



# PSD2 – TPP Technical Design

**Version: 1.7.0**

**Authorisations and version control**


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<b>Version</b>	<b>Date</b>	<b>Affects</b>	<b>Brief description of the change</b>
1.6.0	February 2019	EVERYTHING	Initial Version
1.7.0	November 2019	3. DESCRIPTION OF CORE SERVICES  Minor corrections	New API 3.4 FCS support: Establish consent for the fund confirmation service

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## **1. INTRODUCTION**

### **1.1 Scope**

This document describes the technical design of the interface between third-party (payment service) providers (TPPs) and the HUB to ensure compliance with the PSD2 Directive.

### **1.2 Context**

It is the final joint document between Redsys and the financial institutions associated with the HUB.

### **1.3 Glossary**

The table below lists the acronyms/abbreviations and their definitions used in the document.

<b>Acronym</b>	<b>Definition</b>
<b>ASPSP</b>	Account Servicing Payment Services Provider
	Provides and maintains customer accounts from which payments can be made.
<b>PISP</b>	Payment Initiation Services Provider
	Initiates a payment order at the request of the user, from a payment account held at another payment services provider
<b>AISP</b>	Account Information Service Provider
	Provides account information services to customers for payment accounts held with other providers.
<b>TPP</b>	Third Party Provider

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<b>Acronym</b>	<b>Definition</b>
	Executes the services defined by PSD2 on behalf of a PSU. If it is necessary for the service, it accesses the account(s) of the PSU administered by an ASPSP using the XS2A interface of this ASPSP. It sends request messages to the XS2A interface of the ASPSP and receives response messages corresponding to this ASPSP.
<b>PIISP</b>	Payment Issuer Instrument Services Provider
	Provides users with a payment instrument with which to initiate and process payment transactions.
<b>PSU</b>	Payment Services User
	May be a natural or legal person under PSD2 legislation. Implicitly or explicitly instructs the TPP to perform any PSD2 service for its ASPSP.



## 2. GENERAL DESCRIPTION OF THE SYSTEM

The following table lists the services available:

Service		Functionality	Status
CORE	PIS	Initiate simple single signature payment	Available
		Initiate recurring payments	Available
		Initiate future payments	Available
		Check payment status	Available
		Recover payment initiation information	Available
		Cancel payment	Available
	AIS	Establish consent	Available
		Recover consent information	Available
		Check consent status	Available
		Remove consent	Available
		Read list of accounts available with/without balances	Available
		Read list of accounts accessible with/without balances	Available
		Read account details with/without balances	Available
		Read balances	Available
		Read transactions with/without balances	Available
	FCS	Establish consent	Available
		Recover consent information	Available
		Check consent status	Available
		Remove consent	Available
		Fund confirmation	Available
	SCA	SCA by redirected flow	Available
	Common processes	Initiate explicit authorisation	Available
		SCA status query	Available
Obtain authorisation sub-resources		Available	

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	<b>OAUTH</b>	Update authorisation data	Available
		Obtain access token	Available
		Renew access token	Available

**Table 1: CORE services**

<b>Service</b>		<b>Functionality</b>	<b>Status</b>
<b>SVA</b>	<b>ASPSP DIR.</b>	List of available ASPSPs (v1 and v2)	Available
	<b>PIS</b>	Payment initiation with list of accounts available for PISP	Available

**Table 2: Value-added services**

### 3. DESCRIPTION OF CORE SERVICES

#### 3.1 PIS: Payment initiation service

##### 3.1.1 Payment initiation

Message sent by the TPP to the ASPSP through Hub to initiate payment.

##### 3.1.1.1 Request

###### Endpoint

POST {provider}/{aspsp}/v1/payments/{payment-product}

###### Path

Field	Description	Type	Man.	Format
<b>provider</b>	URL of the HUB where the service is published.	String	MAN	E.g. www.hub.com
<b>aspsp</b>	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name
<b>payment-product</b>	Payment product to be used. List of supported products: <ul style="list-style-type: none"> <li>• sepa-credit-transfers</li> <li>• instant-sepa-credit-transfers</li> <li>• target-2-payments</li> <li>• cross-border-credit-transfers</li> </ul>	String	MAN	E.g. {provider}/{aspsp}/v1/payments/sepa-credit-transfers/

###### Query parameters

No additional parameters are specified for this request.

## Header

Field	Description	Type	Man.	Format
<b>Content-Type</b>	Value: application/json	String	MAN	Content-Type: application/json
<b>X-Request-ID</b>	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	<b>UUID</b>  ^[0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12}\$  E.g.  X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7
<b>Authorisation</b>	Bearer Token. Obtained in a prior authentication on OAuth2.	String	MAN	E.g.  Authorisation: Bearer 2YotnFZFEjr1zCsicM WpAA
<b>Consent-ID</b>	This data element may be contained, if the payment initiation transaction is part of a session, i.e. combined AIS/PIS service. This then contains the "consentId" of the related AIS consent, which was performed prior to this payment initiation.	String	OPT	^.{1,36}\$  E.g. Consent-ID: 7890-asdf-4321
<b>PSU-IP-Address</b>	The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP.	String	MAN	^[0-9]{1,3}\.[0-9]{1,3}\.[0-9]{1,3}\.[0-9]{1,3}\$  E.g.  PSU-IP-Address: 192.168.16.5

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	If not available, the TPP shall use the IP Address used by the TPP when submitting this request.			
<b>PSU-IP-Port</b>	The forwarded IP Port header field consists of the corresponding HTTP request IP Port field between PSU and TPP, if available.	String	OPT	^.{1,5}\$ E.g. PSU-IP-Port: 443
<b>PSU-Accept</b>	The forwarded Accept header fields consist of the corresponding HTTP request Accept header fields between PSU and TPP, if available.	String	OPT	^.{1,50}\$ E.g. PSU-Accept: application/json
<b>PSU-Accept-Charset</b>	See above	String	OPT	^.{1,50}\$ E.g. PSU-Accept-Charset: utf-8
<b>PSU-Accept-Encoding</b>	See above	String	OPT	^.{1,50}\$ E.g. PSU-Accept-Encoding: gzip
<b>PSU-Accept-Language</b>	See above	String	OPT	^.{1,50}\$ E.g. PSU-Accept-Language: es-ES
<b>PSU-User-Agent</b>	The forwarded Agent header field of the HTTP request between PSU and TPP, if available.	String	OPT	E.g. PSU-User-Agent: Mozilla/5.0 (Windows; U; Windows NT 6.1; en-US; rv:1.9.1.5) Gecko/20091102 Firefox/3.5.5 (.NET CLR 3.5.30729)
<b>PSU-Http-Method</b>	HTTP method used at the PSU – TPP interface, if available.  Valid values are: <ul style="list-style-type: none"> <li>• GET</li> <li>• POST</li> <li>• PUT</li> <li>• PATCH</li> </ul>	String	OPT	E.g. PSU-Http-Method: POST

	<ul style="list-style-type: none"> <li>DELETE</li> </ul>			
<b>PSU-Device-ID</b>	<p>UUID (Universally Unique Identifier) for a device, which is used by the PSU, if available.</p> <p>UUID identifies either a device or a device dependant application installation. In case of an installation identification this ID need to be unaltered until removal from device.</p>	String	OPT	<p><b>UUID</b></p> <p><code>^[0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12}\$</code></p> <p>E.g.</p> <p>PSU-Device-ID: 5b3ab8e8-0fd5-43d2-946e-d75958b172e7</p>
<b>PSU-Geo-Location</b>	<p>The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.</p>	String	OPT	<p><b>RFC 2426</b></p> <p><code>^GEO:[\\d]*.[\\d]*[;][\\d]*.[\\d]*\$</code></p> <p>E.g.</p> <p>PSU-Geo-Location: GEO:90.023856;25.345963</p>
<b>TPP-Redirect-Preferred</b>	<p>If it equals "true", the TPP prefers a redirect over an embedded SCA approach.</p> <p>If it equals "false", the TPP prefers not to be redirected for SCA. The ASPSP will then choose between the Embedded or the Decoupled 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 SCA method chosen by the TPP/PSU.</p>	Boolean	OPT	<p>E.g. TPP-Redirect-Preferred: true</p>

	<b>EMBEDDED NOT SUPPORTED IN THIS VERSION</b>			
<b>TPP-Redirect-URI</b>	<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".</p> <p>It is recommended to always use this header field.</p> <p><b>Remark for Future:</b> This field might be changed to mandatory in the next version of the specification.</p>	String	COND	$\wedge.\{1,250\}\$$ E.g. TPP-Redirect-URI:"https://tpp.example.es/cb"
<b>TPP-Nok-Redirect-URI</b>	<p>If this URI is contained, the TPP is asking to redirect the transaction flow to this address instead of the TPP-Redirect-URI in case of a negative result of the redirect SCA method. This might be ignored by the ASPSP.</p>	String	OPT	$\wedge.\{1,250\}\$$ E.g. TPP-Nok-Redirect-URI:"https://tpp.example.es/cb/nok"
<b>TPP-Explicit-Authorisation-Preferred</b>	<p>If it equals "true", the TPP prefers to start the authorisation process separately. This preference might be ignored by the ASPSP, if a signing basket is not supported as functionality.</p>	Boolean	OPT	E.g. TPP-Explicit-Authorisation-Preferred: false

	<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.</p> <p><b>Note:</b> the ASPSP may not take it into account if it does not support it.</p>			
<b>Digest</b>	<p>Is contained if and only if the "Signature" element is contained in the header of the request.</p> <p>See 6.1 Signature for more information.</p>	String	MAN	$^{\{1,100\}}\$$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRIMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
<b>Signature</b>	<p>A signature of the request by the TPP on application level.</p> <p>See 6.1 Signature for more information.</p>	String	MAN	See annexes
<b>TPP-Signature-Certificate</b>	<p>The certificate used for signing the request, in base64 encoding.</p>	String	MAN	$^{\{1,5000\}}\$$ E.g. TPP-Signature-Certificate: MIIHgzCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ.....KoZIhv cNAQELBQAwSTEM AkGA1UEBhMCMVVM xEzARBgNVBA

### Body

The content of the Body is that defined in 5.11 SinglePayment.

#### 3.1.1.2 Response

### Header

<USO TPPs>



Field	Description	Type	Man.	Format
<b>Location</b>	Location of the created resource (if created)	String	MAN	$\wedge.\{1,512\}\$$ E.g. Location: /v1/payments/{payment-product}/{payment-id}
<b>X-Request-ID</b>	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	<b>UUID</b> $\wedge[0-9a-fA-F]\{8\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{12\}\$$ E.g. X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7
<b>ASPSP-SCA-Approach</b>	This data element must be contained, if the SCA Approach is already fixed. Possible values are: <ul style="list-style-type: none"> <li>• REDIRECT</li> </ul> The OAuth SCA approach will be subsumed by REDIRECT.	String	COND	E.g. ASPSP-SCA-Approach: REDIRECT

### Body

Field	Description	Type	Man.	Format
<b>transactionStatus</b>	Status of the transaction.  Values defined in annexes in 6.4 Transaction status	String	MAN	<b>ISO 20022</b> E.g. "transactionStatus": "RCVD"
<b>paymentId</b>	Resource identification of the generated payment initiation resource.	String	MAN	$\wedge.\{1,36\}\$$ E.g. "paymentId": "1b3ab8e8-0fd5-43d2-946e-d75958b172e7"
<b>_links</b>	A list of hyperlinks to be recognised by the TPP.	Links	MAN	E.g. "_links": {...}

	<p>Type of links admitted in this response:</p> <ul style="list-style-type: none"> <li>• scaRedirect: In case of an SCA Redirect Approach, the ASPSP is transmitting the link to which to redirect the PSU browser.</li> <li>• startAuthorisation: 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).</li> <li>• self: link to the resource created by this request.</li> <li>• status: The link to retrieve the transaction status</li> <li>• 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.</li> </ul>			
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<b>tppMessages</b>	Message to the TPP	List<Tpp Message >	OPT	E.g. "tppMessages": [...]
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### 3.1.1.3 Examples

#### Example of request for SCA via redirection

POST <https://www.hub.com/aspsp-name/v1/payments/sepa-credit-transfers>

Content-Encoding: gzip

Content-Type: application/json

X-Request-ID: 10391c7e-ad88-49ec-a2ad-00aacb1f6541

Authorization: Bearer 2YotnFZFEjrlzCsicMWpAA

PSU-IP-Address: 192.168.8.16

PSU-IP-Port: 443

PSU-Accept: application/json

PSU-Accept-Charset: utf-8

PSU-Accept-Encoding: gzip

PSU-Accept-Language: es-ES

PSU-User-Agent: Mozilla/5.0 (Windows NT 10.0; WOW64; rv:54.0) Gecko/20100101 Firefox/54.0

PSU-Http-Method: POST

PSU-Device-ID: f8b3feda-6fe3-11e8-adc0-fa7ae01bbebc

PSU-GEO-Location: GEO:12.526347;54.649862

TPP-Redirect-Preferred: true

TPP-Redirect-URI: https://www.tpp.com/cb

TPP-Nok-Redirect-URI: https://www.tpp.com/cb/nok

Date: Sun, 26 Sep 2017 15:02:37 GMT

```
{
  "instructedAmount": {
    "currency": "EUR",
    "amount": "153.50"
  },
  "debtorAccount": {
```

<USO TPPs>

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```
        "iban": "ES11111111111111111111111111111111"
    },
    "creditorAccount": {
        "iban": "ES22222222222222222222222222222222"
    },
    "creditorName": "Name123",
    "remittanceInformationUnstructured": "Additional information"
}
```

**Example of response in case of a redirect with an implicitly created authorisation sub-resource**

HTTP/1.1 201 Created

X-Request-ID: 10391c7e-ad88-49ec-a2ad-00aacb1f6541

ASPSP-SCA-Approach: REDIRECT

Date: Sun, 26 Sep 2017 15:02:43 GMT

Location: </v1/payments/sepa-credit-transfers/123-qwe-456>

Content-Type: application/json

```
{
  "transactionStatus": "RCVD",
  "paymentId": "123-qwe-456",
  "_links": {
    "scaRedirect": {
      "href": "https://hub.example.es/authorize "
    },
    "self": {
      "href": "/v1/payments/sepa-credit-transfers/123-qwe-456",
      "status": {
        "href": "/v1/payments/sepa-credit-transfers/123-qwe-456/status"
      }
    },
    "scaStatus": {
      "href": "/v1/payments/sepa-credit-transfers/123-qwe-456/authorisations/123auth456"
    }
  }
}
```

}

### 3.1.2 Payment initiation for future dated payments

Message sent by the TPP to the ASPSP through the Hub to initiate a future dated payment.

#### 3.1.2.1 Request

##### Endpoint

POST `{provider}/{aspsp}/v1/payments/{payment-product}`

##### Path

Field	Description	Type	Man.	Format
<b>provider</b>	URL of the HUB where the service is published.	String	MAN	E.g. hub.example.es
<b>aspsp</b>	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name
<b>payment-product</b>	Payment product to be used. List of supported products: <ul style="list-style-type: none"> <li>• sepa-credit-transfers</li> <li>• instant-sepa-credit-transfers</li> <li>• target-2-payments</li> <li>• cross-border-credit-transfers</li> </ul>	String	MAN	E.g. {provider}/{aspsp}/v1/payments/sepa-credit-transfers/

##### Query parameters

No additional parameters are specified for this request.

##### Header

Field	Description	Type	Man.	Format
-------	-------------	------	------	--------

<b>Content-Type</b>	Value: application/json	String	MAN	Content-Type: application/json
<b>X-Request-ID</b>	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	<b>UUID</b> ^[0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12}\$  E.g. X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7
<b>Authorisation</b>	Bearer Token. Obtained in a prior authentication on OAuth2.	String	MAN	E.g.  Authorisation: Bearer 2YotnFZFEjr1zCsicMWpAA
<b>Consent-ID</b>	This data element may be contained, if the payment initiation transaction is part of a session, i.e. combined AIS/PIS service. This then contains the "consentId" of the related AIS consent, which was performed prior to this payment initiation.	String	OPT	^.{1,36}\$  E.g. Consent-ID: 7890-asdf-4321
<b>PSU-IP-Address</b>	The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP.  If not available, the TPP shall use the IP Address used by the TPP when submitting this request.	String	MAN	^[0-9]{1,3}\.[0-9]{1,3}\.[0-9]{1,3}\.[0-9]{1,3}\$  E.g. PSU-IP-Address: 192.168.16.5

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<b>PSU-IP-Port</b>	The forwarded IP Port header field consists of the corresponding HTTP request IP Port field between PSU and TPP, if available.	String	OPT	^.{1,5}\$ E.g. PSU-IP-Port: 443
<b>PSU-Accept</b>	The forwarded Accept header fields consist of the corresponding HTTP request Accept header fields between PSU and TPP, if available.	String	OPT	^.{1,50}\$ E.g. PSU-Accept: application/json
<b>PSU-Accept-Charset</b>	See above	String	OPT	^.{1,50}\$ E.g. PSU-Accept-Charset: utf-8
<b>PSU-Accept-Encoding</b>	See above	String	OPT	^.{1,50}\$ E.g. PSU-Accept-Encoding: gzip
<b>PSU-Accept-Language</b>	See above	String	OPT	^.{1,50}\$ E.g. PSU-Accept-Language: es-ES
<b>PSU-User-Agent</b>	The forwarded Agent header field of the HTTP request between PSU and TPP, if available.	String	OPT	E.g. PSU-User-Agent: Mozilla/5.0 (Windows; U; Windows NT 6.1; en-US; rv:1.9.1.5) Gecko/20091102 Firefox/3.5.5 (.NET CLR 3.5.30729)
<b>PSU-Http-Method</b>	HTTP method used at the PSU – TPP interface, if available.  Valid values are: <ul style="list-style-type: none"> <li>• GET</li> <li>• POST</li> <li>• PUT</li> <li>• PATCH</li> <li>• DELETE</li> </ul>	String	OPT	E.g. PSU-Http-Method: POST

<p><b>PSU-Device-ID</b></p>	<p>UUID (Universally Unique Identifier) for a device, which is used by the PSU, if available.</p> <p>UUID identifies either a device or a device dependant application installation. In case of an installation identification this ID need to be unaltered until removal from device.</p>	<p>String</p>	<p>OPT</p>	<p><b>UUID</b></p> <p><code>^[0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12}\$</code></p> <p>E.g.</p> <p>PSU-Device-ID: 5b3ab8e8-0fd5-43d2-946e-d75958b172e7</p>
<p><b>PSU-Geo-Location</b></p>	<p>The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.</p>	<p>String</p>	<p>OPT</p>	<p><b>RFC 2426</b></p> <p><code>^GEO:[\d]*.[\d]*[;][\d]*.[\d]*\$</code></p> <p>E.g.</p> <p>PSU-Geo-Location: GEO:90.023856;25.345963</p>
<p><b>TPP-Redirect-Preferred</b></p>	<p>If it equals "true", the TPP prefers a redirect over an embedded SCA approach.</p> <p>If it equals "false", the TPP prefers not to be redirected for SCA. The ASPSP will then choose between the Embedded or the Decoupled 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 SCA method chosen by the TPP/PSU.</p> <p><b>EMBEDDED NOT SUPPORTED IN THIS VERSION</b></p>	<p>Boolean</p>	<p>OPT</p>	<p>E.g. TPP-Redirect-Preferred: true</p>



<p><b>TPP-Redirect-URI</b></p>	<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".</p> <p>It is recommended to always use this header field.</p> <p><b>Remark for Future:</b> This field might be changed to mandatory in the next version of the specification.</p>	<p>String</p>	<p>COND</p>	<p>^.{1,250}\$</p> <p>E.g. TPP-Redirect-URI:"https://tpp.example.es/cb"</p>
<p><b>TPP-Nok-Redirect-URI</b></p>	<p>If this URI is contained, the TPP is asking to redirect the transaction flow to this address instead of the TPP-Redirect-URI in case of a negative result of the redirect SCA method. This might be ignored by the ASPSP.</p>	<p>String</p>	<p>OPT</p>	<p>^.{1,250}\$</p> <p>E.g. TPP-Nok-Redirect-URI:"https://tpp.example.es/cb/nok"</p>
<p><b>TPP-Explicit-Authorisation-Preferred</b></p>	<p>If it equals "true", the TPP prefers to start the authorisation process separately. 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.</p>	<p>Boolean</p>	<p>OPT</p>	<p>E.g. TPP-Explicit-Authorisation-Preferred: false</p>

	<b>Note:</b> the ASPSP may not take it into account if it does not support it.			
<b>Digest</b>	Is contained if and only if the "Signature" element is contained in the header of the request.  See 6.1 Signature for more information.	String	MAN	^.{1,100}\$  E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYtZiNTU3MjVmNDI4NTRIMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
<b>Signature</b>	A signature of the request by the TPP on application level.  See 6.1 Signature for more information.	String	MAN	See annexes
<b>TPP-Signature-Certificate</b>	The certificate used for signing the request, in base64 encoding.	String	MAN	^.{1,5000}\$  E.g. TPP-Signature-Certificate: MIIHgZCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ.....KoZIHvcNAQELBQAuSTE LMAkGA1UEBhMCMCV VMxEzARBgNVBA

### Body

The content of the Body is defined in 5.11 SinglePayment and the following parameter must also be entered:

Field	Description	Type	Man.	Format
<b>requestedExecutionDate</b>	The payment will be executed on the reported date. <b>Note:</b> this field must be entered.	String	OPT	<b>ISODate</b>  E.g. "requestedExecutionDate": "2019-01-12"

### 3.1.2.2 Response

#### Header

<USO TPPs>

Field	Description	Type	Man.	Format
<b>Location</b>	Location of the created resource (if created)	String	MAN	<b>Max512Text</b> E.g. Location: /v1/payments/{payment-product}/{payment-id}
<b>X-Request-ID</b>	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	<b>UUID</b> ^[0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12}\$ E.g. X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7
<b>ASPSP-SCA-Approach</b>	This data element must be contained, if the SCA Approach is already fixed. Possible values are: <ul style="list-style-type: none"> <li>• REDIRECT</li> </ul> The OAuth SCA approach will be subsumed by REDIRECT.	String	COND	E.g. ASPSP-SCA-Approach: REDIRECT

### Body

Field	Description	Type	Man.	Format
<b>transactionStatus</b>	Status of the transaction. Values defined in annexes in 6.4 Transaction status	String	MAN	<b>ISO 20022</b> E.g. "transactionStatus": "RCVD"
<b>paymentId</b>	Resource identification of the generated payment initiation resource.	String	MAN	^.{1,36}\$ E.g. "paymentId": "1b3ab8e8-0fd5-43d2-946e-d75958b172e7"
<b>_links</b>	A list of hyperlinks to be recognised by the TPP.	Links	MAN	E.g. "_links": {...}

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	<p>Type of links admitted in this response:</p> <ul style="list-style-type: none"> <li>• scaRedirect: In case of an SCA Redirect Approach, the ASPSP is transmitting the link to which to redirect the PSU browser.</li> <li>• startAuthorisation: 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).</li> <li>• self: link to the resource created by this request.</li> <li>• status: The link to retrieve the transaction status</li> <li>• 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.</li> </ul>			
--	--	--	--	--

<b>tppMessages</b>	Message to the TPP	List<TppMessage>	OPT	E.g. "tppMessages": [...]
--------------------	--------------------	------------------	-----	---------------------------

### 3.1.2.3 Examples

#### Example of request for SCA via redirection

POST <https://hub.example.es/aspsp-name/v1/payments/sepa-credit-transfers>

```

Content-Encoding: gzip
Content-Type: application/json
X-Request-ID: 10391c7e-ad88-49ec-a2ad-00aacb1f6541
Authorization: Bearer 2YotnFZFEjrlzCsicMWpAA
PSU-IP-Address: 192.168.8.16
PSU-IP-Port: 443
PSU-Accept: application/json
PSU-Accept-Charset: utf-8
PSU-Accept-Encoding: gzip
PSU-Accept-Language: es-ES
PSU-User-Agent: Mozilla/5.0 (Windows NT 10.0; WOW64; rv:54.0)
Gecko/20100101 Firefox/54.0
PSU-Http-Method: POST
PSU-Device-ID: f8b3feda-6fe3-11e8-adc0-fa7ae01bbebc
PSU-GEO-Location: GEO:12.526347;54.649862
TPP-Redirect-Preferred: true
TPP-Redirect-URI: https://tpp.example.es/cb
TPP-Nok-Redirect-URI: https://tpp.example.es/cb/nok
Date: Sun, 26 Sep 2017 15:02:37 GMT
{
  "instructedAmount": {
    "currency": "EUR",
    "amount": "153.50"
  },
  "debtorAccount": {
    "iban": "ES1111111111111111111111"
  },
}

```

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```
"creditorAccount": {  
    "iban": "ES22222222222222222222222222222222"  
},  
"creditorName": "Name123",  
"remittanceInformationUnstructured": "Additional information",  
"requestedExecutionDate": "2019-01-12"  
}
```

### 3.1.3 Initiation for standing orders for recurring/periodic payments

Message sent by the TPP to the ASPSP through the Hub to create a future recurring/periodic payment initiation.

The functionality of recurring payment initiations is covered by the Berlin Group specification as a specific standing order initiation.

The TPP can submit a recurring payment initiation where the starting date, frequency and conditionally an end date is provided. Once authorised by the PSU, the payment then will be executed by the ASPSP, if possible, following this "standing order" as submitted by the TPP. No further TPP action is needed. This payment is called a periodic payment in this context to differentiate the payment from recurring payment types, where third parties are initiating the same amount of money e.g. payees for using credit card transactions or direct debits for recurring payments of goods or services. These latter types of payment initiations are not part of this interface.

**Note:** for the permanent payment initiation orders, the ASPSP will always request SCA with Dynamic linking. No exceptions are allowed.

#### dayOfExecution field rules

- **Daily payments:** the "dayOfExecution" field is not required. The first payment is the "startDate", and from then on, the payment is made every day.
- **Weekly payments:** if "dayOfExecution" is required, the possible values are from 01=Monday to 07=Sunday. If "dayOfExecution" is not required, the "startDate" used is that of the day of the week on which the payment was made. (If the "startDate" is Thursday, the payment will be made every Thursday)
- **Twice-monthly payments:** the same rule as for weekly payments applies.
- **Monthly or less frequent payments:** the possible values range from 01 to 31, using 31 as the last day of the month.

### 3.1.3.1 Request

#### Endpoint

POST {provider}/{aspsp}/v1/periodic-payments/{payment-product}

#### Path

Field	Description	Type	Man.	Format
<b>provider</b>	URL of the HUB where the service is published.	String	MAN	E.g. hub.example.es
<b>aspsp</b>	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name
<b>payment-product</b>	Payment product to be used. List of supported products: <ul style="list-style-type: none"> <li>• sepa-credit-transfers</li> <li>• instant-sepa-credit-transfers</li> <li>• target-2-payments</li> <li>• cross-border-credit-transfers</li> </ul>	String	MAN	E.g. {provider}/{aspsp-name}/v1/periodic-payments/sepa-credit-transfers/

#### Query parameters

No additional parameters are specified for this request.

#### Header

Field	Description	Type	Man.	Format
<b>Content-Type</b>	Value: application/json	String	MAN	Content-Type: application/json
<b>X-Request-ID</b>	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	<b>UUID</b> $\wedge[0-9a-fA-F]\{8\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{12\}\$$ E.g.

				X-Request-ID: 1b3ab8e8-0fd5- 43d2-946e- d75958b172e7
<b>Authorisation</b>	Bearer Token. Obtained in a prior authentication on OAuth2.	String	MAN	E.g. Authorisation: Bearer 2YotnFZFEjr1zCsic MWpAA
<b>Consent-ID</b>	This data element may be contained, if the payment initiation transaction is part of a session, i.e. combined AIS/PIS service. This then contains the "consentId" of the related AIS consent, which was performed prior to this payment initiation.	String	OPT	^.{1,36}\$ E.g. Consent-ID: 7890-asdf-4321
<b>PSU-IP-Address</b>	The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP.  If not available, the TPP shall use the IP Address used by the TPP when submitting this request.	String	MAN	^[0-9]{1,3}\.[0-9]{1,3}\.[0-9]{1,3}\.[0-9]{1,3}\$ E.g. PSU-IP-Address: 192.168.16.5
<b>PSU-IP-Port</b>	The forwarded IP Port header field consists of the corresponding HTTP request IP Port field between PSU and TPP, if available.	String	OPT	^.{1,5}\$ E.g. PSU-IP-Port: 443
<b>PSU-Accept</b>	The forwarded Accept header fields consist of the corresponding HTTP request Accept header fields between PSU and TPP, if available.	String	OPT	^.{1,50}\$ E.g. PSU-Accept: application/json



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<b>PSU-Accept-Charset</b>	See above	String	OPT	$\wedge.\{1,50\}\$$ E.g. PSU-Accept-Charset: utf-8
<b>PSU-Accept-Encoding</b>	See above	String	OPT	$\wedge.\{1,50\}\$$ E.g. PSU-Accept-Encoding: gzip
<b>PSU-Accept-Language</b>	See above	String	OPT	$\wedge.\{1,50\}\$$ E.g. PSU-Accept-Language: es-ES
<b>PSU-User-Agent</b>	The forwarded Agent header field of the HTTP request between PSU and TPP, if available.	String	OPT	E.g. PSU-User-Agent: Mozilla/5.0 (Windows; U; Windows NT 6.1; en-US; rv:1.9.1.5) Gecko/20091102 Firefox/3.5.5 (.NET CLR 3.5.30729)
<b>PSU-Http-Method</b>	HTTP method used at the PSU – TPP interface, if available.  Valid values are: <ul style="list-style-type: none"> <li>• GET</li> <li>• POST</li> <li>• PUT</li> <li>• PATCH</li> <li>• DELETE</li> </ul>	String	OPT	E.g. PSU-Http-Method: POST
<b>PSU-Device-ID</b>	UUID (Universally Unique Identifier) for a device, which is used by the PSU, if available.  UUID identifies either a device or a device dependant application installation. In case of an installation identification this ID need to be unaltered until removal from device.	String	OPT	<b>UUID</b> $\wedge[0-9a-fA-F]\{8\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{12\}\$$  E.g. PSU-Device-ID: 5b3ab8e8-0fd5-43d2-946e-d75958b172e7

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<p><b>PSU-Geo-Location</b></p>	<p>The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.</p>	<p>String</p>	<p>OPT</p>	<p><b>RFC 2426</b>  <math>\wedge</math>GEO:[\d]*.[\d]*[;][\d]*.[\d]*\$  E.g.  PSU-Geo-Location:  GEO:90.023856;25.345963</p>
<p><b>TPP-Redirect-Preferred</b></p>	<p>If it equals "true", the TPP prefers a redirect over an embedded SCA approach.</p> <p>If it equals "false", the TPP prefers not to be redirected for SCA. The ASPSP will then choose between the Embedded or the Decoupled 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 SCA method chosen by the TPP/PSU.</p> <p><b>EMBEDDED NOT SUPPORTED IN THIS VERSION</b></p>	<p>Boolean</p>	<p>OPT</p>	<p>E.g. TPP-Redirect-Preferred: true</p>
<p><b>TPP-Redirect-URI</b></p>	<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".</p> <p>It is recommended to always use this header field.</p>	<p>String</p>	<p>COND</p>	<p><math>\wedge</math>.{1,250}\$  E.g. TPP-Redirect-URI:"https://tpp.example.es/cb"</p>

	<p><b>Remark for Future:</b> This field might be changed to mandatory in the next version of the specification.</p>			
<b>TPP-Nok-Redirect-URI</b>	<p>If this URI is contained, the TPP is asking to redirect the transaction flow to this address instead of the TPP-Redirect-URI in case of a negative result of the redirect SCA method. This might be ignored by the ASPSP.</p>	String	OPT	$\wedge.\{1,250\}\$$ E.g. TPP-Nok-Redirect-URI:"https://tpp.example.es/cb/nok"
<b>TPP-Explicit-Authorisation-Preferred</b>	<p>If it equals "true", the TPP prefers to start the authorisation process separately. 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.</p> <p><b>Note:</b> the ASPSP may not take it into account if it does not support it.</p>	Boolean	OPT	E.g. TPP-Explicit-Authorisation-Preferred: false
<b>Digest</b>	<p>Is contained if and only if the "Signature" element is contained in the header of the request.</p> <p>See 6.1 Signature for more information.</p>	String	OPT	$\wedge.\{1,100\}\$$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRIMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==

