PSD2-TPP Technical Design

November 2019

CONTENTS

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.

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

Acronym	Definition
	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.
PIISP	Payment Issuer Instrument Services Provider
	Provides users with a payment instrument with which to initiate and process payment transactions.
PSU	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 recurring multiple/bulk 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
		Read transaction details	Not supported
	FCS	Establish consent	Available
		Recover consent information	Available
		Check consent status	Available
		Remove consent	Available
		Fund confirmation	Available
	SCA	SCA by redirected flow	Available
		SCA by decoupled flow	Available

		Embedded SCA	Not supported
	Common processes	Initiate explicit authorisation	Available
		SCA status query	Available
		Obtain authorisation sub-resources	Available
		Update authorisation data	Available
	OAUTH	Obtain access token	Available
		Renew access token	Available

Table 1: CORE services

Service		**Functionality**	**Status**
SVA	**ASPSP DIR.**	List of available ASPSPs (v1 and v2)	Available
	PIS	Payment initiation with list of accounts available for PISP	Available
	AIS	Alert of data available in PUSH mode	Pending

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
provider	URL of the HUB where the service is published.	String	MAN	E.g. www.hub.com
aspsp	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name
payment-product	Payment product to be used. List of supported products: • sepa-credit-transfers • instant-sepa-credit-transfers • target-2-payments • cross-border-credit-transfers	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
Content-Type	Value: application/json	String	MAN	Content-Type: application/json
X-Request-ID	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	**UUID** ^[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
Authorisation	Bearer Token. Obtained in a prior authentication on OAuth2.	String	MAN	E.g. Authorisation: Bearer 2YotnFZFEjr1zCsicMWpAA
Consent-ID	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
PSU-IP-Address	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	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

	submitting this request.			
PSU-IP-Port	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
PSU-Accept	The forwardedAccept 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
PSU-Accept-Charset	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Charset: utf-8
PSU-Accept-Encoding	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Encoding: gzip
PSU-Accept-Language	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Language: es-ES
PSU-User-Agent	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)
PSU-Http-Method	HTTP method used at the PSU – TPP interface, if available. Valid values are: • GET • POST • PUT • PATCH • DELETE	String	OPT	E.g. PSU-Http-Method: POST

PSU-Device-ID	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	**UUID** ^[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
PSU-Geo-Location	The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.	String	OPT	**RFC 2426** ^GEO:[\\d]*.[\\d]*[;][\\d]*.[\\d]*$ E.g. PSU-Geo-Location: GEO:90.023856;25.345963
TPP-Redirect-Preferred	If it equals "true", the TPP prefers a redirect over an embedded SCA approach. 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. 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. **EMBEDDED NOT SUPPORTED IN THIS VERSION**	Boolean	OPT	E.g. TPP-Redirect-Preferred: true

TPP-Redirect-URI	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". It is recommended to always use this header field. **Remark for Future**: This field might be changed to mandatory in the next version of the specification.	String	COND	^.{1,250}$ E.g. TPP-Redirect-URI":"https://tpp.example.es/cb"
TPP-Nok-Redirect-URI	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"
TPP-Explicit-Authorisation-Preferred	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. **Note**: the ASPSP may	Boolean	OPT	E.g. TPP-Explicit-Authorisation-Preferred: false

	not take it into account if it does not support it.			
Digest	Is contained if and only if the "Signature" element is contained in the header of the request. See 6.1Signature for more information.	String	MAN	^.{1,100}$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRlMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
Signature	A signature of the request by the TPP on application level. See 6.1Signature for more information.	String	MAN	See annexes
TPP-Signature-Certificate	The certificate used for signing the request, in base64 encoding.	String	MAN	^.{1,5000}$ E.g. TPP-Signature-Certificate: MIIHgzCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ…….KoZIhvcNAQELBQAwSTELMAkGA1UEBhMCVVMxEzARBgNVBA

Body

The content of the Body is that defined in 5.15SinglePayment.

3.1.1.2 Response

Header

Field	Description	Type	Man.	Format
Location	Location of the created resource (if created)	String	MAN	^.{1,512}$ E.g. Location: /v1/payments/{payment-product}/{payment-id}
X-Request-ID	ID of the request, unique to the call, as determined by	String	MAN	**UUID** ^[0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-

	the initiating party.			[0-9a-fA-F]{4}-[0-9a-fA-F]{12}$ E.g. X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7
ASPSP-SCA-Approach	This data element must be contained, if the SCA Approach is already fixed. Possible values are: • EMBEDDED • DECOUPLED • REDIRECT The OAuth SCA approach will be subsumed by REDIRECT.	String	COND	E.g. ASPSP-SCA-Approach: REDIRECT

Body

Field	Description	Type	Man.	Format
transactionStatus	Status of the transaction. Values defined in annexes in 6.4Transaction status	String	MAN	**ISO 20022** E.g. "transactionStatus": "RCVD"
paymentId	Resource identification of the generated payment initiation resource.	String	MAN	^.{1,36}$ E.g. "paymentId": "1b3ab8e8-0fd5-43d2-946e-d75958b172e7"
transactionFees	Can be used by the ASPSP to transport transaction fees relevant for the underlying payments.	Amount	OPT	E.g. "transactionFees": {…}
transactionFeeIndicator	If equals true, the transaction will involve specific transaction cost as shown by the ASPSP in their public	Boolean	OPT	E.g. "transactionFeeIndicator": true

	price list or as agreed between ASPSP and PSU. If equals false, the transaction will not involve additional specific transaction costs to the PSU.			
scaMethods	This data element might be contained, if SCA is required and if the PSU has a choice between different authentication methods. If this data element is contained, then there is also a hyperlink of type "startAuthorisationWithAuthenticationMethodSelection" contained in the response body. These methods shall be presented towards the PSU for selection by the TPP. **Note:** Only if ASPSP supports selection of the SCA method	List<AuthenticationObject>	COND	E.g. "scaMethods": […]
_links	A list of hyperlinks to be recognised by the TPP. Type of links admitted in this response: • scaRedirect: In case of an SCA Redirect Approach, the ASPSP is transmitting the link to which to redirect the PSU browser.	Links	MAN	E.g. "_links": {…}

	• 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). • startAuthorisation WithAuthentication MethodSelection: The link to the authorisation end-point, where the authorisation sub-resource has to be generated while selecting the authentication method. This link is contained under exactly the same conditions as the data element "scaMethods" • self: link to the resource created by this request. • status: The link to retrieve the transaction status • 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.			
psuMessage	Text to be displayed to the PSU	String	OPT	^.{1,512}$ E.g. "psuMessage": "Information for the PSU"
tppMessages	Message to the TPP	List<Tpp Message >	OPT	E.g. "tppMessages": […]

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 2YotnFZFEjr1zCsicMWpAA
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": {
            "iban": "ES1111111111111111111111"
      },
      "creditorAccount": {
            "iban": "ES2222222222222222222222"
      },
      "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"
            }
      }
}
```


Example of request for decoupled SCA


```
POST https://hub.example.es/asp-name/v1/payments/sepa-credit-transfers
Content-Encoding: gzip
Content-Type: application/json
X-Request-ID: 10391c7e-ad88-49ec-a2ad-00aacb1f6541
Authorization: Bearer 2YotnFZFEjr1zCsicMWpAA
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: false
Date: Sun, 26 Sep 2017 15:02:37 GMT
{
      "instructedAmount": {
            "currency": "EUR",
            "amount": "153.50"
      },
```

```
      "debtorAccount": {
            "iban": "ES1111111111111111111111"
      },
      "creditorAccount": {
            "iban": "ES2222222222222222222222"
      },
      "creditorName": "Name123",
      "remittanceInformationUnstructured": "Additional information"
}
```


Example of response in case of an decoupled SCA approach with implicitly creating an authorisation sub-resource


```
HTTP/1.1 201 Created
X-Request-ID: 10391c7e-ad88-49ec-a2ad-00aacb1f6541
ASPSP-SCA-Approach: DECOUPLED
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": {
            "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"
            }
      },
```


