PSD2 APIs testing documentation

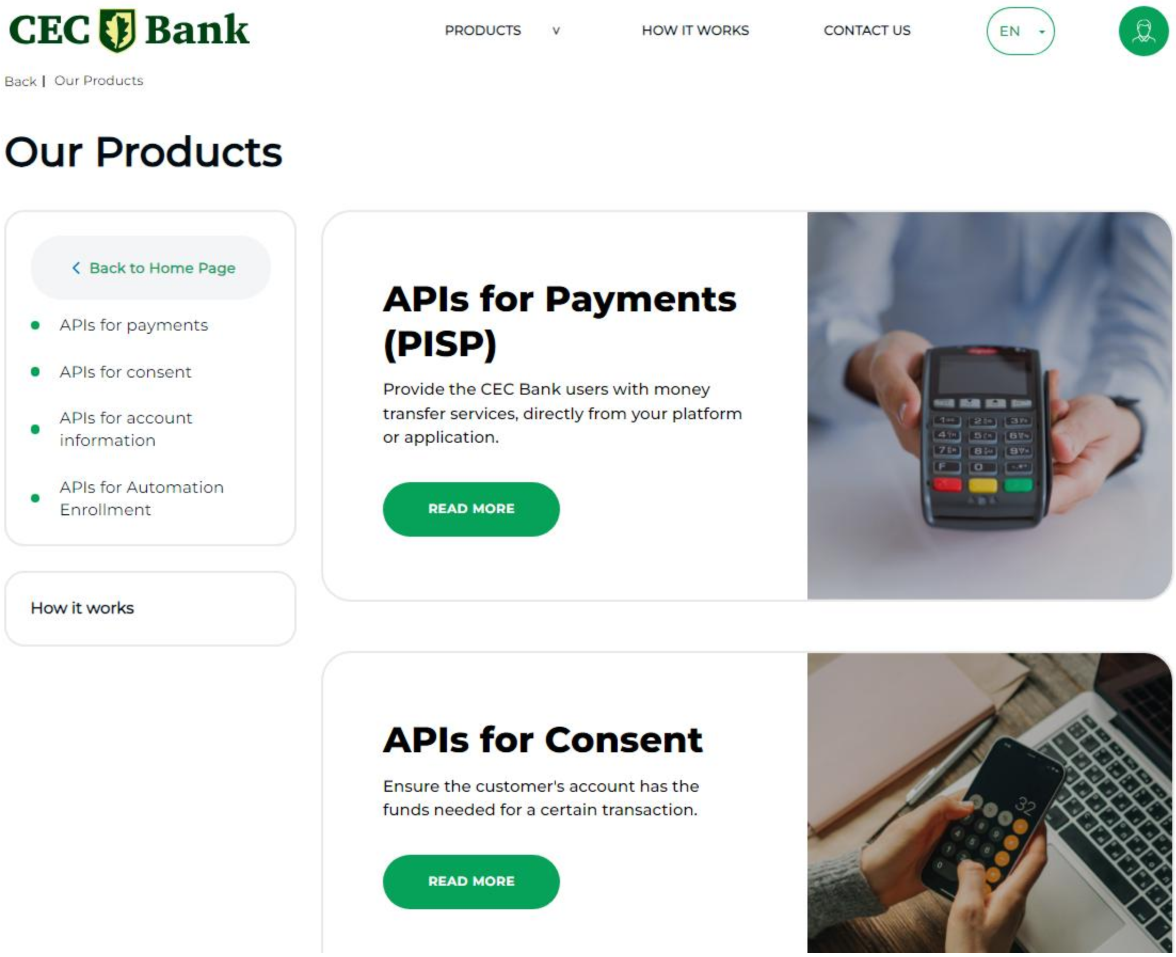
Contents

1 Automatic enrolment:

In order to start the APIs testing, user enrollment is required. To be able to do this, follow these steps:

- Creating the user

- Creating an application



CEC Bank

PRODUCTS v HOW IT WORKS CONTACT US EN

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Our Products

‹ Back to Home Page

- APIs for payments
- APIs for consent
- APIs for account information
- APIs for Automation Enrollment

How it works

APIs for Payments (PISP)

Provide the CEC Bank users with money transfer services, directly from your platform or application.

READ MORE

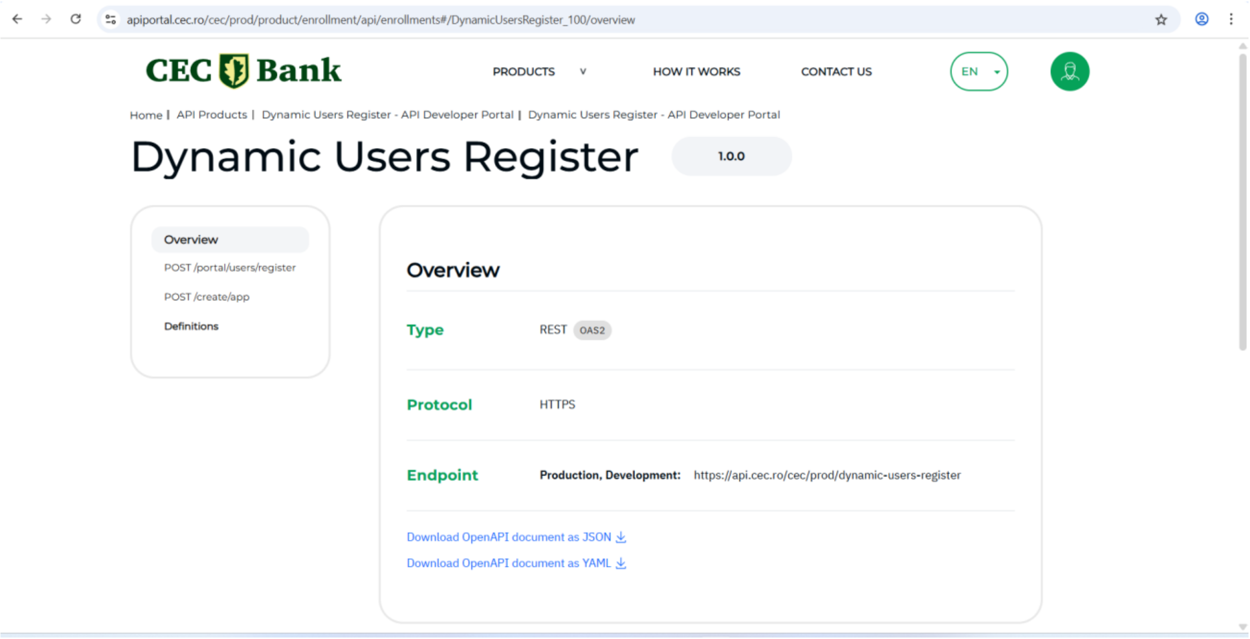
APIs for Consent

Ensure the customer's account has the funds needed for a certain transaction.

READ MORE

In the portal we will go to the "Our Products" window and select the api: API's for Automation Enrollment.

After selection we will see the "Dynamic Users Register" api:


apiportal.cec.ro/cec/prod/product/enrollment/api/enrollments#/DynamicUsersRegister_100/overview
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Home | API Products | Dynamic Users Register - API Developer Portal | Dynamic Users Register - API Developer Portal

Dynamic Users Register 1.0.0

- Overview
- POST /portal/users/register
- POST /create/app
- Definitions

Overview

Type	REST OAS2
Protocol	HTTPS
Endpoint	**Production, Development:** https://api.cec.ro/cec/prod/dynamic-users-register

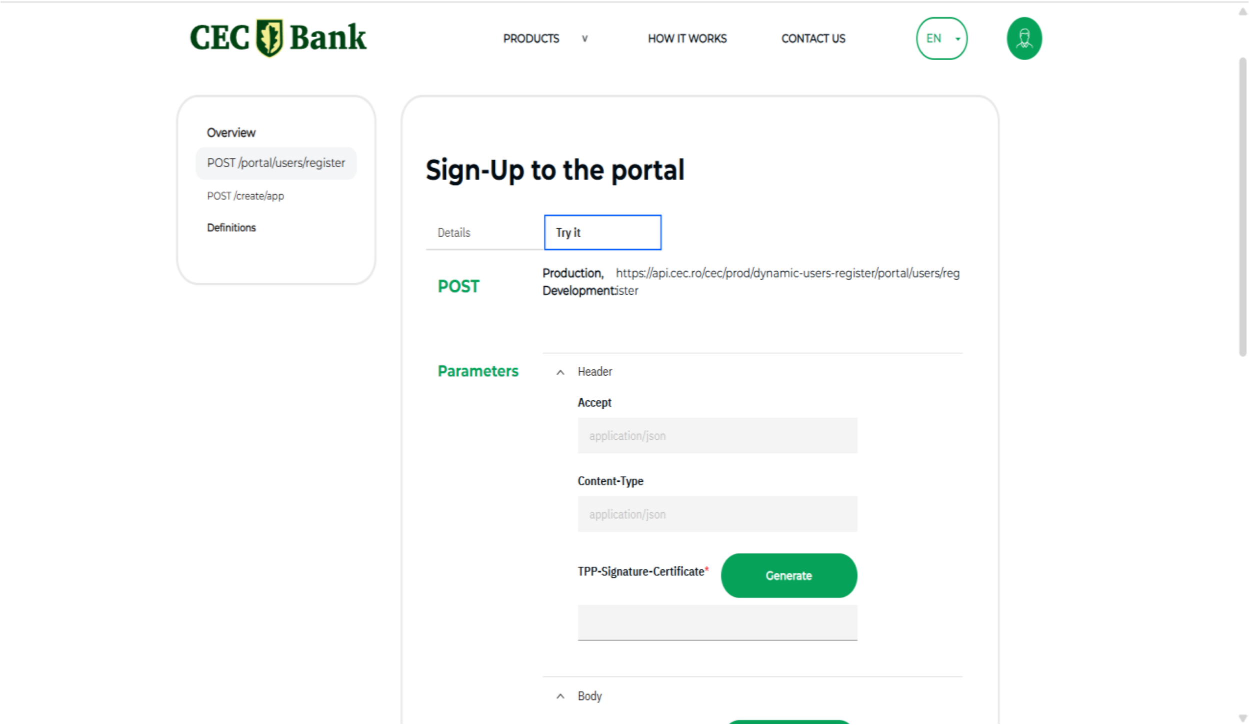
Download OpenAPI document as JSON

Download OpenAPI document as YAML

1.1 Creating the user:

The first call must be selected: "POST /portal/users/register" to make the user creation call.

The data filled in the body must be retained as it will be used in the application creation call.



Sign-Up to the portal

POST Production, Development https://api.cec.ro/cec/prod/dynamic-users-register/portal/users/register

Parameters

Header

Accept: application/json

Content-Type: application/json

TPP-Signature-Certificate*

Body

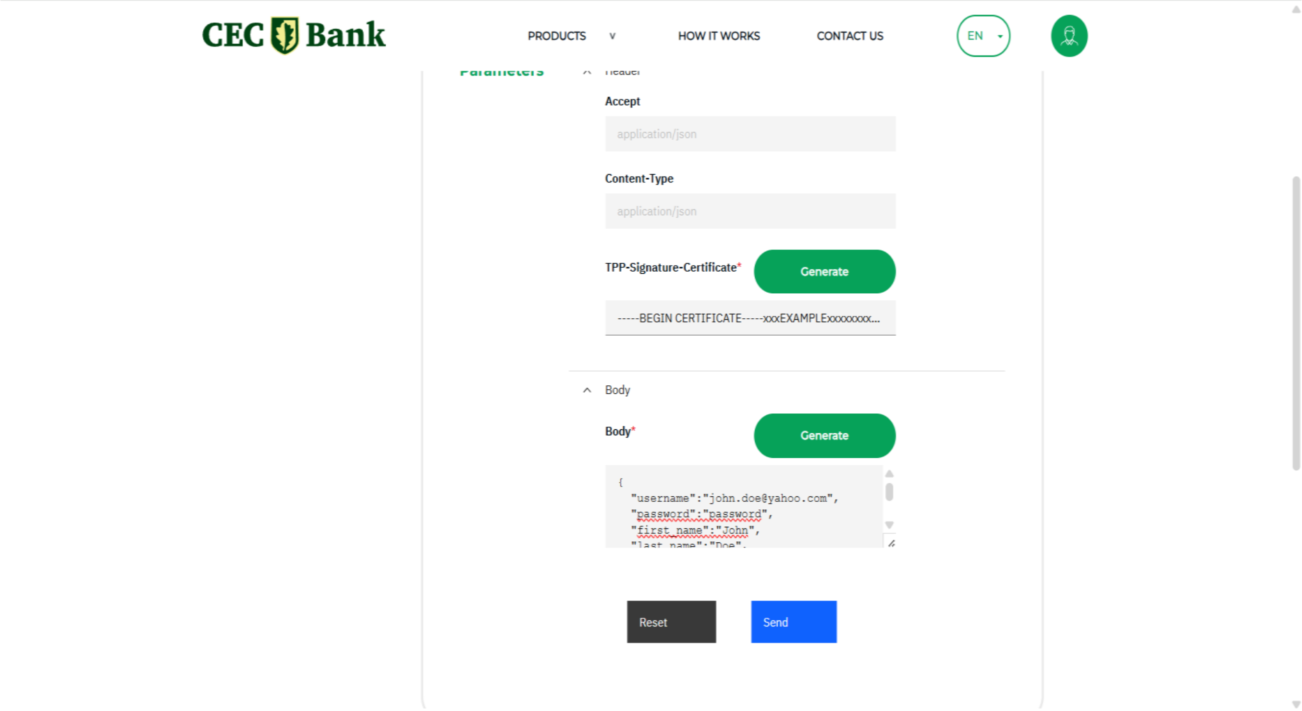
The following headers must be filled in in order to make the call:

- TPP-Signature-Certificate = -----BEGIN CERTIFICATE-----xxxEXAMPLExxxxxxxxxxEXAMPLExxxxxxxxxxxEXAMPLExxxxxxxxxxxEXAMPLExxxxxxxEXAMPLExxxxxxxxxxEXAMPLExxxxxxxxxxxEXAMPLExxxxxxxxxxxEXAMPLExxxxxxxEXAMPLExxxxxxxxxxEXAMPLExxxxxxxxxxxEXAMPLExxxxxxxxxxxEXAMPLExxxxxxxEXAMPLExxxxxxxxxxEXAMPLExxxxxxxxxxxEXAMPLExxxxxxxxxxxEXAMPLExxxx-----END CERTIFICATE-----

- Content-Type = application/json

In the body part, the following body model must be filled in:

```
body : {
  "username":"john.doe@yahoo.com",
  "password":"password",
  "first_name":"John",
  "last_name":"Doe",
  "organization":"JohnORG"
}
```



Accept: application/json

Content-Type: application/json

TPP-Signature-Certificate*: -----BEGIN CERTIFICATE-----xxxEXAMPLExxxxxxxx...

Body*:

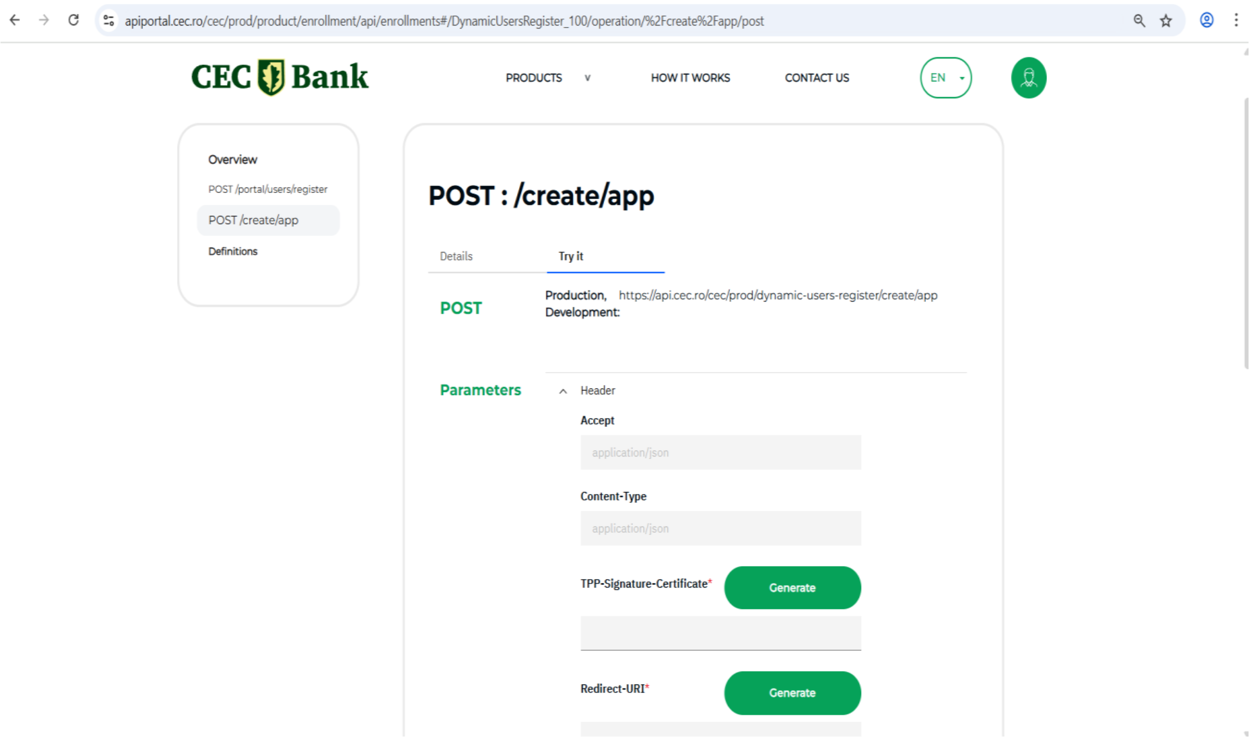
```
{
  "username":"john.doe@yahoo.com",
  "password":"password",
  "first_name":"John",
  "last_name":"Doe",
```

If the data entered are valid, the call will return a "201 created" response and you will receive a confirmation email on the email address you filled in the body with the activation link.

The link must be clicked on the webpage to complete the registration step.

1.2 Creating an application:

The second call must be selected: "POST /create/app" to make the call creating the application and getting a set of test credentials.



apiportal.cec.ro/cec/prod/product/enrollment/api/enrollments#/DynamicUsersRegister_100/operation/%2Fcreate%2Fapp/post

POST : /create/app

POST

Production, Development: https://api.cec.ro/cec/prod/dynamic-users-register/create/app

Parameters

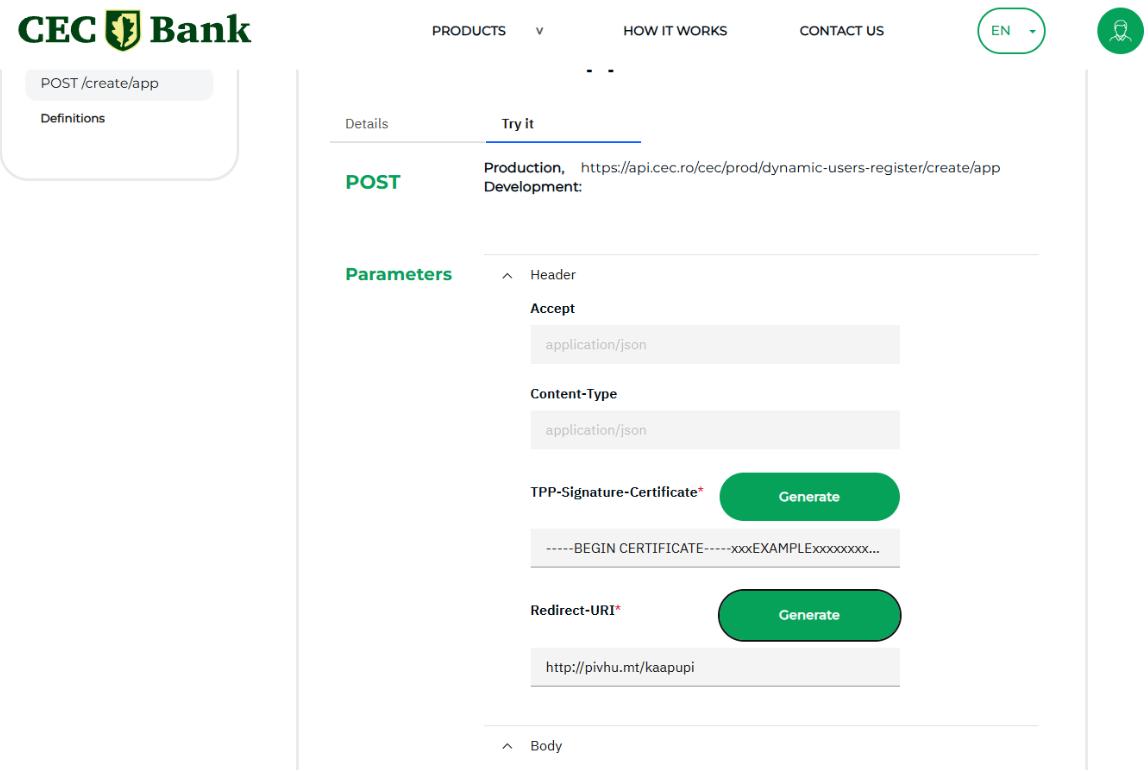
Header

Accept: application/json

Content-Type: application/json

TPP-Signature-Certificate*

Redirect-URI*



POST /create/app

Definitions

POST

Production, https://api.cec.ro/cec/prod/dynamic-users-register/create/app
Development:

Parameters

Header

Accept

application/json

Content-Type

application/json

TPP-Signature-Certificate*

-----BEGIN CERTIFICATE-----xxxEXAMPLExxxxxxxx...

Redirect-URI*

http://pivhu.mt/kaapupi

Body

The following headers must be filled in in order to make the call:

-TPP-Signature-Certificate = -----BEGIN CERTIFICATE----- xxxEXAMPLExxxxxxxxxxEXAMPLExxxxxxxxxxxEXAMPLExxxxxxxxxxxEXAMPLExxxxxxxEXAMPLExxxxxxxxxxEXAMPLExxxxxxxxxxxEXAMPLExxxxxxxxxxxEXAMPLExxxxxxxEXAMPLExxxxxxxxxxEXAMPLExxxxxxxxxxxEXAMPLExxxxxxxxxxxEXAMPLExxxxxxxEXAMPLExxxxxxxxxxEXAMPLExxxxxxxxxxxEXAMPLExxxxxxxxxxxEXAMPLExxxx-----END CERTIFICATE-----

- Content-Type = application/json

- Redirect-Uri = "https://www.google.com (the passed link is an example and you can pass any redirect link)

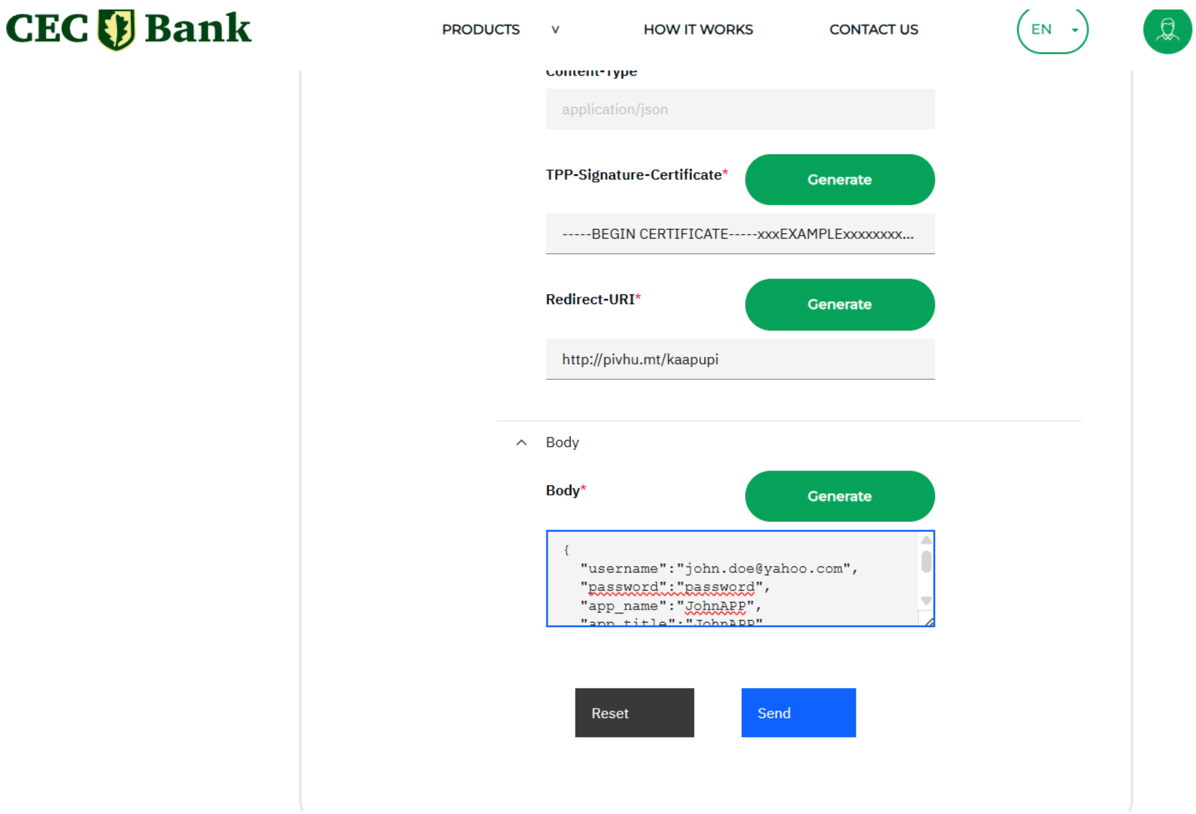
In the body part, the following body model must be filled in:

```
    body : {
      "username":"john.doe@yahoo.com",
      "password":"password",

      "app_name":"JohnAPP",

      "app_title":"JohnAPP",

      "organization":"JohnORG"

    }
```

If the organization name filled in the enrollment step contains spaces ("organization":"John ORG"), when filling in the request body for the application creation call we have to replace the spaces with "-".

E.g.:

```
body : {

  "username":"john.doe@yahoo.com",

  "password":"password",

  "app_name":"JohnAPP",

  "app_title":"JohnAPP",

  "organization":"John-ORG"

}
```



Content-Type

application/json

TPP-Signature-Certificate*

-----BEGIN CERTIFICATE-----xxxEXAMPLExxxxxxxx...

Redirect-URI*

http://pivhu.mt/kaapupi

Body

Body*

```
{
  "username":"john.doe@yahoo.com",
  "password":"password",
  "app_name":"JohnAPP",
  "app_title":"JohnAPP"
```

Following the call we will receive a formal reply:

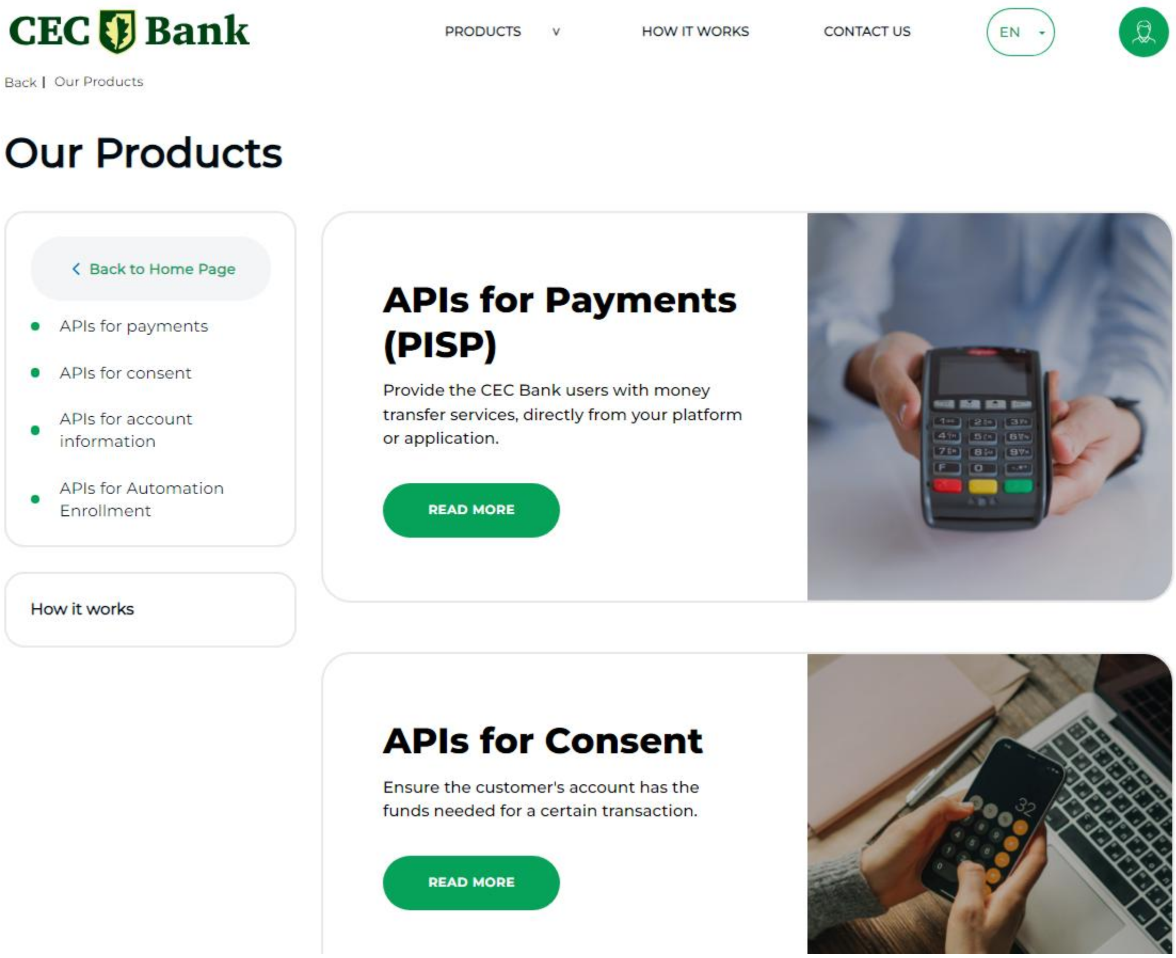
201 Created

```
{
   "Application_Name": " JohnAPP",
   "Application_Title": " JohnAPP",
   "client_id": "f9dTESTa5798TESTc76a837a",
   "client_secret": "b0fTEST5a70TEST2e8460TEST23b50"
}
```

With these credentials we will be able to make the calls shown below and they must be saved to have them whenever you need to use them.