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<b>Signature</b>	A signature of the request by the TPP on application level. See 6.1 Signature for more information.	String	MAN	See annexes
<b>TPP-Signature-Certificate</b>	The certificate used for signing the request, in base64 encoding.	String	MAN	^.{1,5000}\$ E.g. TPP-Signature-Certificate: MIIHgZCCBmugAw IBAgIIZzZvBQIt0U cwDQYJ.....Ko ZIhvcNAQELBQAw STELMAkGA1UEBh MCMVVMxEzARBgN VBA

**Body**

The content of the body is defined in 5.11 SinglePayment together with the following definitions:

<b>Field</b>	<b>Description</b>	<b>Type</b>	<b>Man.</b>	<b>Format</b>
<b>startDate</b>	The first applicable day of execution starting from this date is the first payment.	String	MAN	<b>ISODate</b> E.g. "startDate":"2018-12-20"
<b>execution Rule</b>	Supported values: <ul style="list-style-type: none"> <li>• following</li> <li>• preceding</li> </ul> <p>This data attribute defines the behavior when recurring payment dates falls on a weekend or bank holiday. The payment is then executed either the "preceding" or "following" working day.</p>	String	OPT	E.g. "executionRule":"following"

	ASPSP might reject the request due to the communicated value, if rules in Online-Banking are not supporting this execution rule.			
<b>endDate</b>	The last applicable day of execution If not given, it is an infinite standing order.	String	OPT	<b>ISODate</b> E.g. "endDate":"2019-01-20"
<b>frequency</b>	The frequency of the recurring payment resulting from this standing order. Permitted values: <ul style="list-style-type: none"> <li>• Daily</li> <li>• Weekly</li> <li>• EveryTwoWeeks</li> <li>• Monthly</li> <li>• EveryTwoMonths</li> <li>• Quarterly</li> <li>• SemiAnnual</li> <li>• Annual</li> </ul>	String	MAN	<b>ISO 20022 EventFrequency7Code</b> E.g. "frequency":"Monthly"
<b>dayOfExecution</b>	"31" is ultimo. The format is following the regular expression $\{d\{1,2\}$ . Example: The first day is addressed by "1". The date is referring to the time zone of the ASPSP. Only if supported in the ASPSP Online Banking.	String	COND	$\{d\{1,2\}$ E.g. "dayOfExecution":"01"

### 3.1.3.2 Response

#### Header

Field	Description	Type	Man.	Format
-------	-------------	------	------	--------

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<b>Location</b>	Location of the created resource (if created)	String	MAN	$\wedge.\{1,512\}\$$ E.g. Location: /v1/periodic-payments/{payment-product}/{payment-id}
<b>X-Request-ID</b>	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	<b>UUID</b> $\wedge[0-9a-fA-F]\{8\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{12\}\$$ E.g. X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7
<b>ASPSP-SCA-Approach</b>	This data element must be contained, if the SCA Approach is already fixed. Possible values are: <ul style="list-style-type: none"> <li>• REDIRECT</li> </ul> The OAuth SCA approach will be subsumed by REDIRECT.	String	COND	E.g. ASPSP-SCA-Approach: REDIRECT

**Body**

Field	Description	Type	Man.	Format
<b>transactionStatus</b>	Status of the transaction.  Values defined in annexes in 6.4 Transaction status	String	MAN	<b>ISO 20022</b> E.g. "transactionStatus": "RCVD"
<b>paymentId</b>	Resource identification of the generated payment initiation resource.	String	MAN	$\wedge.\{1,36\}\$$ E.g. "paymentId": "1b3ab8e8-0fd5-43d2-946e-d75958b172e7"
<b>_links</b>	A list of hyperlinks to be recognised by the TPP.	Links	MAN	E.g. "_links": {...}

	<p>Type of links admitted in this response:</p> <ul style="list-style-type: none"> <li>• scaRedirect: In case of an SCA Redirect Approach, the ASPSP is transmitting the link to which to redirect the PSU browser.</li> <li>• startAuthorisation: 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).</li> <li>• self: link to the resource created by this request.</li> <li>• status: The link to retrieve the transaction status</li> <li>• 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.</li> </ul>			
--	--	--	--	--

<b>tppMessages</b>	Message to the TPP	List<TppMessage>	OPT	E.g. "tppMessages": [...]
--------------------	--------------------	------------------	-----	---------------------------

### 3.1.3.3 Examples

#### Example of request for SCA via redirect

POST <https://hub.example.es/{aspsp-name}/v1/periodic-payments/sepa-credit-transfers>

Content-Encoding: gzip

Content-Type: application/json

X-Request-ID: 10391c7e-ad88-49ec-a2ad-00aacb1f6541

Authorization: Bearer 2YotnFZFjrlzCsicMWpAA

PSU-IP-Address: 192.168.8.16

TPP-Redirect-Preferred: true

TPP-Redirect-URI: https://tpp.example.es/cb

TPP-Nok-Redirect-URI: https://tpp.example.es/cb/nok

Date: Sun, 26 Sep 2017 15:02:37 GMT

```
{
  "instructedAmount": {
    "currency": "EUR",
    "amount": "153.50"
  },
  "creditorAccount": {
    "iban": "ES22222222222222222222222222222222"
  },
  "creditorName": "Name123",
  "remittanceInformationUnstructured": "Additional information",
  "startDate": "2018-03-01",
  "executionRule": "preceeding",
  "frequency": "Monthly",
  "dayOfExecution": "01"
}
```



### 3.1.4 Get payment status

This message is sent by the TPP to the HUB to request information on the status of the payment initiation requested by the TPP.

#### 3.1.4.1 Request

##### Endpoint

GET {provider}/{aspsp}/v1/{payment-service}/{payment-product}/{paymentId}/status

##### Path

Field	Description	Type	Man.	Format
<b>provider</b>	URL of the HUB where the service is published.	String	MAN	E.g. www.hub.com
<b>aspsp</b>	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name
<b>payment-service</b>	Possible values are: <ul style="list-style-type: none"> <li>payments</li> <li>periodic-payments</li> </ul>	String	MAN	E.g. {provider}/{aspsp}/v1/payments
<b>payment-product</b>	Payment product to be used. List of supported products: <ul style="list-style-type: none"> <li>sepa-credit-transfers</li> <li>instant-sepa-credit-transfers</li> <li>target-2-payments</li> <li>cross-border-credit-transfers</li> </ul>	String	MAN	E.g. {provider}/{aspsp}/v1/payments/sepa-credit-transfers/
<b>paymentId</b>	Resource Identification of the related payment.  Sent previously as a response to a message initiating payment by the TPP to the HUB.	String	MAN	^.{1,36}\$  E.g. 1234-qwer-5678

##### Query parameters

<USO TPPs>

No additional fields are specified.

### Header

Field	Description	Type	Man.	Format
<b>X-Request-ID</b>	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	<b>UUID</b> $^{\wedge}[0-9a-fA-F]\{8\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{12\}\$$ E.g. X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7
<b>Authorisation</b>	Bearer Token. Obtained in a prior authentication on OAuth2.	String	MAN	E.g. Authorisation: Bearer 2YotnFZFEjr1zCsicMWpAA
<b>Accept</b>	Response format supported. Supported values: <ul style="list-style-type: none"> <li>application/json</li> </ul>	String	OPT	$^{\wedge}\{1,50\}\$$ E.g. Accept: application/json
<b>PSU-IP-Address</b>	The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP. If not available, the TPP shall use the IP Address used by the TPP when submitting this request.	String	OPT	$^{\wedge}[0-9]\{1,3\}\.[0-9]\{1,3\}\.[0-9]\{1,3\}\.[0-9]\{1,3\}\$$ E.g. PSU-IP-Address: 192.168.16.5
<b>PSU-IP-Port</b>	The forwarded IP Port header field consists of the corresponding HTTP request IP Port field between PSU and TPP, if available.	String	OPT	$^{\wedge}\d\{1,5\}\$$ E.g. PSU-IP-Port: 443

**PSD2 - TPP Technical Design**

<b>PSU-Accept</b>	The forwarded Accept header fields consist of the corresponding HTTP request Accept header fields between PSU and TPP, if available.	String	OPT	$\wedge.\{1,50\}\$$ E.g. PSU-Accept: application/json
<b>PSU-Accept-Charset</b>	See above	String	OPT	$\wedge.\{1,50\}\$$ E.g. PSU-Accept-Charset: utf-8
<b>PSU-Accept-Encoding</b>	See above	String	OPT	$\wedge.\{1,50\}\$$ E.g. PSU-Accept-Encoding: gzip
<b>PSU-Accept-Language</b>	See above	String	OPT	$\wedge.\{1,50\}\$$ E.g. PSU-Accept-Language: es-ES
<b>PSU-User-Agent</b>	The forwarded Agent header field of the HTTP request between PSU and TPP, if available.	String	OPT	E.g. PSU-User-Agent: Mozilla/5.0 (Windows; U; Windows NT 6.1; en-US; rv:1.9.1.5) Gecko/20091102 Firefox/3.5.5 (.NET CLR 3.5.30729)
<b>PSU-Http-Method</b>	HTTP method used at the PSU – TPP interface, if available.  Valid values are: <ul style="list-style-type: none"> <li>• GET</li> <li>• POST</li> <li>• PUT</li> <li>• PATCH</li> <li>• DELETE</li> </ul>	String	OPT	E.g. PSU-Http-Method: GET
<b>PSU-Device-ID</b>	UUID (Universally Unique Identifier) for a device, which is used by the PSU, if available.	String	OPT	<b>UUID</b> $\wedge[0-9a-fA-F]\{8\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{12\}\$$ E.g.

**PSD2 - TPP Technical Design**

	UUID identifies either a device or a device dependant application installation. In case of an installation identification this ID need to be unaltered until removal from device.			PSU-Device-ID: 5b3ab8e8-0fd5-43d2-946e-d75958b172e7
<b>PSU-Geo-Location</b>	The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.	String	OPT	<b>RFC 2426</b> ^GEO:[\\d]*.[\\d]*[;][\\d]*.[\\d]*\$ E.g. PSU-Geo-Location: GEO:90.023856;25.345963
<b>Digest</b>	Is contained if and only if the "Signature" element is contained in the header of the request.  See 6.1 Signature for more information.	String	MAN	^.{1,100}\$  E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRIMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
<b>Signature</b>	A signature of the request by the TPP on application level.  See 6.1 Signature for more information.	String	MAN	See annexes
<b>TPP-Signature-Certificate</b>	The certificate used for signing the request, in base64 encoding.	String	MAN	^.{1,5000}\$  E.g. TPP-Signature-Certificate: MIIHgZCCBmugAwIBAgIIzZzVbQIt0Uc wDQYJ.....KoZIHvcNAQELBQA wSTE LMAkGA1UEBhMCMCV VMxEzARBgNVBA

**Body**

No additional data are specified.

<USO TPPs>

### 3.1.4.2 Response

#### Header

Field	Description	Type	Man.	Format
<b>X-Request-ID</b>	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	<b>UUID</b> $^{\wedge}[0-9a-fA-F]\{8\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{12\}\$$ E.g. X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7

#### Body

Field	Description	Type	Man.	Format
<b>transactionStatus</b>	Status of the payment transaction. Values defined in 6.4 Transaction status	String	MAN	<b>ISO20022</b> E.g. "transactionStatus": "ACCP"
<b>tppMessages</b>	Message for the TPP	List<Tp pMessage>	OPT	E.g. "tppMessages": [...]

### 3.1.4.3 Examples

#### Example of request

GET <https://www.hub.com/aspsp-name/v1/payments/sepa-credit-transfer/123asdf456/status>

Accept: application/json

X-Request-ID: 96201400-6ff9-11e8-adc0-fa7ae01bbebc

Authorization: Bearer 2YotnFZFEjrlzCsicMWpAA

PSU-IP-Address: 192.168.8.16

PSU-IP-Port: 443

PSU-Accept: application/json

<USO TPPs>

**PSD2 - TPP Technical Design**

```

PSU-Accept-Charset: utf-8
PSU-Accept-Encoding: gzip
PSU-Accept-Language: es-ES
PSU-User-Agent: Mozilla/5.0 (Windows NT 10.0; WOW64; rv:54.0)
Gecko/20100101 Firefox/54.0
PSU-Http-Method: GET
PSU-Device-ID: f8b3feda-6fe3-11e8-adc0-fa7ae01bbebc
PSU-GEO-Location: GEO:12.526347;54.649862
Date: Sun, 26 Sep 2017 15:02:48 GMT

```

**Example of response**

```

HTTP/1.1 200 Ok
X-Request-ID: 96201400-6ff9-11e8-adc0-fa7ae01bbebc
Date: Sun, 26 Sep 2017 15:02:50 GMT
Content-Type: application/json
{
  "transactionStatus": "ACCP"
}

```

**3.1.5 Get payment initiation**

This message is sent by the TPP through the HUB to the ASPSP to obtain the information of a payment initiation.

**3.1.5.1 Request**

**Endpoint**

GET {provider}/{aspsp}/v1/{payment-service}/{payment-product}/{paymentId}

**Path**

Field	Description	Type	Man.	Format
<b>provider</b>	URL of the HUB where the service is published.	String	MAN	E.g. www.hub.com
<b>aspsp</b>	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name

**PSD2 - TPP Technical Design**

<b>payment-service</b>	Possible values are: <ul style="list-style-type: none"> <li>payments</li> <li>periodic-payments</li> </ul>	String	MAN	E.g. {provider}/{aspasp}/v1/payments
<b>payment-product</b>	Payment product to be used. List of supported products: <ul style="list-style-type: none"> <li>sepa-credit-transfers</li> <li>instant-sepa-credit-transfers</li> <li>target-2-payments</li> <li>cross-border-credit-transfers</li> </ul>	String	MAN	E.g. {provider}/{aspasp}/v1/payments/sepa-credit-transfers/
<b>paymentId</b>	Resource Identification of the related payment.  Sent previously as a response to a message initiating payment by the TPP to the HUB.	String	MAN	^.{1,36}\$  E.g. 1234-qwer-5678

**Query parameters**

No additional fields are specified.

**Header**

Field	Description	Type	Man.	Format
<b>X-Request-ID</b>	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	<b>UUID</b>  ^[0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12}\$  E.g.  X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7
<b>Authorisation</b>	Bearer Token. Obtained in a prior authentication on OAuth2.	String	MAN	E.g.

				Authorisation: Bearer 2YotnFZFEjr1zCsic MWpAA
<b>PSU-IP-Address</b>	The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP.  If not available, the TPP shall use the IP Address used by the TPP when submitting this request.	String	OPT	^[0-9]{1,3}\.[0-9]{1,3}\.[0-9]{1,3}.\$  E.g. PSU-IP-Address: 192.168.16.5
<b>PSU-IP-Port</b>	The forwarded IP Port header field consists of the corresponding HTTP request IP Port field between PSU and TPP, if available.	String	OPT	^\d{1,5}\$  E.g. PSU-IP-Port: 443
<b>PSU-Accept</b>	The forwarded Accept header fields consist of the corresponding HTTP request Accept header fields between PSU and TPP, if available.	String	OPT	^.{1,50}\$  E.g. PSU-Accept: application/json
<b>PSU-Accept-Charset</b>	See above	String	OPT	^.{1,50}\$  E.g. PSU-Accept-Charset: utf-8
<b>PSU-Accept-Encoding</b>	See above	String	OPT	^.{1,50}\$  E.g. PSU-Accept-Encoding: gzip
<b>PSU-Accept-Language</b>	See above	String	OPT	^.{1,50}\$  E.g. PSU-Accept-Language: es-ES
<b>PSU-User-Agent</b>	The forwarded Agent header field of the HTTP request between PSU and TPP, if available.	String	OPT	E.g.



				PSU-User-Agent: Mozilla/5.0 (Windows; U; Windows NT 6.1; en-US; rv:1.9.1.5) Gecko/20091102 Firefox/3.5.5 (.NET CLR 3.5.30729)
<b>PSU-Http-Method</b>	HTTP method used at the PSU – TPP interface, if available.  Valid values are: <ul style="list-style-type: none"> <li>• GET</li> <li>• POST</li> <li>• PUT</li> <li>• PATCH</li> <li>• DELETE</li> </ul>	String	OPT	E.g. PSU-Http-Method: GET
<b>PSU-Device-ID</b>	UUID (Universally Unique Identifier) for a device, which is used by the PSU, if available.  UUID identifies either a device or a device dependant application installation. In case of an installation identification this ID need to be unaltered until removal from device.	String	OPT	<b>UUID</b>  ^[0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12}\$  E.g.  PSU-Device-ID: 5b3ab8e8-0fd5-43d2-946e-d75958b172e7
<b>PSU-Geo-Location</b>	The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.	String	OPT	<b>RFC 2426</b>  ^GEO:[\d]*.[\d]*[;][\d]*.[\d]*\$  E.g.  PSU-Geo-Location: GEO:90.023856;25.345963

**PSD2 - TPP Technical Design**

<b>Digest</b>	Is contained if and only if the "Signature" element is contained in the header of the request.  See 6.1 Signature for more information.	String	MAN	^.{1,100}\$  E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRIMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
<b>Signature</b>	A signature of the request by the TPP on application level.  See 6.1 Signature for more information.	String	MAN	See annexes
<b>TPP-Signature-Certificate</b>	The certificate used for signing the request, in base64 encoding.	String	MAN	^.{1,5000}\$  E.g. TPP-Signature-Certificate: MIIHgZCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ.....KoZIHvcNAQELBQAwSTE LMAkGA1UEBhMCMCV VMxEzARBgNVBA

**Body**

No additional data are specified.

**3.1.5.2 Response**

**Header**

Field	Description	Type	Man.	Format
<b>X-Request-ID</b>	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	<b>UUID</b>  ^[0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12}\$  E.g.  X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7

**Body**

**PSD2 - TPP Technical Design**

The fields to return are those requesting initiation of the original payment:

- 3.1.1 Payment initiation
- 3.1.2 Payment initiation for future dated payments
- 3.1.3 Initiation for standing orders for recurring/periodic payments

Plus the following:

Field	Description	Type	Man.	Format
<b>transactionStatus</b>	Status of the transaction. Values defined in annexes. Short code.	String	MAN	<b>ISO 20022</b> E.g. "transactionStatus": "ACCP"
<b>tppMessages</b>	Message for the TPP	List<Tp pMessage>	OPT	E.g. "tppMessage": [...]

### 3.1.5.3 Examples

#### Example of request

GET <https://www.hub.com/aspsp-name/v1/payments/sepa-credit-transfers/123-asdf-456>

Accept: application/json

X-Request-ID: 96201400-6ff9-11e8-adc0-fa7ae01bbebc

Authorization: Bearer 2YotnFZFEjrlzCsicMWpAA

PSU-IP-Address: 192.168.8.16

PSU-IP-Port: 443

PSU-Accept: application/json

PSU-Accept-Charset: utf-8

PSU-Accept-Encoding: gzip

PSU-Accept-Language: es-ES

PSU-User-Agent: Mozilla/5.0 (Windows NT 10.0; WOW64; rv:54.0) Gecko/20100101 Firefox/54.0

PSU-Http-Method: GET

PSU-Device-ID: f8b3feda-6fe3-11e8-adc0-fa7ae01bbebc

PSU-GEO-Location: GEO:12.526347;54.649862

Date: Sun, 26 Sep 2017 15:02:48 GMT

## PSD2 - TPP Technical Design

### Example of response

```
HTTP/1.1 200 Ok
X-Request-ID: 96201400-6ff9-11e8-adc0-fa7ae01bbebc
Date: Sun, 26 Sep 2017 15:02:50 GMT
Content-Type: application/json
{
  "instructedAmount": {
    "currency": "EUR",
    "amount": "153.50"
  },
  "debtorAccount": {
    "iban": "ES1111111111111111111111"
  },
  "creditorAccount": {
    "iban": "ES2222222222222222222222"
  },
  "creditorName": "Name123",
  "remittanceInformationUnstructured": "Additional information",
  "transactionStatus": "ACCP"
}
```

### 3.1.6 Payment cancellation

This request is sent by the TPP to the ASPSP through the Hub and allows payment cancellation to be initiated. Depending on the payment-service, the payment-product and the ASPSP's implementation, this TPP call might be sufficient to cancel a payment. If an authorisation of the payment cancellation is mandated by the ASPSP, a corresponding hyperlink will be contained in the response message.

#### 3.1.6.1 Request

##### Endpoint

DELETE {provider}/{aspsp}/v1/{payment-service}/{payment-product}/{paymentId}

##### Path

<USO TPPs>

**PSD2 - TPP Technical Design**

Field	Description	Type	Man.	Format
<b>provider</b>	URL of the ASPSP where the service is published.	String	MAN	E.g. www.hub.com
<b>aspsp</b>	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name
<b>payment-service</b>	Possible values are: <ul style="list-style-type: none"> <li>payments</li> <li>periodic-payments</li> </ul>	String	MAN	E.g. {provider}/v1/payments
<b>paymentId</b>	Identifier of the resource that references the payment initiation.  Sent previously as a response to a message initiating payment by the HUB to the ASPSP.	String	MAN	^.{1,36}\$ E.g.123-qwe-456

**Query parameters**

No additional fields are specified.

**Header**

Field	Description	Type	Man.	Format
<b>X-Request-ID</b>	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	<b>UUID</b>  ^[0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12}\$  E.g.  X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7
<b>Authorisation</b>	Bearer Token. Obtained in a prior authentication on OAuth2.	String	MAN	E.g.  Authorisation: Bearer 2YotnFZFEjr1zCsicMWpAA

**PSD2 - TPP Technical Design**

<b>PSU-IP-Address</b>	The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP.  If not available, the TPP shall use the IP Address used by the TPP when submitting this request.	String	OPT	^[0-9]{1,3}\.[0-9]{1,3}\.[0-9]{1,3}.\$  E.g. PSU-IP-Address: 192.168.16.5
<b>PSU-IP-Port</b>	The forwarded IP Port header field consists of the corresponding HTTP request IP Port field between PSU and TPP, if available.	String	OPT	^\d{1,5}\$  E.g. PSU-IP-Port: 443
<b>PSU-Accept</b>	The forwarded Accept header fields consist of the corresponding HTTP request Accept header fields between PSU and TPP, if available.	String	OPT	^{1,50}\$  E.g. PSU-Accept: application/json
<b>PSU-Accept-Charset</b>	See above	String	OPT	^{1,50}\$  E.g. PSU-Accept-Charset: utf-8
<b>PSU-Accept-Encoding</b>	See above	String	OPT	^{1,50}\$  E.g. PSU-Accept-Encoding: gzip
<b>PSU-Accept-Language</b>	See above	String	OPT	^{1,50}\$  E.g. PSU-Accept-Language: es-ES
<b>PSU-User-Agent</b>	The forwarded Agent header field of the HTTP request between PSU and TPP, if available.	String	OPT	E.g.  PSU-User-Agent: Mozilla/5.0 (Windows; U; Windows NT 6.1; en-US; rv:1.9.1.5) Gecko/20091102 Firefox/3.5.5 (.NET CLR 3.5.30729)

**PSD2 - TPP Technical Design**

<p><b>PSU-Http-Method</b></p>	<p>HTTP method used at the PSU – TPP interface, if available.</p> <p>Valid values are:</p> <ul style="list-style-type: none"> <li>• GET</li> <li>• POST</li> <li>• PUT</li> <li>• PATCH</li> <li>• DELETE</li> </ul>	<p>String</p>	<p>OPT</p>	<p>E.g. PSU-Http-Method: DELETE</p>
<p><b>PSU-Device-ID</b></p>	<p>UUID (Universally Unique Identifier) for a device, which is used by the PSU, if available.</p> <p>UUID identifies either a device or a device dependant application installation. In case of an installation identification this ID need to be unaltered until removal from device.</p>	<p>String</p>	<p>OPT</p>	<p><b>UUID</b></p> <p><math>^{\wedge}[0-9a-fA-F]\{8\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{12\}\\$</math></p> <p>E.g.</p> <p>PSU-Device-ID: 5b3ab8e8-0fd5-43d2-946e-d75958b172e7</p>
<p><b>PSU-Geo-Location</b></p>	<p>The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.</p>	<p>String</p>	<p>OPT</p>	<p><b>RFC 2426</b></p> <p><math>^{\wedge}\text{GEO}:[\backslash\text{d}]*.[\backslash\text{d}]*[;][\backslash\text{d}]*.[\backslash\text{d}]*\\$</math></p> <p>E.g.</p> <p>PSU-Geo-Location: GEO:90.023856;25.345963</p>
<p><b>Digest</b></p>	<p>Is contained if and only if the "Signature" element is contained in the header of the request.</p> <p>See 6.1 Signature for more information.</p>	<p>String</p>	<p>MAN</p>	<p><math>^{\wedge}.\{1,100\}\\$</math></p> <p>E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRIMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==</p>
<p><b>Signature</b></p>	<p>A signature of the request by the TPP on application level.</p>	<p>String</p>	<p>MAN</p>	<p>See annexes</p>

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	See 6.1 Signature for more information.			
<b>TPP-Signature-Certificate</b>	The certificate used for signing the request, in base64 encoding.	String	MAN	$\wedge.\{1,5000\}\$$ E.g. TPP-Signature-Certificate: MIIHgzCCBmugAwIBA gIIZzZvBQIt0UcwDQYJ .....KoZIHvcNAQEL BQAwSTELMAkGA1UE BhMCMVVMxEzARBgNVB A

**Body**

No additional data are specified.

**3.1.6.2 Response**

**Header**

Field	Description	Type	Man.	Format
<b>X-Request-ID</b>	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	<b>UUID</b> $\wedge[0-9a-fA-F]\{8\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{12\}\$$ E.g. X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7

**Body**

Field	Description	Type	Man.	Format
<b>transactionStatus</b>	Status of the transaction. Values defined in annexes in 6.4 Transaction status	String	MAN	<b>ISO 20022</b> E.g. "transactionStatus": "CANC"
<b>tppMessages</b>	Message for the TPP	List<TppMessage>	OPT	E.g. "tppMessages": [...]



### 3.1.6.3 Examples

#### Example of request

DELETE <https://www.hub.com/aspsp-name/v1/payments/sepa-credit-transfers/123-qwe-456>

X-Request-ID: 96201400-6ff9-11e8-adc0-fa7ae01bbebc

Authorization: Bearer 2YotnFZFEjrlzCsicMWpAA

PSU-IP-Address: 192.168.8.16

PSU-IP-Port: 443

PSU-Accept: application/json

PSU-Accept-Charset: utf-8

PSU-Accept-Encoding: gzip

PSU-Accept-Language: es-ES

PSU-User-Agent: Mozilla/5.0 (Windows NT 10.0; WOW64; rv:54.0) Gecko/20100101 Firefox/54.0

PSU-Http-Method: GET

PSU-Device-ID: f8b3feda-6fe3-11e8-adc0-fa7ae01bbebc

PSU-GEO-Location: GEO:12.526347;54.649862

Content-Type: application/json

Date: Sun, 26 Sep 2017 15:02:48 GMT

#### Example in case the DELETE process as such is already sufficient for cancelling the payment

HTTP/1.1 204 No Content

X-Request-ID: 0ee25bf4-6ff1-11e8-adc0-fa7ae01bbebc

Date: Sun, 26 Sep 2017 15:02:47 GMT

### 3.2 AIS: Establish account information consent service

#### 3.2.1 Characteristics of the consent

##### 3.2.1.1 Consent model

Model	Description
<b>Detailed consent</b>	<p><b>Request consent for the accounts indicated</b>            Create a consent, which the ASPSP must store, requesting access for the accounts indicated and with the requested access.</p> <p>If there was already consent, this consent will expire and the new agreement will enter into force when authorised by the PSU.</p> <p>The accounts for which consent is requested to access the "balances" and/or "transactions" are also assumed to have the "accounts" access type.</p>
<b>Global consent</b>	<p><b>Request consent for the list of available accounts</b>            This functionality only serves to request consent for the list of available PSU accounts. It does not give consent for "accounts", "balances" and/or "transactions".</p> <p>This request does not indicate the accounts for which access is wanted. It indicates that it is requested for "all available accounts", indicating in the access the "availableAccounts" or "availableAccountsWithBalances" with the value "allAccounts".</p> <p>It is a once-time-only consent to obtain the list of available accounts. It will not give details of the accounts.</p> <p><b>Request consent to obtain access to all the accounts for all the PSD2 AIS services</b>            Request access for all the PSU accounts available on all the PSD2 AIS services.</p> <p>The accounts are not indicated by the TPP.</p> <p>This request does not indicate the accounts for which access is wanted. The request is indicated as being for "all PSD2 accounts", indicating in the access the "allPsd2" attribute with the value "allAccounts".</p>

	<p>Through the HUB, the TPP may recover this information managed between ASPSP and PSU, making a request to recover consent information.</p>
<p><b>Bank-offered consent</b></p>	<p><b>Request consent without indicating the accounts</b>  Request consent to access "accounts", "balances" and/or "transactions" without indicating the accounts. Thus the "accounts", "balances" and "transactions" attributes will include a blank array.</p> <p>To select the accounts that will be provided, access must be obtained bilaterally between ASPSP and PSU through the ASPSP interface in the OAuth redirect flow.</p> <p>In the redirection process, the ASPSP will show the PSU its accounts so that the PSU can choose which to provide consent for to the TPP.</p> <p>Through the HUB, the TPP may recover this information managed between ASPSP and PSU, making a request to recover consent information.</p>

### 3.2.1.2 Recurring access

#### Recurring consents

If there is already a prior consent with recurring access (recurringIndicator=true) and a new consent request is sent with recurring access, as soon as the new consent is accepted by the PSU, the prior consent will expire and only the new requested consent will be valid.

A consent with recurring access may have one or more accounts with different types of access ("accounts", "balances", "transactions")

Note: giving access to "balances" and/or "transactions" automatically grants "accounts" access to these accounts.

#### Non-recurring consents

A consent request for non-recurring access (once-only and with recurringIndicator=false) will be treated as a new consent (new consentId) without affecting previous existing consents.

### 3.2.2 Account information consent

With this service, a TPP may request consent through the HUB to access the PSU accounts. This request may be for indicated accounts or not.

That is why the consent request has these variants:

- Establish consent for account information on the indicated accounts
- Establish account information consent to obtain a list of all available accounts
- Establish consent for account information without indicating the accounts
- Establish account information consent to obtain access to all accounts for all types of PSD2 AIS access: "accounts", "balances" and/or "transactions"

**Note:** each consent information will generate a new resource, i.e. a new consentId.

#### 3.2.2.1 Request

##### Endpoint

POST {provider}/{aspsp}/v1/consents

##### Path

Field	Description	Type	Man.	Format
<b>provider</b>	URL of the HUB where the service is published.	String	MAN	E.g. www.hub.com
<b>aspsp</b>	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name

##### Query parameters

No additional fields are specified.

##### Header

Field	Description	Type	Man.	Format
<b>X-Request-ID</b>	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	<b>UUID</b> $^{\wedge}[0-9a-fA-F]\{8\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{12\}\$$ E.g.