```
      "psuMessage": "Please use your XXX Bank app to authorise the
payment"
}
```

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
provider	URL of the HUB where the service is published.	String	MAN	E.g. hub.example.es
aspsp	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name
payment-product	Payment product to be used. List of supported products: • sepa-credit-transfers • instant-sepa-credit-transfers • target-2-payments • cross-border-credit-transfers	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
Content-Type	Value: application/json	String	MAN	Content-Type: application/json

X-Request-ID	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	**UUID** ^[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
Authorisation	Bearer Token. Obtained in a prior authentication on OAuth2.	String	MAN	E.g. Authorisation: Bearer 2YotnFZFEjr1zCsicMWpAA
Consent-ID	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
PSU-IP-Address	The forwarded IP Address header field consists of the corresponding HTTP request IP Address fieldbetween 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
PSU-IP-Port	The forwarded IP Port header field consists of the corresponding HTTP request IP Port field between PSU and TPP, if	String	OPT	^.{1,5}$ E.g. PSU-IP-Port: 443

	available.			
PSU-Accept	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
PSU-Accept-Charset	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Charset: utf-8
PSU-Accept-Encoding	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Encoding: gzip
PSU-Accept-Language	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Language: es-ES
PSU-User-Agent	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)
PSU-Http-Method	HTTP method used at the PSU – TPP interface, if available. Valid values are: • GET • POST • PUT • PATCH • DELETE	String	OPT	E.g. PSU-Http-Method: POST
PSU-Device-ID	UUID (Universally Unique Identifier) for a device, which is used by the PSU, if available. UUID identifies either a device or a device	String	OPT	**UUID** ^[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}$

	dependant application installation. In case of an installation identification this ID need to be unaltered until removal from device.			E.g. PSU-Device-ID: 5b3ab8e8-0fd5-43d2-946e-d75958b172e7
PSU-Geo-Location	The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.	String	OPT	**RFC 2426** ^GEO:[\\d]*.[\\d]*[;][\\d]*.[\\d]*$ E.g. PSU-Geo-Location: GEO:90.023856;25.345963
TPP-Redirect-Preferred	If it equals "true", the TPP prefers a redirect over an embedded SCA approach. 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. 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. **EMBEDDED NOT SUPPORTED IN THIS VERSION**	Boolean	OPT	E.g. TPP-Redirect-Preferred: true
TPP-Redirect-URI	URI of the TPP, where the transaction flow shall be redirected to after a Redirect. Mandated for the Redirect SCA Approach,	String	COND	^.{1,250}$ E.g. TPP-Redirect-URI":"https://tpp.example.es/cb"

	specifically when TPP-Redirect-Preferred equals "true". It is recommended to always use this header field. **Remark for Future**: This field might be changed to mandatory in the next version of the specification.			
TPP-Nok-Redirect-URI	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"
TPP-Explicit-Authorisation-Preferred	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. **Note**: the ASPSP may not take it into account if it does not support it.	Boolean	OPT	E.g. TPP-Explicit-Authorisation-Preferred: false
Digest	Is contained if and only if the "Signature" element is contained in	String	MAN	^.{1,100}$ E.g. Digest: SHA-256=NzdmZjA4YjY

	the header of the request. See 6.1Signature for more information.			5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRlMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
Signature	A signature of the request by the TPP on application level. See 6.1Signature for more information.	String	MAN	See annexes
TPP-Signature-Certificate	The certificate used for signing the request, in base64 encoding.	String	MAN	^.{1,5000}$ E.g. TPP-Signature-Certificate: MIIHgzCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ……KoZIhvcNAQELBQAwSTELMAkGA1UEBhMCVVMxEzARBgNVBA

Body

The content of the Body is defined in 5.15SinglePayment and the following parameter must also be entered:

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

3.1.2.2 Response

Header

Field	Description	Type	Man.	Format
Location	Location of the created resource (if created)	String	MAN	**Max512Text** E.g. Location: /v1/payments/{payment-product}/{payment-id}

X-Request-ID	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	**UUID** ^[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
ASPSP-SCA-Approach	This data element must be contained, if the SCA Approach is already fixed. Possible values are: • EMBEDDED • DECOUPLED • REDIRECT The OAuth SCA approach will be subsumed by REDIRECT.	String	COND	E.g. ASPSP-SCA-Approach: REDIRECT

Body

Field	Description	Type	Man.	Format
transactionStatus	Status of the transaction. Values defined in annexes in 6.4Transaction status	String	MAN	**ISO 20022** E.g. "transactionStatus": "RCVD"
paymentId	Resource identification of the generated payment initiation resource.	String	MAN	^.{1,36}$ E.g. "paymentId": "1b3ab8e8-0fd5-43d2-946e-d75958b172e7"
transactionFees	Can be used by the ASPSP to transport transaction fees relevant for the underlying payments.	Amount	OPT	E.g. "transactionFees": {…}
transactio	If equals true, the	Boolean	OPT	E.g.

nFeeIndicator	transaction will involve specific transaction cost as shown by the ASPSP in their public price list or as agreed between ASPSP and PSU. If equals false, the transaction will not involve additional specific transaction costs to the PSU.			"transactionFeeIndicator": true
scaMethods	This data element might be contained, if SCA is required and if the PSU has a choice between different authentication methods. If this data element is contained, then there is also a hyperlink of type "startAuthorisationWithAuthenticationMethodSelection" contained in the response body. These methods shall be presented towards the PSU for selection by the TPP. **Note:** Only if ASPSP supports selection of the SCA method	List<AuthenticationObject>	COND	E.g. "scaMethods": […]
_links	A list of hyperlinks to be recognised by the TPP. Type of links admitted in this response: • scaRedirect: In case of an SCA Redirect Approach, the ASPSP is transmitting the	Links	MAN	E.g. "_links": {…}

	link to which to redirect the PSU browser. • 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). • startAuthorisationWithAuthenticationMethodSelection: The link to the authorisation end-point, where the authorisation sub-resource has to be generated while selecting the authentication method. This link is contained under exactly the same conditions as the data element "scaMethods" • self: link to the resource created by this request. • status: The link to retrieve the transaction status • 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.			
psuMessage	Text to be displayed to the PSU	String	OPT	^.{1,512}$ E.g. "psuMessage": "Information for the PSU"
tppMessages	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 2YotnFZFEjr1zCsicMWpAA
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"
      },
      "creditorAccount": {
            "iban": "ES2222222222222222222222"
      },
      "creditorName": "Name123",
      "remittanceInformationUnstructured": "Additional information",
      "requestedExecutionDate": "2019-01-12"
}
```

3.1.3 Payment initiation for bulk payments

Message sent by the TPP to the ASPSP through the Hub to create a bulk payment initiation.

3.1.3.1 Request

Endpoint

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

Path

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

aspsp	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name
payment-product	Payment product to be used. List of supported products: • sepa-credit-transfers • instant-sepa-credit-transfers • target-2-payments • cross-border-credit-transfers	String	MAN	E.g. {provider}/{aspsp-name}/v1/bulk-payments/sepa-credit-transfers/

Query parameters

No additional parameters are specified for this request.

Header

Field	Description	Type	Man.	Format
Content-Type	Value: application/json	String	MAN	Content-Type: application/json
X-Request-ID	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	**UUID** ^[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
Authorisation	Bearer Token. Obtained in a prior authentication on OAuth2.	String	MAN	E.g. Authorisation: Bearer 2YotnFZFEjr1zCsicMWpAA
Consent-ID	This data element may be contained, if the payment initiation transaction is part of a session, i.e. combined	String	OPT	^.{1,36}$ E.g. Consent-ID: 7890-asdf-4321

	AIS/PIS service. This then contains the "consentId" of the related AIS consent, which was performed prior to this payment initiation.			
PSU-IP-Address	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	MAT	^[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
PSU-IP-Port	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
PSU-Accept	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
PSU-Accept-Charset	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Charset: utf-8
PSU-Accept-Encoding	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Encoding: gzip
PSU-Accept-Language	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Language: es-ES
PSU-User-Agent	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)
PSU-Http-Method	HTTP method used at the PSU – TPP interface, if available. Valid values are: • GET • POST • PUT • PATCH • DELETE	String	OPT	E.g. PSU-Http-Method: POST
PSU-Device-ID	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	**UUID** ^[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
PSU-Geo-Location	The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.	String	OPT	**RFC 2426** ^GEO:[\\d]*.[\\d]*[;][\\d]*.[\\d]*$ E.g. PSU-Geo-Location: GEO:90.023856;25.345963
TPP-Redirect-Preferred	If it equals "true", the TPP prefers a redirect over an embedded SCA approach. If it equals "false", the TPP prefers not to be redirected for SCA. The ASPSP will then choose	Boolean	OPT	E.g. TPP-Redirect-Preferred: true

	between the Embedded or the Decoupled SCA approach, depending on the choice of the SCA procedure by the TPP/PSU. 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. **EMBEDDED NOT SUPPORTED IN THIS VERSION**			
TPP-Redirect-URI	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". It is recommended to always use this header field. **Remark for Future**: This field might be changed to mandatory in the next version of the specification.	String	COND	^.{1,250}$ E.g. TPP-Redirect-URI":"https://tpp.example.es/cb"
TPP-Nok-Redirect-URI	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"
TPP-Explicit-Authorisation	If it equals "true", the TPP prefers to start the	Boolean	OPT	E.g. TPP-Explicit-Authorisation-

