

HRVATSKA POŠTANSKA BANKA (HPB)

PSD2 OPEN API - SANDBOX

Getting started Guide

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Glossary / List of Abbreviations and Terms Used in this Document

Abbreviation / Term	Expansion / Description
AIS(P)	Account information service (provider)
PIS(P)	Payment initiation service (provider)
TPP	Third party provider
User/PSU	Individual registered to access the developer portal

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1. Introduction

This document is used to describe the functionalities of the HPB PSD2 developer portal.

1.1. Purpose

Purpose of this document is to provide details on how to use the product from a functionality point of view. The document won't cover parts related to configuration and parametrization.

1.2. Intended audience

Main audience of this document are individuals and organizations want to use the sandbox to test the public API exposed by the bank.

1.3. Scope

Descriptions in this document describe the following processes and flows:

1. Registering to use the sandbox environment
2. Accessing API documentation
3. Using the API test console

1.4. General instructions

Hrvatska Poštanska Banka d.d. (hereinafter: HPB) is a member of Croatian Banking Association (hereinafter: HUB) and follows HR-Specific implementation guidelines – National PSD2 framework. For more details on that, TPP is advised to check website of HUB: <https://www.hub.hr/en/psd2-open-api>

For HPB PSD2 Open API, TPP should be aware that there are certain headers that should be included in every request in order to be successful:

- **PSU-ID**: customerUniqueID value (*mandatory header, "Users" menu in DevPortal*),
- **PSU-ID-Type**: "customerNumber" (*mandatory header, fixed value*),
- **X-Request-ID**: GUID/UUID value (*mandatory header, variable*).

TPP should regularly check HPB PSD2 dedicated webpage that contains our official documentation and announcements: <https://www.hpb.hr/hr/psd2-hpb-open-api-portal/318>

Open API base URL: <https://api.sandbox.openbanking.hpb.hr>

IAM base URL: <https://iam.sandbox.openbanking.hpb.hr>

Berlin Group-Implementation Guide: Please note that HPB PSD2 Open API is based on v1.3.9. of BG-IG.

Refresh token: Please note that HPB does not support this.

1.5. Supported products and options

HPB supports the following products:

- **Account Information Service (consents)**
 - Dedicated consent
 - Global consent
 - Bank-Offered consent
- **Payment Initiation Service (single and bulk payments)**
 - payments/domestic-credit-transfers-hr (HRK only)
 - payments/instant-domestic-credit-transfers-hr (HRK only)
 - payments/sepa-credit-transfers (EUR only)
 - payments/cross-border-credit-transfers*
 - payments/hr-rtgs-payments
 - payments/target-2-payments*
 - bulk-payments/pain.001-credit-transfers* (HRK only)
- **Signing Basket**
 - Supports grouping of same-type single payments only

* Available to Corporate clients only (business entity).

2. Registration

2.1. Goal

Register to get access to test environment of the bank. Registered users can create a test TPP profile and download a testing certificate which is used to access the system and have a dedicated test data for testing the bank exposed API's.

2.2. Preconditions

Access to any valid e-mail address or valid Github account.

2.3. How to access

The access to the register form is allowed by clicking the **Register** menu item on the application menu.

2.4. Overview

In order to get the full access to the test environment and obtain the test credentials and dedicated test data TPP must go through the following process. The registration process goes through the following steps:

1. Creating a user account to access the system
2. Registering TPP
3. Registering the test application and acquiring the access credentials for API
4. Acquiring a test certificate to access the system

To launch the process visitors must click on the **Register** button in the main menu. As a first step of the process the registration form is presented to enter user information.

New users must fill in the following fields:

- **First name**
Required, first name of the user
- **Last name**
Required, last name of the user
- **Company name**
Optional, Name of the company the user is working for
- **Email address**
Required, unique and valid email address which will be used as a username to access the system
- **Password**
Required, masked, must satisfy password complexity
- **Password confirmation**
Required, must match the password field

After clicking on the register button, the user will get the message that an email confirmation is required in order to continue the process.

