

MARGINAL
EN

API DOCUMENTATION

BANK

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DEDICATED INTERFACE FOR CONSUMER ACCOUNTS

API EXAMPLES

1. SIGNING REQUESTS

To ensure that the requests will not be tampered with during transit, the application needs to sign it. Singing requests is described step by step below. You will need to obtain a certificate from one of the Qualified Trust Service Providers. These can be found on this link. For Sandbox environment you will need to download the certificate from the Developer portal.

It is recommended to first use the certificate on Sandbox environment for developing the application.

SIGNING THE CERTIFICATE

Once you generate an API Key on the Developer portal and create a Sandbox you can download the certificate.

1.1 CREATING THE DIGEST

The Digest is a base64 encoded hash of the body: Base64(SHA-512(body))

- Take the body of your request or an empty string if there is no body.
- Pass the body through the SHA-512 hashing algorithm (SHA-256 is also allowed).
- Make sure the hashed output is binary. In other words; do not convert it to a string.
- Base64 encode the output.
- Add the result to your digest header and make sure that you declare which hashing algorithm you have used.

An example of the digest header for an empty body using SHA-256 or SHA-512:

```
Digest: sha-256=47DEQpj8HBSa+/TImW+5JCeuQeRkm5NMpJWZG3hSuFU=
```

```
Digest: sha-
```

```
512=z4PhNX7vuL3xVChQ1m2AB9Yg5AULVxXcg/SpldNs6c5H0NE8XYXysP+DGKNKHfuvvY7kxvUdBeoGI  
ODJ6+SfaPg==
```

1.2 CREATE THE SIGNING STRING

The signing string contains several headers depending on which API you are using, separated by line breaks. The order is not important as long as you define them in the same order in the signature header.

For example:

```
Digest: sha-
```

```
512=z4PhNX7vuL3xVChQ1m2AB9Yg5AULVxXcg/SpldNs6c5H0NE8XYXysP+DGKNKHfuvvY7kxvUdBeoGI  
ODJ6+SfaPg==
```

```
X-Request-ID: 13e25ec7-2251-4a2d-a5cd-035e0c46dd6b
```

```
PSU-ID: 196404015510
```

```
Date: Sun, 01 May 2019 15:02:37 GMT
```

There also may be included other headers that were not in the example. As per Berlin Group the following headers are mandatory and must be included:

- "Digest"
- "X-Request-ID",
- "PSU-ID" (if and only if "PSU-ID" is included as a header of the HTTP-Request).
- "PSU-Corporate-ID" (if and only if "PSU-Corporate-ID" is included as a header of the HTTPRequest).
- "Date"

1.3 SIGN WITH YOUR PRIVATE KEY

The signature is the signing string signed with the private key: Base64(RSA-SHA512(signing_string))

- Create the signing string (see step 1.2).
- Sign it using RSA-SHA512 (RSA-SHA256 is also allowed) and the private key of the signing certificate.
- Base64 encode the output.

An example of the signature using the above information would look like this:

```
xKYphLjoKeRB8MhfPdgJJGJ18JQaqqBHRyJPGH1yXGeMCdkj3Xs1RxdAs5P4kFYkgB6OnqNft3ZuoPyku2  
P+gWLV4gjJ5QT3T8WXVQjQlk9VtsRK+vHQvemMKXE5nUYRFsiuM909Sk9cXiWukumJYkwOZqxxUqBLaRn  
3vBVHm+azUJRL6bhlYoCG8QM5ws+u1E8c+d3UA5xbBRyVJJPY+//WiVoJGANz2Xullb0zDRxEPIHv3jl  
6p/Tjyr7e+jRGyYwKRAwF2w3Z87VfKxG7bJQ33NH5VD5WWQHTA358GrLm03iqfm8V6jbmZtl+UjiXOp  
Kz8kRS5WhShQ8Sim9q3A==
```

04

1.4 SIGNATURE HEADER

The signature header consists of the following components:

Component	Description
keyId	The serial number of the certificate as defined in 'TPP-Signature-Certificate' header, the format should be Integer
algorithm	Specify which algorithm was used when generating the signature: rsa-sha512 or rsasha256.
headers	The list of headers contained in the signature: <ul style="list-style-type: none">• lowercase• separated by a space• in the same order as they have in the signing string
Signature	The resulting signature string from step 1.3.

Finally, the resulting signature header for the example would be:

```
signature: keyId="00a2e58b592f8367b8",algorithm="sha256RSA",headers="digest x-request-id psuid date",signature="xKYphLjoKeRB8MhfPdgJjGJ18JQaqqBhrYJPGH1yXGeMCdkj3Xs1RxdAs5P4kFYkgB6OnqNft3ZuoPyku2P+gWLW4gjJ5QT3T8WXVQjQlk9VtsRK+vHQvemMKXE5nUYRFsiuM909Sk9cXiWukumJYkwOZqxxUqBLaRn3vBVHm+azUJRL6bhYoCG8QM5ws+u1E8c+d3UA5xbBryVJPY+//WiVoJGANz2Xullb0zDRxEPIHv3jl6p/Tjyr7e+jRGyYwKRAwF2w3Z87VFkxG7bJQ33NH5VD5WWQHTA358GrLm03iqfm8V6jbMZtl+UjiXOpKz8kRS5WhShQ8Sim9q3A=="
```

2. GENERATE ACCESS TOKEN

This is an example of how to generate an access token which is needed for authorization.

To generate an access token a client secret and an API key is needed which would have been generated through the application registration on the Developer Portal.

The method used to generate a token which is returned in the response body is POST at: <https://api-sandbox.openbanking.marginalen.se/connect/token>

HTTP request header

Attribute	Type	Description
Content-Type		application/x-www-form-urlencoded

Request body in the form of key: value:

Key	Value
client_id	5341d37ff0f202588541441a93cf0c72
grant_type	client_credentials
client_secret	b4b19762356d4c3ebba777b6103acce0
scope	aisp piisp piisp

Request parameters description:

Key	Type	Description
client_id	string	The client_id of the TPP (i.e. API key value).
client_secret	string	The client_secret obtained in application registration.
grant_type	string	client_credentials grant type
scope	string	Defines the scope of access. Possible values: piisp, aisp and piisp.

Response body:

```
{
  "access_token": "d0ec9ec7816456722d602f0cfc5821fea515eeeff8e3ea7391e82baa865ebe",
  "expires_in": 2592000,
  "token_type": "Bearer"
}
```

Response parameters description:

Key	Type	Description
access_token	string	The access token needed for authorization.
expires_in	integer	The access token needed for authorization.
token_type	string	The token type is Bearer token.

3. USING BANKID TEST APPLICATION FOR SIGNING CONSENTS AND PAYMENTS

Singing the consents and the payments in Sandbox environment is possible using the BankID test application. You will need to install this application and generate a BankID with the PSU IDs used in the sandbox generation. Please refer to the following links for detailed information on installing the application and obtaining a BankID:

- <https://www.bankid.com/bankid-i-dina-tjanster/rp-info>
- <https://demo.bankid.com/>

4. CONSENTS ENDPOINT EXAMPLES

4.1 CREATE CONSENT REQUEST

In order to be able to create consent a generated sandbox and an access token is needed (Section 2 describes how to obtain an access token).

The following example explains how to create a consent for all accounts for a given PSU (i.e. customer's SSN generated when sandbox is generated). The chosen SCA approach in this example is explicit decoupled. The method is POST at: <https://api-sandbox.openbanking.marginalen.se/aisp/v1/consents>

HTTP request header

Attribute	Type	Description
Content-Type		application/json
Authorization	string	Access token.
X-Request-Id	string	Unique ID of the request as determined by the initiating party.
PSU-ID	string	Client ID of the PSU at Marginalen Bank client interface.
Digest §	string	Is contained if and only if the "Signature" element is contained in the header of the request.
Signature	string	A signature of the request by the TPP on application level.
TPP-Signature-Certificate	string	The certificate used for signing the request, in base64 encoding. Must be contained if a signature is contained.
Date	string	Date in RFC 1123 date format.

Additional HTTP request parameter for creating a consent is needed which defines the authorisation preference for the create consent request.

HTTP request header

Attribute	Type	Description
TPP-ExplicitAuthorisation-Preferred TPP.	boolean	If it equals "true", the TPP prefers to start the authorisation process separately. If it equals "false" or if the parameter is not used, there is no preference of the TPP. This especially indicates that the TPP assumes a direct authorisation of the transaction in the next step.

In the example this parameter is set to "true", implying explicit decoupled SCA approach:

Request body:

```
{
  "access": {
    "allPsd2": "AllAccounts"
  },
  "recurringIndicator": true,
  "frequencyPerDay": 100,
  "validUntil": "2019-10-10T11:00:00.583Z",
  "combinedServiceIndicator": true
}
```

Request parameters description:

Name	Type	Description
access	object	Requested access services for the consent.
Parameters of access object:		
allPsd2	string	Request access for all available accounts of the PSU on all PSD2 related account information services. n.
recurringIndicator	boolean	If the consent is for recurring access to the account data, this attribute is set to
validUntil	string	Validity date of the consent.
frequencyPerDay	integer	Defines maximum frequency for an access per day.
combinedServiceIndicator	boolean	Indicates that a payment initiation service will be addressed in the same "session".