2 Description of PSD2-CECAPIC product features

After logging in on the portal, registered users have access to the PSD2-CECAPIC product



Our Products

APIs for Payments (PISP)

Provide the CEC Bank users with money transfer services, directly from your platform or application.

APIs for Consent

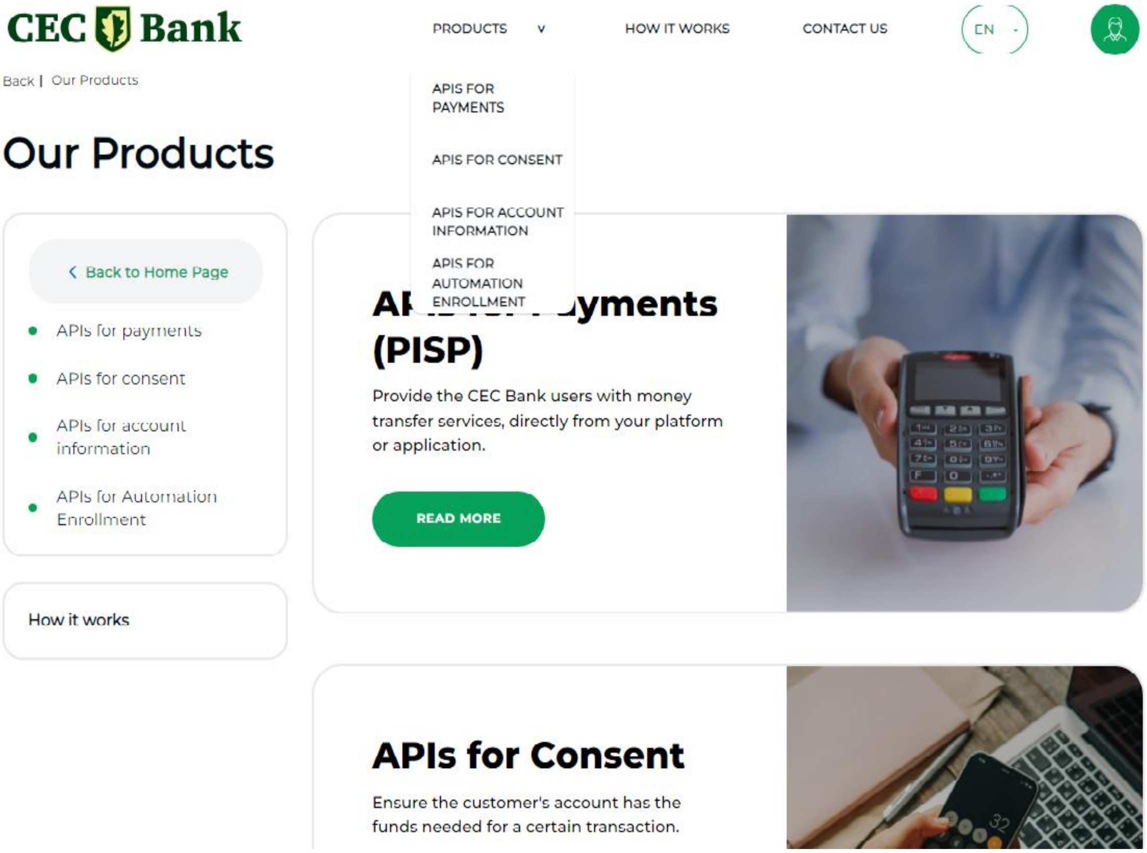
Ensure the customer's account has the funds needed for a certain transaction.

This product includes the APIs needed to develop TPP applications with AIS/PIS functionalities:

- PSD2 API-ConsentC: contains the operations necessary to obtain the customer's consent for accessing accounts opened with CEC Bank;
- PSD2 API-AccountsC: contains the operations necessary to develop AIS functionalities (data about accounts is extracted with the limitations specified in the customer consent);
- PSD2 API-PaymentsC: contains the operations necessary to develop the PIS (you can initiate transactions for which the customer authorization is required) and PIIS (you can confirm the availability of a certain amount in the account based on a valid account consultation agreement) functionalities.

In order to access/test the above APIs, the TPP application must subscribe to use them. When calling API operations, application authentication parameters are required: Client Id and Client Secret. Also, calling APIs: PSD2 API-ConsentC, PSD2 API-AccountsC, PSD2 API-PaymentsC is allowed only if the Tpp-Signature-Certificate header parameter of each call is filled with the EIDAS certificate of the TPP of the form:

-----BEGIN CERTIFICATE-----
xxxEXAMPLExxxxxxxxxEXAMPLExxxxxxxxxxEXAMPLExxxxxxxxxxEXAMPLExxxxxxxE
XAMPLExxxxxxxxxEXAMPLExxxxxxxxxxEXAMPLExxxxxxxxxxEXAMPLExxxxxxxEXA
MPLExxxxxxxxxEXAMPLExxxxxxxxxxEXAMPLExxxxxxxxxxEXAMPLExxxxxxxEXAMPL
ExxxxxxxxxEXAMPLExxxxxxxxxxEXAMPLExxxxxxxxxxEXAMPLExxxx-----END
CERTIFICATE-----



Our Products

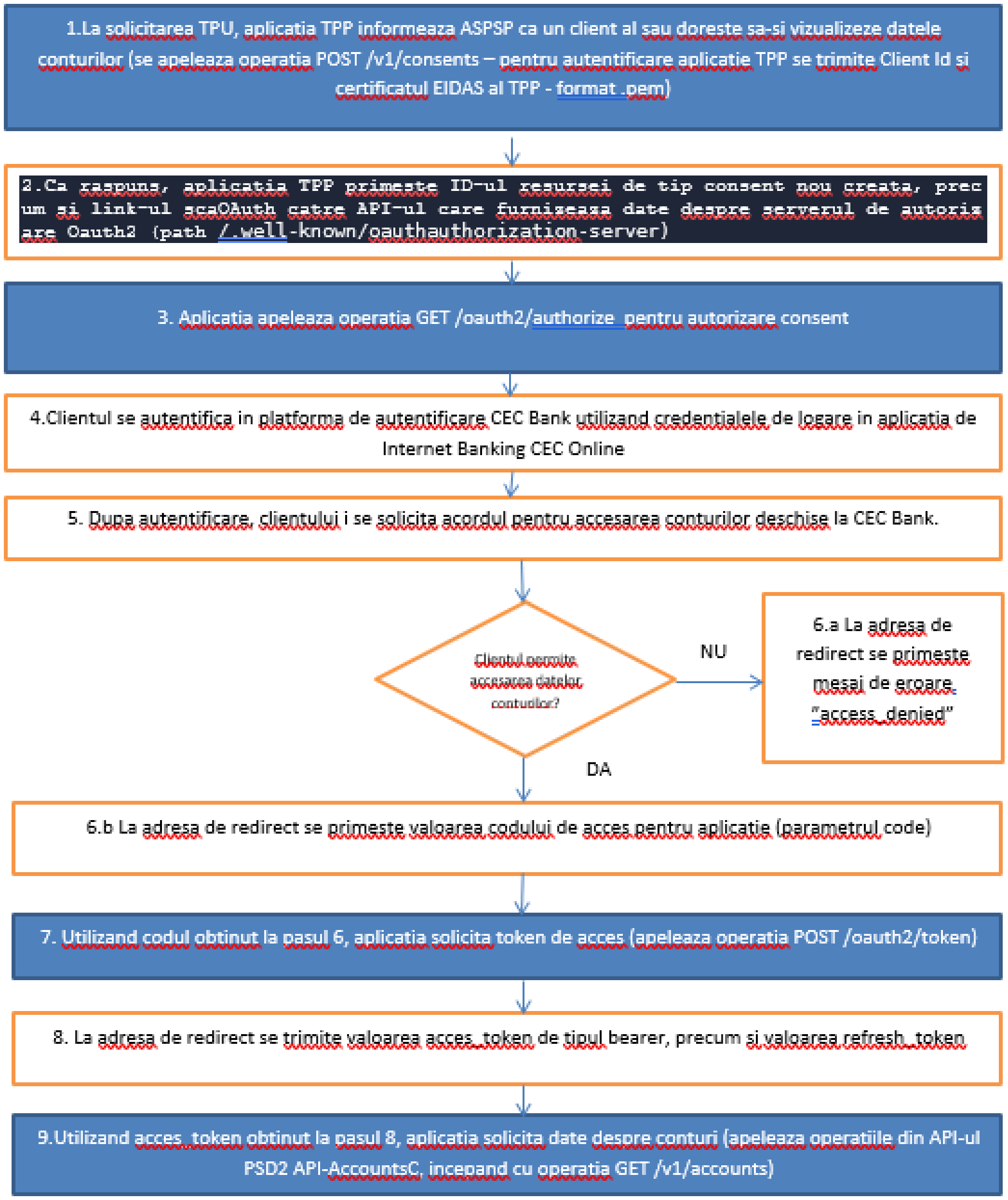
AP... ...yments (PISP)

Provide the CEC Bank users with money transfer services, directly from your platform or application.

APIs for Consent

Ensure the customer's account has the funds needed for a certain transaction.

2.1 Flow description for obtaining customer accounts data



1.La solicitarea TPU, aplicatia TPP informeaza ASPSP ca un client al sau doreste sa-si vizualizeze datele conturilor (se apeleaza operatia POST /v1/consents – pentru autentificare aplicatie TPP se trimite Client Id si certificatul EIDAS al TPP - format .pem)

2.Ca raspuns, aplicatia TPP primeste ID-ul resursei de tip consent nou creata, precum si link-ul scaOAuth catre API-ul care furnizeaza date despre serverul de autorizare Oauth2 (path /.well-known/oauthauthorization-server)

3. Aplicatia apeleaza operatia GET /oauth2/authorize pentru autorizare consent

4.Clientul se autentifica in platforma de autentificare CEC Bank utilizand credentialele de logare in aplicatia de Internet Banking CEC Online

5. Dupa autentificare, clientului i se solicita acordul pentru accesarea conturilor deschise la CEC Bank.

Clientul permite accesarea datelor contudilor?

NU

6.a La adresa de redirect se primeste mesaj de eroare "access_denied"

DA

6.b La adresa de redirect se primeste valoarea codului de acces pentru aplicatie (parametrul code)

7. Utilizand codul obtinut la pasul 6, aplicatia solicita token de acces (apeleaza operatia POST /oauth2/token)

8. La adresa de redirect se trimite valoarea acces_token de tipul bearer, precum si valoarea refresh_token

9.Utilizand acces_token obtinut la pasul 8, aplicatia solicita date despre conturi (apeleaza operatiile din API-ul PSD2 API-AccountsC, incepand cu operatia GET /v1/accounts)

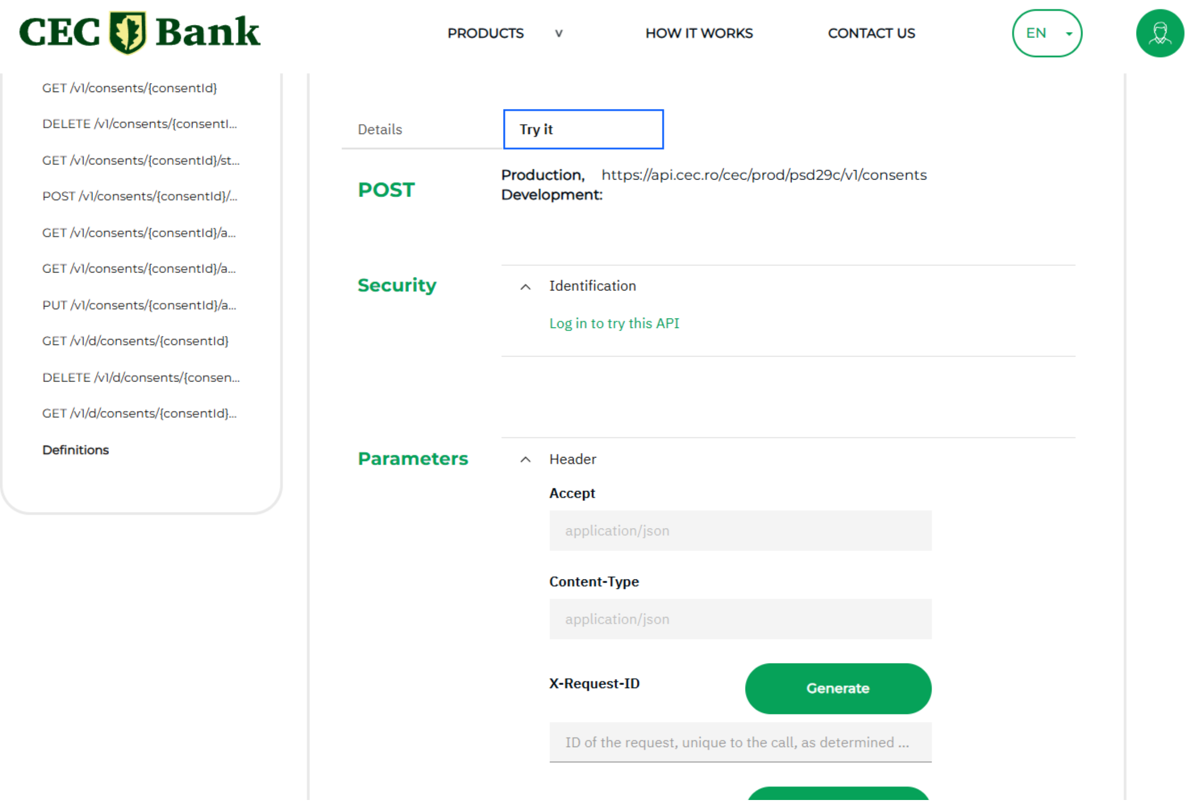
2.1.1 Send request for taking over customer account access agreement: create consent.

Call the POST operation /v1/consents in the PSD2 API API-Consent. In the Header the following is mandatory:

- X-Request-ID
- TPP-Redirect-URI
- Tpp-Signature-Certificate.

In the "Security" section you will see the Log In button and after logging in, the subscribed product application will be automatically selected.

In Body no information should be passed on. The content of the consent will be determined by the customer after logging into the bank's system, in the consent authorization interface exposed by the bank.


CEC Bank
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GET /v1/consents/{consentId}
DELETE /v1/consents/{consentI...
GET /v1/consents/{consentId}/st...
POST /v1/consents/{consentId}/...
GET /v1/consents/{consentId}/a...
GET /v1/consents/{consentId}/a...
PUT /v1/consents/{consentId}/a...
GET /v1/d/consents/{consentId}
DELETE /v1/d/consents/{consen...
GET /v1/d/consents/{consentId}...
Definitions
Details
Try it
Generate

POST

Production, https://api.cec.ro/cec/prod/psd29c/v1/consents
Development:

Security

Identification

Log in to try this API

Parameters

Header

Accept

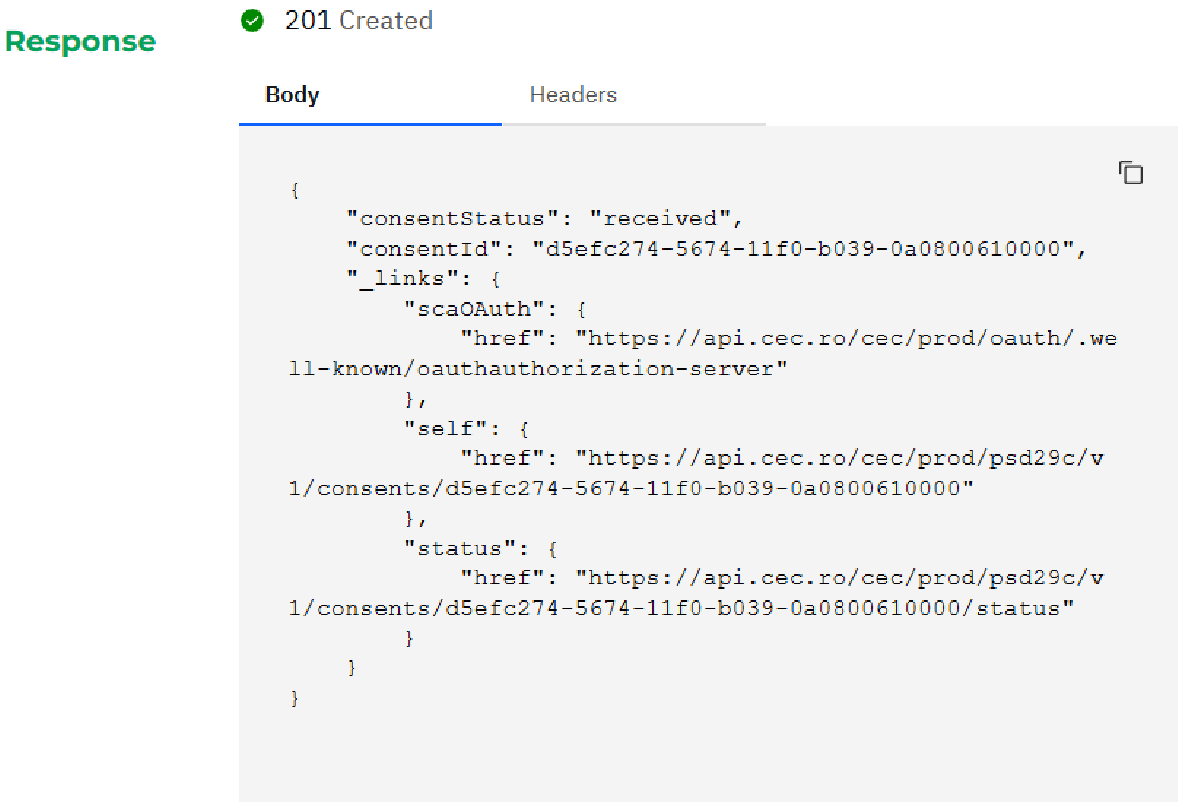
application/json

Content-Type

application/json

X-Request-ID

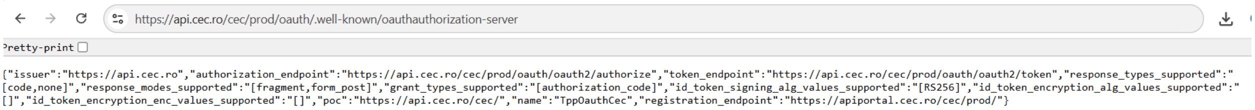
ID of the request, unique to the call, as determined ...



```
{
    "consentStatus": "received",
    "consentId": "d5efc274-5674-11f0-b039-0a0800610000",
    "_links": {
        "scaOAuth": {
            "href": "https://api.cec.ro/cec/prod/oauth/.we
ll-known/oauthauthorization-server"
        },
        "self": {
            "href": "https://api.cec.ro/cec/prod/psd29c/v
1/consents/d5efc274-5674-11f0-b039-0a0800610000"
        },
        "status": {
            "href": "https://api.cec.ro/cec/prod/psd29c/v
1/consents/d5efc274-5674-11f0-b039-0a0800610000/status"
        }
    }
}
```

In the response structure, the identifier of the newly created consent resource "consentId" is received, as well as the link "scaOAuth" where the metadata of the Oauth 2.0 authorization server is provided.

The TPP application must redirect the PSU to the bank authentication page, using the authorization endpoint provided by the scaOAuth link.


https://api.cec.ro/cec/prod/oauth/.well-known/oauthauthorization-server
Pretty-print □

{"issuer":"https://api.cec.ro","authorization_endpoint":"https://api.cec.ro/cec/prod/oauth/oauth2/authorize","token_endpoint":"https://api.cec.ro/cec/prod/oauth/oauth2/token","response_types_supported":"[code,none]","response_modes_supported":"[fragment,form_post]","grant_types_supported":"[authorization_code]","id_token_signing_alg_values_supported":"[RS256]","id_token_encryption_alg_values_supported":"[]","id_token_encryption_enc_values_supported":"[]","poc":"https://api.cec.ro/cec/","name":"TppOauthCec","registration_endpoint":"https://apiportal.cec.ro/cec/prod/"}

The example of the URL formation for Redirect can be found in the "Location" attribute of the response header of the POST operation /v1/consents:

Location:

https://api.cec.ro/cec/prod/oauthcec/oauth2/authorize?

response_type=code

&scope=AIS:43a5a1a0-a456-11ec-b4e2c-00a0800270000

&redirect_uri=https://example.com/redirect

&client_id=28xxxxxxxxxxfe8a3

&code_challenge=<code challenge value>

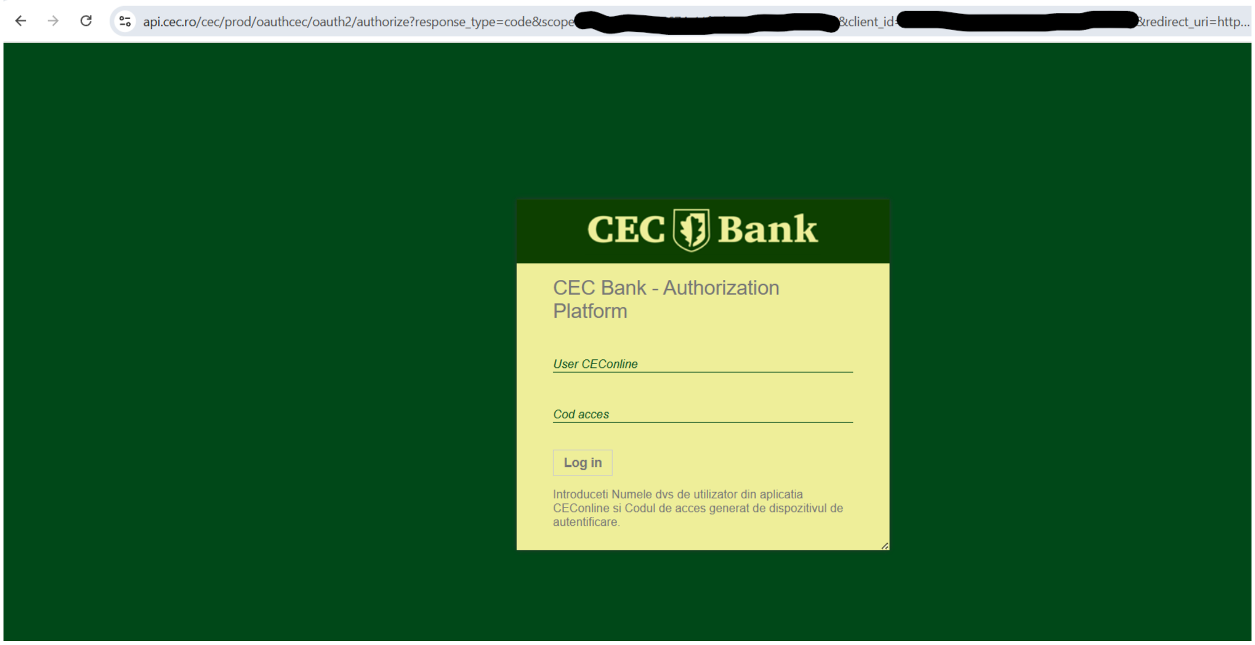
&code_challenge_method=<code challenge method>

Before use, the link in the "Location" header must be filled in by the TPP application with the value of the code_challenge parameter (PKCE challenge according to cryptographic RFC 7636 - https://tools.ietf.org/html/rfc7636 used to prevent code injection attacks, code_challenge_method= "S256")

2.1.2 Customer authentication in the bank system

The TPP application redirects the client to the authorization URL formed in the previous step, where the login window in the authentication platform opens.

The customer can log in using the username from the Internet Banking-CEC Online application and the code generated by the code generating device or eToken application.



api.cec.ro/cec/prod/oauthcec/oauth2/authorize?response_type=code&scope[redacted]&client_id[redacted]&redirect_uri=http...

CEC Bank

CEC Bank - Authorization Platform

User CEConline

Cod acces

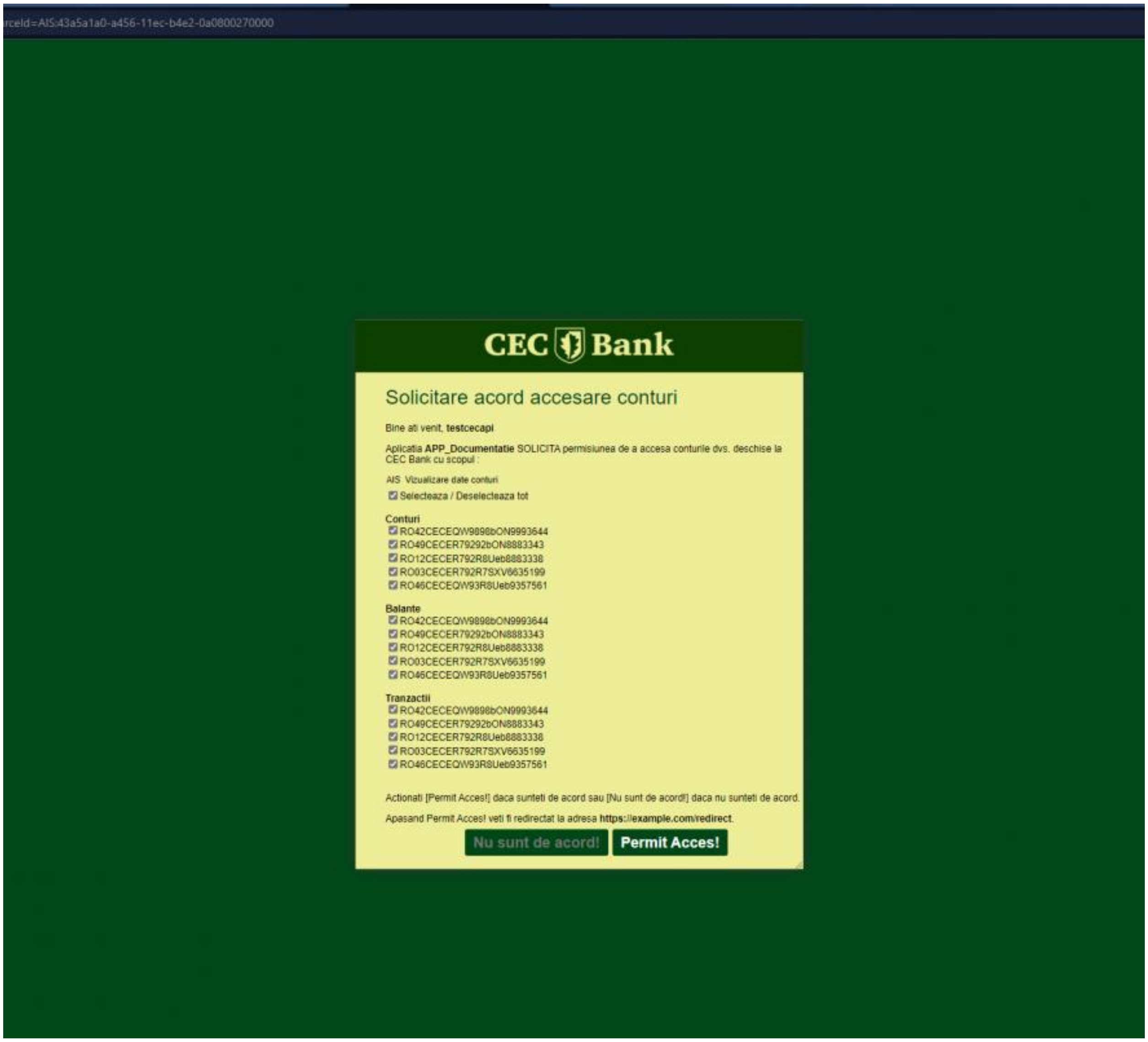
Log in

Introduceti Numele dvs de utilizator din aplicatia CEConline si Codul de acces generat de dispozitivul de autentificare.