Clicking on the provided link, the user will be redirected to the final screen that shows the confirmation message. With this final step of the registration process the user account is created.

Users who try to use the system before completing the email confirmation will be presented with a message that email confirmation is required.

2.5. Registering using existing and valid Github account

Users that have valid Github account can easily register by associating the Github login with the portal user account. To launch the process of registration using the Github account users can click on the Github option on the login page. After logging to Github new users will have to give permission to access the public data of their profile.

After the authorization is provided users will have to complete the registration by associating the user account of the portal to the Github login.

In order to do this, new users must provide the following information:

- **First name**
Required, first name of the user
- **Last name**
Required, last name of the user
- **Email address**
Required, unique and valid email address which will be used as a username to access the system

Clicking on the register button the process is complete. Next time users can log in with the Github account and they will be allowed to use the portal. After completing the user registration process users can continue with the TPP registration process.

Without completing the next steps registered users have the privilege to **view** and **download** the API definitions.

2.6. Third party provider registration

According to PSD2 regulation, only registered legal entities can access the banks API. The registration and verification of the entity is the responsibility of the accredited national authorities which provides the TPP certificate for them. To simulate this, in test environment users must provide the organization information to be registered as third-party providers. Each user can register only one third party provider. If there is a need to test various profiles like AISP or PISP use the application section to add applications with different roles.

The access to the TPP registration one clicks on the **Registration** menu item under the **TPP Information menu**.

To complete the registration, TPP must complete the TPP registration form.

- **Email address**
Required, unique and valid business email address for the purpose of contacting the organization
- **Registered Name**
Required, full name of the organization
- **Phone number**
Required, phone number for the purpose of contacting the organization
- **Country**
Required, country where the organization is registered

Clicking on **Register** button and completing the TPP registration process. The system will automatically seed the test data for the registered TPP.

For each registered TPP system generates the following test data:

Accounts for organizations

- Corporate transactional account in HRK
- Corporate transactional account multicurrency

Accounts for individuals

- Retail transactional account in HRK with overdraft
- Retail giro account in HRK
- Retail transactional account multicurrency
- Retail ownership transactional account in HRK with overdraft
- Retail savings account in HRK

Corporate and individual users

- Two organizations as customers each with two authorized users
- Two individual customers with own accounts where the other user is authorized person.

Every registered TPP gets a dedicated test data. Sandbox simulator will simulate the execution of the transactions posted and will update the account balances. At any time, system state can be reset to the starting point.

Access to the test data is provided through the sandbox users menu item.

Continuing with the process, users need to add an application to get the access credentials for the API.

2.7. TPP applications

Applications allow registered TPPs to select the specific PSD2 API capabilities they want to test. Every app gets a unique set API client credentials. Application also provide the users with the needed OAUTH2 client credentials to access and test the API in the API test console.

The access to TPP applications is accessed by clicking the **Profile -> Applications** menu item in the menu

Applications overview page shows all the created applications. When there are no plications users can click on the create new button.

When the new application is created users have to provide the following information:

- **TPP ID - field pre-filled, TPP registered in the system under that ID**
- **Authorization code**
Required, in the drop-down list, the option to select Implicit or Authorization code opens
- **Client name**
Required, name of the application helps the user to identify it
- **Application URI**
Required, you can enter the following URL as a test <https://bankapi.net>
- **Redirect URI**
Required, You can enter the following URL as a test <https://www.getpostman.com/oauth2/callback>
- **Post logout Redirect URI**
Required, You can enter the following URL as a test <https://www.getpostman.com.oauth2>
- **Enabled, check box**
Required, for the application to be active it must be marked

After clicking on the Create button the system will store the information and create a new application. The newly created application will be shown with the **Client Id** and **Client Secret**. The user has to copy these data right after the application has been created if he wants to use them for **Try API Call** functionality otherwise, he will have to generate a new the next time he opens the application details this page.

- **Client Id**
The public identifier for application. Clicking on the Copy button place this information on the clipboard
- **Client Secret**
The secret known only to the application and the authorization server. Clicking on the Copy button place this information on the clipboard

Number of applications is not limited, and each created application will be shown inside list of applications. The possibility to enable/disable an application by clicking on **Enable** or **Disable** buttons provides the possibility to test different scenarios.