Response body:

```
{
  "consentStatus": "received",
  "consentId": "1435dac42f2c4e90833f1265306f8390",
  "_links": {
    "startAuthorisationWithPsuIdentification": "https://apisandbox.openbanking.marginalen.se/aisp/v1/consents/1435dac42f2c4e90833f1265306f8390/authorisations",
    "self": "https://apisandbox.openbanking.marginalen.se/aisp/v1/consents/1435dac42f2c4e90833f1265306f8390",
    "status": "https://apisandbox.openbanking.marginalen.se/aisp/v1/consents/1435dac42f2c4e90833f1265306f8390/status"
  }
}
```

HTTP response header

Attribute	Type	Description
Location	string	Location of the created resource.
X-Request-Id	string	Unique ID of the request as determined by the initiating party.
ASPSP-SCA-Approach	string	Possible values: · DECOUPLED

Response parameters description:

Name	Type	Description
consentStatus	string	Status of the consent.
consentId	string	ID of the corresponding consent object.
_links	object	A list of hyperlinks to be recognised by the TPP.
Parameters of _links object		
self	string	The link to the consent resource created by this request. This link can be used to retrieve the resource data.
status	string	The link to retrieve the status of the account information consent.
startAuthorisationWithPsuIdentification	string	The link to the authorisation end-point, where the authorisation sub-resource has to be generated while uploading the PSU identification data.

4.2 START THE AUTHORISATION PROCESS FOR A CONSENT

This example creates an authorisation sub-resource and start the authorisation process for the consent object created in the previous example.

The method is POST with empty body at: <https://api-sandbox.openbanking.marginalen.se/aisp/v1/consents/{consentId}/authorisations>

HTTP request header

Attribute	Type	Type
Authorization	string	Access token.
X-Request-Id	string	Unique ID of the request as determined by the initiating party.
PSU-ID	string	Client ID of the PSU at Marginalen Bank client interface.
Digest	string	Is contained if and only if the "Signature" element is contained in the header of the request.
Signature	string	A signature of the request by the TPP on application level.
TPP-Signature-Certificate	string	The certificate used for signing the request, in base64 encoding. Must be contained if a signature is contained.
Date	string	Date in RFC 1123 date format.

Response body:

```
{
  "scaStatus": "psuIdentified",
  "scaMethods": [
    {
      "authenticationType": "BankID",
      "authenticationVersion": "BankID.1",
      "authenticationMethodId": "BankID",
      "name": "BankID",
      "explanation": "An SCA method, where an PSU will be redirected to a browser application or installed application on desktop to identify and authorize transaction."
    }
  ]
}
```

```

{
  "authenticationType": "MobileBankId",
  "authenticationVersion": "MobileBankId.1",
  "authenticationMethodId": "MobileBankId",
  "name": "MobileBankId",
  "explanation": "An SCA method, where the PSU will be redirected to a MobileBankID application on same device to execute the authorization"
},
{
  "authenticationType": "MobileBankIdOnOtherDevice",
  "authenticationVersion": "MobileBankIdOnOtherDevice.1",
  "authenticationMethodId": "MobileBankIdOnOtherDevice",
  "name": "MobileBankIdOnOtherDevice",
  "explanation": "An SCA method, decoupled, where the PSU will need to open application on other device or on same device manually and authorize using the mobileBankId or bankID."
}
],
"_links": {
  "scaStatus": "https://api-sandbox.openbanking.marginalen.se/aisp/v1/consents/1435dac42f2c4e90833f1265306f8390/authorisations/5d89dd771b42612a37ed65db",
  "selectAuthenticationMethod": "https://apisandbox.openbanking.marginalen.se/aisp/v1/consents/1435dac42f2c4e90833f1265306f8390/authorisations/5d89dd771b42612a37ed65db"
},
"authorisationId": "5d89dd771b42612a37ed65db"
}

```

HTTP response header

Attribute	Type	Description
X-Request-Id	string	Unique ID of the request as determined by the initiating party.
ASPSP-SCA-Approach	string	Possible values: · DECOUPLED ·

Response parameters description:

Name	Type	Description
scaStatus	String	The status of the SCA routine.
scaMethods	Array of Authentication Objects	An array of possible methods for SCA.

Parameters of scaMethods array:

authenticationType	string	An array of possible methods for SCA.
authenticationVersion	string	Depending on the "authenticationType". This version can be used by differentiating authentication tools used within performing OTP generation in the same authentication type.
authenticationMethodId	string	An identification provided by Marginalen Bank for the later identification of the authentication method selection.
name	string	This is the name of the authentication method defined by the PSU in the Online Banking frontend of Marginalen Bank.
explanation	string	Detailed information about the SCA method for the PSU
_links	object	A list of hyperlinks to be recognised by the TPP.

Parameters of _links object:

selectAuthenticationMethod	string	The link to the authorisation sub-resource, where the selected authentication method needs to be update.
scaStatus	string	The link to retrieve the scaStatus of the corresponding authorisation sub-resource
authorisationId	string	Unique resource identification of the created authorisation sub-resource

4.3 UPDATE PSU DATA FOR CONSENTS

This example updates PSU data of the consent's resource.

The method is PUT at:

<https://apisandbox.openbanking.marginalen.se/aisp/v1/consents/{consentId}/authorisations/{authorisationId}>

HTTP request header

Attribute	Type	Description
Authorization	string	Access token.
X-Request-Id	string	Unique ID of the request as determined by the initiating party.
PSU-ID	string	Client ID of the PSU at Marginalen Bank client interface.
Digest	string	Is contained if and only if the "Signature" element is contained in the header of the request.
Signature	string	A signature of the request by the TPP on application level.
TPP-Signature-Certificate	string	The certificate used for signing the request, in base64 encoding. Must be contained if a signature is contained.
Date	string	Date in RFC 1123 date format.

Request body:

```
{
  "authenticationMethodId": "BankID"
}
```

Request parameters description:

Name	Type	Description
authenticationMethodId	string	An identification provided by Marginalen Bank for the later identification of the authentication method selection.

After sending this call, the next step would be opening the test BankID application on you mobile device and signing the request. After signing the consent request the consent's status should change the status in "valid".

Response body:

```
{
  "chosenScaMethod": {
    "authenticationType": "BankID",
    "authenticationVersion": "BankID.1",
    "authenticationMethodId": "BankID",
    "name": "BankID",
    "explanation": "An SCA method, where an PSU will be redirected to a browser application or installed application on desktop to identify and authorize transaction."
  },
  "_links": {
    "scaStatus": "https://apisandbox.openbanking.marginalen.se/aisp/v1/consents/1435dac42f2c4e90833f1265306f8390/authorisations/5d89dd771b42612a37ed65db"
  },
  "scaStatus": "Started",
  "psuMessage": "Starta BankID-appen."
}
```

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HTTP response header

Attribute	Type	Description
X-Request-Id	string	Unique ID of the request as determined by the initiating party.
ASPSP-SCA-Approach	string	Possible values: · DECOUPLED

Response parameters description:

Name	Type	Description
_links	object	A list of hyperlinks to be recognised by the TPP.

Parameters of _links object:

scaStatus	string	The link to retrieve the scaStatus of the corresponding authorisation sub-resource.
scaStatus	string	The status of the SCA routine.
psuMessage	string	Text to be displayed to the PSU.
chosenScaMethod	object	The chosen SCA method as sent in the request body in the call.

4.4 READ THE SCA STATUS OF THE CONSENT AUTHORISATION

This example returns the SCA status of a consent initiation's authorisation sub-resource.

The method is GET at:

[https://api-](https://api-sandbox.openbanking.marginalen.se/aisp/v1/consents/{consentId}/authorisations/{authorisationId})

[sandbox.openbanking.marginalen.se/aisp/v1/consents/{consentId}/authorisations/{authorisationId}](https://api-sandbox.openbanking.marginalen.se/aisp/v1/consents/{consentId}/authorisations/{authorisationId})

HTTP request header

Attribute	Type	Description
Authorization	string	Access token.
X-Request-Id	string	Unique ID of the request as determined by the initiating party.
Digest	string	Is contained if and only if the "Signature" element is contained in the header of the request.
Signature	string	A signature of the request by the TPP on application level.
TPP-Signature-Certificate	string	The certificate used for signing the request, in base64 encoding. Must be contained if a signature is contained.
Date	string	Date in RFC 1123 date format.

Response body:

```
{
  "scaStatus": "Finalised"
}
```

HTTP response header

Attribute	Type	Description
X-Request-Id	string	Unique ID of the request as determined by the initiating party.

Response parameters description:

Name	Type	Description
scaStatus	string	The status of the SCA routine.

