

Attribute	Type	Condition	Description
			<p>ASPSP will then choose between the embedded or the redirect SCA approach, depending on the choice of the SCA procedure by the TPP/PSU.</p> <p>If the parameter is not used, the ASPSP will choose the SCA approach to be applied depending on the parameter TPP-Redirect-Preferred and the SCA method chosen by the TPP/PSU.</p> <p>The parameter might be ignored by the ASPSP.</p> <p>If both parameters TPP-Redirect-Preferred and TPP-Decoupled-Preferred are present and true, the request is still not rejected, but it is up to the ASPSP, which approach will actually be used.</p> <p>RFU: TPP-Redirect-Preferred and TPP-Decoupled-Preferred will be revised in future versions, maybe merged. Currently kept separate for downward compatibility.</p>
TPP-Redirect-URI	String	Conditional	<p>URI of the TPP, where the transaction flow shall be redirected to after a Redirect. Mandated for the Redirect SCA Approach, specifically when TPP-Redirect-Preferred equals "true". See Section 4.10 for further requirements on this header.</p> <p>It is recommended to always use this header field.</p> <p>Remark for Future: This field might be changed to mandatory in the next version of the specification.</p>
TPP-Nok-Redirect-URI	String	Optional	

Attribute	Type	Condition	Description
TPP-Explicit-Authorisation-Preferred	Boolean	Optional	<p>If it equals "true", the TPP prefers to start the authorisation process separately, e.g. because of the usage of a signing basket. This preference might be ignored by the ASPSP, if a signing basket is not supported as functionality.</p> <p>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, without using a signing basket.</p>
TPP-Notification-URI	String	Optional	<p>URI for the Endpoint of the TPP-API to which the status of the consent should be sent.</p> <p>This header field may be ignored by the ASPSP, cp. also the extended service definition in [XS2A-RSNS].</p>



Attribute	Type	Condition	Description
TPP-Notification-Content-Preferred	String	Optional	<p>The string has the form</p> <p>status=X1, ..., Xn</p> <p>where Xi is one of the constants SCA, PROCESS, LAST and where constants are not repeated.</p> <p>The usage of the constants supports the following semantics:</p> <ul style="list-style-type: none"> SCA: A notification on every change of the scaStatus attribute for all related authorisation processes is preferred by the TPP. PROCESS: A notification on all changes of consentStatus or transactionStatus attributes is preferred by the TPP. LAST: Only a notification on the last consentStatus or transactionStatus as available in the XS2A interface is preferred by the TPP. <p>This header field may be ignored, if the ASPSP does not support resource notification services for the related TPP.</p>
TPP-Brand-Logging-Information	String	Optional	<p>This header might be used by TPPs to inform the ASPSP about the brand used by the TPP towards the PSU. This information is meant for logging entries to enhance communication between ASPSP and PSU or ASPSP and TPP.</p> <p>The ASPSP might ignore this field.</p>



Request Body

Attribute	Type	Condition	Description
access	Account Access	Mandatory	Requested access services.
recurringIndicator	Boolean	Mandatory	true, if the consent is for recurring access to the account data false, if the consent is for one access to the account data
validUntil	ISODate	Mandatory	This parameter is defining a valid until date (including the mentioned date) for the requested consent. The content is the local ASPSP date in ISODate Format, e.g. 2017-10-30. Future dates might get adjusted by ASPSP. If a maximal available date is requested, a date in far future is to be used: "9999-12-31". In both cases, the consent object to be retrieved by the GET Consent Request will contain the adjusted date.
frequencyPerDay	Integer	Mandatory	This field indicates the requested maximum frequency for an access without PSU involvement per day. For a one-off access, this attribute is set to "1". The frequency needs to be greater equal to one. If not otherwise agreed bilaterally between TPP and ASPSP, the frequency is less equal to 4.

Attribute	Type	Condition	Description
			Remark for Future: Additional conditions might be added later to deal with the situation where the PSU is consenting towards the TPP for account access only where the PSU is actively asking.
combinedService Indicator	Boolean	Mandatory	If true indicates that a payment initiation service will be addressed in the same "session", cp. Section 9.

Note: All permitted major "access" attributes ("accounts", "balances" and "transactions") used in this message shall carry a non-empty array of account references, indicating the accounts where the type of access is requested. It can contain references regarding current account and/or card accounts. Please note that a "transactions" or "balances" access right also gives access to the generic /accounts endpoints, i.e. is implicitly supporting also the "accounts" access.

Note: The "access" attribute "additionalInformation" contains further sub-attributes. The additionalInformation attribute may only be used together with one of the major "access" attributes, see above. There is no requirement whether the related sub-attributes of "additionalInformation" carry also non-empty attributes as well where applicable. In case of an empty array in such a sub-attribute, the semantic is that the TPP is asking for the additionalInformation for all accounts which are addressed in at least one of the major "access" attributes.

Note: Even if the ASPSP is not requiring an explicit consent for an additionalInformation, e.g. the account owner name, the ASPSP should ignore a related consent request extension of the TPP, i.e. not reject the related consent request. This also applies in case the requested access is not offered (e.g. account owner name).

This specification mandates the ASPSP to support all POST consent requests with dedicated accounts, i.e. POST requests with the above mentioned sub-attributes, where at least one sub-attribute is contained, and where all contained sub-attributes carry a non-empty array of account references. This results in a consent on dedicated accounts. For this Consent Request on Dedicated Accounts, no assumptions are made for the SCA Approach by this specification.

Optionally, the ASPSP can support also Consent Requests, where the above mentioned sub-attributes "accounts", "balances" and "transactions" only carry an empty array or where the

sub-attributes "availableAccounts", "availableAccountsWithBalance" or "allPsd2" are used – all of them with the value "allAccounts" or "allAccountsWithOwnerName", cp. 6.3.1.2,

Response Code

HTTP Response Code equals 201.

Response Header

Attribute	Type	Condition	Description
Location	String	Mandatory	Location of the created resource.
X-Request-ID	UUID	Mandatory	ID of the request, unique to the call, as determined by the initiating party.
ASPSP-SCA-Approach	String	Conditional	<p>Possible values are:</p> <ul style="list-style-type: none"> • EMBEDDED • DECOUPLED • REDIRECT <p>OAuth will be subsumed by the constant value REDIRECT</p>
ASPSP-Notification-Support	Boolean	Conditional	<p>true if the ASPSP supports resource status notification services.</p> <p>false if the ASPSP supports resource status notification in general, but not for the current request.</p> <p>Not used, if resource status notification services are generally not supported by the ASPSP.</p> <p>Shall be supported if the ASPSP supports resource status notification services, see more details in the extended service definition [XS2A-RSNS].</p>
ASPSP-Notification-Content	String	Conditional	The string has the form status=X1, ..., Xn

Attribute	Type	Condition	Description
			<p>where X_i is one of the constants SCA, PROCESS, LAST and where constants are not repeated.</p> <p>The usage of the constants supports the following semantics:</p> <ul style="list-style-type: none"> SCA: Notification on every change of the scaStatus attribute for all related authorisation processes is provided by the ASPSP for the related resource. PROCESS: Notification on all changes of consentStatus or transactionStatus attributes is provided by the ASPSP for the related resource. LAST: Notification on the last consentStatus or transactionStatus as available in the XS2A interface is provided by the ASPSP for the related resource. <p>This field must be provided if the ASPSP-Notification-Support =true. The ASPSP might consider the notification content as preferred by the TPP, but can also respond independently of the preferred request.</p>

Response Body

Attribute	Type	Condition	Description
consentStatus	Consent Status	Mandatory	authentication status of the consent
consentId	String	Mandatory	Identification of the consent resource as it is used in the API structure