2.8. TPP certificate

TPP Certificates are self-signed QWASP certificates issued by the bank for the purpose of testing the programmable access to API. In order to obtain the certificate users must fill in the certificate parameters presented on the screen. The system can issue one certificate per registration.

The access to TPP certificate is allowed by clicking the **Profile -> Certificate** menu item on the application menu.

To create the certificate users must fill in the certificate request form

- **Name**
Required, Certificate holders name
- **Country**
Required, Drop down list
- **State or Province name**
Optional,
- **Locality name**
Optional
- **Organization name**
Optional
- **Organization unit name**
Optional
- **Common name**
Required
- **Email address**
Optional
- **Domain**
Required, must match the domain from where the calls to the API will be made
- **NCA ID**
Optional, National registry identity
- **NCA Name**
Optional, Name of the national registry
- **Has AI role**
Optional, selected when the TPP will be acting as account information service provider (AISP-bank)
- **Has PI role**
Optional, selected when the TPP will be acting as payment initiation provider (PISP)
- **Has AS role**
Optional, selected when the TPP will be acting as Account servicing provider (ASP)
- **Has IC role**
Optional, selected when the TPP will be issuing card-based payment instruments (CISP)

After filling in the required fields the system will generate the certificate which can be used for testing purposes. Once created the certificate can't be changed.

After successful certificate creation the system will show the certificate details and will allow the user to download the certificate.

This step completes the process of registration as TPP.

3. TPP sandbox users

3.1. Goal

The purpose of this function is to provide access to the generated test users in order to obtain the credentials to get the user consent for access or to create payments. Please note these users represent fictional clients of the Bank within Sandbox environment.

3.2. How to access

The access to TPP sandbox, click on the Profile -> Sandbox users menu item. Please use "Retail Customer 1" or "Retail Customer 2" for testing on Sandbox.

3.3. Overview

The page will show all the customers created in the test environment.

All accounts which are isolated for each TPP and maintain state. All changes on these accounts are preserved. Sandbox simulator will simulate the execution of the transactions posted and will update the account balances. At any time, these accounts can be reset to the starting point using the **Reset sandbox** command in the Sandbox "Users" section.

After each new version of the application, it is necessary to recreate the user of the sandbox before starting the testing, by clicking on the **Recreate sandbox** button.

Details about the specific user can be seen by clicking on a sandbox user from existing list.

For every user the system will generate the same password which should be used in testing scenarios instead of *correctPassword*. For two factor authentication scenarios, the correct *OTP* value is "12345".

4. TPP users

4.1. Goal

Provide the option to add additional users to the same developer portal profile.

4.2. Preconditions

Registered as TPP.

4.3. How to access

The access to TPP users is allowed by clicking the **Profile -> Users** menu item

4.4. Overview

The TPP users shows the list of additional users that can access the same profile and test data if there are any. Clicking on the Add new user .

A new user can be created by clicking on **Create a New User** box and by populating only Email field which has to have the same host name that has been used during TPP register process.

TPP User can create as many users as he needs, each created user will be shown inside list of users, he also can see details for each user and he has the possibility to enable/disable a user by clicking on check box Active - **Enable** or **Disable**.

5. Try API call

5.1. Goal

TPP User has option to test APIs using try API call functionality.

5.2. Preconditions

The permission to this link only has logged and registered **TPP User** with confirmed mail.

5.3. How to access

The access to try API call is allowed by clicking the **APIs->NextGen** menu item and by selecting any of the available API from dropdown list. A new screen will be shown with all available documentation for that specific API, then by clicking **Try** link from API documentation header the user will be redirected to try API call.

5.4. Overview

The try API call screen is shown below. Follow these few steps to test try API call functionality:

- Chose an Api, Api Version and an Api method from dropdown lists. Request URL will be generated automatically.
- Enter the Client Id and the Client Secret, these values have been provided during application creation process (see chapter TPP applications).
- Select a Grant Type:
Client Credentials; Password Credentials.
- If Password Credentials Grant Type is chosen two new fields will appear, Username and Password. Enter these values.
- Add header parameters Key and Value (if necessary).
- Add request Body (if necessary).
- Finally, click on button Send Request.