4.5 GET CONSENT REQUEST

This example returns detailed information about the consent object.

The method is GET at: <https://api-sandbox.openbanking.marginalen.se/aisp/v1/consents/{consentId}>

HTTP request header

Attribute	Type	Description
Authorization	string	Access token.
X-Request-Id	string	Unique ID of the request as determined by the initiating party.
Digest	string	Is contained if and only if the "Signature" element is contained in the header of the request.
Signature	string	A signature of the request by the TPP on application level.
TPP-Signature-Certificate	string	The certificate used for signing the request, in base64 encoding. Must be contained if a signature is contained.
Date	string	Date in RFC 1123 date format.

Response body:

```
{
  "access": {
    "accounts": [],
    "balances": [],
    "transactions": [],
    "allPsd2": "allAccounts"
  },
  "recurringIndicator": true,
  "validUntil": "2019-10-10T11:00:00.583Z",
  "frequencyPerDay": 100,
  "lastActionDate": "2019-09-24T08:49:18.361Z",
  "consentStatus": "valid"
}
```

HTTP response header

Attribute	Type	Description
X-Request-Id	string	Unique ID of the request as determined by the initiating party.

Response parameters description:

Name	Type	Description
access	object	Requested access services for the consent.

Parameters of access object:

Name	Type	Description
accounts	list	List of accounts with detailed account information for which an access is granted.
balances	list	List of accounts with balances information for which an access is granted.
transactions	list	List of accounts with transactions information for which an access is granted.
availableAccounts	string	Request access to basic accounts' information for all accounts of the PSU on all PSD2 related account information services.
availableAccountsWithBalance	string	Request access to accounts with balances for all accounts of the PSU on all PSD2 related account information services.
allPsd2	string	Request access for all available accounts of the PSU on all PSD2 related account information services.
recurringIndicator	boolean	If the consent is for recurring access to the account data, this attribute is set to "true".
validUntil	string	Validity date of the consent.
frequencyPerDay	integer	Defines maximum frequency for an access per day.
lastActionDate	string	Date of last action on the consent object.
consentStatus	string	Status of the consent

4.6 DELETE CONSENT REQUEST

This example deletes a consent object.

The method is DELETE at:

<https://api-sandbox.openbanking.marginalen.se/aisp/v1/consents/{consentId}>

HTTP request header

Attribute	Type	Description
Authorization	string	Access token.
X-Request-Id	string	Unique ID of the request as determined by the initiating party.
Digest	string	Is contained if and only if the "Signature" element is contained in the header of the request.
Signature	string	A signature of the request by the TPP on application level.
TPP-Signature-Certificate	string	The certificate used for signing the request, in base64 encoding. Must be contained if a signature is contained.
Date	string	Date in RFC 1123 date format.

Deleting a consent sets the status to "terminatedByTpp" and this consent object can no longer be used (consent expired).

HTTP response header

Attribute	Type	Description
X-Request-Id	string	Unique ID of the request as determined by the initiating party.

4.7 GET CONSENT STATUS REQUEST

Once the consent is generated and confirmed on Consent Manager, now the status of the consent should be changed from "received" to "valid".

This example checks the consent's resource status.

The method is GET at:

<https://api-sandbox.openbanking.marginalen.se/aisp/v1/consents/{consentId}/status>

HTTP request header

Attribute	Type	Description
Authorization	string	Access token
X-Request-Id	string	Unique ID of the request as determined by the initiating party.
Digest	string	Is contained if and only if the "Signature" element is contained in the header of the request.
Signature	string	A signature of the request by the TPP on application level.
TPP-Signature-Certificate	string	The certificate used for signing the request, in base64 encoding. Must be contained if a signature is contained.
Date	string	Date in RFC 1123 date format.

Response body:

```
{
  "consentStatus": "valid"
}
```

HTTP response header

Attribute	Type	Description
X-Request-Id	string	Unique ID of the request as determined by the initiating party.

Response parameters description:

Name	Type	Description
consent	Status string	Status of the consent.

4.8 CREATING CONSENT FOR A SPECIFIC LIST OF ACCOUNTS

This example grants access to dedicated accounts' balances and transactions.

Request body:

```
{
  "access": {
    "accounts": [
      {
        "bban": "92384036254"
      }
    ],
    "balances": [
      {
        "bban": "92350752216"
      }
    ],
    "transactions": [
      {
        "bban": "92361758679"
      }
    ]
  },
  "recurringIndicator": true,
  "frequencyPerDay": 100,
  "validUntil": "2019-10-10T11:00:00.583Z",
  "combinedServiceIndicator": true
}
```

Request parameters description:

Name	Type	Description
access	object	Requested access services for the consent.

Parameters of access object:

accounts	list	List of accounts with detailed account information for which an access is granted.
balances	list	List of accounts with balances information for which an access is granted.
transactions l	ist	List of accounts with transactions information for which an access is granted.

Parameters of accounts, balances and transactions lists:

bban	string	Basic Bank Account Number (BBAN) Identifier.
availableAccounts	string	Request access to basic accounts' information for all accounts of the PSU on all PSD2 related account information services.
availableAccountsWithBalance	string	Request access to accounts with balances for all accounts of the PSU on all PSD2 related account information services.
allPsd2	string	Request access for all available accounts of the PSU on all PSD2 related account information services.
recurringIndicator	boolean	If the consent is for recurring access to the account data, is set to "true".
validUntil	string	Validity date of the consent.
frequencyPerDay	integer	Defines maximum frequency for an access per day.
combinedServiceIndicator	boolean l	ndicates that a payment initiation service will be addressed in the same "session".

5. ACCOUNTS ENDPOINT EXAMPLES

5.1 READ ACCOUNT LIST REQUEST

This example returns a list of all accounts for which a consent is granted.

The method is GET at: <https://api-sandbox.openbanking.marginalen.se/aisp/v1/accounts>

An optional query parameter "withBalance" can be added which if set to "true" returns the balances of the accounts for which such consent is given.

HTTP request header

Attribute	Type	Description
Authorization	string	Access token.
X-Request-Id	string	Unique ID of the request as determined by the initiating party.
Consent-Id	string	ID of the corresponding consent object.
Digest	string	Is contained if and only if the "Signature" element is contained in the header of the request.
Signature	string	A signature of the request by the TPP on application level.
TPP-Signature-Certificate	string	The certificate used for signing the request, in base64 encoding. Must be contained if a signature is contained.
Date	string	Date in RFC 1123 date format.

Response body:

```
{
  "accounts": [
    {
      "resourceId": "92384036254",
      "iban": "SE179230000092384036254",
      "bban": "92384036254",
      "currency": "SEK",
      "product": "Fasträntekonto 12 M",
      "status": "enabled",
      "bic": "MARGSES1",
      "usage": "PRIV",
      "details": "",
      "balances": [],
      "_links": {}
    },
    {
      "resourceId": "92350752216",
      "iban": "SE309230000092350752216",
      "bban": "92350752216",
      "currency": "SEK",
      "product": "Fasträntekonto 24 M",
      "status": "enabled",
      "bic": "MARGSES1",
      "usage": "PRIV",
      "details": "",
      "balances": [],
      "_links": {
        "balances": "https://api-sandbox.openbanking.marginalen.se/aisp/v1/accounts/92350752216/balances"
      }
    },
    {
      "resourceId": "92361758679",
      "iban": "SE649230000092361758679",
      "bban": "92361758679",
      "currency": "SEK",
      "product": "Fasträntekonto 36 M",
      "status": "enabled",
      "bic": "MARGSES1",
      "usage": "PRIV",
      "details": "",
      "balances": [],
      "_links": {
        "transactions": "https://api-sandbox.openbanking.marginalen.se/aisp/v1/accounts/92361758679/transactions"
      }
    }
  ]
}
```

HTTP response header

Attribute	Type	Description
X-Request-Id	string	Unique ID of the request as determined by the initiating party.

Response parameters description:

Name	Type	Description
accounts	list	List of accounts.

Parameters of accounts list:

resourceId	string	Data element used in the path when retrieving data from a dedicated account.
iban	string	International Bank Account Number.
bban	string	Basic Bank Account Number.
currency	string	Account currency.
name	string	Name of the account given by the bank or the PSU in Online-Banking.
product	string	Product Name of the Bank for this account, proprietary definition.
status	string	Account status.
bic	string	The BIC associated to the account.
usage	string	Specifies the usage of the account.
details	string	Specifications that might be provided by Marginalen Bank.
balances	list	A list of balances regarding this account.
_links	object	Links to the account, which can be directly used for retrieving account information from this dedicated account.

5.2 READ ACCOUNT DETAILS REQUEST

This example returns detailed information for an account specified by "accountId". As an ID the "resourceId" attribute value is used.

An optional query parameter "withBalance" can be added which if set to "true" returns the balances for the account if the consent grants access for balances, too.