Attribute	Type	Condition	Description
scaMethods	Array of Authentication Objects	Conditional	<p>This data element might be contained, if SCA is required and if the PSU has a choice between different authentication methods. Depending on the risk management of the ASPSP this choice might be offered before or after the PSU has been identified with the first relevant factor, or if an access token is transported. If this data element is contained, then there is also a hyperlink of type "selectAuthenticationMethods" contained in the response body.</p> <p>These methods shall be presented towards the PSU for selection by the TPP.</p>
chosenScaMethod	Authentication Object	Conditional	<p>This data element is only contained in the response if the ASPSP has chosen the Embedded SCA Approach, if the PSU is already identified with the first relevant factor or alternatively an access token, if SCA is required and if the authentication method is implicitly selected.</p>
challengeData	Challenge	Conditional	<p>It is contained in addition to the data element chosenScaMethod if challenge data is needed for SCA.</p> <p>In rare cases this attribute is also used in the context of the startAuthorisationWithPsuAuthentication or startAuthorisationWithEncryptedPsuAuthentication link.</p>
_links	Links	Mandatory	<p>A list of hyperlinks to be recognised by the TPP.</p> <p>Type of links admitted in this response (which might be extended by single ASPSPs as indicated in its XS2A documentation):</p> <p>"scaRedirect": In case of an SCA Redirect Approach, the ASPSP is transmitting the link to which to redirect the PSU browser.</p> <p>"scaOAuth": In case of an OAuth2 based Redirect Approach, the ASPSP is transmitting the link where the configuration of the OAuth2</p>



Attribute	Type	Condition	Description
			<p>Server is defined. The configuration follows the OAuth 2.0 Authorisation Server Metadata specification.</p> <p>"confirmation": Might be added by the ASPSP if either the "scaRedirect" or "scaOAuth" hyperlink is returned in the same response message. This hyperlink defines the URL to the resource which needs to be updated with</p> <ul style="list-style-type: none"> • a confirmation code as retrieved after the plain redirect authentication process with the ASPSP authentication server or • an access token as retrieved by submitting an authorization code after the integrated OAuth based authentication process with the ASPSP authentication server. <p>"startAuthorisation":</p> <p>In case, where an explicit start of the transaction authorisation is needed, but no more data needs to be updated (no authentication method to be selected, no PSU identification nor PSU authentication data to be uploaded).</p> <p>"startAuthorisationWithPsuIdentification":</p> <p>The link to the authorisation end-point, where the authorisation sub-resource has to be generated while uploading the PSU identification data.</p> <p>"startAuthorisationWithPsuAuthentication":</p> <p>The link to the authorisation end-point, where the authorisation sub-resource has to be generated while uploading the PSU authentication data.</p> <p>"startAuthorisationWithEncryptedPsuAuthentication":</p>



Attribute	Type	Condition	Description
			<p>The link to the authorisation end-point, where the authorisation sub-resource has to be generated while uploading the encrypted PSU authentication data.</p> <p>"startAuthorisationWithAuthenticationMethodSelection":</p> <p>The link to the authorisation end-point, where the authorisation sub-resource has to be generated while selecting the authentication method. This link is contained under exactly the same conditions as the data element "scaMethods"</p> <p>"startAuthorisationWithTransactionAuthorisation":</p> <p>The link to the authorisation end-point, where the authorisation sub-resource has to be generated while authorising the transaction e.g. by uploading an OTP received by SMS.</p> <p>"self": The link to the Establish Account Information Consent resource created by this request. This link can be used to retrieve the resource data.</p> <p>"status": The link to retrieve the transaction status of the consent request.</p> <p>"scaStatus": The link to retrieve the scaStatus of the corresponding authorisation sub-resource. This link is only contained, if an authorisation sub-resource has been already created.</p>
psuMessage	Max500Text	Optional	Text to be displayed to the PSU, e.g. in a Decoupled SCA Approach

Example

Request

POST <https://api.testbank.com/psd2/v1/consents>

Content-Type: application/json

X-Request-ID: 99391c7e-ad88-49ec-a2ad-99ddcb1f7756
 PSU-IP-Address: 192.168.8.78
 PSU-User-Agent: Mozilla/5.0 (Windows NT 10.0; WOW64; rv:54.0)
 Gecko/20100101 Firefox/54.0
 Date: Sun, 06 Aug 2017 15:05:37 GMT

```
{
  "access": {
    "balances": [
      { "iban": "DE40100100103307118608" },
      { "iban": "DE02100100109307118603",
        "currency": "USD"
      },
      { "iban": "DE67100100101306118605" }
    ],
    "transactions": [
      { "iban": "DE40100100103307118608" },
      { "maskedPan": "123456xxxxxx1234" }
    ]
  },
  "recurringIndicator": true,
  "validUntil": "2017-11-01",
  "frequencyPerDay": 4
}
```

Response in case of a redirect

HTTP/1.x 201 Created
 X-Request-ID: 99391c7e-ad88-49ec-a2ad-99ddcb1f7721
 ASPSP-SCA-Approach: REDIRECT
 Date: Sun, 06 Aug 2017 15:05:47 GMT
 Location: "/psd2/v1/consents/1234-wertiq-983"
 Content-Type: application/json

```
{
  "consentStatus": "received",
  "consentId": "123cons456",
  "_links": {
    "scaRedirect": {"href": "https://www.testbank.com/authentication/1234-
  wertiq-983"},
    "status": {"href": "/psd2/v1/consents/1234-wertiq-983/status"},
    "scaStatus": {"href": "/psd2/v1/consents/1234-wertiq-983/
  authorisations/123auth567"}
  }
}
```

Response in case of a redirect with a dedicated start of the authorisation process

```

HTTP/1.x 201 Created
X-Request-ID: 99391c7e-ad88-49ec-a2ad-99ddcb1f7721
ASPSP-SCA-Approach: REDIRECT
Date: Sun, 06 Aug 2017 15:05:47 GMT
Location: "/psd2/v1/consents/1234-wertiq-983"
Content-Type: application/json

{
  "consentStatus": "received",
  "consentId": "123cons456",
  "_links": {
    "startAuthorisation": {"href": "/psd2/v1/consents/1234-wertiq-983/authorisations"}
  }
}

```

Response in case of the OAuth2 approach with an implicit generated authorisation resource

```

HTTP/1.x 201 Created
X-Request-ID: 99391c7e-ad88-49ec-a2ad-99ddcb1f7721
ASPSP-SCA-Approach: REDIRECT
Date: Sun, 06 Aug 2017 15:05:47 GMT
Location: "/psd2/v1/consents/1234-wertiq-983"
Content-Type: application/json

{
  "consentStatus": "received",
  "consentId": "123cons456",
  "_links": {
    "self": {"href": "/psd2/v1/consents/1234-wertiq-983"},
    "scaStatus": {"href": "/psd2/v1/consents/1234-wertiq-983/authorisations/123auth567"},
    "scaOAuth": {"href": "https://www.testbank.com/oauth/.well-known/oauth-authorization-server"}
  }
}

```

Response in case of the decoupled approach

```
HTTP/1.x 201 Created
X-Request-ID: 99391c7e-ad88-49ec-a2ad-99ddcb1f7721
ASPSP-SCA-Approach: DECOUPLED
Date: Sun, 06 Aug 2017 15:05:47 GMT
Location: "/psd2/v1/consents/1234-wertiq-983"
Content-Type: application/json

{
  "consentStatus": "received",
  "consentId": "123cons456",
  "_links": {
    "startAuthorisationWithPsuIdentification": {"href": "/psd2/v1/consents/1234-wertiq-983/authorisations"}
  }
}
```

Response in case of the embedded approach

```
HTTP/1.x 201 Created
X-Request-ID: 99391c7e-ad88-49ec-a2ad-99ddcb1f7721
ASPSP-SCA-Approach: EMBEDDED
Date: Sun, 06 Aug 2017 15:05:47 GMT
Location: "/psd2/v1/consents/1234-wertiq-983"
Content-Type: application/json

{
  "consentStatus": "received",
  "consentId": "123cons456",
  "_links": {
    "startAuthorisationWithPsuAuthentication": {"href": "/psd2/v1/consents/1234-wertiq-983/authorisations"}
  }
}
```