-Preferred	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. **Note**: the ASPSP may not take it into account if it does not support it.			Preferred: false
Digest	Is contained if and only if the "Signature" element is contained in the header of the request. See 6.1Signature for more information.	String	MAN	^.{1,100}$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRlMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
Signature	A signature of the request by the TPP on application level. See 6.1Signature for more information.	String	MAN	See annexes
TPP-Signature-Certificate	The certificate used for signing the request, in base64 encoding.	String	MAN	^.{1,5000}$ E.g. TPP-Signature-Certificate: MIIHgzCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ……..KoZIhvcNAQELBQAwSTELMAkGA1UEBhMCVVMxEzARBgNVBA

Body

Field	Description	Type	Man.	Format
batchBookingPreferred	If this element equals true, the PSU prefers only one booking entry. If this element equals false, the PSU prefers individual booking of all contained individual transactions. The ASPSP will follow this preference according to contracts agreed on with the PSU.	Boolean	OPT	E.g. "batchBookingPreferred":true
debtorAccount	The debtor's account.	Account Reference	MAN	E.g. "debtorAccount": {"iban":"ES1111111111111111111111"}
requestedExecutionDate	If contained, the payments contained in this bulk will be executed at the addressed date. This field may not be used together with the field requestedExecutionTime.	String	OPT	**ISODate** E.g. "requestedExecutionDate":"2018-05-17"
requestedExecutionTime	If contained, the payments contained in this bulk will be executed at the addressed Date/Time. This field may not be used together with the field requestedExecutionDate.	String	OPT	**ISODateTime**
payments	The Bulk Entry Type is a type which follows the JSON formats for the supported products for single payments. • debtorAccount • requestedExecutionDate • requestedExecution	Array<SinglePayment>	MAN	E.g. "payments":[…]

	Time These three data elements may not be contained in any bulk entry.			

3.1.3.2 Response

Header

Field	Description	Type	Man.	Format
Location	Location of the created resource (if created)	String	MAN	^.{1,512}$ E.g. Location: /v1/bulk-payments/{payment-product}/{payment-id}
X-Request-ID	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	**UUID** ^[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
ASPSP-SCA-Approach	This data element must be contained, if the SCA Approach is already fixed. Possible values are: • EMBEDDED • DECOUPLED • REDIRECT The OAuth SCA approach will be subsumed by REDIRECT.	String	COND	E.g. ASPSP-SCA-Approach: REDIRECT

Body

Field	Description	Type	Man.	Format

transactionStatus	Status of the transaction. Values defined in annexes in 6.4Transaction status	String	MAN	**ISO 20022** E.g. "transactionStatus": "RCVD"
paymentId	Resource identification of the generated payment initiation resource.	String	MAN	^.{1,36}$ E.g. "paymentId": "1b3ab8e8-0fd5-43d2-946e-d75958b172e7"
transactionFees	Can be used by the ASPSP to transport transaction fees relevant for the underlying payments.	Amount	OPT	E.g. "transactionFees": {…}
transactionFeeIndicator	If equals true, the transaction will involve specific transaction cost as shown by the ASPSP in their public price list or as agreed between ASPSP and PSU. If equals false, the transaction will not involve additional specific transaction costs to the PSU.	Boolean	OPT	E.g. "transactionFeeIndicator": true
scaMethods	This data element might be contained, if SCA is required and if the PSU has a choice between different authentication methods. If this data element is contained, then there is also a hyperlink of type "startAuthorisationWithAuthenticationMethodSelection" contained in the response body. These methods shall	List<AuthenticationObject>	COND	E.g. "scaMethods": […]

	be presented towards the PSU for selection by the TPP. **Note:** Only if ASPSP supports selection of the SCA method			
_links	A list of hyperlinks to be recognised by the TPP. Type of links admitted in this response: • scaRedirect: In case of an SCA Redirect Approach, the ASPSP is transmitting the link to which to redirect the PSU browser. • 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). • startAuthorisationWithAuthenticationMethodSelection: The link to the authorisation end-point, where the authorisation sub-resource has to be	Links	MAN	E.g. "_links": {…}

	generated while selecting the authentication method. This link is contained under exactly the same conditions as the data element "scaMethods" • self: link to the resource created by this request. • status: The link to retrieve the transaction status • 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.			
psuMessage	Text to be displayed to the PSU	String	OPT	^.{1,512}$ E.g. "psuMessage": "Information for the PSU"
tppMessages	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/bulk-payments/sepa-credit-transfers
Content-Encoding: gzip
```

```
Content-Type: application/json
X-Request-ID: 10391c7e-ad88-49ec-a2ad-00aacb1f6541
Authorization: Bearer 2YotnFZFEjr1zCsicMWpAA
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
{
      "batchBookingPreferred": true,
      "debtorAccount": {
            "iban": "ES1111111111111111111111"
      },
      "requestedExecutionDate": "2018-12-21",
      "payments":
      [
      {
            "instructedAmount": {
                  "currency": "EUR",
                  "amount": "153.50"
            },
            "creditorAccount": {
                  "iban": "ES2222222222222222222222"
            },
            "creditorName": "Name123",
            "remittanceInformationUnstructured":"Additional
      information"
      },
      {
            "instructedAmount": {
                  "currency": "EUR",
                  "amount": "20.30"
            },
            "creditorAccount": {
                  "iban": "ES3333333333333333333333"
```

```
            },
            "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/bulk-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/bulk-payments/sepa-credit-transfers/123-
            qwe-456",
            "status": {
                  "href": "/v1/bulk-payments/sepa-credit-transfers/123-
            qwe-456/status"
            },
            "scaStatus": {
                  "href": "/v1/bulk-payments/sepa-credit-transfers/123-
            qwe-456/authorisations/123auth456"
            }
      }
}
```

Example of request for decoupled SCA

```
POST https://hub.example.es/asp-name/v1/bulk-payments/sepa-credit-transfers
Content-Encoding: gzip
Content-Type: application/json
X-Request-ID: 10391c7e-ad88-49ec-a2ad-00aacb1f6541
Authorization: Bearer 2YotnFZFEjr1zCsicMWpAA
PSU-IP-Address: 192.168.8.16
TPP-Redirect-Preferred: false
Date: Sun, 26 Sep 2017 15:02:37 GMT
{
      "batchBookingPreferred": true,
      "debtorAccount": {
            "iban": "ES1111111111111111111111"
      },
      "requestedExecutionDate": "2018-12-21",
      "payments":
      [
      {
            "instructedAmount": {
                  "currency": "EUR",
                  "amount": "153.50"
            },
            "creditorAccount": {
                  "iban": "ES2222222222222222222222"
            },
            "creditorName": "Name123",
            "remittanceInformationUnstructured":"Additional
      information"
      },
      {
            "instructedAmount": {
                  "currency": "EUR",
                  "amount": "20.30"
```

```
            },
            "creditorAccount": {
                  "iban": "ES3333333333333333333333"
            },
            "creditorName": "Name123",
            "remittanceInformationUnstructured":"Additional
      information"
      }
      ]
}
```


Example of response in case of an decoupled SCA approach with implicitly creating an authorisation sub-resource


```
HTTP/1.1 201 Created
X-Request-ID: 10391c7e-ad88-49ec-a2ad-00aacb1f6541
ASPSP-SCA-Approach: DECOUPLED
Date: Sun, 26 Sep 2017 15:02:43 GMT
Location: /v1/bulk-payments/sepa-credit-transfers/123-qwe-456
Content-Type: application/json
{
      "transactionStatus": "RCVD",
      "paymentId": "123-qwe-456",
      "_links": {
            "self": {
                  "href": "/v1/bulk-payments/sepa-credit-transfers/123-
            qwe-456"
            },
            "status": {
                  "href": "/v1/bulk-payments/sepa-credit-transfers/123-
            qwe-456/status"
            },
            "scaStatus": {
                  "href": "/v1/bulk-payments/sepa-credit-transfers/123-
            qwe-456/authorisations/123auth456"
            }
      },
```