The method is GET at: <https://api-sandbox.openbanking.marginalen.se/aisp/v1/accounts/{accountId}>

HTTP request header

Attribute	Type	Description
Authorization	string	Access token.
X-Request-Id	string	Unique ID of the request as determined by the initiating party.
Consent-Id	string	ID of the corresponding consent object.
Digest	string	Is contained if and only if the "Signature" element is contained in the header of the request.
Signature	string	A signature of the request by the TPP on application level.
TPP-Signature-Certificate	string	The certificate used for signing the request, in base64 encoding. Must be contained if a signature is contained.
Date	string	Date in RFC 1123 date format.

Response body:

```
{
  "account": {
    "resourceId": "92384036254",
    "iban": "SE179230000092384036254",
    "bban": "92384036254",
    "currency": "SEK",
    "product": "Fasträntekonto 12 M",
    "status": "enabled",
    "bic": "MARGSES1",
    "usage": "PRIV",
```

```

    "details": "",
    "balances": [],
    "_links": {
      "balances": "https://api-
sandbox.openbanking.marginalen.se/aisp/v1/accounts/92384036254/balances",
      "transactions": "https://api-
sandbox.openbanking.marginalen.se/aisp/v1/accounts/92384036254/transactions"
    }
  }
}

```

HTTP response header

Attribute	Type	Description
X-Request-Id	string	Unique ID of the request as determined by the initiating party.

Response parameters description:

Name	Type	Description
account	object	Account details.

Parameters of account object:

resourceId	string	Data element used in the path when retrieving data from a dedicated account.
iban	string	International Bank Account Number.
bban	string	Basic Bank Account Number.
currency	string	Account currency.
product	string	Product Name of the Bank for this account, proprietary definition.
status	string	Account status.
bic	string	The BIC associated to the account.
usage	string	Specifies the usage of the account.
details	string	Specifications that might be provided by Marginalen Bank.
balances	list	A list of balances regarding this account.
_links	object	Links to the account, which can be directly used for retrieving account information from this dedicated account.

5.3 READ BALANCE REQUEST

This example returns balances for a dedicated account specified with "accountId". As an ID the "resourceId" attribute value is used.

The method is GET at:

<https://api-sandbox.openbanking.marginalen.se/aisp/v1/accounts/{accountId}/balances>

HTTP request header

Attribute	Type	Description
Authorization	string	Access token.
X-Request-Id	string	Unique ID of the request as determined by the initiating party.
Consent-Id	string	ID of the corresponding consent object.
Digest	string	Is contained if and only if the "Signature" element is contained in the header of the request.
Signature	string	A signature of the request by the TPP on application level.
TPP-Signature-Certificate	string	The certificate used for signing the request, in base64 encoding. Must be contained if a signature is contained.
Date	string	Date in RFC 1123 date format.

Response body:

```
{
  "account": {
    "bban": "02384036254",
    "currency": "SEK"
  },
  "balances": [
    {
      "balanceAmount": {
        "currency": "SEK",
        "amount": "1122.0"
      },
      "balanceType": "interimAvailable",
      "creditLimitIncluded": false,
      "lastChangeDateTime": "2019-09-05T09:23:07.375Z"
    },
    {
      "balanceAmount": {
        "currency": "SEK",
        "amount": "0.0"
      },
      "balanceType": "nonInvoiced",
      "creditLimitIncluded": false,
      "lastChangeDateTime": "2019-09-05T09:23:07.375Z"
    }
  ]
}
```

HTTP response header

Attribute	Type	Description
X-Request-Id	string	Unique ID of the request as determined by the initiating party.

Response parameters description:

Name	Type	Description
account	object	Account details.
Parameters of account object:		
bban	string	Basic Bank Account Number
balances	list	List of balances
Parameters of balances list:		
balanceAmount	object	A single balance element
Parameters of balanceAmount object:		
currency	string	ISO 4217 Alpha 3 currency code
amount	string	The amount.
balanceType	string	The type of balance.
creditLimitIncluded	boolean	A flag indicating if the credit limit of the corresponding account is included in the calculation of the balance, where applicable.
lastChangeDateTime	string	This data element might be used to indicate e.g. with the expected or booked balance that no action is known on the account, which is not yet booked.

5.4 READ TRANSACTION LIST

This example returns the account data from a given account addressed by "accountId".

The method is GET at:

<https://apisandbox.openbanking.marginalen.se/aisp/v1/accounts/{accountId}/transactions?bookingStatus=booked>

The "bookingStatus" query parameter with value "booked" is mandatory. Other possible values are "pending" and "both" and these are optional.

HTTP request header

Attribute	Type	Description
Authorization	string	Access token.
X-Request-Id	string	Unique ID of the request as determined by the initiating party.
Consent-Id	string	ID of the corresponding consent object.
Digest	string	Is contained if and only if the "Signature" element is contained in the header of the request.
Signature	string	A signature of the request by the TPP on application level.
TPP-Signature-Certificate	string	The certificate used for signing the request, in base64 encoding. Must be contained if a signature is contained.
Date	string	Date in RFC 1123 date format.

Response body:

```
{
  "account": {
    "bban": "92384036254",
    "currency": "SEK"
  },
  "transactions": {
    "booked": [
      {
        "transactionId": "5d78ec8b7e6c3e2dcf54279e",
        "bookingDate": "2019-09-11",
        "valueDate": "2019-09-11",
        "transactionAmount": {
          "currency": "SEK",
          "amount": "1.0"
        },
        "creditorName": "testing linux",
        "creditorAccount": {
          "bban": "92384036254"
        },
        "debtorAccount": {
          "bban": "92320872078"
        }
      },
      {
        "transactionId": "5d89f6867e6c3e2dcf55a23b",
        "bookingDate": "2019-09-24",
        "valueDate": "2019-09-24",
        "transactionAmount": {
          "currency": "SEK",
          "amount": "78.0"
        },
        "creditorName": "testing sandbox",
        "creditorAccount": {
          "bban": "92384036254"
        },
        "debtorAccount": {
          "bban": "92307490663"
        }
      },
      {
        "transactionId": "5d89fd16cc810536079bec31",
        "bookingDate": "2019-09-24",
        "valueDate": "2019-09-24",
        "transactionAmount": {
          "currency": "SEK",
          "amount": "78.0"
        },
        "creditorName": "testing sca flows giro",
        "creditorAccount": {
          "bban": "92384036254"
        },
        "debtorAccount": {
          "bban": "92307490663"
        }
      }
    ],
    "pending": [],
    "links": {
      "first": "https://api-sandbox.openbanking.marginalen.se/aisp/v1/accounts/92384036254/transactions?bookingStatus=b oth"
    }
  }
}
```

HTTP response header

Attribute	Type	Description
X-Request-Id	string	Unique ID of the request as determined by the initiating party.

Response parameters description:

Name	Type	Description
account	object	Account details.

Parameters of account object:

currency	string	Account currency
transactions	object	Array of transactions.

Parameters of transactions object:

transactionId	string	ID of the transaction.
bookingDate	string	The Date when an entry is posted to an account on the books at Marginalen Bank.
valueDate	date	The date at which assets become available to the account owner in case of a credit.

Parameters of transactionAmount object:

currency	string	ISO 4217 Alpha 3 currency code.
amount	string	The amount.
creditorName	string	Name of the creditor if a "Debited" transaction.
creditorAccount	object	Account of the creditor.
debtorAccount	object	Account of the debtor.

5.5 READ TRANSACTION DETAILS

This example returns transaction details from a given transaction addressed by "transactionId" on a given account addressed by "accountId".
The method is GET at:

<https://apisandbox.openbanking.marginalen.se/aisp/v1/accounts/{accountId}/transactions/{transactionId}>

HTTP request header

Attribute	Type	Description
Authorization	string	Access token.
X-Request-Id	string	Unique ID of the request as determined by the initiating party.
Consent-Id	string	ID of the corresponding consent object.
Digest	string	Is contained if and only if the "Signature" element is contained in the header of the request.
Signature	string	A signature of the request by the TPP on application level.
TPP-Signature-Certificate	string	The certificate used for signing the request, in base64 encoding. Must be contained if a signature is contained.
Date	string	Date in RFC 1123 date format.

Response body:

```
{
  "transactionDetails": {
    "transactionId": "5d78ec8b7e6c3e2dcf54279e",
    "bookingDate": "2019-09-11",
    "valueDate": "2019-09-11",
    "transactionAmount": {
      "currency": "SEK",
      "amount": "1.0"
    },
    "creditorName": "testing linux",
    "creditorAccount": {
      "bban": "92384036254"
    },
    "debtorAccount": {
      "bban": "92320872078"
    }
  }
}
```

```
}
}
```

HTTP response header

Attribute	Type	Description
X-Request-Id	string	Unique ID of the request as determined by the initiating party.

Response parameters are as described in section 5.4.

6. CARD-ACCOUNTS ENDPOINT EXAMPLES

6.1 READ CARD ACCOUNT LIST REQUEST

This example returns a list of card accounts to which an account access has been granted to through the consents endpoint by the PSU.