Example for Consent Request with dedicated request for account owner name

Request

```
POST https://api.testbank.com/psd2/v1/consents
Content-Type: application/json
X-Request-ID: 99391c7e-ad88-49ec-a2ad-99ddcb1f7756
PSU-IP-Address: 192.168.8.78
PSU-User-Agent: Mozilla/5.0 (Windows NT 10.0; WOW64; rv:54.0)
Gecko/20100101 Firefox/54.0
```

Date: Sun, 06 Aug 2017 15:05:37 GMT

```
{
  "access": {
    "balances": [
      { "iban": "DE40100100103307118608" },
      { "iban": "DE02100100109307118603",
        "currency": "USD"
      },
      { "iban": "DE67100100101306118605" }
    ],
    "transactions": [
      { "iban": "DE40100100103307118608" },
      { "maskedPan": "123456xxxxxx1234" }
    ],
    "additionalInformation":
      { "ownerName": [ { "iban": "DE40100100103307118608" } ] }
    },
    "recurringIndicator": false,
    "validUntil": "2017-11-01",
    "frequencyPerDay": 1,
    "combinedServiceIndicator": false
  }
}
```

6.3.1.2 Consent Request on Account List or without Indication of Accounts

Consent Request on Account List of Available Accounts

This function is supported by the same call as the Consent Request on Dedicated Accounts. The only difference is that the call only contains the "availableAccounts" or "availableAccountsWithBalance" sub attribute within the "access" attribute with value "allAccounts".

In this case the call creates an account information consent resource at the ASPSP to return a list of all **available** accounts, resp. all available accounts with its balances. For the first of these specific Consent Requests, no assumptions are made for the SCA Approach by this specification, since there are no balances or transaction information contained and this is then not unambiguously required by [EBA-RTS]. It is up to the ASPSP to implement the appropriate requirements on customer authentication.

Consent Request without Indication of Accounts – Bank Offered Consent

This function is supported by the same call as the Consent Request on Dedicated Accounts. The only difference is that the call contains the "accounts", "balances" and/or "transactions" sub attribute within the "access" attribute all with an empty array.

The ASPSP will then agree bilaterally directly with the PSU on which accounts the requested access consent should be supported. The result can be retrieved by the TPP by using the GET Consent Request method, cp. 6.3.3. For this function the Embedded SCA Approach is not supported.

Consent Request for Access to all Accounts for all PSD2 defined AIS – Global Consent

This function is supported by the same call as the Consent Request on Dedicated Accounts. The only difference is that the call contains the "allPsd2" sub attribute within the "access" attribute with the value "allAccounts".

If this function is supported, it will imply a consent on all available accounts of the PSU on all PSD2 related account information services. For this specific Consent Request, no assumptions are made for the SCA Approach by this specification.

Example Consent on Account List of Available Accounts

Request

```
POST https://api.testbank.com/psd2/v1/consents
Content-Type: application/json
X-Request-ID: 99391c7e-ad88-49ec-a2ad-99ddcb1f7756
PSU-IP-Address: 192.168.8.78
PSU-User-Agent: Mozilla/5.0 (Windows NT 10.0; WOW64; rv:54.0)
Gecko/20100101 Firefox/54.0
Date: Sun, 06 Aug 2017 15:05:37 GMT

{
  "access": {
    "availableAccounts": "allAccounts",
    "recurringIndicator": false,
    "validUntil": "2017-08-06",
    "frequencyPerDay": 1
  }
}
```

Example Consent without dedicated Account

Request

```
POST https://api.testbank.com/psd2/v1/consents
Content-Type: application/json
X-Request-ID: 99391c7e-ad88-49ec-a2ad-99ddcb1f7756
```

PSU-IP-Address 192.168.8.78
 PSU-User-Agent Mozilla/5.0 (Windows NT 10.0; WOW64; rv:54.0)
 Gecko/20100101 Firefox/54.0
 Date Sun, 06 Aug 2017 15:05:37 GMT

```
{
  "access": {
    "balances": [],
    "transactions": []
  },
  "recurringIndicator": true,
  "validUntil": "2017-11-01",
  "frequencyPerDay": 4
}
```

6.3.2 Get Consent Status Request

Call

GET /v1/[consents/{consentId}](#)/status

Can check the status of an account information consent resource.

Path Parameters

Attribute	Type	Description
consentId	String	The consent identification assigned to the created resource.

Query Parameters

No specific query parameters defined.

Request Header

Attribute	Type	Condition	Description
X-Request-ID	UUID	Mandatory	ID of the request, unique to the call, as determined by the initiating party.
Authorization	String	Conditional	Is contained only, if an OAuth2 based SCA was performed in the corresponding consent transaction or if OAuth2 has been used in a pre-step.



Request Body

No request body.

Response Code

HTTP Response Code equals 200.

Response Header

Attribute	Type	Condition	Description
X-Request-ID	UUID	Mandatory	ID of the request, unique to the call, as determined by the initiating party.

Response Body

Attribute	Type	Condition	Description
consentStatus	Consent Status	Mandatory	This is the overall lifecycle status of the consent.
psuMessage	Max500Text	Optional	

Example

Request

```
GET https://api.testbank.com/psd2/v1/consents/123cons456/status
X-Request-ID: 99391c7e-ad88-49ec-a2ad-99ddcb1f7721
PSU-IP-Address: 192.168.8.78
PSU-User-Agent: Mozilla/5.0 (Windows NT 10.0; WOW64; rv:54.0)
Gecko/20100101 Firefox/54.0
Date: Sun, 06 Aug 2017 15:05:46 GMT
```

Response

```
HTTP/1.x 200 Ok
X-Request-ID: 99391c7e-ad88-49ec-a2ad-99ddcb1f7721
Date: Sun, 06 Aug 2017 15:05:47 GMT
Content-Type: application/json
```

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

6.3.3 Get Consent Request

Call

```
GET /v1/consents/{consentId}
```

Returns the content of an account information consent object. This is returning the data for the TPP especially in cases, where the consent was directly managed between ASPSP and PSU e.g. in a re-direct SCA Approach.

Path Parameters

Attribute	Type	Description
consentId	String	ID of the corresponding consent object as returned by an Account Information Consent Request

Query Parameters

No specific query parameter.

Request Header

The same as defined in Section 6.3.2.

Request Body

No request body.

Response Code

HTTP Response Code equals 200.

Response Header

The same as defined in Section 6.3.2.

Response Body

Attribute	Type	Condition	Description
access	Account Access	Mandatory	
recurringIndicator	Boolean	Mandatory	
validUntil	ISODate	Mandatory	
frequencyPerDay	Integer	Mandatory	
lastactionDate	ISODate	Mandatory	This date is containing the date of the last action on the consent object either through the XS2A interface or the PSU/ASPSP interface having an impact on the status.
consentStatus	Consent Status	Mandatory	The status of the consent resource.
_links	Links	Optional	Type of links recommended for this response is "account" and/or "cardAccount", depending on the nature of the consent.

Example

Request

GET <https://api.testbank.com/psd2/v1/consents/123cons456>

Response

```
HTTP/1.x 200 Ok
X-Request-ID: 99391c7e-ad88-49ec-a2ad-99ddcb1f7721
Date: Sun, 06 Aug 2017 15:05:47 GMT
Content-Type: application/json
```

```
{
  "access":
```

```
{
  "balances": [
    {"iban": "DE2310010010123456789"}],
  "transactions": [
    {"iban": "DE2310010010123456789"},
    {"pan": "123456xxxxxx3457"}]
},
"recurringIndicator": true,
"validUntil": "2017-11-01",
"frequencyPerDay": 4,
"consentStatus": "valid",
"_links": {"account": {"href": "/psd2/v1/accounts"}}
}
```

Remark: This specification supports no detailed links to AIS service endpoints corresponding to this account. This is due to the fact, that the /accounts endpoint will deliver all detailed information, including the hyperlinks e.g. to the balances or transactions of certain accounts. Still due to the guiding principles, the ASPSP may deliver more links in addition, which then will be documented in the ASPSPs XS2A API documentation.