				X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7
<b>Authorisation</b>	Bearer Token. Obtained in a prior authentication on OAuth2.	String	MAN	E.g. Authorisation: Bearer 2YotnFZFEjr1zCsicMWpAA
<b>PSU-IP-Address</b>	The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP.  If not available, the TPP shall use the IP Address used by the TPP when submitting this request.	String	OPT	^[0-9]{1,3}\.[0-9]{1,3}\.[0-9]{1,3}\$  E.g. PSU-IP-Address: 192.168.16.5
<b>PSU-IP-Port</b>	The forwarded IP Port header field consists of the corresponding HTTP request IP Port field between PSU and TPP, if available.	String	OPT	^\d{1,5}\$  E.g. PSU-IP-Port: 443
<b>PSU-Accept</b>	The forwarded Accept header fields consist of the corresponding HTTP request Accept header fields between PSU and TPP, if available.	String	OPT	^{1,50}\$  E.g. PSU-Accept: application/json
<b>PSU-Accept-Charset</b>	See above	String	OPT	^{1,50}\$  E.g. PSU-Accept-Charset: utf-8
<b>PSU-Accept-Encoding</b>	See above	String	OPT	^{1,50}\$  E.g. PSU-Accept-Encoding: gzip
<b>PSU-Accept-Language</b>	See above	String	OPT	^{1,50}\$  E.g. PSU-Accept-Language: es-ES

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<b>PSU-User-Agent</b>	The forwarded Agent header field of the HTTP request between PSU and TPP, if available.	String	OPT	E.g. PSU-User-Agent: Mozilla/5.0 (Windows; U; Windows NT 6.1; en-US; rv:1.9.1.5) Gecko/20091102 Firefox/3.5.5 (.NET CLR 3.5.30729)
<b>PSU-Http-Method</b>	HTTP method used at the PSU – TPP interface, if available.  Valid values are: <ul style="list-style-type: none"> <li>• GET</li> <li>• POST</li> <li>• PUT</li> <li>• PATCH</li> <li>• DELETE</li> </ul>	String	OPT	E.g. PSU-Http-Method: POST
<b>PSU-Device-ID</b>	UUID (Universally Unique Identifier) for a device, which is used by the PSU, if available.  UUID identifies either a device or a device dependant application installation. In case of an installation identification this ID need to be unaltered until removal from device.	String	OPT	<b>UUID</b>  ^[0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12}\$  E.g. PSU-Device-ID: 5b3ab8e8-0fd5-43d2-946e-d75958b172e7
<b>PSU-Geo-Location</b>	The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.	String	OPT	<b>RFC 2426</b>  ^GEO:[\\d]*.[\\d]*[;][\\d]*.[\\d]*\$  E.g. PSU-Geo-Location: GEO:90.023856;25.345963
<b>TPP-Redirect-Preferred</b>	If it equals "true", the TPP prefers a redirect over an embedded SCA approach.	Boolean	OPT	E.g. TPP-Redirect-Preferred: true

	<p>If it equals "false", the TPP prefers not to be redirected for SCA. The ASPSP will then choose between the Embedded or the Decoupled 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 SCA method chosen by the TPP/PSU.</p> <p><b>EMBEDDED NOT SUPPORTED IN THIS VERSION</b></p>			
<p><b>TPP-Redirect-URI</b></p>	<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".</p> <p>It is recommended to always use this header field.</p> <p><b>Remark for Future:</b> This field might be changed to mandatory in the next version of the specification.</p>	<p>String</p>	<p>COND</p>	<p>^.{1,250}\$</p> <p>E.g. TPP-Redirect-URI:"https://tpp.example.es/cb"</p>

<b>TPP-Nok-Redirect-URI</b>	If this URI is contained, the TPP is asking to redirect the transaction flow to this address instead of the TPP-Redirect-URI in case of a negative result of the redirect SCA method. This might be ignored by the ASPSP.	String	OPT	^.{12,50}\$ E.g. TPP-Nok-Redirect-URI:"https://tpp.example.es/cb/nok"
<b>TPP-Explicit-Authorisation-Preferred</b>	If it equals "true", the TPP prefers to start the authorisation process separately. This preference might be ignored by the ASPSP, if a signing basket is not supported as functionality.  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.  <b>Note:</b> the ASPSP may not take it into account if it does not support it.	Boolean	OPT	E.g. TPP-Explicit-Authorisation-Preferred: false
<b>Digest</b>	Is contained if and only if the "Signature" element is contained in the header of the request.  See 6.1 Signature for more information.	String	MAN	^.{1,100}\$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRI MzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
<b>Signature</b>	A signature of the request by the TPP on application level.	String	MAN	See annexes



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	See 6.1 Signature for more information.			
<b>TPP-Signature-Certificate</b>	The certificate used for signing the request, in base64 encoding.	String	MAN	$\wedge.\{1,5000\}\$$ E.g. TPP-Signature-Certificate: MIIHgZCCBmugAwIBAgIIZzZvBQIt0UcwDQYJ..... ....KoZIHvcNAQELBQAWS TELMAkGA1UEBhMCMCVVM xEzARBgNVBA

**Body**

Field	Description	Type	Man.	Format
<b>access</b>	Accesses requested to the services. Only the sub-attributes with "accounts", "balances" and "transactions" tags are accepted. In addition, the ASPSP may support the attributes "availableAccounts", "availableAccountsWith Balances" or "allPsd2" with the value "allAccounts".	Account Access	MAN	E.g. "access":{...}
<b>recurringIndicator</b>	Possible values: <ul style="list-style-type: none"> <li>true: recurring access to the account.</li> <li>false: once-only access.</li> </ul>	Boolean	MAN	E.g. "recurringIndicator": true
<b>validUntil</b>	Date until which the consent requests access.  The following value should be used to create consent with the maximum possible access time: 9999-12-31	String	MAN	<b>ISODate</b>  E.g. "validUntil": "2018-05-17"

	When consent is recovered, the maximum possible date will be adjusted.			
<b>frequencyPerDay</b>	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".	Integer	MAN	E.g. "frequencyPerDay":4
<b>combinedServiceIndicator</b>	If true indicates that a payment initiation service will be addressed in the same "session"	Boolean	MAN	E.g. "combinedServiceIndicator": false

### 3.2.2.2 Response

#### Header

Field	Description	Type	Man.	Format
<b>Location</b>	Location of the created resource (if created)	String	MAN	<b>Max512Text</b> E.g. Location: /v1/consents/{consentId}
<b>X-Request-ID</b>	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	<b>UUID</b> ^[0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12}\$ E.g. X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7
<b>ASPSP-SCA-Approach</b>	This data element must be contained, if the SCA Approach is already fixed. Possible values are: <ul style="list-style-type: none"><li>REDIRECT</li></ul>	String	COND	E.g. ASPSP-SCA-Approach: REDIRECT

	The OAuth SCA approach will be subsumed by REDIRECT.			
--	--	--	--	--

**Body**

Field	Description	Type	Man.	Format
<b>consentStatus</b>	Consent authentication status. See values defined in 6.5 Consent status	String	MAN	E.g. "consentStatus": "received"
<b>consentId</b>	Identifier of the resource that references the consent. It must be contained if a consent was generated.	String	MAN	^.{1,36}\$ E.g. "consentId": "123-QWE-456"
<b>_links</b>	<p>A list of hyperlinks to be recognised by the TPP.</p> <p>Type of links admitted in this response:</p> <ul style="list-style-type: none"> <li>• scaRedirect: In case of an SCA Redirect Approach, the ASPSP is transmitting the link to which to redirect the PSU browser.</li> <li>• startAuthorisation: 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).</li> </ul>	Links	MAN	E.g. "_links": {...}

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	<ul style="list-style-type: none"> <li>• self: link to the resource created by this request.</li> <li>• status: The link to retrieve the transaction status</li> <li>• 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.</li> </ul>			
<b>tppMessages</b>	Message to the TPP	List<TppMessages>	OPT	E.g. "tppMessages": [...]

**3.2.2.3 Examples**

**Example of consent request for dedicated accounts with SCA via redirect**

POST <https://www.hub.com/aspsp-name/v1/consents>

Content-Encoding: gzip

Content-Type: application/json

X-Request-ID: 10391c7e-ad88-49ec-a2ad-00aacb1f6541

Authorization: Bearer 2YotnFZFEjrlzCsicMWpAA

PSU-IP-Address: 192.168.8.16

PSU-IP-Port: 443

PSU-Accept: application/json

PSU-Accept-Charset: utf-8

PSU-Accept-Encoding: gzip

PSU-Accept-Language: es-ES

PSU-User-Agent: Mozilla/5.0 (Windows NT 10.0; WOW64; rv:54.0) Gecko/20100101 Firefox/54.0

PSU-Http-Method: POST

PSU-Device-ID: f8b3feda-6fe3-11e8-adc0-fa7ae01bbebc

<USO TPPs>

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```
PSU-GEO-Location: GEO:12.526347;54.649862
TPP-Redirect-Preferred: true
TPP-Redirect-URI: https://www.tpp.com/cb
TPP-Nok-Redirect-URI: https://www.tpp.com/cb/nok
Date: Sun, 26 Sep 2017 15:02:37 GMT
{
  "access": {
    "balances": [
      {
        "iban": "ES11111111111111111111111111111111"
      },
      {
        "iban": "ES22222222222222222222222222222222",
        "currency": "USD"
      },
      {
        "iban": "ES33333333333333333333333333333333"
      }
    ],
    "transactions": [
      {
        "iban": "ES11111111111111111111111111111111"
      }
    ]
  },
  "recurringIndicator": true,
  "validUntil": "2018-05-17",
  "frequencyPerDay": 4
}
```

**Example of consent request for the list of available accounts with SCA via redirect**

```
POST https://www.hub.com/aspsp-name/v1/consents
Content-Encoding: gzip
Content-Type: application/json
X-Request-ID: 10391c7e-ad88-49ec-a2ad-00aacb1f6541
Authorization: Bearer 2YotnFZFEjrlzCsicMWpAA
PSU-IP-Address: 192.168.8.16
PSU-IP-Port: 443
PSU-Accept: application/json
```

<USO TPPs>

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```
PSU-Accept-Charset: utf-8
PSU-Accept-Encoding: gzip
PSU-Accept-Language: es-ES
PSU-User-Agent: Mozilla/5.0 (Windows NT 10.0; WOW64; rv:54.0)
Gecko/20100101 Firefox/54.0
PSU-Http-Method: POST
PSU-Device-ID: f8b3feda-6fe3-11e8-adc0-fa7ae01bbebc
PSU-GEO-Location: GEO:12.526347;54.649862
TPP-Redirect-Preferred: true
TPP-Redirect-URI: https://www.tpp.com/cb
TPP-Nok-Redirect-URI: https://www.tpp.com/cb/nok
Date: Sun, 26 Sep 2017 15:02:37 GMT
{
  "access": {
    "availableAccounts": "allAccounts"
  },
  "recurringIndicator": false,
  "validUntil": "2018-05-17",
  "frequencyPerDay": 1
}
```

**Example of the response in the case of SCA via redirect with an implicitly generated sub-resource authorisation**

```
HTTP/1.1 201 Created
X-Request-ID: 10391c7e-ad88-49ec-a2ad-00aacb1f6541
ASPSP-SCA-Approach: REDIRECT
Date: Sun, 26 Sep 2017 15:02:43 GMT
Location: /v1/consents/123-asdf-456
Content-Type: application/json
{
  "consentStatus": "received",
  "consentId": "123-asdf-456",
  "_links": {
    "scaRedirect": {
      "href": "https://hub.example.es/authorize "
    },
  },
}
```

<USO TPPs>

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```

    "self": {
      "href": "/v1/consents/123-asdf-456",
    },
    "status": {
      "href": "/v1/consents/123-asdf-456/status"
    },
    "scaStatus": {
      "href": "/v1/consents/123-asdf-456/authorisations/123auth456"
    }
  }
}

```

**3.2.3 Get consent status**

This service allows TPP to know the status of a consent request initiated previously.

**3.2.3.1 Request**

**Endpoint**

GET {provider}/{aspsp}/v1/consents/{consent-id}/status

**Path**

Field	Description	Type	Man.	Format
<b>provider</b>	URL of the HUB where the service is published.	String	MAN	E.g. www.hub.com
<b>aspsp</b>	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name
<b>consentId</b>	Identifier of the resource that references the consent.  Sent previously as a response to a request message for consent from the TPP to the HUB.	String	MAN	^.{1,36}\$ E.g.123- qwerty-456

**Query parameters**

No additional fields are specified.

### Header

Field	Description	Type	Man.	Format
<b>X-Request-ID</b>	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	<b>UUID</b> $^{[0-9a-fA-F]\{8\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{12\}}\$$ E.g. X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7
<b>Authorisation</b>	Bearer Token. Obtained in a prior authentication on OAuth2.	String	MAN	E.g. Authorisation: Bearer 2YotnFZFEjr1zCsicMWpAA
<b>PSU-IP-Address</b>	The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP. If not available, the TPP shall use the IP Address used by the TPP when submitting this request.	String	OPT	$^{[0-9]\{1,3\}.[0-9]\{1,3\}.[0-9]\{1,3\}.[0-9]\{1,3\}}\$$ E.g. PSU-IP-Address: 192.168.16.5
<b>PSU-IP-Port</b>	The forwarded IP Port header field consists of the corresponding HTTP request IP Port field between PSU and TPP, if available.	String	OPT	$^{\\d\{1,5\}}\$$ E.g. PSU-IP-Port: 443
<b>PSU-Accept</b>	The forwarded Accept header fields consist of the corresponding HTTP request Accept header fields between PSU and TPP, if available.	String	OPT	$^{.\{1,50\}}\$$ E.g. PSU-Accept: application/json



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<b>PSU-Accept-Charset</b>	See above	String	OPT	$\wedge.\{1,50\}\$$ E.g. PSU-Accept-Charset: utf-8
<b>PSU-Accept-Encoding</b>	See above	String	OPT	$\wedge.\{1,50\}\$$ E.g. PSU-Accept-Encoding: gzip
<b>PSU-Accept-Language</b>	See above	String	OPT	$\wedge.\{1,50\}\$$ E.g. PSU-Accept-Language: es-ES
<b>PSU-User-Agent</b>	The forwarded Agent header field of the HTTP request between PSU and TPP, if available.	String	OPT	E.g. PSU-User-Agent: Mozilla/5.0 (Windows; U; Windows NT 6.1; en-US; rv:1.9.1.5) Gecko/20091102 Firefox/3.5.5 (.NET CLR 3.5.30729)
<b>PSU-Http-Method</b>	HTTP method used at the PSU – TPP interface, if available.  Valid values are: <ul style="list-style-type: none"> <li>• GET</li> <li>• POST</li> <li>• PUT</li> <li>• PATCH</li> <li>• DELETE</li> </ul>	String	OPT	E.g. PSU-Http-Method: GET
<b>PSU-Device-ID</b>	UUID (Universally Unique Identifier) for a device, which is used by the PSU, if available.  UUID identifies either a device or a device dependant application installation. In case of an installation identification this ID need to be unaltered until removal from device.	String	OPT	<b>UUID</b> $\wedge[0-9a-fA-F]\{8\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{12\}\$$ E.g. PSU-Device-ID: 5b3ab8e8-0fd5-43d2-946e-d75958b172e7

<b>PSU-Geo-Location</b>	The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.	String	OPT	<b>RFC 2426</b> $\wedge$ GEO:[\d]*.[\d]* [;][\d]*.[\d]*\$ E.g. PSU-Geo-Location: GEO:90.023856;25 .345963
<b>Digest</b>	Is contained if and only if the "Signature" element is contained in the header of the request.  See 6.1 Signature for more information.	String	MAN	$\wedge$ .{1,100}\$  E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRIMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
<b>Signature</b>	A signature of the request by the TPP on application level.  See 6.1 Signature for more information.	String	MAN	See annexes
<b>TPP-Signature-Certificate</b>	The certificate used for signing the request, in base64 encoding.	String	MAN	$\wedge$ .{1,5000}\$  E.g. TPP-Signature-Certificate: MIIHgzCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ.....KoZIHvcNAQELBQAwSTELMAkGA1UEBhMCMCVVMxEzARBgNVBA

**Body**

No additional data are sent.

**3.2.3.2 Response**

This message is returned by the HUB to the TPP as a response to the request message for the consent status.

**Header**

<USO TPPs>

Field	Description	Type	Man.	Format
<b>X-Request-ID</b>	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	<b>UUID</b> $^{[0-9a-fA-F]\{8\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{12\}}^{\$}$ E.g. X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7

### Body

Field	Description	Type	Man.	Format
<b>consentStatus</b>	Consent authentication status. See values defined in 6.5 Consent status	String	MAN	E.g. "consentStatus": "valid"
<b>tppMessages</b>	Message for the TPP	List<Tp pMessage>	OPT	E.g. "tppMessages": [...]

### 3.2.3.3 Examples

#### Example of request

GET <https://www.hub.com/aspsp-name/v1/consents/123asdf456/status>

Accept: application/json

X-Request-ID: 96201400-6ff9-11e8-adc0-fa7ae01bbebc

Authorization: Bearer 2YotnFZFEjrlzCsicMWpAA

PSU-IP-Address: 192.168.8.16

PSU-IP-Port: 443

PSU-Accept: application/json

PSU-Accept-Charset: utf-8

PSU-Accept-Encoding: gzip

PSU-Accept-Language: es-ES

PSU-User-Agent: Mozilla/5.0 (Windows NT 10.0; WOW64; rv:54.0) Gecko/20100101 Firefox/54.0

PSU-Http-Method: GET

PSU-Device-ID: f8b3feda-6fe3-11e8-adc0-fa7ae01bbebc

<USO TPPs>

**PSD2 - TPP Technical Design**

PSU-GEO-Location: GEO:12.526347;54.649862

Date: Sun, 26 Sep 2017 15:02:48 GMT

**Example of response**

HTTP/1.1 200 Ok

X-Request-ID: 96201400-6ff9-11e8-adc0-fa7ae01bbebc

Date: Sun, 26 Sep 2017 15:02:50 GMT

Content-Type: application/json

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

### 3.2.4 Get consent

#### 3.2.4.1 Request

This message is sent by the TPP to the HUB as a request to recover the information of a previously created consent.

**Endpoint**

GET {provider}/{aspsp}/v1/consents/{consentId}

**Path**

Field	Description	Type	Man.	Format
<b>provider</b>	URL of the HUB where the service is published.	String	MAN	E.g. www.hub.com
<b>aspsp</b>	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name
<b>consentId</b>	Identifier of the resource that references the consent.  Sent previously as a response to a request message for consent from the TPP to the HUB.	String	MAN	^.{1,36}\$ E.g. 7890-asdf-4321

**Query parameters**

<USO TPPs>

No additional fields are specified.

### Header

Field	Description	Type	Man.	Format
<b>X-Request-ID</b>	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	<b>UUID</b> $^{[0-9a-fA-F]\{8\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{12\}}\$$ E.g. X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7
<b>Authorisation</b>	Bearer Token. Obtained in a prior authentication on OAuth2.	String	MAN	E.g. Authorisation: Bearer 2YotnFZFEjr1zCsicM WpAA
<b>PSU-IP-Address</b>	The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP.  If not available, the TPP shall use the IP Address used by the TPP when submitting this request.	String	OPT	$^{[0-9]\{1,3\}.[0-9]\{1,3\}.[0-9]\{1,3\}.[0-9]\{1,3\}}\$$ E.g. PSU-IP-Address: 192.168.16.5
<b>PSU-IP-Port</b>	The forwarded IP Port header field consists of the corresponding HTTP request IP Port field between PSU and TPP, if available.	String	OPT	$^{\\d\{1,5\}}\$$ E.g. PSU-IP-Port: 443
<b>PSU-Accept</b>	The forwarded Accept header fields consist of the corresponding HTTP request Accept header fields between PSU and TPP, if available.	String	OPT	$^{.\{1,50\}}\$$ E.g. PSU-Accept: application/json

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<b>PSU-Accept-Charset</b>	See above	String	OPT	$\wedge.\{1,50\}\$$ E.g. PSU-Accept-Charset: utf-8
<b>PSU-Accept-Encoding</b>	See above	String	OPT	$\wedge.\{1,50\}\$$ E.g. PSU-Accept-Encoding: gzip
<b>PSU-Accept-Language</b>	See above	String	OPT	$\wedge.\{1,50\}\$$ E.g. PSU-Accept-Language: es-ES
<b>PSU-User-Agent</b>	The forwarded Agent header field of the HTTP request between PSU and TPP, if available.	String	OPT	E.g. PSU-User-Agent: Mozilla/5.0 (Windows; U; Windows NT 6.1; en-US; rv:1.9.1.5) Gecko/20091102 Firefox/3.5.5 (.NET CLR 3.5.30729)
<b>PSU-Http-Method</b>	HTTP method used at the PSU – TPP interface, if available.  Valid values are: <ul style="list-style-type: none"> <li>• GET</li> <li>• POST</li> <li>• PUT</li> <li>• PATCH</li> <li>• DELETE</li> </ul>	String	OPT	E.g. PSU-Http-Method: GET
<b>PSU-Device-ID</b>	UUID (Universally Unique Identifier) for a device, which is used by the PSU, if available.  UUID identifies either a device or a device dependant application installation. In case of an installation identification this ID need to be unaltered until removal from device.	String	OPT	<b>UUID</b> $\wedge[0-9a-fA-F]\{8\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{12\}\$$ E.g. PSU-Device-ID: 5b3ab8e8-0fd5-43d2-946e-d75958b172e7

**PSD2 - TPP Technical Design**

<b>PSU-Geo-Location</b>	The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.	String	OPT	<b>RFC 2426</b> ^GEO:[\\d]*.[\\d]*[;][\\d]*.[\\d]*\$ E.g. PSU-Geo-Location: GEO:90.023856;25.345963
<b>Digest</b>	Is contained if and only if the "Signature" element is contained in the header of the request.  See 6.1 Signature for more information.	String	MAN	^.{1,100}\$  E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRIMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
<b>Signature</b>	A signature of the request by the TPP on application level.  See 6.1 Signature for more information.	String	MAN	See annexes
<b>TPP-Signature-Certificate</b>	The certificate used for signing the request, in base64 encoding.	String	MAN	^.{1,5000}\$  E.g. TPP-Signature-Certificate: MIIHgZCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ.....KoZiHvcNAQELBQAwwSTELMAkGA1UEBhMCMVVMxEzA RBgNVBA

**Body**

No additional data are sent.

**3.2.4.2 Response**

This message is returned by the HUB to the TPP as a response to the message requesting recovery of the consent information.

**Header**

Field	Description	Type	Man.	Format
-------	-------------	------	------	--------

**PSD2 - TPP Technical Design**

<b>X-Request-ID</b>	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	<b>UUID</b> $^{\wedge}[0-9a-fA-F]\{8\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{12\}\$$ E.g. X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7
---------------------	---	--------	-----	---

**Body**

Field	Description	Type	Man.	Format
<b>access</b>	Accesses requested to the services. Only the sub-attributes with "accounts", "balances" and "transactions" tags are accepted. In addition, the ASPSP may support the attributes "availableAccounts", "availableAccountsWithBalances" or "allPsd2" with the value "allAccounts"	AccountAccesses	MAN	E.g. "access": {...}
<b>recurringIndicator</b>	Possible values: <ul style="list-style-type: none"> <li>true: recurring access to the account.</li> <li>false: once-only access.</li> </ul>	Boolean	MAN	E.g. "recurringIndicator": true
<b>validUntil</b>	Date until which the consent requests access. The following value should be used to create consent with the maximum possible access time: 9999-12-31	String	MAN	<b>ISODate</b> E.g. "validUntil": "2018-05-17"



	When consent is recovered, the maximum possible date will be adjusted.			
<b>frequencyPerDay</b>	Indicates the frequency of access to the account every day. 1 if it is one-time-only access.	Integer	MAN	E.g. "frequencyPerDay":4
<b>lastActionDate</b>	Date of the last modification made to the consent.	String	MAN	<b>ISODate</b> E.g. "lastActionDate":"2018-01-01"
<b>consentStatus</b>	Consent authentication status. Values defined in annexes.	String	MAN	E.g. "consentStatus":"valid"
<b>tppMessages</b>	Message for the TPP	List<TppMessage>	OPT	E.g. "tppMessages":[...]

### 3.2.4.3 Examples

#### Example of request

```
GET https://www.hub.com/aspsp-name/v1/consents/7890-asdf-4321/
Accept: application/json
X-Request-ID: 96201400-6ff9-11e8-adc0-fa7ae01bbebc
Authorization: Bearer 2YotnFZFjrlzCsicMWpAA
PSU-IP-Address: 192.168.8.16
PSU-IP-Port: 443
PSU-Accept: application/json
PSU-Accept-Charset: utf-8
PSU-Accept-Encoding: gzip
PSU-Accept-Language: es-ES
PSU-User-Agent: Mozilla/5.0 (Windows NT 10.0; WOW64; rv:54.0)
Gecko/20100101 Firefox/54.0
PSU-Http-Method: GET
PSU-Device-ID: f8b3feda-6fe3-11e8-adc0-fa7ae01bbebc
PSU-GEO-Location: GEO:12.526347;54.649862
```

<USO TPPs>

**PSD2 - TPP Technical Design**

Date: Sun, 26 Sep 2017 15:02:48 GMT

**Example of response to consent with dedicated accounts**

HTTP/1.1 200 Ok

X-Request-ID: 96201400-6ff9-11e8-adc0-fa7ae01bbebc

Date: Sun, 26 Sep 2017 15:02:50 GMT

Content-Type: application/json

```
{
  "access": {
    "balances": [
      {
        "iban": "ES11111111111111111111111111111111"
      },
      {
        "iban": "ES22222222222222222222222222222222",
        "currency": "USD"
      },
      {
        "iban": "ES33333333333333333333333333333333"
      }
    ],
    "transactions": [
      {
        "iban": "ES11111111111111111111111111111111"
      }
    ]
  },
  "recurringIndicator": true,
  "validUntil": "2018-05-17",
  "frequencyPerDay": 4,
  "lastActionDate": "2018-01-17",
  "consentStatus": "valid"
}
```

**Example of response to consent with global availableAccounts**

HTTP/1.1 200 Ok

X-Request-ID: 96201400-6ff9-11e8-adc0-fa7ae01bbebc

Date: Sun, 26 Sep 2017 15:02:50 GMT

Content-Type: application/json

<USO TPPs>

**PSD2 - TPP Technical Design**

```
{
  "access": {
    "availableAccounts": "allAccounts"
  },
  "recurringIndicator": true,
  "validUntil": "2018-05-17",
  "frequencyPerDay": 4,
  "lastActionDate": "2018-01-17",
  "consentStatus": "valid"
}
```

**3.2.5 Remove consent**

**3.2.5.1 Request**

This request may be sent by a TPP to the HUB to request the removal of a previously created consent.

**Endpoint**

DELETE {provider}/{aspsp}/v1/consents/{consentId}

**Path**

Field	Description	Type	Man.	Format
<b>provider</b>	URL of the HUB where the service is published.	String	MAN	E.g. www.hub.com
<b>aspsp</b>	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name
<b>consentId</b>	Identifier of the resource that references the consent.  Sent previously as a response to a request message for consent from the TPP to the HUB.	String	MAN	^.{1,36}\$  E.g. 7890-asdf-4321

**Query parameters**

No additional fields are specified.

**Header**

Field	Description	Type	Man.	Format
<b>X-Request-ID</b>	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	<b>UUID</b> $^{[0-9a-fA-F]\{8\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{12\}}\$$ E.g. X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7
<b>Authorisation</b>	Bearer Token. Obtained in a prior authentication on OAuth2.	String	MAN	E.g. Authorisation: Bearer 2YotnFZFEjr1zCsicM WpAA
<b>PSU-IP-Address</b>	The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP. If not available, the TPP shall use the IP Address used by the TPP when submitting this request.	String	OPT	$^{[0-9]\{1,3\}.[0-9]\{1,3\}.[0-9]\{1,3\}.[0-9]\{1,3\}}\$$ E.g. PSU-IP-Address: 192.168.16.5
<b>PSU-IP-Port</b>	The forwarded IP Port header field consists of the corresponding HTTP request IP Port field between PSU and TPP, if available.	String	OPT	$^{\d\{1,5\}}\$$ E.g. PSU-IP-Port: 443
<b>PSU-Accept</b>	The forwarded Accept header fields consist of the corresponding HTTP request Accept header fields between PSU and TPP, if available.	String	OPT	$^{\.}\{1,50\}\$$ E.g. PSU-Accept: application/json
<b>PSU-Accept-Charset</b>	See above	String	OPT	$^{\.}\{1,50\}\$$ E.g. PSU-Accept-Charset: utf-8

**PSD2 - TPP Technical Design**

<b>PSU-Accept-Encoding</b>	See above	String	OPT	$\wedge.\{1,50\}\$$ E.g. PSU-Accept-Encoding: gzip
<b>PSU-Accept-Language</b>	See above	String	OPT	$\wedge.\{1,50\}\$$ E.g. PSU-Accept-Language: es-ES
<b>PSU-User-Agent</b>	The forwarded Agent header field of the HTTP request between PSU and TPP, if available.	String	OPT	E.g. PSU-User-Agent: Mozilla/5.0 (Windows; U; Windows NT 6.1; en-US; rv:1.9.1.5) Gecko/20091102 Firefox/3.5.5 (.NET CLR 3.5.30729)
<b>PSU-Http-Method</b>	HTTP method used at the PSU – TPP interface, if available.  Valid values are: <ul style="list-style-type: none"> <li>• GET</li> <li>• POST</li> <li>• PUT</li> <li>• PATCH</li> <li>• DELETE</li> </ul>	String	OPT	E.g. PSU-Http-Method: DELETE
<b>PSU-Device-ID</b>	UUID (Universally Unique Identifier) for a device, which is used by the PSU, if available.  UUID identifies either a device or a device dependant application installation. In case of an installation identification this ID need to be unaltered until removal from device.	String	OPT	<b>UUID</b> $\wedge[0-9a-fA-F]\{8\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{12\}\$$ E.g. PSU-Device-ID: 5b3ab8e8-0fd5-43d2-946e-d75958b172e7
<b>PSU-Geo-Location</b>	The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.	String	OPT	<b>RFC 2426</b> $\wedge\text{GEO}:[\wedge d]*.[\wedge d]*[;][\wedge d]*.[\wedge d]*\$$ E.g.

				PSU-Geo-Location: GEO:90.023856;25.3 45963
<b>Digest</b>	Is contained if and only if the "Signature" element is contained in the header of the request.  See 6.1 Signature for more information.	String	MAN	^.{1,100}\$  E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRIMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
<b>Signature</b>	A signature of the request by the TPP on application level.  See 6.1 Signature for more information.	String	MAN	See annexes
<b>TPP-Signature-Certificate</b>	The certificate used for signing the request, in base64 encoding.	String	MAN	^.{1,5000}\$  E.g. TPP-Signature-Certificate: MIIHgZCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ.....KoZIHvcNAQELBQAwSTELMAKGA1UEBhMCMVVMxEzARBgNVBA

**Body**

No additional data are sent.

**3.2.5.2 Response**

This message is sent by the HUB to TPP as a response to the request to remove the consent.

**Header**

Field	Description	Type	Man.	Format
-------	-------------	------	------	--------

<b>X-Request-ID</b>	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	<b>UUID</b> $^{\wedge}[0-9a-fA-F]\{8\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{12\}\$$ E.g. X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7
---------------------	---	--------	-----	---

### Body

No additional fields are specified.

### 3.2.5.3 Examples

#### Example of request

DELETE <https://www.hub.com/aspsp-name/v1/consents/7890-asdf-4321>

Accept: application/json

X-Request-ID: 96201400-6ff9-11e8-adc0-fa7ae01bbebc

Authorization: Bearer 2YotnFZFEjrlzCsicMWpAA

PSU-IP-Address: 192.168.8.16

PSU-IP-Port: 443

PSU-Accept-Charset: utf-8

PSU-Accept-Encoding: gzip

PSU-Accept-Language: es-ES

PSU-User-Agent: Mozilla/5.0 (Windows NT 10.0; WOW64; rv:54.0) Gecko/20100101 Firefox/54.0

PSU-Http-Method: DELETE

PSU-Device-ID: f8b3feda-6fe3-11e8-adc0-fa7ae01bbebc

PSU-GEO-Location: GEO:12.526347;54.649862

Date: Sun, 26 Sep 2017 15:02:48 GMT

#### Example of response

HTTP/1.1 204 Ok

X-Request-ID: 96201400-6ff9-11e8-adc0-fa7ae01bbebc

Date: Sun, 26 Sep 2017 15:02:50 GMT

## 3.3 AIS: Account data reading service

### 3.3.1 Account list reading

This service allows a list of PSU accounts to be obtained, including the account balances if requested and the consent includes it.

This request is used both for the list of available accounts and the list of account details, depending on the consent used in the request.

As a requirement, it is assumed that the PSU has given its consent for this access and it has been stored by the ASPSP.

Operation of the service according to the type of access indicated in the consent:

Type of access	Description
availableAccounts	<p>This type of access is associated with once-only consents. If the consent associated with the request has this type of access, it will be a once-only consent and may be obtained:</p> <ul style="list-style-type: none"> <li>List of all the available PSU accounts.</li> </ul> <p>The following may not be obtained:</p> <ul style="list-style-type: none"> <li>Account balances (unless supported by the ASPSP)</li> <li>Links to the endpoint of balances or transactions</li> </ul>
availableAccountsWithBalances	<p>This type of access is associated with once-only consents. If the consent associated with the request has this type of access, it will be a once-only consent and may be obtained:</p> <ul style="list-style-type: none"> <li>List of all the available PSU accounts.</li> <li>Account balances (unless supported by the ASPSP)</li> </ul> <p>The following may not be obtained:</p> <ul style="list-style-type: none"> <li>Links to the endpoint of balances or transactions</li> </ul>
account	<p>If the consent associated with the request has this type of access, the accounts included in the consent with the "account" type of access may be listed.</p>
balances	<p>If the consent associated with the request has this type of access, the accounts included in the consent with the "balances" type of access may be listed and their balances may be obtained if supported by the ASPSP.</p>
transactions	<p>If the consent has accounts with this type of access, these accounts may be listed with the "account" access type. This type of access does not imply a "balances" type of access.</p>
allPsd2	<p>If the consent associated with the request has this type of access, the accounts included in the consent may be listed and their balances may be obtained.</p> <p>Note: allPsd2 grants the three types of access.</p>



### 3.3.1.1 Request

#### Endpoint

GET {provider}/{aspsp}/v1/accounts{query-parameters}

#### Path

Field	Description	Type	Man.	Format
<b>provider</b>	URL of the HUB where the service is published	String	MAN	E.g. www.hub.com
<b>aspsp</b>	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name

#### Query parameters

Field	Description	Type	Man.	Format
<b>withBalance</b>	If it is included, this function includes the balances. This request will be rejected if access to balances does not include consent or the ASPSP does not support this parameter.	Boolean	OPT	E.g. true

#### Header

Field	Description	Type	Man.	Format
<b>X-Request-ID</b>	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	<b>UUID</b> ^[0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12}\$ E.g. X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7

<b>Authorisation</b>	Bearer Token. Obtained in a prior authentication on OAuth2.	String	MAN	E.g. Authorisation: Bearer 2YotnFZFEjr1zCsic MWpAA
<b>Consent-ID</b>	Identification of the consent resource	String	MAN	^.{1,36}\$ E.g. Consent-ID: 7890-asdf-4321
<b>PSU-IP-Address</b>	The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP. If not available, the TPP shall use the IP Address used by the TPP when submitting this request.	String	COND	^[0-9]{1,3}\.[0-9]{1,3}\.[0-9]{1,3}\$ E.g. PSU-IP-Address: 192.168.16.5
<b>PSU-IP-Port</b>	The forwarded IP Port header field consists of the corresponding HTTP request IP Port field between PSU and TPP, if available.	String	OPT	^\d{1,5}\$ E.g. PSU-IP-Port: 443
<b>PSU-Accept</b>	The forwarded Accept header fields consist of the corresponding HTTP request Accept header fields between PSU and TPP, if available.	String	OPT	^.{1,50}\$ E.g. PSU-Accept: application/json
<b>PSU-Accept-Charset</b>	See above	String	OPT	^.{1,50}\$ E.g. PSU-Accept-Charset: utf-8
<b>PSU-Accept-Encoding</b>	See above	String	OPT	^.{1,50}\$ E.g. PSU-Accept-Encoding: gzip
<b>PSU-Accept-Language</b>	See above	String	OPT	^.{1,50}\$ E.g. PSU-Accept-Language: es-ES

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<p><b>PSU-User-Agent</b></p>	<p>The forwarded Agent header field of the HTTP request between PSU and TPP, if available.</p>	<p>String</p>	<p>OPT</p>	<p>E.g. PSU-User-Agent: Mozilla/5.0 (Windows; U; Windows NT 6.1; en-US; rv:1.9.1.5) Gecko/20091102 Firefox/3.5.5 (.NET CLR 3.5.30729)</p>
<p><b>PSU-Http-Method</b></p>	<p>HTTP method used at the PSU – TPP interface, if available.  Valid values are:</p> <ul style="list-style-type: none"> <li>• GET</li> <li>• POST</li> <li>• PUT</li> <li>• PATCH</li> <li>• DELETE</li> </ul>	<p>String</p>	<p>OPT</p>	<p>E.g. PSU-Http-Method: GET</p>
<p><b>PSU-Device-ID</b></p>	<p>UUID (Universally Unique Identifier) for a device, which is used by the PSU, if available.  UUID identifies either a device or a device dependant application installation. In case of an installation identification this ID need to be unaltered until removal from device.</p>	<p>String</p>	<p>OPT</p>	<p><b>UUID</b>  ^[0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12}\$  E.g. PSU-Device-ID: 5b3ab8e8-0fd5-43d2-946e-d75958b172e7</p>
<p><b>PSU-Geo-Location</b></p>	<p>The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.</p>	<p>String</p>	<p>OPT</p>	<p><b>RFC 2426</b>  ^GEO:[\d]*.[\d]*[;][\d]*.[\d]*\$  E.g. PSU-Geo-Location: GEO:90.023856;25.345963</p>

**PSD2 - TPP Technical Design**

<b>Digest</b>	The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.	String	MAN	$\wedge.\{1,100\}\$$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRIMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
<b>Signature</b>	Is contained if and only if the "Signature" element is contained in the header of the request.  See 6.1 Signature for more information.	String	MAN	See annexes
<b>TPP-Signature-Certificate</b>	A signature of the request by the TPP on application level.  See 6.1 Signature for more information.	String	MAN	$\wedge.\{1,5000\}\$$ E.g. TPP-Signature-Certificate: MIIHgZCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ.....KoZIHvcNAQELBQAwSTE LMAkGA1UEBhMCMCVVMxEzARBgNVBA

**Body**

Data are not sent in the body in this request.

**3.3.1.2 Response**

**Header**

Field	Description	Type	Man.	Format
<b>X-Request-ID</b>	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	<b>UUID</b> $\wedge[0-9a-fA-F]\{8\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{12\}\$$ E.g. X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7

**Body**

Field	Description	Type	Mand.	Format
<b>accounts</b>	List of available accounts.	List<AccountDetails>	MAN	E.g. "accounts": []
<b>tppMessages</b>	Message for the TPP.	List<TppMessage>	OPT	E.g. "tppMessages": [...]

**3.3.1.3 Examples**

**Example of request to obtain list of accessible PSU accounts**