2.1.3 Customer agreement to consult account data

After successfully logging in and identifying the logged in customer, the agreement takeover window for accessing the accounts by the TPP application appears.

Depending on the permissions granted by the customer for each payment account in the list, the TPP application will be able to visualize the accounts' IBANs and will have access to the balance visualization, respectively to the transaction list



rceId=AIS:43a5a1a0-a456-11ec-b4e2-0a0800270000

CEC Bank

Solicitare acord accesare conturi

Bine ati venit, **testcecapi**

Aplicatia **APP_Documentatie** SOLICITA permisiunea de a accesa conturile dvs. deschise la CEC Bank cu scopul :

AIS Vizualizare date conturi

☑ Selecteaza / Deselecteaza tot

Conturi
☑ RO42CECEQW9898bON9993644
☑ RO49CECER79292bON8883343
☑ RO12CECER792R8Ueb8883338
☑ RO03CECER792R7SXV6635199
☑ RO46CECEQW93R8Ueb9357561

Balante
☑ RO42CECEQW9898bON9993644
☑ RO49CECER79292bON8883343
☑ RO12CECER792R8Ueb8883338
☑ RO03CECER792R7SXV6635199
☑ RO46CECEQW93R8Ueb9357561

Tranzactii
☑ RO42CECEQW9898bON9993644
☑ RO49CECER79292bON8883343
☑ RO12CECER792R8Ueb8883338
☑ RO03CECER792R7SXV6635199
☑ RO46CECEQW93R8Ueb9357561

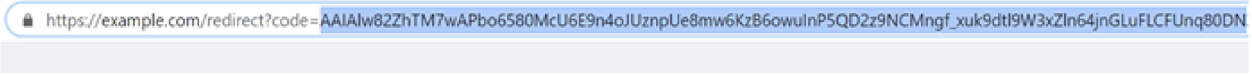
Actionati [Permit Acces!] daca sunteti de acord sau [Nu sunt de acord!] daca nu sunteti de acord.

Apasand Permit Acces! veti fi redirectat la adresa **https://example.com/redirect**.

If you click 'I don't agree!' , the redirect address of the TPP application will send "error=acces_denied"

2.1.4 Application access code generation

After the customer allows access to the accounts, the access code for the application ("code") is sent to the redirect address provided by the TPP application.



https://example.com/redirect?code=AAIAlw82ZhTM7wAPbo6580McU6E9n4oJUznpUe8mw6KzB6owuInP5QD2z9NCMngf_xuk9dtI9W3xZIn64jnGLuFLCFUnq80DN

2.1.5 Get access tokens to consult accounts

The TPP application will provide the above access code in exchange for a resource access token (Bearer Token), by calling the POST method /oauth2/token from the URL indicated in the metadata "token_endpoint", with the purpose "AIS:consentId" (the same purpose contained in the access code provided in the previous step)

The request body must be sent in *x-www-form-urlencoded* format and must contain the parameters below (the values shown correspond to the in/out parameters of the authorization operation presented in the previous step):

- grant_type=authorization_code

- client_id=28xxxxxxxxxxfe8a3

- code= AAIAlw82ZhTM7wAPbo6580McU6E9n4oJUznpUe8mw6KzB6owuInP5QD2z9NCMngf_xuk9dtl9W3xZln64jnGLuFLCFUnq80DN3CaEGTxfkwE5fp2I17DuxPacZovpRCGplsj7Vfo9lqphLkdxPDVKL3j

- redirect_uri= https://example.com/redirect

- scope= AIS:43a5a1a0-a456-11ec-b4e2c-00a0800270000

- code_verifier=ginfeftejiscu

```
curl --request POST \

--url https://api.cec.ro/cec/prod/oauthcec/oauth2/token \
--header 'accept: application/json' \
--header 'content-type: application/x-www-form-urlencoded' \
--header 'x-ibm-client-id: 28xxxxxxxxxxfe8a3\
--data 'grant_type=authorization_code&client_id=28xxxxxxxxxxfe8a3&code=
AAIAlw82ZhTM7wAPbo6580McU6E9n4oJUznpUe8mw6KzB6owuInP5QD2z9NCMngf_xuk9
dtl9W3xZln64jnGLuFLCFUnq80DN3CaEGTxfkwE5fp2I17DuxPacZovpRCGplsj7Vfo9lqphLk
dxPDVKL3j&redirect_uri= https://example.com/redirect&scope= AIS:a2308f60-76e3-11eb-
9881-0a06001a0000&code_verifier=ginfeftejiscu'
```

```
200 OK

{

   "token_type": "bearer",
    "access_token":
"AAIkMjg2Yjk1NmYtZDQxMS00OTM4LTljMGUtYmI1ODE1YWZlOGEzIjPNvUaB8KIeDg
PgFbjI7AANcFyG-HCnV-hiqPVlo17k5DjRoCB7PSv8--
qKI1JuneC52uXWAgU7iE1OA_NYC6JJTRYtYBi6I2DL88f4_uxormO0Bi6zBj6lld1D3rtNI9u
T0dUAL2WHk5L5VjhJFQ",

    "expires_in": 3595,

    "consented_on": 1614240924,

    "scope": "AIS:43a5a1a0-a456-11ec-b4e2c-00a0800270000",

    "refresh_token": "AAJzRQj3N2Wd-
3pb005516_i9ISl6ZL3Ut5n1w2gbh8YK5vxjb86zMQcwILT29Dq-
4ZNHvcpBSr90uoemjU9LhUgkF0-dpHPTdShGuPJOwi6gCbfaxD3PSFu-
oTgKQzReCKxIOxPldguuu5M7Xquy4NudJ7LDVWRxI52JBNpxtCGYQ",

    "refresh_token_expires_in": 2682000

}
```

In the response of the POST operation /oauth2/token, the access token value required by the calls of the APIs PSD2 API-AccountsC, PSD2 API-ConsentC and the POST operation /v1/funds-confirmations in PSD2 API-PaymentsC is found. It also specifies the refresh_token value, with a validity period corresponding to the validity of the consent (max. 180 days), which can be used to generate a new access_token without PSU involvement.

2.1.6 Get refresh_token

To get a new valid access_token in exchange for the refresh_token, use the same POST /oauth2/token operation, but with grant_type=refresh_token, as in the example below.

```
curl --request POST \
--url https://api.cec.ro/cec/prod/oauthcec/oauth2/token \
--header 'accept: application/json' \
--header 'content-type: application/x-www-form-urlencoded' \
--header 'x-ibm-client-id: 28xxxxxxxxxxfe8a3\
--data 'grant_type=refresh_token&client_id=28xxxxxxxxxxfe8a3&refresh_token=
AAJzRQj3N2Wd-3pb005516_i9ISl6ZL3Ut5n1w2gbh8YK5vxjb86zMQcwILT29Dq-
4ZNHvcpBSr90uoemjU9LhUgkF0-dpHPTdShGuPJOwi6gCbfaxD3PSFu-
oTgKQzReCKxIOxPldguuu5M7Xquy4NudJ7LDVWRxI52JBNpxtCGYQ
```

2.1.7 Get account data

The GET /v1/accounts operation is called from the PSD2-AccountsC API, transmitting in the header:

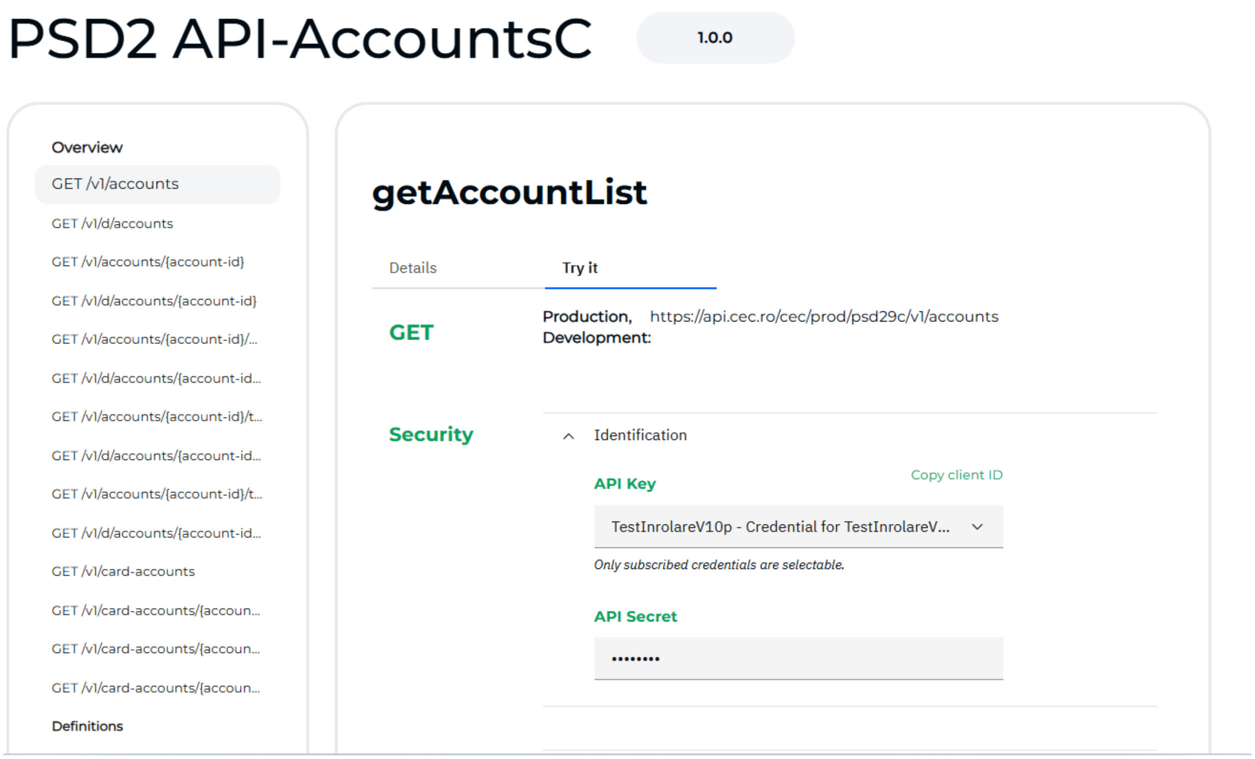
"x-ibm-client-id" :"the client_id generated in the application creation step of the Dynamic Enrollment api"

"x-Request-ID": "id such as: 123e4567-e89b-12d3-a456-426655440000"

"Authorization": "access the Bearer token obtained in the previous step",

"Consent-ID": "consentId value for viewing account data",

"TPP-Signature-Certificate":"EIDAS certificate of the TPP with PSP_AI role"



PSD2 API-AccountsC 1.0.0

getAccountList

GET

Production, https://api.cec.ro/cec/prod/psd29c/v1/accounts
Development:

Security

Identification

API Key

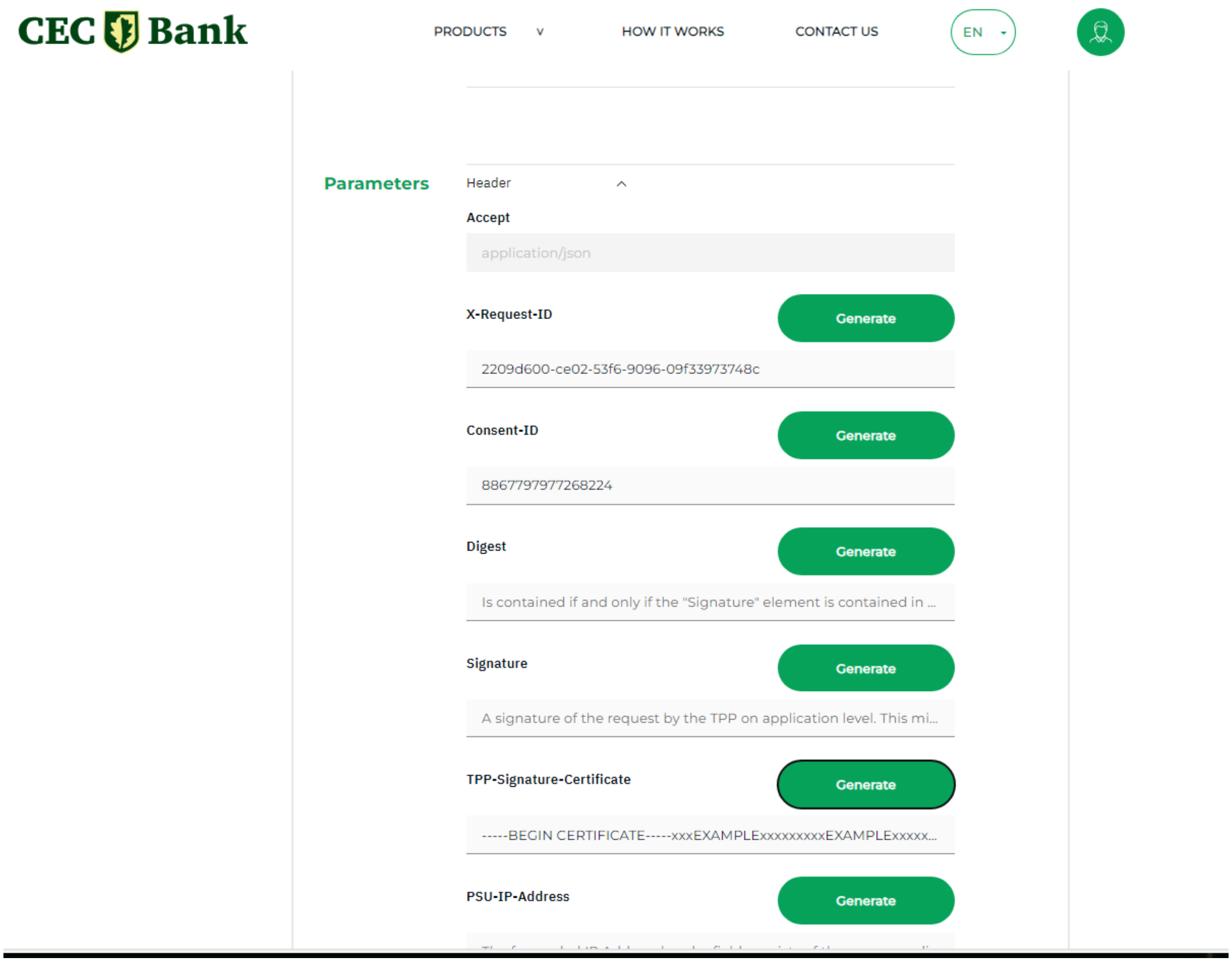
TestInrolareV10p - Credential for TestInrolareV...

Only subscribed credentials are selectable.

API Secret

••••••••

Overview
GET /v1/accounts
GET /v1/d/accounts
GET /v1/accounts/{account-id}
GET /v1/d/accounts/{account-id}
GET /v1/accounts/{account-id}/...
GET /v1/d/accounts/{account-id...
GET /v1/accounts/{account-id}/t...
GET /v1/d/accounts/{account-id...
GET /v1/accounts/{account-id}/t...
GET /v1/d/accounts/{account-id...
GET /v1/card-accounts
GET /v1/card-accounts/{accoun...
GET /v1/card-accounts/{accoun...
GET /v1/card-accounts/{accoun...
Definitions
Details
Try it
Copy client ID



Parameters

Header

Accept

application/json

X-Request-ID

2209d600-ce02-53f6-9096-09f33973748c

Consent-ID

8867797977268224

Digest

Is contained if and only if the "Signature" element is contained in ...

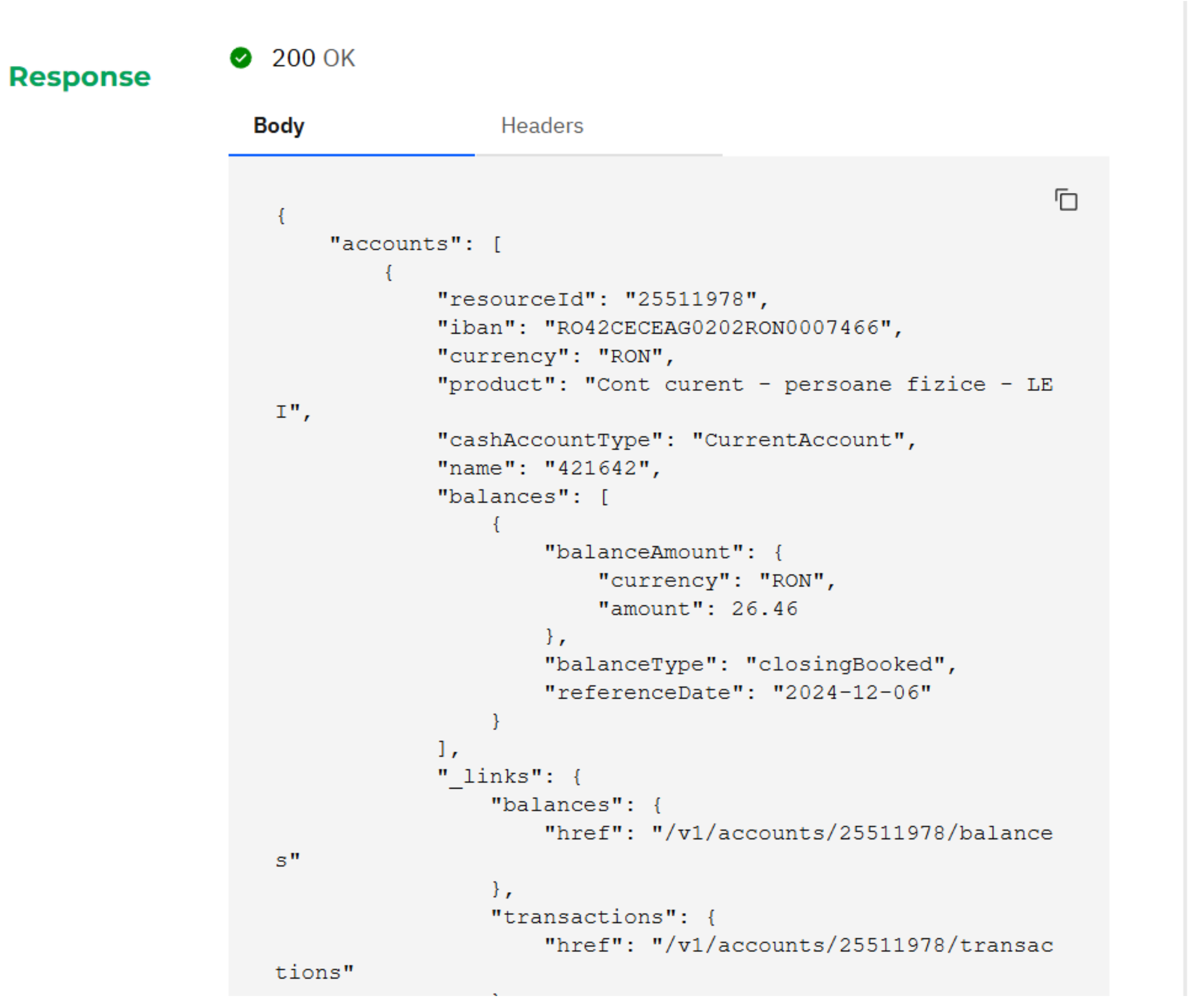
Signature

A signature of the request by the TPP on application level. This mi...

TPP-Signature-Certificate

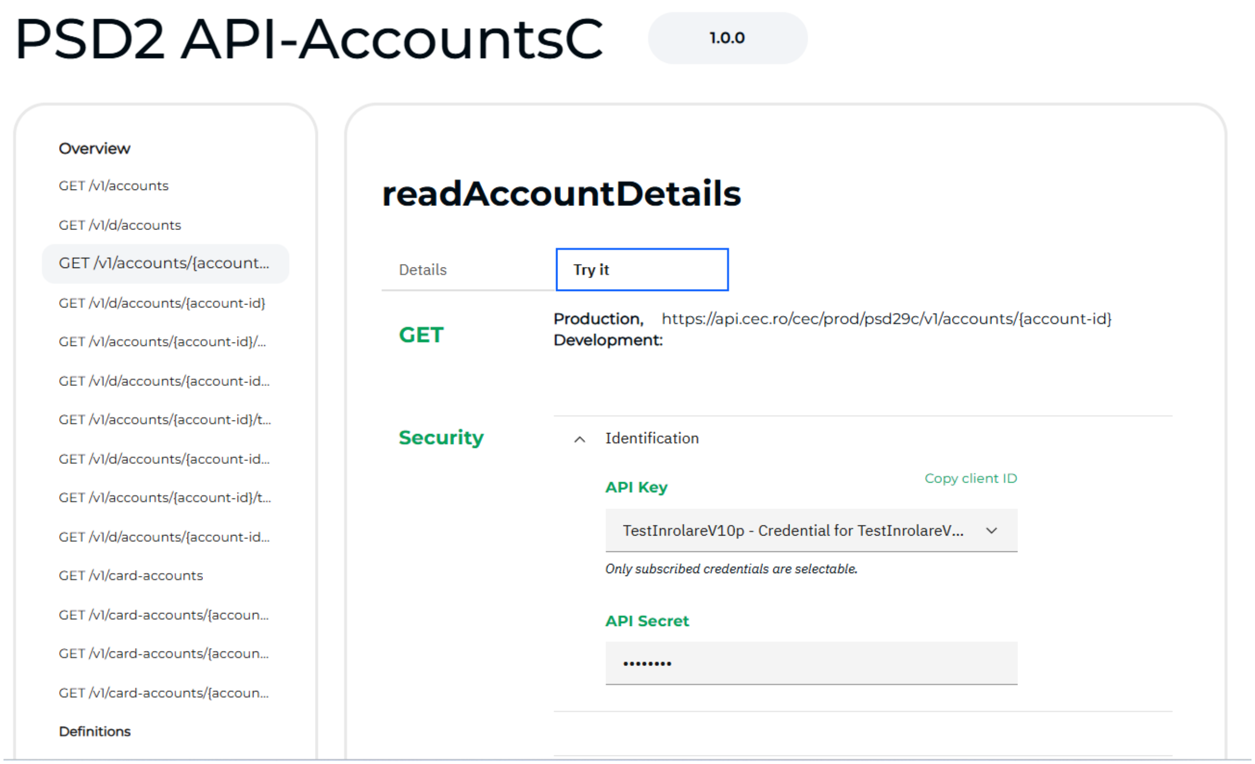
-----BEGIN CERTIFICATE-----xxxEXAMPLExxxxxxxxxEXAMPLExxxxx...

PSU-IP-Address



```
{
    "accounts": [
        {
            "resourceId": "25511978",
            "iban": "RO42CECEAG0202RON0007466",
            "currency": "RON",
            "product": "Cont curent - persoane fizice - LE
I",
            "cashAccountType": "CurrentAccount",
            "name": "421642",
            "balances": [
                {
                    "balanceAmount": {
                        "currency": "RON",
                        "amount": 26.46
                    },
                    "balanceType": "closingBooked",
                    "referenceDate": "2024-12-06"
                }
            ],
            "_links": {
                "balances": {
                    "href": "/v1/accounts/25511978/balance
s"
                },
                "transactions": {
                    "href": "/v1/accounts/25511978/transac
tions"
```

2.1.8 Get account details



PSD2 API-AccountsC 1.0.0

- Overview
- GET /v1/accounts
- GET /v1/d/accounts
- GET /v1/accounts/{account...
- GET /v1/d/accounts/{account-id}
- GET /v1/accounts/{account-id}/...
- GET /v1/d/accounts/{account-id...
- GET /v1/accounts/{account-id}/t...
- GET /v1/d/accounts/{account-id...
- GET /v1/accounts/{account-id}/t...
- GET /v1/d/accounts/{account-id...
- GET /v1/card-accounts
- GET /v1/card-accounts/{accoun...
- GET /v1/card-accounts/{accoun...
- GET /v1/card-accounts/{accoun...
- Definitions

readAccountDetails

Details | Try it

GET Production, Development: https://api.cec.ro/cec/prod/psd29c/v1/accounts/{account-id}

Security Identification

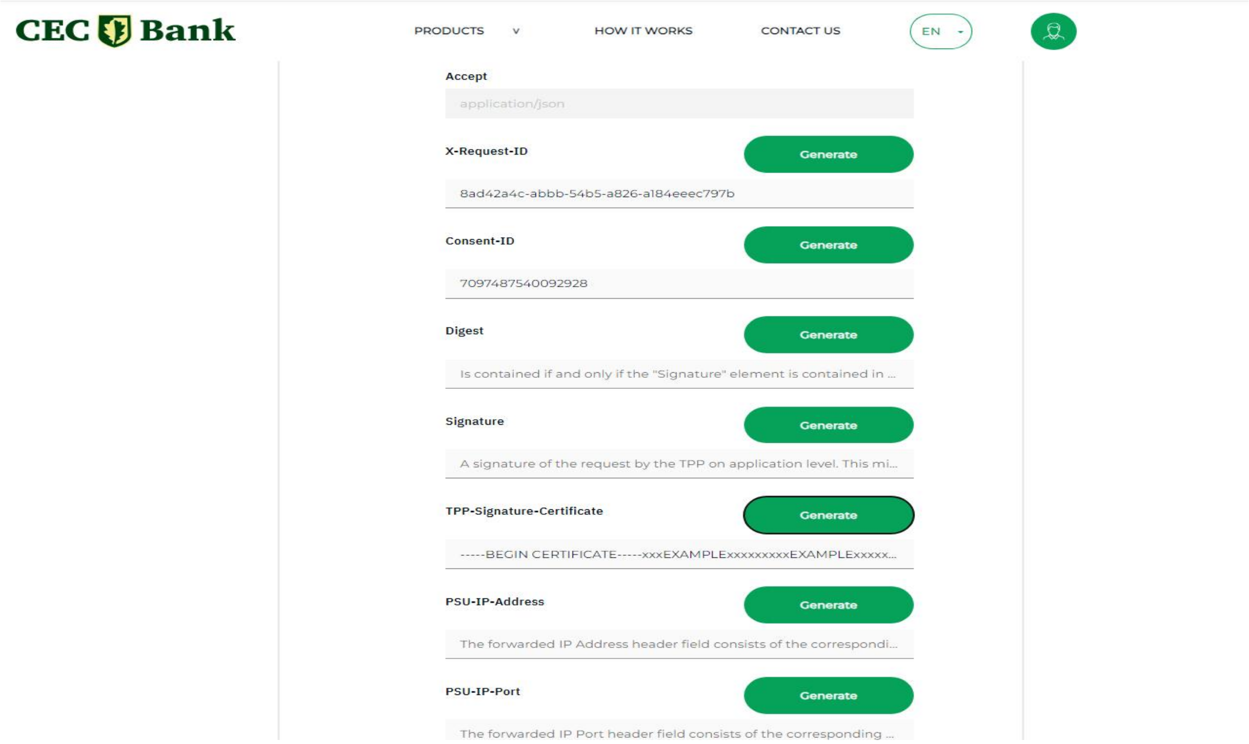
API Key — Copy client ID

TestInrolareV10p - Credential for TestInrolareV...

Only subscribed credentials are selectable.