Client Id - The client identifier issued to the client during the Application registration process.

Client Secret - The client secret issued to the client during the Application registration process.

6. Testing API using external tools

6.1. Goal

Use the sandbox environment to test the banks API.

6.2. Preconditions

Created and active application for the TPP. On how to create the application please consult section two, chapter APP registration. Sandbox users. Created and active certificate for the TPP.

6.3. How to access

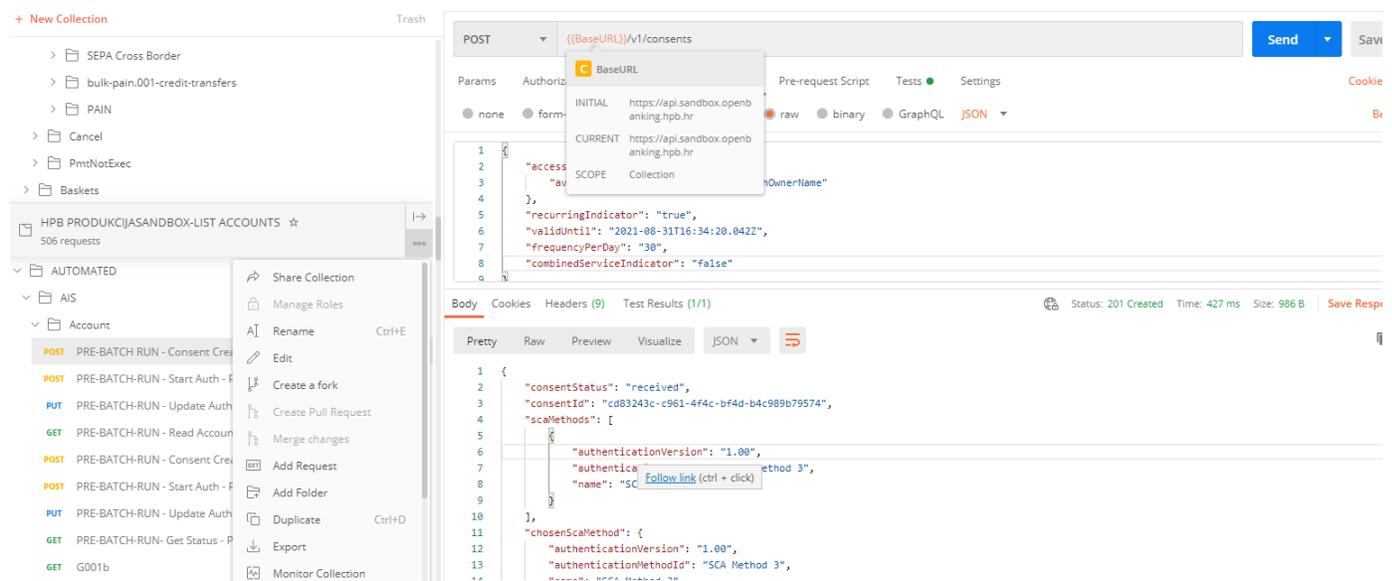
In order to test the API with the external in this manual we will use Postman (<https://www.getpostman.com/>) but any tool free for testing you can use any tool.

6.4. Overview

1. Steps to test the application are following:
2. Get the authorization token and provide consent for accessing the accounts
3. Call the API with the token