```
GET https://www.hub.com/aspsp-name/v1/accounts
Content-Encoding: gzip
Content-Type: application/json
X-Request-ID: 96201400-6ff9-11e8-adc0-fa7ae01bbebc
Authorization: Bearer 2YotnFZFEjrlzCsicMWpAA
Consent-ID: 7890-asdf-4321
PSU-IP-Address: 192.168.8.16
PSU-IP-Port: 443
PSU-Accept: application/json
PSU-Accept-Charset: utf-8
PSU-Accept-Encoding: gzip
PSU-Accept-Language: es-ES
PSU-User-Agent: Mozilla/5.0 (Windows NT 10.0; WOW64; rv:54.0)
Gecko/20100101 Firefox/54.0
PSU-Http-Method: GET
PSU-Device-ID: f8b3feda-6fe3-11e8-adc0-fa7ae01bbebc
PSU-GEO-Location: GEO:12.526347;54.649862
Date: Sun, 26 Sep 2017 15:02:48 GMT
```

**Example of the response obtaining list of accessible PSU accounts**

Response where the consent has been given for two different IBAN numbers.

**PSD2 - TPP Technical Design**

```
HTTP/1.1 200 Ok
X-Request-ID: 96201400-6ff9-11e8-adc0-fa7ae01bbebc
Date: Sun, 26 Sep 2017 15:02:50 GMT
Content-Type: application/json
{
  "accounts": [
    {
      "resourceId": "3dc3d5b3-7023-4848-9853-f5400a64e80f",
      "iban": "ES1111111111111111111111",
      "currency": "EUR",
      "name": "Main Account",
      "_links": {
        "balances": {
          "href": "/v1/accounts/3dc3d5b3-7023-4848-9853-f5400a64e80f/balances"
        },
        "transactions": {
          "href": "/v1/accounts/3dc3d5b3-7023-4848-9853-f5400a64e80f/transactions"
        }
      }
    },
    {
      "resourceId": "3dc3d5b3-7023-4848-9853-f5400a64e81g",
      "iban": "ES2222222222222222222222",
      "currency": "USD",
      "name": "US Dollar Account",
      "_links": {
        "balances": {
          "href": "/v1/accounts/3dc3d5b3-7023-4848-9853-f5400a64e81g/balances"
        }
      }
    }
  ]
}
```

### 3.3.2 Reading account details

This service allows the account details to be read with the balances if required.

As a requirement, it is assumed that the PSU has given its consent for this access and it has been stored by the ASPSP.

Operation of the service according to the type of access indicated in the consent:

Type of access	Description
availableAccounts	This type of access does not allow consumption of this service.
availableAccountsWithBalances	This type of access does not allow consumption of this service.
account	If the consent associated with the request has this type of access, the account may be queried.
balances	If the consent associated with the request has this type of access, the account may be queried and its balances may be obtained if the ASPSP supports it.
transactions	If the consent has accounts with this type of access, this account may be queried with the "account" access type. This type of access does not imply a "balances" type of access.
allPsd2	If the consent associated with the request has this type of access, the account may be queried and its balances may be obtained. Note: allPsd2 grants the three types of access.

#### 3.3.2.1 Request

##### Endpoint

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

##### Path

Field	Description	Type	Man.	Format
provider	URL of the HUB where the service is published	String	MAN	E.g. www.hub.com

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<b>aspsp</b>	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name
<b>account-id</b>	Identifier of the account assigned by the ASPSP	String	MAN	^. {1,100}\$ E.g. account-id=a1q5w

**Query parameters**

Field	Description	Type	Man.	Format
<b>withBalance</b>	If it is included, this function includes the balances. This request will be rejected if access to balances does not include consent or the ASPSP does not support this parameter.	Boolean	OPT	E.g. true

**Header**

Field	Description	Type	Man.	Format
<b>X-Request-ID</b>	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	<b>UUID</b> ^[0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12}\$ E.g. X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7
<b>Authorisation</b>	Bearer Token. Obtained in a prior authentication on OAuth2.	String	MAN	E.g. Authorisation: Bearer 2YotnFZFEjr1zCsicMWpAA
<b>Consent-ID</b>	Identification of the consent resource	String	MAN	^. {1,36}\$ E.g. Consent-ID: 7890-asdf-4321



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<b>PSU-IP-Address</b>	The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP. If not available, the TPP shall use the IP Address used by the TPP when submitting this request.	String	COND	^[0-9]{1,3}\.[0-9]{1,3}\.[0-9]{1,3}\$  E.g. PSU-IP-Address: 192.168.16.5
<b>PSU-IP-Port</b>	The forwarded IP Port header field consists of the corresponding HTTP request IP Port field between PSU and TPP, if available.	String	OPT	^\d{1,5}\$  E.g. PSU-IP-Port: 443
<b>PSU-Accept</b>	The forwarded Accept header fields consist of the corresponding HTTP request Accept header fields between PSU and TPP, if available.	String	OPT	^.{1,50}\$  E.g. PSU-Accept: application/json
<b>PSU-Accept-Charset</b>	See above	String	OPT	^.{1,50}\$  E.g. PSU-Accept-Charset: utf-8
<b>PSU-Accept-Encoding</b>	See above	String	OPT	^.{1,50}\$  E.g. PSU-Accept-Encoding: gzip
<b>PSU-Accept-Language</b>	See above	String	OPT	^.{1,50}\$  E.g. PSU-Accept-Language: es-ES
<b>PSU-User-Agent</b>	The forwarded Agent header field of the HTTP request between PSU and TPP, if available.	String	OPT	E.g.  PSU-User-Agent: Mozilla/5.0 (Windows; U; Windows NT 6.1; en-US; rv:1.9.1.5) Gecko/20091102 Firefox/3.5.5 (.NET CLR 3.5.30729)

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<p><b>PSU-Http-Method</b></p>	<p>HTTP method used at the PSU – TPP interface, if available.</p> <p>Valid values are:</p> <ul style="list-style-type: none"> <li>• GET</li> <li>• POST</li> <li>• PUT</li> <li>• PATCH</li> <li>• DELETE</li> </ul>	<p>String</p>	<p>OPT</p>	<p>E.g. PSU-Http-Method: GET</p>
<p><b>PSU-Device-ID</b></p>	<p>UUID (Universally Unique Identifier) for a device, which is used by the PSU, if available.</p> <p>UUID identifies either a device or a device dependant application installation. In case of an installation identification this ID need to be unaltered until removal from device.</p>	<p>String</p>	<p>OPT</p>	<p><b>UUID</b></p> <p><math>^{\wedge}[0-9a-fA-F]\{8\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{12\}\\$</math></p> <p>E.g.</p> <p>PSU-Device-ID: 5b3ab8e8-0fd5-43d2-946e-d75958b172e7</p>
<p><b>PSU-Geo-Location</b></p>	<p>The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.</p>	<p>String</p>	<p>OPT</p>	<p><b>RFC 2426</b></p> <p><math>^{\wedge}\text{GEO}:[\backslash\text{d}]*.[\backslash\text{d}]*[;][\backslash\text{d}]*.[\backslash\text{d}]*\\$</math></p> <p>E.g.</p> <p>PSU-Geo-Location: GEO:90.023856;25.345963</p>
<p><b>Digest</b></p>	<p>The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.</p>	<p>String</p>	<p>MAN</p>	<p><math>^{\wedge}.\{1,100\}\\$</math></p> <p>E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRIMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==</p>

<b>Signature</b>	Is contained if and only if the "Signature" element is contained in the header of the request.  See 6.1 Signature for more information.	String	MAN	See annexes
<b>TPP-Signature-Certificate</b>	A signature of the request by the TPP on application level.  See 6.1 Signature for more information.	String	MAN	^.{1,5000}\$  E.g. TPP-Signature-Certificate: MIIHgZCCBmugAwI BAgIIZzZvBQIt0Uc wDQYJ.....KoZI hvcNAQELBQAwSTE LMAkGA1UEBhMCMV VMxEzARBgNVBA

### Body

Data are not sent in the body in this request.

### 3.3.2.2 Response

#### Header

Field	Description	Type	Man.	Format
<b>X-Request-ID</b>	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	<b>UUID</b>  ^[0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12}\$  E.g.  X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7

### Body

Field	Description	Type	Mand.	Format
<b>account</b>	Detailed information on the account	Account Details	MAN	E.g. "account": {...}
<b>tppMessages</b>	Message for the TPP	List<Tpp Message >	OPT	E.g. "tppMessages": [...]

### 3.3.2.3 Examples

#### Example of request

GET <https://www.hub.com/aspsp-name/v1/accounts/3dc3d5b3-7023-4848-9853-f5400a64e80f>

```
Content-Encoding: gzip
Content-Type: application/json
X-Request-ID: 96201400-6ff9-11e8-adc0-fa7ae01bbebc
Authorization: Bearer 2YotnFZFEjrlzCsicMWpAA
Consent-ID: 7890-asdf-4321
PSU-IP-Address: 192.168.8.16
PSU-IP-Port: 443
PSU-Accept: application/json
PSU-Accept-Charset: utf-8
PSU-Accept-Encoding: gzip
PSU-Accept-Language: es-ES
PSU-User-Agent: Mozilla/5.0 (Windows NT 10.0; WOW64; rv:54.0)
Gecko/20100101 Firefox/54.0
PSU-Http-Method: GET
PSU-Device-ID: f8b3feda-6fe3-11e8-adc0-fa7ae01bbebc
PSU-GEO-Location: GEO:12.526347;54.649862
Date: Sun, 26 Sep 2017 15:02:48 GMT
```

#### Example when the account only has one currency

```
HTTP/1.1 200 Ok
X-Request-ID: 96201400-6ff9-11e8-adc0-fa7ae01bbebc
Date: Sun, 26 Sep 2017 15:02:50 GMT
Content-Type: application/json
{
    "account": {
```

<USO TPPs>

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```

    "resourceId": "3dc3d5b3-7023-4848-9853-f5400a64e80f",
    "iban": "ES1111111111111111111111",
    "currency": "EUR",
    "name": "Main Account",
    "_links": {
      "balances": {
        "href": "/v1/accounts/3dc3d5b3-7023-4848-9853-f5400a64e80f/balances"
      },
      "transactions": {
        "href": "/v1/accounts/3dc3d5b3-7023-4848-9853-f5400a64e80f/transactions"
      }
    }
  }
}
}
}

```

**3.3.3 Reading balances**

This service allows balances of an account determined by its identifier to be obtained. As a requirement, it is assumed that the PSU has given its consent for this access and it has been stored by the ASPSP.

Operation of the service according to the type of access indicated in the consent:

Type of access	Description
availableAccounts	This type of access does not allow consumption of this service.
availableAccountsWithBalances	This type of access does not allow consumption of this service.
account	This type of access does not allow consumption of this service.
balances	If the consent associated with the request has this type of access, the account balances may be queried.
transactions	This type of access does not allow consumption of this service.

allPsd2	<p>If the consent associated with the request has this type of access, the account balances may be queried.</p> <p>Note: allPsd2 grants the three types of access.</p>
---------	--

### 3.3.3.1 Request

#### Endpoint

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

#### Path

Field	Description	Type	Man.	Format
<b>provider</b>	URL of the HUB where the service is published	String	MAN	E.g. www.hub.com
<b>aspsp</b>	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name
<b>account-id</b>	<p>Identifier of the account that will be used in the data reading.</p> <p>Obtained previously in the reading of the account list.</p> <p>Must be valid at least while the consent lasts.</p> <p>This id may be tokenised.</p>	String	MAN	<p>^.{1,100}\$</p> <p>E.g. account-id=a1q5w</p>

#### Query parameters

No additional fields are specified.

#### Header

Field	Description	Type	Man.	Format
<b>X-Request-ID</b>	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	<p><b>UUID</b></p> <p>^[0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12}\$</p> <p>E.g.</p>

				X-Request-ID: 1b3ab8e8-0fd5- 43d2-946e- d75958b172e7
<b>Authorisation</b>	Bearer Token. Obtained in a prior authentication on OAuth2.	String	MAN	E.g. Authorisation: Bearer 2YotnFZFEjr1zCsic MWpAA
<b>Consent-ID</b>	Identification of the consent resource	String	MAN	^.{1,36}\$ E.g. Consent-ID: 7890-asdf-4321
<b>PSU-IP-Address</b>	The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP. If not available, the TPP shall use the IP Address used by the TPP when submitting this request.	String	COND	^[0-9]{1,3}\.[0-9]{1,3}\.[0-9]{1,3}\$ E.g. PSU-IP-Address: 192.168.16.5
<b>PSU-IP-Port</b>	The forwarded IP Port header field consists of the corresponding HTTP request IP Port field between PSU and TPP, if available.	String	OPT	^\d{1,5}\$ E.g. PSU-IP-Port: 443
<b>PSU-Accept</b>	The forwarded Accept header fields consist of the corresponding HTTP request Accept header fields between PSU and TPP, if available.	String	OPT	^.{1,50}\$ E.g. PSU-Accept: application/json
<b>PSU-Accept-Charset</b>	See above	String	OPT	^.{1,50}\$ E.g. PSU-Accept-Charset: utf-8
<b>PSU-Accept-Encoding</b>	See above	String	OPT	^.{1,50}\$ E.g. PSU-Accept-Encoding: gzip
<b>PSU-Accept-Language</b>	See above	String	OPT	^.{1,50}\$

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				E.g. PSU-Accept-Language: es-ES
<b>PSU-User-Agent</b>	The forwarded Agent header field of the HTTP request between PSU and TPP, if available.	String	OPT	E.g. PSU-User-Agent: Mozilla/5.0 (Windows; U; Windows NT 6.1; en-US; rv:1.9.1.5) Gecko/20091102 Firefox/3.5.5 (.NET CLR 3.5.30729)
<b>PSU-Http-Method</b>	HTTP method used at the PSU – TPP interface, if available.  Valid values are: <ul style="list-style-type: none"> <li>• GET</li> <li>• POST</li> <li>• PUT</li> <li>• PATCH</li> <li>• DELETE</li> </ul>	String	OPT	E.g. PSU-Http-Method: GET
<b>PSU-Device-ID</b>	UUID (Universally Unique Identifier) for a device, which is used by the PSU, if available.  UUID identifies either a device or a device dependant application installation. In case of an installation identification this ID need to be unaltered until removal from device.	String	OPT	<b>UUID</b>  ^[0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12}\$  E.g. PSU-Device-ID: 5b3ab8e8-0fd5-43d2-946e-d75958b172e7
<b>PSU-Geo-Location</b>	The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.	String	OPT	<b>RFC 2426</b>  ^GEO:[\\d]*.[\\d]*[;][\\d]*.[\\d]*\$  E.g. PSU-Geo-Location: GEO:90.023856;25.345963



**PSD2 - TPP Technical Design**

<b>Digest</b>	The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.	String	MAN	$\wedge.\{1,100\}\$$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRIMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
<b>Signature</b>	Is contained if and only if the "Signature" element is contained in the header of the request.  See 6.1 Signature for more information.	String	MAN	See annexes
<b>TPP-Signature-Certificate</b>	A signature of the request by the TPP on application level.  See 6.1 Signature for more information.	String	MAN	$\wedge.\{1,5000\}\$$ E.g. TPP-Signature-Certificate: MIIHgZCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ.....KoZIHvcNAQELBQAwSTE LMAkGA1UEBhMCMCV VMxEzARBgNVBA

**Body**

The data are not sent in the body in this request.

**3.3.3.2 Response**

**Header**

Field	Description	Type	Man.	Format
<b>X-Request-ID</b>	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	<b>UUID</b> $\wedge[0-9a-fA-F]\{8\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{12\}\$$ E.g. X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7

**Body**

Field	Description	Type	Mand.	Format
<b>account</b>	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.	AccountReference	OPT	E.g. "account": {...}
<b>balances</b>	A list of balances regarding this account, e.g. the current balance, the last booked balance.	List<Balance>	MAN	E.g. "balances": {...}
<b>tppMessages</b>	Message for the TPP.	List<TppMessage>	OPT	E.g. "tppMessages": :[...]

**3.3.3.3 Examples**
**Example of request**

GET <https://www.hub.com/aspsp-name/accounts/3dc3d5b3-7023-4848-9853-f5400a64e81g/balances>

Accept: application/json

X-Request-ID: 96201400-6ff9-11e8-adc0-fa7ae01bbebc

Authorization: Bearer 2YotnFZFEjrlzCsicMWpAA

Consent-ID: 7890-asdf-4321

PSU-IP-Address: 192.168.8.16

PSU-IP-Port: 443

PSU-Accept: application/json

PSU-Accept-Charset: utf-8

PSU-Accept-Encoding: gzip

PSU-Accept-Language: es-ES

<USO TPPs>

**PSD2 - TPP Technical Design**

PSU-User-Agent: Mozilla/5.0 (Windows NT 10.0; WOW64; rv:54.0)  
Gecko/20100101 Firefox/54.0

PSU-Http-Method: GET

PSU-Device-ID: f8b3feda-6fe3-11e8-adc0-fa7ae01bbebc

PSU-GEO-Location: GEO:12.526347;54.649862

Date: Sun, 26 Sep 2017 15:02:48 GMT

**Example of response**

HTTP/1.1 200 Ok

X-Request-ID: 96201400-6ff9-11e8-adc0-fa7ae01bbebc

Date: Sun, 26 Sep 2017 15:02:50 GMT

Content-Type: application/json

```
{
  "account": {
    "iban": "ES11111111111111111111111111111111"
  },
  "balances": [
    {
      "balanceType": "closingBooked",
      "balanceAmount": {
        "currency": "EUR",
        "amount": "500.00"
      },
      "referenceDate": "2017-10-25"
    },
    {
      "balanceType": "openingBooked",
      "balanceAmount": {
        "currency": "EUR",
        "amount": "900.00"
      },
      "referenceDate": "2017-10-25T15:30:35.035Z"
    }
  ]
}
```

### 3.3.4 Reading of transactions

This service allows transactions to be obtained of an account determined by its identifier.

As a requirement, it is assumed that the PSU has given its consent for this access and it has been stored by the ASPSP.

Operation of the service according to the type of access indicated in the consent:

Type of access	Description
availableAccounts	This type of access does not allow consumption of this service.
availableAccountsWithBalances	This type of access does not allow consumption of this service.
account	This type of access does not allow consumption of this service.
balances	If the consent associated with the request has this type of access, the balances may be requested if the ASPSP supports it.
transactions	If the consent associated with the request has this type of access, the account activity may be queried.
allPsd2	If the consent associated with the request has this type of access, the account balances may be queried. Note: allPsd2 grants the three types of access.

#### 3.3.4.1 Request

##### Endpoint

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

##### Path

Field	Description	Type	Man.	Format
provider	URL of the HUB where the service is published	String	MAN	E.g. www.hub.com

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<b>aspsp</b>	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name
<b>account-id</b>	Identifier of the account that will be used in the data reading. Obtained previously in the reading of the account list. Must be valid at least while the consent lasts. This id may be tokenised.	String	MAN	^.{1,100}\$ E.g. account-id=a1q5w

**Query parameters**

Field	Description	Type	Man.	Format
<b>dateFrom</b>	Start date of query. It is included if the "deltaList" is not included.	String	COND	<b>ISODate</b> E.g. dateFrom=2017-10-25
<b>dateTo</b>	End date of query. Its default value is the current date, unless otherwise indicated.	String	OPT	<b>ISODate</b> E.g. dateTo=2017-11-05
<b>bookingStatus</b>	Status of the returned transactions. The status codes permitted are "booked", "pending" and "both". Those mandatory for the ASPSPs are "booked".	String	MAN	E.g. bookingStatus=booked
<b>withBalance</b>	If it is included, this function includes the balances. This request will be rejected if access to balances does not include consent or the ASPSP does not support this parameter.	Boolean	OPT	E.g. true

## Header

Field	Description	Type	Man.	Format
<b>X-Request-ID</b>	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	<b>UUID</b> $^{\wedge}[0-9a-fA-F]\{8\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{12\}\$$ E.g. X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7
<b>Authorisation</b>	Bearer Token. Obtained in a prior authentication on OAuth2.	String	MAN	E.g. Authorisation: Bearer 2YotnFZFEjr1zCsicMWpAA
<b>Consent-ID</b>	Identification of the consent resource	String	MAN	$^{\wedge}.\{1,36\}\$$ E.g. Consent-ID: 7890-asdf-4321
<b>Accept</b>	Response format supported. Supported values: application/json	String	OPT	$^{\wedge}.\{1,50\}\$$ E.g. Accept: application/json
<b>PSU-IP-Address</b>	The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP.  If not available, the TPP shall use the IP Address used by the TPP when submitting this request.	String	COND	$^{\wedge}[0-9]\{1,3\}.\{0-9\}\{1,3\}.\{0-9\}\{1,3\}.\{0-9\}\{1,3\}\$$ E.g. PSU-IP-Address: 192.168.16.5

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<b>PSU-IP-Port</b>	The forwarded IP Port header field consists of the corresponding HTTP request IP Port field between PSU and TPP, if available.	String	OPT	^\d{1,5}\$ E.g. PSU-IP-Port: 443
<b>PSU-Accept</b>	The forwarded Accept header fields consist of the corresponding HTTP request Accept header fields between PSU and TPP, if available.	String	OPT	^.{1,50}\$ E.g. PSU-Accept: application/json
<b>PSU-Accept-Charset</b>	See above	String	OPT	^.{1,50}\$ E.g. PSU-Accept-Charset: utf-8
<b>PSU-Accept-Encoding</b>	See above	String	OPT	^.{1,50}\$ E.g. PSU-Accept-Encoding: gzip
<b>PSU-Accept-Language</b>	See above	String	OPT	^.{1,50}\$ E.g. PSU-Accept-Language: es-ES
<b>PSU-User-Agent</b>	The forwarded Agent header field of the HTTP request between PSU and TPP, if available.	String	OPT	E.g. PSU-User-Agent: Mozilla/5.0 (Windows; U; Windows NT 6.1; en-US; rv:1.9.1.5) Gecko/20091102 Firefox/3.5.5 (.NET CLR 3.5.30729)
<b>PSU-Http-Method</b>	HTTP method used at the PSU – TPP interface, if available.  Valid values are: <ul style="list-style-type: none"> <li>• GET</li> <li>• POST</li> <li>• PUT</li> <li>• PATCH</li> <li>• DELETE</li> </ul>	String	OPT	E.g. PSU-Http-Method: GET

<b>PSU-Device-ID</b>	<p>UUID (Universally Unique Identifier) for a device, which is used by the PSU, if available.</p> <p>UUID identifies either a device or a device dependant application installation. In case of an installation identification this ID need to be unaltered until removal from device.</p>	String	OPT	<p><b>UUID</b></p> <p><math>^{\wedge}[0-9a-fA-F]\{8\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{12\}\\$</math></p> <p>E.g.</p> <p>PSU-Device-ID: 5b3ab8e8-0fd5-43d2-946e-d75958b172e7</p>
<b>PSU-Geo-Location</b>	The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.	String	OPT	<p><b>RFC 2426</b></p> <p><math>^{\wedge}GEO:[\d]*.[\d]*[;][\d]*.[\d]*\\$</math></p> <p>E.g.</p> <p>PSU-Geo-Location: GEO:90.023856;25.345963</p>
<b>Digest</b>	The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.	String	MAN	<p><math>^{\wedge}.\{1,100\}\\$</math></p> <p>E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRIMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==</p>
<b>Signature</b>	<p>Is contained if and only if the "Signature" element is contained in the header of the request.</p> <p>See 6.1 Signature for more information.</p>	String	MAN	See annexes
<b>TPP-Signature-Certificate</b>	<p>A signature of the request by the TPP on application level.</p> <p>See 6.1 Signature for more information.</p>	String	MAN	$^{\wedge}.\{1,5000\}\$$



				E.g. TPP-Signature-Certificate: MIIHgZCCBmugAwI BAgIIZzZvBQIt0Uc wDQYJ.....KoZI hvcNAQELBQAwSTE LMAkGA1UEBhMCMV VMxEzARBgNVBA
--	--	--	--	---

### Body

Data are not sent in the body in this request.

### 3.3.4.2 Response

#### Header

Field	Description	Type	Man.	Format
<b>Content-Type</b>	Possible values: application/json	String	MAN	E.g. Content-Type: application/json
<b>X-Request-ID</b>	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	<b>UUID</b> ^[0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12}\$ E.g. X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7

#### Body

Field	Description	Type	Man.	Format
<b>account</b>	Identifier of the addressed account.	AccountReference	OPT	E.g. "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.			
<b>transactions</b>	JSON based account report.  This account report contains transactions resulting from the query parameters.	AccountReport	OPT	E.g. "transactions": {...}
<b>tppMessages</b>	Message for the TPP	List<TppMessage>	OPT	E.g. "tppMessages": [...]

### 3.3.4.3 Examples

#### Example of a search request sending search criteria by dateTo and dateFrom

GET

<https://www.hub.com/aspsp-name/v1/accounts/qwer3456tzui7890/transactions?dateFrom=2017-10-25&dateTo=2017-11-05&bookingStatus=both>

Accept: application/json

X-Request-ID: 96201400-6ff9-11e8-adc0-fa7ae01bbebc

Authorization: Bearer 2YotnFZFEjrlzCsicMWpAA

Consent-ID: 7890-asdf-4321

PSU-IP-Address: 192.168.8.16

PSU-IP-Port: 443

PSU-Accept: application/json

PSU-Accept-Charset: utf-8

PSU-Accept-Encoding: gzip

PSU-Accept-Language: es-ES

PSU-User-Agent: Mozilla/5.0 (Windows NT 10.0; WOW64; rv:54.0) Gecko/20100101 Firefox/54.0

PSU-Http-Method: GET

PSU-Device-ID: f8b3feda-6fe3-11e8-adc0-fa7ae01bbebc

PSU-GEO-Location: GEO:12.526347;54.649862

<USO TPPs>

**PSD2 - TPP Technical Design**

Date: Sun, 26 Sep 2017 15:02:48 GMT

**Example of response with pagination**

HTTP/1.1 200 Ok

X-Request-ID: 96201400-6ff9-11e8-adc0-fa7ae01bbebc

Date: Sun, 26 Sep 2017 15:02:50 GMT

Content-Type: application/json

```
{
  "account": {
    "iban": "ES1111111111111111111111"
  },
  "transactions": {
    "booked": [
      {
        "transactionAmount": {
          "currency": "EUR",
          "amount": "256.67"
        },
        "bookingDate": "2017-10-25",
        "valueDate": "2017-10-26",
        "remittanceInformationUnstructured": "Example for Remittance Information"
      },
      {
        "transactionAmount": {
          "currency": "EUR",
          "content": "343.01"
        },
        "bookingDate": "2017-10-25",
        "valueDate": "2017-10-26",
        "remittanceInformationUnstructured": "Another example for Remittance Information"
      }
    ],
    "_links": {
      "account": {
```

<USO TPPs>

**PSD2 - TPP Technical Design**

```
        "href": "/v1/accounts/qwer3456tzui7890"
      },
      "first": {
        "href": "/v1/accounts/qwer3456tzui7890/transactions?page[number]=1&page[size]=15"
      },
      "previous": {
        "href": "/v1/accounts/qwer3456tzui7890/transactions?page[number]=2&page[size]=15"
      },
      "next": {
        "href": "/v1/accounts/qwer3456tzui7890/transactions?page[number]=4&page[size]=15"
      },
    }
  }
}
```

**Example of response with error**

```
{
  "tppMessages": [{
    "category": "ERROR",
    "code": " ACCESS_EXCEEDED "
  }
]
```

### **3.4 FCS: Establish consent for the fund confirmation service**

#### **3.4.1 Fund confirmation consent**

Using this service a TPP can report a confirmation consent for ASPSP funds on the specified account.