API Secret

••••••••



Accept: application/json

X-Request-ID [Generate]: 8ad42a4c-abbb-54b5-a826-a184eeec797b

Consent-ID [Generate]: 7097487540092928

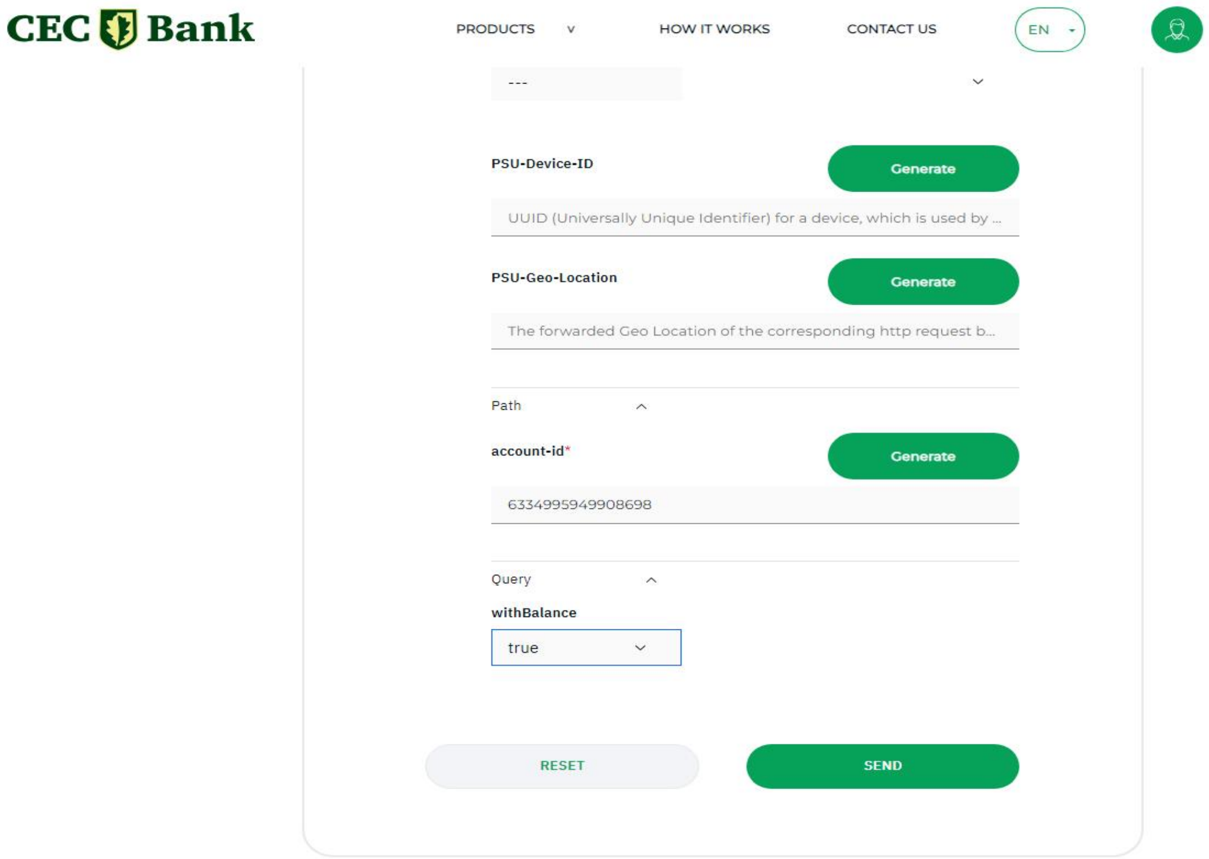
Digest [Generate]: Is contained if and only if the "Signature" element is contained in ...

Signature [Generate]: A signature of the request by the TPP on application level. This mi...

TPP-Signature-Certificate [Generate]: -----BEGIN CERTIFICATE-----xxxEXAMPLExxxxxxxxxEXAMPLExxxxx...

PSU-IP-Address [Generate]: The forwarded IP Address header field consists of the correspondi...

PSU-IP-Port [Generate]: The forwarded IP Port header field consists of the corresponding ...



PSU-Device-ID

UUID (Universally Unique Identifier) for a device, which is used by ...

PSU-Geo-Location

The forwarded Geo Location of the corresponding http request b...

Path

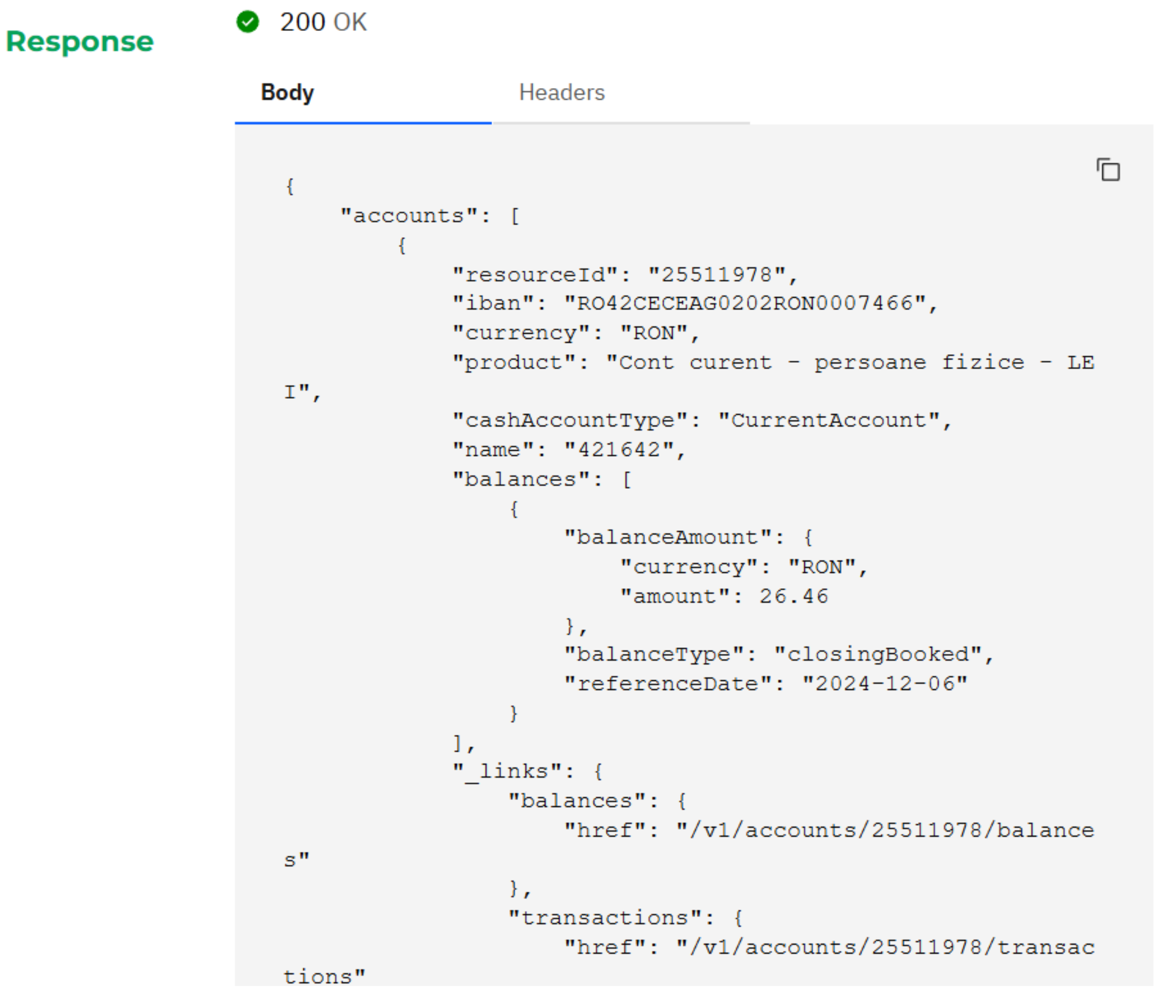
account-id*

6334995949908698

Query

withBalance

true



```
{
    "accounts": [
        {
            "resourceId": "25511978",
            "iban": "RO42CECEAG0202RON0007466",
            "currency": "RON",
            "product": "Cont curent - persoane fizice - LE
I",
            "cashAccountType": "CurrentAccount",
            "name": "421642",
            "balances": [
                {
                    "balanceAmount": {
                        "currency": "RON",
                        "amount": 26.46
                    },
                    "balanceType": "closingBooked",
                    "referenceDate": "2024-12-06"
                }
            ],
            "_links": {
                "balances": {
                    "href": "/v1/accounts/25511978/balance
s"
                },
                "transactions": {
                    "href": "/v1/accounts/25511978/transac
tions"
```

Call the GET /v1/accounts/{account-id} operation in the PSD2-AccountsC API as follows:

In the Header the following is transmitted:

"x-ibm-client-id" :" the client_id generated in the application creation step of the Dynamic Enrollment api "

"x-Request-ID": "id such as: 123e4567-e89b-12d3-a456-426655440000"

"Authorization": "access the Bearer token obtained in the previous step",

"Consent-ID": "consentId value for viewing account data",

"TPP-Signature-Certificate":"EIDAS certificate of the TPP with PSP_AI role"

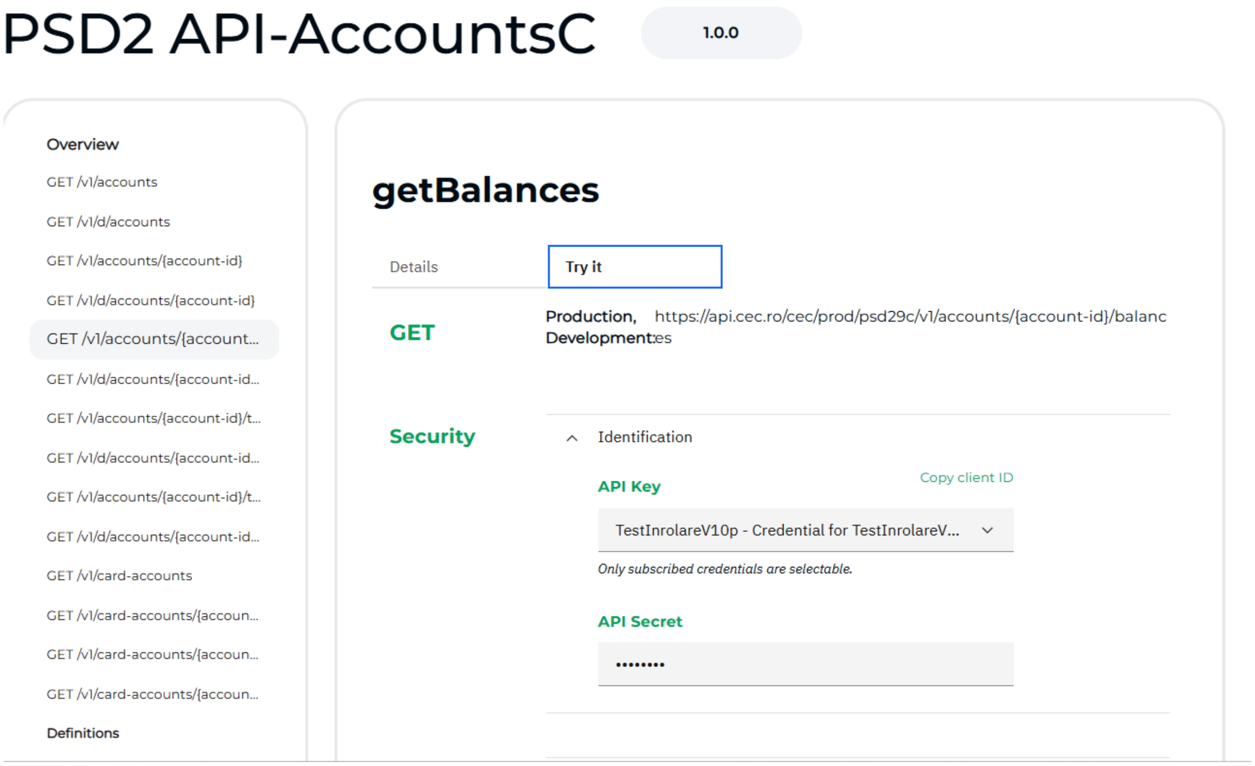
Parameters:

"account-id": "Account id for which details are required"

Response:

```
{
   "accounts": [
      {
         "resourceId": "25511978",
         "iban": "RO42CECEQW9898bON9993644",
         "currency": "RON",
         "product": "Cont curent - persoane fizice - LEI",
         "cashAccountType": "CurrentAccount",
         "name": "421642",
         "balances": [
            {
               "balanceAmount": {
                  "currency": "RON",
                  "amount": 320.02
               },
               "balanceType": "closingBooked",
               "referenceDate": "2022-03-16"
            }
         ],
         "_links": {
            "balances": {
               "href": "/v1/accounts/25511978/balances"
            },
            "transactions": {
               "href": "/v1/accounts/25511978/transactions"
            }
         }
      }
   ]
}
```

2.1.9 Get account balance


PSD2 API-AccountsC 1.0.0

Overview
GET /v1/accounts
GET /v1/d/accounts
GET /v1/accounts/{account-id}
GET /v1/d/accounts/{account-id}
GET /v1/accounts/{account...
GET /v1/d/accounts/{account-id...
GET /v1/accounts/{account-id}/t...
GET /v1/d/accounts/{account-id...
GET /v1/accounts/{account-id}/t...
GET /v1/d/accounts/{account-id...
GET /v1/card-accounts
GET /v1/card-accounts/{accoun...
GET /v1/card-accounts/{accoun...
GET /v1/card-accounts/{accoun...
Definitions
Details
Try it

getBalances

GET

Production, Development: https://api.cec.ro/cec/prod/psd29c/v1/accounts/{account-id}/balances

Security

Identification

API Key

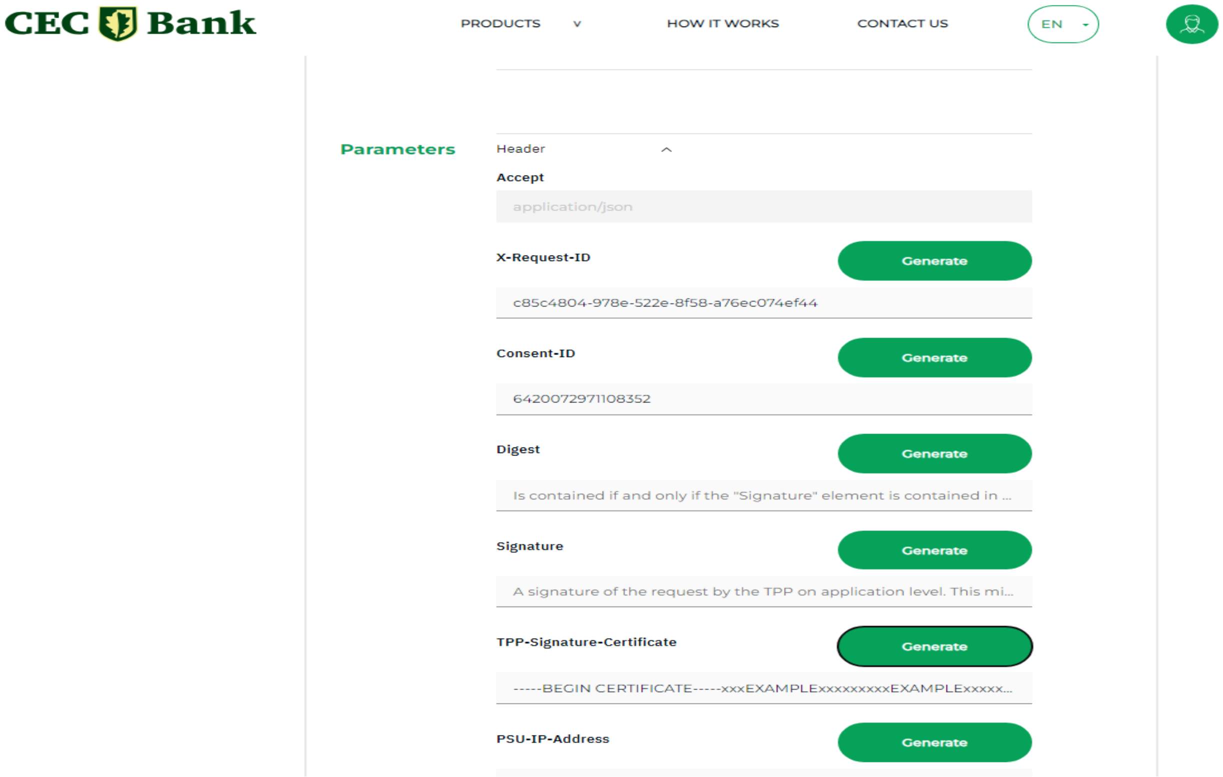
Copy client ID

TestInrolareV10p - Credential for TestInrolareV...

Only subscribed credentials are selectable.

API Secret

••••••••



Parameters

Header

Accept

application/json

X-Request-ID

c85c4804-978e-522e-8f58-a76ec074ef44

Consent-ID

6420072971108352

Digest

Is contained if and only if the "Signature" element is contained in ...

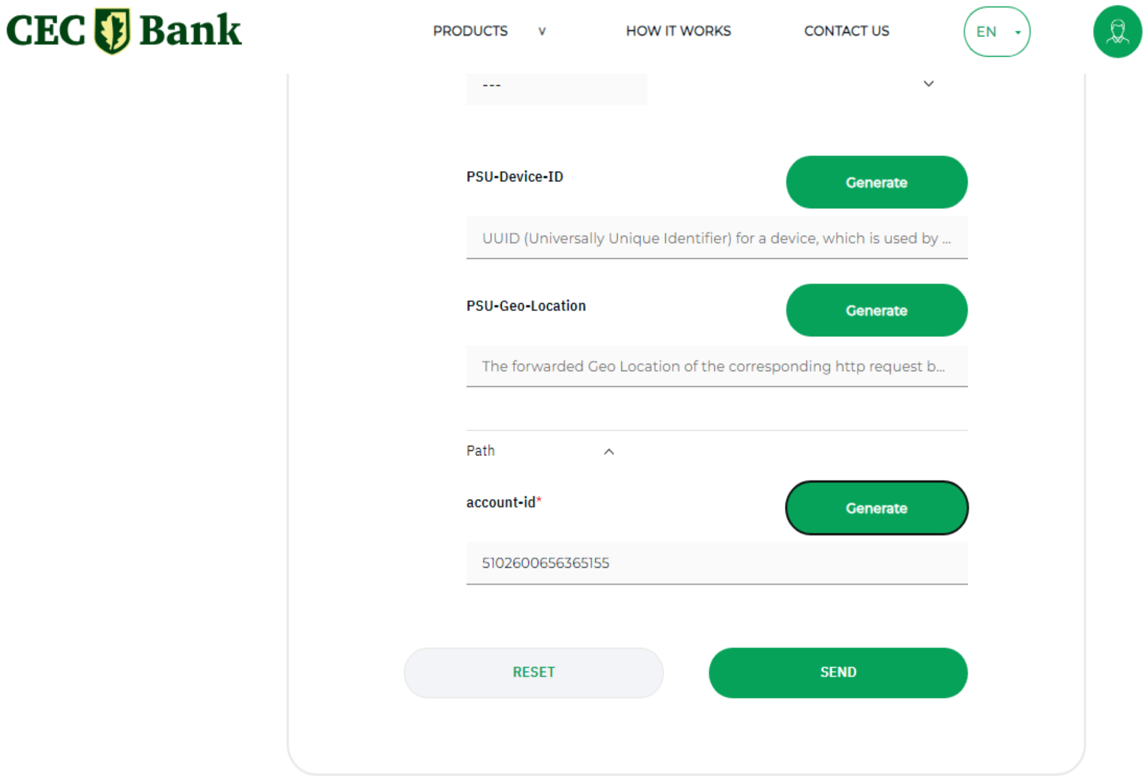
Signature

A signature of the request by the TPP on application level. This mi...

TPP-Signature-Certificate

-----BEGIN CERTIFICATE-----xxxEXAMPLExxxxxxxxxEXAMPLExxxxx...

PSU-IP-Address



PSU-Device-ID

UUID (Universally Unique Identifier) for a device, which is used by ...

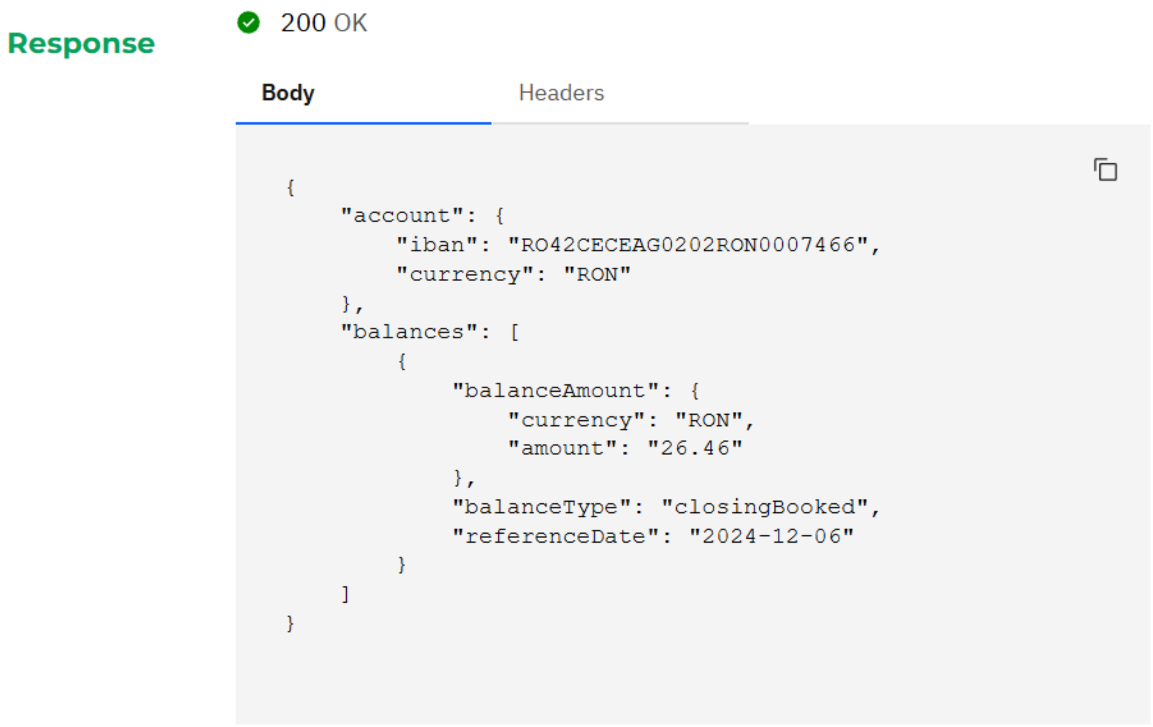
PSU-Geo-Location

The forwarded Geo Location of the corresponding http request b...

Path

account-id*

5102600656365155



```
{
    "account": {
        "iban": "RO42CECEAG0202RON0007466",
        "currency": "RON"
    },
    "balances": [
        {
            "balanceAmount": {
                "currency": "RON",
                "amount": "26.46"
            },
            "balanceType": "closingBooked",
            "referenceDate": "2024-12-06"
        }
    ]
}
```

Call the GET /v1/accounts/{account-id}/balances operation in the PSD2-AccountsC API as follows:

In the Header the following is transmitted:

"x-ibm-client-id" :"client_id generated by the application created on the portal"

"x-Request-ID": "id such as: 123e4567-e89b-12d3-a456-426655440000"

"Authorization": "access the Bearer token obtained in the previous step",

"Consent-ID": "consentId value for viewing account data",

"TPP-Signature-Certificate":"EIDAS certificate of the TPP with PSP_AI role"

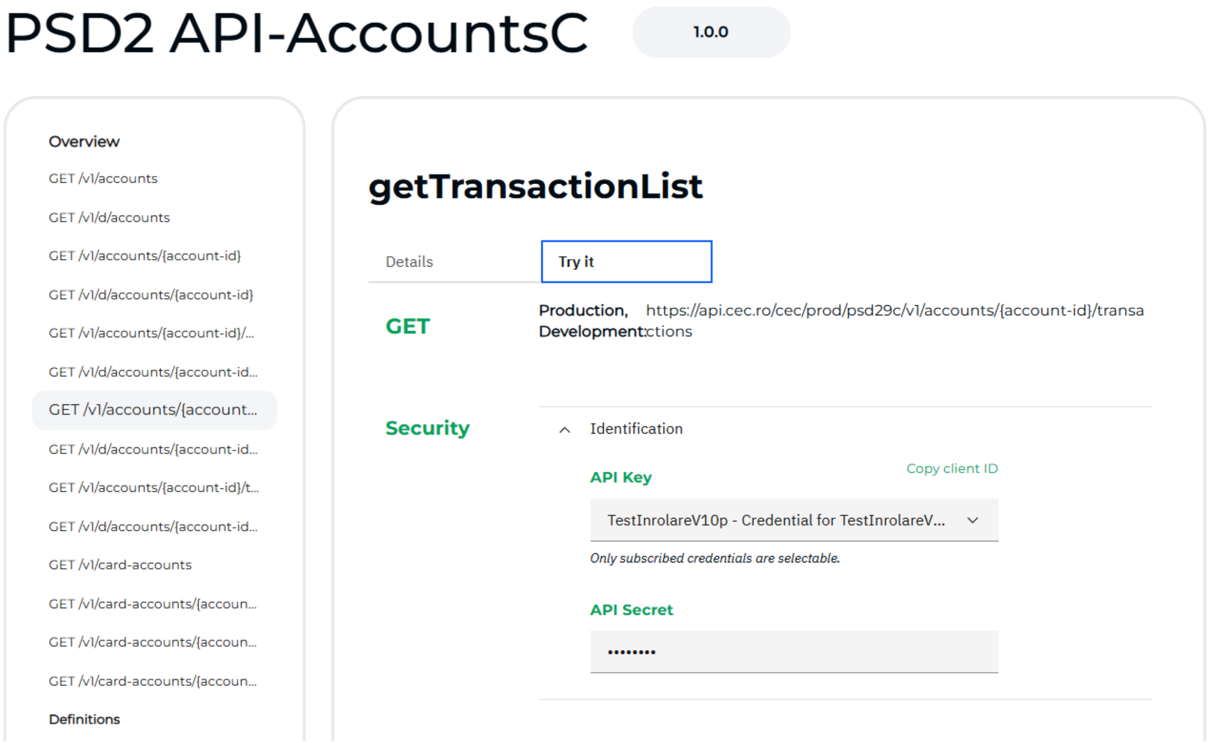
Parameters:

"account-id": "Account id for which details are required"

Response:

```
{
  "account": {
    "iban": "RO42CECEQW9898bON9993644",
    "currency": "RON"
  },
  "balances": [
    {
      "balanceAmount": {
        "currency": "RON",
        "amount": "320.02"
      },
      "balanceType": "closingBooked",
      "referenceDate": "2022-03-16"
    }
  ]
}
```

2.1.10 Get transaction list by account


PSD2 API-AccountsC
1.0.0
Overview
GET /v1/accounts
GET /v1/d/accounts
GET /v1/accounts/{account-id}
GET /v1/d/accounts/{account-id}
GET /v1/accounts/{account-id}/...
GET /v1/d/accounts/{account-id...
GET /v1/accounts/{account...
GET /v1/d/accounts/{account-id...
GET /v1/accounts/{account-id}/t...
GET /v1/d/accounts/{account-id...
GET /v1/card-accounts
GET /v1/card-accounts/{accoun...
GET /v1/card-accounts/{accoun...
GET /v1/card-accounts/{accoun...
Definitions
Details
Try it
Copy client ID

getTransactionList

GET

Production, Development: https://api.cec.ro/cec/prod/psd29c/v1/accounts/{account-id}/transactions

Security

Identification

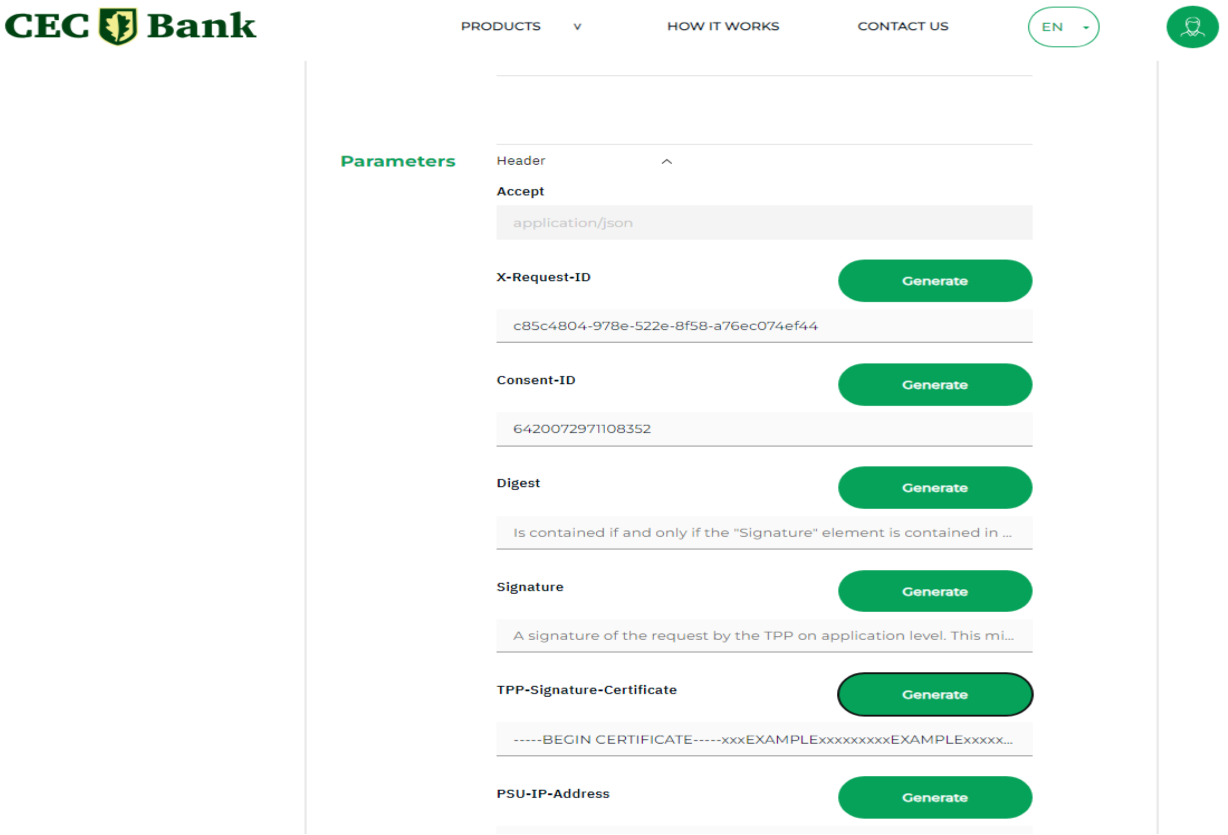
API Key

TestInrolareV10p - Credential for TestInrolareV...