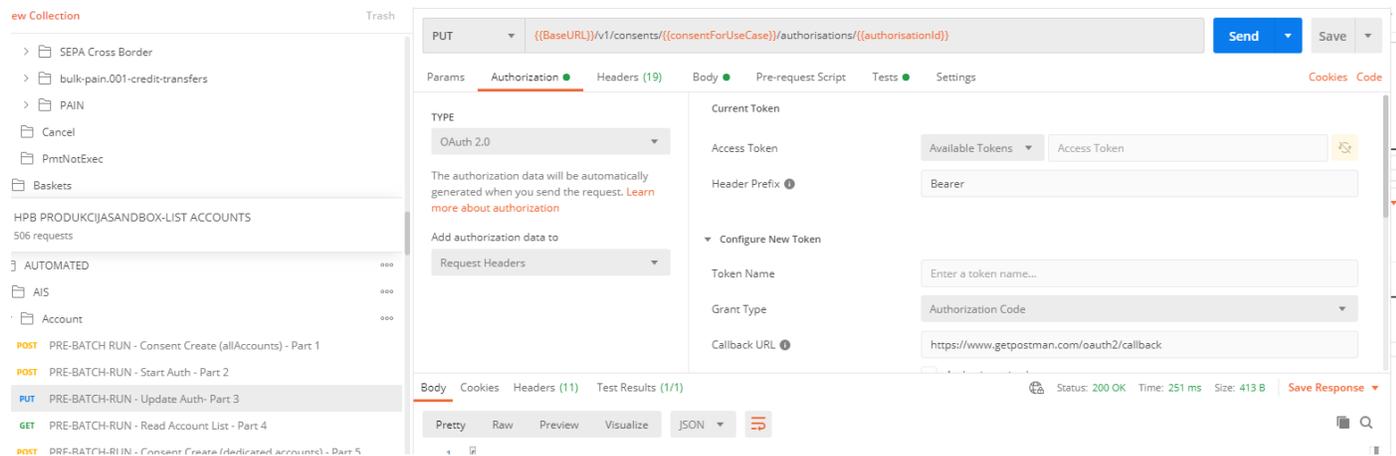
The first step is to configure the postman tool to acquire the access token. Access token can be acquired using different flows in this example we are using authorization code flow.

In order to start the process use the edit collection option from Postman



Configuration for API call collection

Next step is to select the Authorization tab and select the Get New Access Token option. This will launch the dialog for filling in the parameters for getting a new access token.



Configuration for API call collection. Authorization section

Once you get to the get new access token dialog fill in the following fields with the proper data:

- Token Name: Token Name
- Grant Type: Authorization code
- Callback URL: Put the <https://www.getpostman.com/oauth2/callback>
- Auth URL: <https://iam.sandbox.openbanking.hpb.hr/connect/authorize>
- Access Token URL: <https://iam.sandbox.openbanking.hpb.hr/connect/token>
- Client ID: Copy and paste the Client ID of your test application.
- Client Secret : Copy and paste the Client Secret of your test application.
- Scope: Put AIS or PIS
- Client Authentication: Send as basic header

Token Name	<input type="text" value="Enter a token name..."/>
Grant Type	Authorization Code ▼
Callback URL ⓘ	<input type="text" value="https://www.getpostman.com/oauth2/callback"/>
	<input type="checkbox"/> Authorize using browser
Auth URL ⓘ	<input type="text" value="https://iam.sandbox.openbanking.hpb.hr/connect/authorize"/>
Access Token URL ⓘ	<input type="text" value="https://iam.sandbox.openbanking.hpb.hr/connect/token"/>
Client ID ⓘ	<input type="text" value="72.duda29062021"/> ⚠
Client Secret ⓘ	<input type="text" value="114aba99-862a-43e4-80d7-6f9a64f5140c"/> ⚠
Scope ⓘ	<input type="text" value="PIS:dcf741562df34708885a20d995f80c1e"/>
State ⓘ	<input type="text" value="State"/>
Client Authentication (click)	Send as Basic Auth header ▼

[Get New Access Token](#)

Get new access token parameters

After you have filled in the parameters, request new token. The flow will take you to the IAM login page where you will have to login on behalf of one of the Sandbox users. You can choose any Sandbox user and input the username and password.

HOME CONSENTS TRANSFERS
en-US hr-HR LOG IN

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IAM login page

Final step after getting the token is to call the API and test. The following example shows a call to get the list of accounts for the customer. List of APIs with required parameters and responses you can find on the portal under the section APIs.