Unlike the request to establish information consent on the account, this consent does not have secondary effects on other existing ones.

E.g. does not invalidate prior consent.

### 3.4.1.1 Request

#### Endpoint

POST {provider}/{aspsp}/v2/consents/confirmation-of-funds

#### Path

Field	Description	Type	Man.	Format
<b>provider</b>	URL of the HUB where the service is published.	String	MAN	E.g. www.hub.com
<b>aspsp</b>	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name

#### Query parameters

No additional fields are specified.

#### Header

Field	Description	Type	Man.	Format
<b>X-Request-ID</b>	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	<b>UUID</b> $^{\wedge}[0-9a-fA-F]\{8\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{12\}\$$ E.g. X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7
<b>Authorisation</b>	Bearer Token. Obtained in a prior authentication on OAuth2.	String	MAN	E.g. Authorisation: Bearer 2YotnFZFEjr1zCsicMWpA A

**PSD2 - TPP Technical Design**

<b>PSU-IP-Address</b>	The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP.  If not available, the TPP shall use the IP Address used by the TPP when submitting this request.	String	OPT	^[0-9]{1,3}\.[0-9]{1,3}\.[0-9]{1,3}\$  E.g. PSU-IP-Address: 192.168.16.5
<b>PSU-IP-Port</b>	The forwarded IP Port header field consists of the corresponding HTTP request IP Port field between PSU and TPP, if available.	String	OPT	^\d{1,5}\$  E.g. PSU-IP-Port: 443
<b>PSU-Accept</b>	The forwarded Accept header fields consist of the corresponding HTTP request Accept header fields between PSU and TPP, if available.	String	OPT	^.{1,50}\$  E.g. PSU-Accept: application/json
<b>PSU-Accept-Charset</b>	See above	String	OPT	^.{1,50}\$  E.g. PSU-Accept-Charset: utf-8
<b>PSU-Accept-Encoding</b>	See above	String	OPT	^.{1,50}\$  E.g. PSU-Accept-Encoding: gzip
<b>PSU-Accept-Language</b>	See above	String	OPT	^.{1,50}\$  E.g. PSU-Accept-Language: es-ES
<b>PSU-User-Agent</b>	The forwarded Agent header field of the HTTP request between PSU and TPP, if available.	String	OPT	E.g. PSU-User-Agent: Mozilla/5.0 (Windows; U; Windows NT 6.1; en-US; rv:1.9.1.5) Gecko/20091102 Firefox/3.5.5 (.NET CLR 3.5.30729)

**PSD2 - TPP Technical Design**

<p><b>PSU-Http-Method</b></p>	<p>HTTP method used at the PSU – TPP interface, if available.</p> <p>Valid values are:</p> <ul style="list-style-type: none"> <li>• GET</li> <li>• POST</li> <li>• PUT</li> <li>• PATCH</li> <li>• DELETE</li> </ul>	<p>String</p>	<p>OPT</p>	<p>E.g. PSU-Http-Method: POST</p>
<p><b>PSU-Device-ID</b></p>	<p>UUID (Universally Unique Identifier) for a device, which is used by the PSU, if available.</p> <p>UUID identifies either a device or a device dependant application installation. In case of an installation identification this ID need to be unaltered until removal from device.</p>	<p>String</p>	<p>OPT</p>	<p><b>UUID</b></p> <p><math>^{\wedge}[0-9a-fA-F]\{8\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{12\}\\$</math></p> <p>E.g.</p> <p>PSU-Device-ID: 5b3ab8e8-0fd5-43d2-946e-d75958b172e7</p>
<p><b>PSU-Geo-Location</b></p>	<p>The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.</p>	<p>String</p>	<p>OPT</p>	<p><b>RFC 2426</b></p> <p><math>^{\wedge}\text{GEO}:[\backslash\text{d}]^*.[\backslash\text{d}]^*[\text{;}]([\backslash\text{d}]^*.[\backslash\text{d}]^*\\$</math></p> <p>E.g.</p> <p>PSU-Geo-Location: GEO:90.023856;25.345963</p>
<p><b>TPP-Redirect-Preferred</b></p>	<p>If it equals "true", the TPP prefers a redirect over an embedded SCA approach.</p>	<p>Boolean</p>	<p>OPT</p>	<p>E.g. TPP-Redirect-Preferred: true</p>

	<p>If it equals "false", the TPP prefers not to be redirected for SCA. The ASPSP will then choose between the Embedded or the Decoupled 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 SCA method chosen by the TPP/PSU.</p> <p><b>EMBEDDED NOT SUPPORTED IN THIS VERSION</b></p>			
<p><b>TPP-Redirect-URI</b></p>	<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".</p> <p>It is recommended to always use this header field.</p> <p><b>Remark for Future:</b> This field might be changed to mandatory in the next version of the specification.</p>	<p>String</p>	<p>COND</p>	<p>^.{1,250}\$</p> <p>E.g. TPP-Redirect-URI:"https://tpp.example.es/cb"</p>



<b>TPP-Nok-Redirect-URI</b>	If this URI is contained, the TPP is asking to redirect the transaction flow to this address instead of the TPP-Redirect-URI in case of a negative result of the redirect SCA method. This might be ignored by the ASPSP.	String	OPT	^.{12,50}\$ E.g. TPP-Nok-Redirect-URI:"https://tpp.example.es/cb/nok"
<b>TPP-Explicit-Authorisation-Preferred</b>	If it equals "true", the TPP prefers to start the authorisation process separately. This preference might be ignored by the ASPSP, if a signing basket is not supported as functionality.  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.  <b>Note:</b> the ASPSP may not take it into account if it does not support it.	Boolean	OPT	E.g. TPP-Explicit-Authorisation-Preferred: false
<b>Digest</b>	Is contained if and only if the "Signature" element is contained in the header of the request.  See 6.1 Signature for more information.	String	MAN	^.{1,100}\$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRI MzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
<b>Signature</b>	A signature of the request by the TPP on application level.	String	MAN	See annexes

	See 6.1 Signature for more information.			
<b>TPP-Signature-Certificate</b>	The certificate used for signing the request, in base64 encoding.	String	MAN	$\wedge.\{1,5000\}\$$ E.g. TPP-Signature-Certificate: MIIHgZCCBmugAwIBAgIIZzZvBQIt0UcwDQYJ..... ....KoZIHvcNAQELBQAwS TELMAkGA1UEBhMCVVM xEzARBgNVBA

### Body

Field	Description	Type	Man.	Format
<b>account</b>	Account, where the confirmation of funds service is aimed to be submitted to.	Account Reference	MAN	E.g. "access": {...}

### 3.4.1.2 Response

#### Response code

HTTP 201 response code if the resource is correctly created.

#### Header

Field	Description	Type	Man.	Format
<b>Location</b>	Contains the link to the resource generated.	String	MAN	<b>Max512Text</b> E.g. Location: /v2/consents/confirmation-of-funds/{consentId}
<b>X-Request-ID</b>	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	<b>UUID</b> $\wedge[0-9a-fA-F]\{8\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{12\}\$$ E.g. X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7

<b>ASPSP-SCA-Approach</b>	<p>Value returned if the SCA method has been fixed. Possible values:</p> <ul style="list-style-type: none"> <li>• REDIRECT</li> </ul> <p>The SCA based on OAuth will be taken as REDIRECT.</p>	String	COND	E.g. ASPSP-SCA-Approach: REDIRECT
---------------------------	--	--------	------	-----------------------------------

### Body

Field	Description	Type	Man.	Format
<b>consentStatus</b>	Consent authentication status. See values defined in 6.5 Consent status	String	MAN	E.g. "consentStatus": "received"
<b>consentId</b>	Identifier of the resource that references the consent. It must be contained if a consent was generated.	String	MAN	$\wedge.\{1,36\}\$$ E.g. "consentId": "123-QWE-456"
<b>scaMethods</b>	<p>This data element might be contained, if SCA is required and if the PSU has a choice between different authentication methods.</p> <p>If this data element is contained, then there is also a hyperlink of type "startAuthorisationWithAuthenticationMethodSelection" contained in the response body.</p> <p>These methods shall be presented towards the PSU for selection by the TPP.</p> <p><b>Note:</b> Only if ASPSP supports selection of the SCA method</p>	List<AuthenticationObject>	COND	E.g. "scaMethods": [...]
<b>_links</b>	A list of hyperlinks to be recognised by the TPP.	Links	MAN	E.g. "_links": {...}

	<p>Type of links admitted in this response:</p> <ul style="list-style-type: none"> <li>• scaRedirect: In case of an SCA Redirect Approach, the ASPSP is transmitting the link to which to redirect the PSU browser.</li> <li>• startAuthorisation: 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).</li> <li>• self: link to the resource created by this request.</li> <li>• status: The link to retrieve the transaction status</li> <li>• 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.</li> </ul>			
--	--	--	--	--

<b>tppMessages</b>	Message to the TPP	List<TppMessage>	OPT	E.g. "tppMessages": [...]
--------------------	--------------------	------------------	-----	---------------------------

### 3.4.1.3 Examples

#### Example of consent request

POST <https://www.hub.com/aspsp-name/v2/consents/confirmation-of-funds>

Content-Encoding: gzip

Content-Type: application/json

X-Request-ID: 10391c7e-ad88-49ec-a2ad-00aacb1f6541

Authorization: Bearer 2YotnFZFEjrlzCsicMWpAA

PSU-IP-Address: 192.168.8.16

PSU-IP-Port: 443

PSU-Accept: application/json

PSU-Accept-Charset: utf-8

PSU-Accept-Encoding: gzip

PSU-Accept-Language: es-ES

PSU-User-Agent: Mozilla/5.0 (Windows NT 10.0; WOW64; rv:54.0) Gecko/20100101 Firefox/54.0

PSU-Http-Method: POST

PSU-Device-ID: f8b3feda-6fe3-11e8-adc0-fa7ae01bbebc

PSU-GEO-Location: GEO:12.526347;54.649862

TPP-Redirect-Preferred: true

TPP-Redirect-URI: https://www.tpp.com/cb

TPP-Nok-Redirect-URI: https://www.tpp.com/cb/nok

Date: Sun, 26 Sep 2017 15:02:37 GMT

```
{
  "account": {
    "iban": "ES1111111111111111111111"
  }
}
```

#### Example of the response in the case of SCA via redirect with an implicitly generated sub-resource authorisation

HTTP/1.1 201 Created

X-Request-ID: 10391c7e-ad88-49ec-a2ad-00aacb1f6541

**PSD2 - TPP Technical Design**

ASPSP-SCA-Approach: REDIRECT

Date: Sun, 26 Sep 2017 15:02:43 GMT

Location: </v2/consents/confirmation-of-funds/123-asdf-456>

Content-Type: application/json

```
{
  "consentStatus": "received",
  "consentId": "123-asdf-456",
  "_links": {
    "scaRedirect": {
      "href": "https://hub.example.es/authorization "
    },
    "self": {
      "href": "/v2/consents/confirmation-of-funds/123-asdf-456",
    },
    "status": {
      "href": "/v2/consents/confirmation-of-funds/123-asdf-456/status"
    },
    "scaStatus": {
      "href": "/v2/consents/123-asdf-456/authorisations/confirmation-of-funds/123auth456"
    }
  }
}
```

### 3.4.2 Get consent status

This service allows TPP to know the status of a consent request initiated previously.

#### 3.4.2.1 Request

##### Endpoint

GET {provider}/{aspsp}/v2/consents/confirmation-of-funds/{consent-id}/status

**Path**

Field	Description	Type	Man.	Format
<b>provider</b>	URL of the HUB where the service is published.	String	MAN	E.g. www.hub.com
<b>aspsp</b>	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name
<b>consentId</b>	Identifier of the resource that references the consent.  Sent previously as a response to a request message for consent from the TPP.	String	MAN	^.{1,36}\$  E.g.123- qwerty-456

**Query parameters**

No additional fields are specified.

**Header**

Field	Description	Type	Man.	Format
<b>X-Request-ID</b>	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	<b>UUID</b>  ^[0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12}\$  E.g.  X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7
<b>Authorisation</b>	Bearer Token. Obtained in a prior authentication on OAuth2.	String	MAN	E.g.  Authorisation: Bearer 2YotnFZFEjr1zCsicMWpAA

**PSD2 - TPP Technical Design**

<b>PSU-IP-Address</b>	The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP. If not available, the TPP shall use the IP Address used by the TPP when submitting this request.	String	OPT	^[0-9]{1,3}\.[0-9]{1,3}\.[0-9]{1,3}\$  E.g. PSU-IP-Address: 192.168.16.5
<b>PSU-IP-Port</b>	The forwarded IP Port header field consists of the corresponding HTTP request IP Port field between PSU and TPP, if available.	String	OPT	^\d{1,5}\$  E.g. PSU-IP-Port: 443
<b>PSU-Accept</b>	The forwarded Accept header fields consist of the corresponding HTTP request Accept header fields between PSU and TPP, if available.	String	OPT	^.{1,50}\$  E.g. PSU-Accept: application/json
<b>PSU-Accept-Charset</b>	See above	String	OPT	^.{1,50}\$  E.g. PSU-Accept-Charset: utf-8
<b>PSU-Accept-Encoding</b>	See above	String	OPT	^.{1,50}\$  E.g. PSU-Accept-Encoding: gzip
<b>PSU-Accept-Language</b>	See above	String	OPT	^.{1,50}\$  E.g. PSU-Accept-Language: es-ES
<b>PSU-User-Agent</b>	The forwarded Agent header field of the HTTP request between PSU and TPP, if available.	String	OPT	E.g.  PSU-User-Agent: Mozilla/5.0 (Windows; U; Windows NT 6.1; en-US; rv:1.9.1.5) Gecko/20091102 Firefox/3.5.5 (.NET CLR 3.5.30729)



**PSD2 - TPP Technical Design**

<b>PSU-Http-Method</b>	<p>HTTP method used at the PSU – TPP interface, if available.</p> <p>Valid values are:</p> <ul style="list-style-type: none"> <li>• GET</li> <li>• POST</li> <li>• PUT</li> <li>• PATCH</li> <li>• DELETE</li> </ul>	String	OPT	E.g. PSU-Http-Method: GET
<b>PSU-Device-ID</b>	<p>UUID (Universally Unique Identifier) for a device, which is used by the PSU, if available.</p> <p>UUID identifies either a device or a device dependant application installation. In case of an installation identification this ID need to be unaltered until removal from device.</p>	String	OPT	<p><b>UUID</b></p> <p><math>^{\wedge}[0-9a-fA-F]\{8\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{12\}\\$</math></p> <p>E.g.</p> <p>PSU-Device-ID: 5b3ab8e8-0fd5-43d2-946e-d75958b172e7</p>
<b>PSU-Geo-Location</b>	<p>The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.</p>	String	OPT	<p><b>RFC 2426</b></p> <p><math>^{\wedge}GEO:[\d]*.[\d]*[;][\d]*.[\d]*\\$</math></p> <p>E.g.</p> <p>PSU-Geo-Location: GEO:90.023856;25.345963</p>
<b>Digest</b>	<p>Is contained if and only if the "Signature" element is contained in the header of the request.</p> <p>See 6.1 Signature for more information.</p>	String	MAN	<p><math>^{\wedge}.\{1,100\}\\$</math></p> <p>E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRIMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==</p>
<b>Signature</b>	<p>A signature of the request by the TPP on application level.</p> <p>See 6.1 Signature for more information.</p>	String	MAN	See annexes

**PSD2 - TPP Technical Design**

<b>TPP-Signature-Certificate</b>	The certificate used for signing the request, in base64 encoding.	String	MAN	$\wedge.\{1,5000\}\$$ E.g. TPP-Signature-Certificate: MIIHgZCCBmugAwIBAgIIZzZvBQIt0UcwDQYJ.....KoZIHvcNAQELBQAwSTE LMAkGA1UEBhMCMCV VMxEzARBgNVBA
----------------------------------	---	--------	-----	---

**Body**

No additional data are sent.

**3.4.2.2 Response**

This message is returned to the TPP as a response to the request message for the consent status.

**Response code**

HTTP 200 response code.

**Header**

Field	Description	Type	Man.	Format
<b>X-Request-ID</b>	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	<b>UUID</b> $\wedge[0-9a-fA-F]\{8\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{12\}\$$ E.g. X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7

**Body**

Field	Description	Type	Man.	Format
-------	-------------	------	------	--------

<b>consentStatus</b>	Consent authentication status. See values defined in 6.5 Consent status	String	MAN	E.g. "consentStatus": "valid"
<b>tppMessages</b>	Message for the TPP	List<Tp pMessage>	OPT	E.g. "tppMessages": [...]

### 3.4.2.3 Examples

#### Example of request

GET <https://www.hub.com/aspsp-name/v2/consents/confirmation-of-funds/123asdf456/status>

```
Accept: application/json
X-Request-ID: 96201400-6ff9-11e8-adc0-fa7ae01bbebc
Authorization: Bearer 2YotnFZFEjrlzCsicMWpAA
PSU-IP-Address: 192.168.8.16
PSU-IP-Port: 443
PSU-Accept: application/json
PSU-Accept-Charset: utf-8
PSU-Accept-Encoding: gzip
PSU-Accept-Language: es-ES
PSU-User-Agent: Mozilla/5.0 (Windows NT 10.0; WOW64; rv:54.0)
Gecko/20100101 Firefox/54.0
PSU-Http-Method: GET
PSU-Device-ID: f8b3feda-6fe3-11e8-adc0-fa7ae01bbebc
PSU-GEO-Location: GEO:12.526347;54.649862
Date: Sun, 26 Sep 2017 15:02:48 GMT
```

#### Example of response

```
HTTP/1.1 200 Ok
X-Request-ID: 96201400-6ff9-11e8-adc0-fa7ae01bbebc
Date: Sun, 26 Sep 2017 15:02:50 GMT
Content-Type: application/json
{
  "consentStatus": "valid"
}
```

### 3.4.3 Get consent

#### 3.4.3.1 Request

This message is sent by the TPP as a request to recover the information on previously created consent for fund confirmation. Particularly useful for the TPP in cases where the consent was managed directly between the ASPSP and the PSU.

#### Endpoint

GET {provider}/{aspsp}/v2/consents/confirmation-of-funds/{consentId}

#### Path

Field	Description	Type	Man.	Format
<b>provider</b>	URL of the HUB where the service is published.	String	MAN	E.g. www.hub.com
<b>aspsp</b>	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name
<b>consentId</b>	Identifier of the resource that references the consent.  Sent previously as a response to a request message for consent from the TPP.	String	MAN	^.{1,36}\$  E.g. 7890-asdf-4321

#### Query parameters

No additional fields are specified.

#### Header

Field	Description	Type	Man.	Format
<b>X-Request-ID</b>	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	<b>UUID</b>  ^[0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12}\$  E.g.

				X-Request-ID: 1b3ab8e8-0fd5- 43d2-946e- d75958b172e7
<b>Authorisation</b>	Bearer Token. Obtained in a prior authentication on OAuth2.	String	MAN	E.g.  Authorisation: Bearer 2YotnFZFEjr1zCsic MWpAA
<b>PSU-IP-Address</b>	The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP.  If not available, the TPP shall use the IP Address used by the TPP when submitting this request.	String	OPT	^[0-9]{1,3}\.[0-9]{1,3}\.[0-9]{1,3}.\$  E.g. PSU-IP-Address: 192.168.16.5
<b>PSU-IP-Port</b>	The forwarded IP Port header field consists of the corresponding HTTP request IP Port field between PSU and TPP, if available.	String	OPT	^\d{1,5}\$  E.g. PSU-IP-Port: 443
<b>PSU-Accept</b>	The forwarded Accept header fields consist of the corresponding HTTP request Accept header fields between PSU and TPP, if available.	String	OPT	^{1,50}\$  E.g. PSU-Accept: application/json
<b>PSU-Accept-Charset</b>	See above	String	OPT	^{1,50}\$  E.g. PSU-Accept-Charset: utf-8
<b>PSU-Accept-Encoding</b>	See above	String	OPT	^{1,50}\$  E.g. PSU-Accept-Encoding: gzip
<b>PSU-Accept-Language</b>	See above	String	OPT	^{1,50}\$  E.g. PSU-Accept-Language: es-ES

**PSD2 - TPP Technical Design**

<b>PSU-User-Agent</b>	The forwarded Agent header field of the HTTP request between PSU and TPP, if available.	String	OPT	E.g. PSU-User-Agent: Mozilla/5.0 (Windows; U; Windows NT 6.1; en-US; rv:1.9.1.5) Gecko/20091102 Firefox/3.5.5 (.NET CLR 3.5.30729)
<b>PSU-Http-Method</b>	HTTP method used at the PSU – TPP interface, if available.  Valid values are: <ul style="list-style-type: none"> <li>• GET</li> <li>• POST</li> <li>• PUT</li> <li>• PATCH</li> <li>• DELETE</li> </ul>	String	OPT	E.g. PSU-Http-Method: GET
<b>PSU-Device-ID</b>	UUID (Universally Unique Identifier) for a device, which is used by the PSU, if available.  UUID identifies either a device or a device dependant application installation. In case of an installation identification this ID need to be unaltered until removal from device.	String	OPT	<b>UUID</b>  ^[0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12}\$  E.g. PSU-Device-ID: 5b3ab8e8-0fd5-43d2-946e-d75958b172e7
<b>PSU-Geo-Location</b>	The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.	String	OPT	<b>RFC 2426</b>  ^GEO:[\d]*.[\d]*[;][\d]*.[\d]*\$  E.g. PSU-Geo-Location: GEO:90.023856;25.345963
<b>Digest</b>	Is contained if and only if the "Signature" element is contained in the header of the request.	String	MAN	^.{1,100}\$

**PSD2 - TPP Technical Design**

	See 6.1 Signature for more information.			E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYtZiNTU3MjVmNDI4NTRIMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
<b>Signature</b>	A signature of the request by the TPP on application level. See 6.1 Signature for more information.	String	MAN	See annexes
<b>TPP-Signature-Certificate</b>	The certificate used for signing the request, in base64 encoding.	String	MAN	^.{1,5000}\$ E.g. TPP-Signature-Certificate: MIIHgZCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ.....KoZIHvcNAQELBQAwSTE LMAkGA1UEBhMCMV VMxEzARBgNVBA

**Body**

No additional data are sent.

**3.4.3.2 Response**

This message is returned to the TPP as a response to the message requesting recovery of the consent information.

**Response code**

HTTP 200 response code.

**Header**

Field	Description	Type	Man.	Format
-------	-------------	------	------	--------

**PSD2 - TPP Technical Design**

<b>X-Request-ID</b>	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	<p>UUID</p> <p><math>^{\wedge}[0-9a-fA-F]\{8\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{12\}\\$</math></p> <p>E.g.</p> <p>X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7</p>
---------------------	---	--------	-----	---

**Body**

Field	Description	Type	Man.	Format
<b>account</b>	Account, where the confirmation of funds service is aimed to be submitted to.	Account Reference	MAN	E.g. "access": {...}
<b>consentStatus</b>	The status of the consent resource.	String	MAN	E.g. "consentStatus": "valid"
<b>tppMessages</b>	Message for the TPP.	List<TppMessage>	OPT	E.g. "tppMessages": [...]

**3.4.3.3 Examples**

**Example of request**

GET <https://www.hub.com/aspsp-name/v2/consents/confirmation-of-funds/7890-asdf-4321/>

Accept: application/json

X-Request-ID: 96201400-6ff9-11e8-adc0-fa7ae01bbebc

Authorization: Bearer 2YotnFZFEjrlzCsicMWpAA

PSU-IP-Address: 192.168.8.16

PSU-IP-Port: 443

PSU-Accept: application/json

PSU-Accept-Charset: utf-8

PSU-Accept-Encoding: gzip

PSU-Accept-Language: es-ES

PSU-User-Agent: Mozilla/5.0 (Windows NT 10.0; WOW64; rv:54.0) Gecko/20100101 Firefox/54.0

<USO TPPs>



## PSD2 - TPP Technical Design

```
PSU-Http-Method: GET
PSU-Device-ID: f8b3feda-6fe3-11e8-adc0-fa7ae01bbebc
PSU-GEO-Location: GEO:12.526347;54.649862
Date: Sun, 26 Sep 2017 15:02:48 GMT
```

### Example of response

```
HTTP/1.1 200 Ok
X-Request-ID: 96201400-6ff9-11e8-adc0-fa7ae01bbebc
Date: Sun, 26 Sep 2017 15:02:50 GMT
Content-Type: application/json
{
  "account": {
    "iban": "ES1111111111111111111111"
  },
  "consentStatus": "valid"
}
```

## 3.4.4 Revoke consent

### 3.4.4.1 Request

This service allows a request for the removal of consent previously created in the ASPSP.

#### Endpoint

DELETE {provider}/{aspsp}/v2/consents/confirmation-of-funds/{consentId}

#### Path

Field	Description	Type	Man.	Format
<b>provider</b>	URL of the HUB where the service is published.	String	MAN	E.g. www.hub.com
<b>aspsp</b>	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name
<b>consentId</b>	Identifier of the resource that references the consent.	String	MAN	^.{1,36}\$

**PSD2 - TPP Technical Design**

	Sent previously as a response to a request message for consent from the TPP.			E.g. 7890- asdf-4321
--	--	--	--	----------------------------

**Query parameters**

No additional fields are specified.

**Header**

Field	Description	Type	Man.	Format
<b>X-Request-ID</b>	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	<b>UUID</b> ^[0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12}\$ E.g. X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7
<b>Authorisation</b>	Bearer Token. Obtained in a prior authentication on OAuth2.	String	MAN	E.g. Authorisation: Bearer 2YotnFZFEjr1zCsic MWpAA
<b>PSU-IP-Address</b>	The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP.  If not available, the TPP shall use the IP Address used by the TPP when submitting this request.	String	OPT	^[0-9]{1,3}\.[0-9]{1,3}\.[0-9]{1,3}\.[0-9]{1,3}\$ E.g. PSU-IP-Address: 192.168.16.5

**PSD2 - TPP Technical Design**

<b>PSU-IP-Port</b>	The forwarded IP Port header field consists of the corresponding HTTP request IP Port field between PSU and TPP, if available.	String	OPT	^\d{1,5}\$ E.g. PSU-IP-Port: 443
<b>PSU-Accept</b>	The forwarded Accept header fields consist of the corresponding HTTP request Accept header fields between PSU and TPP, if available.	String	OPT	^.{1,50}\$ E.g. PSU-Accept: application/json
<b>PSU-Accept-Charset</b>	See above	String	OPT	^.{1,50}\$ E.g. PSU-Accept-Charset: utf-8
<b>PSU-Accept-Encoding</b>	See above	String	OPT	^.{1,50}\$ E.g. PSU-Accept-Encoding: gzip
<b>PSU-Accept-Language</b>	See above	String	OPT	^.{1,50}\$ E.g. PSU-Accept-Language: es-ES
<b>PSU-User-Agent</b>	The forwarded Agent header field of the HTTP request between PSU and TPP, if available.	String	OPT	E.g. PSU-User-Agent: Mozilla/5.0 (Windows; U; Windows NT 6.1; en-US; rv:1.9.1.5) Gecko/20091102 Firefox/3.5.5 (.NET CLR 3.5.30729)
<b>PSU-Http-Method</b>	HTTP method used at the PSU – TPP interface, if available.  Valid values are: <ul style="list-style-type: none"> <li>• GET</li> <li>• POST</li> <li>• PUT</li> <li>• PATCH</li> <li>• DELETE</li> </ul>	String	OPT	E.g. PSU-Http-Method: DELETE

<b>PSU-Device-ID</b>	<p>UUID (Universally Unique Identifier) for a device, which is used by the PSU, if available.</p> <p>UUID identifies either a device or a device dependant application installation. In case of an installation identification this ID need to be unaltered until removal from device.</p>	String	OPT	<p><b>UUID</b></p> <p><math>^{\wedge}[0-9a-fA-F]\{8\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{12\}\\$</math></p> <p>E.g.</p> <p>PSU-Device-ID: 5b3ab8e8-0fd5-43d2-946e-d75958b172e7</p>
<b>PSU-Geo-Location</b>	<p>The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.</p>	String	OPT	<p><b>RFC 2426</b></p> <p><math>^{\wedge}\text{GEO}:[\backslash\text{d}]^*.[\backslash\text{d}]^*[:,;][\backslash\text{d}]^*.[\backslash\text{d}]^*\\$</math></p> <p>E.g.</p> <p>PSU-Geo-Location: GEO:90.023856;25.345963</p>
<b>Digest</b>	<p>Is contained if and only if the "Signature" element is contained in the header of the request.</p> <p>See 6.1 Signature for more information.</p>	String	MAN	<p><math>^{\wedge}.\{1,100\}\\$</math></p> <p>E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRIMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==</p>
<b>Signature</b>	<p>A signature of the request by the TPP on application level.</p> <p>See 6.1 Signature for more information.</p>	String	MAN	See annexes
<b>TPP-Signature-Certificate</b>	<p>The certificate used for signing the request, in base64 encoding.</p>	String	MAN	<p><math>^{\wedge}.\{1,5000\}\\$</math></p> <p>E.g. TPP-Signature-Certificate: MIIHgzCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ.....KoZIHvcNAQELBQAwSTE LMAkGA1UEBhMCMCV VMxEzARBgNVBA</p>

**Body**

No additional data are sent.

**3.4.4.2 Response**

This message is sent to the TPP as a response to the request to remove the consent.

**Response code**

HTTP 204 response code for correct cancellation.

**Header**

Field	Description	Type	Man.	Format
<b>X-Request-ID</b>	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	<b>UUID</b> $^{\wedge}[0-9a-fA-F]\{8\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{12\}\$$ E.g. X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7

**Body**

No additional fields are specified.

**3.4.4.3 Examples**

**Example of request**

DELETE <https://www.hub.com/aspsp-name/v2/consents/confirmation-of-funds/7890-asdf-4321>

Accept: application/json

X-Request-ID: 96201400-6ff9-11e8-adc0-fa7ae01bbebc

Authorization: Bearer 2YotnFZFEjrlzCsicMWpAA

PSU-IP-Address: 192.168.8.16

PSU-IP-Port: 443

PSU-Accept-Charset: utf-8

<USO TPPs>

**PSD2 - TPP Technical Design**

```

PSU-Accept-Encoding: gzip
PSU-Accept-Language: es-ES
PSU-User-Agent: Mozilla/5.0 (Windows NT 10.0; WOW64; rv:54.0)
Gecko/20100101 Firefox/54.0
PSU-Http-Method: DELETE
PSU-Device-ID: f8b3feda-6fe3-11e8-adc0-fa7ae01bbebc
PSU-GEO-Location: GEO:12.526347;54.649862
Date: Sun, 26 Sep 2017 15:02:48 GMT

```

**Example of response**

```

HTTP/1.1 204 Ok
X-Request-ID: 96201400-6ff9-11e8-adc0-fa7ae01bbebc
Date: Sun, 26 Sep 2017 15:02:50 GMT

```

**3.5 FCS: Fund Confirmation Service**

**3.5.1 Confirmation of funds**

This type of message is used in the fund query service. The TPP sends a request to the HUB to query the funds for a given amount.

The HUB communicates with the ASPSP to ask whether it has funds or not, and after the query, returns the response to the TPP.