Only subscribed credentials are selectable.

API Secret

••••••••



Parameters

Header

Accept

application/json

X-Request-ID [Generate]

c85c4804-978e-522e-8f58-a76ec074ef44

Consent-ID [Generate]

6420072971108352

Digest [Generate]

Is contained if and only if the "Signature" element is contained in ...

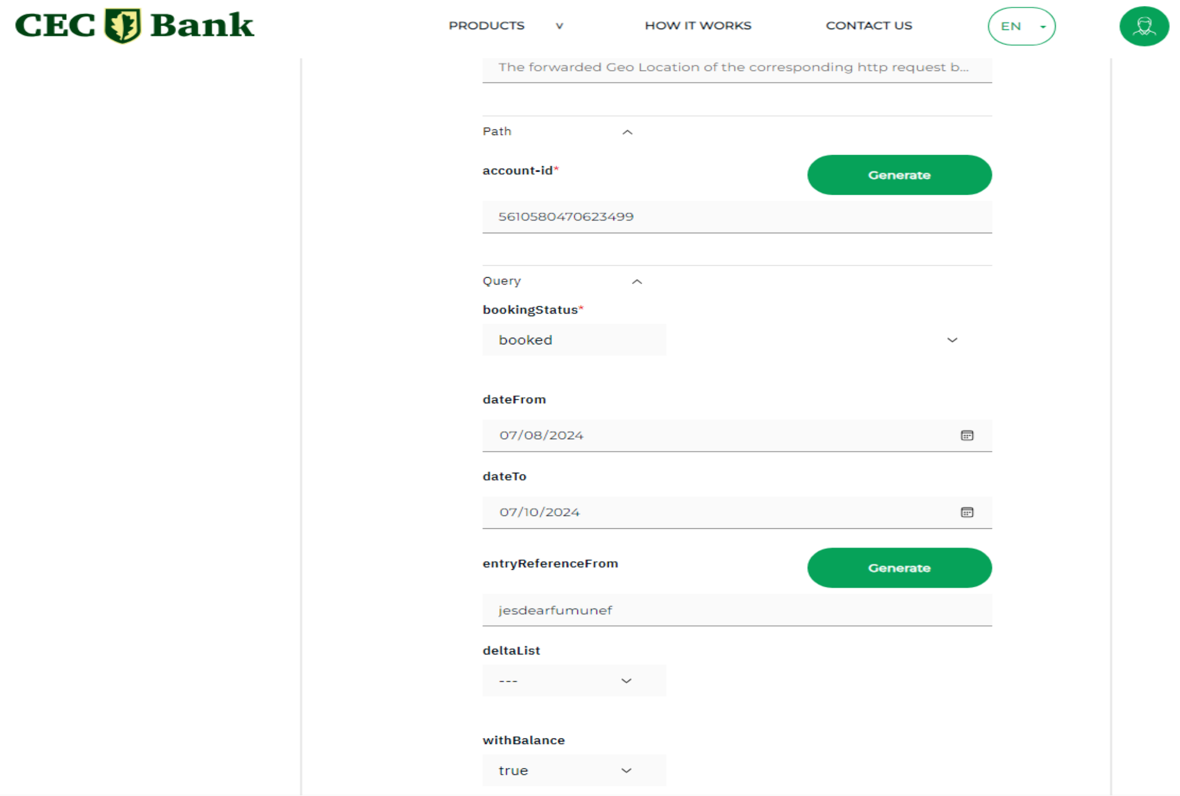
Signature [Generate]

A signature of the request by the TPP on application level. This mi...

TPP-Signature-Certificate [Generate]

-----BEGIN CERTIFICATE-----xxxEXAMPLExxxxxxxxxEXAMPLExxxxx...

PSU-IP-Address [Generate]



The forwarded Geo Location of the corresponding http request b...

Path

account-id* [Generate]

5610580470623499

Query

bookingStatus*

booked

dateFrom

07/08/2024

dateTo

07/10/2024

entryReferenceFrom [Generate]

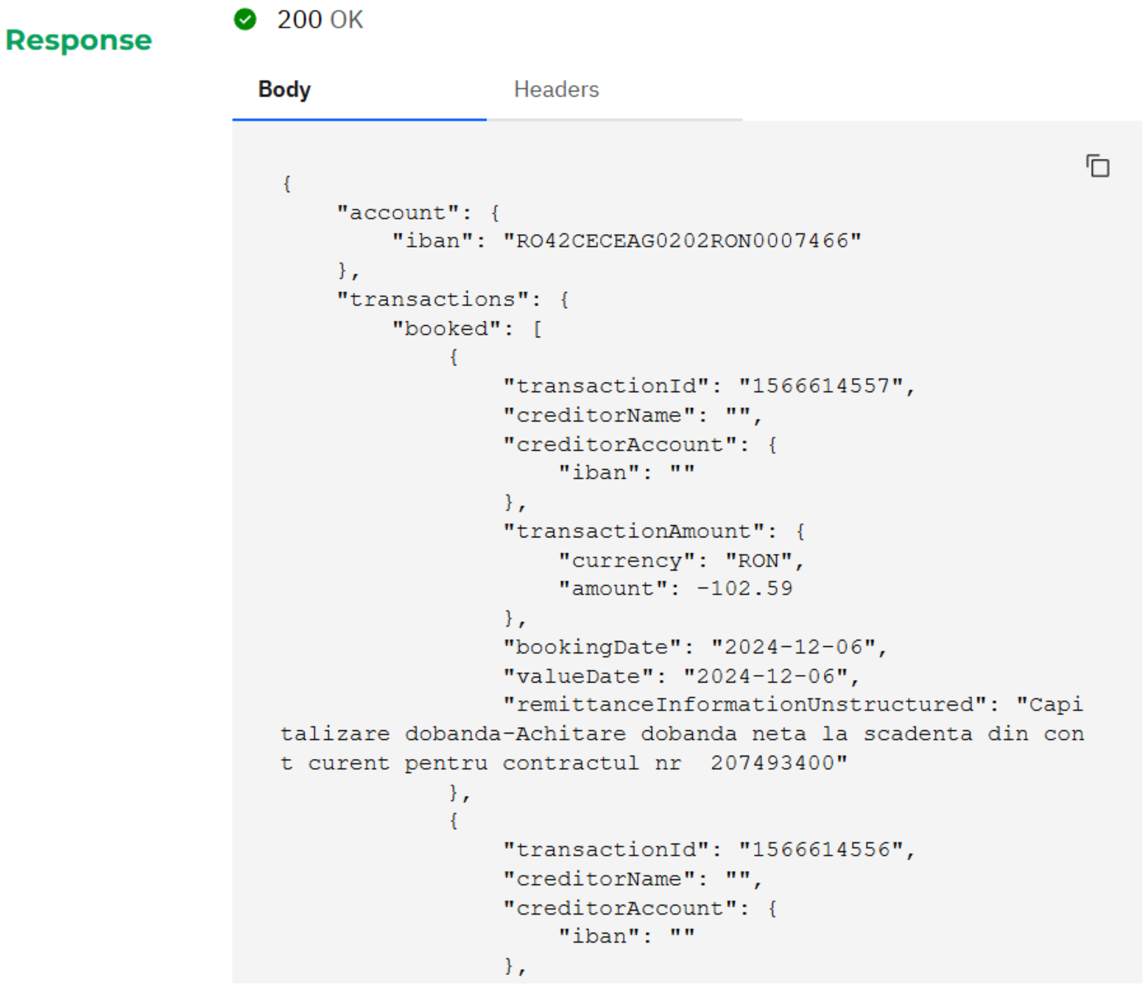
jesdearfumunef

deltaList

---

withBalance

true



```
{
    "account": {
        "iban": "RO42CECEAG0202RON0007466"
    },
    "transactions": {
        "booked": [
            {
                "transactionId": "1566614557",
                "creditorName": "",
                "creditorAccount": {
                    "iban": ""
                },
                "transactionAmount": {
                    "currency": "RON",
                    "amount": -102.59
                },
                "bookingDate": "2024-12-06",
                "valueDate": "2024-12-06",
                "remittanceInformationUnstructured": "Capi
talizare dobanda-Achitare dobanda neta la scadenta din con
t curent pentru contractul nr  207493400"
            },
            {
                "transactionId": "1566614556",
                "creditorName": "",
                "creditorAccount": {
                    "iban": ""
                },
```

Call the GET /v1/accounts/{account-id}/transactions operation in the PSD2-AccountsC API as follows:

In the Header the following is transmitted:

"x-ibm-client-id" :"client_id generated by the application created on the portal"

"x-Request-ID": "id such as: 123e4567-e89b-12d3-a456-426655440000"

"Authorization": "access the Bearer token obtained in the previous step",

"Consent-ID": "consentId value for viewing account data",

"TPP-Signature-Certificate":"EIDAS certificate of the TPP with PSP_AI role"

Parameters:

"bookingStatus": can be: "booked", "pending", "both"

"dateFrom": "start date ieterval search transactions"

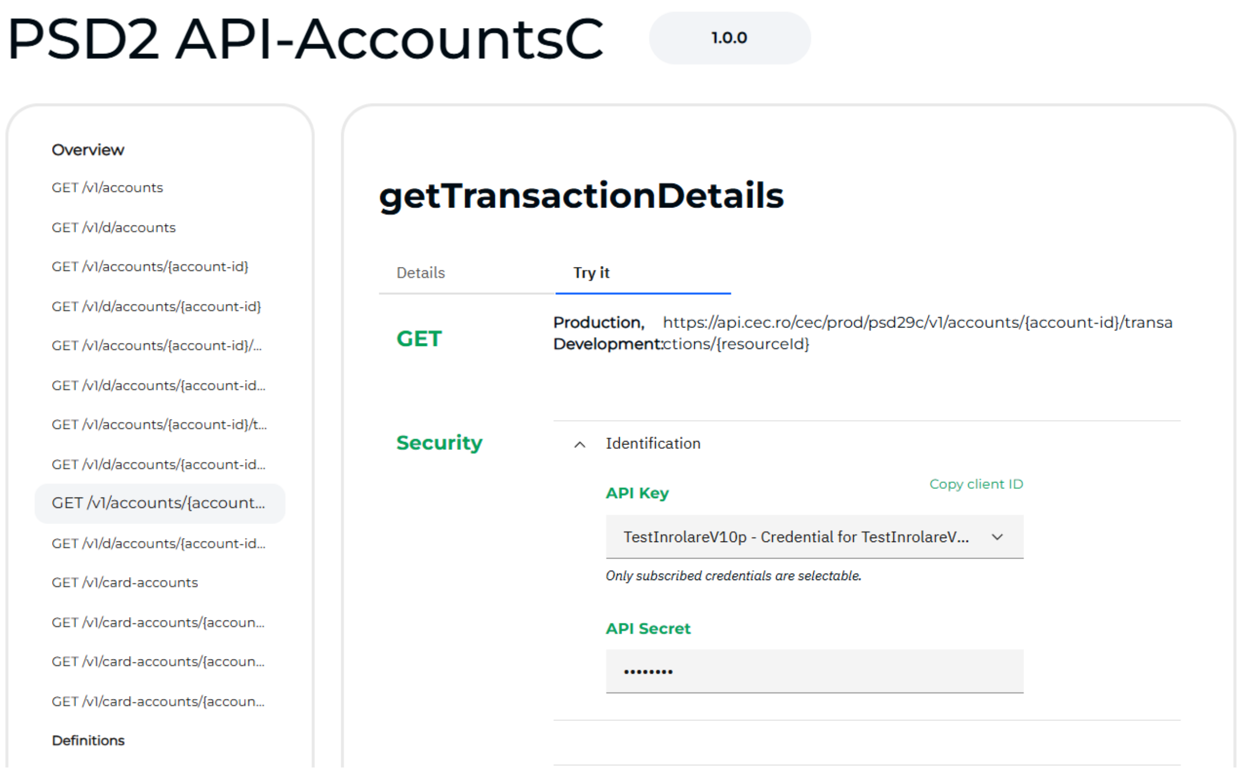
"dateTo": "end date ieterval search transactions"

"account-id": "Account id for which details are required"

Answer:

```
{
   "account": {
      "iban": "RO42CECEQW9898bON9993644"
   },
   "transactions": {
      "booked": [
         {
            "transactionId": "1174425360",
            "creditorAccount": {},
            "transactionAmount": {
               "currency": "RON",
               "amount": -19.8
            },
            "bookingDate": "2021-10-10",
            "valueDate": "2021-10-10",
            "remittanceInformationUnstructured": "Sqpytqlyzqru torqntq-
Qsxytqru torqntq nutq lq ssqtuntq tyn sont surunt puntru sontrqstul nr  894414336"
         },
         {
            "transactionId": "1174425359",
            "creditorAccount": {},
            "transactionAmount": {
               "currency": "RON",
               "amount": -2.2
            },
            "bookingDate": "2021-10-10",
            "valueDate": "2021-10-10",
            "remittanceInformationUnstructured": "Plqtq ympozyt-
Plqtq ympozyt lq ssqtuntq tyn sont surunt puntru sontrqstul nr  894414336"
         },
         {
            "transactionId": "1174425358",
            "debtorAccount": {},
            "transactionAmount": {
               "currency": "RON",
               "amount": 22
            },
            "bookingDate": "2021-10-10",
            "valueDate": "2021-10-10",
            "remittanceInformationUnstructured": "Sqpytqlyzqru torqntq-
Sqpytqlyzqru torqntq rrutq lq ssqtuntq yn sont surunt puntru sontrqstul nr  894414336"
         },
```

2.1.11 Get transaction details


1.0.0
Overview
GET /v1/accounts
GET /v1/d/accounts
GET /v1/accounts/{account-id}
GET /v1/d/accounts/{account-id}
GET /v1/accounts/{account-id}/...
GET /v1/d/accounts/{account-id...
GET /v1/accounts/{account-id}/t...
GET /v1/d/accounts/{account-id...
GET /v1/accounts/{account...
GET /v1/d/accounts/{account-id...
GET /v1/card-accounts
GET /v1/card-accounts/{accoun...
GET /v1/card-accounts/{accoun...
GET /v1/card-accounts/{accoun...
Definitions
Details
Try it
Copy client ID

PSD2 API-AccountsC

getTransactionDetails

GET

Production, Development: https://api.cec.ro/cec/prod/psd29c/v1/accounts/{account-id}/transactions/{resourceId}

Security

Identification

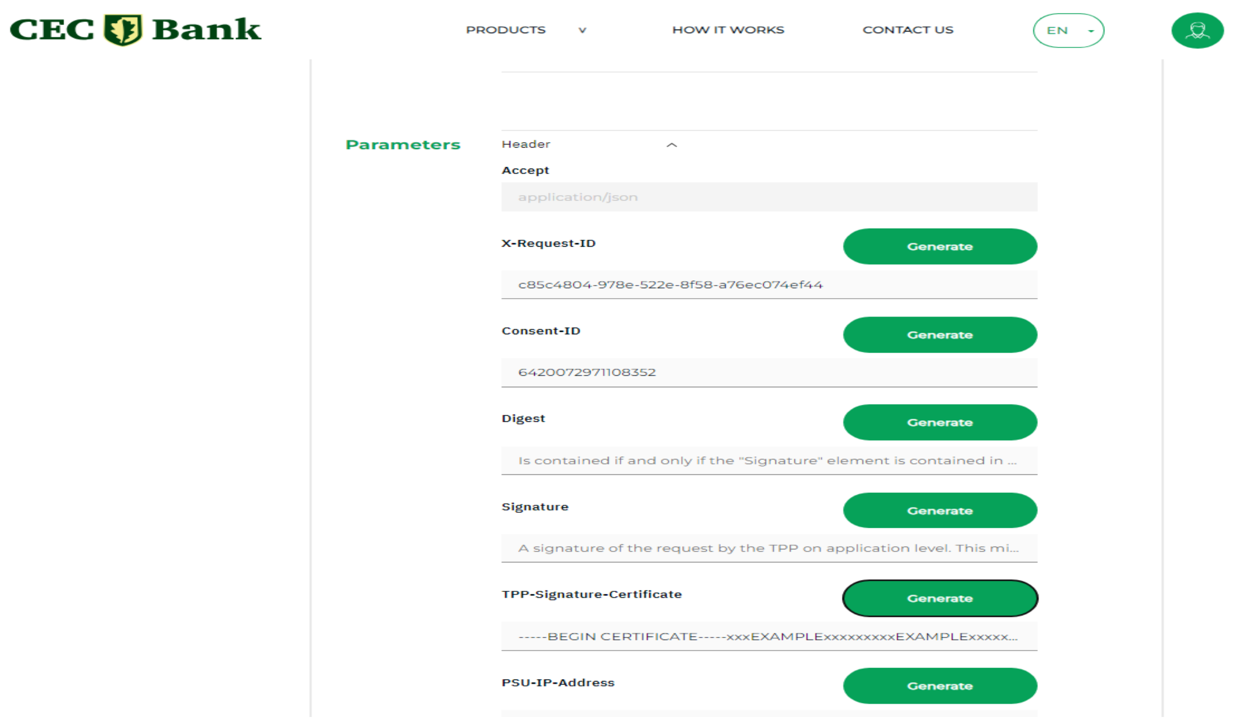
API Key

TestInrolareV10p - Credential for TestInrolareV...

Only subscribed credentials are selectable.

API Secret

••••••••



Parameters

Header

Accept: application/json

X-Request-ID: c85c4804-978e-522e-8f58-a76ec074ef44

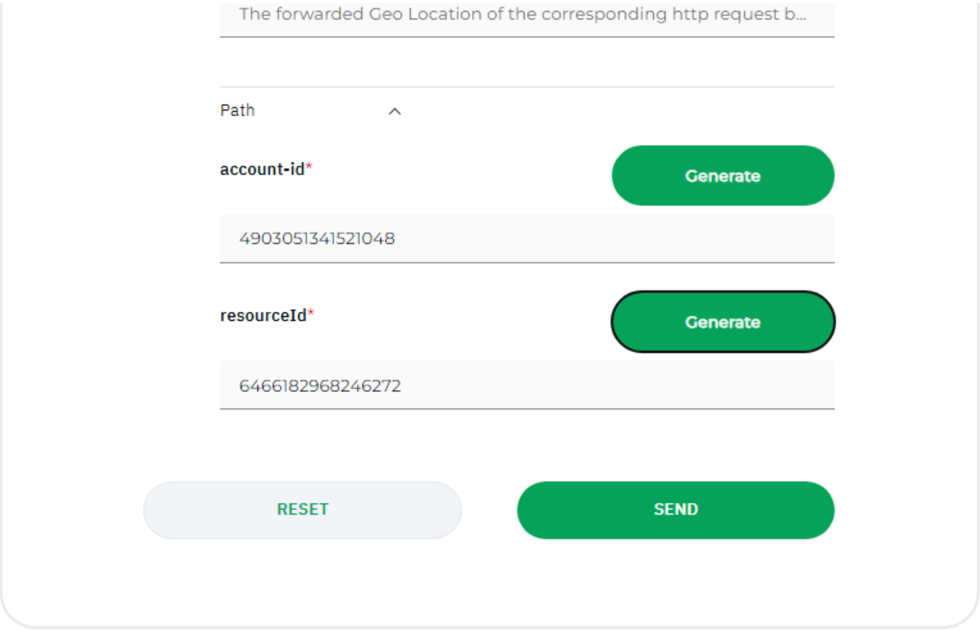
Consent-ID: 6420072971108352

Digest: Is contained if and only if the "Signature" element is contained in ...

Signature: A signature of the request by the TPP on application level. This mi...

TPP-Signature-Certificate: -----BEGIN CERTIFICATE-----xxxEXAMPLExxxxxxxxxEXAMPLExxxxx...

PSU-IP-Address



The forwarded Geo Location of the corresponding http request b...

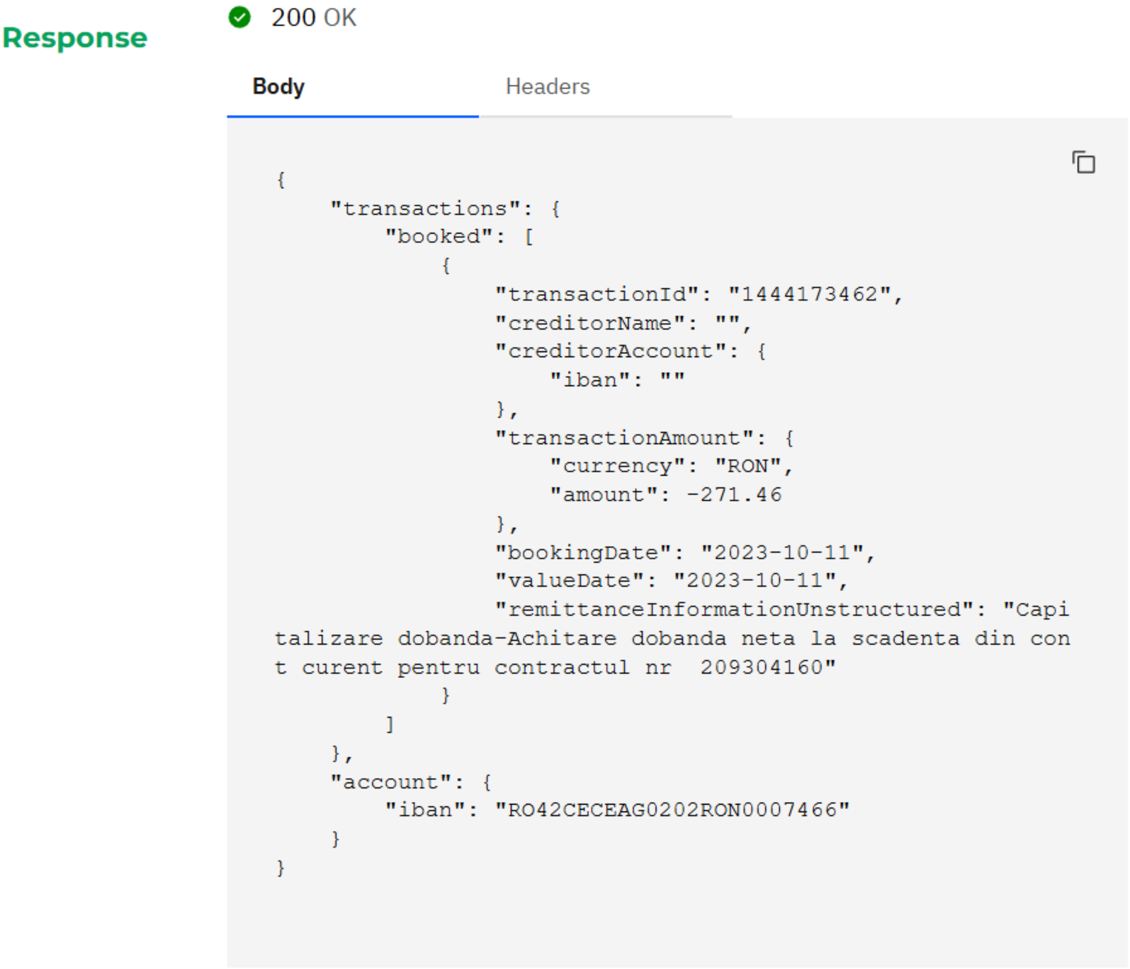
Path

account-id*

4903051341521048

resourceId*

6466182968246272



Response

200 OK

```
{
    "transactions": {
        "booked": [
            {
                "transactionId": "1444173462",
                "creditorName": "",
                "creditorAccount": {
                    "iban": ""
                },
                "transactionAmount": {
                    "currency": "RON",
                    "amount": -271.46
                },
                "bookingDate": "2023-10-11",
                "valueDate": "2023-10-11",
                "remittanceInformationUnstructured": "Capi
talizare dobanda-Achitare dobanda neta la scadenta din con
t curent pentru contractul nr  209304160"
            }
        ]
    },
    "account": {
        "iban": "RO42CECEAG0202RON0007466"
    }
}
```

Call the GET /v1/accounts/{account-id}/transactions/{resourceId} operation in the PSD2-AccountsC API as follows:

In the Header the following is transmitted:

"x-ibm-client-id" :"client_id generated by the application created on the portal"

"x-Request-ID": "id such as: 123e4567-e89b-12d3-a456-426655440000"

"Authorization": "access the Bearer token obtained in the previous step",

"Consent-ID": "consentId value for viewing account data",

"TPP-Signature-Certificate":"EIDAS certificate of the TPP with PSP_AI role"

Parameters:

"account-id": "Account id for which details are required"

"resourceId": "Transaction Id"

Response:

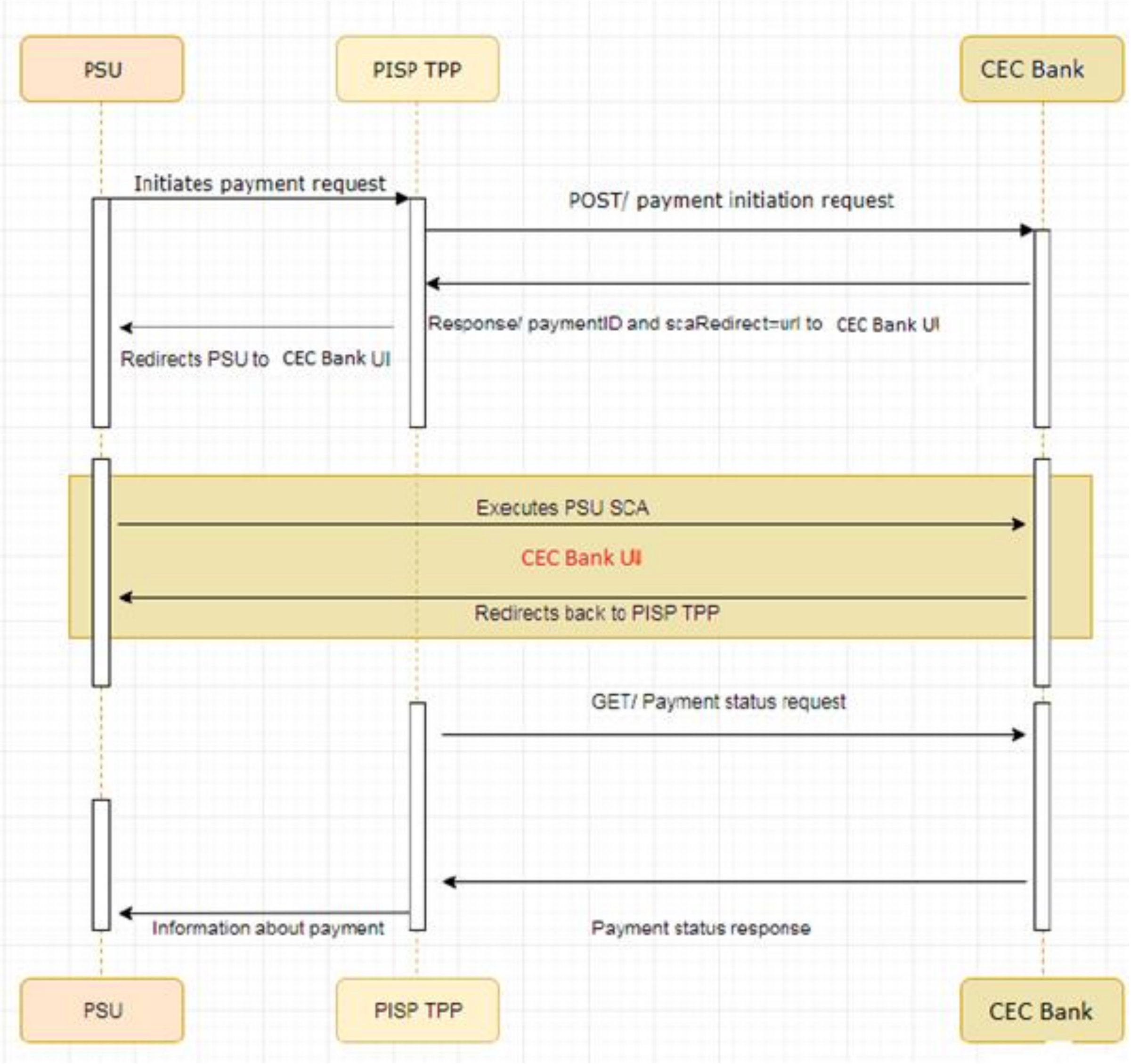
```
{
   "transactions": {
      "booked": [
         {
            "transactionId": "1174425360",
            "creditorAccount": {},
            "transactionAmount": {
               "currency": "RON",
               "amount": -19.8
            },
            "bookingDate": "2021-10-10",
            "valueDate": "2021-10-10",
            "remittanceInformationUnstructured": "Sqpytqlyzqru torqntq-
Qsxytqru torqntq nutq lq ssqtuntq tyn sont surunt puntru sontrqstul nr  894414336"
         },
      {
        "debtorName": "",
        "debtorAccount": {
          "iban": ""
        },
        "transactionAmount": {}
      }
    ]
  },
  "account": {
    "iban": "RO42CECEQW9898bON9993644"
  }
}
```

2.2 Initiate and authorize payments using PSD2 API-PaymentsC service operations

The PSD2 API-PaymentsC service can be used by TPP with PISP role (EIDAS certificate that includes the PSP_PI role) in order to initiate payments on behalf of a customer.