6.3.4 Multilevel SCA for Establish Consent

The Establish Account Information Consent Request messages defined in this section are independent from the need of one or several SCA processes, i.e. independent from the number of authorisations needed for establishing the consent. In contrast, the Establish Account Information Consent Response messages defined above in this section are specific to the processing of one SCA. In the following the background is explained on diverging requirements on the Establish Account Information Consent Response messages.

For establish account information consent with multilevel SCA, this specification requires an explicit start of the authorisation, i.e. links directly associated with SCA processing like "scaRedirect" or "scaOAuth" cannot be contained in the response message of a Establish Account Information Consent Request for a consent, where multiple authorisations are needed. Also if any data is needed for the next action, like selecting an SCA method is not supported in the response, since all starts of the multiple authorisations are fully equal. In these cases, first an authorisation sub-resource has to be generated following the "startAuthorisation" link.

Response Body for Establish Account Information Messages with Multilevel SCA

Attribute	Type	Condition	Description
consentStatus	Consent Status	Mandatory	The values defined in Section 14.15 might be used.

Attribute	Type	Condition	Description
consentId	String	Mandatory	resource identification of the generated payment initiation resource.
_links	Links	Mandatory	<p>"startAuthorisation":</p> <p>In case, where an explicit start of the transaction authorisation is needed, but no more data needs to be updated (no authentication method to be selected, no PSU identification nor PSU authentication data to be uploaded).</p> <p>"startAuthorisationWithPsuIdentification":</p> <p>The link to the authorisation end-point, where the authorisation sub-resource has to be generated while uploading the PSU identification data.</p> <p>"startAuthorisationWithPsuAuthentication":</p> <p>The link to the authorisation end-point, where an authorisation sub-resource has to be generated while uploading the PSU authentication data.</p> <p>"startAuthorisationWithEncryptedPsuAuthentication":</p> <p>The link to the authorisation end-point, where an authorisation sub-resource has to be generated while uploading the encrypted PSU authentication data.</p> <p>"self": The link to the consent resource created by this request. This link can be used to retrieve the resource data.</p> <p>"status": The link to retrieve the status of the consent.</p>
psuMessage	Max500Text	Optional	Text to be displayed to the PSU
tppMessages	Array of TPP Message Information	Optional	Messages to the TPP on operational issues.

Remark: In difference to the Establish Account Information Consent Flow with one SCA, optimisation processes with implicitly generating authorisation sub-resources are not

supported for Multiple SCA to keep the several authorisation processes of different PSUs for the same consent identical, so that the start of the authorisation process is context free. That is, the only steering hyperlinks returned to the TPP after starting establishing a consent are "start authorisation" hyperlinks with information in addition about mandatory data to be uploaded with the Start Authorisation Request (PSU Identification or PSU Authentication data). It is not possible to upload with the first command the selected authentication method or OTP Response data because this would require to transport the selected authentication methods or challenge data before.

6.4 Delete an Account Information Consent Object

The TPP can delete an account information consent object if needed with the following call:

Call

```
DELETE /v1/consents/{consentId}
```

Deletes a given consent.

Path Parameters

Attribute	Type	Description
consentId	String	Contains the resource-ID of the consent to be deleted.

Query Parameters

No specific query parameters.

Request Header

Attribute	Type	Condition	Description
X-Request-ID	UUID	Mandatory	ID of the request, unique to the call, as determined by the initiating party.
Authorization	String	Conditional	Is contained only, if an OAuth2 based SCA was performed in the corresponding consent transaction or if OAuth2 has been used in a pre-step.

Request Body

No Request Body.

Response Header

Attribute	Type	Condition	Description
X-Request-ID	UUID	Mandatory	ID of the request, unique to the call, as determined by the initiating party.

Response Body

No Response Body

Example

Request

```
DELETE https://api.testbank.com/psd2/v1/consents/123cons456
X-Request-ID: 99391c7e-ad88-49ec-a2ad-99ddcb1f7757
Date: Sun, 13 Aug 2017 17:05:37 GMT
```

Response

```
HTTP/1.x 204 No Content
X-Request-ID: 99391c7e-ad88-49ec-a2ad-99ddcb1f7757
Date: Sun, 06 Aug 2017 15:05:47 GMT
```



6.5 Read Account Data Requests

6.5.1 Read Account List

Call

```
GET /v1/accounts {query-parameters}
```

Reads a list of bank accounts, with balances where required. It is assumed that a consent of the PSU to this access is already given and stored on the ASPSP system. The addressed list of accounts depends then on the PSU ID and the stored consent addressed by consentId, respectively the OAuth2 access token.

Note: If the consent is granted only to show the list of available accounts ("availableAccounts" access rights respectively "availableAccountsWithBalance", cp. Section 6.3.1.2), much less details are displayed about the accounts. Specifically hyperlinks to balances or transaction endpoint should not be delivered then.

Note: If the details returned in this call with the access rights "accounts", "balances", "transactions" or "allPsd2" are not sufficient, then more details can be retrieved by addressing the /accounts/{account-id} endpoint, cp. Section 6.5.2.

Query Parameters

Attribute	Type	Condition	Description
withBalance	Boolean	Optional	If contained, this function reads the list of accessible payment accounts including the booking balance, if granted by the PSU in the related consent and available by the ASPSP. This parameter might be ignored by the ASPSP.

Request Header

Attribute	Type	Condition	Description
X-Request-ID	UUID	Mandatory	ID of the request, unique to the call, as determined by the initiating party.
Consent-ID	String	Mandatory	Shall be contained since "Establish Consent Transaction" was performed via this API before.
PSU-IP-Address	String	Conditional	The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP. It shall be contained if

Attribute	Type	Condition	Description
			and only if this request was actively initiated by the PSU.
Authorization	String	Conditional	Is contained only, if an OAuth2 based authentication was performed in a pre-step or an OAuth2 based SCA was performed in the related consent authorisation.

Request Body

No request body

Response Code

HTTP Response Code equals 200.

Response Header

Attribute	Type	Condition	Description
X-Request-ID	UUID	Mandatory	ID of the request, unique to the call, as determined by the initiating party.

Response Body

Attribute	Type	Condition	Description
accounts	Array of Account Details	Mandatory	In case, no account is accessible, the ASPSP shall return an empty array. As this is also considered a positive response, the Response code must still be 200.

Example

Response body (Example 1)

Response in case of an example, where the consent has been given on two different IBANs

```
{
  "accounts": [
    {
      "resourceId": "3dc3d5b3-7023-4848-9853-f5400a64e80f",
      "iban": "DE2310010010123456789",
      "currency": "EUR",
    }
  ]
}
```



```

"product": "Girokonto",
"cashAccountType": "CACC",
"name": "Main Account",
"_links": {
    "balances": {"href": "/psd2/v1/accounts/3dc3d5b3-7023-4848-
9853-f5400a64e80f/balances"},
    "transactions": {"href": "/psd2/v1/accounts/3dc3d5b3-7023-4848-
9853-f5400a64e80f/transactions"} }
},
{"resourceId": "3dc3d5b3-7023-4848-9853-f5400a64e81e",
"iban": "DE2310010010123456788",
"currency": "USD",
"product": "Fremdwährungskonto",
"cashAccountType": "CACC",
"name": "US Dollar Account",
"_links": {
    "balances": {"href": "/psd2/v1/accounts/3dc3d5b3-7023-4848-
9853-f5400a64e81e/balances" } }
}
]
}

```

Response body (Example 2)

