N26 - PSD2 Dedicated Interface - PISP Access documentation

General information

Berlin Group Conformity : Implementation Guidelines version 1.3.6

Authorisation protocol: oAuth 2.0

Security layer: A valid QWAC Certificate for PSD2 is required to access the Berlin Group API. The official list of QTSP is available on the European Comission eIDAS Trusted List. For the N26 PSD2 Dedicated Interface API, the QWAC Certificate must be issued from a production certificate authority.

Certificates can be renewed by making an API call **using the new certificate**, which will then be onboarded automatically.

Access & Identification of TPP

Base URL

```
https://xs2a.tech26.de
```

Sandbox URL

```
https://xs2a.tech26.de/sandbox
```

On-boarding of new TPPs

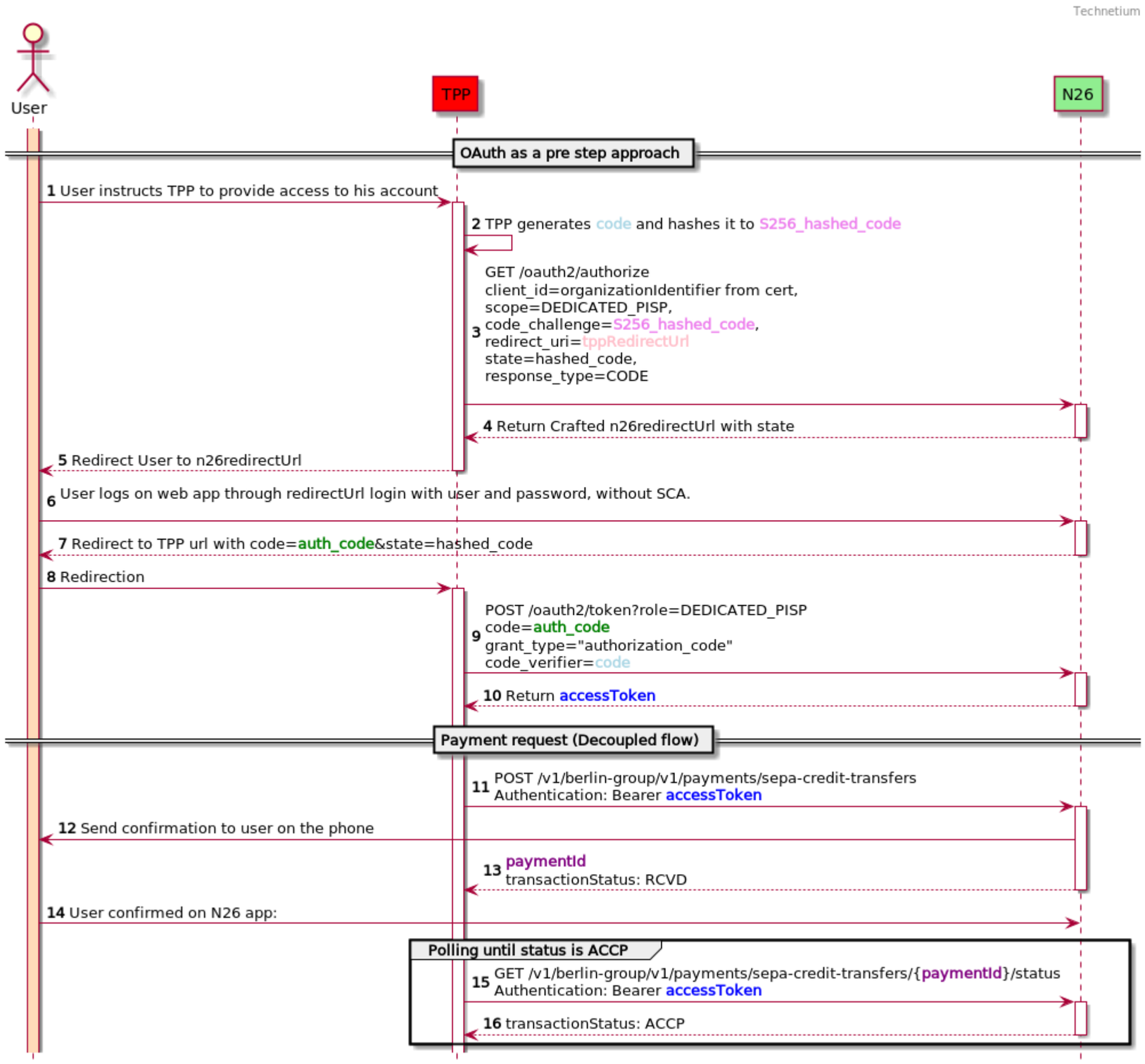
1. A TPP shall connect to the N26 PSD2 dedicated API by using an eIDAS valid certificate (QWAC) issued
2. N26 shall check the QWAC certificate in an automated way and allow the TPP to identify themselves with the subsequent API calls
3. As the result of the steps above, the TPP should be able to continue using the API without manual involvement from the N26 side