**3.5.1.1 Request**

**Endpoint**

POST {provider}/{aspsp}/v1/funds-confirmations

**Path**

Field	Description	Type	Man.	Format
<b>provider</b>	URL of the HUB where the service is published	String	MAN	E.g. www.hub.com
<b>aspsp</b>	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name

**Header**

Field	Description	Type	Man.	Format
-------	-------------	------	------	--------

<b>X-Request-ID</b>	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	<b>UUID</b> $^{\wedge}[0-9a-fA-F]\{8\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{12\}\$$ E.g. X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7
<b>Authorisation</b>	Bearer Token. Obtained in a prior authentication on OAuth2.  Only if the consent management has been carried out through the API.	String	COND	E.g. Authorisation: Bearer 2YotnFZFEjr1zCsicMWpAA
<b>Consent-ID</b>	Identifier of the consent obtained in the transaction requesting consent.  Only if the consent management has been carried out through the API.	String	COND	$^{\wedge}\{1,36\}\$$ E.g. Consent-ID: 7890-asdf-4321
<b>Digest</b>	Is contained if and only if the "Signature" element is contained in the header of the request.  See 6.1 Signature for more information.	String	MAN	$^{\wedge}\{1,100\}\$$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRIMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==

<b>Signature</b>	A signature of the request by the TPP on application level.  See 6.1 Signature for more information.	String	MAN	See annexes
<b>TPP-Signature-Certificate</b>	The certificate used for signing the request, in base64 encoding.	String	MAN	^.{1,512}\$  E.g. TPP-Signature-Certificate: MIIHgZCCBmugAwIBAgIIZzZvBQIt0UcwDQYJ.....KoZIHvcNAQELBQAwSTELMAkGA1UEBhMCVVMxEzARBgNVBA

### Body

Field	Description	Type	Mand.	Format
<b>account</b>	PSU's account number.	AccountReference	MAN	E.g. "account": { "iban": "ES1111111111111111" }
<b>instructedAmount</b>	Transaction amount to be checked within the funds check mechanism.	Amount	MAN	E.g. "instructedAmount": {...}

### 3.5.1.2 Response

This message is returned by the HUB to the TPP as a response to the fund confirmation message.

### Header

Field	Description	Type	Man.	Format
<b>Location</b>	Contains the link to the resource generated.	String	MAN	



<b>X-Request-ID</b>	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	<b>UUID</b> $^{\wedge}[0-9a-fA-F]\{8\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{12\}\$$ E.g. X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7
---------------------	---	--------	-----	--

### Body

Field	Description	Type	Man.	Format
<b>fundsAvailable</b>	Equals true if sufficient funds are available at the time of the request, false otherwise.	Boolean	MAN	E.g. "fundsAvailable": true
<b>tppMessages</b>	Message for the TPP.	List<Tpp Message>	OPT	E.g. "tppMessages": [...]

### 3.5.1.3 Examples

#### Example of request

POST <https://www.hub.com/aspsp-name/v1/funds-confirmations>

Content-Encoding: gzip

Content-Type: application/json

X-Request-ID: 96201400-6ff9-11e8-adc0-fa7ae01bbebc

Authorization: Bearer 2YotnFZFEjrlzCsicMWpAA

Consent-ID: 7890-asdf-4321

Date: Sun, 17 Oct 2017 13:15:17 GMT

```
{
  "cardNumber": "87432569872156",
  "account": {
    "iban": "ES1111111111111111111111"
  },
  "instructedAmount": {
    "currency": "EUR",
```

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```

        "amount": "153.50"
    }
}

```

**Example of response with available funds**

```

HTTP/1.1 200 Ok
X-Request-ID: 0ee25bf4-6ff1-11e8-adc0-fa7ae01bbebc
Date: Sun, 26 Sep 2017 15:02:47 GMT
Content-Type: application/json
{
    "fundsAvailable": true
}

```

## 3.6 OAuth2 as pre-step

### 3.6.1 Obtain authorisation

#### 3.6.1.1 Request

The TPP redirects the PSU's browser so that it carries out the following request (redirection) to the HUB:

**Endpoint**

GET

```

/{aspsp}/authorize?response_type={response_type}&client_id={client_id}&scope
={scope}&state={state}&redirect_uri={redirect_uri}&code_challenge={code_chall
enge}&code_challenge_method={code_challenge_method}

```

**Path**

Field	Description	Type	Man.	Format
<b>provider</b>	URL of the HUB where the service is published.	String	MAN	E.g. www.hub.com
<b>aspsp</b>	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name

**Query parameters**

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<b>Field</b>	<b>Description</b>	<b>Type</b>	<b>Man.</b>	<b>Format</b>
<b>response_type</b>	Its value must be established at "code".	String	MAN	E.g. response_type=code
<b>client_id</b>	organizationIdentifier " provided in the eIDAS certificate formed as: <ul style="list-style-type: none"> <li>- PSD</li> <li>- 2 characters from the NCA country code (according to ISO 3166)</li> <li>- Carácter "-"</li> <li>- 2-8 characters for the NCA identifier (A-Z in upper case)</li> <li>- Carácter "-"</li> <li>- PSP identifier</li> </ul>	String	MAN	^.{1,70}\$  E.g. client_id=PSDES-BDE-3DFD246
<b>scope</b>	Possible scope: <ul style="list-style-type: none"> <li>• PIS</li> <li>• AIS</li> <li>• FCS</li> <li>• SVA</li> </ul> May indicate more than one, separated by a +	String	MAN	^.{1,64}\$  E.g. scope=PIS+AIS+SVA
<b>state</b>	Opaque value generated by the TPP. Used to prevent "cross-site request forgery" XSRF attacks.	String	MAN	^.{1,64}\$  E.g. state=XYZ
<b>redirect_uri</b>	URL returned to the HUB where it will report the authorisation "code" that will be used subsequently to obtain the access token.	String	MAN	^.{1,250}\$  E.g. redirect_uri=https%3A%2F%2Fwww%2Etp%2Ecom%2Fcb

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<b>code_challenge</b>	PKCE challenge used to prevent code injection attacks. According to RFC 7636.	String	MAN	$\wedge.\{1,128\}\$$ E.g. code_challenge=E9Mel hoa2OwvFrEMTJguCHa oeK1t8URWbuGJSstw- cM
<b>code_challenge_method</b>	Method to verify the code that may be "plain" or "S256". S256 (SHA 256) preferred	String	OPT	$\wedge.\{1,120\}\$$ E.g. code_challenge_method=S256

**Header**

No additional fields are specified.

**Body**

The data are not sent in the body in this response.

**3.6.1.2 Response OK**

Response if the request has been processed correctly. The result is the redirection initiated by the HUB from the PSU navigator to the URL of the environment provided by the TPP.

**Path**

No additional fields are specified.

**Query Parameters**

Field	Description	Type	Man.	Format
<b>Location</b>	Contains the URL where the redirection is carried out to the TPP.	String	MAN	E.g. Location: https://www.tpp.com/cb
<b>code</b>	One-time-only authorisation generated by the HUB. A life of not more than 10 minutes is recommended.	String	MAN	$\wedge.\{1,64\}\$$ E.g. code=SpIxIOBeZQQY bYS6WxSbIA

**PSD2 - TPP Technical Design**

<b>state</b>	Opaque value generated by the TPP. Used to maintain the status between request and response. The HUB will include it when it redirects the PSU's browser back to the TPP. Used to prevent "cross-site request forgery" attacks.	String	MAN	^.{1,64}\$ E.g. state=XYZ
--------------	---	--------	-----	------------------------------

**Body**

Data are not sent in the body in this request.

**3.6.1.3 Error response**

Response if there has been any error in the request. The result is the redirection initiated by the HUB from the PSU navigator to the URL of the environment provided by the TPP.

**Path**

No additional fields are specified.

**Query Parameters**

Field	Description	Type	Man.	Format
<b>Location</b>	Contains the URL that is redirected to the TPP.	String	MAN	E.g. Location: https://www.tpp.com/cb
<b>error</b>	Code that indicates the error that has occurred.	String	MAN	E.g. error=invalid_request
<b>state</b>	Value generated by the TPP. Used to maintain the status between request and response. The HUB will return it in the response.	String	MAN	E.g. state=XYZ

## Body

Data are not sent in the body in this request.

### 3.6.1.4 Examples

#### Example of request

GET [https://www.hub.com/aspsp-name/authorize?response\\_type=code&client\\_id=PSDES-BDE-3DFD246&scope=PIS%20AIS%20SVA&state=xyz&redirect\\_uri=https%3A%2F%2Fwww%2Ehub%2Ecom%2Fcb&code\\_challenge=E9Melhoa2OwvFrEMTJguCHaoeK1t8URWbuGJSstw-cM&code\\_challenge\\_method=S256](https://www.hub.com/aspsp-name/authorize?response_type=code&client_id=PSDES-BDE-3DFD246&scope=PIS%20AIS%20SVA&state=xyz&redirect_uri=https%3A%2F%2Fwww%2Ehub%2Ecom%2Fcb&code_challenge=E9Melhoa2OwvFrEMTJguCHaoeK1t8URWbuGJSstw-cM&code_challenge_method=S256)

#### Example of OK response

HTTP/1.1 302 Found

Location: <https://www.tpp.com/cb?code=Sp1xl0BeZQQYbYS6WxSbIA&state=xyz>

#### Example of NOK response

HTTP/1.1 302 Found

Location: [https://www.tpp.com/cb?error=access\\_denied&state=xyz](https://www.tpp.com/cb?error=access_denied&state=xyz)

## 3.6.2 Obtain access token

This message is sent by the HUB to ASPSP to exchange the authorisation code obtained in the prior step and obtain an access token and refresh token.

### 3.6.2.1 Request

#### Endpoint

POST {provider}/{aspsp}/token

#### Path

Field	Description	Type	Mand.	Format
-------	-------------	------	-------	--------

**PSD2 - TPP Technical Design**

<b>provider</b>	URL of the HUB where the service is published.	String	MAN	E.g. www.hub.com
<b>aspsp</b>	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name

**Request Parameters**

Field	Description	Type	Mand.	Format
<b>grant_type</b>	Must take the value of "authorisation_code"	String	MAN	E.g. grant_type=authorisation_code
<b>client_id</b>	<p>"organizationIdentifier" provided in the eIDAS certificate formed as:</p> <ul style="list-style-type: none"> <li>- PSD</li> <li>- 2 characters from the NCA country code (according to ISO 3166)</li> <li>- Carácter "-"</li> <li>- 2-8 characters for the NCA identifier (A-Z in upper case)</li> <li>- Carácter "-"</li> <li>- PSP identifier</li> </ul>	String	MAN	$\wedge.\{1,70\}\$$ E.g. client_id=PSDES-BDE-3DFD246
<b>code</b>	Authorisation code returned by the ASPSP in the previous application requesting an authorisation code	String	MAN	$\wedge.\{1,64\}\$$ E.g. code=SpIxIOBeZQ QY bYS6WxSbIA

**PSD2 - TPP Technical Design**

<b>redirect_uri</b>	URL is returned to the TPP where the authorisation "code" is entered. It must be the same as that entered in the authorisation code request.	String	MAN	^.{1,250}\$ E.g. redirect_uri=https%3A%2F%2Fwww%2Etp%2Ecom%2Fcb
<b>code_verifier</b>	PKCE verification code used to prevent code injection attacks. Based on RFC 7636.	String	MAN	E.g. code_verifier=dBjftJeZ4CVP-mB92K27uhbUJU1p1r_wW1gFWFOEjXk

**Header**

No additional fields are specified.

**Body**

Fields are not sent in the body.

**3.6.2.2 Response OK**

Response if the request has been processed correctly. The result of the request is an access token sent by the HUB to the PSU.

**Body**

Field	Description	Type	Man.	Format
<b>access_token</b>	Access token issued by the HUB and joined to the scope that was requested in the request and confirmed by the PSU.	String	MAN	^.{1,64}\$ E.g. "access_token": "2YotnFZFEjr1zCsicMWpAA"



<b>token_type</b>	Type of token issued. Will take the value "Bearer".	String	MAN	E.g. "token_type":"Bearer"
<b>expires_in</b>	Life of the access token in seconds.	Integer	OPT	E.g. "expires_in":300
<b>refresh_token</b>	Refresh token. May be used to obtain a new access token if it has expired.	String	OPT	^.{1,64}\$ E.g. "refresh_token":"tGzv3JOkF0XG5Qx2TIKWIA"

### 3.6.2.3 Error response

Response if there has been any error in the request. It is the result of the request for an access token made by the TPP to the HUB.

#### Body

Field	Description	Type	Man.	Format
<b>error</b>	Code that indicates the error that has occurred. For more return codes see the annexes.	String	MAN	E.g. "error":"invalid_request"

### 3.6.2.4 Examples

#### Example of request

POST /token HTTP/1.1

Host: <https://www.hub.com/aspsp-name>

Content-Type: application/x-www-form-urlencoded

grant\_type=authorization\_code&client\_id=PSDES-BDE-3DFD246&code=Sp1xl0BeZQQYbYS6WxSbIA&redirect\_uri=https%3A%2F%2Fwww%2Etp%2Ecom%2Fcb&code\_verifier=dBjftJeZ4CVP-mB92K27uhbUJU1plr\_wW1gFWFOEjXk

#### Example of OK response

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```
HTTP/1.1 200 OK
Content-Type: application/json;charset=UTF-8
Cache-Control: no-store
Pragma: no-cache
{
  "access_token": "2YotnFZFEjrlzCsicMWpAA",
  "token_type": "Bearer",
  "expires_in": 3600,
  "refresh_token": "tGzv3JOkF0XG5Qx2TlKWIA"
}
```

### Example of NOK response

```
HTTP/1.1 400 Bad Request
Content-Type: application/json;charset=UTF-8
Cache-Control: no-store
Pragma: no-cache
{
  "error": "invalid_request"
}
```

## 3.7 Token renewal request

This service is used when the HUB reports that the access\_token has expired. Using this request you can refresh the access\_token by sending the refresh\_token associated with the expired access\_token.

### 3.7.1 Request

#### Endpoint

POST {provider}/{aspsp}/token

#### Path

Field	Description	Type	Mand.	Format
provider	URL of the HUB where the service is published.	String	MAN	E.g. www.hub.com

**PSD2 - TPP Technical Design**

<b>aspsp</b>	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name
<b>grant_type</b>	Must take the value of "refresh_token"	String	MAN	E.g. grant_type=refresh_token
<b>client_id</b>	organizationIdentifier " provided in the eIDAS certificate formed as:  <ul style="list-style-type: none"> <li>- PSD</li> <li>- 2 characters from the NCA country code (according to ISO 3166)</li> <li>- Carácter "-"</li> <li>- 2-8 characters for the NCA identifier (A-Z in upper case)</li> <li>- Carácter "-"</li> <li>- PSP identifier</li> </ul>	String	MAN	^.{1,70}\$  E.g. client_id=PSDES-BDE-3DFD246
<b>refresh_token</b>	The refresh token necessary to be able to obtain an unexpired access_token.	String	MAN	^.{1,64}\$  E.g. refresh_token=tGzv3JOkF0XG5Qx2TIKWIA

**Header**

No additional data are specified.

**Body**

No additional data are specified.

**3.7.2 Response**

Field	Description	Type	Man.	Format
-------	-------------	------	------	--------

<USO TPPs>

<b>access_token</b>	Access token issued by the HUB and joined to the scope that was requested in the request and confirmed by the PSU.	String	MAN	^.{1,64}\$ E.g. "access_token": "83kdFZFEjr1zCsicMWBB"
<b>token_type</b>	Type of token issued. Will take the value "Bearer".	String	MAN	E.g. "token_type": "Bearer"
<b>expires_in</b>	Life of the access token in seconds.	Integer	OPT	E.g. "expires_in": 300
<b>refresh_token</b>	Refresh token. May be used to obtain a new access token if it has expired.	String	OPT	^.{1,64}\$ E.g. "refresh_token": "28JD3JOkF0NM5Qx2TlCCCC"

### 3.7.3 Examples

POST /token HTTP/1.1

Host: <https://www.hub.com>

Content-Type: application/x-www-form-urlencoded

grant\_type=refresh\_token&client\_id=PSDES-BDE-3DFD246&refresh\_token=tGzv3JOkF0XG5Qx2TlKWIA

#### Example of OK response

HTTP/1.1 200 OK

Content-Type: application/json; charset=UTF-8

Cache-Control: no-store

Pragma: no-cache

```
{
  "access_token": "83kdFZFEjr1zCsicMWBB",
  "token_type": "Bearer",
  "expires_in": 300,
  "refresh_token": "28JD3JOkF0NM5Qx2TlCCCC"
```

}

### **3.8 Sessions: combination of AIS and PIS services**

The session support allows you to combine the AIS and PIS services in the same session.

The session support is determined by the access token obtained after carrying out the OAuth2 (pre-step) protocol.

To ensure the session is supported, the access token must have been obtained for the PIS, AIS and TPP scope, and have the roles of PISP and AISP available in its eIDAS certificate.

### **3.9 Processes common to the services.**

#### **3.9.1 Initiation of the authorisation process (explicit)**

##### **Use**

The process of initiating authorisation is a necessary process to create a new authorisation sub-resource (if it has not been created implicitly). Applied in the following scenarios:

- The ASPSP has indicated with a "startAuthorisation" link in the response to an account information consent request that an explicit initiation of the authorisation process is not necessary because of the TPP.
- The ASPSP has indicated with a "startAuthorisation" link in the response to a fund confirmation consent request that an explicit initiation of the authorisation process is not necessary because of the TPP.

##### **3.9.1.1 Request**

##### **Endpoint in the case of Fund Confirmation Consent**

POST {provider}/{aspsp}/v2/consents/confirmation-of-funds/{consentId}/authorisations

### Path

Field	Description	Type	Man.	Format
<b>provider</b>	URL of the HUB where the service is published.	String	MAN	E.g. hub.example.es
<b>aspsp</b>	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name
<b>payment-service</b>	Possible values are: <ul style="list-style-type: none"> <li>payments</li> <li>periodic-payments</li> </ul>	String	COND	E.g. {provider}/v1/payments
<b>payment-product</b>	Payment product to be used. List of supported products: <ul style="list-style-type: none"> <li>sepa-credit-transfers</li> <li>instant-sepa-credit-transfers</li> <li>target-2-payments</li> <li>cross-border-credit-transfers</li> </ul>	String	COND	E.g. {provider}/v1/payments/sepa-credit-transfers/
<b>paymentId, consentId</b>	Identifier of the resource that references the payment initiation or consent.	String	MAN	^.{1,36}\$ E.g.123-qwe-456

### Query parameters

No additional parameters are specified for this request.

### Header

Field	Description	Type	Man.	Format
<b>Content-Type</b>	Value: application/json	String	MAN	Content-Type: application/json
<b>X-Request-ID</b>	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	<b>UUID</b> ^[0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12}\$ E.g. X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7

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<b>Authorisation</b>	Bearer Token. Obtained in a prior authentication on OAuth2.	String	MAN	E.g. Authorisation: Bearer 2YotnFZFEjr1zCsicMWpAA
<b>PSU-IP-Address</b>	The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP.  If not available, the TPP shall use the IP Address used by the TPP when submitting this request.	String	OPT	^[0-9]{1,3}\.[0-9]{1,3}\.[0-9]{1,3}\$  E.g. PSU-IP-Address: 192.168.16.5
<b>PSU-IP-Port</b>	The forwarded IP Port header field consists of the corresponding HTTP request IP Port field between PSU and TPP, if available.	String	OPT	^\d{1,5}\$  E.g. PSU-IP-Port: 443
<b>PSU-Accept</b>	The forwarded Accept header fields consist of the corresponding HTTP request Accept header fields between PSU and TPP, if available.	String	OPT	^.{1,50}\$  E.g. PSU-Accept: application/json
<b>PSU-Accept-Charset</b>	See above	String	OPT	^.{1,50}\$  E.g. PSU-Accept-Charset: utf-8
<b>PSU-Accept-Encoding</b>	See above	String	OPT	^.{1,50}\$  E.g. PSU-Accept-Encoding: gzip
<b>PSU-Accept-Language</b>	See above	String	OPT	^.{1,50}\$  E.g. PSU-Accept-Language: es-ES
<b>PSU-User-Agent</b>	The forwarded Agent header field of the HTTP request between PSU and TPP, if available.	String	OPT	E.g.

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				PSU-User-Agent: Mozilla/5.0 (Windows; U; Windows NT 6.1; en-US; rv:1.9.1.5) Gecko/20091102 Firefox/3.5.5 (.NET CLR 3.5.30729)
<b>PSU-Http-Method</b>	HTTP method used at the PSU – TPP interface, if available.  Valid values are: <ul style="list-style-type: none"> <li>• GET</li> <li>• POST</li> <li>• PUT</li> <li>• PATCH</li> <li>• DELETE</li> </ul>	String	OPT	E.g. PSU-Http-Method: POST
<b>PSU-Device-ID</b>	UUID (Universally Unique Identifier) for a device, which is used by the PSU, if available.  UUID identifies either a device or a device dependant application installation. In case of an installation identification this ID need to be unaltered until removal from device.	String	OPT	<b>UUID</b>  ^[0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12}\$  E.g.  PSU-Device-ID: 5b3ab8e8-0fd5-43d2-946e-d75958b172e7
<b>PSU-Geo-Location</b>	The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.	String	OPT	<b>RFC 2426</b>  ^GEO:[\\d]*.[\\d]*[;,][\\d]*.[\\d]*\$  E.g.  PSU-Geo-Location: GEO:90.023856;25.345963
<b>Digest</b>	Is contained if and only if the "Signature" element is contained in the header of the request.	String	MAN	^.{1,100}\$



**PSD2 - TPP Technical Design**

	See 6.1 Signature for more information.			E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRIMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
<b>Signature</b>	A signature of the request by the TPP on application level. See 6.1 Signature for more information.	String	MAN	See annexes
<b>TPP-Signature-Certificate</b>	The certificate used for signing the request, in base64 encoding.	String	MAN	^.{1,5000}\$ E.g. TPP-Signature-Certificate: MIIHgZCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ.....KoZIHvcNAQELBQAuSTELMAkGA1UEBhMCMCVVMxEzARBgNVBAA

**Body**

No additional fields are specified.

**3.9.1.2 Response**

**Header**

Field	Description	Type	Man.	Format
-------	-------------	------	------	--------

<USO TPPs>

**PSD2 - TPP Technical Design**

<b>Location</b>	Contains the link related to the resource generated.	String	MAN	E.g. Location: /v1/payments/{payment-product}/{paymentId}/authorisations/123qwert/456
<b>X-Request-ID</b>	Unique identifier of the transaction assigned by the TPP and submitted through the HUB to the ASPSP	String	MAN	<b>UUID</b> ^[0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12}\$ E.g. X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7
<b>ASPSP-SCA-Approach</b>	Value returned if the SCA method has been fixed. Possible values: <ul style="list-style-type: none"> <li>REDIRECT</li> </ul> <p>The SCA based on OAuth2 will be taken as REDIRECT.</p>	String	COND	E.g. ASPSP-SCA-Approach: REDIRECT

**Body**

Field	Description	Type	Man.	Format
<b>scaStatus</b>	SCA status	String	MAN	E.g. "scaStatus": "received"
<b>authorisationId</b>	Identifier of the resource that references the authorisation of sub-resource created.	String	MAN	^.{1,36}\$ E.g. "authorisationId": "1b3ab8e8-0fd5-43d2-946e-d75958b172e7"
<b>_links</b>	List of hyperlinks to be recognised by the TPP. Types supported in this response: <ul style="list-style-type: none"> <li>scaRedirect: in case of SCA by redirection. Link where the PSU navigator must be</li> </ul>	Links	MAN	E.g. "_links": {...}

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	redirected by the TPP. <ul style="list-style-type: none"> <li>scaStatus: link to query the SCA status corresponding to the authorisation sub-resource.</li> </ul>			
<b>tppMessages</b>	Message for the TPP sent through the HUB.	List<TppMessage>	OPT	E.g. "tppMessages": [...]

**3.9.1.3 Examples**

**Endpoint in the case of Fund Confirmation Consent**

POST <https://hub.example.es/bancosantander/v2/consents/confirmation-of-funds/qwert1234tzui7890/authorisations>

```
Content-Encoding: gzip
Content-Type: application/json
X-Request-ID: 10391c7e-ad88-49ec-a2ad-00aacb1f6541
Authorization: Bearer 2YotnFZFEjrlzCsicMWpAA
PSU-IP-Address: 192.168.8.16
PSU-IP-Port: 443
PSU-Accept: application/json
PSU-Accept-Charset: utf-8
PSU-Accept-Encoding: gzip
PSU-Accept-Language: es-ES
PSU-User-Agent: Mozilla/5.0 (Windows NT 10.0; WOW64; rv:54.0)
Gecko/20100101 Firefox/54.0
PSU-Http-Method: POST
PSU-Device-ID: f8b3feda-6fe3-11e8-adc0-fa7ae01bbebc
PSU-GEO-Location: GEO:12.526347;54.649862
Date: Sun, 26 Sep 2017 15:02:37 GMT
```

**Example of response in the case of SCA via redirect**

```
HTTP/1.1 201 Created
X-Request-ID: 10391c7e-ad88-49ec-a2ad-00aacb1f6541
ASPSP-SCA-Approach: REDIRECT
```

<USO TPPs>

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Date: Sun, 26 Sep 2017 15:02:43 GMT  
 Location: /v2/consents/confirmation-of-funds/[qwert1234tzui7890/authorisations](#)  
 Content-Type: application/json

```
{
  "scaStatus": "received",
  "authorisationId": "123auth456",
  "_links": {
    "scaRedirect": {
      "href": "https://hub.example.es/authorize "
    },
    "scaStatus": {
      "href": "/v2/consents/confirmation-of-funds/qwert1234tzui7890/authorisations"
    }
  }
}
```

**3.9.2 Update data of the PSU (select SCA method)**

This message is sent by TPP to the ASPSP through the HUB to indicate the SCA method selected by the PSU.

The SCA-Approach may depend on the SCA method selected.

**3.9.2.1 Request**

**Endpoint in the case of Fund Confirmation Consent**

PUT {provider}/{aspsp}/v2/consents/confirmation-of-funds/{consentId}/authorisations/{authorisationId}

**Path**

Field	Description	Type	Man.	Format
<b>provider</b>	URL of the HUB where the service is published.	String	MAN	E.g. hub.example.es
<b>aspsp</b>	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name

<b>payment-service</b>	Possible values are: <ul style="list-style-type: none"> <li>payments</li> <li>periodic-payments</li> </ul>	String	COND	E.g. {provider}/{aspsp}/v1/payments
<b>payment-product</b>	Payment product to be used. List of supported products: <ul style="list-style-type: none"> <li>sepa-credit-transfers</li> <li>instant-sepa-credit-transfers</li> <li>target-2-payments</li> <li>cross-border-credit-transfers</li> </ul>	String	COND	E.g. {provider}/v1/payments/sepa-credit-transfers/
<b>paymentId, consentId</b>	Identifier of the resource that references the payment initiation.	String	MAN	^. {1,36}\$ E.g.123-qwe-456
<b>authorisationId</b>	Identifier of the sub-resource associated with the consent.	String	COND	^. {1,36}\$
<b>cancellationId</b>	Identifier of the sub-resource associated with the payment cancellation.	String	COND	^. {1,36}\$

### Query parameters

No additional fields are specified.

### Header

Field	Description	Type	Man.	Format
<b>X-Request-ID</b>	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	<b>UUID</b> ^[0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12}\$ E.g. X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7

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<b>Authorisation</b>	Bearer Token. Obtained in a prior authentication on OAuth2.	String	MAN	E.g. Authorisation: Bearer 2YotnFZFEjr1zCsicMWpAA
<b>PSU-IP-Address</b>	The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP.  If not available, the TPP shall use the IP Address used by the TPP when submitting this request.	String	OPT	^[0-9]{1,3}\.[0-9]{1,3}\.[0-9]{1,3}\$  E.g. PSU-IP-Address: 192.168.16.5
<b>PSU-IP-Port</b>	The forwarded IP Port header field consists of the corresponding HTTP request IP Port field between PSU and TPP, if available.	String	OPT	^\d{1,5}\$  E.g. PSU-IP-Port: 443
<b>PSU-Accept</b>	The forwarded Accept header fields consist of the corresponding HTTP request Accept header fields between PSU and TPP, if available.	String	OPT	^{1,50}\$  E.g. PSU-Accept: application/json
<b>PSU-Accept-Charset</b>	See above	String	OPT	^{1,50}\$  E.g. PSU-Accept-Charset: utf-8
<b>PSU-Accept-Encoding</b>	See above	String	OPT	^{1,50}\$  E.g. PSU-Accept-Encoding: gzip
<b>PSU-Accept-Language</b>	See above	String	OPT	^{1,50}\$  E.g. PSU-Accept-Language: es-ES
<b>PSU-User-Agent</b>	The forwarded Agent header field of the HTTP request between PSU and TPP, if available.	String	OPT	E.g.

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				PSU-User-Agent: Mozilla/5.0 (Windows; U; Windows NT 6.1; en-US; rv:1.9.1.5) Gecko/20091102 Firefox/3.5.5 (.NET CLR 3.5.30729)
<b>PSU-Http-Method</b>	HTTP method used at the PSU – TPP interface, if available.  Valid values are: <ul style="list-style-type: none"> <li>• GET</li> <li>• POST</li> <li>• PUT</li> <li>• PATCH</li> <li>• DELETE</li> </ul>	String	OPT	E.g. PSU-Http-Method: GET
<b>PSU-Device-ID</b>	UUID (Universally Unique Identifier) for a device, which is used by the PSU, if available.  UUID identifies either a device or a device dependant application installation. In case of an installation identification this ID need to be unaltered until removal from device.	String	OPT	<b>UUID</b>  ^[0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12}\$  E.g.  PSU-Device-ID: 5b3ab8e8-0fd5-43d2-946e-d75958b172e7
<b>PSU-Geo-Location</b>	The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.	String	OPT	<b>RFC 2426</b>  ^GEO:[\\d]*.[\\d]*[;,][\\d]*.[\\d]*\$  E.g.  PSU-Geo-Location: GEO:90.023856;25.345963
<b>Digest</b>	Is contained if and only if the "Signature" element is contained in the header of the request.	String	MAN	^.{1,100}\$

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	See 6.1 Signature for more information.			E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRIMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
<b>Signature</b>	A signature of the request by the TPP on application level. See 6.1 Signature for more information.	String	MAN	See annexes
<b>TPP-Signature-Certificate</b>	The certificate used for signing the request, in base64 encoding.	String	MAN	^.{1,5000}\$ E.g. TPP-Signature-Certificate: MIIHgZCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ.....KoZihvcNAQELBQAuSTELMAkGA1UEBhMCMCVVMxEzARBgNVBAA

**Body**

Field	Description	Type	Man.	Format
<b>authenticationMethodId</b>	Identifier of the authentication method.	String	MAN	^.{1,35}\$ E.g. "authenticationMethodId": "123"

**3.9.2.2 Response**

**Header**

Field	Description	Type	Man.	Format
<b>X-Request-ID</b>	Unique identifier of the transaction assigned by the TPP and submitted through the HUB to the ASPSP	String	MAN	<b>UUID</b> ^[0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12}\$ E.g.



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				X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7
<b>ASPSP-SCA-Approach</b>	Value returned if the SCA method has been fixed. Possible values: <ul style="list-style-type: none"> <li>• REDIRECT</li> </ul> <p>The SCA based on OAuth2 will be taken as REDIRECT.</p>	String	OPT	E.g. ASPSP-SCA-Approach: REDIRECT

**Body**

Field	Description	Type	Man.	Format
<b>_links</b>	List of hyperlinks to be recognised by the HUB. Types supported in this response: <ul style="list-style-type: none"> <li>• scaRedirect: in case of SCA by redirection. Link where the PSU navigator must be redirected by the TPP.</li> <li>• scaStatus: link to query the SCA status corresponding to the authorisation sub-resource. This link is only contained if an authorisation sub-resource has been created.</li> </ul>	Links	MAN	E.g. "_links": {...}
<b>scaStatus</b>	SCA status	String	MAN	E.g. "scaStatus": "received"
<b>tppMessages</b>	Message for the TPP sent through the HUB.	List<Tp pMessage>	OPT	E.g. "tppMessage": [...]

### 3.9.2.3 Examples

#### Endpoint in the case of Fund Confirmation Consent

PUT <https://hub.example.es/v2/consents/confirmation-of-funds/123-qwe-456/authorisations/123asd456>

```
X-Request-ID: 96201400-6ff9-11e8-adc0-fa7ae01bbebc
Authorization: Bearer 2YotnFZFjrlzCsicMWpAA
PSU-IP-Address: 192.168.8.16
PSU-IP-Port: 443
PSU-Accept: application/json
PSU-Accept-Charset: utf-8
PSU-Accept-Encoding: gzip
PSU-Accept-Language: es-ES
PSU-User-Agent: Mozilla/5.0 (Windows NT 10.0; WOW64; rv:54.0)
Gecko/20100101 Firefox/54.0
PSU-Http-Method: PUT
PSU-Device-ID: f8b3feda-6fe3-11e8-adc0-fa7ae01bbebc
PSU-GEO-Location: GEO:12.526347;54.649862
Date: Sun, 26 Sep 2017 15:02:48 GMT
```

#### Example of response

```
HTTP/1.1 200 Ok
X-Request-ID: 96201400-6ff9-11e8-adc0-fa7ae01bbebc
ASPS-SCA-Approach: REDIRECT
Date: Sun, 26 Sep 2017 15:02:50 GMT
Content-Type: application/json
{
  "scaStatus": "scaMethodSelected",
  "scaRedirect": {
    "href": "https://hub.example.es/authorize"
  },
  "scaStatus": {
    "href": "/v2/consents/confirmation-of-funds/123-qwe-456/authorisations/123auth456"
  }
}
```

}

### 3.9.3 Get authorisation sub-resources

Will provide an array of resource identifiers for all the sub-resources of authorisation generated.