Response in case of an example where consent on transactions and balances has been given to a multicurrency account which has two sub-accounts with currencies EUR and USD, and where the ASPSP is giving the data access only on sub-account level:

```

{ "accounts": [
{
"resourceId": "3dc3d5b3-7023-4848-9853-f5400a64e80f",
"iban": "DE2310010010123456788",
"currency": "EUR",
"product": "Girokonto",
"cashAccountType": "CACC",
"name": "Main Account",
"_links": {
    "balances": {"href": "/psd2/v1/accounts/3dc3d5b3-7023-4848-
9853-f5400a64e80f/balances"},
    "transactions": {"href": "/psd2/v1/accounts/3dc3d5b3-7023-4848-
9853-f5400a64e80f/transactions"} }
},
{
"resourceId": "3dc3d5b3-7023-4848-9853-f5400a64e81e",
"iban": "DE2310010010123456788",
"currency": "USD",
"product": "Fremdwährungskonto",
"cashAccountType": "CACC",

```

```

    "name": "US Dollar Account",
    "_links": {
        "balances": {"href": "/psd2/v1/accounts/3dc3d5b3-7023-4848-
9853-f5400a64e81e/balances"},
        "transactions": {"href": "/psd2/v1/accounts/3dc3d5b3-7023-4848-
9853-f5400a64e81e/transactions"} }
    }
]
}

```

Response body (Example 3)

Response in case of an example where consent on balances and transactions has been given to a multicurrency account which has two sub-accounts with currencies EUR and USD and where the ASPSP is giving the data access on aggregation level and on sub-account level:

```

{ "accounts": [
    {
        "resourceId": "3dc3d5b3-7023-4848-9853-f5400a64e80f",
        "iban": "DE2310010010123456788",
        "currency": "XXX",
        "product": "Multi currency account",
        "cashAccountType": "CACC",
        "name": "Aggregation Account",
        "_links": {
            "balances": {"href": "/psd2/v1/accounts/3dc3d5b3-7023-4848-
9853-f5400a64e333/balances"},
            "transactions": {"href": "/psd2/v1/accounts/3dc3d5b3-7023-4848-
9853-f5400a64e333/transactions"} }
    },
    {
        "resourceId": "3dc3d5b3-7023-4848-9853-f5400a64e80e",
        "iban": "DE2310010010123456788",
        "currency": "EUR",
        "product": "Girokonto",
        "cashAccountType": "CACC",
        "name": "Main Account",
        "_links": {
            "balances": {"href": "/psd2/v1/accounts/3dc3d5b3-7023-4848-
9853-f5400a64e80e/balances"},
            "transactions": {"href": "/psd2/v1/accounts/3dc3d5b3-7023-4848-
9853-f5400a64e80e/transactions"} }
    },
    {
        "resourceId": "3dc3d5b3-7023-4848-9853-f5400a64e81d",
        "iban": "DE2310010010123456788",
        "currency": "USD",
        "product": "Fremdwährungskonto",
        "cashAccountType": "CACC",
        ...
    }
]
}

```

```

    "name": "US Dollar Account",
    "_links": {
        "balances": {"href": "/psd2/v1/accounts/3dc3d5b3-7023-4848-
9853-f5400a64e81d/balances"},
        "transactions": {"href": "/psd2/v1/accounts/3dc3d5b3-7023-4848-
9853-f5400a64e81d/transactions"} }
    }
]
}

```

6.5.2 Read Account Details

Call

GET /v1/accounts/{account-id} {query-parameters}

Reads details about an account, with balances where required. It is assumed that a consent of the PSU to this access is already given and stored on the ASPSP system. The addressed details of this account depends then on the stored consent addressed by consentId, respectively the OAuth2 access token.

NOTE: The account-id can represent a multicurrency account. In this case the currency code is set to "XXX".

Path Parameters

Attribute	Type	Description
account-id	String	This identification is denoting the addressed account. The account-id is retrieved by using a "Read Account List" call. The account-id is the "resourceId" attribute of the account structure. Its value is constant at least throughout the lifecycle of a given consent.

Query Parameters

Attribute	Type	Condition	Description
withBalance	Boolean	Optional	If contained, this function reads the details of the addressed account including the booking balance, if granted by the PSU's consent and if supported by ASPSP. This data element might be ignored by the ASPSP.

Request Header

Attribute	Type	Condition	Description
X-Request-ID	UUID	Mandatory	ID of the request, unique to the call, as determined by the initiating party.
Consent-ID	String	Mandatory	
PSU-IP-Address	String	Conditional	The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP. It shall be contained if and only if this request was actively initiated by the PSU.
Authorization	String	Conditional	Is contained only, if an OAuth2 based authentication was performed in a pre-step or an OAuth2 based SCA was performed in the related consent authorisation.

Request Body

No request body

Response Code

HTTP Response Code equals 200.

Response Header

Attribute	Type	Condition	Description
X-Request-ID	UUID	Mandatory	ID of the request, unique to the call, as determined by the initiating party.

Response Body

Attribute	Type	Condition	Description
account	Account Details	Mandatory	

Example

Response body for a regular account

```
{
  "account": {
    "resourceId": "3dc3d5b3-7023-4848-9853-f5400a64e80f",
    "iban": "FR7612345987650123456789014",
    "currency": "EUR",
    "ownerName": "Heike Mustermann",
    "product": "Girokonto",
    "cashAccountType": "CACC",
    "name": "Main Account",
    "_links": {
      "balances": {"href": "/psd2/v1/accounts/3dc3d5b3-7023-4848-9853-f5400a64e80f/balances"},
      "transactions": {"href": "/psd2/v1/accounts/3dc3d5b3-7023-4848-9853-f5400a64e80f/transactions"} }
    }
  }
}
```

Response body for a multi-currency account

```
{
  "account": {
    "resourceId": "3dc3d5b3-7023-4848-9853-f5400a64e80f",
    "iban": "FR7612345987650123456789014",
    "currency": "XXX",
    "ownerName": "Heike Mustermann",
    "product": "Multicurrency Account",
    "cashAccountType": "CACC",
    "name": "Aggregation Account",
    "_links": {
      "balances": {"href": "/psd2/v1/accounts/3dc3d5b3-7023-4848-9853-f5400a64e80f/balances"},
      "transactions": {"href": "/psd2/v1/accounts/3dc3d5b3-7023-4848-9853-f5400a64e80f/transactions"} }
    }
  }
}
```

6.5.3 Read Balance

Call

GET /v1/accounts/{account-id}/balances

Reads account data from a given account addressed by "account-id".

Remark: This account-id can be a tokenised identification due to data protection reason since the path information might be logged on intermediary servers within the ASPSP sphere. This account-id then can be retrieved by the "GET Account List" call, cp. Section 6.5.1.

The account-id is constant at least throughout the lifecycle of a given consent.

Path Parameters

Attribute	Type	Description
account-id	String	This identification is denoting the addressed account. The account-id is retrieved by using a "Read Account List" call. The account-id is the "resourceId" attribute of the account structure. Its value is constant at least throughout the lifecycle of a given consent.

Query Parameters

No specific query parameters.

Response Code

HTTP Response Code equals 200.

Request Header

Attribute	Type	Condition	Description
X-Request-ID	UUID	Mandatory	ID of the request, unique to the call, as determined by the initiating party.
PSU-IP-Address	String	Conditional	The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP. It shall be contained if and only if this request was actively initiated by the PSU.
Consent-ID	String	Mandatory	
Authorization	String	Conditional	Is contained only, if an OAuth2 based authentication was performed in a pre-step or an OAuth2 based SCA was performed in the related consent authorisation.

Request Body

No request body.

Response Header

Attribute	Type	Condition	Description
X-Request-ID	UUID	Mandatory	ID of the request, unique to the call, as determined by the initiating party.

Response Body

Attribute	Type	Condition	Description
account	Account Reference	optional	Identifier of the addressed account. Remark for Future: It is recommended to use this data element. The condition might change to "mandatory" in a next version of the specification.
balances	Array of Balance	Mandatory	A list of balances regarding this account, e.g. the current balance, the last booked balance.