```
      "psuMessage": "Please use your XXX Bank app to authorise the
payment"
}
```

3.1.4 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.

3.1.4.1 Request

Endpoint

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

Path

Field	Description	Type	Man.	Format
provider	URL of the HUB where the service is published.	String	MAN	E.g. hub.example.es
aspsp	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name
payment-product	Payment product to be used. List of supported products: • sepa-credit-transfers • instant-sepa-credit-transfers • target-2-payments • cross-border-credit-transfers	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
Content-Type	Value: application/json	String	MAN	Content-Type: application/json
X-Request-ID	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	**UUID** ^[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
Authorisation	Bearer Token. Obtained in a prior authentication	String	MAN	E.g. Authorisation:

	on OAuth2.			Bearer 2YotnFZFEjr1zCsicMWpAA
Consent-ID	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
PSU-IP-Address	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
PSU-IP-Port	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
PSU-Accept	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
PSU-Accept-Charset	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Charset: utf-8
PSU-Accept-Encoding	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Encoding: gzip

PSU-Accept-Language	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Language: es-ES
PSU-User-Agent	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)
PSU-Http-Method	HTTP method used at the PSU – TPP interface, if available. Valid values are: • GET • POST • PUT • PATCH • DELETE	String	OPT	E.g. PSU-Http-Method: POST
PSU-Device-ID	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	**UUID** ^[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
PSU-Geo-Location	The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.	String	OPT	**RFC 2426** ^GEO:[\\d]*.[\\d]*[;][\\d]*.[\\d]*$ E.g. PSU-Geo-Location:

				GEO:90.023856;25.345963
TPP-Redirect-Preferred	If it equals "true", the TPP prefers a redirect over an embedded SCA approach. 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. 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. **EMBEDDED NOT SUPPORTED IN THIS VERSION**	Boolean	OPT	E.g. TPP-Redirect-Preferred: true
TPP-Redirect-URI	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". It is recommended to always use this header field. **Remark for Future**: This field might be changed to mandatory in the next version of the specification.	String	COND	^.{1,250}$ E.g. TPP-Redirect-URI":"https://tpp.example.es/cb"
TPP-Nok-	If this URI is contained, the TPP is asking to	String	OPT	^.{1,250}$

Redirect-URI	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.			E.g. TPP-Nok-Redirect-URI":"https://tpp.example.es/cb/nok"
TPP-Explicit-Authorisation-Preferred	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. **Note**: the ASPSP may not take it into account if it does not support it.	Boolean	OPT	E.g. TPP-Explicit-Authorisation-Preferred: false
Digest	Is contained if and only if the "Signature" element is contained in the header of the request. See 6.1Signature for more information.	String	OPT	^.{1,100}$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRlMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
Signature	A signature of the request by the TPP on application level. See 6.1Signature for more information.	String	MAN	See annexes

TPP-Signature-Certificate	The certificate used for signing the request, in base64 encoding.	String	MAN	^.{1,5000}$ E.g. TPP-Signature-Certificate: MIIHgzCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ……..KoZIhvcNAQELBQAwSTELMAkGA1UEBhMCVVMxEzARBgNVBA

Body

The content of the body is defined in 5.15SinglePayment together with the following definitions:

Field	Description	Type	Man.	Format
startDate	The first applicable day of execution starting from this date is the first payment.	String	MAN	**ISODate** E.g. "startDate":"2018-12-20"
executionRule	Supported values: • following • preceding 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. ASPSP might reject the request due to the communicated value, if rules in Online-Banking are not supporting this execution rule.	String	OPT	E.g. "executionRule":"following"
endDate	The last applicable day	String	OPT	**ISODate**

	of execution If not given, it is an infinite standing order.			E.g. "endDate":"2019-01-20"
frequency	The frequency of the recurring payment resulting from this standing order. Permitted values: • Daily • Weekly • EveryTwoWeeks • Monthly • EveryTwoMonths • Quarterly • SemiAnnual • Annual	String	MAN	**ISO 20022 EventFrequency7Code** E.g. "frequency":"Monthly"
dayOfExecution	"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"

3.1.4.2 Response

Header

Field	Description	Type	Man.	Format
Location	Location of the created resource (if created)	String	MAN	^.{1,512}$ E.g. Location: /v1/periodic-payments/{payment-product}/{payment-id}
X-Request-	ID of the request,	String	MAN	**UUID**

ID	unique to the call, as determined by the initiating party.			^[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
ASPSP-SCA-Approach	This data element must be contained, if the SCA Approach is already fixed. Possible values are: • EMBEDDED • DECOUPLED • REDIRECT The OAuth SCA approach will be subsumed by REDIRECT.	String	COND	E.g. ASPSP-SCA-Approach: REDIRECT

Body

Field	Description	Type	Man.	Format
transactionStatus	Status of the transaction. Values defined in annexes in 6.4Transaction status	String	MAN	**ISO 20022** E.g. "transactionStatus": "RCVD"
paymentId	Resource identification of the generated payment initiation resource.	String	MAN	^.{1,36}$ E.g. "paymentId": "1b3ab8e8-0fd5-43d2-946e-d75958b172e7"
transactionFees	Can be used by the ASPSP to transport transaction fees relevant for the underlying payments.	Amount	OPT	E.g. "transactionFees": {…}
transactionFeeIndica	If equals true, the transaction will involve specific transaction	Boolean	OPT	E.g. "transactionFeeIndicat

tor	cost as shown by the ASPSP in their public price list or as agreed between ASPSP and PSU. If equals false, the transaction will not involve additional specific transaction costs to the PSU.			or": true
scaMethods	This data element might be contained, if SCA is required and if the PSU has a choice between different authentication methods. If this data element is contained, then there is also a hyperlink of type "startAuthorisationWithAuthenticationMethodSelection" contained in the response body. These methods shall be presented towards the PSU for selection by the TPP. **Note:** Only if ASPSP supports selection of the SCA method	List<AuthenticationObject>	COND	E.g. "scaMethods": […]
_links	A list of hyperlinks to be recognised by the TPP. Type of links admitted in this response: • scaRedirect: In case of an SCA Redirect Approach, the ASPSP is transmitting the link to which to redirect the PSU	Links	MAN	E.g. "_links": {…}

	browser. • 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). • startAuthorisationWithAuthenticationMethodSelection: The link to the authorisation end-point, where the authorisation sub-resource has to be generated while selecting the authentication method. This link is contained under exactly the same conditions as the data element "scaMethods" • self: link to the resource created by this request. • status: The link to retrieve the transaction status • 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.			
psuMessage	Text to be displayed to the PSU	String	OPT	^.{1,512}$ E.g. "psuMessage": "Information for the PSU"
tppMessages	Message to the TPP	List<TppMessage>	OPT	E.g. "tppMessages": […]

3.1.4.3 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 2YotnFZFEjr1zCsicMWpAA
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": "ES2222222222222222222222"
```

```
        },
        "creditorName": "Name123",
        "remittanceInformationUnstructured":"Additional information",
        "startDate": "2018-03-01",
        "executionRule": "preceeding",
        "frequency": "Monthly",
        "dayOfExecution": "01"
}
```

3.1.5 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.

3.1.5.1 Request

Endpoint

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

Path

Field	Description	Type	Man.	Format
provider	URL of the HUB where the service is published.	String	MAN	E.g. www.hub.com
aspsp	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name
payment-service	Possible values are: • payments • bulk-payments • periodic-payments	String	MAN	E.g. {provider}/{aspsp}/v1/payments
payment-product	Payment product to be used. List of supported	String	MAN	E.g. {provider}/{a

	products: • sepa-credit-transfers • instant-sepa-credit-transfers • target-2-payments • cross-border-credit-transfers			spsp}/v1/payments/sepa-credit-transfers/
paymentId	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
X-Request-ID	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	**UUID** ^[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
Authorisation	Bearer Token. Obtained in a prior authentication on OAuth2.	String	MAN	E.g. Authorisation: Bearer 2YotnFZFEjr1zCsicMWpAA
Accept	Response format supported. Supported values:	String	OPT	^.{1,50}$ E.g. Accept: application/json

	• application/json			
PSU-IP-Address	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
PSU-IP-Port	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
PSU-Accept	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
PSU-Accept-Charset	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Charset: utf-8
PSU-Accept-Encoding	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Encoding: gzip
PSU-Accept-Language	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Language: es-ES
PSU-User-Agent	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)

PSU-Http-Method	HTTP method used at the PSU – TPP interface, if available. Valid values are: • GET • POST • PUT • PATCH • DELETE	String	OPT	E.g. PSU-Http-Method: GET
PSU-Device-ID	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	**UUID** ^[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
PSU-Geo-Location	The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.	String	OPT	**RFC 2426** ^GEO:[\\d]*.[\\d]*[;][\\d]*.[\\d]*$ E.g. PSU-Geo-Location: GEO:90.023856;25.345963
Digest	Is contained if and only if the "Signature" element is contained in the header of the request. See 6.1Signature for more information.	String	MAN	^.{1,100}$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRlMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
Signature	A signature of the request by the TPP on application level. See 6.1Signature for	String	MAN	See annexes

	more information.			
TPP-Signature-Certificate	The certificate used for signing the request, in base64 encoding.	String	MAN	^.{1,5000}$ E.g. TPP-Signature-Certificate: MIIHgzCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ……KoZIhvcNAQELBQAwSTELMAkGA1UEBhMCVVMxEzARBgNVBA

Body

No additional data are specified.