The method is GET at: <https://api-sandbox.openbanking.marginalen.se/aisp/v1/card-accounts>

HTTP request header

Attribute	Type	Description
Authorization	string	Access token
X-Request-Id	string	Unique ID of the request as determined by the initiating party.
Consent-Id	string	ID of the corresponding consent object.
Digest	string	Is contained if and only if the "Signature" element is contained in the header of the request.
Signature	string	A signature of the request by the TPP on application level.
TPP-Signature-Certificate	string	The certificate used for signing the request, in base64 encoding. Must be contained if a signature is contained.
Date	string	Date in RFC 1123 date format.

Response body:

```
{
  "cardAccounts": [
    {
      "resourceId": "5d70d3fb0a92bc05893afec2",
      "maskedPan": "504*****074",
      "currency": "SEK",
      "name": "",
      "product": "Marginalen Traveller",
      "status": "enabled",
      "usage": "PRIV",
      "details": "",
      "creditLimit": {
        "currency": "SEK",
        "amount": "20000.0"
      },
      "balances": [
        {
          "balanceAmount": {
            "currency": "SEK",
            "amount": "0.0"
          },
          "balanceType": "interimAvailable",
          "creditLimitIncluded": false,
          "lastChangeDateTime": "2019-09-05T09:23:07.376Z"
        },
        {
          "balanceAmount": {
            "currency": "SEK",
            "amount": "0.0"
          },
          "balanceType": "nonInvoiced",
          "creditLimitIncluded": false,
          "lastChangeDateTime": "2019-09-05T09:23:07.376Z"
        }
      ],
      "links": {
        "balances": "https://api-sandbox.openbanking.marginalen.se/aisp/v1/cardaccounts/5d70d3fb0a92bc05893afec2/balances",
        "transactions": "https://api-sandbox.openbanking.marginalen.se/aisp/v1/cardaccounts/5d70d3fb0a92bc05893afec2/transactions"
      }
    },
    {
      "resourceId": "5d70d3fb0a92bc05893afec3",
      "maskedPan": "209*****731",
```

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```
"currency": "SEK",
"name": "",
"product": "Marginalen Hammarby",
"status": "enabled",
"usage": "PRIV",
"details": "",
"creditLimit": {
  "currency": "SEK",
  "amount": "30000.0"
},
"balances": [
  {
    "balanceAmount": {
      "currency": "SEK",
      "amount": "0.0"
    },
    "balanceType": "interimAvailable",
    "creditLimitIncluded": false,
    "lastChangeDateTime": "2019-09-05T09:23:07.377Z"
  },
  {
    "balanceAmount": {
      "currency": "SEK",
      "amount": "0.0"
    },
    "balanceType": "nonInvoiced",
    "creditLimitIncluded": false,
    "lastChangeDateTime": "2019-09-05T09:23:07.377Z"
  }
],
"links": {
  "balances": "https://api-sandbox.openbanking.marginalen.se/aisp/v1/cardaccounts/5d70d3fb0a92bc05893afec3/balances",
  "transactions": "https://api-sandbox.openbanking.marginalen.se/aisp/v1/cardaccounts/5d70d3fb0a92bc05893afec3/transactions"
}
}
]
```

HTTP response header

Attribute	Type	Description
X-Request-Id	string	Unique ID of the request as determined by the initiating party.

Response parameters description:

Name	Type	Description
cardAccounts	list	List of card accounts

Parameters of cardAccounts list:

resourceId	string	Data element used in the path when retrieving data from a dedicated account
maskedPan	string	Primary Account Number (PAN) of a card in a masked form.
currency	string	ISO 4217 Alpha 3 currency code
name	string	Name of the account given by the bank or the PSU in online-banking.
product	string	Product Name of the Bank for this account, proprietary definition
status	string	Account status.
usage	string	Specifies the usage of the account
details	string	Specifications that might be provided by Marginalen Bank.
creditLimit	object	Defines the credit limit of the PSU for all cards related to this card account in total.

Parameters of creditLimit object:

currency	string	ISO 4217 Alpha 3 currency code
amount	string	The amount.
balances	list	The specific card account balances associated to the card accounts.
_links	object	Links to the account, which can be directly used for retrieving account information from the account.

6.2 READ CARD ACCOUNTS DETAILS REQUEST

This method returns details about a card account.

The method is get at: <https://api-sandbox.openbanking.marginalen.se/aisp/v1/card-accounts/{accountId}>

HTTP request header

Attribute	Type	Description
Authorization	string	Access token
X-Request-Id	string	Unique ID of the request as determined by the initiating party.
Consent-Id	string	ID of the corresponding consent object.
Digest	string	Is contained if and only if the "Signature" element is contained in the header of the request.
Signature	string	A signature of the request by the TPP on application level.
TPP-Signature-Certificate	string	The certificate used for signing the request, in base64 encoding. Must be contained if a signature is contained.
Date	string	Date in RFC 1123 date format.

Response body:

```
{
  "resourceId": "5d70d3fb0a92bc05893afec2",
  "maskedPan": "504*****074",
  "currency": "SEK",
  "name": "",
  "product": "Marginalen Traveller",
  "status": "enabled",
  "usage": "PRIV",
  "details": "",
  "creditLimit": {
    "currency": "SEK",
    "amount": "20000.0"
  },
  "balances": [
    {
      "balanceAmount": {
        "currency": "SEK",
        "amount": "0.0"
      },
      "balanceType": "interimAvailable",
      "creditLimitIncluded": false,
      "lastChangeDateTime": "2019-09-05T09:23:07.376Z"
    },
    {
      "balanceAmount": {
        "currency": "SEK",
        "amount": "0.0"
      },
      "balanceType": "nonInvoiced",
      "creditLimitIncluded": false,
      "lastChangeDateTime": "2019-09-05T09:23:07.376Z"
    }
  ],
  "_links": {
    "balances": "https://api-sandbox.openbanking.marginalen.se/aisp/v1/cardaccounts/5d70d3fb0a92bc05893afec2/balances",
    "transactions": "https://api-sandbox.openbanking.marginalen.se/aisp/v1/cardaccounts/5d70d3fb0a92bc05893afec2/transactions"
  }
}
```

HTTP response header

Attribute	Type	Description
X-Request-Id	string	Unique ID of the request as determined by the initiating party.

Response parameters are as described in section 6.1.

6.3 READ CARD BALANCE REQUEST

This method returns balance information for a given card account addressed by "accountId".

The method is GET at:

<https://api-sandbox.openbanking.marginalen.se/aisp/v1/card-accounts/{accountId}/balances>

HTTP request header

Attribute	Type	Description
Authorization	string	Access token
X-Request-Id	string	Unique ID of the request as determined by the initiating party.
Consent-Id	string	ID of the corresponding consent object.
Digest	string	Is contained if and only if the "Signature" element is contained in the header of the request.
Signature	string	A signature of the request by the TPP on application level.
TPP-Signature-Certificate	string	The certificate used for signing the request, in base64 encoding. Must be contained if a signature is contained.
Date	string	Date in RFC 1123 date format.

Response body:

```
{
  "cardAccount": {
    "maskedPan": "504*****074"
  },
  "balances": [
    {
      "balanceAmount": {
        "currency": "SEK",
        "amount": "0.0"
      },
      "balanceType": "interimAvailable",
      "creditLimitIncluded": false,
      "lastChangeDateTime": "2019-09-05T09:23:07.376Z"
    },
    {
      "balanceAmount": {
        "currency": "SEK",
        "amount": "0.0"
      },
      "balanceType": "nonInvoiced",
      "creditLimitIncluded": false,
      "lastChangeDateTime": "2019-09-05T09:23:07.376Z"
    }
  ]
}
```

HTTP response header

Attribute	Type	Description
X-Request-Id	string	Unique ID of the request as determined by the initiating party.

Response parameters description:

Name	Type	Description
cardAccount	object	Identifier of the addressed card account.

Parameters of cardAccount object:

bban	string	Basic Bank Account Number
maskedPan	string	Primary Account Number (PAN) of a card in a masked form.
balances	list	List of balances for the addressed card account.

6.4 READ CARD TRANSACTION LIST REQUEST

This example returns account data from a given card account addressed by “accountId” and “bookingStatus” query parameter set to “booked”.

The “bookingStatus” query parameter with value “booked” is mandatory. Other possible values are “pending” and “both” and these are optional.

The method is GET at:

<https://api-sandbox.openbanking.marginalen.se/aisp/v1/cardaccounts/{accountId}/transactions?bookingStatus=booked>

HTTP request header

Attribute	Type	Description
Authorization	string	Access token
X-Request-Id	string	Unique ID of the request as determined by the initiating party.
Consent-Id	string	ID of the corresponding consent object.
Digest	string	Is contained if and only if the “Signature” element is contained in the header of the request.
Signature	string	A signature of the request by the TPP on application level.
TPP-Signature-Certificate	string	The certificate used for signing the request, in base64 encoding. Must be contained if a signature is contained.
Date	string	Date in RFC 1123 date format.

Response body:

```
{
  "cardAccount": {
    "maskedPan": "504*****074"
  },
  "transactions": {
    "booked": [
      {
        "cardTransactionId": "5d70d3fb0a92bc05893afec6",
        "transactionDate": "2019-09-05",
        "bookingDate": "2019-09-05",
        "transactionAmount": {
          "currency": "SEK",
          "amount": "999.15"
        },
        "cardAcceptorAddress": {
          "city": "Stockholm",
          "country": "SE"
        },
        "maskedPAN": "504*****074",
        "transactionDetails": "7-Eleven",
        "invoiced": true,
        "proprietaryBankTransactionCode": "PURCHASE"
      },
      {
        "cardTransactionId": "5d70d3fb0a92bc05893afec7",
        "transactionDate": "2019-09-05",
        "bookingDate": "2019-09-05",
        "transactionAmount": {
          "currency": "SEK",
          "amount": "12553.67"
        },
        "cardAcceptorAddress": {
          "city": "Stockholm",
          "country": "SE"
        },
        "maskedPAN": "504*****074",
        "transactionDetails": "7-Eleven",
        "invoiced": true,
        "proprietaryBankTransactionCode": "PURCHASE"
      },
      {
        "cardTransactionId": "5d70d3fb0a92bc05893afec8",
```


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```
"transactionDate": "2019-09-05",
"bookingDate": "2019-09-05",
"transactionAmount": {
  "currency": "SEK",
  "amount": "704.63"
},
"cardAcceptorAddress": {
  "city": "Stockholm",
  "country": "SE"
},
"maskedPAN": "504*****074",
"transactionDetails": "7-Eleven",
"invoiced": true,
"proprietaryBankTransactionCode": "PURCHASE"
},
{
  "cardTransactionId": "5d70d3fb0a92bc05893afec9",
  "transactionDate": "2019-09-05",
  "bookingDate": "2019-09-05",
  "transactionAmount": {
    "currency": "SEK",
    "amount": "1405.45"
  },
  "cardAcceptorAddress": {
    "city": "Stockholm",
    "country": "SE"
  },
  "maskedPAN": "504*****074",
  "transactionDetails": "7-Eleven",
  "invoiced": true,
  "proprietaryBankTransactionCode": "PURCHASE"
},
{
  "cardTransactionId": "5d70d3fb0a92bc05893afeca",
  "transactionDate": "2019-09-05",
  "bookingDate": "2019-09-05",
  "transactionAmount": {
    "currency": "SEK",
    "amount": "1836.19"
  },
  "cardAcceptorAddress": {
    "city": "Stockholm",
    "country": "SE"
  },
  "maskedPAN": "504*****074",
  "transactionDetails": "7-Eleven",
  "invoiced": true,
  "proprietaryBankTransactionCode": "PURCHASE"
},
{
  "cardTransactionId": "5d70d3fb0a92bc05893afecb",
  "transactionDate": "2019-09-05",
  "bookingDate": "2019-09-05",
  "transactionAmount": {
    "currency": "SEK",
    "amount": "64.55"
  },
  "cardAcceptorAddress": {
    "city": "Stockholm",
    "country": "SE"
  },
  "maskedPAN": "504*****074",
  "transactionDetails": "7-Eleven",
  "invoiced": true,
  "proprietaryBankTransactionCode": "PURCHASE"
},
{
  "cardTransactionId": "5d70d3fb0a92bc05893afecc",
```

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```
"transactionDate": "2019-09-05",
"bookingDate": "2019-09-05",
"transactionAmount": {
  "currency": "SEK",
  "amount": "15740.31"
},
"cardAcceptorAddress": {
  "city": "Stockholm",
  "country": "SE"
},
"maskedPAN": "504*****074",
"transactionDetails": "7-Eleven",
"invoiced": true,
"proprietaryBankTransactionCode": "PURCHASE"
},
{
  "cardTransactionId": "5d70d3fb0a92bc05893afecd",
  "transactionDate": "2019-09-05",
  "bookingDate": "2019-09-05",
  "transactionAmount": {
    "currency": "SEK",
    "amount": "5762.82"
  },
  "cardAcceptorAddress": {
    "city": "Stockholm",
    "country": "SE"
  },
  "maskedPAN": "504*****074",
  "transactionDetails": "7-Eleven",
  "invoiced": true,
  "proprietaryBankTransactionCode": "PURCHASE"
},
{
  "cardTransactionId": "5d70d3fb0a92bc05893afece",
  "transactionDate": "2019-09-05",
  "bookingDate": "2019-09-05",
  "transactionAmount": {
    "currency": "SEK",
    "amount": "4514.26"
  },
  "cardAcceptorAddress": {
    "city": "Stockholm",
    "country": "SE"
  },
  "maskedPAN": "504*****074",
  "transactionDetails": "7-Eleven",
  "invoiced": true,
  "proprietaryBankTransactionCode": "PURCHASE"
},
{
  "cardTransactionId": "5d70d3fb0a92bc05893afecf",
  "transactionDate": "2019-09-05",
  "bookingDate": "2019-09-05",
  "transactionAmount": {
    "currency": "SEK",
    "amount": "2676.68"
  },
  "cardAcceptorAddress": {
    "city": "Stockholm",
    "country": "SE"
  },
  "maskedPAN": "504*****074",
  "transactionDetails": "7-Eleven",
  "invoiced": true,
  "proprietaryBankTransactionCode": "PURCHASE"
}
],
"pending": [],
"_links": {
  "first": "https://api-
sandbox.openbanking.marginalen.se/aisp/v1/accounts/5d70d3fb0a92bc05893afec2/
transactions?bookingStatus=both"
}
}
}
```

HTTP response header

Attribute	Type	Description
X-Request-Id	string	Unique ID of the request as determined by the initiating party.

Response parameters description:

Name	Type	Description
cardAccount	object	Identifier of the addressed card account.
transactions	object	Array of transactions for the card accounts

Parameters of transactions object

cardTransactionId	string	Unique end to end identity.
terminalId	string	Identification of the Terminal, where the card has been used.
transactionDate	string	Date of the actual card transaction.
bookingDate	string	Booking date of the related booking on the card account.
transactionAmount	object	The amount of the transaction as billed to the card account.
exchangeRate	string	For card accounts, only one exchange rate is used.
originalAmount	string	Original amount of the transaction at the Point of Interaction in original currency.
markupFee	string	Any fee related to the transaction in billing currency.
markupFeePercentage	string	Percentage of the involved transaction fee in relation to the billing amount.
cardAcceptorId	string	Identification of the Card Acceptor (e.g. merchant) as given in the related card transaction.
cardAcceptorAddress	object	Address of the Card Acceptor as given in the related card transaction.
cardAcceptorCategoryCode	string	Card Acceptor Category Code of the Card Acceptor as given in the related card transaction.
maskedPAN	string	The masked PAN of the card used in the transaction.
transactionDetails	string	Additional details given for the related card transactions.
invoiced	boolean	Flag indicating whether the underlying card transaction is already invoiced.
proprietaryBankTransactionCode	string	Proprietary bank transaction code as used within a community or within Marginalen Bank.
balances	list	List of balances for the card accounts.
_links	list	A list of hyperlinks to be recognised by the TPP.

7. PAYMENTS ENDPOINT EXAMPLES

The following API calls are examples of Swedish domestic credit transfers type of payment product. Another supported type of payment product is Swedish domestic giro payments. Essentially the API calls differ only in the URLs for all but the payment initiation request. An example of the payment initiation request using Swedish domestic giro payment is given at section 7.8.

7.1 PAYMENT INITIATION REQUEST

This example creates a payment initiation request at Marginalen Bank for a Swedish domestic credit transfer type of payment product. The chosen SCA approach in this example is explicit decoupled.

The method is POST at:

<https://api-sandbox.openbanking.marginalen.se/pisp/v1/payments/swedish-domestic-creditransfers>

HTTP request header

Attribute	Type	Description
Content-Type		application/json
Authorization	string	Access token
X-Request-Id	string	Unique ID of the request as determined by the initiating party.
PSU-ID	string	Client ID of the PSU at Marginalen Bank client interface.
PSU-IP-Address	string	The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP.
Digest	string	Is contained if and only if the "Signature" element is contained in the header of the request.
Signature	string	A signature of the request by the TPP on application level.
TPP-Signature-Certificate	string	The certificate used for signing the request, in base64 encoding. Must be contained if a signature is contained.
Date	string	Date in RFC 1123 date format.

Additional HTTP request parameter for payment initiation is needed which defines the authorisation preference for the payment initiation request.

HTTP request header

Attribute	Type	Description
TPP-ExplicitAuthorisation-Preferred	boolean	If it equals "true", the TPP prefers to start the authorisation process separately. If it equals "false" or if the parameter is not used, there is no preference of the TPP. This especially indicates that the TPP assumes a direct authorisation of the transaction in the next step.

In the example this parameter is set to "true" implying explicit decoupled SCA approach:

Request body:

```
{
  "remittanceInformationUnstructured": "unstructured remittance",
  "debtorAccount": {
    "bban": "92329115652"
  },
  "instructedAmount": {
    "currency": "SEK",
    "amount": "78"
  },
  "creditorAccount": {
    "bban": "92343333530"
  },
  "creditorName": "Testing sandbox",
  "requestedExecutionDate": "2019-09-24"
}
```

Request parameter description:

Name	Type	Description
remittanceInformationUnstructured	string	Unstructured remittance information
debtorAccount	object	Account of the debtor identified with BBAN.
instructedAmount	object	The amount for the payment
creditorAccount	object	Account of the creditor identified with BBAN.
creditorName	string	Name of the creditor.

Response body:

```
{
  "transactionStatus": "RCVD",
  "paymentId": "5d8a32e41b42612a37ed65f0",
  "transactionFeeIndicator": false,
  "_links": {
    "startAuthorisationWithPsuIdentification": "https://apisandbox.openbanking.marginalen.se/pisp/v1/payments/swedish-domestic-credittransfers/5d8a32e41b42612a37ed65f0/authorisations",
    "self": "https://api-sandbox.openbanking.marginalen.se/pisp/v1/payments/swedish-domesticcredit-transfers/5d8a32e41b42612a37ed65f0",
    "status": "https://api-sandbox.openbanking.marginalen.se/pisp/v1/payments/swedishdomestic-credit-transfers/5d8a32e41b42612a37ed65f0/status"
  }
}
```

HTTP response header

Attribute	Type	Description
X-Request-Id	string	Unique ID of the request as determined by the initiating party.
Location	string	Location of the created resource (if created).
ASPSP-SCA-Approach	string	Possible values: · DECOUPLED

Response parameters description:

Name	Type	Description
transactionStatus	string	The status of the transaction.
paymentId	string	Resource identification of the generated payment initiation resource.
transactionFeeIndicator	boolean	If equals true, the transaction will involve specific transaction cost as shown by Marginalen Bank in its public price list or as agreed between Marginalen Bank and PSU. If equals false, the transaction will not involve additional specific transaction costs to the PSU.
_links	object	A list of hyperlinks to be recognised by the TPP.
Parameters of _links object:		
startAuthorisationWithPsuIdentification	string	The link to the authorisation end-point, where the authorisation sub-resource has to be generated while uploading the PSU identification data.
self	string	The link to the payment resource created by this request. This link can be used to retrieve the resource data.
status	string	The link to retrieve the status of the payment resource.

7.2 START THE AUTHORISATION PROCESS FOR A PAYMENT INITIATION

This example create an authorisation sub-resource and start the authorisation process for the payment initiation request from the previous example.

The method is POST with empty body at:

<https://api-sandbox.openbanking.marginalen.se/pisp/v1/payments/swedish-domestic-credittransfers/{paymentId}/authorisations>

HTTP request header

Attribute	Type	Description
Authorization	string	Access token
X-Request-Id	string	Unique ID of the request as determined by the initiating party.
PSU-ID	string	Client ID of the PSU at Marginalen Bank client interface.
Digest	string	Is contained if and only if the "Signature" element is contained in the header of the request.
Signature	string	A signature of the request by the TPP on application level.
TPP-Signature-Certificate	string	The certificate used for signing the request, in base64 encoding. Must be contained if a signature is contained.
Date	string	Date in RFC 1123 date format.

Response body:

```
{
  "scaStatus": "psuIdentified",
  "authorisationId": "5d8a33281b42612a37ed65f1",
  "scaMethods": [
    {
      "authenticationType": "BankID",
      "authenticationVersion": "BankID.1",
      "authenticationMethodId": "BankID",
      "name": "BankID",
      "explanation": "An SCA method, where an PSU will be redirected to a browser application or installed application on desktop to identify and authorize transaction."
    },
    {
      "authenticationType": "MobileBankId",
      "authenticationVersion": "MobileBankId.1",
      "authenticationMethodId": "MobileBankId",
      "name": "MobileBankId",
      "explanation": "An SCA method, where the PSU will be redirected to a MobileBankID application on same device to execute the authorization"
    },
    {
      "authenticationType": "MobileBankIdOnOtherDevice",
      "authenticationVersion": "MobileBankIdOnOtherDevice.1",
      "authenticationMethodId": "MobileBankIdOnOtherDevice",
      "name": "MobileBankIdOnOtherDevice",
      "explanation": "An SCA method, decoupled, where the PSU will need to open application on other device or on same device manually and authorize using the mobileBankId or bankID."
    }
  ],
  "_links": {
    "scaStatus": "https://api-sandbox.openbanking.marginalen.se/pisp/v1/payments/swedishdomestic-credittransfers/5d8a32e41b42612a37ed65f0/authorisations/5d8a33281b42612a37ed65f1",
    "selectAuthenticationMethod": "https://apisandbox.openbanking.marginalen.se/pisp/v1/payments/swedish-domestic-credittransfers/5d8a32e41b42612a37ed65f0/authorisations/5d8a33281b42612a37ed65f1"
  }
}
```

HTTP response header

Attribute	Type	Description
X-Request-Id	string	Unique ID of the request as determined by the initiating party.
ASPSP-SCA-Approach	string	Possible values: · DECOUPLED

Response parameters description:

Name	Type	Description
scaStatus	String	The status of the SCA routine.
scaMethods	Array of Authentication Objects	An array of possible methods for SCA.

Parameters of scaMethods array:

authenticationType	string	An array of possible methods for SCA.
authenticationVersion	string	Depending on the "authenticationType". This version can be used by differentiating authentication tools used within performing OTP generation in the same authentication type.
authenticationMethodId	string	An identification provided by Marginalen Bank for the later identification of the authentication method selection.
name	string	This is the name of the authentication method defined by the PSU in the Online Banking frontend of Marginalen Bank.
explanation	string	Detailed information about the SCA method for the PSU
_links	object	A list of hyperlinks to be recognised by the TPP.

Parameters of _links object:

selectAuthenticationMethod	string	The link to the authorisation sub-resource, where the selected authentication method needs to be update.
scaStatus	string	The link to retrieve the scaStatus of the corresponding authorisation sub-resource
authorisationId	string	Unique resource identification of the created authorisation sub-resource

7.3 UPDATE PSU DATA FOR PAYMENT INITIATION

This example updates PSU data of the payment initiation request.

The method is PUT at:

<https://api-sandbox.openbanking.marginalen.se/pisp/v1/payments/swedish-domestic-credittransfers/{paymentId}/authorisations/{authorisationId}>

HTTP request header

Attribute	Type	Description
Authorization	string	Access token.
X-Request-Id	string	Unique ID of the request as determined by the initiating party.
PSU-ID	string	Client ID of the PSU at Marginalen Bank client interface.
Digest	string	Is contained if and only if the "Signature" element is contained in the header of the request.
Signature	string	A signature of the request by the TPP on application level.
TPP-Signature-Certificate	string	The certificate used for signing the request, in base64 encoding. Must be contained if a signature is contained.
Date	string	Date in RFC 1123 date format.

Request body:

```
{
  "authenticationMethodId": "BankID"
}
```

Request parameters description:

Name	Type	Description
authenticationMethodId	string	An identification provided by Marginalen Bank for the later identification of the authentication method selection.

After sending this call, the next step would be opening the test BankID application on you mobile device and signing the request. After signing the payment initiation request the status of the created payment resource should change the initial "RCVD" status.

Response body:

```
{
  "_links": {
    "scaStatus": "https://api-sandbox.openbanking.marginalen.se/pisp/v1/payments/swedishdomestic-credittransfers/5d8a32e41b42612a37ed65f0/authorisations/5d8a33281b42612a37ed65f1"
  },
  "scaStatus": "started",
  "psuMessage": "Starta BankID-appen.",
  "chosenScaMethod": {
    "authenticationType": "BankID",
    "authenticationVersion": "BankID.1",
    "authenticationMethodId": "BankID",
    "name": "BankID",
    "explanation": "An SCA method, where an PSU will be redirected to a browser application or installed application on desktop to identify and authorize transaction."
  }
}
```

HTTP response header

Attribute	Type	Description
X-Request-Id	string	Unique ID of the request as determined by the initiating party.
ASPSP-SCA-Approach	string	Possible values: · DECOUPLED

Response parameters description:

Name	Type	Description
_links	object	A list of hyperlinks to be recognised by the TPP.

Parameters of _links object:

scaStatus	string	The link to retrieve the scaStatus of the corresponding authorisation sub-resource.
scaStatus	string	The status of the SCA routine.
psuMessage	string	Text to be displayed to the PSU.
chosenScaMethod	object	The chosen SCA method as sent in the request body in the call.

7.4 READ THE SCA STATUS OF THE PAYMENT AUTHORISATION

This example returns the SCA status of the payment initiation's authorisation sub-resource.

The method is GET at:

<https://api-sandbox.openbanking.marginalen.se/pisp/v1/payments/swedish-domestic-credittransfers/{paymentId}/authorisations/{authorisationId}>

HTTP request header

Attribute	Type	Description
Authorization	string	Access token
X-Request-Id	string	Unique ID of the request as determined by the initiating party.
Digest	string	Is contained if and only if the "Signature" element is contained in the header of the request.
Signature	string	A signature of the request by the TPP on application level.
TPP-Signature-Certificate	string	The certificate used for signing the request, in base64 encoding. Must be contained if a signature is contained.
Date	string	Date in RFC 1123 date format.

Response body:

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

HTTP response header

Attribute	Type	Description
X-Request-Id	string	Unique ID of the request as determined by the initiating party.

Response parameters description:

Name	Type	Description
scaStatus	string	The status of the SCA routine.

7.5 PAYMENT INFORMATION REQUEST

This example returns the content of a payment object.

The method is GET at:

<https://api-sandbox.openbanking.marginalen.se/pisp/v1/payments/swedish-domestic-credittransfers/{paymentId}>

HTTP request header

Attribute	Type	Description
Authorization	string	Access token
X-Request-Id	string	Unique ID of the request as determined by the initiating party.
Digest	string	Is contained if and only if the "Signature" element is contained in the header of the request.
Signature	string	A signature of the request by the TPP on application level.
TPP-Signature-Certificate	string	The certificate used for signing the request, in base64 encoding. Must be contained if a signature is contained.
Date	string	Date in RFC 1123 date format.

Response body:

```
{
  "transactionStatus": "ACSC",
  "paymentId": "5d8a32e41b42612a37ed65f0",
  "debtorAccount": {
    "bban": "92307490663"
  },
  "instructedAmount": {
    "currency": "SEK",
    "amount": "78.0"
  },
  "creditorAccount": {
    "bban": "92343333530"
  },
  "creditorName": "Testing sandbox",
  "remittanceInformationUnstructured": "unstructured remittance",
  "requestedExecutionDate": "2019-09-24"
}
```

HTTP response header

Attribute	Type	Description
X-Request-Id	string	Unique ID of the request as determined by the initiating party.

Response parameters as described in section 7.1.

7.6 PAYMENT CANCELLATION REQUEST

This example initiates a cancellation of a payment.

The method is DELETE at:

<https://api-sandbox.openbanking.marginalen.se/pisp/v1/payments/swedish-domestic-credittransfers/{paymentId}>

HTTP request header

Attribute	Type	Description
Authorization	string	Access token
X-Request-Id	string	Unique ID of the request as determined by the initiating party.
Digest	string	Is contained if and only if the "Signature" element is contained in the header of the request.
Signature	string	A signature of the request by the TPP on application level.
TPP-Signature-Certificate	string	The certificate used for signing the request, in base64 encoding. Must be contained if a signature is contained.
Date	string	Date in RFC 1123 date format.

Response body:

```
{
  "transactionStatus": "CANC",
  "_links": {},
  "scaMethods": []
}
```

HTTP response header

Attribute	Type	Description
X-Request-Id	string	Unique ID of the request as determined by the initiating party.

Response parameters description:

Name	Type	Description
transactionStatus	string	The status of the transaction.
_links	string	A list of hyperlinks to be recognised by the TPP.
scaMethods	array of authentication objects	This data element might be contained, if SCA is required and if the PSU has a choice between different authentication methods.

7.7 PAYMENT INITIATION STATUS REQUEST

This example checks the status of a payment initiation.

The method is GET at:

<https://api-sandbox.openbanking.marginalen.se/pisp/v1/payments/swedish-domestic-credittransfers/{paymentId}/status>

HTTP request header

Attribute	Type	Description
Authorization	string	Access token
X-Request-Id	string	Unique ID of the request as determined by the initiating party.
Digest	string	Is contained if and only if the "Signature" element is contained in the header of the request.
Signature	string	A signature of the request by the TPP on application level.
TPP-Signature-Certificate	string	The certificate used for signing the request, in base64 encoding. Must be contained if a signature is contained.
Date	string	Date in RFC 1123 date format.

Response body:

```
{
  "transactionStatus": "ACSC",
}
```

HTTP response header

Attribute	Type	Description
X-Request-Id	string	Unique ID of the request as determined by the initiating party.

7.8 PAYMENT INITIATION REQUEST FOR SWEDISH DOMESTIC GIRO PAYMENT PRODUCT

This example creates a payment initiation request at Marginalen Bank for a Swedish domestic giro payment type of payment product. The chosen SCA approach in this example is implicit decoupled.

The method is POST at:

<https://api-sandbox.openbanking.marginalen.se/pisp/v1/payments/swedish-domestic-giropayments>

HTTP request header

Attribute	Type	Description
Content-Type		application/json
Authorization	string	Access token
X-Request-Id	string	Unique ID of the request as determined by the initiating party.
PSU-ID	string	Client ID of the PSU at Marginalen Bank client interface.
PSU-IP-Address	string	The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP.
Digest	string	Is contained if and only if the "Signature" element is contained in the header of the request.
Signature	string	A signature of the request by the TPP on application level.
TPP-Signature-Certificate	string	The certificate used for signing the request, in base64 encoding.
Date	string	Date in RFC 1123 date format.

Additional HTTP request parameter is needed which defines the authorisation preference for the payment initiation request.

HTTP request header

Attribute	Type	Description
TPP-ExplicitAuthorisation-Preferred	boolean	If it equals "true", the TPP prefers to start the authorisation process separately. If it equals "false" or if the parameter is not used, there is no preference of the TPP. This especially indicates that the TPP assumes a direct authorisation of the transaction in the next step.

In the example the parameter is set to "false" implying implicit decoupled SCA approach:
Request body:

```
{
  "remittanceInformationStructured": {
    "reference": "stringRefer"
  },
  "debtorAccount": {
    "bban": "92366550480"
  },
  "instructedAmount": {
    "currency": "SEK",
    "amount": "17"
  },
  "creditorAccount": {
    "pg": "92307252738"
  },
  "creditorName": "testing sca flows giro",
  "requestedExecutionDate": "2019-07-31"
}
```

Request parameter description:

Name	Type	Description
remittanceInformationStructured	object	Structured remittance information.
debtorAccount	object	Account of the debtor identified with BBAN.
instructedAmount	object	The amount for the payment
creditorAccount	object	Reference to an account using PlusGiro. Other possible value is BankGiro – "bg".
creditorName	string	Name of the creditor.
requestedExecutionDate	string	The date when the payment will be executed.

Response body:

```
{
  "transactionStatus": "RCVD",
  "paymentId": "5d4171c73bf4b130bbc2f975",
  "transactionFeeIndicator": false,
  "_links": {
    "scaStatus": "https://api-sandbox.openbanking.marginalen.se/pisp/v1/payments/swedishdomestic-giro-payments/5d4171c73bf4b130bbc2f975/authorisations/5d4171cc3bf4b130bbc2f976",
    "self": "https://api-sandbox.openbanking.marginalen.se/pisp/v1/payments/swedish-domesticgiro-payment/5d4171c73bf4b130bbc2f975",
    "status": "https://api-sandbox.openbanking.marginalen.se/pisp/v1/payments/swedishdomestic-giro-payments/5d4171c73bf4b130bbc2f975/status"
  },
  "psuMessage": "Starta BankID-appen.",
  "chosenScaMethod": {
    "authenticationType": "MobileBankIdOnOtherDevice",
    "authenticationVersion": "MobileBankIdOnOtherDevice.1",
    "authenticationMethodId": "MobileBankIdOnOtherDevice",
    "name": "MobileBankIdOnOtherDevice",
    "explanation": "An SCA method, decoupled, where the PSU will need to open application on other device or on same device manually and authorize using the mobileBankId or bankID."
  }
}
```

HTTP response header

Attribute	Type	Description
X-Request-Id	string	Unique ID of the request as determined by the initiating party.
Location	string	Location of the created resource (if created).
ASPSP-SCA-Approach	string	Possible values: · DECOUPLED

Response parameters as described in section 7.1.

Choosing implicit decoupled SCA approach immediately sends the request at the test BankID application, so the payment initiation request should be received as soon as call is sent.

CONTINGENCY MECHANISM AND CORPORATE ACCOUNTS

For creating services towards our corporate accounts and in the case where the dedicated interface for consumer accounts does not perform in compliance with its obligations, screen scraping or reverse engineering the banks own customer facing channels may be used.

A Third Party Provider making use of the fallback/regular interface must authenticate themselves using Mutual Transport Layer Security (mTLS) by presenting a valid QWAC certificate and sending their requests through a reverse proxy dedicated to this purpose.

See the API Blueprints for details on accessing the fallback interface and corporate accounts in the regular customer interface.

Support for the fallback/regular interface can be found at <https://crosskey.io/contact>