#### 3.9.3.1 Request

##### Endpoint in the case of Fund Confirmation Consent

GET {provider}/{aspsp}/v2/consents/confirmation-of-funds/{consentId}/authorisations/{authorisationId}

##### Path

Field	Description	Type	Man.	Format
<b>provider</b>	URL of the ASPSP where the service is published.	String	MAN	E.g. hub.example.es
<b>aspsp</b>	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name
<b>payment-service</b>	Possible values are: <ul style="list-style-type: none"> <li>• payments</li> <li>• periodic-payments</li> </ul>	String	COND	E.g. {provider}/v1/payments
<b>payment-product</b>	Payment product to be used. List of supported products: <ul style="list-style-type: none"> <li>• sepa-credit-transfers</li> <li>• instant-sepa-credit-transfers</li> <li>• target-2-payments</li> <li>• cross-border-credit-transfers</li> </ul>	String	COND	E.g. {provider}/v1/payments/sepa-credit-transfers/
<b>paymentId, consentId</b>	Identificador del recurso que referencia a la iniciación de pago.	String	OB	^{1,36}\$ Ej:123-qwe-456
<b>authorisationId</b>	Identificador del sub-recurso asociado al consentimiento.	String	COND	^{1,36}\$

<b>cancellationId</b>	Identificador del sub-recurso asociado a la cancelación de pago.	String	COND	^.{1,36}\$
-----------------------	--	--------	------	------------

### Query parameters

No additional fields are specified.

### Header

Field	Description	Type	Man.	Format
<b>X-Request-ID</b>	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	<b>UUID</b> ^[0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12}\$ E.g. X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7
<b>Authorisation</b>	Bearer Token. Obtained in a prior authentication on OAuth2.	String	MAN	E.g. Authorisation: Bearer 2YotnFZFEjr1zCsicMWpAA
<b>PSU-IP-Address</b>	The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP.  If not available, the TPP shall use the IP Address used by the TPP when submitting this request.	String	OPT	^[0-9]{1,3}\.[0-9]{1,3}\.[0-9]{1,3}.\$ E.g. PSU-IP-Address: 192.168.16.5

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<b>PSU-IP-Port</b>	The forwarded IP Port header field consists of the corresponding HTTP request IP Port field between PSU and TPP, if available.	String	OPT	^\d{1,5}\$ E.g. PSU-IP-Port: 443
<b>PSU-Accept</b>	The forwarded Accept header fields consist of the corresponding HTTP request Accept header fields between PSU and TPP, if available.	String	OPT	^.{1,50}\$ E.g. PSU-Accept: application/json
<b>PSU-Accept-Charset</b>	See above	String	OPT	^.{1,50}\$ E.g. PSU-Accept-Charset: utf-8
<b>PSU-Accept-Encoding</b>	See above	String	OPT	^.{1,50}\$ E.g. PSU-Accept-Encoding: gzip
<b>PSU-Accept-Language</b>	See above	String	OPT	^.{1,50}\$ E.g. PSU-Accept-Language: es-ES
<b>PSU-User-Agent</b>	The forwarded Agent header field of the HTTP request between PSU and TPP, if available.	String	OPT	E.g. PSU-User-Agent: Mozilla/5.0 (Windows; U; Windows NT 6.1; en-US; rv:1.9.1.5) Gecko/20091102 Firefox/3.5.5 (.NET CLR 3.5.30729)
<b>PSU-Http-Method</b>	HTTP method used at the PSU – TPP interface, if available. Valid values are: <ul style="list-style-type: none"> <li>• GET</li> <li>• POST</li> <li>• PUT</li> <li>• PATCH</li> <li>• DELETE</li> </ul>	String	OPT	E.g. PSU-Http-Method: DELETE

<b>PSU-Device-ID</b>	<p>UUID (Universally Unique Identifier) for a device, which is used by the PSU, if available.</p> <p>UUID identifies either a device or a device dependant application installation. In case of an installation identification this ID need to be unaltered until removal from device.</p>	String	OPT	<b>UUID</b> $^{\wedge}[0-9a-fA-F]\{8\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{12\}\$$ E.g. PSU-Device-ID: 5b3ab8e8-0fd5-43d2-946e-d75958b172e7
<b>PSU-Geo-Location</b>	The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.	String	OPT	<b>RFC 2426</b> $^{\wedge}GEO:[\backslash d]^*.[\backslash d]^*[,;][\backslash d]^*.[\backslash d]^*\$$ E.g. PSU-Geo-Location: GEO:90.023856;25.345963
<b>Digest</b>	<p>Is contained if and only if the "Signature" element is contained in the header of the request.</p> <p>See 6.1 Signature for more information.</p>	String	MAN	$^{\wedge}.\{1,100\}\$$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRIMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
<b>Signature</b>	<p>A signature of the request by the TPP on application level.</p> <p>See 6.1 Signature for more information.</p>	String	MAN	See annexes
<b>TPP-Signature-Certificate</b>	The certificate used for signing the request, in base64 encoding.	String	MAN	$^{\wedge}.\{1,5000\}\$$ E.g. TPP-Signature-Certificate: MIIHgzCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ.....KoZIHvcNAQELBQAwSTELMAkGA1UEBhMCMCVVMxEzARBgNVBA

## Body

No additional data are specified.

### 3.9.3.2 Response

#### Header

Field	Description	Type	Man.	Format
<b>X-Request-ID</b>	Unique identifier of the transaction assigned by the TPP and submitted through the HUB to the ASPSP	String	MAN	<b>UUID</b> $^{[0-9a-fA-F]\{8\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{12\}}\$$ E.g. X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7

#### Body

Field	Description	Type	Man.	Format
<b>authorisationIds</b>	Array of authorisationIds connected to the payment resource.  <b>Note:</b> mandatory if it is a cancellation	Array<String>	COND	E.g. "cancellationIds": [...]
<b>tppMessages</b>	Message for the TPP sent through the HUB.	List<TppMessage>	OPT	E.g. "tppMessages": [...]

### 3.9.3.3 Examples

#### Example of request

GET <https://hub.example.es/asp-name/v2/consents/confirmation-of-funds/123-qwe-456/authorisations>

X-Request-ID: 96201400-6ff9-11e8-adc0-fa7ae01bbebc

Authorization: Bearer 2YotnFZFEjrlzCsicMwPAA

PSU-IP-Address: 192.168.8.16

Content-Type: application/json

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Date: Sun, 26 Sep 2017 15:02:48 GMT

**Example of response**

```
HTTP/1.1 200 Ok
X-Request-ID: 0ee25bf4-6ff1-11e8-adc0-fa7ae01bbebc
Date: Sun, 26 Sep 2017 15:02:47 GMT
{
  "authorisationIds": ["123auth456"]
}
```

**3.9.4 Get SCA status**

Message sent by the TPP to the ASPSP through the Hub to request the SCA status of an authorisation sub-resource.

**3.9.4.1 Request**

**Endpoint in the case of Fund Confirmation Consent**

GET {provider}/{aspsp}/v2/consents/confirmation-of-funds/{consentId}/authorisations/{authorisationId}

**Path**

Field	Description	Type	Man.	Format
<b>provider</b>	URL of the HUB where the service is published.	String	MAN	E.g. hub.example.es
<b>aspsp</b>	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name
<b>payment-service</b>	Possible values are: <ul style="list-style-type: none"> <li>• payments</li> <li>• periodic-payments</li> </ul>	String	COND	E.g. {provider}/v1/payments
<b>payment-product</b>	Payment product to be used. List of supported products: <ul style="list-style-type: none"> <li>• sepa-credit-transfers</li> </ul>	String	COND	E.g. {provider}/v1/payments/sepa-credit-transfers/



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	<ul style="list-style-type: none"> <li>instant-sepa-credit-transfers</li> <li>target-2-payments</li> <li>cross-border-credit-transfers</li> </ul>			
<b>paymentId, consentId</b>	Identifier of the resource that references the payment initiation or consent	String	MAN	^.{1,36}\$ E.g.123-qwe-456
<b>authorisationId</b>	Identifier of the sub-resource associated with the consent.	String	COND	^.{1,36}\$
<b>cancellationId</b>	Identifier of the sub-resource associated with the payment cancellation.	String	COND	^.{1,36}\$

### Query parameters

No additional fields are specified.

### Header

Field	Description	Type	Man.	Format
<b>X-Request-ID</b>	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	<b>UUID</b> ^[0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12}\$ E.g. X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7
<b>Authorisation</b>	Bearer Token. Obtained in a prior authentication on OAuth2.	String	MAN	E.g. Authorisation: Bearer 2YotnFZFEjr1zCsicMWpAA

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<b>PSU-IP-Address</b>	The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP.  If not available, the TPP shall use the IP Address used by the TPP when submitting this request.	String	OPT	^[0-9]{1,3}\.[0-9]{1,3}\.[0-9]{1,3}.\$  E.g. PSU-IP-Address: 192.168.16.5
<b>PSU-IP-Port</b>	The forwarded IP Port header field consists of the corresponding HTTP request IP Port field between PSU and TPP, if available.	String	OPT	^\d{1,5}\$  E.g. PSU-IP-Port: 443
<b>PSU-Accept</b>	The forwarded Accept header fields consist of the corresponding HTTP request Accept header fields between PSU and TPP, if available.	String	OPT	^{1,50}\$  E.g. PSU-Accept: application/json
<b>PSU-Accept-Charset</b>	See above	String	OPT	^{1,50}\$  E.g. PSU-Accept-Charset: utf-8
<b>PSU-Accept-Encoding</b>	See above	String	OPT	^{1,50}\$  E.g. PSU-Accept-Encoding: gzip
<b>PSU-Accept-Language</b>	See above	String	OPT	^{1,50}\$  E.g. PSU-Accept-Language: es-ES
<b>PSU-User-Agent</b>	The forwarded Agent header field of the HTTP request between PSU and TPP, if available.	String	OPT	E.g. PSU-User-Agent: Mozilla/5.0 (Windows; U; Windows NT 6.1; en-US; rv:1.9.1.5) Gecko/20091102 Firefox/3.5.5 (.NET CLR 3.5.30729)

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<p><b>PSU-Http-Method</b></p>	<p>HTTP method used at the PSU – TPP interface, if available.</p> <p>Valid values are:</p> <ul style="list-style-type: none"> <li>• GET</li> <li>• POST</li> <li>• PUT</li> <li>• PATCH</li> <li>• DELETE</li> </ul>	<p>String</p>	<p>OPT</p>	<p>E.g. PSU-Http-Method: GET</p>
<p><b>PSU-Device-ID</b></p>	<p>UUID (Universally Unique Identifier) for a device, which is used by the PSU, if available.</p> <p>UUID identifies either a device or a device dependant application installation. In case of an installation identification this ID need to be unaltered until removal from device.</p>	<p>String</p>	<p>OPT</p>	<p><b>UUID</b></p> <p><math>^{\wedge}[0-9a-fA-F]\{8\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{12\}\\$</math></p> <p>E.g. PSU-Device-ID: 5b3ab8e8-0fd5-43d2-946e-d75958b172e7</p>
<p><b>PSU-Geo-Location</b></p>	<p>The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.</p>	<p>String</p>	<p>OPT</p>	<p><b>RFC 2426</b></p> <p><math>^{\wedge}\text{GEO}:[\backslash\text{d}]*.[\backslash\text{d}]*[;,\text{ }][\backslash\text{d}]*.[\backslash\text{d}]*\\$</math></p> <p>E.g.</p> <p>PSU-Geo-Location: GEO:90.023856;25.345963</p>
<p><b>Digest</b></p>	<p>Is contained if and only if the "Signature" element is contained in the header of the request.</p> <p>See 6.1 Signature for more information.</p>	<p>String</p>	<p>MAN</p>	<p><math>^{\wedge}.\{1,100\}\\$</math></p> <p>E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRIMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==</p>
<p><b>Signature</b></p>	<p>A signature of the request by the TPP on application level.</p>	<p>String</p>	<p>MAN</p>	<p>See annexes</p>

**PSD2 - TPP Technical Design**

	See 6.1 Signature for more information.			
<b>TPP-Signature-Certificate</b>	The certificate used for signing the request, in base64 encoding.	String	MAN	$\wedge.\{1,5000\}\$$ E.g. TPP-Signature-Certificate: MIIHgzCCBmugAwIBA gIIZzZvBQlt0UcwDQYJ .....KoZIhvcNAQEL BQAwSTELMAkGA1UE BhMCMVVMxEzARBgNVB A

**Body**

No additional data are specified.

**3.9.4.2 Response**

**Header**

Field	Description	Type	Man.	Format
<b>X-Request-ID</b>	Unique identifier of the transaction assigned by the TPP and submitted through the HUB to the ASPSP	String	MAN	<b>UUID</b> $\wedge[0-9a-fA-F]\{8\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{12\}\$$ E.g. X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7

**Body**

Field	Description	Type	Man.	Format
<b>scaStatus</b>	SCA status	String	MAN	E.g. "scaStatus": "finalised"
<b>tppMessages</b>	Message for the TPP sent through the HUB.	List<TppMessage>	OPT	E.g. "tppMessages": [...]

### 3.9.4.3 Examples

#### Example of request

GET <https://hub.example.es/asp-name/v2/consents/confirmation-of-funds/123-qwe-456/authorisations>

X-Request-ID: 96201400-6ff9-11e8-adc0-fa7ae01bbebc

Authorization: Bearer 2YotnFZFEjrlzCsicMWpAA

PSU-IP-Address: 192.168.8.16

PSU-IP-Port: 443

PSU-Accept: application/json

PSU-Accept-Charset: utf-8

PSU-Accept-Encoding: gzip

PSU-Accept-Language: es-ES

PSU-User-Agent: Mozilla/5.0 (Windows NT 10.0; WOW64; rv:54.0) Gecko/20100101 Firefox/54.0

PSU-Http-Method: GET

PSU-Device-ID: f8b3feda-6fe3-11e8-adc0-fa7ae01bbebc

PSU-GEO-Location: GEO:12.526347;54.649862

Date: Sun, 26 Sep 2017 15:02:48 GMT

#### Example of response

HTTP/1.1 200 Ok

X-Request-ID: 96201400-6ff9-11e8-adc0-fa7ae01bbebc

Date: Sun, 26 Sep 2017 15:02:50 GMT

Content-Type: application/json

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

## 4. DESCRIPTION OF VALUE-ADDED SERVICES

### 4.1 Available ASPSPs service

This message is sent by the TTP to the HUB to receive the information about what ASPSPs are available in the system.

#### 4.1.1 Version 1

##### 4.1.1.1 Request

###### Endpoint

GET {provider}/v1/sva/aspsps

###### Path

Field	Description	Type	Man.	Format
<b>provider</b>	URL of the HUB where the service is published.	String	MAN	E.g. www.hub.com

###### Header

Field	Description	Type	Man.	Format
<b>X-Request-ID</b>	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	<b>UUID</b> ^[0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12}\$ E.g. X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7
<b>Digest</b>	Is contained if and only if the "Signature" element is contained in the header of the request.  See 6.1 Signature for more information.	String	MAN	E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRIMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==

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<b>Signature</b>	A signature of the request by the TPP on application level.  See 6.1 Signature for more information.	String	MAN	See annexes
<b>TPP-Signature-Certificate</b>	The certificate used for signing the request, in base64 encoding.	String	MAN	<b>eIDAS</b>  E.g. TPP-Signature-Certificate: MIIHgZCCBmugAwIBAgIIZzZvBQIt0UcwDQYJ.....KoZIHvcNAQELBQAwSTELMAkGA1UEBhMCVVMxEzARBgNVBA

**Body**

No additional fields are specified.

**4.1.1.2 Response**

Field	Description	Type	Man.	Format
<b>aspmps</b>	List of ASPSPs available in the system. The returned list will be made up of relevant information on the ASPSP.	List<Aspsp>	MAN	E.g. "aspmps":[]
<b>tppMessages</b>	Contains the type of message and the code associated with it	Tppmessage	MAN	E.g. "tppMessages":{ }

**4.1.1.3 Examples**

**Example of request**

GET <https://www.hub.com/v1/sva/aspmps>

Content-Encoding: gzip

Content-Type: application/json

<USO TPPs>

**PSD2 - TPP Technical Design**

X-Request-ID: 29391c7e-ad88-49ec-a2ad-99ddcb1f7721

Date: Sun, 27 Oct 2017 13:15:17 GMT

**Example of response**

HTTP/1.1 200 Ok

```
{
  "aspsps": [
    {
      "bic": "XXXXESMMXXX",
      "name": "aspsp1"
    },
    {
      "bic": "YYYYESMMXXX",
      "name": "aspsp2"
    }
  ]
}
```

**4.1.2 Version 2**

This version includes the name of the API for each ASPSP.

**4.1.2.1 Request**
**Endpoint**

GET {provider}/v2/sva/aspsps

**Path**

Field	Description	Type	Man.	Format
<b>provider</b>	URL of the HUB where the service is published.	String	MAN	E.g. www.hub.com

**Header**

Field	Description	Type	Man.	Format
-------	-------------	------	------	--------



**PSD2 - TPP Technical Design**

<b>X-Request-ID</b>	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	<b>UUID</b> ^[0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12}\$ E.g. X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7
<b>Digest</b>	Is contained if and only if the "Signature" element is contained in the header of the request.  See 6.1 Signature for more information.	String	MAN	E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRIMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
<b>Signature</b>	A signature of the request by the TPP on application level.  See 6.1 Signature for more information.	String	MAN	See annexes
<b>TPP-Signature-Certificate</b>	The certificate used for signing the request, in base64 encoding.	String	MAN	<b>eIDAS</b> E.g. TPP-Signature-Certificate: MIIHgzCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ.....KoZIHvcNAQELBQAwwSTELMAkGA1UEBhMCVVMxEzARBgNVBA

**Body**

No additional fields are specified.

**4.1.2.2 Response**

Field	Description	Type	Man.	Format
-------	-------------	------	------	--------

<USO TPPs>

**PSD2 - TPP Technical Design**

<b>aspmps</b>	List of ASPSPs available in the system. The returned list will be made up of relevant information on the ASPSP.	List<As psp>	MAN	E.g. "aspmps":[]
<b>tppMessages</b>	Contains the type of message and the code associated with it	Tppmes sage	MAN	E.g. "tppMessages":{ }

**4.1.2.3 Examples**
**Example of request**

GET <https://www.hub.com/v2/sva/aspmps>

Content-Encoding: gzip

Content-Type: application/json

X-Request-ID: 29391c7e-ad88-49ec-a2ad-99ddcb1f7721

Date: Sun, 27 Oct 2017 13:15:17 GMT

**Example of response**

HTTP/1.1 200 Ok

```
{
  "aspmps": [
    {
      "bic": "XXXXESMMXXX",
      "name": "Bank name",
      "apiName": "nombreBanco1"
    },
    {
      "bic": "YYYYESMMXXX",
      "name": "Bank 2 name",
      "apiName": "nombreBanco2"
    }
  ]
}
```

<USO TPPs>

## 4.2 SVA: payment initiation with list of available accounts for PISP

This service allows the TPP to initiate a payment without entering information on the debtor's account "debtorAccount" and provides the list of accounts during the SCA flow so that the PSU can select one.

This value service complements the payment API payment and uses the CORE services to:

- Obtain payment status
- Recover payment initiation information
- Cancel payment initiation

### 4.2.1 Payment initiation

This message is sent by the TPP to the HUB to initiate payment without entering information on the debtor's account.

#### 4.2.1.1 Request

##### Endpoint

POST {provider}/{aspsp}/v1/sva/payments/{payment-product}

##### Path

Field	Description	Type	Man.	Format
<b>provider</b>	URL of the HUB where the service is published.	String	MAN	E.g. www.hub.com
<b>aspsp</b>	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name
<b>payment-product</b>	Payment product to be used. List of supported products: <ul style="list-style-type: none"> <li>• sepa-credit-transfers</li> </ul>	String	MAN	E.g. {provider}/{aspsp}/v1/payments/sepa-credit-transfers/

**PSD2 - TPP Technical Design**

	<ul style="list-style-type: none"> <li>• instant-sepa-credit-transfers</li> <li>• target-2-payments</li> <li>• cross-border-credit-transfers</li> </ul>			
--	---	--	--	--

**Header**

Field	Description	Type	Man.	Format
<b>Content-Type</b>	Value: application/json	String	MAN	Content-Type: application/json
<b>X-Request-ID</b>	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	<b>UUID</b> ^[0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12}\$ E.g. X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7
<b>Authorisation</b>	Bearer Token. Obtained in a prior authentication on OAuth2.	String	MAN	E.g. Authorisation: Bearer 2YotnFZFEjr1zCsicMWpAA
<b>Consent-ID</b>	This data element may be contained, if the payment initiation transaction is part of a session, i.e. combined AIS/PIS service. This then contains the "consentId" of the related AIS consent, which was performed prior to this payment initiation.	String	OPT	^.{1,36}\$ E.g. Consent-ID: 7890-asdf-4321

**PSD2 - TPP Technical Design**

<b>PSU-IP-Address</b>	The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP. If not available, the TPP shall use the IP Address used by the TPP when submitting this request.	String	MAN	^[0-9]{1,3}\.[0-9]{1,3}\.[0-9]{1,3}\$  E.g. PSU-IP-Address: 192.168.16.5
<b>PSU-IP-Port</b>	The forwarded IP Port header field consists of the corresponding HTTP request IP Port field between PSU and TPP, if available.	String	OPT	^\d{1,5}\$  E.g. PSU-IP-Port: 443
<b>PSU-Accept</b>	The forwarded Accept header fields consist of the corresponding HTTP request Accept header fields between PSU and TPP, if available.	String	OPT	^{1,5}\$  E.g. PSU-Accept: application/json
<b>PSU-Accept-Charset</b>	See above	String	OPT	^{1,5}\$  E.g. PSU-Accept-Charset: utf-8
<b>PSU-Accept-Encoding</b>	See above	String	OPT	^{1,5}\$  E.g. PSU-Accept-Encoding: gzip
<b>PSU-Accept-Language</b>	See above	String	OPT	^{1,5}\$  E.g. PSU-Accept-Language: es-ES
<b>PSU-User-Agent</b>	The forwarded Agent header field of the HTTP request between PSU and TPP, if available.	String	OPT	E.g.  PSU-User-Agent: Mozilla/5.0 (Windows; U; Windows NT 6.1; en-US; rv:1.9.1.5) Gecko/20091102 Firefox/3.5.5 (.NET CLR 3.5.30729)

**PSD2 - TPP Technical Design**

<p><b>PSU-Http-Method</b></p>	<p>HTTP method used at the PSU – TPP interface, if available.</p> <p>Valid values are:</p> <ul style="list-style-type: none"> <li>• GET</li> <li>• POST</li> <li>• PUT</li> <li>• PATCH</li> <li>• DELETE</li> </ul>	<p>String</p>	<p>OPT</p>	<p>E.g. PSU-Http-Method: POST</p>
<p><b>PSU-Device-ID</b></p>	<p>UUID (Universally Unique Identifier) for a device, which is used by the PSU, if available.</p> <p>UUID identifies either a device or a device dependant application installation. In case of an installation identification this ID need to be unaltered until removal from device.</p>	<p>String</p>	<p>OPT</p>	<p><b>UUID</b></p> <p><math>^{[0-9a-fA-F]\{8\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{4\}-[0-9a-fA-F]\{12\}}\\$</math></p> <p>E.g.</p> <p>PSU-Device-ID: 5b3ab8e8-0fd5-43d2-946e-d75958b172e7</p>
<p><b>PSU-Geo-Location</b></p>	<p>The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.</p>	<p>String</p>	<p>OPT</p>	<p><b>RFC 2426</b></p> <p><math>^{GEO:[\d]*.[\d]*[;][\d]*.[\d]*}\\$</math></p> <p>E.g.</p> <p>PSU-Geo-Location: GEO:90.023856;25.345963</p>
<p><b>TPP-Redirect-Preferred</b></p>	<p>If it equals "true", the TPP prefers a redirect over an embedded SCA approach.</p>	<p>Boolean</p>	<p>OPT</p>	<p>E.g. TPP-Redirect-Preferred: true</p>

	<p>If it equals "false", the TPP prefers not to be redirected for SCA. The ASPSP will then choose between the Embedded or the Decoupled 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 SCA method chosen by the TPP/PSU.</p> <p><b>EMBEDDED NOT SUPPORTED IN THIS VERSION</b></p>			
<p><b>TPP-Redirect-URI</b></p>	<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".</p> <p>It is recommended to always use this header field.</p> <p><b>Remark for Future:</b> This field might be changed to mandatory in the next version of the specification.</p>	<p>String</p>	<p>COND</p>	<p>^.{1,250}\$ E.g. TPP-Redirect-URI:"https://tpp.example.es/cb"</p>

<b>TPP-Nok-Redirect-URI</b>	If this URI is contained, the TPP is asking to redirect the transaction flow to this address instead of the TPP-Redirect-URI in case of a negative result of the redirect SCA method. This might be ignored by the ASPSP.	String	OPT	^.{1,250}\$ E.g. TPP-Nok-Redirect-URI:"https://tpp.example.es/cb/nok"
<b>Digest</b>	If it equals "true", the TPP prefers to start the authorisation process separately. This preference might be ignored by the ASPSP, if a signing basket is not supported as functionality.  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.  <b>Note:</b> the ASPSP may not take it into account if it does not support it.	String	MAN	^.{1,100}\$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRIMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ= =
<b>Signature</b>	Is contained if and only if the "Signature" element is contained in the header of the request.  See 6.1 Signature for more information.	String	MAN	See annexes
<b>TPP-Signature-Certificate</b>	A signature of the request by the TPP on application level.  See 6.1 Signature for more information.	String	MAN	^.{1,5000}\$



				E.g. TPP-Signature-Certificate: MIIHgZCCBmugAw IBAgIIZzZvBQlt0U cwDQYJ.....Ko ZIhvcNAQELBQAw STELMAkGA1UEBh MCMVVMxEzARBgN VBA
--	--	--	--	---

### Body

Field	Description	Type	Man.	Format
<b>instructedAmount</b>	Information on the transfer carried out.	Amount	MAN	E.g. "instructedAmount": {...}
<b>creditorAccount</b>	Creditor account	AccountReference	MAN	E.g. "creditorAccount": {"iban":"ES1111111111 1111111111"}
<b>creditorName</b>	Creditor's name	String	MAN	^. {1,70}\$  E.g. "creditorName":"Name"
<b>creditorAgent</b>	BIC of the creditor account.	String	OPT	^. {1,12}\$  E.g. "creditorAgent":"XSXHX SMMXXX"
<b>creditorAddress</b>	Creditor's address	Address	OPT	E.g. "creditorAddress":{...}
<b>remittanceInformationUnstructured</b>	Additional information	String	OPT	^. {1,140}\$  E.g. "remittanceInformation Unstructured":"Addition al information"

#### 4.2.1.2 Response

##### Header

Field	Description	Type	Man.	Format
-------	-------------	------	------	--------

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<b>Location</b>	Location of the created resource (if created)	String	MAN	E.g. Location: /v1/payments/{payment-product}/{payment-id}
<b>X-Request-ID</b>	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	<b>UUID</b> ^[0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-9a-fA-F]{12}\$ E.g. X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7
<b>ASPSP-SCA-Approach</b>	This data element must be contained, if the SCA Approach is already fixed. Possible values are: <ul style="list-style-type: none"> <li>• REDIRECT</li> </ul> The OAuth SCA approach will be subsumed by REDIRECT.	String	COND	E.g. ASPSP-SCA-Approach: REDIRECT

**Body**

Field	Description	Type	Man.	Format
<b>transactionStatus</b>	Status of the transaction. Values defined in annexes in 6.4 Transaction status	String	MAN	<b>ISO 20022</b> E.g. "transactionStatus": "RCVD"

<USO TPPs>

<b>paymentId</b>	Identifier of the resource that references the payment initiation.	String	MAN	$\wedge.\{1,36\}\$$ E.g. "paymentId": "1b3ab8e8-0fd5-43d2-946e-d75958b172e7"
<b>_links</b>	List of hyperlinks to be recognised by the TPP. Types supported in this response: <ul style="list-style-type: none"> <li>• scaRedirect: in case of SCA by redirection. Link where the PSU navigator must be redirected by the TPP.</li> <li>• startAuthorisation: if an explicit initiation of the transaction authorisation is necessary (there is no selection of the SCA method)</li> <li>• self: link to the resource created by this request.</li> <li>• status: link to recover the transaction status.</li> <li>• scaStatus: link to query the SCA status corresponding to the authorisation sub-resource. This link is only contained if an authorisation</li> </ul>	Links	MAN	E.g. "_links": {...}

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	sub-resource has been created.			
<b>tppMessages</b>	Message for the TPP	List<Tpp Message >	OPT	E.g. "tppMessages": [...]