3.1.5.2 Response

Header

Field	Description	Type	Man.	Format
X-Request-ID	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	**UUID** ^[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
transactionStatus	Status of the payment transaction. Values defined in 6.4Transaction status	String	MAN	**ISO20022** E.g. "transactionStatus":"ACCP"
fundsAvailable	This data element is contained, if supported by the ASPSP, if a funds	Boolean	COND	E.g. "fundsAvailable":

	check has been performed and if the transactionStatus is: • ATCT • ACWC • ACCP			true
psuMessage	Text to show to the PSU.	String	OPT	^.{1,512}$ E.g. "psuMessage":"Information for PSU"
tppMessages	Message for the TPP	List<TppMessage>	OPT	E.g. "tppMessages":[…]

3.1.5.3 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 2YotnFZFEjr1zCsicMWpAA
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
{
      "transactionStatus": "ACCP",
      "fundsAvailable": true
}
```

3.1.6 Get payment initiation

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

3.1.6.1 Request

Endpoint

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

Path

Field	Description	Type	Man.	Format
provider	URL of the HUB where the service is published.	String	MAN	E.g. www.hub.com
aspsp	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name
payment-service	Possible values are: • payments • bulk-payments • periodic-payments	String	MAN	E.g. {provider}/{aspsp}/v1/payments
payment-product	Payment product to be used. List of supported products: • sepa-credit-transfers • instant-sepa-credit-	String	MAN	E.g. {provider}/{aspsp}/v1/payments/sepa-credit-

	transfers • target-2-payments • cross-border-credit-transfers			transfers/
paymentId	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
X-Request-ID	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	**UUID** ^[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
Authorisation	Bearer Token. Obtained in a prior authentication on OAuth2.	String	MAN	E.g. Authorisation: Bearer 2YotnFZFEjr1zCsicMWpAA
PSU-IP-Address	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	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

	used by the TPP when submitting this request.			
PSU-IP-Port	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
PSU-Accept	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
PSU-Accept-Charset	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Charset: utf-8
PSU-Accept-Encoding	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Encoding: gzip
PSU-Accept-Language	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Language: es-ES
PSU-User-Agent	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)
PSU-Http-Method	HTTP method used at the PSU – TPP interface, if available. Valid values are: • GET • POST • PUT • PATCH	String	OPT	E.g. PSU-Http-Method: GET

	• DELETE			
PSU-Device-ID	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	**UUID** ^[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
PSU-Geo-Location	The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.	String	OPT	**RFC 2426** ^GEO:[\\d]*.[\\d]*[;][\\d]*.[\\d]*$ E.g. PSU-Geo-Location: GEO:90.023856;25.345963
Digest	Is contained if and only if the "Signature" element is contained in the header of the request. See 6.1Signature for more information.	String	MAN	^.{1,100}$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRlMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
Signature	A signature of the request by the TPP on application level. See 6.1Signature for more information.	String	MAN	See annexes
TPP-Signature-Certificate	The certificate used for signing the request, in base64 encoding.	String	MAN	^.{1,5000}$ E.g. TPP-Signature-Certificate: MIIHgzCCBmugAwI

				BAgIIZzZvBQlt0Uc wDQYJ…….KoZI hvcNAQELBQAwSTE LMAkGA1UEBhMCV VMxEzARBgNVBA

Body

No additional data are specified.

3.1.6.2 Response

Header

Field	Description	Type	Man.	Format
X-Request-ID	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	**UUID** ^[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

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

- 3.1.1Payment initiation
- 3.1.2Payment initiation for future dated payments
- 3.1.3Payment initiation for bulk payments
- 3.1.4Initiation for standing orders for recurring/periodic payments

Plus the following:

Field	Description	Type	Man.	Format
transactionStatus	Status of the transaction. Values defined in annexes. Short code.	String	MAN	**ISO 20022** E.g. "transactionStatus": "ACCP"
psuMessag	Text to show to the	String	OPT	^.{1,512}$

e	PSU.			E.g. "psuMessage": "Information for the PSU"
tppMessages	Message for the TPP	List<TppMessage>	OPT	E.g. "tppMessage": […]

3.1.6.3 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 2YotnFZFEjr1zCsicMWpAA
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
{
      "instructedAmount": {
            "currency": "EUR",
            "amount": "153.50"
```

```
        },
        "debtorAccount": {
              "iban": "ES1111111111111111111111"
        },
        "creditorAccount": {
              "iban": "ES2222222222222222222222"
        },
        "creditorName": "Name123",
        "remittanceInformationUnstructured": "Additional information",
        "transactionStatus": "ACCP"
}
```


3.1.7 Payment cancellation

This request is send 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.

3.1.7.1 Request

Endpoint

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

Path

Field	Description	Type	Man.	Format
provider	URL of the ASPSP where the service is published.	String	MAN	E.g. www.hub.com
aspsp	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name
payment-service	Possible values are: • payments • bulk-payments	String	MAN	E.g. {provider}/v1/payments

	• periodic-payments			
paymentId	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
X-Request-ID	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	**UUID** ^[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
Authorisation	Bearer Token. Obtained in a prior authentication on OAuth2.	String	MAN	E.g. Authorisation: Bearer 2YotnFZFEjr1zCsicMWpAA
PSU-IP-Address	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	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

	this request.			
PSU-IP-Port	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
PSU-Accept	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
PSU-Accept-Charset	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Charset: utf-8
PSU-Accept-Encoding	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Encoding: gzip
PSU-Accept-Language	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Language: es-ES
PSU-User-Agent	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)
PSU-Http-Method	HTTP method used at the PSU – TPP interface, if available. Valid values are: • GET • POST • PUT • PATCH • DELETE	String	OPT	E.g. PSU-Http-Method: DELETE

PSU-Device-ID	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	**UUID** ^[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
PSU-Geo-Location	The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.	String	OPT	**RFC 2426** ^GEO:[\\d]*.[\\d]*[;][\\d]*.[\\d]*$ E.g. PSU-Geo-Location: GEO:90.023856;25.345963
Digest	Is contained if and only if the "Signature" element is contained in the header of the request. See 6.1Signature for more information.	String	MAN	^.{1,100}$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRlMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
Signature	A signature of the request by the TPP on application level. See 6.1Signature for more information.	String	MAN	See annexes
TPP-Signature-Certificate	The certificate used for signing the request, in base64 encoding.	String	MAN	^.{1,5000}$ E.g. TPP-Signature-Certificate: MIIHgzCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ…….KoZIhvcNAQELBQAwSTELMAkGA1UEBhMCVVMxEzARBgNVBA

Body

No additional data are specified.

3.1.7.2 Response

Header

Field	Description	Type	Man.	Format
X-Request-ID	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	**UUID** ^[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
transactionStatus	Status of the transaction. Values defined in annexes in 6.4Transaction status	String	MAN	**ISO 20022** E.g. "transactionStatus": "CANC"
scaMethods	This data element might be contained, if SCA is required and if the PSU has a choice between different authentication methods. If this data element is contained, then there is also a hyperlink of type "startAuthorisationWithAuthenticationMethodSelection" contained in the response body. These methods shall be presented towards	List<AuthenticationObject>	COND	E.g. "scaMethods": […]

	the PSU for selection by the TPP. **Note:** Only if ASPSP supports selection of the SCA method			
_links	A list of hyperlinks to be recognised by the TPP. Type of links admitted in this response: • 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). • startAuthorisationWithAuthenticationMethodSelection: The link to the authorisation end-point, where the authorisation sub-resource has to be generated while selecting the authentication method. This link is contained under exactly the same conditions as the data element	Links	COND	E.g. "_links": {…}

	"scaMethods"			
psuMessage	Text to show to the PSU.	String	OPT	^.{1,512}$ E.g. "psuMessage": "Information for the PSU"
tppMessages	Message for the TPP	List<TppMessage>	OPT	E.g. "tppMessages": […]

3.1.7.3 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 2YotnFZFEjr1zCsicMWpAA
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
```

Example in case an authorisation of the cancellation is needed by the PSU