Example

Response body (Example 1)

Response in case of a regular account.

```
{
  "account": {"iban": "FR7612345987650123456789014"},
  "balances":
    [ {"balanceAmount": {"currency": "EUR", "amount": "500.00"},
      "balanceType": "closingBooked",
      "referenceDate": "2017-10-25"
    },
    {"balanceAmount": {"currency": "EUR", "amount": "900.00"},
      "balanceType": "expected",
      "lastChangeDateTime": "2017-10-25T15:30:35.035Z"
    }
  ]
}
```

Response body (Example 2)

Response in case of a multicurrency account with one account in EUR, one in USD, where the ASPSP has delivered a link to the balance endpoint relative to the aggregated multicurrency account (aggregation level)

```
{
  "balances": [
    {"balanceAmount": {"currency": "EUR", "amount": "500.00"},  

     "balanceType": "closingBooked",  

     "referenceDate": "2017-10-25"  

    },  

    {"balanceAmount": {"currency": "EUR", "amount": "900.00"},  

     "balanceType": "expected",  

     "lastChangeDateTime": "2017-10-25T15:30:35.035Z"  

    },  

    {"balanceAmount": {"currency": "USD", "amount": "350.00"},  

     "balanceType": "closingBooked",  

     "referenceDate": "2017-10-25"  

    },  

    {"balanceAmount": {"currency": "USD", "amount": "350.00"},  

     "balanceType": "expected",  

     "lastChangeDateTime": "2017-10-24T14:30:21Z"
    }
  ]
}
```

Response body (Example 3)

Response in case of a regular account where the corresponding balances in the online channel is reported independently from account statements with fixed dates, i.e. always displaying running balance for current time.

```
{
  "balances": [
    {
      "balanceAmount": {"currency": "EUR", "amount": "1000.00"},  

      "balanceType": "interimBooked"
    },
    {
      "balanceAmount": {"currency": "EUR", "amount": "300.00"},  

      "balanceType": "interimAvailable"
    },
    {
      "balanceAmount": {"currency": "EUR", "amount": "5300.00"},  

      "balanceType": "interimAvailable",
      "creditLimitIncluded": true
    }
  ]
}
```

```
    ]
}
```

6.5.4 Read Transaction List

Call

```
GET /v1/accounts/{account-id}/transactions {query-parameters}
```

Reads account transaction data from a given account addressed by "account-id". This can be either booked or pending transactions or a list of standing orders as further transactional information.

Remark: This account-id can be a tokenised identification due to data protection reason since the path information might be logged on intermediary servers within the ASPSP sphere. This account-id then can be retrieved by the "GET Account List" call, cp. Section 6.5.1.

Note: The ASPSP might use standard compression methods on application level for the response message as indicated in the content encoding header. In case of returning camt.05x formats, several camt.05x files might be contained in one response. Some ASPSPS e.g. separate camt.05x files per booking day – in analogy to the same provision in online channels.

Note: In case of using pagination, the call on the given pagination links follows the same requirements as for this call, just exchanging the path itself by the pagination path.

Remark: Please note that the PATH might be already given in detail by the response of the "Read Account List" call within the _links subfield.

Path Parameters

Attribute	Type	Description
account-id	String	This identification is denoting the addressed account. The account-id is retrieved by using a "Read Account List" call. The account-id is the "resourceId" attribute of the account structure. Its value is constant at least throughout the lifecycle of a given consent.

Query Parameters

Attribute	Type	Condition	Description
dateFrom	ISODate	Conditional	Starting date (inclusive the date dateFrom) of the transaction list, mandated if no delta access is required and if bookingStatus does not equal "information". Might be

Attribute	Type	Condition	Description
			<p>ignored if a delta function is used or if bookingStatus equals "information".</p> <p>For booked transactions, the relevant date is the booking date. For pending transactions, the relevant date is the entry date, which may not be transparent neither in this API nor other channels of the ASPSP.</p> <p>If the bookingStatus equals "all", this date might be ignored for all transactions referred to by bookingStatus "information".</p>
dateTo	ISODate	Optional	<p>End date (inclusive the data dateTo) of the transaction list, default is "now" if not given. Might be ignored if a delta function is used.</p> <p>For booked transactions, the relevant date is the booking date. For pending transactions, the relevant date is the entry date, which may not be transparent neither in this API nor other channels of the ASPSP.</p> <p>If the bookingStatus equals "all", this date might be ignored for all transactions referred to by bookingStatus "information".</p>
entryReferenceFrom	String	Optional if supported by API provider	<p>This data attribute is indicating that the AISPs are in favour to get all transactions after the transaction with identification entryReferenceFrom alternatively to the above defined period. This is a implementation of a delta access.</p> <p>If this data element is contained, the entries "dateFrom" and "dateTo" might be ignored by the ASPSP if a delta report is supported.</p>
bookingStatus	String	Mandatory	Permitted codes are "booked", "pending", "both", "information" and "all".

Attribute	Type	Condition	Description
			<p>"booked" shall be supported by the ASPSP.</p> <p>To support the "pending" and "both" feature is optional for the ASPSP, Error code if not supported in the online banking frontend. If supported, "both" means to request transaction reports of transaction of bookingStatus either "pending" or "booked".</p> <p>To support the "information" feature is optional for the ASPSP. Currently the booking status "information" only covers standing orders. Error code if not supported.</p> <p>To support the "all" feature is optional for the ASPSP, Error code if not supported. If supported, "all" means to request transaction reports of transaction of any bookingStatus ("pending", "booked" or "information").</p>
deltaList	Boolean	Optional if supported by API provider	<p>This data attribute is indicating that the AISPs are in favour to get all transactions after the last report access for this PSU on the addressed account. This is another implementation of a delta access-report.</p> <p>This delta indicator might be rejected by the ASPSP if this function is not supported.</p> <p>If this data element is contained, the entries "dateFrom" and "dateTo" might be ignored by the ASPSP if a delta report is supported.</p>
withBalance	Boolean	Optional	If contained, this function reads the list of transactions including the booking balance, if granted by the PSU in the related consent and available by the ASPSP. This parameter might be ignored by the ASPSP.

NOTE: In case of bookingStatus equals "information", the query parameters dateFrom, dateTo, withBalance deltaList and entryReferenceFrom will be ignored and have no effect on the result.

Request Header

Attribute	Type	Condition	Description
X-Request-ID	UUID	Mandatory	ID of the request, unique to the call, as determined by the initiating party.
PSU-IP-Address	String	Conditional	The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP. It shall be contained if and only if this request was actively initiated by the PSU.
Consent-ID	String	Mandatory	
Authorization	String	Conditional	Is contained only, if an OAuth2 based authentication was performed in a pre-step or an OAuth2 based SCA was performed in the related consent authorisation.
Accept	String	Optional	<p>The TPP can indicate the formats of account reports supported together with a prioritisation following the HTTP header definition.</p> <p>The formats supported by this specification are</p> <ul style="list-style-type: none"> • xml • JSON • text <p>Remark: Content types might be extended in the next version of the specification. This shall enable the TPP to address different camt.05x versions or different MT94x versions in a corporate context. The TPP then could e.g. say: "I prefer MT942, but take MT940 if MT942 is not available."</p>

Remark: The Berlin Group intends to apply for vnd-entries within the "accept" attribute for camt.05x and MT94x formats to scope with different account report formats available for the PSU e.g. in a corporate context. These values will be added to this specification as soon as available. This will then lead to expressions like /application/vnd.BerlinGroup.camt.053+xml

etc. The TPP then could e.g. say: "I prefer camt.054, but take camt.053 if this is not available." This solution is recommended as a best practice until it is fully specified. In this example this would deliver the following accept header expression:

```
Accept: /application/vnd.BerlinGroup.camt.054+xml;q=0.9,
/application/vnd.BerlinGroup.camt.053+xml;q=0.8
```

In addition, these best practices allow to differentiate technical sub versions of camt, i.e. it could be stated that "I prefer camt.054.001.08 (the new sub version), but take (the older sub version) camt.054.001.02 if this is not available." This is to support ASPSPs in migrating the technical camt formats.

```
Accept: /application/vnd.BerlinGroup.camt.054.001.08+xml;q=0.9,
/application/vnd.BerlinGroup.camt.054.001.02+xml;q=0.8
```

Request Body

No request body.