### 4.2.1.3 Examples

#### Example of request

POST <https://www.hub.com/aspsp-name/v1/sva/payments/sepa-credit-transfers>

Content-Encoding: gzip

Content-Type: application/json

X-Request-ID: 10391c7e-ad88-49ec-a2ad-00aacb1f6541

Authorization: Bearer 2YotnFZFEjrlzCsicMWpAA

PSU-IP-Address: 192.168.8.16

PSU-IP-Port: 443

PSU-Accept: application/json

PSU-Accept-Charset: utf-8

PSU-Accept-Encoding: gzip

PSU-Accept-Language: es-ES

PSU-User-Agent: Mozilla/5.0 (Windows NT 10.0; WOW64; rv:54.0) Gecko/20100101 Firefox/54.0

PSU-Http-Method: POST

PSU-Device-ID: f8b3feda-6fe3-11e8-adc0-fa7ae01bbebc

PSU-GEO-Location: GEO:12.526347;54.649862

TPP-Redirect-Preferred: true

TPP-Redirect-URI: https://www.tpp.com/cb

TPP-Nok-Redirect-URI: https://www.tpp.com/cb/nok

Date: Sun, 26 Sep 2017 15:02:37 GMT

```
{
  "instructedAmount": {
    "currency": "EUR",
    "amount": "153.50"
  },
}
```

<USO TPPs>

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```
"creditorAccount": {
  "iban": "ES222222222222222222222222"
},
"creditorName": "Name123",
"remittanceInformationUnstructured": "Additional information"
}
```

**Example of response**

HTTP/1.1 201 Created

X-Request-ID: 10391c7e-ad88-49ec-a2ad-00aacb1f6541

ASPSP-SCA-Approach: REDIRECT

Date: Sun, 26 Sep 2017 15:02:43 GMT

Location: </v1/payments/sepa-credit-transfers/1234-qwer-5678>

```
{
  "transactionStatus": "RCVD",
  "paymentId": "123-qwe-456",
  "_links": {
    "scaRedirect": {
      "href": "https://www.hub.com/aspsp-name/authorize"
    },
    "self": {
      "href": "/v1/payments/sepa-credit-transfers/123-qwe-456",
      "status": {
        "href": "/v1/payments/sepa-credit-transfers/123-qwe-456/status"
      }
    }
  }
}
```

## 5. DEFINITION OF TYPES OF COMPOSITE DATA

The types of composite data used for the requests and responses in the system are defined below.

## 5.1 AccountAccess

Field	Description	Type	Man.	Format
<b>accounts</b>	<p>Is asking for detailed account information.</p> <p>If the array is empty, the TPP is asking for an accessible account list. This may be restricted in a PSU/ASPSP authorization dialogue. If the array is empty, also the arrays for balances or transactions shall be empty, if used.</p>	List<AccountReference>	OPT	E.g. "accounts": [...]
<b>balances</b>	<p>Is asking for balances of the addressed accounts.</p> <p>If the array is empty, the TPP is asking for the balances of all accessible account lists. This may be restricted in a PSU/ASPSP authorization dialogue. If the array is empty, also the arrays for accounts or transactions shall be empty, if used.</p>	List<AccountReference>	OPT	E.g. "balances": [...]
<b>transactions</b>	<p>Is asking for transactions of the addressed accounts.</p>	List<AccountReference>	OPT	E.g. "transactions": [...]

	If the array is empty, the TPP is asking for the transactions of all accessible account lists. This may be restricted in a PSU/ASPSP authorization dialogue. If the array is empty, also the arrays for accounts or balances shall be empty, if used.			
<b>availableAccounts</b>	Only the value "allAccounts" is admitted.	String	OPT	E.g. "availableAccounts": "allAccounts"
<b>availableAccountsWithBalances</b>	Only the value "allAccounts" is admitted	String	OPT	E.g. "availableAccountsWithBalances": "allAccounts"
<b>allPsd2</b>	Only the value "allAccounts" is admitted	String	OPT	E.g. "allPsd2": "allAccounts"

## 5.2 AccountDetails

Field	Description	Type	Man.	Format
<b>resourceId</b>	This is the data element to be used in the path when retrieving data from a dedicated account.  This shall be filled, if addressable resource are created by the ASPSP on the /accounts endpoint.	String	COND	^.{1,100}\$  E.g. "resourceId": "3dc3d5b3702348489853f5400a64e80f"
<b>iban</b>	IBAN of the account	String	OPT	E.g. "iban": "ES11111111111111111111"

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<b>currency</b>	Account currency.	String	MAN	<b>ISO 4217</b> E.g. "currency": "EUR"
<b>name</b>	Name of the account given by the bank or the PSU in Online-Banking	String	OPT	^.{1,35}\$ E.g. "name": "Name"
<b>product</b>	Product Name of the Bank for this account, proprietary definition	String	OPT	^.{1,35}\$ E.g. "product": "Main Account"
<b>bic</b>	BIC of the account.	String	OPT	^.{1,12}\$ E.g. "bic": "XSXHXSMXXX"
<b>linkedAccounts</b>	This data attribute is a field, where an ASPSP can name a cash account associated to pending card transactions.	String	OPT	^.{1,70}\$
<b>balances</b>	Account balances.	List<Balance>	COND	"balances": [...]
<b>_links</b>	Links to the account, which can be directly used for retrieving account information from this dedicated account.  Links to "balances" and/or "transactions"  These links are only supported, when the corresponding consent has been already granted.	Links	OPT	E.g. "links": {...}



### 5.3 AccountReference

Field	Description	Type	Man.	Format
<b>iban</b>	IBAN of the account	String	COND	E.g. "iban":"ES11111111111111111111111111111111"
<b>currency</b>	Currency.	String	OPT	<b>ISO 4217</b> E.g. "currency":"EUR"

### 5.4 AccountReport

Field	Description	Type	Man.	Format
<b>booked</b>	Latest known transactions (notes) in the account  Must be included if the bookingStatus parameter is set to "booked" or "both".	List<Transactions>	COND	E.g. "booked":[{}]
<b>pending</b>	Transactions pending in the account.  Not contained if the bookingStatus parameter is established as "booked".	List<Transactions>	OPT	E.g. "pending":[{}]
<b>_links</b>	The following links are accepted in this object:  <ul style="list-style-type: none"> <li>• account (MAN)</li> <li>• first (OPT)</li> <li>• next (OPT)</li> <li>• previous (OPT)</li> </ul>	Links	MAN	E.g. "_links":[{}]

## 5.5 Address

Field	Description	Type	Mand	Format
<b>street</b>	Street	String	OPT	^.{1,70}\$ E.g. "street": "Example of street"
<b>buildingNumber</b>	Number	String	OPT	E.g. "buildingNumber": "5"
<b>city</b>	City	String	OPT	E.g. "city": "Córdoba"
<b>postalCode</b>	Postcode	String	OPT	E.g. "postalCode": "14100"
<b>country</b>	Country code	String	MAN	<b>ISO 3166</b> E.g. "country": "ES"

## 5.6 Amount

Field	Description	Type	Mand.	Format
<b>currency</b>	Currency of amount.	String	MAN	<b>ISO 4217</b> E.g. "currency": "EUR"
<b>amount</b>	Amount The decimal separator is a point.	String	MAN	<b>ISO 4217</b> E.g. "amount": "500.00"

## 5.7 Aspssp

Field	Description	Type	Man.	Format
<b>bic</b>	BIC code of the ASPSP.	String	MAN	E.g. "bic": "XXXXXXXXXX"
<b>name</b>	Name of the ASPSP	String	OPT	E.g. "name": "ASPSP Name"

<b>apiName</b>	Name of the ASPSP used in the request PATH.  <b>Note:</b> Only available for V2 of the list of available ASPSPs.	String	COND	E.g. "apiName": "nombreBanco"
----------------	--	--------	------	-------------------------------

## 5.8 Balance

Field	Description	Type	Man.	Format
<b>balanceAmount</b>	Amount and currency of the balance	Amount	MAN	E.g. "balanceAmount": {...}
<b>balanceType</b>	Type of balance. Values supported in the annex 6.7 Balance type	String	MAN	E.g. "balanceType": "closingBooked"
<b>creditLimitIncluded</b>	A flag indicating if the credit limit of the corresponding account is included in the calculation of the balance, where applicable	Boolean	OPT	E.g. "creditLimitIncluded": true
<b>referenceDate</b>	Reference date of the balance	String	OPT	<b>ISODate</b> E.g. "referenceDate": "2017-10-25"

## 5.9 Href

Field	Description	Type	Man.	Format
<b>href</b>	Contains a link to a resource	String	OPT	E.g. "href": "/v1/payments/sepa-credit-transfers/asd-1234-jkl"

## 5.10 Links

Field	Description	Type	Man.	Format
-------	-------------	------	------	--------

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<b>scaRedirect</b>	URL used to carry out the SCA, through redirecting the PSU navigator.	Href	OPT	E.g. "scaRedirect": {...}
<b>startAuthorisation</b>	Link to the endpoint where the authorisation of the transaction or the authorisation of the cancellation transaction must be initiated.	Href	OPT	E.g. "startAuthorisation": {...}
<b>self</b>	The link to the resource created for the request. This link may be used subsequently to recover the transaction status.	Href	OPT	E.g. "self": {...}
<b>status</b>	The link to recover the transaction status. For example, payment initiation status.	Href	OPT	E.g. "status": {...}
<b>account</b>	Link to the resource that provides the information on an account.	Href	OPT	E.g. "account": {...}
<b>balances</b>	Link to the resource that provides the account balances.	Href	OPT	E.g. "balances": {...}
<b>transactions</b>	Link to the resource that provides the account activity.	Href	OPT	E.g. "transactions": {...}
<b>first</b>	Navigation link for reports on paginated accounts.	Href	OPT	E.g. "first": {...}
<b>next</b>	Navigation link for reports on paginated accounts.	Href	OPT	E.g. "next": {...}
<b>previous</b>	Navigation link for reports on paginated accounts.	Href	OPT	E.g. "previous": {...}

## 5.11 SinglePayment

Field	Description	Type	Man.	Format
<b>instructedAmount</b>	Information on the transfer carried out.	Amount	MAN	E.g. "instructedAmount": {...}
<b>debtorAccount</b>	The debtor's account. <b>Note:</b> this field may be optional in some services such as bulk payments	Account Reference	MAN	E.g. "debtorAccount": { "iban": "ES11111111111111111111111111111111" }
<b>creditorAccount</b>	Creditor account	Account Reference	MAN	E.g. "creditorAccount": { "iban": "ES11111111111111111111111111111111" }
<b>creditorName</b>	Creditor's name	String	MAN	^. {1,70}\$  E.g. "creditorName": "Name"
<b>creditorAgent</b>	BIC of the creditor account.	String	OPT	E.g. "creditorAgent": "XSHX XSMMXXX"
<b>creditorAddress</b>	Creditor's address	Address	OPT	E.g. "creditorAddress": {...}
<b>chargeBearer</b>	Only for payment-product: <ul style="list-style-type: none"> <li>target-2-payments</li> <li>cross-border-credit-transfers</li> </ul> Permitted values: <ul style="list-style-type: none"> <li>DEBT</li> <li>CRED</li> <li>SHAR</li> <li>SLEV</li> </ul>	String	OPT	<b>ChargeBearerType1 Code of ISO 20022</b>  E.g. "chargeBearer": "SLEV"
<b>remittanceInformationUnstructured</b>	Additional information.	String	OPT	^. {1,140}\$

	See annex <b>iError! No se encuentra el origen de la referencia. iError!</b> No se encuentra el origen de la referencia. for recommendations on use.			E.g. "remittanceInformationUnstructured": "Additional information"
<b>requested Execution Date</b>	Execution date requested for future payments. <b>Note:</b> only if supported by the ASPSP	String	COND	<b>ISODate</b>

## 5.12 TppMessage

Field	Description	Type	Man.	Format
<b>category</b>	Category of type of message received. Possible values: ERROR or WARNING	String	MAN	E.g. "category": "ERROR"
<b>code</b>	Response code. All the return codes for the service are listed in annex 6.3 Return codes.	String	MAN	E.g. "code": "CONSENT_INVALID"
<b>path</b>	Path to the field with a reference to the error.	String	COND	E.g. "path": "..."
<b>text</b>	Additional explanatory text.	String	OPT	E.g. "text": "Example of text"

### 5.13 Transactions

Field	Description	Type	Man.	Format
<b>bookingDate</b>	The Date when an entry is posted to an account on the ASPSPs books.	String	OPT	<b>ISODate</b> "bookingDate": "2017-10-23"
<b>valueDate</b>	The Date at which assets become available to the account owner in case of a credit	String	OPT	<b>ISODate</b> E.g. "valueDate": "2017-10-23"
<b>transactionAmount</b>	The amount of the transaction as billed to the account.	Amount	MAN	E.g. "transactionAmount": [{}]
<b>remittanceInformationUnstructured</b>	Field to include additional information on the remittance.	String	OPT	^.{1,140}\$ E.g. "remittanceInformationUnstructured": "Additional information"
<b>_links</b>	Possible values: <ul style="list-style-type: none"> <li>transactionDetails</li> </ul>	Links	OPT	E.g. "_links": {...}

## 6. ANNEXES

### 6.1 Signature

#### 6.1.1 "Digest" header mandatory

The Digest field is mandatory in all requests.

This field contains a hash of the message body. If the message does not contain a body, the "Digest" field must contain a hash of an empty "bytelist". The hash algorithms that may be used to calculate the "Digest" in the context of this specification are SHA-256 and SHA-512.

#### 6.1.2 Signature requirements

The structure of the "Signature" field of the request header must be presented with the following structure.

Element	Type	Man.	Requirements	Additional requirements
<b>keyId</b>	String	MAN	It is a chain that can be used by the HUB to find a component needed to validate the signature.	Serial number of the TPP certificate included in "TPP-Signature-Certificate". Must be formatted as follows: KeyId="SN=XXX,CA=YYYYYYYYYYYYYYYY" Where "XXX" is the serial number of the certificate in hexadecimal code and "YYYYYYYYYYYYYYYY" is the full "Distinguished Name" of the certification authority.
<b>Algorithm-ID</b>	String	MAN	It is used to specify the algorithm used to generate the signature.	The algorithm must identify the same algorithm for the signature as that presented in the request certificate. Must identify SHA-256 or SHA-512.



<b>Headers</b>	String	OPT	<p>Is used to specify the list of HTTP headers included when the signature is generated for the message.</p> <p>If specified, it must be a list between inverted commas and in lower case, separated by a blank space. If not specified, it must be understood that only one value has been specified. This specified value is the "Date" attribute of the request header.</p> <p>The order of the attributes is important and must be the same as the order specified on the list of HTTP headers specified in this field.</p>	<p>The required fields to be signed are:</p> <ul style="list-style-type: none"> <li>• digest</li> <li>• x-request-id</li> </ul> <p>Conditionally, if they travel and are supported, they must include:</p> <ul style="list-style-type: none"> <li>• psu-id</li> <li>• psu-corporate-id</li> <li>• tpp-redirect-uri</li> </ul>
<b>Signature</b>	String	MAN	<p>The "signature" parameter must be in Base64 according to RFC 4648.</p> <p>The TPP uses the algorithm and the parameters of the header to form the chain to be signed. The chain to sign is signed with the keyId and the corresponding algorithm. The content must be in Base64.</p>	<p>There are no additional requirements.</p>

### 6.1.3 Example

You want to make a host-to-host request with the following text:

```
{
  "instructedAmount" : {
    "currency" : "EUR",
```

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```
    "amount" : "16.00"
  },
  "debtorAccount" : {
    "iban" : "ES5140000001050000000001",
    "currency" : "EUR"
  },
  "creditorName" : "Cred. Name",
  "creditorAccount" : {
    "iban" : "ES6621000418401234567891",
    "currency" : "EUR"
  },
  "creditorAddress" : {
    "street" : "Example of street",
    "buildingNumber" : "15",
    "city" : "Cordoba",
    "postalCode" : "14100",
    "country" : "ES"
  },
  "remittanceInformationUnstructured" : "Payment",
  "chargeBearer" : "CRED"
}
```

And you must also add the following headers

- X-Request-ID=a13cbf11-b053-4908-bd06-517dfa3a1861

You must make the following transactions.

**6.1.3.1 Generation of the "Digest" header**

To do so you must perform the hash of the message body that will be sent. It is vital to do so on the final content once serialised, as the following serialisation processes may introduce changes in the body of the message finally sent, making the signature invalid.

It is possible to use the SHA-256 and SHA-512 algorithms following the RFC 5843. In our example you will use SHA-256 on the body of the message, obtaining the following result:

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- Hexadecimal:  
A5F1CF405B28E44ED29507E0F64495859BA877893D2A714512D16CE3BD8  
BE562
- Base64: pfHPQFso5E7SIQfg9kSVhZuod4k9KnFFEtFs472L5WI=

Thus the value of the "Digest" header to generate will be:

SHA256=pfHPQFso5E7SIQfg9kSVhZuod4k9KnFFEtFs472L5WI=

The headers you have so far are:

X-Request-ID=a13cbf11-b053-4908-bd06-517dfa3a1861f]

Digest=SHA256=pfHPQFso5E7SIQfg9kSVhZuod4k9KnFFEtFs472L5WI=

### **6.1.3.2 Generation of the "Signature" header**

The "Signature" header is the multi-value type, i.e. it contains within it various pairs of sub-headers of the attribute-value type

#### **Establishment of the "keyId" value**

This field is obtained based on a serial number of the certificate in hexadecimal and the DN of the certification authority that generates the certificate.

In our example you obtain the following result:

keyId="SN=-5d803f65,CA=CN=REDSYS-AC-EIDAST-C1,OU=PKI,O=REDSYS,C=ES"

#### **Establishment of the "headers" attribute**

You should note that this attribute and some others are shown in the Berlin Group document with the first character in upper case, but in the RFC used by the entity its content is always established in lower case, so we assume that it is an error.

This establishes the fields that will be taken into account signing.

headers="digest x-request-id"

#### **Establishment of the "algorithm" attribute**

algorithm="SHA-256"

#### **Construction of the chain to be signed**

The chain to be signed according to point 2.2.3 is as follows:

Digest: SHA256=pfHPQFso5E7SIQfg9kSVhZuod4k9KnFFEtFs472L5WI=

X-Request-ID: a13cbf11-b053-4908-bd06-517dfa3a1861f

### Generation of the signature

We sign the chain obtained in the above point with the private key of our certificate and pass the result to Base64, obtaining in our specific case the following result:

```
la8LV3Fny2so4c40OkYFtZvr1mOkOVY1n87iKfIggEkXQjZNcyjp9fFkNtQc+5ZVNESdiq
KG8xrawYa5gAm46CvcKChNTPaakiEJHcXM5RZPWN0Ns5HjV5mUY2QzD+g5mwqcW
vXtBr1vg0bZKN8Zt3+uJMN37NQg9tJNE2yKIJEPIAYOjC2PA/yzGSLOdADnXQut9yRvx
w8gMCjDtRaKdYWmwG6/crX293hGvBUeff1xvTluWhQzyfx4J6WG0v1ZmpnWdZ1LF6
8sToeDGTdu65aVKV2q6qcZzcm5aPV6+mVHX+21Vr6acxiLZdeYUHYJHrzErUN3KJrmt
3w2AL7Dw==
```

#### 6.1.3.3 Generation of the "TPP-Signature-Certificate" header

This header contains the certificate we have used in Base64. For reasons of space only a part is established in the example:

TPP-Signature-Certificate="MIIEWTCCA0GgAwIBAgI....

#### 6.1.3.4 Definitive headers to send

As seen in the above points the headers that must be sent in the request are:

X-Request-ID=a13cbf11-b053-4908-bd06-517dfa3a1861f

Digest=SHA256=pfHPQFso5E7SIQfg9kSVhZuod4k9KnFFEtFs472L5WI=

Signature=keyId="SN=-5d803f65,CA=CN=REDSYS-AC-EIDAST-C1,OU=PKI,O=REDSYS,C=ES",algorithm="SHA-256",headers="digest x-request-id",signature="

```
la8LV3Fny2so4c40OkYFtZvr1mOkOVY1n87iKfIggEkXQjZNcyjp9fFkNtQc+5ZVNESdiq
KG8xrawYa5gAm46CvcKChNTPaakiEJHcXM5RZPWN0Ns5HjV5mUY2QzD+g5mwqcW
vXtBr1vg0bZKN8Zt3+uJMN37NQg9tJNE2yKIJEPIAYOjC2PA/yzGSLOdADnXQut9yRvx
w8gMCjDtRaKdYWmwG6/crX293hGvBUeff1xvTluWhQzyfx4J6WG0v1ZmpnWdZ1LF6
8sToeDGTdu65aVKV2q6qcZzcm5aPV6+mVHX+21Vr6acxiLZdeYUHYJHrzErUN3KJrmt
3w2AL7Dw=="
```

TPP-Signature-Certificate=MIIEWTCCA0GgAwIBAgIEon/...

## 6.2 HTTP response codes

The HTTP codes followed by this specification and their uses are the following:

HTTP code	Description
<b>200 OK</b>	PUT, GET Response Codes

	<p>This return code is permitted if a request was repeated due to a time-out. The response in that might be either a 200 or 201 code depending on the ASPSP implementation.</p> <p>The POST for a Funds request will also return 200 since it does not create a new resource.</p> <p>DELETE Response Code where a payment resource has been cancelled successfully and no further cancellation authorisation is required.</p>
<b>201 Created</b>	POST response code where Payment Initiation or Consent Request was correctly performed.
<b>202 Accepted</b>	DELETE response code, where a payment resource can be cancelled in general, but where a cancellation authorisation is needed in addition.
<b>204 No Content</b>	<p>DELETE response code where a consent resource was successfully deleted. The code indicates that the request was performed, but no content was returned.</p> <p>Also used in DELETE requests of a payment initiation where authentication is not needed.</p>
<b>400 Bad Request</b>	Validation error occurred. This code will cover malformed syntax in request or incorrect data in payload.
<b>401 Unauthorised</b>	The TPP or the PSU is not correctly authorized to perform the request. Retry the request with correct authentication information.
<b>403 Forbidden</b>	Returned if the resource that was referenced in the path exists but cannot be accessed by the TPP or the PSU. This code should only be used for non-sensitive id references as it will reveal that the resource exists even though it cannot be accessed.
<b>404 Not found</b>	<p>Returned if the resource or endpoint that was referenced in the path does not exist or cannot be referenced by the TPP or the PSU.</p> <p>When in doubt if a specific id in the path is sensitive or not, use the HTTP response code 404 instead of the HTTP response code 403.</p>

<b>405 Method Not Allowed</b>	This code is only sent when the HTTP method (PUT, POST, DELETE, GET etc.) is not supported on a specific endpoint. It has nothing to do with the consent, payment or account information data model.  DELETE Response code in case of cancellation of a payment initiation, where the payment initiation cannot be cancelled due to legal or other operational reasons.
<b>406 Not Acceptable</b>	The ASPSP cannot generate the content that the TPP specified in the Accept header.
<b>408 Request Timeout</b>	The server is still working correctly, but an individual request has timed out.
<b>409 Conflict</b>	The request could not be completed due to a conflict with the current state of the target resource.
<b>415 Unsupported Media Type</b>	The TPP has supplied a media type which the ASPSP does not support.
<b>429 Too Many Requests</b>	The TPP has exceeded the number of requests allowed by the consent or by the RTS.
<b>500 Internal Server Error</b>	Internal server error occurred.
<b>503 Service Unavailable</b>	The ASPSP server is currently unavailable. Generally, this is a temporary state.

### 6.3 Return codes

Permitted return codes and associated HTTP response codes.

	HTTP code	Code	Description
<b>SIGNATURE CERTIFICATE</b>	401	CERTIFICATE_INVALID	The contents of the signature/corporate seal certificate are not matching PSD2 general PSD2 or attribute requirements.
	401	CERTIFICATE_EXPIRED	Signature/corporate seal certificate is expired.
	401	CERTIFICATE_BLOCKED	Signature/corporate seal certificate has been blocked by the ASPSP or the related NCA.

	401	CERTIFICATE_REVOKED	Signature/corporate seal certificate has been revoked by QSTP.
	401	CERTIFICATE_MISSING	Signature/corporate seal certificate was not available in the request but is mandated for the corresponding.
<b>SIGNATURE</b>	401	SIGNATURE_INVALID	Application layer eIDAS Signature for TPP authentication is not correct.
	401	SIGNATURE_MISSING	Application layer eIDAS Signature for TPP authentication is mandated by the ASPSP but is missing.
<b>GENERAL</b>	400	FORMAT_ERROR	Format of certain request fields are not matching the XS2A requirements. An explicit path to the corresponding field might be added in the return message.  This applies to headers and body entries. It also applies in cases where these entries are referring to erroneous or not existing data instances, e.g. a malformed IBAN.
	400	PARAMETER_NOT_CONSISTENT	Parameters submitted by TPP are not consistent. This applies only for query parameters.
	400	PARAMETER_NOT_SUPPORTED	The parameter is not supported by the API provider. This code should only be used for parameters that are described as "optional if supported by API provider."

	401	PSU_CREDENTIALS_INVALID	The PSU-ID cannot be matched by the addressed ASPSP or is blocked, or a password resp. OTP was not correct. Additional information might be added.
	400 (payload) 405 (HTTP method)	SERVICE_INVALID	The addressed service is not valid for the addressed resources or the submitted data.
	403	SERVICE_BLOCKED	This service is not reachable for the addressed PSU due to a channel independent blocking by the ASPSP. Additional information might be given by the ASPSP.
	401	CORPORATE_ID_INVALID	The PSU-Corporate-ID cannot be matched by the addressed ASPSP.
	403 (if resource on path) 400 (if resource in payload)	CONSENT_UNKNOWN	The Consent-ID cannot be matched by the ASPSP relative to the TPP.
	401	CONSENT_INVALID	The consent was created by this TPP but is not valid for the addressed service/resource.  Or, the definition of the consent is not complete, or is invalid.
	401	CONSENT_EXPIRED	The consent was created by this TPP but has expired and needs to be renewed.
	401	TOKEN_UNKNOWN	The OAuth2 token cannot be matched by the ASPSP relative to the TPP.



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	401	TOKEN_INVALID	The OAuth2 token is associated to the TPP but is not valid for the addressed service/resource.
	401	TOKEN_EXPIRED	The OAuth2 token is associated to the TPP but has expired and needs to be renewed.
	404 (if account-id in path) 403 (if other resource in path) 400 (if goes in payload)	RESOURCE_UNKNOWN	The addressed resource is unknown relative to the TPP.
	403 (if resource on path) 400 (if resource in payload)	RESOURCE_EXPIRED	The addressed resource is associated with the TPP but has expired, not addressable anymore.
	400	RESOURCE_BLOCKED	The addressed resource is not addressable by this request, since it is blocked e.g. by a grouping in a signing basket.
	400	TIMESTAMP_INVALID	Timestamp not in accepted time period.
	400	PERIOD_INVALID	Requested time period out of bound.
	400	SCA_METHOD_UNKNOWN	Addressed SCA method in the Authentication Method Select Request is unknown or cannot be matched by the ASPSP with the PSU.
	409	STATUS_INVALID	The addressed resource does not allow additional authorisation.

<b>OAuth2</b>	302	invalid_request	The request is not well formed because there are parameters missing, value not supported, or parameters repeated.
	302	unauthorized_client	The authenticated client is not authorised to use this type of authorisation.
	302	access_denied	The owner of the resources or the authorised server rejects the request.
	302	unsupported_response_type	The authorisation server does not support the method used to obtain the authorisation code.
	302	invalid_scope	The scope requested is invalid, unknown or badly formed.
	302	server_error	Error 500 that may not be returned in a redirect. It is returned with this code.
	302	temporarily_unavailable	The authorisation server is temporarily unable to process the request, due to a temporary overload or due to maintenance.
	400	invalid_request	The request is not well formed because parameters are missing, the value is not supported, parameters are repeated, it includes multiple credentials or uses more than one of the client's authentication mechanisms.
	401	invalid_client	Client authentication failure.

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	400	invalid_grant	The authorisation provided or the refresh token is invalid, expired, revoked, does not coincide with the redirect URL, or was issued by another client.
	400	unauthorized_client	The authenticated client is not authorised to use this type of authorisation.
	400	unsupported_grant_type	The type of authorisation requested is not supported by the authorisation server.
	400	invalid_scope	The scope requested is invalid, unknown, badly formed or exceeds what is permitted.
<b>PIS</b>	403	PRODUCT_INVALID	The addressed payment product is not available for the PSU.
	404	PRODUCT_UNKNOWN	The addressed payment product is not supported by the ASPSP.
	400	PAYMENT_FAILED	The payment initiation POST request failed during the initial process. Additional information may be provided by the ASPSP.
	400	EXECUTION_DATE_INVALID	The requested execution date is not a valid execution date for the ASPSP.
	405	CANCELLATION_INVALID	The addressed payment is not cancellable e.g. due to cut off time passed or legal constraints.
<b>AIS</b>	401	CONSENT_INVALID	The consent was created by the TPP, but it is not valid for the recourse/service requested.

			Or, the consent definition is not complete or invalid. In case of being not complete, the bank is not supporting a completion of the consent towards the PSU.
	400	SESSIONS_NOT_SUPPORTED	The combined service flag may not be used with this ASPSP.
	429	ACCESS_EXCEEDED	The access on the account has been exceeding the consented multiplicity without PSU involvement per day.
	406	REQUESTED_FORMATS_INVALID	The requested formats in the Accept header entry are not matching the formats offered by the ASPSP.
<b>FCS</b>	400	CARD_INVALID	Addressed card number is unknown to the ASPSP or not associated to the PSU.
	400	NO_PIIS_ACTIVATION	The PSU has not activated the addressed account for the usage of the PIIS associated with the TPP.

## 6.4 Transaction status

Code	Name	Description
<b>ACCC</b>	AcceptedSettlementCompleted	Settlement on the creditor's account has been completed.
<b>ACCP</b>	AcceptedCustomerProfile	Preceding check of technical validation was successful. Customer profile check was also successful.
<b>ACFC</b>	AcceptedFundsChecked	Pre-ceeding check of technical validation and customer profile was successful and an automatic funds check was positive .  <b>Remark:</b> This code is accepted as new code by ISO20022.

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<b>ACSC</b>	AcceptedSettlementCompleted	<p>Settlement on the debtor's account has been completed.</p> <p><b>Usage:</b> this can be used by the first agent to report to the debtor that the transaction has been completed.</p> <p><b>Warning:</b> this status is provided for transaction status reasons, not for financial information. It can only be used after bilateral agreement</p>
<b>ACSP</b>	AcceptedSettlementInProgress	All preceding checks such as technical validation and customer profile were successful and therefore the payment initiation has been accepted for execution.
<b>ACTC</b>	AcceptedTechnicalValidation	Authentication and syntactical and semantical validation are successful
<b>ACWC</b>	AcceptedWithChange	<p>The instruction has been accepted, but needs a change; for example, the date or other data has not been sent.</p> <p>Also to inform that a change has been applied, for example, on the payment initiation, and that the execution date has been changed.</p>
<b>ACWP</b>	AcceptedWithoutPosting	Payment instruction included in the credit transfer is accepted without being posted to the creditor customer's account.
<b>RCVD</b>	Received	Payment initiation has been received by the receiving agent.
<b>PATC</b>	PartiallyAcceptedTechnicalCorrect	<p>The payment initiation needs multiple authentications, where some but not yet all have been performed. Syntactical and semantical validations are successful.</p> <p><b>Remark:</b> This code is accepted as new code by ISO20022.</p>
<b>PDNG</b>	Pending	Payment initiation or individual transaction included in the payment initiation is pending. Further checks and status update will be performed.
<b>RJCT</b>	Rejected	Payment initiation or individual transaction included in the payment initiation has been rejected.
<b>CANC</b>	Cancelled	Payment initiation has been cancelled before execution

		<b>Remark:</b> This code is accepted as new code by ISO20022.
<b>PART</b>	PartiallyAccepted	<p>A number of transactions have been accepted, whereas another number of transactions have not yet achieved 'accepted' status.</p> <p><b>Remark:</b> This code may be used only in case of bulk payments. It is only used in a situation where all mandated authorisations have been applied, but some payments have been rejected.</p>

## 6.5 Consent status

Code	Description
<b>received</b>	The consent data have been received and are technically correct. The data is not authorised yet.
<b>rejected</b>	The consent data have been rejected e.g. since no successful authorisation has taken place.
<b>partiallyAuthorised</b>	The consent is due to a multi-level authorisation, some but not all mandated authorisations have been performed yet.
<b>valid</b>	The consent is accepted and valid for GET account data calls and others as specified in the consent object.
<b>revokedByPsu</b>	The consent has been revoked by the PSU towards the ASPSP.
<b>expired</b>	The consent expired.
<b>terminatedByTpp</b>	The corresponding TPP has terminated the consent by applying the DELETE method to the consent resource.

## 6.6 Types of authentication

Code	Description
<b>SMS_OTP</b>	An SCA method, where an OTP linked to the transaction to be authorised is sent to the PSU through a SMS channel.

<b>CHIP_OTP</b>	An SCA method, where an OTP is generated by a chip card, e.g. an TOP derived from an EMV cryptogram. To contact the card, the PSU normally needs a (handheld) device. With this device, the PSU either reads the challenging data through a visual interface like flickering or the PSU types in the challenge through the device key pad. The device then derives an OTP from the challenge data and displays the OTP to the PSU.
<b>PHOTO_OTP</b>	An SCA method, where the challenge is a QR code or similar encoded visual data which can be read in by a consumer device or specific mobile app.  The device resp. the specific app than derives an OTP from the visual challenge data and displays the OTP to the PSU.
<b>PUSH_OTP</b>	An OTP is pushed to a dedicated authentication APP and displayed to the PSU.

## 6.7 Balance type

<b>Code</b>	<b>Description</b>
<b>closingBooked</b>	Balance of the account at the end of the pre-agreed account reporting period. It is the sum of the opening booked balance at the beginning of the period and all entries booked to the account during the pre-agreed account reporting period.
<b>expected</b>	Balance composed of booked entries and pending items known at the time of calculation, which projects the end of day balance if everything is booked on the account and no other entry is posted.
<b>openingBooked</b>	Book balance of the account at the beginning of the account reporting period. It always equals the closing book balance from the previous report.
<b>interimAvailable</b>	Available balance calculated in the course of the account 'servicer's business day, at the time specified, and subject to further changes during the business day. The interim balance is calculated on the basis of booked credit and debit items during the calculation time/period specified.

<b>interimBooked</b>	Balance calculated in the course of the account servicer's business day, at the time specified, and subject to further changes during the business day. The interim balance is calculated on the basis of booked credit and debit items during the calculation time/period specified.
<b>forwardAvailable</b>	Forward available balance of money that is at the disposal of the account owner on the date specified.

## 6.8 Charge Bearer

<b>Code</b>	<b>Description</b>
<b>DEBT</b>	All transaction charges are to be borne by the debtor.
<b>CRED</b>	All transaction charges are to be borne by the creditor.
<b>SHAR</b>	In a credit transfer context, means that transaction charges on the sender side are to be borne by the debtor, transaction charges on the receiver side are to be borne by the creditor. In a direct debit context, means that transaction charges on the sender side are to be borne by the creditor, transaction charges on the receiver side are to be borne by the debtor.
<b>SLEV</b>	Charges are to be applied following the rules agreed in the service level and/or scheme.