```
HTTP/1.1 200 Ok
X-Request-ID: 0ee25bf4-6ff1-11e8-adc0-fa7ae01bbebc
Date: Sun, 26 Sep 2017 15:02:47 GMT
{
      "transactionStatus": "ACTC",
      "_links": {
            "startAuthorisation": {
                  "href":  "/v1/payments/sepa-credit-transfers/123-qwe-
            456/cancellation-authorisations"
            }
      }
}
```

3.1.8 Multilevel SCA for payments

In the case of the SCA flow by redirection, the TPP may redirect to PSU, which initiates the transaction to the scaRedirect link for applying SCA.

In the case of SCA decoupled flow, the TPP will receive in the psuMessage field the message it must show to the PSU and direct to the PSU's bank app.

In addition, the ASPSP will return a message in the psuMessage field to indicate to the PSU that the transaction requires SCA by more users.

3.2 AIS: Establish account information consent service

3.2.1 Characteristics of the consent

3.2.1.1 Consent model

Model	Description
Detailed consent	**Request consent for the accounts indicated** Create a consent, which the ASPSP must store, requesting access for the accounts indicated and with the requested access. If there was already consent, this consent will expire and the new agreement will enter into force when authorised by the PSU. The accounts for which consent is requested to access the

	"balances" and/or "transactions" are also assumed to have the "accounts" access type.
Global consent	**Request consent for the list of available accounts** 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". 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". It is a once-time-only consent to obtain the list of available accounts. It will not give details of the accounts. **Request consent to obtain access to all the accounts for all the PSD2 AIS services** Request access for all the PSU accounts available on all the PSD2 AIS services. The accounts are not indicated by the TPP. 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". Through the HUB, the TPP may recover this information managed between ASPSP and PSU, making a request to recover consent information.
Bank-offered consent	**Request consent without indicating the accounts** 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. 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. 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. Through the HUB, the TPP may recover this information managed between ASPSP and PSU, making a request to recover consent

	information.

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 my 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
provider	URL of the HUB where the service is published.	String	MAN	E.g. www.hub.com
aspsp	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
X-Request-ID	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	**UUID** ^[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
Authorisation	Bearer Token. Obtained in a prior authentication on OAuth2.	String	MAN	E.g. Authorisation: Bearer 2YotnFZFEjr1zCsicMWpAA
PSU-IP-Address	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	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

	Address used by the TPP when submitting this request.			
PSU-IP-Port	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
PSU-Accept	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
PSU-Accept-Charset	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Charset: utf-8
PSU-Accept-Encoding	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Encoding: gzip
PSU-Accept-Language	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Language: es-ES
PSU-User-Agent	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)
PSU-Http-Method	HTTP method used at the PSU – TPP interface, if available. Valid values are: • GET • POST • PUT • PATCH	String	OPT	E.g. PSU-Http-Method: POST

	• DELETE			
PSU-Device-ID	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	**UUID** ^[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
PSU-Geo-Location	The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.	String	OPT	**RFC 2426** ^GEO:[\\d]*.[\\d]*[;][\\d]*.[\\d]*$ E.g. PSU-Geo-Location: GEO:90.023856;25.345963
TPP-Redirect-Preferred	If it equals "true", the TPP prefers a redirect over an embedded SCA approach. 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. If the parameter is not used, the ASPSP will choose the SCA approach to be applied depending on the SCA method chosen by the	Boolean	OPT	E.g. TPP-Redirect-Preferred: true

	TPP/PSU. **EMBEDDED NOT SUPPORTED IN THIS VERSION**			
TPP-Redirect-URI	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". It is recommended to always use this header field. **Remark for Future**: This field might be changed to mandatory in the next version of the specification.	String	COND	^.{1,250}$ E.g. TPP-Redirect-URI":"https://tpp.example.es/cb"
TPP-Nok-Redirect-URI	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"
TPP-Explicit-Authorisation-Preferred	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	Boolean	OPT	E.g. TPP-Explicit-Authorisation-Preferred: false

	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. **Note**: the ASPSP may not take it into account if it does not support it.			
Digest	Is contained if and only if the "Signature" element is contained in the header of the request. See 6.1Signature for more information.	String	MAN	^.{1,100}$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRlMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
Signature	A signature of the request by the TPP on application level. See 6.1Signature for more information.	String	MAN	See annexes
TPP-Signature-Certificate	The certificate used for signing the request, in base64 encoding.	String	MAN	^.{1,5000}$ E.g. TPP-Signature-Certificate: MIIHgzCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ……….KoZIhvcNAQELBQAwSTELMAkGA1UEBhMCVVMxEzARBgNVBA

Body

Field	Description	Type	Man.	Format
access	Accesses requested to the services. Only the sub-attributes with "accounts", "balances" and "transactions" tags are accepted. In addition, the ASPSP	Account Access	MAN	E.g. "access":{…}

	may support the attributes "availableAccounts", "availableAccountsWithBalances" or "allPsd2" with the value "allAccounts".			
recurringIndicator	Possible values: • true: recurring access to the account. • false: once-only access.	Boolean	MAN	E.g. "recurringIndicator": true
validUntil	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 When consent is recovered, the maximum possible date will be adjusted.	String	MAN	**ISODate** E.g. "validUntil":"2018-05-17"
frequencyPerDay	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
combinedServiceIndicator	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
Location	Location of the created resource (if created)	String	MAN	**Max512Text** E.g. Location: /v1/consents/{consentId}
X-Request-ID	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	**UUID** ^[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
ASPSP-SCA-Approach	This data element must be contained, if the SCA Approach is already fixed. Possible values are: • EMBEDDED • DECOUPLED • REDIRECT The OAuth SCA approach will be subsumed by REDIRECT.	String	COND	E.g. ASPSP-SCA-Approach: REDIRECT

Body

Field	Description	Type	Man.	Format
consentStatus	Consent authentication status. See values defined in 6.5Consent status	String	MAN	E.g. "consentStatus": "received"
consentId	Identifier of the resource that references the consent. It must be contained if a consent	String	MAN	^.{1,36}$ E.g. "consentId":"123-

	was generated.			QWE-456"
scaMethods	This data element might be contained, if SCA is required and if the PSU has a choice between different authentication methods. If this data element is contained, then there is also a hyperlink of type "startAuthorisationWithAuthenticationMethodSelection" contained in the response body. These methods shall be presented towards the PSU for selection by the TPP. **Note:** Only if ASPSP supports selection of the SCA method	List<AuthenticationObject>	COND	E.g. "scaMethods": […]
_links	A list of hyperlinks to be recognised by the TPP. Type of links admitted in this response: • scaRedirect: In case of an SCA Redirect Approach, the ASPSP is transmitting the link to which to redirect the PSU browser. • 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	Links	MAN	E.g. "_links": {…}

	selected, no PSU identification nor PSU authentication data to be uploaded). • startAuthorisationWithAuthenticationMethodSelection: The link to the authorisation end-point, where the authorisation sub-resource has to be generated while selecting the authentication method. This link is contained under exactly the same conditions as the data element "scaMethods" • self: link to the resource created by this request. • status: The link to retrieve the transaction status • 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.			
psuMessage	Text to be displayed to the PSU	String	OPT	^.{1,512}$ E.g. "psuMessage": "Information for the

				PSU"
tppMessages	Message to the TPP	List<TppMessage>	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 2YotnFZFEjr1zCsicMWpAA
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
{
      "access": {
            "balances": [
            {
                  "iban": "ES1111111111111111111111"
            },
            {
                  "iban": "ES2222222222222222222222",
                  "currency": "USD"
```

```
            },
            {
                  "iban": "ES3333333333333333333333"
            }
            ],
            "transactions": [
            {
                  "iban": "ES1111111111111111111111"
            }
            ]
      },
      "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 2YotnFZFEjr1zCsicMWpAA
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
```

```
{
      "access": {
            "availableAccounts": "allAccounts"
      },
      "recurringIndicator": false,
      "validUntil": "2018-05-17",
      "frequencyPerDay": 1
}
```


Example of consent request without indicating the accounts and decoupled SCA


```
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 2YotnFZFEjr1zCsicMWpAA
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: false
Date: Sun, 26 Sep 2017 15:02:37 GMT
{
      "access": {
            "balances": [],
            "transactions": []
      },
      "recurringIndicator": true,
```

```
      "validUntil": "2018-05-17",
      "frequencyPerDay": 4
}
```


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


Example of response in the case of decoupled SCA


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

```
ASPSP-SCA-Approach: DECOUPLED
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": {
            "self": {
                  "href": "/v1/consents/123-asdf-456",
            "status": {
                  "href": "/v1/consents/123-asdf-456/status"
            }
      },
      "psuMessage": "Please use your XXX Bank app to authorise
consent"
}
```

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
provider	URL of the HUB where the service is published.	String	MAN	E.g. www.hub.com
aspsp	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name
consentId	Identifier of the resource that references the	String	MAN	^.{1,36}$

	consent. Sent previously as a response to a request message for consent from the TPP to the HUB.			E.g.123-qwerty-456

Query parameters

No additional fields are specified.