Response Code

HTTP Response Code equals 200.

Response Header

Attribute	Type	Condition	Description
Content-Type	String	Mandatory	Possible values are: <ul style="list-style-type: none"> • application/json • application/xml • text/plain
X-Request-ID	UUID	Mandatory	ID of the request, unique to the call, as determined by the initiating party.

Response Body

In case the ASPSP returns a **camt.05x** XML structure, the response body consists of either a camt.052 or camt.053 format. The camt.052 may include pending payments which are not yet finally booked. The ASPSP will decide on the format due to the chosen parameters, specifically on the chosen dates relative to the time of the request. In addition the ASPSP might offer camt.054x structure e.g. in a corporate setting.

In case the ASPSP returns a **MT94x** content, the response body consists of an MT940 or MT942 format in a text structure. The MT942 may include pending payments which are not yet finally booked. The ASPSP will decide on the format due to the chosen parameters, specifically on the chosen dates relative to the time of the request.

A JSON response is defined as follows:

Attribute	Type	Condition	Description
account	Account Reference	Optional	<p>Identifier of the addressed account.</p> <p>Remark for Future: It is recommended to use this data element. The condition might change to "mandatory" in a next version of the specification.</p>
transactions	Account Report	Optional	<p>JSON based account report.</p> <p>This account report contains transactions resulting from the query parameters.</p>
balances	Array of Balance	Optional	<p>A list of balances regarding this account, which might be restricted to the current balance.</p>
_links	Links	Optional	<p>A list of hyperlinks to be recognised by the TPP.</p> <p>Type of links admitted in this response:</p> <p>"download": a link to a resource, where the transaction report might be downloaded from in case where transaction reports have a huge size.</p> <p>Remark: This feature shall only be used where camt-data is requested which has a huge size.</p>

Examples for AIS for booked and pending transactions

Request

GET

```
https://api.testbank.com/psd2/v1/accounts/qwer3456tzui7890/transactions?dateFrom=2017-07-01&dateTo=2017-07-30&bookingStatus=both
Accept: application/json, text/plain; q=0.9, application/xml; q=0.8
Consent-ID: 123cons456
```

Response (*Example 1*)

Response in JSON format for an access on a regular account

```

HTTP/1.x 200 Ok
X-Request-ID: 99391c7e-ad88-49ec-a2ad-99ddcb1f7757
Date: Sun, 06 Aug 2017 15:05:47 GMT
Content-Type: application/json

{
  "account": {"iban": "DE2310010010123456788" },
  "transactions": {
    "booked": [
      {
        "transactionId": "1234567",
        "creditorName": "John Miles",
        "creditorAccount": {"iban": "DE67100100101306118605" },
        "transactionAmount": {"currency": "EUR", "amount": "256.67" },
        "bookingDate": "2017-10-25",
        "valueDate": "2017-10-26",
        "remittanceInformationUnstructured": "Example 1"
      },
      {
        "transactionId": "1234568",
        "debtorName": "Paul Simpson",
        "debtorAccount": {"iban": "NL76RABO0359400371" },
        "transactionAmount": {"currency": "EUR", "amount": "343.01" },
        "bookingDate": "2017-10-25",
        "valueDate": "2017-10-26",
        "remittanceInformationUnstructured": "Example 2"
      }
    ],
    "pending": [
      {
        "transactionId": "1234569",
        "creditorName": "Claude Renault",
        "creditorAccount": {"iban": "FR7612345987650123456789014" },
        "transactionAmount": {"currency": "EUR", "amount": "-100.03" },
        "valueDate": "2017-10-26",
        "remittanceInformationUnstructured": "Example 3"
      }
    ],
    "_links": {
      "account": {"href": "/psd2/v1/accounts/3dc3d5b3-7023-4848-9853-f5400a64e80f" }
    }
  }
}

```

Response (Example 2)

Response in case of huge data amount as a download.

```
HTTP/1.x 200 OK
X-Request-ID: 99391c7e-ad88-49ec-a2ad-99ddcb1f7757
Date: Sun, 06 Aug 2017 15:05:47 GMT
Content-Type: application/json

{
  "_links": {"download": {"href": "www.test-
api.com/xs2a/v1/accounts/12345678999/transactions/download/"}}
}
```

Response (Example 3)

Response in JSON format for an access on a multicurrency account on aggregation level

```
HTTP/1.x 200 OK
X-Request-ID: 99391c7e-ad88-49ec-a2ad-99ddcb1f7757
Date: Sun, 06 Aug 2017 15:05:47 GMT
Content-Type: application/json

{"account": {"iban": "DE40100100103307118608"},
 "transactions":
  {"booked":
   [
    {
     "transactionId": "1234567",
     "creditorName": "John Miles",
     "creditorAccount": {"iban": "DE67100100101306118605"},
     "transactionAmount": {"currency": "EUR", "amount": "-256.67"},
     "bookingDate": "2017-10-25",
     "valueDate": "2017-10-26",
     "remittanceInformationUnstructured": "Example 1"
    },
    {
     "transactionId": "1234568",
     "debtorName": "Paul Simpson",
     "debtorAccount": {"iban": "NL76RABO0359400371"},
     "transactionAmount": {"currency": "EUR", "amount": "343.01"},
     "bookingDate": "2017-10-25",
     "valueDate": "2017-10-26",
     "remittanceInformationUnstructured": "Example 2"
    },
    {
     "transactionId": "1234569",
     "debtorName": "Pepe Martin",
     "debtorAccount": {"iban": "SE9412309876543211234567"}
    }
   ]
  }
}
```

```

    "transactionAmount": {"currency": "USD", "amount": "100"},  

    "bookingDate": "2017-10-25",  

    "valueDate": "2017-10-26",  

    "remittanceInformationUnstructured": "Example 3"  

  ],  

  "pending":  

  [{  

    "transactionId": "1234570",  

    "creditorName": "Claude Renault",  

    "creditorAccount": {"iban": "FR7612345987650123456789014"},  

    "transactionAmount": {"currency": "EUR", "amount": "-100.03"},  

    "valueDate": "2017-10-26",  

    "remittanceInformationUnstructured": "Example 4"  

  ]},  

  "_links":  

  {"account": {"href": "/psd2/v1/accounts/3dc3d5b3-7023-4848-9853-f5400a64e80f"} }
}
}
}

```

Examples for AIS for standing orders

Request

GET
<https://api.testbank.com/psd2/v1/accounts/qwer3456tzui7890/transactions?bookingStatus=information>
 X-Request-ID: 99391c7e-ad88-49ec-a2ad-99ddcb1f7757
 Date: Sun, 06 Aug 2017 15:05:45 GMT
 Accept: application/json
 Consent-ID: 123cons456

Response

Response in JSON format for a list of standing orders

HTTP/1.x 200 Ok
 X-Request-ID: 99391c7e-ad88-49ec-a2ad-99ddcb1f7757
 Date: Sun, 06 Aug 2017 15:05:47 GMT
 Content-Type: application/json

```

  {"account": {"iban": "DE2310010010123456788"},  

   "transactions":  

   {"information":  

    [{  


```

```

    "creditorName": "John Miles",
    "creditorAccount": {"iban": "DE67100100101306118605"},
    "transactionAmount": {"currency": "EUR", "amount": "256.67"},
    "remittanceInformationUnstructured": "Example 1",
    "bankTransactionCode": "PMNT-ICDT-STDO",
    "additionalInformationStructured":
      {"standingOrderDetails":
        {"startDate": "2018-03-01",
         "endDate": "2020-06-31",
         "executionRule": "preceding",
         "frequency": "Monthly",
         "dayOfExecution": "24"
       }
     }
   }
}

```

6.5.5 Read Transaction Details

Call

GET /v1/accounts/{account-id}/transactions/{transactionId}

Reads transaction details from a given transaction addressed by "transactionId" on a given account addressed by "account-id". This call is only available on transactions as reported in a JSON format.