Support for this implementation on the Berlin Group API

Service	Support
Supported SCA Approaches	Decoupled (Oauth2 as a pre-step)
SCA Validity	20 minutes
Supported payment schemes	SEPA Credit Transfers
Support of Periodic payments	Not Supported
Support of Bulk payments	Not Supported
fundsAvailable	Not Supported
App to app redirection	Not supported

OAuth as a Pre-step

OAuth2 is supported by this API through the authentication of a PSU in a pre-step, as per the diagram below:



Validity of access token

	Access Token
Purpose	Access for API calls in **one session**
How to get	1. Make a request to GET /oauth2/authorize providing a redirectUrl and a hashed code verifier 2. Redirect users to n26 web page, where they will log in. If successful, page will be redirected to the URL provided on step 1, along with an auth Code 3. Use the authCode along with the unhashed code verifier on POST /oauth2/token
Validity	20 min
Storage	NEVER

PISP flow does not provide refresh tokens for security purposes

The TPP should not use those access tokens on base URLs other than `xs2a.tech26.de`.

Access tokens issued for PISP cannot be used for AISP flows.

Authentication endpoints

These endpoints are used to retrieve an access or refresh token for use with the /consents and /accounts endpoints.

Note: any values shown between curly braces should be taken as variables, while the ones not surrounded are to be read as literals.

Initiate authorization

This begins the authorization process. Users should be redirected to the URL supplied in the response.

Sample request

```
GET /oauth2/authorize?client_id=PSDDE-BAFIN-000001&
                      scope=DEDICATED_PISP&
                      code_challenge=w6uP8Tcg6K2QR905Rms8iXTlksL6OD1KOWBxTK7wxPI&
                      redirect_uri=https://tpp.com/redirect&
                      response_type=CODE&
                      state=1fL1nn7m9a
HTTP/1.1
```

Supported query parameters:

Name of parameter	Description
client_id	This should match the QWAC certificate's organization identifier. This field may be obtained by running the following command on the QWAC certificate: *$ openssl x509 -in certificate.pem -noout -text | grep "Subject:" | grep -o "organizationIdentifier = [A-Za-z0-9-]*"* (This shell script may not work exhaustively for every certificate; if it doesn't, we propose to just run the part before the "greps" and find the organization identifier by eye.) Mandatory field.
scope	Accepted value: "DEDICATED_PISP". Mandatory field.
code_challenge	SHA256 hash of the code_verifier to be provided on POST /oauth2/token. Minimum size 43 characters, maximum 128. Should be Base-64 URL encoded, as per https://tools.ietf.org/html/rfc7636#section-4.2. BASE64URL-ENCODE(SHA256(ASCII(code_verifier))) Please refer to https://tonyxu-io.github.io/pkce-generator/ for sample values. So as an example, code_verifier should be set as "foobar" while code challenge would be "w6uP8Tcg6K2QR905Rms8iXTlksL6OD1KOWBxTK7wxPI". Mandatory field.

redirect_uri	URI to which users will be redirected back when the authorization process is completed. Mandatory field.
state	Random state string which should be returned on the query string when N26 redirects back, so the TPP can link the redirection to the original authorization request. Mandatory field.
response_type	Accepted value: “CODE”. Mandatory field.

Sample Response

```
HTTP/1.1 302 Found
location: https://app.n26.com/open-banking?requestId=0daa152a-651a-4592-8542-47ff60799deb&state=1fL1nn7m9a&authType=XS2A
```

Retrieve Token

When users are redirected back from the URL supplied in the previous request (step 7 of the sequence diagram), the following two query string parameters should be extracted and verified

- **state** - should match the state supplied in the initiate authorization request
- **code** - this is the authorization code which will be used to retrieve the token

As an example, if the TPP provided “https://www.tpp.com/redirect“ as redirect_uri, after the users have successfully logged in, the TPP can expect a redirection to the following URL:

`https://www.tpp.com/redirect?code=dbtF5AqOApjjSnNF5TK3w3gaEPdwtV2&state=1fL1nn7m9a`

Upon receiving this redirect, the TPP can make the following request can be made to retrieve the access and refresh tokens:

Sample Request

```
POST    /oauth2/token?role=DEDICATED_PISP HTTP/1.1
Content-Type: application/x-www-form-urlencoded

grant_type=authorization_code&
code=dbtF5AqOApjjSnNF5TK3w3gaEPdwtV2&
code_verifier=foobar&
redirect_uri=https://tpp.com/redirect
```

Supported query parameters:

Name of query parameter	Description
role	Accepted value: “`DEDICATED_PISP`” to generate a PISP-only token. Mandatory field.