Header

Field	Description	Type	Man.	Format
X-Request-ID	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	**UUID** ^[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
Authorisation	Bearer Token. Obtained in a prior authentication on OAuth2.	String	MAN	E.g. Authorisation: Bearer 2YotnFZFEjr1zCsicMWpAA
PSU-IP-Address	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

PSU-IP-Port	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
PSU-Accept	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
PSU-Accept-Charset	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Charset: utf-8
PSU-Accept-Encoding	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Encoding: gzip
PSU-Accept-Language	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Language: es-ES
PSU-User-Agent	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)
PSU-Http-Method	HTTP method used at the PSU – TPP interface, if available. Valid values are: • GET • POST • PUT • PATCH • DELETE	String	OPT	E.g. PSU-Http-Method: GET
PSU-Device-	UUID (Universally Unique Identifier) for a	String	OPT	**UUID**

ID	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.			^[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
PSU-Geo-Location	The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.	String	OPT	**RFC 2426** ^GEO:[\\d]*.[\\d]*[;][\\d]*.[\\d]*$ E.g. PSU-Geo-Location: GEO:90.023856;25.345963
Digest	Is contained if and only if the "Signature" element is contained in the header of the request. See 6.1Signature for more information.	String	MAN	^.{1,100}$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRlMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
Signature	A signature of the request by the TPP on application level. See 6.1Signature for more information.	String	MAN	See annexes
TPP-Signature-Certificate	The certificate used for signing the request, in base64 encoding.	String	MAN	^.{1,5000}$ E.g. TPP-Signature-Certificate: MIIHgzCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ……KoZIhvcNAQELBQAwSTELMAkGA1UEBhMCVVMxEzARBgNVBA

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

Field	Description	Type	Man.	Format
X-Request-ID	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	**UUID** ^[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
consentStatus	Consent authentication status. See values defined in 6.5Consent status	String	MAN	E.g. "consentStatus":"valid"
psuMessage	Text to show to the PSU	String	OPT	^.{1,512}$ E.g. "psuMessage":"Information for PSU"
tppMessages	Message for the TPP	List<TppMessage>	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 2YotnFZFEjr1zCsicMWpAA
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"
}
```

3.2.4 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
provider	URL of the HUB where the service is published.	String	MAN	E.g. www.hub.com
aspsp	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name
consentId	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
X-Request-ID	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	**UUID** ^[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
Authorisation	Bearer Token. Obtained in a prior authentication on OAuth2.	String	MAN	E.g. Authorisation: Bearer 2YotnFZFEjr1zCsicMWpAA
PSU-IP-Address	The forwarded IP Address header field consists of the corresponding HTTP request IP Address field	String	OPT	^[0-9]{1,3}.[0-9]{1,3}.[0-9]{1,3}.[0-9]{1,3}$ E.g.

	between PSU and TPP. If not available, the TPP shall use the IP Address used by the TPP when submitting this request.			PSU-IP-Address: 192.168.16.5
PSU-IP-Port	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
PSU-Accept	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
PSU-Accept-Charset	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Charset: utf-8
PSU-Accept-Encoding	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Encoding: gzip
PSU-Accept-Language	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Language: es-ES
PSU-User-Agent	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)
PSU-Http-Method	HTTP method used at the PSU – TPP interface, if available. Valid values are: • GET • POST	String	OPT	E.g. PSU-Http-Method: GET

	• PUT • PATCH • DELETE			
PSU-Device-ID	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	**UUID** ^[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
PSU-Geo-Location	The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.	String	OPT	**RFC 2426** ^GEO:[\\d]*.[\\d]*[;][\\d]*.[\\d]*$ E.g. PSU-Geo-Location: GEO:90.023856;25.345963
Digest	Is contained if and only if the "Signature" element is contained in the header of the request. See 6.1Signature for more information.	String	MAN	^.{1,100}$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRlMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
Signature	A signature of the request by the TPP on application level. See 6.1Signature for more information.	String	MAN	See annexes
TPP-Signature-Certificate	The certificate used for signing the request, in base64 encoding.	String	MAN	^.{1,5000}$ E.g. TPP-Signature-Certificate: MIIHgzCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ……KoZIhvcN

				AQELBQAwSTELMAkGA1UEBhMCVVMxEzARBgNVBA

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
X-Request-ID	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	**UUID** ^[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
access	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	AccountAccess	MAN	E.g. "access": {…}

	value "allAccounts"			
recurringIndicator	Possible values: • true: recurring access to the account. • false: once-only access.	Boolean	MAN	E.g. "recurringIndicator": true
validUntil	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 When consent is recovered, the maximum possible date will be adjusted.	String	MAN	**ISODate** E.g. "validUntil": "2018-05-17"
frequencyPerDay	Indicates the frequency of access to the account every day. 1 if it is one-time-only access.	Integer	MAN	E.g. "frequencyPerDay":4
lastActionDate	Date of the last modification made to the consent.	String	MAN	**ISODate** E.g. "lastActionDate":"2018-01-01"
consentStatus	Consent authentication status. Values defined in annexes.	String	MAN	E.g. "consentStatus":"valid"
psuMessage	Text to show to the PSU	String	OPT	^.{1,512}$ E.g. "psuMessage":"Information for PSU"
tppMessages	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 2YotnFZFEjr1zCsicMWpAA
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 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": "ES1111111111111111111111"
            },
            {
                  "iban": "ES2222222222222222222222",
                  "currency": "USD"
            },
            {
                  "iban": "ES3333333333333333333333"
```

```
            }
            ],
            "transactions": [
            {
                  "iban": "ES1111111111111111111111"
            }
            ]
      },
      "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
{
      "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
provider	URL of the HUB where the service is published.	String	MAN	E.g. www.hub.com
aspsp	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name
consentId	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
X-Request-ID	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	**UUID** ^[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
Authorisation	Bearer Token. Obtained in a prior authentication on OAuth2.	String	MAN	E.g. Authorisation: Bearer 2YotnFZFEjr1zCsicMWpAA
PSU-IP-Address	The forwarded IP Address header field consists of the	String	OPT	^[0-9]{1,3}.[0-9]{1,3}.[0-

	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.			9]{1,3}.[0-9]{1,3}$ E.g. PSU-IP-Address: 192.168.16.5
PSU-IP-Port	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
PSU-Accept	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
PSU-Accept-Charset	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Charset: utf-8
PSU-Accept-Encoding	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Encoding: gzip
PSU-Accept-Language	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Language: es-ES
PSU-User-Agent	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)
PSU-Http-Method	HTTP method used at the PSU – TPP interface, if available. Valid values are:	String	OPT	E.g. PSU-Http-Method: DELETE

	• GET • POST • PUT • PATCH • DELETE			
PSU-Device-ID	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	**UUID** ^[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
PSU-Geo-Location	The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.	String	OPT	**RFC 2426** ^GEO:[\\d]*.[\\d]*[;][\\d]*.[\\d]*$ E.g. PSU-Geo-Location: GEO:90.023856;25.345963
Digest	Is contained if and only if the "Signature" element is contained in the header of the request. See 6.1Signature for more information.	String	MAN	^.{1,100}$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRlMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
Signature	A signature of the request by the TPP on application level. See 6.1Signature for more information.	String	MAN	See annexes
TPP-Signature-Certificate	The certificate used for signing the request, in base64 encoding.	String	MAN	^.{1,5000}$ E.g. TPP-Signature-Certificate:

				MIIHgzCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ……KoZIhvcNAQELBQAwSTELMAkGA1UEBhMCVVMxEzARBgNVBA

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
X-Request-ID	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	**UUID** ^[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 2YotnFZFEjr1zCsicMWpAA
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
```

3.2.6 Multilevel SCA to establish consent

In the case of the SCA flow by redirection, the TPP may redirect to PSU, which initiates the transaction to the scaRedirect link for applying SCA.

In the case of SCA decoupled flow, the TPP will receive in the psuMessage field the message it must show to the PSU and direct to the PSU's bank app.

In addition, the ASPSP will return a message in the psuMessage field to indicate to the PSU that the transaction requires SCA by more users.

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	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: • List of all the available PSU accounts. The following may not be obtained: • Account balances (unless supported by the ASPSP) • Links to the endpoint of balances or transactions
availableAccountsWithBalances	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: • List of all the available PSU accounts. • Account balances (unless supported by the ASPSP) The following may not be obtained: • Links to the endpoint of balances or transactions
account	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.
balances	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.
transactions	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.
allPsd2	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. Note: allPsd2 grants the three types of access.

3.3.1.1 Request

Endpoint

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

Path

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

				m
aspsp	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name

Query parameters

Field	Description	Type	Man.	Format
withBalance	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
X-Request-ID	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	**UUID** ^[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
Authorisation	Bearer Token. Obtained in a prior authentication on OAuth2.	String	MAN	E.g. Authorisation: Bearer 2YotnFZFEjr1zCsicMWpAA
Consent-ID	Identification of the consent resource	String	MAN	^.{1,36}$ E.g. Consent-ID: 7890-asdf-4321
PSU-IP-Address	The forwarded IP Address header field consists of the corresponding HTTP	String	COND	^[0-9]{1,3}.[0-9]{1,3}.[0-9]{1,3}.[0-9]{1,3}$

	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.			E.g. PSU-IP-Address: 192.168.16.5
PSU-IP-Port	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
PSU-Accept	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
PSU-Accept-Charset	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Charset: utf-8
PSU-Accept-Encoding	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Encoding: gzip
PSU-Accept-Language	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Language: es-ES
PSU-User-Agent	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)
PSU-Http-Method	HTTP method used at the PSU – TPP interface, if available. Valid values are: • GET	String	OPT	E.g. PSU-Http-Method: GET

	• POST • PUT • PATCH • DELETE			
PSU-Device-ID	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	**UUID** ^[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
PSU-Geo-Location	The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.	String	OPT	**RFC 2426** ^GEO:[\\d]*.[\\d]*[;][\\d]*.[\\d]*$ E.g. PSU-Geo-Location: GEO:90.023856;25.345963
Digest	The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.	String	MAN	^.{1,100}$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRlMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
Signature	Is contained if and only if the "Signature" element is contained in the header of the request. See 6.1Signature for more information.	String	MAN	See annexes
TPP-Signature-	A signature of the request by the TPP on	String	MAN	^.{1,5000}$ E.g. TPP-Signature-

Certificate	application level. See 6.1Signature for more information.			Certificate: MIIHgzCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ……KoZIhvcNAQELBQAwSTELMAkGA1UEBhMCVVMxEzARBgNVBA

Body

Data are not sent in the body in this request.