The screenshot displays the Postman interface for a REST client. The left sidebar shows a collection named 'HPB PRODUKCIJASANDBOX-LIST ACCOUNTS' with 506 requests. The selected request is 'PRE-BATCH-RUN - Read Account List - Part 4', which is a GET request to the endpoint `{{BaseURL}}/v1/accounts?withBalance=true`. The 'Query Params' section shows a parameter `withBalance` with a value of `true`. The response body is displayed in JSON format, showing account details for a specific resource ID.

```
4  {
5    "resourceId": "8300182500",
6    "iban": "HR7423900018300182500",
7    "oban": "23900018300182500",
8    "msisdn": "+3562529900",
9    "currency": "HRK",
10   "name": "My Retail transactional account in HRK with overdraft",
11   "ownerName": "Retail Customer1",
12   "product": "Retail transactional account in HRK with overdraft",
13   "cashAccountType": "CACC",
14   "status": "enabled",
15   "pic": "HPB\u0414\u0414\u0414",
16   "usage": "P",
17   "details": "Retail transactional account in HRK with overdraft",
18   "_links": {
19     "account": {
20       "href": "/v1/accounts/8300182500"
21     }
22   }
23 }
```

Successful API call

7. Creating and authorizing resources

In all requests, TPP should add certificate that will be used for Mutual TLS.

7.1. Creating Resource

7.1.1. PIS payment

To create payment, TPP has to make call to

POST `https://api.sandbox.openbanking.hpb.hr/v1/{payment-service}/{payment-product}` endpoint.

Request example (for full description of payload and headers refer to Berlin Group NextGen PSD2 Documentation):

7.1.2. AIS consent

To create consent, TPP has to make call to

POST `https://api.sandbox.openbanking.hpb.hr/v1/consents` endpoint.

Request example (for full description of payload and headers refer to Berlin Group NextGen PSD2 Documentation):

7.2. Starting authorization

7.2.1. PIS payment

When payment resource is successfully created, TPP has to make call to:

POST `https://api.sandbox.openbanking.hpb.hr/v1/{payment-service}/{payment-product}/{paymentId}/authorisations` endpoint.

7.2.2. AIS consent

When consent resource is successfully created, TPP has to make call to:

POST `https://api.sandbox.openbanking.hpb.hr/v1/consents/{consent-id}/authorisations` endpoint.

7.3. Authorization process using the OAuth2 Redirect flow

For authorizing resource using OAuth2 flow, TPP needs URL from `scaOAuth field`. To start OAuth2 protocol, TPP needs to redirect client from its application to IAM application. Endpoint on which user needs to be redirected is `scaOAuth/connect/authorize`, where `scaOAuth` is value of corresponding field in the response of the request for starting the authorization. User should be redirected with following query parameters:

- **Grant Type** (`grant_type`) – This field needs be equal to `code`
- **Response Type** (`response_type`) – This field needs to be equal to `code`

7.4. Finishing authorization

7.4.1. PIS payment

In order to finish payment resource authorization, TPP has to send a request to:

PUT `https://api.sandbox.openbanking.hpb.hr/v1/{payment-service}/{payment-product}/{paymentId}/authorisations/{authorisationId}`

Request body of this field has to be in *application/json* format and must contain field *scaAuthenticationData*. Value of this field has to be equal to the access token that was obtained through the OAuth2 protocol.

Request body example:

```
{
  "scaAuthenticationData":
  "eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJzdWIiOiIxMjM0NTY3ODkwIiwibmFtZSI6IkpvaG4gRG91IiwiaWF0IjoxNTE2MjM5MDIyfQ.Sf1KxwRJSMeKKF2QT4fwpMeJf36P0k6yJV_adQssw5c"
}
```

7.4.2. AIS consent

In order to finish consent resource authorization, TPP has to send a request to:

PUT `https://api.sandbox.openbanking.hpb.hr/v1/consents/{consentId}/authorisations/{authorisationId}`

Request body of this field has to be in *application/json* format and must contain field *scaAuthenticationData*. Value of this field has to be equal to the access token that was obtained through the OAuth2 protocol.