Supported form parameters:

Name of parameter	Description
grant_type	Accepted value: “authorization_code”. Mandatory parameter.
code	The authorization code as returned by N26 as a parameter (“code”) on the redirect URL (step 7 of the sequence diagram). Mandatory parameter.
code_verifier	Value of the code verifier; should match hashed code challenge from `GET /oauth2/authorize` request. Mandatory parameter.
redirect_uri	The same redirect URI that was provided to the `GET /oauth2/authorize` request. Optional parameter.

Response

Successful

Note that no refresh tokens are provided for security purposes.

```
HTTP/1.1 200 OK
{
    "access_token": "{{access_token}}",
    "token_type": "bearer",
    "expires_in": {{expires_in_seconds}}
}
```

TPP has provided the wrong authorization code or code verifier

```
HTTP/1.1 400 Bad Request
{
    "userMessage": {
        "title": "Error",
        "detail": "Please try again later."
    },
    "error_description": "Bad Request",
    "detail": "Bad Request",
    "type": "invalid_request",
    "error": "invalid_request",
    "title": "invalid_request",
    "status": 400
}
```

Payment endpoints

Please use your QWAC certificate when calling for any Payment request on `xs2a.tech26.de`, along with a valid access token retrieved as per the oauth session.

Create payment

SEPA Credit Transfers

Request

```
POST    /v1/berlin-group/v1/payments/sepa-credit-transfers HTTP/1.1
Authorization: bearer {{access_token}}
Content-Type: application/json

{
    "instructedAmount": {
        "currency": "EUR",
        "amount": "123.50"
    },
    "debtorAccount": {
        "iban": "DE40100100103307118608"
    },
    "creditorName": "Seller",
    "creditorAccount": {
        "iban": "DE02100100109307118603"
    },
    "remittanceInformationUnstructured": "Reference text"
}
```

⚠ Allowed special characters in creditorName for N26 SEPA CT - (**:,.+?/**)

⚠ Allowed special characters in remittanceInformationUnstructured for N26 SEPA CT - (**:,.+?/\-'**)

Response

```
aspsp-sca-approach: DECOUPLED

{
    "transactionStatus": "RCVD",
    "paymentId": "a4e7c6e3-ef2f-440c-ac0f-36dcafe4551c",
    "_links": {
        "status": {
            "href": "/v1/berlin-group/v1/payments/sepa-credit-transfers/a4e7c6e3-ef2f-440c-ac0f-36dcafe4551c/status"
        }
    }
}
```

Instant SEPA Credit Transfers

Customers are required to accept *Terms and Conditions,* specifically for the SEPA Instant feature, prior to performing the transfer. Furthermore, non-premium customers (i.e. customers with an N26 Standard account) are charged a fee for each instant transfer. This fee differs by market, ranging from €0.49-€1.99, and can be found on the N26 website of the relevant market.

Request

```
POST    /v1/berlin-group/v1/payments/instant-sepa-credit-transfers HTTP/1.1
Authorization: bearer {{access_token}}
Content-Type: application/json

{
    "instructedAmount": {
        "currency": "EUR",
        "amount": "123.50"
    },
    "debtorAccount": {
        "iban": "DE40100100103307118608"
    },
    "creditorName": "Seller",
    "creditorAccount": {
        "iban": "DE02100100109307118603"
    },
    "remittanceInformationUnstructured": "Reference text"
}
```

⚠ Allowed special characters in creditorName for N26 SEPA Instant Transfer - (**:,.+?/**)

⚠ Allowed special characters in remittanceInformationUnstructured for N26 SEPA Instant Transfer - (**:,.+?/\-'**)

Response

In the case that the customer **has already accepted** the *Terms and Conditions* in the N26 app, the following response will be provided:

```
aspsp-sca-approach: DECOUPLED

{
    "transactionStatus": "RCVD",
    "paymentId": "a4e7c6e3-ef2f-440c-ac0f-36dcafe4551c",
    "_links": {
        "status": {
            "href": "/v1/berlin-group/v1/payments/instant-sepa-credit-transfers/a4e7c6e3-ef2f-440c-ac0f-36dcafe4551c/status"
        }
    }
}
```

In the case that the customer **hasn't accepted** the *Terms and Conditions*, the following response will be provided:

```
HTTP/1.1 307 Temporary Redirect
Location: https://app.n26.com/login?redirect=%2Fterms-and-conditions
```

Get payment status

This endpoint is intended to be polled by the TPP to determine whether the users have confirmed the payment (as we are using the decoupled SCA approach).