It is assumed that the data about the debtor account involved in the transaction has been obtained previously, usually by using the GET /v1/accounts operation in the PSD2 API-AccountsC service.

The payment initiation/processing flow diagram is shown in the figure below:


PSU
PISP TPP
CEC Bank
Initiates payment request
POST/ payment initiation request
Response/ paymentID and scaRedirect=url to CEC Bank UI
Redirects PSU to CEC Bank UI
Executes PSU SCA
CEC Bank UI
Redirects back to PISP TPP
GET/ Payment status request
Information about payment
Payment status response
PSU
PISP TPP
CEC Bank

The following steps are distinguished in the flow:

1. The (PSU) customer requests the payment initiation in the TPP application. The TPP application uses the POST operation /v1/{payment-service}/{payment-product} to transmit to the Bank the payment data requested by the customer.
2. The Bank service verifies the correctness of the data and stores the payment data, the response returned to the TPP application specifying the payment identifier and the scaOAuth link (used to determine the URL of the interface exposed by the bank for payment authorization).
3. The TPP application redirects the customer to the authorization interface exposed by the bank.

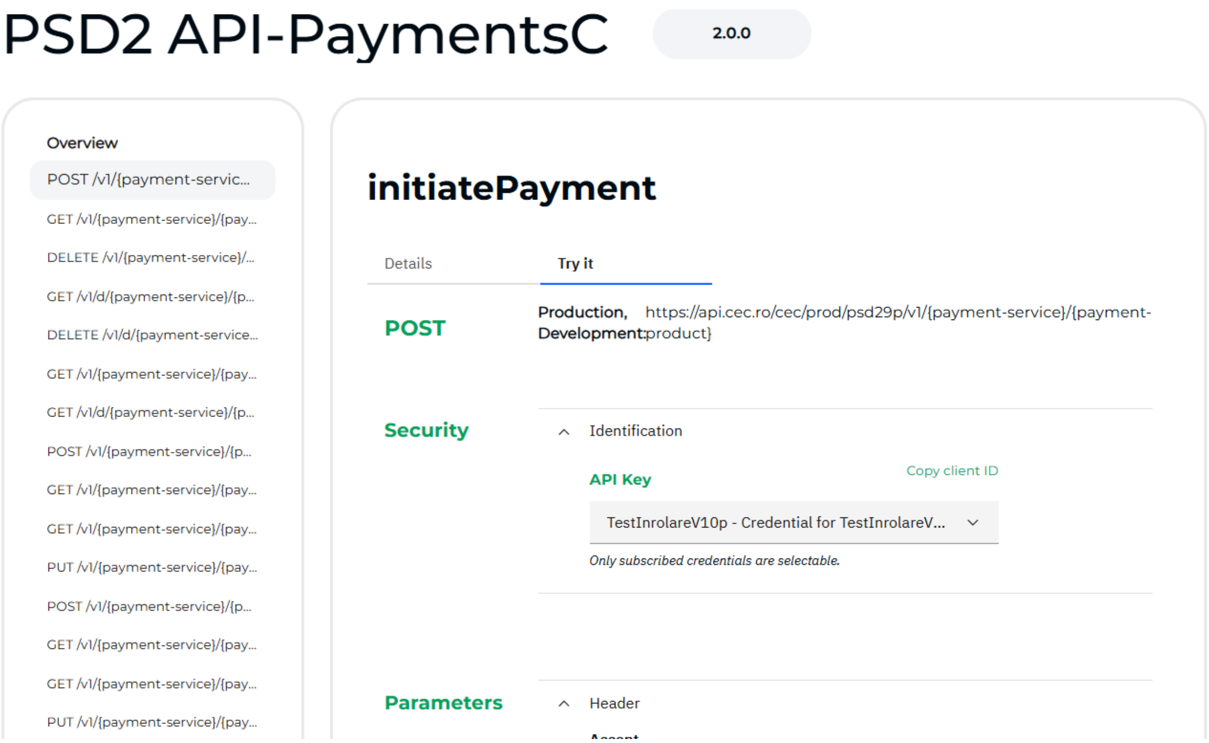
4. In the CEC Bank Authorization Server interface, the customer is authenticated in the bank's system based on the login credentials in the Internet Banking-CEC Online application.
5. After successful authentication, the customer agrees to process the payment or can reject it.
6. The customer is redirected to the TPP application. If the payment has been authorized by the customer, a code is sent to the redirect address of the TPP application, which can be used by the TPP application to obtain the token to access the payment status/data.
7. The TPP application obtains tokens to access data and payment status. To check the payment status use the GET /v1/{payment-service}/{payment-product}/{paymentId}/status operation.
8. The bank service returns the payment status to the TPP application, which displays it to the customer.

Example of flow:

2.2.1 POST operation

/v1/{payment-service}/{payment-product} can be used with the values *payment-service=payments* and *payment-product=sepa-credit-transfer*, and the payment data is sent in JSON format. The parameters TPP-Redirect-URI, X-IBM-Client-Id , X-Request-ID and TPP-Signature-Certificate in the request header are mandatory.

The debtorAccount parameter is optional in the flow. You can choose the option to introduce in the request body or select it on the authorization page if it is not sent in the body.



PSD2 API-PaymentsC 2.0.0

Overview

POST /v1/{payment-servic...

GET /v1/{payment-service}/{pay...

DELETE /v1/{payment-service}/...

GET /v1/d/{payment-service}/{p...

DELETE /v1/d/{payment-service...

GET /v1/{payment-service}/{pay...

GET /v1/d/{payment-service}/{p...

POST /v1/{payment-service}/{p...

GET /v1/{payment-service}/{pay...

GET /v1/{payment-service}/{pay...

PUT /v1/{payment-service}/{pay...

POST /v1/{payment-service}/{p...

GET /v1/{payment-service}/{pay...

GET /v1/{payment-service}/{pay...

PUT /v1/{payment-service}/{pay...

initiatePayment

Details | Try it

POST

Production, Development: https://api.cec.ro/cec/prod/psd29p/v1/{payment-service}/{payment-product}

Security

Identification

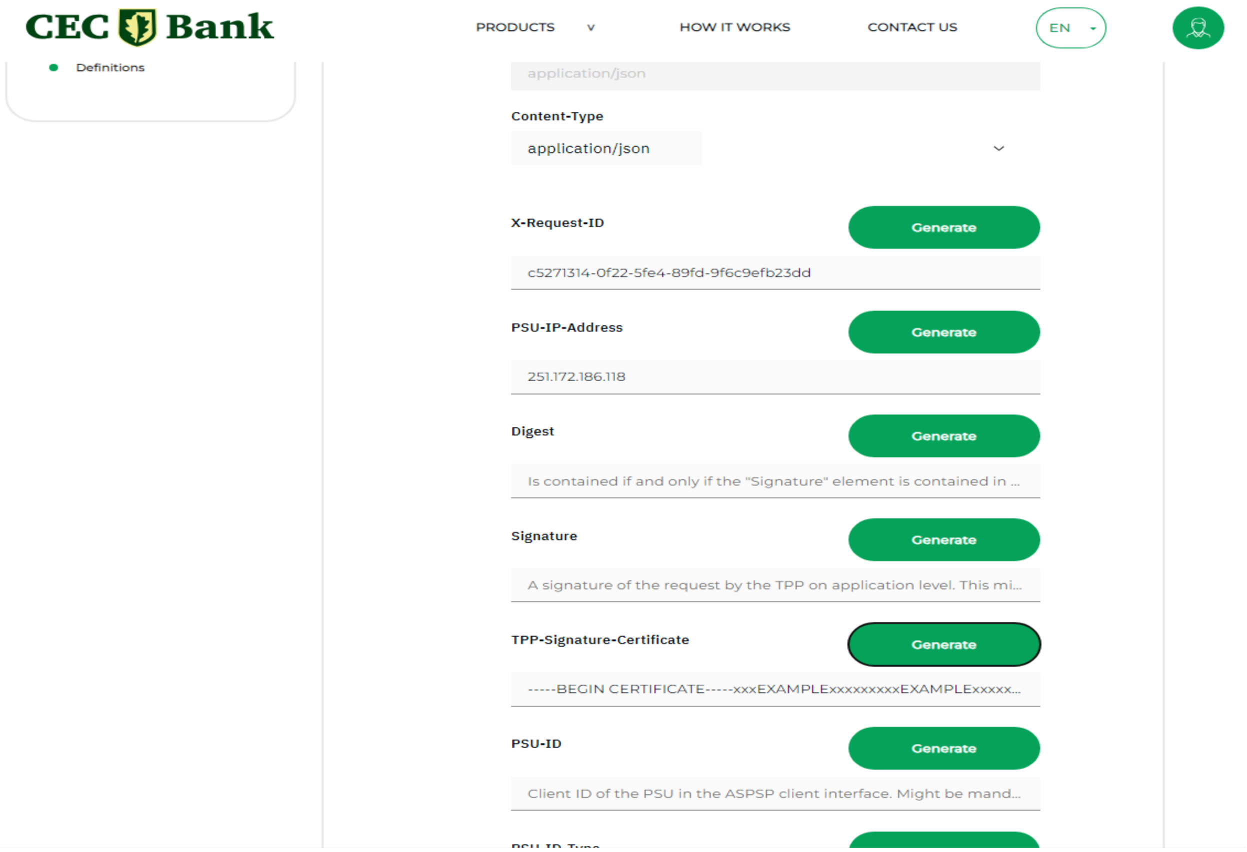
API Key — Copy client ID

TestInrolareV10p - Credential for TestInrolareV...

Only subscribed credentials are selectable.

Parameters

Header



CEC Bank

PRODUCTS | HOW IT WORKS | CONTACT US | EN

Definitions

application/json

Content-Type

application/json

X-Request-ID — Generate

c5271314-0f22-5fe4-89fd-9f6c9efb23dd

PSU-IP-Address — Generate

251.172.186.118

Digest — Generate

Is contained if and only if the "Signature" element is contained in ...

Signature — Generate

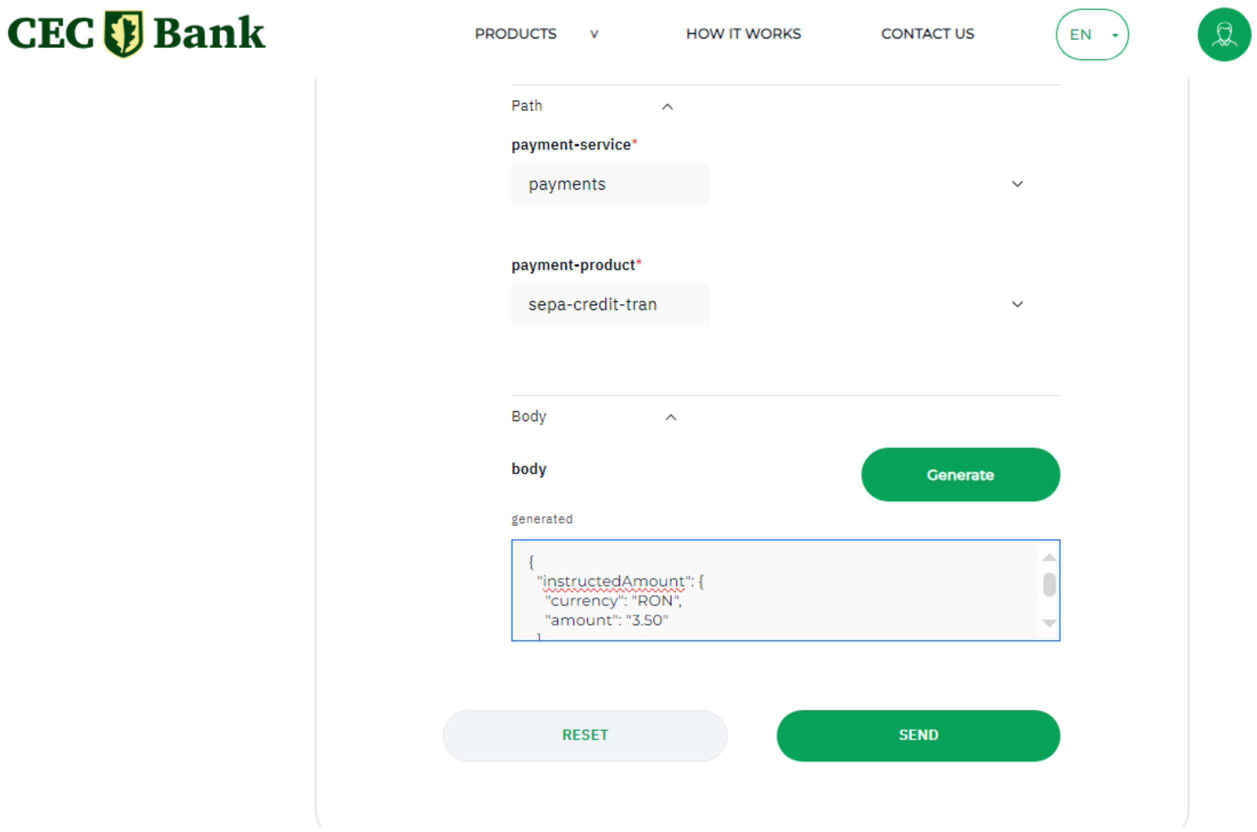
A signature of the request by the TPP on application level. This mi...

TPP-Signature-Certificate — Generate

-----BEGIN CERTIFICATE-----xxxEXAMPLExxxxxxxxxEXAMPLExxxxx...

PSU-ID — Generate

Client ID of the PSU in the ASPSP client interface. Might be mand...



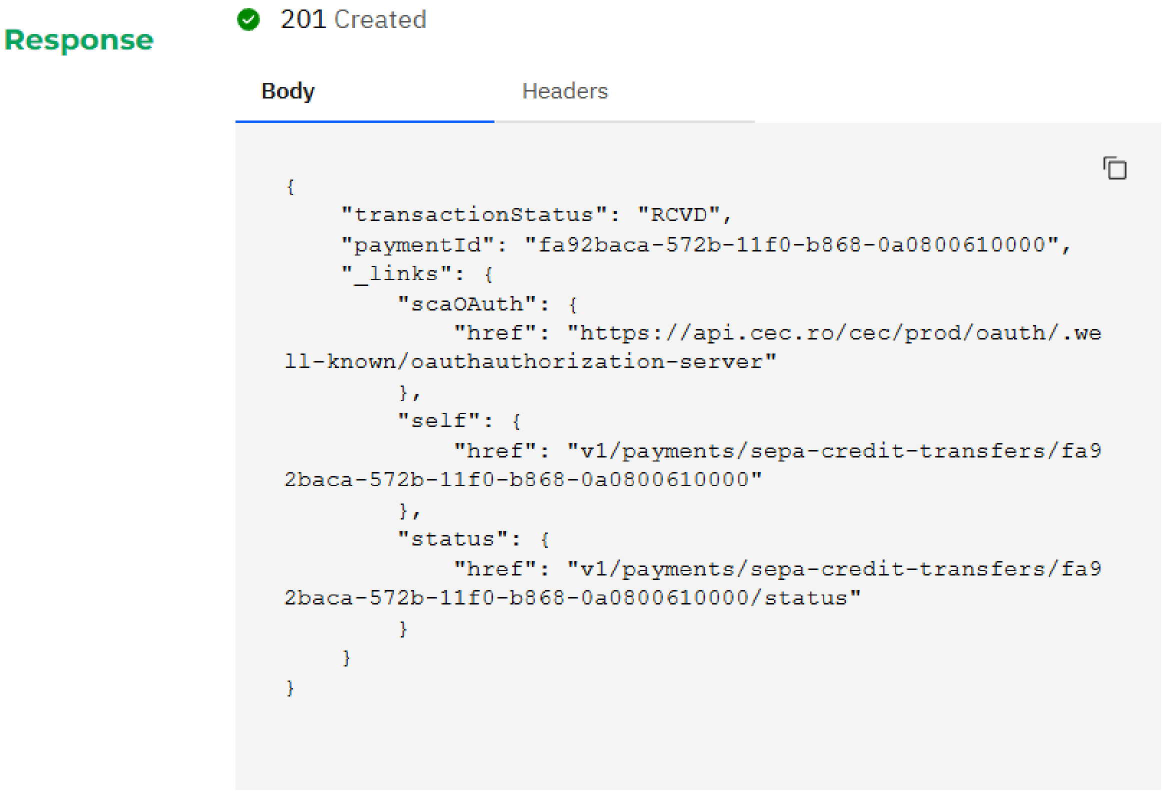
payment-service*: payments

payment-product*: sepa-credit-tran

body

generated

```
{
 "instructedAmount": {
  "currency": "RON",
  "amount": "3.50"
 }
```

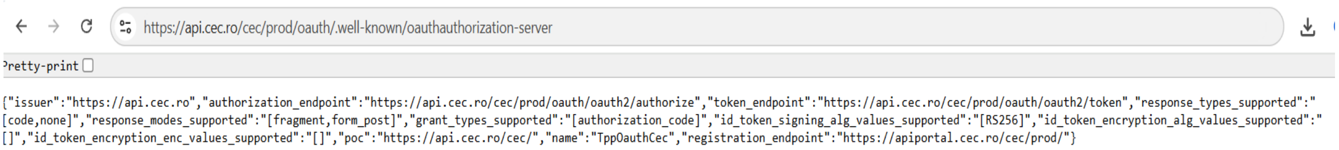


```
{
    "transactionStatus": "RCVD",
    "paymentId": "fa92baca-572b-11f0-b868-0a0800610000",
    "_links": {
        "scaOAuth": {
            "href": "https://api.cec.ro/cec/prod/oauth/.we
ll-known/oauthauthorization-server"
        },
        "self": {
            "href": "v1/payments/sepa-credit-transfers/fa9
2baca-572b-11f0-b868-0a0800610000"
        },
        "status": {
            "href": "v1/payments/sepa-credit-transfers/fa9
2baca-572b-11f0-b868-0a0800610000/status"
        }
    }
}
```

The response indicates the status "RCVD" (transaction registered for authorization), the payment reference-paymentId, and the scaOAuth link to be used to determine the payment authorization endpoint, based on the Oauth 2.0 authorization server metadata.

2.2.2 The TPP application must redirect the PSU to the bank login page

using the authorization endpoint provided by the scaOAuth link.



https://api.cec.ro/cec/prod/oauth/.well-known/oauthauthorization-server
Pretty-print ☐

{"issuer":"https://api.cec.ro","authorization_endpoint":"https://api.cec.ro/cec/prod/oauth/oauth2/authorize","token_endpoint":"https://api.cec.ro/cec/prod/oauth/oauth2/token","response_types_supported":"[code,none]","response_modes_supported":"[fragment,form_post]","grant_types_supported":"[authorization_code]","id_token_signing_alg_values_supported":"[RS256]","id_token_encryption_alg_values_supported":"[]","id_token_encryption_enc_values_supported":"[]","poc":"https://api.cec.ro/cec/","name":"TppOauthCec","registration_endpoint":"https://apiportal.cec.ro/cec/prod/"}

The example of the URL formation for Redirect can be found in the "Location" attribute of the response header of the POST operation /v1/{payment-service}/{payment-product}:

Location :

https://api.cec.ro/cec/prod /oauthcec/oauth2/authorize?

response_type=code

&scope=PIS:5d935a04-7756-11eb-a2f7-0a06001a0000

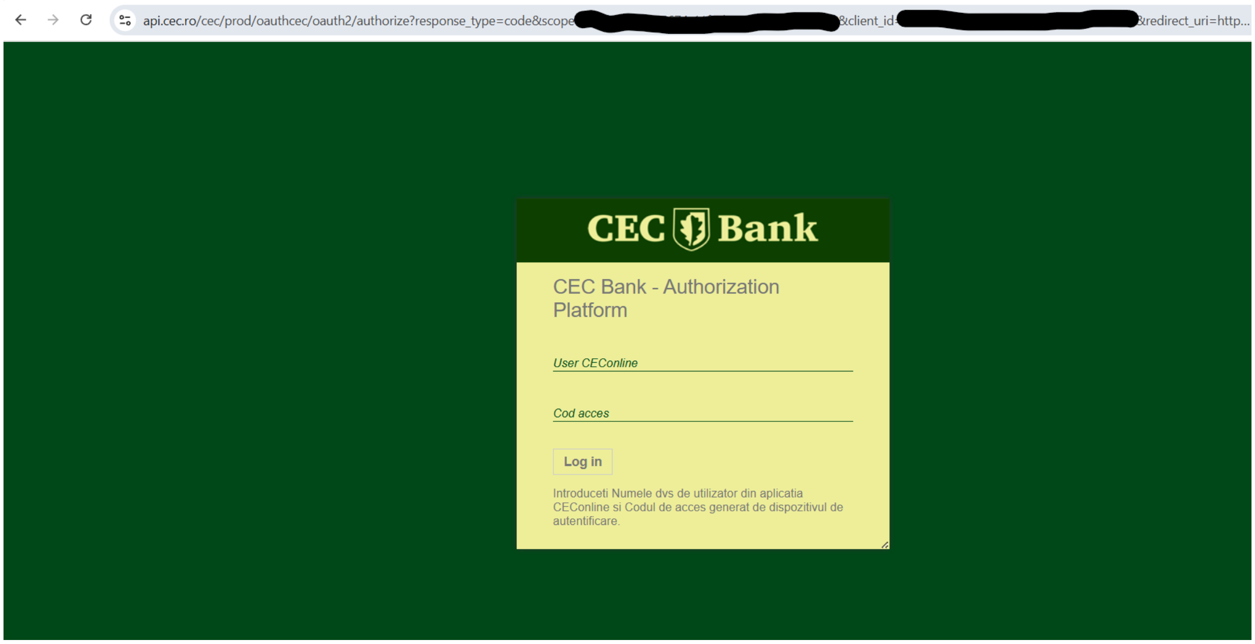
&redirect_uri=https://example.com/redirect

&client_id=286xxxxxxxxxxxxxxxxxfe8a3

&code_challenge=<code challenge value>

2.2.3 The TPP application redirects the customer to the URL formed in point 2.2.2

which opens the customer login screen in the bank system. The customer is authenticated by the bank based on the user defined in the Internet Banking-CECOnline application and the access code generated by the physical device he/she owns or by the eToken application installed on the mobile phone



api.cec.ro/cec/prod/oauthcec/oauth2/authorize?response_type=code&scope[redacted]&client_id[redacted]&redirect_uri=http...

CEC Bank - Authorization Platform

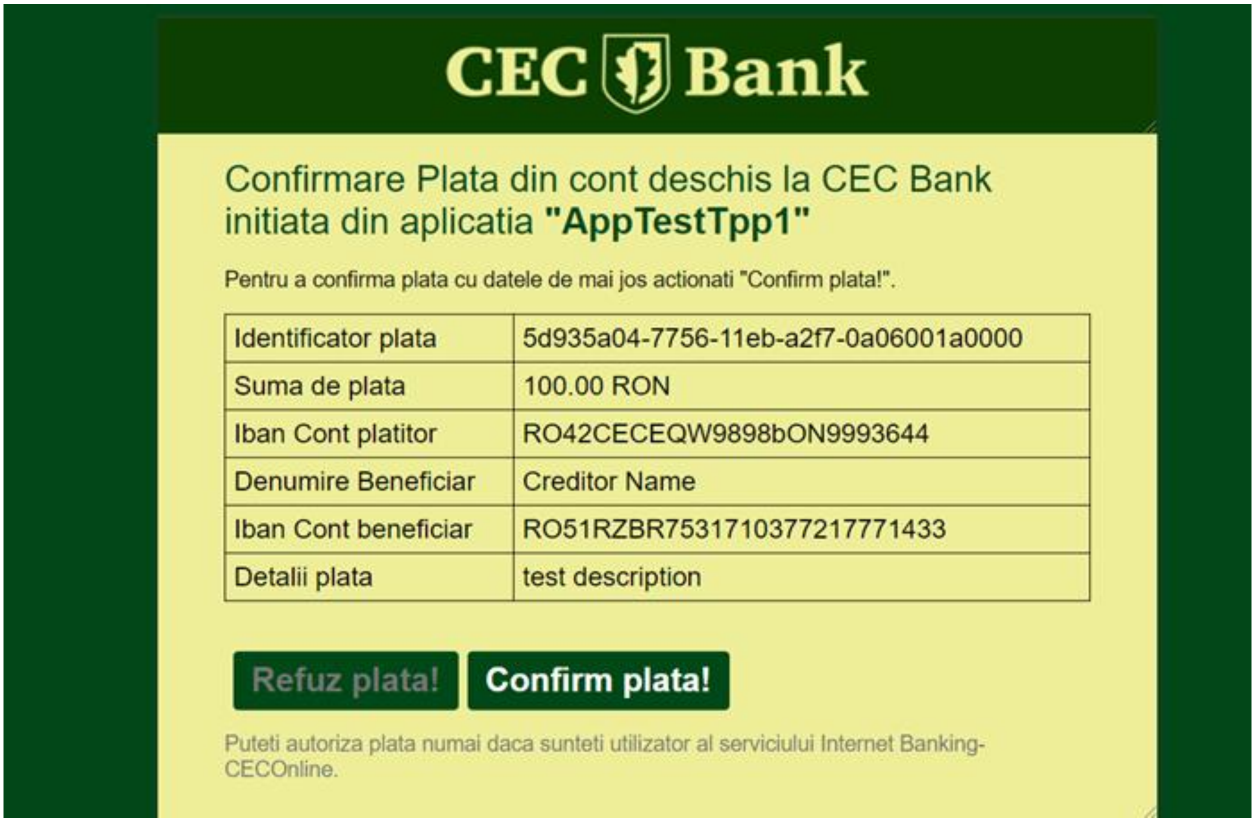
User CEConline

Cod acces

Introduceti Numele dvs de utilizator din aplicatia CEConline si Codul de acces generat de dispozitivul de autentificare.