Request body example:

```
{
  "scaAuthenticationData":
  "eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJzdWIiOiIxMjM0NTY3ODkwIiwibmFtZSI6IkpvaG4gRG91IiwiaWF0IjoxNTE2MjM5MDIyfQ.Sf1KxwRJSMeKKF2QT4fwpMeJf36P0k6yJV_adQssw5c"
}
```

8. Authorization process using the Decoupled flow

8.1. General Notice

HPB supports Decoupled flow for all AIS and PIS resources, but **only** on Production environment. Sandbox does not support this flow due to technical/infrastructure reasons.

Please note that in Decoupled flow, TPP does not have to perform steps described in 7.3. and 7.4. chapters as all steps are made by PSU and our mobile banking application (mHPB).

For more details and guidelines, TPP is advised to check HBP **TPP Implementation Guide** for Production environment.

HPB PSD2 dedicated page within official website: <https://www.hpb.hr/hr/psd2-hpb-open-api-portal/318>

9. Other guidelines

9.1. Initiating payment without debtor account

Additional possibility for TPP and PSU clients is creating a payment resource without providing “debtorAccount” object in JSON. In that case, PSU will have option to select any IBAN it has access to, after completing SCA.

This option helps TPP clients to have a more flexible payment initiation and helps PSU to select any IBAN available as debtor account, during the authorization of the payment.

9.2. Parameter “frequencyPerDay”

This parameter determines for how many times during a day (during a 24-hour timeframe; 00:00-23:59) TPP can make requests for a given consent, without PSU presence. The value must be in range of 1 to 4 and is set and validated during a creation of AIS resource.

HPB supports this parameter as described: If consent is valid and request is made without PSU presence, HPB will group all requests made by TPP in given timeframe and count them as one request. The length of the timeframe is set to 4 minutes.

Example: If „frequencyPerDay“ parameter is set to '4', it will allow TPP to have four timeframes daily to make multiple number of requests and all requests within each timeframe will be counted as one.

Requests that are made with valid “PSU-IP-Address” header are considered to be actively initiated by the PSU and therefore are not counted against „frequencyPerDay“ parameter.

9.3. Transactions history

As per Delegation on RTS, TPP is allowed to access PSU transactions history for a maximum of 90 days in past. To access history older than 90 days, PSU must perform SCA every time.

HPB supports this feature as described: After PSU successfully authorizes AIS consent, TPP will be granted permission to access unlimited transactions history of PSU (Note: not older/further than on other online and mobile banking channels), but only during a first request to the endpoint: GET v1/accounts/{{resourceId}}/transactions

To make a successful request and access transactions history, TPP should be aware that query parameters „bookingStatus=booked“ and „dateFrom=YYYY-MM-DD“ must be provided always. Booking status „pending“ and „information“ are not supported and therefore dateFrom is mandatory, as per Berlin Group. Query parameter dateTo is optional, and if not provided, it will be considered as current date.

Any other request for transactions history (apart first one ever during a consent validity) will be checked against 90-days rule.

Transaction history response body will contain data (elements) that is equal to other online and mobile banking channels in HPB (including debtor/creditor element). If TPP needs to access more detailed information for particular transaction from the transaction list, TPP is advised to make transaction details request using transaction unique identifier.

9.4. Transactions Response Pagination

When accessing transactions history for a given account and given period, HPB will assess a total count of transactions that must be presented to TPP and in case that total count exceeds 25, pagination will be invoked.

HPB supports pagination of transactions response as described:

- Pagination is invoked only if more than 25 transactions need to be presented,
- If pagination is invoked, response body will contain new element with a „next“ link,
- Link to „previous“ shown on Sandbox **is not supported** on Production environment
- Every page within the invoked pagination contains 25 transactions (last one possibly less),
- Last page of pagination will not have „next“ link signaling to be the last page,
- TPP should make GET request to every „next“ link to access all transactions,
- TPP should keep request headers as in initial call,
- The „next“ link given consists of query parameters that must not be changed,
- Pagination resource (all pages) is available for 3 minutes and expires after (for every page).