_ID** | The internal VVS reference to the sales transaction. | (int) |

## Cancel

Cancel a voucher card that has previously been activated. An error will be returned if the voucher has not been activated or is already deactivated.

FUNCTION: cancel

| Parameter | Value | Type |
|---|---|---|
| **VC_EAN** | EAN13 number for the product | (string) 13 |
| **VC_SERIAL** | The serial located on the voucher card | (string) 36 |
| **CLIENT_REFERENCE** | A reference to the transaction for logging, not the same as the original call, but unique per call. | (string) 36 |
| **VC_OUTLET** | A unique reference of the outlet in the caller's system where the call originates from. | (string) |

### *Response*

| Field | Description | Example |
|---|---|---|
| **ACTIVATION_MSA_ID** | Reference of the activation call to the supplier | (int) 2788878 |
| **CANCELLATION_MSA_ID** | ID of the cancellation activation call to the supplier | (int) 2788879 |
| **CANCELLATION_MSA_ITEM_ID** | The ID of the cancellation activation line item to the supplier | (int) 14349998 |
| **PROVIDER_REFERENCE_ID** | Reference passed by the supplier during activation | (string) 636E3D1F63DC |
| **SALES_REFERENCE_ID** | The internal VVS reference to the sales transaction. | (int) |
| **SERIAL** | The serial of the voucher card | (string) 0100624090576 |

## Status of card

Checks the status of a card, if it is unused, has been activated, or has been used

FUNCTION: status

| Parameter | Value | Type |
|---|---|---|
| VC_EAN | EAN13 number for the product | (string) 13 |
| VC_SERIAL | The serial located on the voucher card | (string) 36 |
| VC_OUTLET | Outlet / Retailer ID for transaction | (string) - |

### *Response*

| Field | Description | Example |
|---|---|---|
| **TRANSACTION_ID** | ID of the transaction as returned from the initial activation call | (string) 24603169 |
| **TRANSACTION_ITEM_ID** | Internal system ID for the specific voucher transaction | (string) 30972824 |
| **FINANCIAL_ID** | Internal system ID for the activation transaction for the initial activation call | (string) 33280834 |
| **CLIENT_REFERENCE_ID** | The client reference ID passed during activation or cancelation call | (string) POSA_TEST_24 |
| **STATUS** | Status as string (Activated \| Canceled ) | (string) Activated |

## Get transaction by transaction ID

Retrieve a specific activation transaction by the initial transaction ID

FUNCTION: transaction_ByTransactionID

| Parameter | Value | Type |
|---|---|---|
| TRANSACTION_ID | ID of the transaction as returned from the initial activation call | (string) - |

### *Response*

| Field | Description | Example |
|---|---|---|
| **As with original query.** | | |

## Get transactions by reference ID

Checks the status of a voucher card, if it is unused, has been activated, or has been used

FUNCTION: transaction_ByReferenceID

| Parameter | Value | Type |
|---|---|---|
| CLIENT_REFERENCE | Retrieve a specific activation transaction by the client reference initially passed. | (string) - |

### *Response*

| Field | Description | Example |
|---|---|---|
| **ORIGINAL_FIELDS** | The same fields as the original call | Varies |

## Get transactions by date range

Retrieve all transactions done by the specified date range

FUNCTION: transactions_ByDateRange

| Parameter | Value | Type |
|---|---|---|
| FROM_DATE | The date to retrieve transaction from | (string) 2025-01-01 23:50:50 |
| TO_DATE | The date to retrieve transaction to | (string) 2025-01-02 04:00:00 |

### *Response*

| Field | Description | Example |
|---|---|---|
| **Array** | Array containing the same fields as the original activate call. | |

## UAT - User Acceptance Testing procedure

Before a client can be issued production credentials, an acceptance test by PayThem will be conducted to assure that all required features have been integrated.

Minimum required calls to proceed to UAT phase:

- Activate
- Cancel
- Status
- transaction_ByTransactionID
- transaction_ByReferenceID
- transactions_ByDateRange

Once all these calls have been confirmed to be processed successfully, production credentials will be issued.

## Issuing of production credentials

Once UAT is complete, only your designated Distributor administrator can request.

Please contact them directly and they will submit the relevant tickets to the correct department.

Credentials will be shared in two parts:

- Public key / username – via email.
- Private key / password – any agreed, non-email communication method.

*For production environment, a static IP address is required. No user will be created unless a static IP is provided.*