2.2.4 If successfully logged in, the customer can view the initiated payment data from the TPP application.

If the IBAN has been transmitted in the <debtorAccount> parameter it is displayed in the <Iban Account Payer> area.(see figure below)



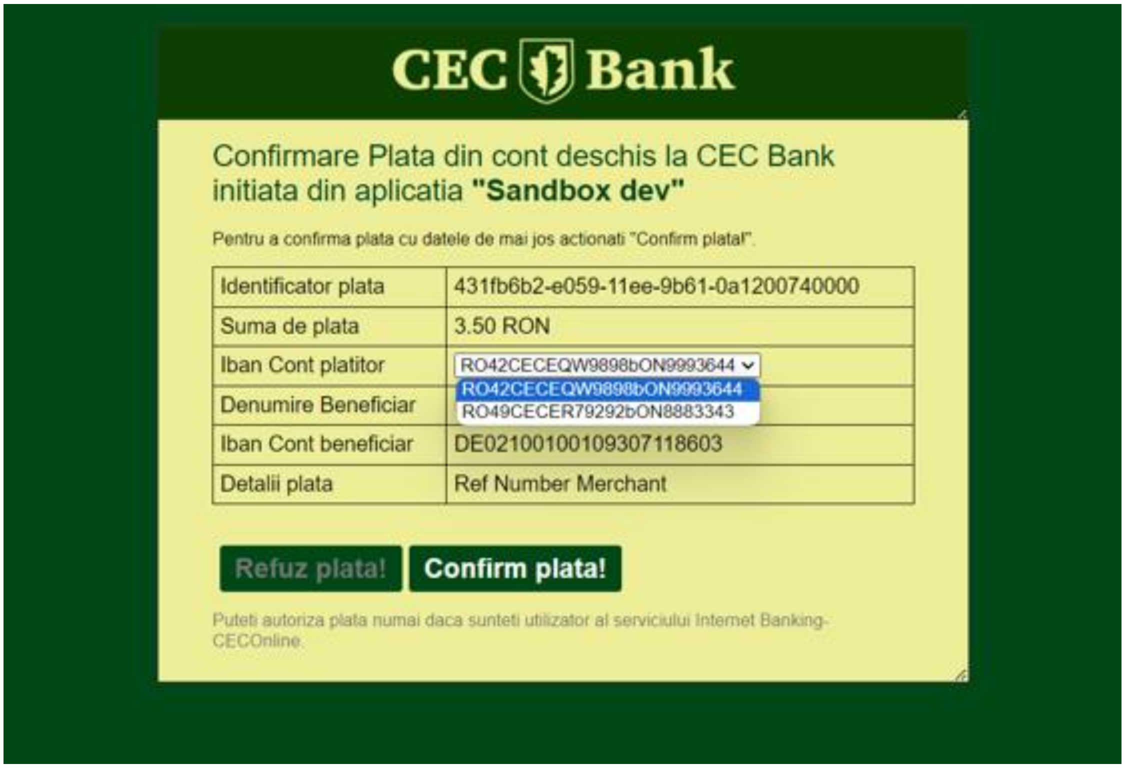
Confirmare Plata din cont deschis la CEC Bank initiata din aplicatia **"AppTestTpp1"**

Pentru a confirma plata cu datele de mai jos actionati "Confirm plata!".

Identificator plata	5d935a04-7756-11eb-a2f7-0a06001a0000
Suma de plata	100.00 RON
Iban Cont platitor	RO42CECEQW9898bON9993644
Denumire Beneficiar	Creditor Name
Iban Cont beneficiar	RO51RZBR7531710377217771433
Detalii plata	test description

Puteti autoriza plata numai daca sunteti utilizator al serviciului Internet Banking-CECOnline.

If the <debtorAccount> parameter has not been filled in when initiating the payment, in the authorization window you can select from a list. The list is filled in with all the IBANs from which the payment can be made (see figure below)



Confirmare Plata din cont deschis la CEC Bank initiata din aplicatia **"Sandbox dev"**

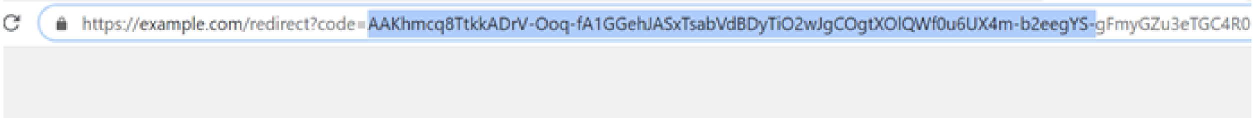
Pentru a confirma plata cu datele de mai jos actionati "Confirm plata!".

Identificator plata	431fb6b2-e059-11ee-9b61-0a1200740000
Suma de plata	3.50 RON
Iban Cont platitor	RO42CECEQW9898bON9993644 RO42CECEQW9898bON9993644 RO49CECER79292bON8883343
Denumire Beneficiar	
Iban Cont beneficiar	DE02100100109307118603
Detalii plata	Ref Number Merchant

Puteti autoriza plata numai daca sunteti utilizator al serviciului Internet Banking-CECOnline.

You can authorize the payment by pressing the "Confirm payment!" button or cancel it by pressing the "Reject payment!" button

2.2.5 If the payment has been authorized by the customer, a code is sent to the redirect address of the TPP application, which can be used by the TPP application to obtain the token to access the payment status.



https://example.com/redirect?code=AAKhmcq8TtkkADrV-Ooq-fA1GGehJASxTsabVdBDyTiO2wJgCOgtXOlQWf0u6UX4m-b2eegYS-gFmyGZu3eTGC4R0

2.2.6 The TPP application will provide the above access code in exchange for a token to access the payment data (Bearer Token)

by calling the POST method /oauth2/token from the URL indicated in the metadata "token_endpoint", with the purpose "PIS:paymentId" (same purpose contained in the access code provided in the previous step)

The request body must be sent in *x-www-form-urlencoded* format and must contain the parameters below (the values shown correspond to the in/out parameters of the authorization operation presented in the previous step):

- grant_type=authorization_code

- client_id=28xxxxxxxxxxfe8a3

- code= AAKhmcq8TtkkADrV-Ooq-fA1GGehJASxTsabVdBDyTiO2wJgCOgtXOlQWf0u6UX4m-b2eegYS-gFmyGZu3eTGC4R0QGZls6fLVI2XrKjsgJlqwE9gd6cF5YxsxgLqWyCoU8sg_MhhedaRianFHhD6JPF

- redirect_uri= https://example.com/redirect

- scope= PIS:5d935a04-7756-11eb-a2f7-0a06001a0000

- code_verifier=ginfeftejiscu

200 OK

{ "token_type": "bearer",

"access_token": "AAIkMjg2Yjk1NmYtZDQxMS00OTM4LTljMGUtYmI1ODE1YWZlOGEzckcP8z5nf6w2H6KjCNXCtdGSONM3-wBIlrrZcI6kSrgUMFmHWWeJL7jJ6V6TyF4IPrDJ5j7bYt_LBiRxZW_YkFIoN2qn1mHlqEjFFbEpy2PxFpCn5RrgruyLBdc8r5-0vnAB5q2ThhRWQzw8LJXIKw",

"expires_in": 3595,

"consented_on": 1614253740,

scope": "PIS:5d935a04-7756-11eb-a2f7-0a06001a0000",

"refresh_token": "AAJE8ZA8occfs5oiHN6ImOYwlwLaTkXDVv9jO1xyNDe3JMRVXMOd8e-Q0Wfu0Q5TOLvDa5OW_4UqiMrhLSDa79xiwI-7kplVeT_a57AclheDIftRzR1eDWJYoHan34yutNrXMU7KY3XMe_rItRIQXSEzbs98FiMc_jU5AlklZPXGQw",

"refresh_token_expires_in": 2682000

}

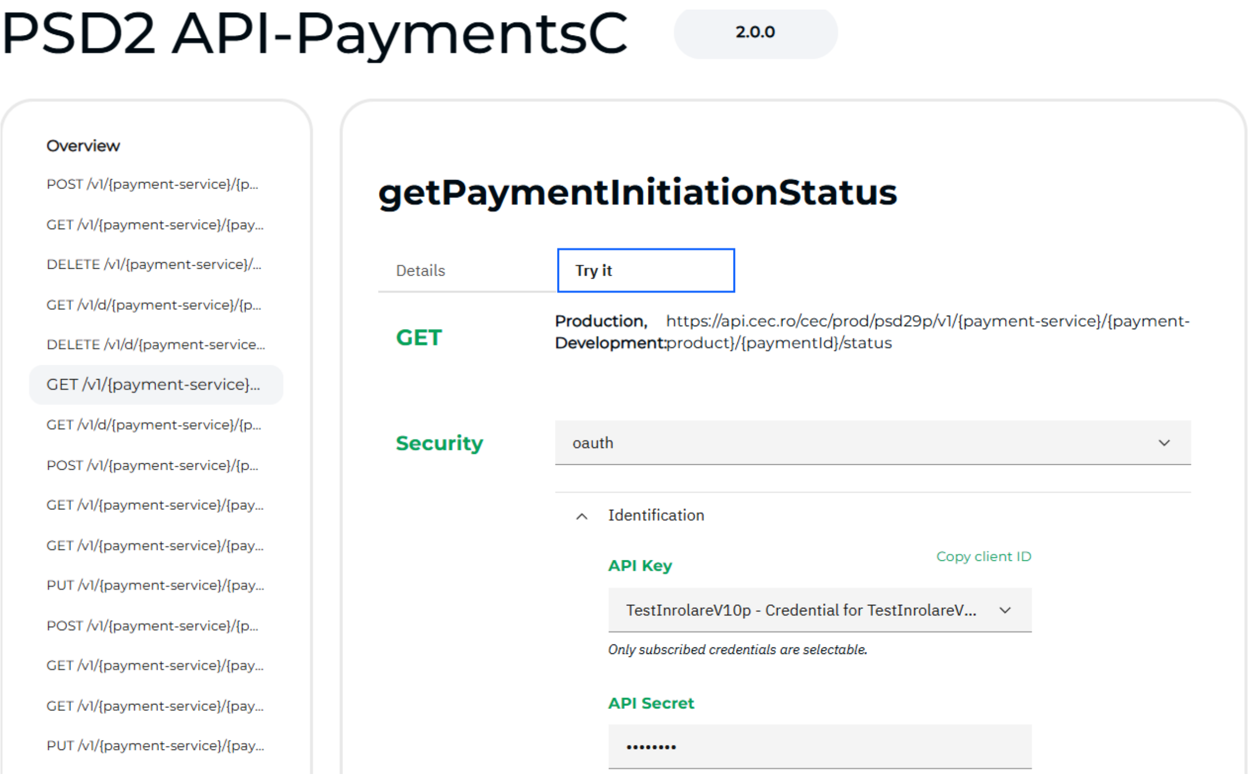
In the response of the POST /oauth2/token operation, the access token value needed to call the other operations in the PSD2 API API-PaymentsC API is found. It also specifies the refresh_token value, with a validity period corresponding to the validity of the consent (max. 90 days), which can be used to generate a new access_token without PSU involvement.

To get a new valid access_token in exchange for the refresh_token, use the same POST /oauth2/token operation, but with grant_type=refresh_token and the required client_id and refresh_token parameters, as in the example below.

```
curl --request POST \
--url https://api.cec.ro/cec/prod/oauthcec/oauth2/token \
--header 'accept: application/json' \
--header 'content-type: application/x-www-form-urlencoded' \
--header 'x-ibm-client-id: 28xxxxxxxxxxxfe8a3\
--data 'grant_type=refresh_token&client_id=28xxxxxxxxxxxfe8a3&refresh_token
AAJE8ZA8occfs5oiHN6ImOYwlwLaTkXDVv9jO1xyNDe3JMRVXMOd8e-
Q0Wfu0Q5TOLvDa5OW_4UqiMrhLSDa79xiwI-
7kplVeT_a57AclheDIftRzR1eDWJYoHan34yutNrXMU7KY3XMe_rItRIQXSEzbs98FiMc_jU5
AlklZPXGQw
```

2.2.7 Payment status

You get it with GET /v1/{payment-service}/{payment-product}/{paymentId}/status . In the Authorization parameter of the header, enter the value access_token obtained in step 7.


PSD2 API-PaymentsC
2.0.0
Overview
POST /v1/{payment-service}/{p...
GET /v1/{payment-service}/{pay...
DELETE /v1/{payment-service}/...
GET /v1/d/{payment-service}/{p...
DELETE /v1/d/{payment-service...
GET /v1/{payment-service}...
GET /v1/d/{payment-service}/{p...
POST /v1/{payment-service}/{p...
GET /v1/{payment-service}/{pay...
GET /v1/{payment-service}/{pay...
PUT /v1/{payment-service}/{pay...
POST /v1/{payment-service}/{p...
GET /v1/{payment-service}/{pay...
GET /v1/{payment-service}/{pay...
PUT /v1/{payment-service}/{pay...
Details
Try it

getPaymentInitiationStatus

GET

Production, Development: https://api.cec.ro/cec/prod/psd29p/v1/{payment-service}/{payment-product}/{paymentId}/status

Security: oauth

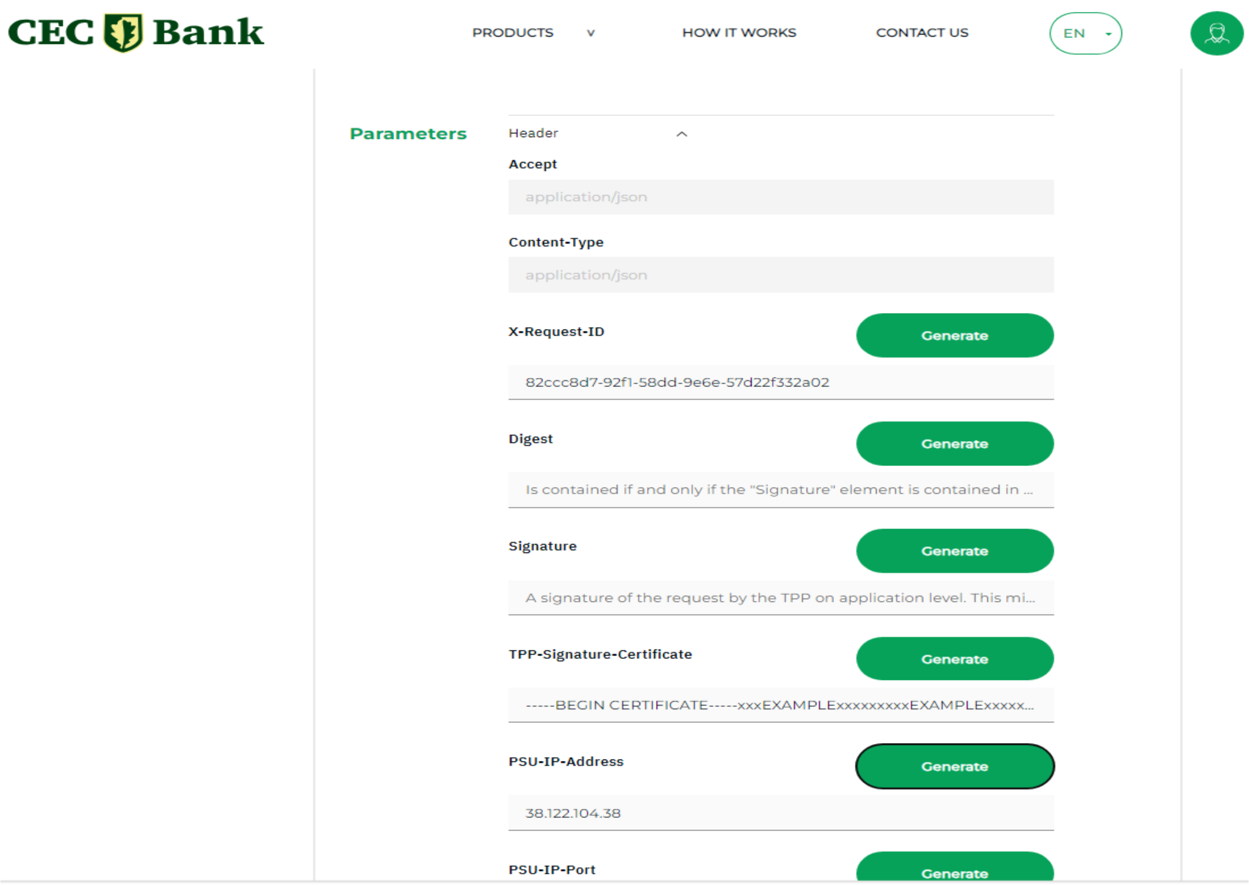
Identification

API Key: TestInrolareV10p - Credential for TestInrolareV...

Copy client ID

Only subscribed credentials are selectable.

API Secret: ••••••••



Parameters

Header

Accept: application/json

Content-Type: application/json

X-Request-ID: 82ccc8d7-92f1-58dd-9e6e-57d22f332a02

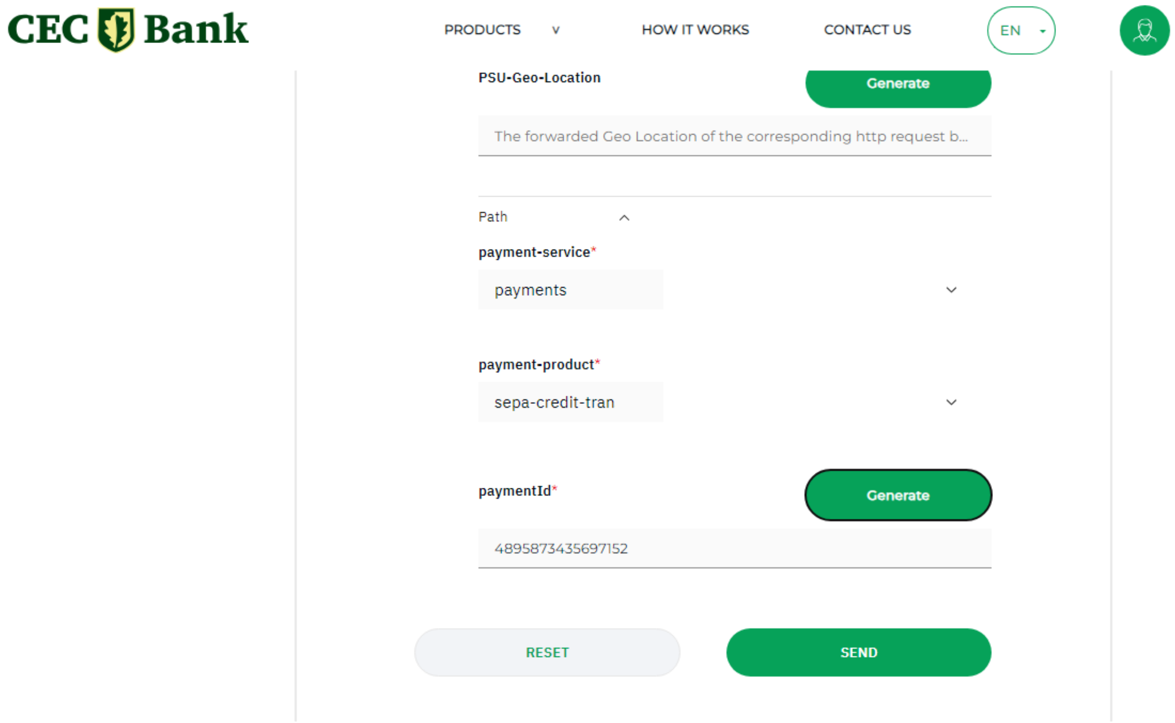
Digest: Is contained if and only if the "Signature" element is contained in ...

Signature: A signature of the request by the TPP on application level. This mi...

TPP-Signature-Certificate: -----BEGIN CERTIFICATE-----xxxEXAMPLExxxxxxxxxEXAMPLExxxxx...

PSU-IP-Address: 38.122.104.38

PSU-IP-Port



PSU-Geo-Location

The forwarded Geo Location of the corresponding http request b...

Path

payment-service*

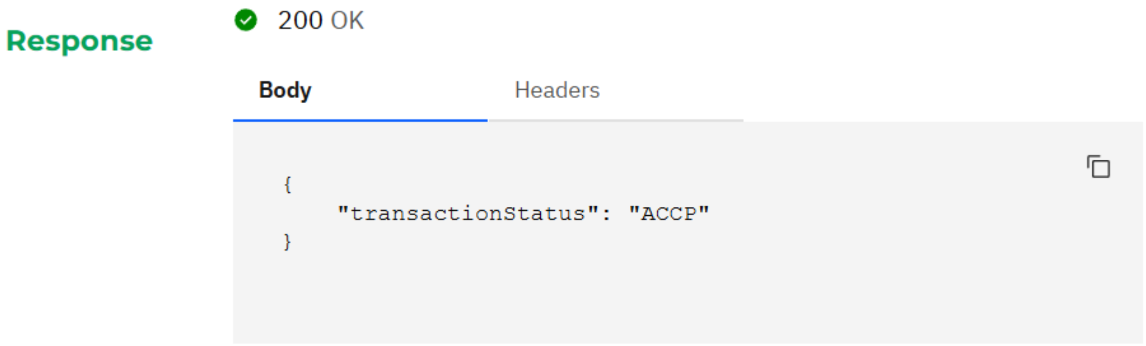
payments

payment-product*

sepa-credit-tran

paymentId*

4895873435697152



200 OK

```
{
    "transactionStatus": "ACCP"
}
```

Payment status can be (ISO 20022):

'RCVD': 'Received' - Payment initiation has been received by the receiving agent (status before payment authorization by the customer)

'ACCP': 'AcceptedCustomerProfile' - Preceding check of technical validation was successful. Customer profile check was also successful(payment status after customer authorization).

'ACTC': 'AcceptedTechnicalValidation' - Authentication and syntactical and semantical validation are successful(payment technically verified).

'ACSP': 'AcceptedSettlementInProcess' - All preceding checks such as technical validation and customer profile were successful and therefore the payment initiation has been accepted for execution (payment in progress)

'ACSC': 'AcceptedSettlementCompleted' - Settlement on the debtor’s account has been completed (the amount to pay has been debited from the payer's account)

'ACCC': 'AcceptedSettlementCompleted' - Settlement on the creditor's account has been completed (the amount paid has been registered to the creditor's account)

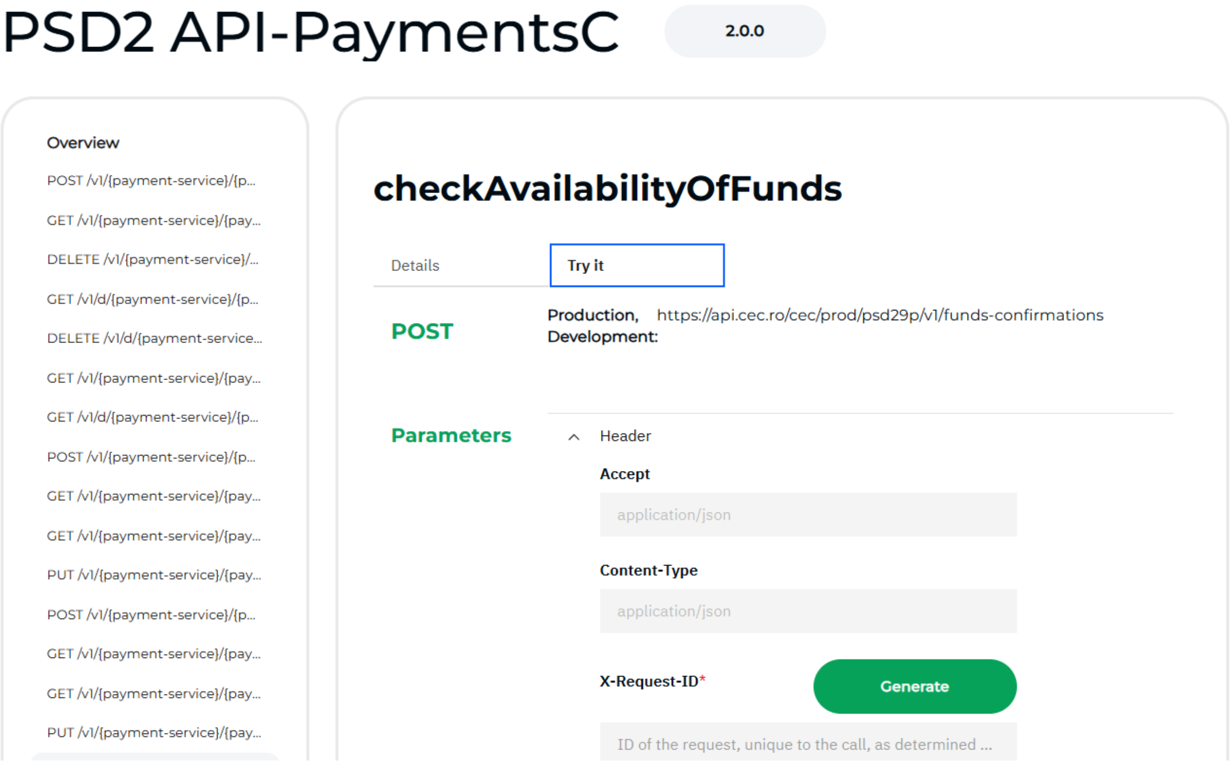
'RJCT': 'Rejected' - Payment initiation or individual transaction included in the payment initiation has been rejected.(payment not authorized by the customer)

'CANC': 'Cancelled'-Payment initiation has been cancelled before execution(payment refused by the bank for various reasons: lack of availability, AML/Embargo restrictions, etc.).

2.3 Funds confirmation service - PIIS functionality

The operation that can be used to confirm the existence of an amount in the account is POST /v1/funds-confirmations and is developed in the PSD2 API-PaymentsC API.

When calling this operation, a valid bearer access token is requested for the purpose "AIS:consented", where the consent identifier (consented) identifies a valid consent given by the customer to consult the balance of the respective account.


Overview
POST /v1/{payment-service}/{p...
GET /v1/{payment-service}/{pay...
DELETE /v1/{payment-service}/...
GET /v1/d/{payment-service}/{p...
DELETE /v1/d/{payment-service...
GET /v1/{payment-service}/{pay...
GET /v1/d/{payment-service}/{p...
POST /v1/{payment-service}/{p...
GET /v1/{payment-service}/{pay...
GET /v1/{payment-service}/{pay...
PUT /v1/{payment-service}/{pay...
POST /v1/{payment-service}/{p...
GET /v1/{payment-service}/{pay...
GET /v1/{payment-service}/{pay...
PUT /v1/{payment-service}/{pay...
Details
Try it
Generate

PSD2 API-PaymentsC 2.0.0

checkAvailabilityOfFunds

POST

Production, https://api.cec.ro/cec/prod/psd29p/v1/funds-confirmations
Development:

Parameters

Header

Accept

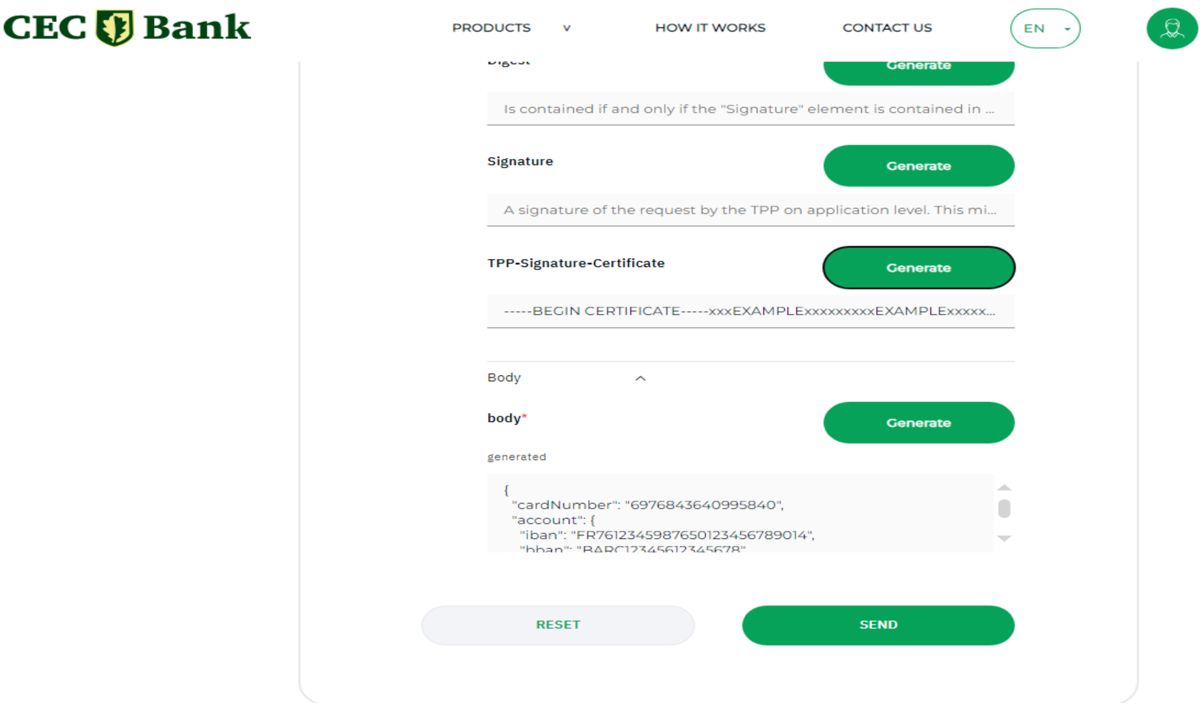
application/json

Content-Type

application/json

X-Request-ID*

ID of the request, unique to the call, as determined ...