⚠️ Payment final status will be applied no later then **15 minutes.**

Statuses currently supported:

Status code	Description
RCVD	Received. Initial status for a payment. A cerification has been sent to the user's app.
ACCP	AcceptedCustomerProfile. User has confirmed the in-app certification and the payment has been initiated. Currently this is the final successful status for a payment.
RJCT	Rejected. Status for payment when an in-app certification expired or was denied by the user.
ACFC	AcceptedFundsChecked. **Currently not supported**, but will be implemented in the future.
ACSC	AcceptedSettlementCompleted. **Currently not supported**, but will be implemented in the future.

SEPA Credit Transfers

Request

```
GET    /v1/berlin-group/v1/payments/sepa-credit-transfers/{{paymentstId}}/status HTTP/1.1
Authorization: bearer {{access_token}}
X-Request-ID: {{Unique UUID}}
Content-Type: application/json
```

Response

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

Instant SEPA Credit Transfers

Request

```
GET    /v1/berlin-group/v1/payments/instant-sepa-credit-transfers/{{paymentstId}}/status HTTP/1.1
Authorization: bearer {{access_token}}
X-Request-ID: {{Unique UUID}}
Content-Type: application/json
```

Response

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

Get payment

SEPA Credit Transfers

Request

```
GET    /v1/berlin-group/v1/payments/sepa-credit-transfers/{{paymentsId}} HTTP/1.1
Authorization: bearer {{access_token}}
X-Request-ID: {{Unique UUID}}
Content-Type: application/json
```

Response

```
{
  "debtorAccount": {
       "iban": "DE40100100103307118608"
  },
  "instructedAmount": {
       "amount":  0.12,
       "currency":  "EUR"
  },
  "creditorAccount":  {
       "iban": "DE96100110012627266269"
  },
  "creditorName": "Seller",
  "remittanceInformationUnstructured": "reference text",
  "transactionStatus": "ACCP"
}
```

Instant SEPA Credit Transfers

Request

```
GET    /v1/berlin-group/v1/payments/instant-sepa-credit-transfers/{{paymentsId}} HTTP/1.1
Authorization: bearer {{access_token}}
X-Request-ID: {{Unique UUID}}
Content-Type: application/json
```

Response

```
{
  "debtorAccount": {
       "iban": "DE40100100103307118608"
  },
  "instructedAmount": {
       "amount":  0.12,
       "currency":  "EUR"
  },
  "creditorAccount":  {
       "iban": "DE96100110012627266269"
  },
  "creditorName": "Seller",
  "remittanceInformationUnstructured": "reference text",
  "transactionStatus": "ACCP"
}
```

Delete payments

This endpoint is not supported.

Get authorisations

SEPA Credit Transfers

Request

```
GET    /v1/berlin-group/v1/payments/sepa-credit-transfers/{{paymentId}}/authorisations HTTP/1.1
Authorization: bearer {{access_token}}
X-Request-ID: {{Unique UUID}}
Content-Type: application/json
```

Response

```
{
    "authorisationIds": [
        "e93bf74e-9444-4a5e-8524-648d80848126"
    ]
}
```

Instant SEPA Credit Transfers

Request

```
GET    /v1/berlin-group/v1/payments/instant-sepa-credit-transfers/{{paymentId}}/authorisations HTTP/1.1
Authorization: bearer {{access_token}}
X-Request-ID: {{Unique UUID}}
Content-Type: application/json
```

Response

```
{
    "authorisationIds": [
        "e93bf74e-9444-4a5e-8524-648d80848126"
    ]
}
```

Get authorisation

SEPA Credit Transfers

Request

```
GET    /v1/berlin-group/v1/payments/sepa-credit-transfers/{{paymentId}}/authorisations/{{authorisationId}} HTTP/1.1
Authorization: bearer {{access_token}}
X-Request-ID: {{Unique UUID}}
Content-Type: application/json
```

Response

```
{
    "scaStatus": "finalised"
}
```

Instant SEPA Credit Transfers

Request

```
GET    /v1/berlin-group/v1/payments/instant-sepa-credit-transfers/{{paymentId}}/authorisations/{{authorisationId}} HTTP/1.1
Authorization: bearer {{access_token}}
X-Request-ID: {{Unique UUID}}
Content-Type: application/json
```

Response

```
{
    "scaStatus": "finalised"
}
```