Remark: Please note that the PATH might be already given in detail by the corresponding entry of the response of the "Read Transaction List" call within the _links subfield.

Path Parameters

Attribute	Type	Description
account-id	String	This identification is denoting the addressed account, where the transaction has been performed.
transactionId	String	This identification is given by the attribute transactionId of the corresponding entry of a transaction list.

Query Parameters

No Query Parameters

Request Header

Attribute	Type	Condition	Description
X-Request-ID	UUID	Mandatory	ID of the request, unique to the call, as determined by the initiating party.
PSU-IP-Address	String	Conditional	The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP. It shall be contained if and only if this request was actively initiated by the PSU.
Consent-ID	String	Mandatory	
Authorization	String	Conditional	Is contained only, if an OAuth2 based authentication was performed in a pre-step or an OAuth2 based SCA was performed in the related consent authorisation.

Request Body

No request body.

Response Code

HTTP Response Code equals 200.

Response Header

Attribute	Type	Condition	Description
Content-Type	String	Mandatory	Possible values are: <ul style="list-style-type: none"> application/json
X-Request-ID	UUID	Mandatory	ID of the request, unique to the call, as determined by the initiating party.

Response Body

Attribute	Type	Condition	Description
transactionsDetails	Transactions	Optional	



Example

Request

GET
<https://api.testbank.com/psd2/v1/accounts/qwer3456tzui7890/transactions/1234567>
X-Request-ID: 99391c7e-ad88-49ec-a2ad-99ddcb1f7757
Date: Sun, 06 Aug 2017 15:05:46 GMT
Consent-ID: 123cons456

Response

HTTP/1.x 200 Ok
X-Request-ID: 99391c7e-ad88-49ec-a2ad-99ddcb1f7757
Date: Sun, 06 Aug 2017 15:05:47 GMT
Content-Type: application/json

```
{"transactionsDetails": {  
    "transactionId": "1234567",  
    "creditorName": "John Miles",  
    "creditorAccount": {"iban": "DE67100100101306118605"},  
    "mandateId": "Mandate-2018-04-20-1234",  
    "transactionAmount": {"currency": "EUR", "amount": "-256.67"},  
    "bookingDate": "2017-10-25",  
    "valueDate": "2017-10-26",  
    "remittanceInformationUnstructured": "Example 1",  
    "bankTransactionCode": "PMNT-RDDT-ESDD",  
}}}
```

Remark: As shown by this example, a very typical additional details of a transaction is a SEPA Mandate ID.

6.6 Read Card Account Data Requests

6.6.1 Read Card Account List

Call

GET /v1/card-accounts

Reads a list of card accounts with additional information, e.g. balance information. It is assumed that a consent of the PSU to this access is already given and stored on the ASPSP system. The addressed list of card accounts depends then on the PSU ID and the stored consent addressed by consentId, respectively the OAuth2 access token.

Query Parameters

No query parameter supported.

Request Header

Attribute	Type	Condition	Description
X-Request-ID	UUID	Mandatory	ID of the request, unique to the call, as determined by the initiating party.
PSU-IP-Address	String	Conditional	The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP. It shall be contained if and only if this request was actively initiated by the PSU.
Consent-ID	String	Mandatory	Identification of the corresponding consent as granted by the PSU
Authorization	String	Conditional	Is contained only, if an OAuth2 based authentication was performed in a pre-step or an OAuth2 based SCA was performed in the related consent authorisation.

Request Body

No request body

Response Code

HTTP Response Code equals 200.

Response Header

Attribute	Type	Condition	Description
X-Request-ID	UUID	Mandatory	ID of the request, unique to the call, as determined by the initiating party.

Response Body

Attribute	Type	Condition	Description
cardAccounts	Array of Card Account Details	Mandatory	In case, no card-account is accessible, the ASPSP shall return an empty array. As this is also considered a positive response, the Response Code must still be 200.

Example

Response body

```
{
  "cardAccounts": [
    {
      "resourceId": "3d9a81b3-a47d-4130-8765-a9c0ff861b99",
      "maskedPan": "525412*****3241",
      "currency": "EUR",
      "name": "Main",
      "product": "Basic Credit",
      "status": "enabled",
      "creditLimit": { "currency": "EUR", "amount": "15000" },
      "balances": [
        {
          "balanceType": "interimBooked",
          "balanceAmount": { "currency": "EUR", "amount": "14355.78" }
        },
        {
          "balanceType": "nonInvoiced",
          "balanceAmount": { "currency": "EUR", "amount": "4175.86" }
        }
      ],
      "_links": {
        "transactions": {
          "href": "/psd2/v1/card-accounts/3d9a81b3-a47d-4130-8765-a9c0ff861b99/transactions"
        }
      }
    }
  ]
}
```



6.6.2 Read Card Account Details

Call

```
GET /v1/card-accounts/{account-id}
```

Reads details about a card account. It is assumed that a consent of the PSU to this access is already given and stored on the ASPSP system. The addressed details of this account depends then on the stored consent addressed by consentId, respectively the OAuth2 access token.

Path Parameters

Attribute	Type	Description
account-id	String	This identification is denoting the addressed card account. The account-id is retrieved by using a "Read Card Account List" call. The account-id is the "resourceId" attribute of the account structure. Its value is constant at least throughout the lifecycle of a given consent.

Query Parameters

No query parameters defined.

Request Header

Attribute	Type	Condition	Description
X-Request-ID	UUID	Mandatory	ID of the request, unique to the call, as determined by the initiating party.
PSU-IP-Address	String	Conditional	The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP. It shall be contained if and only if this request was actively initiated by the PSU.
Consent-ID	String	Mandatory	Identification of the access consent as granted by the PSU.
Authorization	String	Conditional	Is contained only, if an OAuth2 based authentication was performed in a pre-step or an OAuth2 based SCA was performed in the related consent authorisation.

Request Body

No request body

Response Code

HTTP Response Code equals 200.

Response Header

Attribute	Type	Condition	Description
X-Request-ID	UUID	Mandatory	ID of the request, unique to the call, as determined by the initiating party.

Response Body

Attribute	Type	Condition	Description
cardAccount	Card Account Details	Mandatory	

Example

```
{
  "cardAccount": {
    "resourceId": "3d9a81b3-a47d-4130-8765-a9c0ff861b99",
    "maskedPan": "525412*****3241",
    "currency": "EUR",
    "debitAccounting": true,
    "ownerName": "Heike Mustermann",
    "name": "Main",
    "product": "Basic Credit",
    "status": "enabled",
    "creditLimit": { "currency": "EUR", "amount": "15000" },
    "balances": [
      {
        "balanceType": "interimBooked",
        "balanceAmount": { "currency": "EUR", "amount": "14355.78" }
      },
      {
        "balanceType": "nonInvoiced",
        "balanceAmount": { "currency": "EUR", "amount": "4175.86" }
      }
    ]
  }
}
```

```

        }
    ],
    "_links": {
        "transactions": {
            "href": "/psd2/v1/card-accounts/3d9a81b3-a47d-4130-8765-
a9c0ff861b99/transactions"
        }
    }
}

```

6.6.3 Read Card Account Balance

Call

GET /v1/card-accounts/{account-id}/balances

Reads balance data from a given card account addressed by "account-id".

Remark: This account-id can be a tokenised identification due to data protection reason since the path information might be logged on intermediary servers within the ASPSP sphere. This account-id then can be retrieved by the "GET Card Account List" call, cp. Section 6.6.1.

The account-id is constant at least throughout the lifecycle of a given consent.

Path Parameters

Attribute	Type	Description
account-id	String	This identification is denoting the addressed card account. The account-id is retrieved by using a "Read Account List" call. The account-id is the "resourceId" attribute of the account structure. Its value is constant at least throughout the lifecycle of a given consent.

Query Parameters

No specific query parameters.

Response Code

HTTP Response Code equals 200.