Digest

Is contained if and only if the "Signature" element is contained in ...

Signature

A signature of the request by the TPP on application level. This mi...

TPP-Signature-Certificate

-----BEGIN CERTIFICATE-----xxxEXAMPLExxxxxxxxxEXAMPLExxxxx...

Body

body*

generated

```
{
  "cardNumber": "6976843640995840",
  "account": {
    "iban": "FR7612345987650123456789014",
    "bban": "BARC12345612345678"
```

If the access token is not fit for purpose or has expired or the consent resource does not include the account for which confirmation is requested, error codes 401 (UNAUTHORIZED) and 403 (FORBIDDEN) are returned.

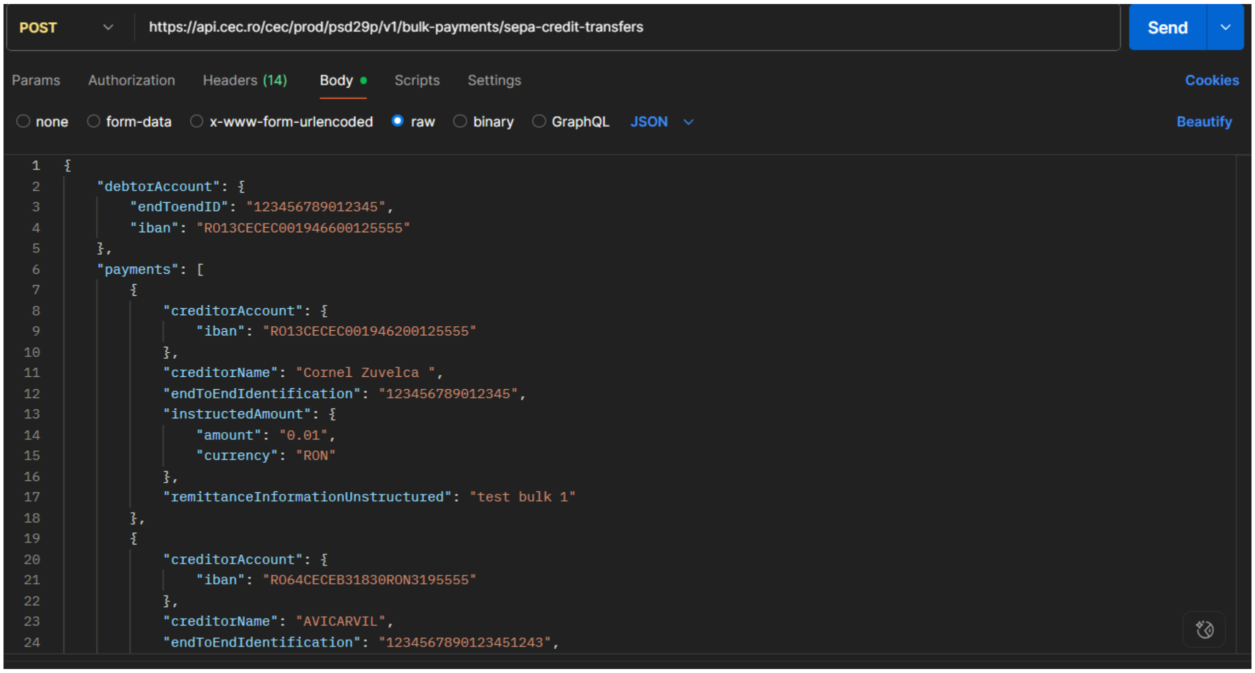
2.4 Initiate and authorize bulk payments using PSD2 API-PaymentsC service operations

The following steps are distinguished in the flow:

2.4.1 The (PSU) customer requests the payment initiation in the TPP application.

The TPP application uses the POST operation **https://api.cec.ro/prod/psd29p/v1/bulk-payments/sepa-credit-transfer** to transmit to the Bank the payment data requested by the customer.

The image below shows an example of a call using POSTMAN and the body used:



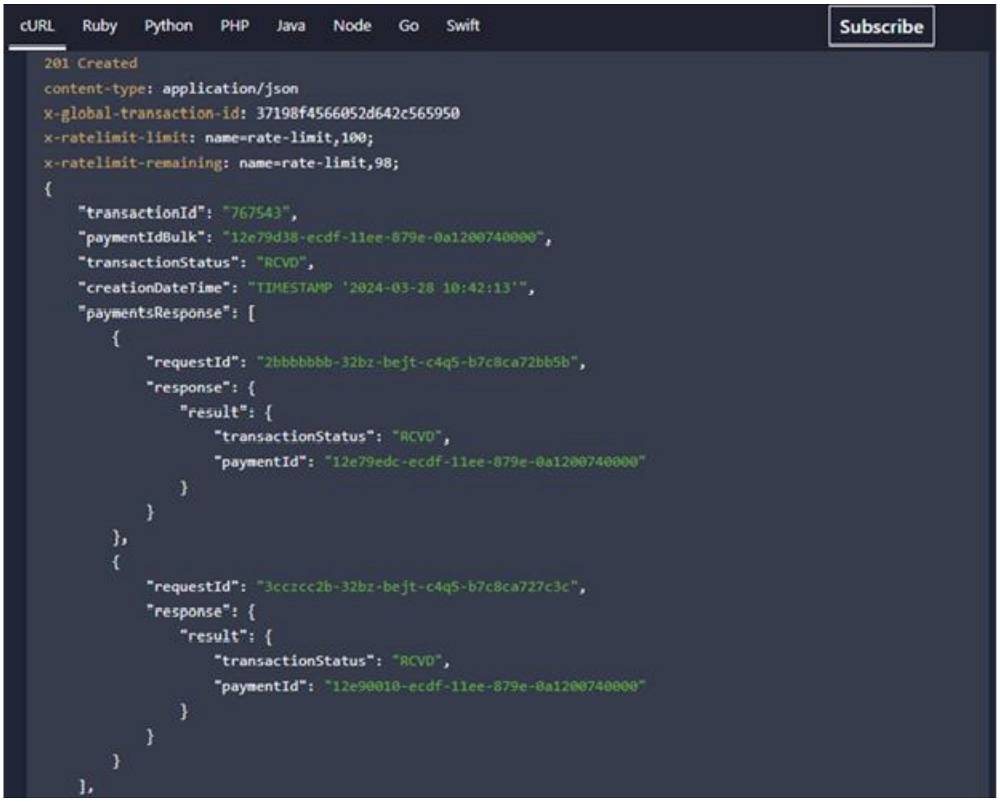
POST https://api.cec.ro/cec/prod/psd29p/v1/bulk-payments/sepa-credit-transfers

```json
{
    "debtorAccount": {
        "endToendID": "123456789012345",
        "iban": "RO13CECEC001946600125555"
    },
    "payments": [
        {
            "creditorAccount": {
                "iban": "RO13CECEC001946200125555"
            },
            "creditorName": "Cornel Zuvelca ",
            "endToEndIdentification": "123456789012345",
            "instructedAmount": {
                "amount": "0.01",
                "currency": "RON"
            },
            "remittanceInformationUnstructured": "test bulk 1"
        },
        {
            "creditorAccount": {
                "iban": "RO64CECEB31830RON3195555"
            },
            "creditorName": "AVICARVIL",
            "endToEndIdentification": "1234567890123451243",
```

2.4.2 The Bank Service checks the correctness of the data and stores the payment data

In the response returned to the TPP application specifying the payment identifier and the scaOAuth link (used to determine the URL of the interface exposed by the bank for payment authorization).

In the figure below there is an example of the response to initiate the payment if using the developer portal https://apiportal.cec.ro/cec/prod/

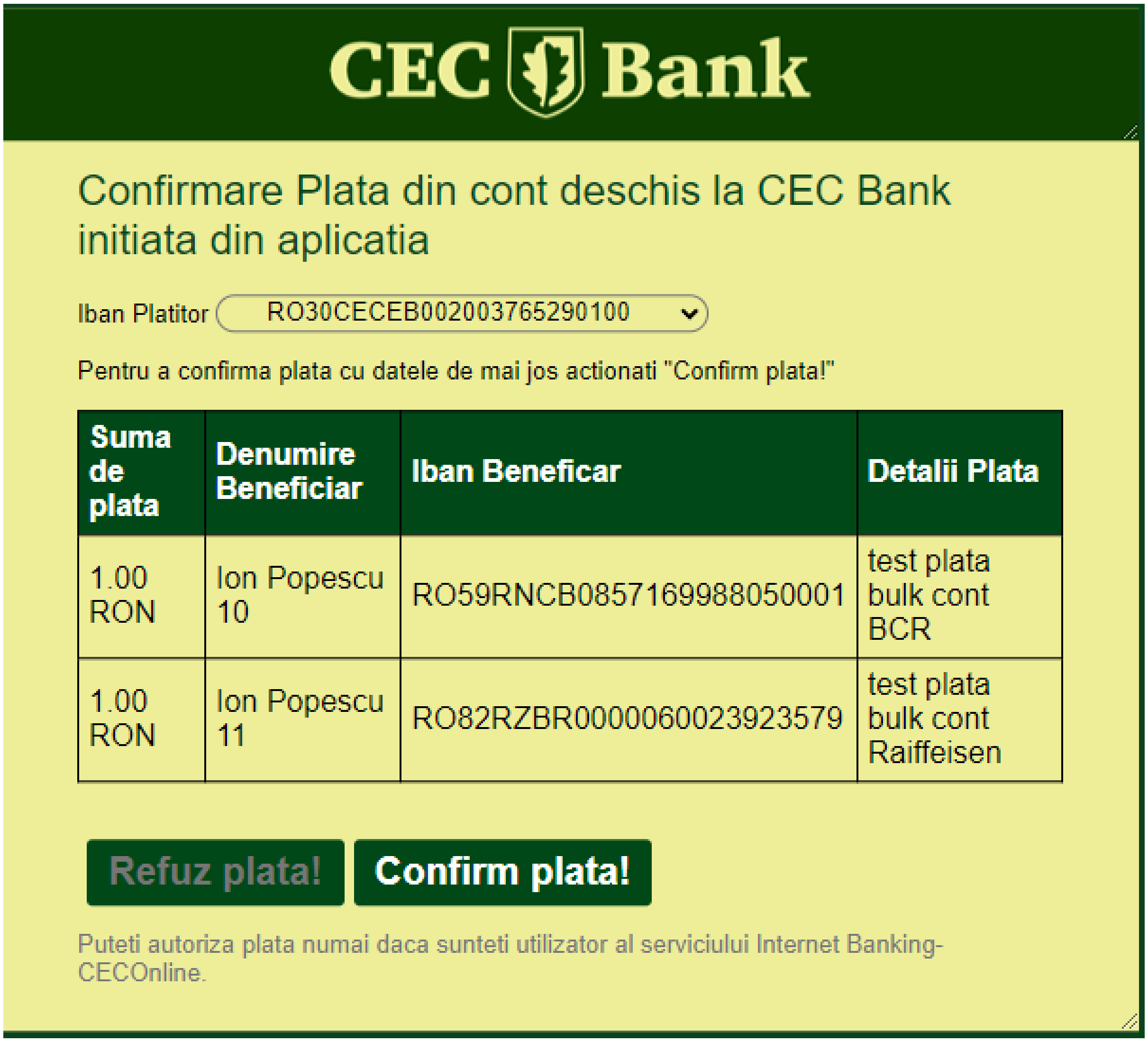


```
201 Created
content-type: application/json
x-global-transaction-id: 37198f4566052d642c565950
x-ratelimit-limit: name=rate-limit,100;
x-ratelimit-remaining: name=rate-limit,98;
{
    "transactionId": "767543",
    "paymentIdBulk": "12e79d38-ecdf-11ee-879e-0a1200740000",
    "transactionStatus": "RCVD",
    "creationDateTime": "TIMESTAMP '2024-03-28 10:42:13'",
    "paymentsResponse": [
        {
            "requestId": "2bbbbbbb-32bz-bejt-c4q5-b7c8ca72bb5b",
            "response": {
                "result": {
                    "transactionStatus": "RCVD",
                    "paymentId": "12e79edc-ecdf-11ee-879e-0a1200740000"
                }
            }
        },
        {
            "requestId": "3cczcc2b-32bz-bejt-c4q5-b7c8ca727c3c",
            "response": {
                "result": {
                    "transactionStatus": "RCVD",
                    "paymentId": "12e90010-ecdf-11ee-879e-0a1200740000"
                }
            }
        }
    ],
```

2.4.3 The TPP application redirects the customer to the authorization interface exposed by the bank

which is the same as a single payment. In the CEC Bank Authorization Server interface, the customer is authenticated in the bank's system based on the login credentials in the Internet Banking-CEC Online application.

2.4.4 After successful authentication, the customer agrees to process the bulk payment or can reject it.



Confirmare Plata din cont deschis la CEC Bank initiata din aplicatia

Iban Platitor: RO30CECEB002003765290100

Pentru a confirma plata cu datele de mai jos actionati "Confirm plata!"

Suma de plata	Denumire Beneficiar	Iban Beneficar	Detalii Plata
1.00 RON	Ion Popescu 10	RO59RNCB0857169988050001	test plata bulk cont BCR
1.00 RON	Ion Popescu 11	RO82RZBR0000060023923579	test plata bulk cont Raiffeisen

Puteti autoriza plata numai daca sunteti utilizator al serviciului Internet Banking-CECOnline.

2.4.5 The customer is redirected to the TPP application.

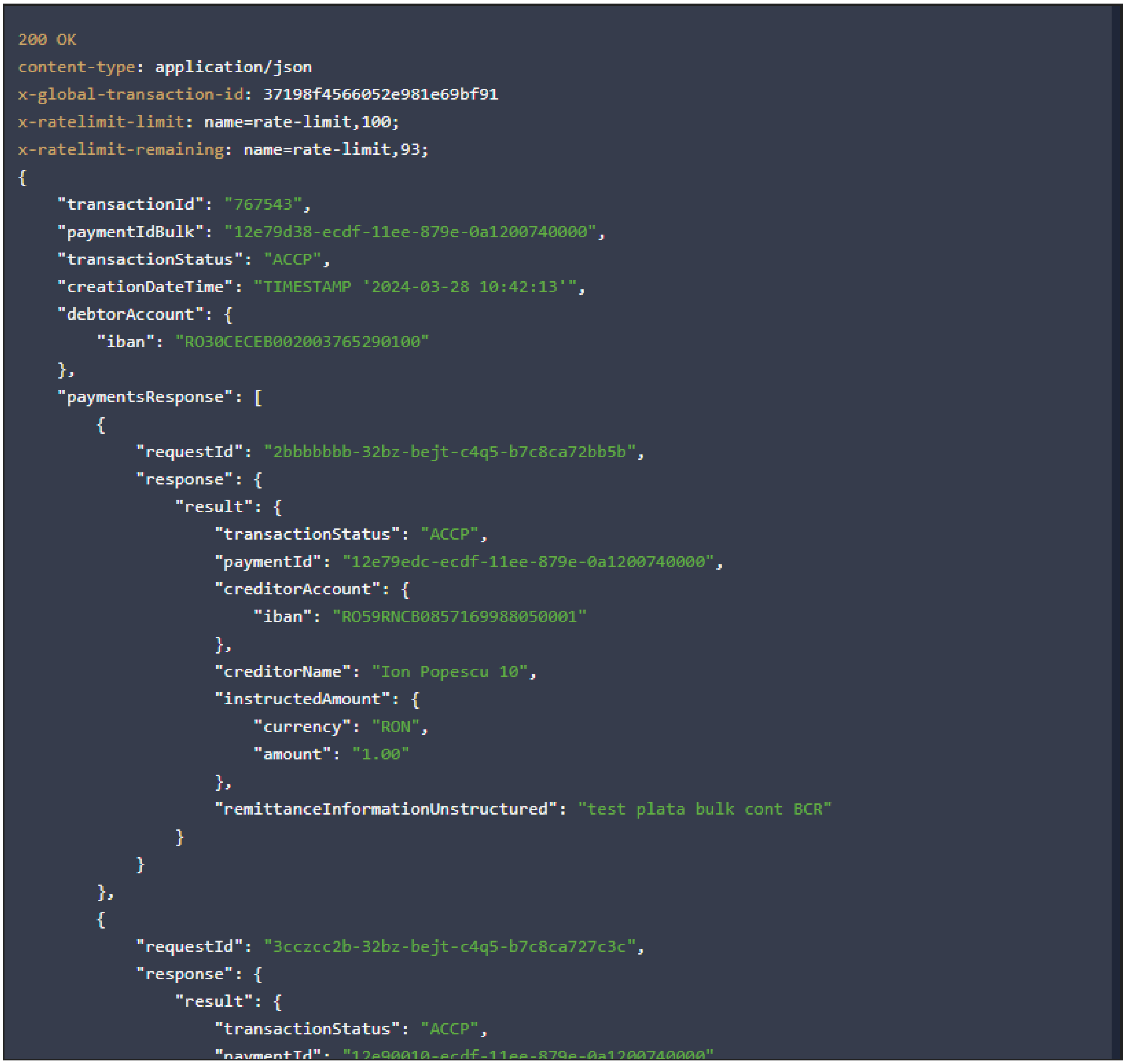
If the bulk payment has been authorized by the customer, a code is sent to the redirect address of the TPP application, which can be used by the TPP application to obtain the token to access the payment status/data.

2.4.6 The TPP application obtains tokens to access data and bulk payment status.

To check bulk payment status use the GET operation **https://api.cec.ro/cec/prod/psd29p/v1/d/{payment-service}/{payment-product}/{paymentId}**

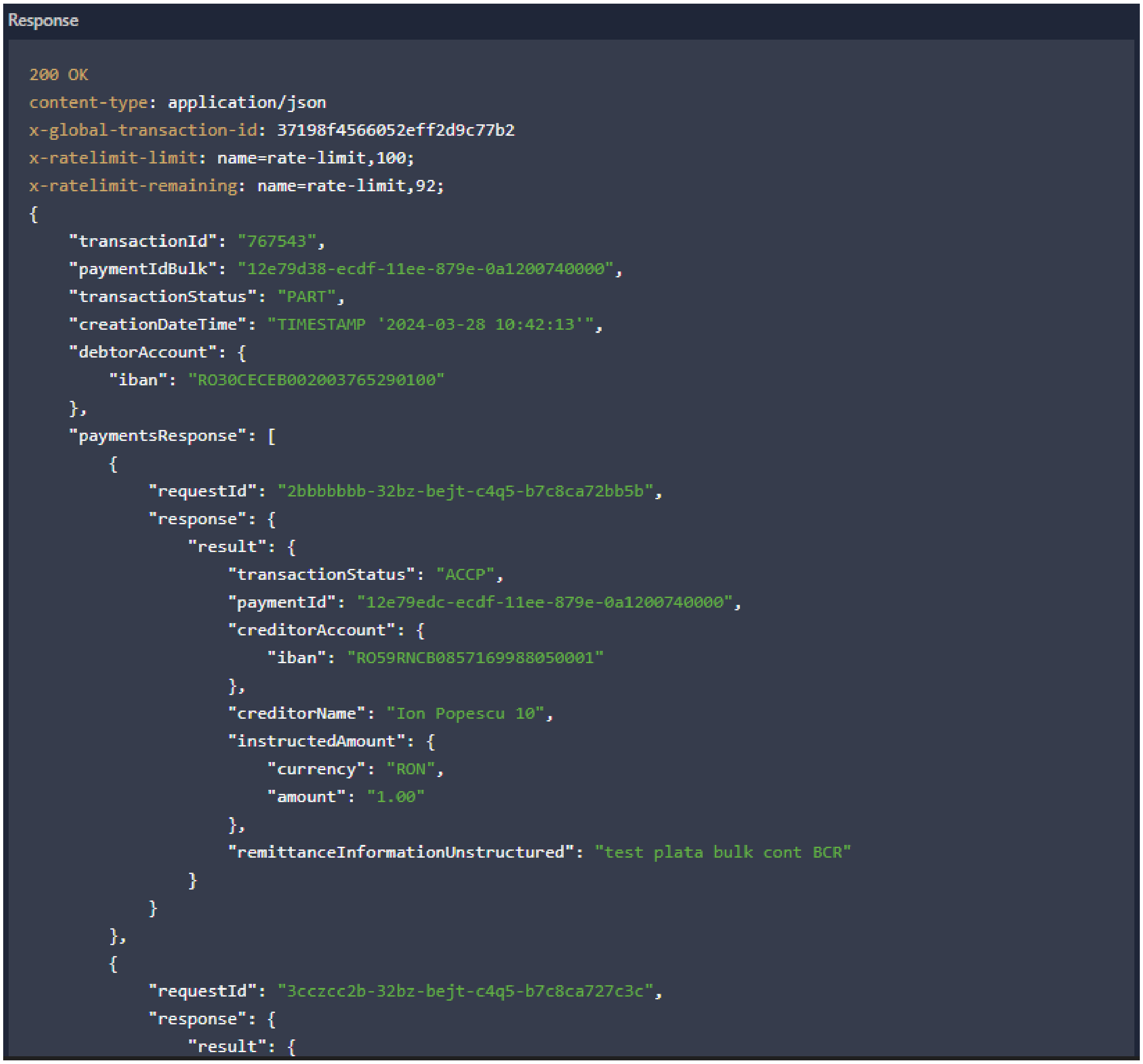
The bank service returns the status of the bulk payment to the TPP application, which displays it to the customer (see figures below)

The figure below shows that the bulk payment has the status "ACCP".



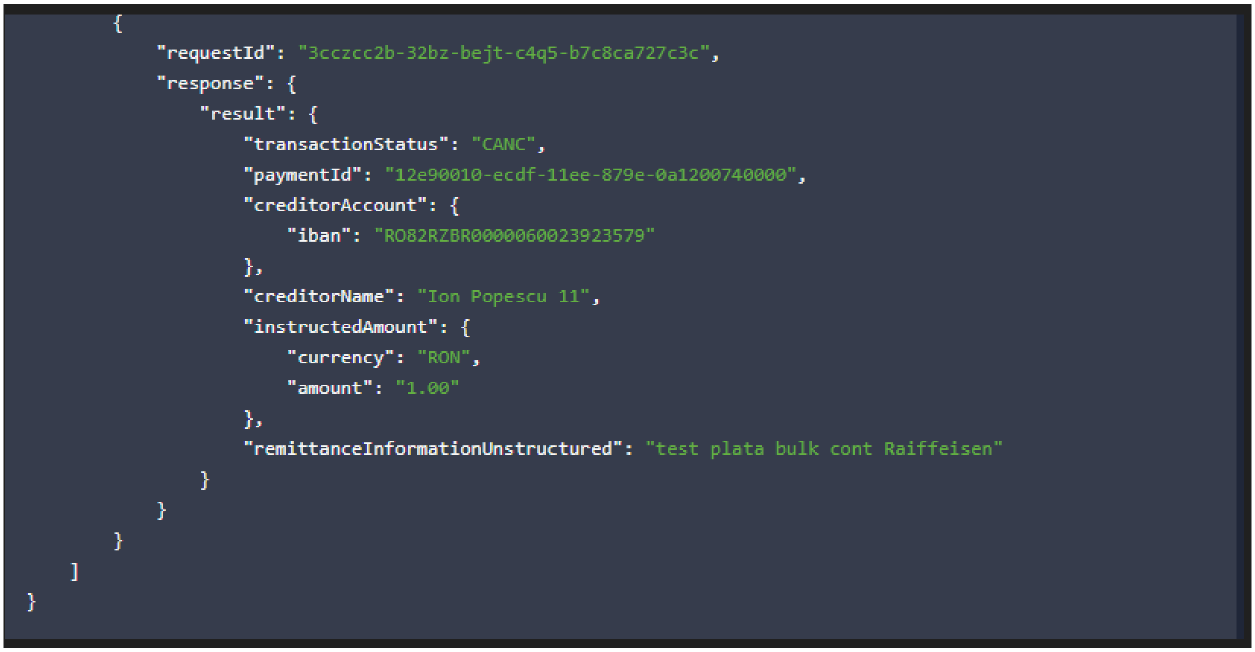
```
200 OK
content-type: application/json
x-global-transaction-id: 37198f4566052e981e69bf91
x-ratelimit-limit: name=rate-limit,100;
x-ratelimit-remaining: name=rate-limit,93;
{
    "transactionId": "767543",
    "paymentIdBulk": "12e79d38-ecdf-11ee-879e-0a1200740000",
    "transactionStatus": "ACCP",
    "creationDateTime": "TIMESTAMP '2024-03-28 10:42:13'",
    "debtorAccount": {
        "iban": "RO30CECEB002003765290100"
    },
    "paymentsResponse": [
        {
            "requestId": "2bbbbbbb-32bz-bejt-c4q5-b7c8ca72bb5b",
            "response": {
                "result": {
                    "transactionStatus": "ACCP",
                    "paymentId": "12e79edc-ecdf-11ee-879e-0a1200740000",
                    "creditorAccount": {
                        "iban": "RO59RNCB0857169988050001"
                    },
                    "creditorName": "Ion Popescu 10",
                    "instructedAmount": {
                        "currency": "RON",
                        "amount": "1.00"
                    },
                    "remittanceInformationUnstructured": "test plata bulk cont BCR"
                }
            }
        },
        {
            "requestId": "3cczcc2b-32bz-bejt-c4q5-b7c8ca727c3c",
            "response": {
                "result": {
                    "transactionStatus": "ACCP",
                    "paymentId": "12e90010-ecdf-11ee-879e-0a1200740000"
```

Following the execution of the bulk payments the status can be changed to "PART" following the failed execution of a single bulk payment as in the figure below:



Response

```
200 OK
content-type: application/json
x-global-transaction-id: 37198f4566052eff2d9c77b2
x-ratelimit-limit: name=rate-limit,100;
x-ratelimit-remaining: name=rate-limit,92;
{
    "transactionId": "767543",
    "paymentIdBulk": "12e79d38-ecdf-11ee-879e-0a1200740000",
    "transactionStatus": "PART",
    "creationDateTime": "TIMESTAMP '2024-03-28 10:42:13'",
    "debtorAccount": {
        "iban": "RO30CECEB002003765290100"
    },
    "paymentsResponse": [
        {
            "requestId": "2bbbbbbb-32bz-bejt-c4q5-b7c8ca72bb5b",
            "response": {
                "result": {
                    "transactionStatus": "ACCP",
                    "paymentId": "12e79edc-ecdf-11ee-879e-0a1200740000",
                    "creditorAccount": {
                        "iban": "RO59RNCB0857169988050001"
                    },
                    "creditorName": "Ion Popescu 10",
                    "instructedAmount": {
                        "currency": "RON",
                        "amount": "1.00"
                    },
                    "remittanceInformationUnstructured": "test plata bulk cont BCR"
                }
            }
        },
        {
            "requestId": "3cczcc2b-32bz-bejt-c4q5-b7c8ca727c3c",
            "response": {
                "result": {
```



```
        {
            "requestId": "3cczcc2b-32bz-bejt-c4q5-b7c8ca727c3c",
            "response": {
                "result": {
                    "transactionStatus": "CANC",
                    "paymentId": "12e90010-ecdf-11ee-879e-0a1200740000",
                    "creditorAccount": {
                        "iban": "RO82RZBR0000060023923579"
                    },
                    "creditorName": "Ion Popescu 11",
                    "instructedAmount": {
                        "currency": "RON",
                        "amount": "1.00"
                    },
                    "remittanceInformationUnstructured": "test plata bulk cont Raiffeisen"
                }
            }
        }
    ]
}
```

NOTE:
PART, ACSC - final statuses for a bulk payment initiation transaction // PART status is provided in Berlin Group
Any other status up to this point is an intermediate status.
PART - at least one bulk payment was not successfully completed.
ACSC- all bulk payments have been successfully completed.
PATC - payment requires additional signatures