3.3.1.2 Response

Header

Field	Description	Type	Man.	Format
X-Request-ID	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	**UUID** ^[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
accounts	List of available accounts.	List<AccountDetails>	MAN	E.g. "accounts": []
psuMessage	Text to show to the PSU.	String	OPT	^.{1,512}$ E.g. "psuMessage":"Information for PSU"
tppMessages	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 2YotnFZFEjr1zCsicMWpAA
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
```

Exampleof the response obtaining list of accessible PSU accounts

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

```
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",
```

```
            "product": "Girokonto",
            "cashAccountType": "CACC",
            "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": "ES2222222222222222222",
            "currency": "USD",
            "cashAccountType": "CACC",
            "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
aspsp	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name
account-id	Identifier of the account assigned by the ASPSP	String	MAN	^.{1,100}$ E.g. account-id=a1q5w

Query parameters

Field	Description	Type	Man.	Format
withBalance	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
X-Request-ID	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	**UUID** ^[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
Authorisation	Bearer Token. Obtained in a prior authentication on OAuth2.	String	MAN	E.g. Authorisation: Bearer 2YotnFZFEjr1zCsicMWpAA
Consent-ID	Identification of the consent resource	String	MAN	^.{1,36}$ E.g. Consent-ID: 7890-asdf-4321
PSU-IP-Address	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}.[0-9]{1,3}$ E.g. PSU-IP-Address: 192.168.16.5

PSU-IP-Port	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
PSU-Accept	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
PSU-Accept-Charset	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Charset: utf-8
PSU-Accept-Encoding	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Encoding: gzip
PSU-Accept-Language	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Language: es-ES
PSU-User-Agent	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)
PSU-Http-Method	HTTP method used at the PSU – TPP interface, if available. Valid values are: • GET • POST • PUT • PATCH • DELETE	String	OPT	E.g. PSU-Http-Method: GET
PSU-Device-	UUID (Universally Unique Identifier) for a	String	OPT	**UUID**

ID	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.			^[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
PSU-Geo-Location	The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.	String	OPT	**RFC 2426** ^GEO:[\\d]*.[\\d]*[;][\\d]*.[\\d]*$ E.g. PSU-Geo-Location: GEO:90.023856;25.345963
Digest	The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.	String	MAN	^.{1,100}$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRlMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
Signature	Is contained if and only if the "Signature" element is contained in the header of the request. See 6.1Signature for more information.	String	MAN	See annexes
TPP-Signature-Certificate	A signature of the request by the TPP on application level. See 6.1Signature for more information.	String	MAN	^.{1,5000}$ E.g. TPP-Signature-Certificate: MIIHgzCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ…….KoZIhvcNAQELBQAwSTELMAkGA1UEBhMCVVMxEzARBgNVBA

Body

Data are not sent in the body in this request.

3.3.2.2 Response

Header

Field	Description	Type	Man.	Format
X-Request-ID	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	**UUID** ^[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
account	Detailed information on the account	Account Details	MAN	E.g. "account": {…}
psuMessage	Text to show to the PSU	String	OPT	^.{1,512}$ E.g. "psuMessage":"Information for PSU"
tppMessages	Message for the TPP	List<TppMessage>	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 2YotnFZFEjr1zCsicMWpAA
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
```

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

```
                        "href": "/v1/accounts/3dc3d5b3-7023-4848-9853--
                  5400a64e80f/transactions"
                  }
            }
      }
}
```


Exampleof multi-currency account 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": {
            "resourceId": "3dc3d5b3-7023-4848-9853-f5400a64e81g",
            "iban": "ES2222222222222222222",
            "currency": "XXX",
            "product": "Multicurrency Account",
            "cashAccountType": "CACC",
            "name": "Aggregation Account",
            "_links": {
                  "balances": {
                        "href":  "/v1/accounts/3dc3d5b3-7023-4848-9853-
                  f5400a64e81g/balances"
                  },
                  "transactions": {
                        "href":  "/v1/accounts/3dc3d5b3-7023-4848-9853-
                  f5400a64e81g/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	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.

3.3.3.1 Request

Endpoint

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

Path

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

account-id	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

No additional fields are specified.

Header

Field	Description	Type	Man.	Format
X-Request-ID	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	**UUID** ^[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
Authorisation	Bearer Token. Obtained in a prior authentication on OAuth2.	String	MAN	E.g. Authorisation: Bearer 2YotnFZFEjr1zCsicMWpAA
Consent-ID	Identification of the consent resource	String	MAN	^.{1,36}$ E.g. Consent-ID: 7890-asdf-4321
PSU-IP-Address	The forwarded IP Address header field consists of the corresponding HTTP request IP Address field between PSU and TPP.	String	COND	^[0-9]{1,3}.[0-9]{1,3}.[0-9]{1,3}.[0-9]{1,3}$ E.g. PSU-IP-Address:

	If not available, the TPP shall use the IP Address used by the TPP when submitting this request.			192.168.16.5
PSU-IP-Port	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
PSU-Accept	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
PSU-Accept-Charset	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Charset: utf-8
PSU-Accept-Encoding	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Encoding: gzip
PSU-Accept-Language	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Language: es-ES
PSU-User-Agent	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)
PSU-Http-Method	HTTP method used at the PSU – TPP interface, if available. Valid values are: • GET • POST • PUT	String	OPT	E.g. PSU-Http-Method: GET

	• PATCH • DELETE			
PSU-Device-ID	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	**UUID** ^[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
PSU-Geo-Location	The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.	String	OPT	**RFC 2426** ^GEO:[\\d]*.[\\d]*[;][\\d]*.[\\d]*$ E.g. PSU-Geo-Location: GEO:90.023856;25.345963
Digest	The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.	String	MAN	^.{1,100}$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRlMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
Signature	Is contained if and only if the "Signature" element is contained in the header of the request. See 6.1Signature for more information.	String	MAN	See annexes
TPP-Signature-Certificate	A signature of the request by the TPP on application level. See 6.1Signature for	String	MAN	^.{1,5000}$ E.g. TPP-Signature-Certificate: MIIHgzCCBmugAwI

	more information.			BAgIIZzZvBQlt0Uc wDQYJ……KoZI hvcNAQELBQAwSTE LMAkGA1UEBhMCV VMxEzARBgNVBA

Body

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

3.3.3.2 Response

Header

Field	Description	Type	Man.	Format
X-Request-ID	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	**UUID** ^[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
account	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": {…}
balances	A list of balances regarding this account, e.g. the current balance, the last booked	List<Balance>	MAN	E.g. "balances": {…}

	balance.			
psuMessage	Text to show to the PSU.	String	OPT	^.{1,512}$ E.g. "psuMessage": "Information for PSU"
tppMessages	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 2YotnFZFEjr1zCsicMWpAA
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
```

Exampleof 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"
      },
      "balances": [
      {
            "balanceType": "closingBooked",
            "balanceAmount": {
                  "currency": "EUR",
                  "amount": "500.00"
            },
            "referenceDate": "2017-10-25"
      },
      {
            "balanceType": "expected",
            "balanceAmount": {
                  "currency": "EUR",
                  "amount": "900.00"
            },
            "lastChangeDateTime": "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
aspsp	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name
account-id	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
dateFrom	Start date of query. It is included if the "deltaList" is not included.	String	COND	**ISODate** E.g. dateFrom=2017-10-25
dateTo	End date of query. Its default value is the current date, unless otherwise indicated.	String	OPT	**ISODate** E.g. dateTo=2017-11-05
entryReferenceFrom	If it is indicated, it will give us the results from the time of the call with entryReferenceFrom before that given. If it is contained, the dateFrom and dateTo attributes are ignored.	String	OPT	E.g. entryReferenceFrom=1234-asdf-567
bookingStatus	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
deltaList	Indicates that the AISP is in favour of obtaining all the transactions after the last access to the report for this PSU and account. This indicator could be rejected by the ASPSP if this function is not compatible.	Boolean	OPT	E.g. deltaList=false
withBalance	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
X-Request-ID	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	**UUID** ^[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
Authorisation	Bearer Token. Obtained in a prior authentication on OAuth2.	String	MAN	E.g. Authorisation: Bearer 2YotnFZFEjr1zCsicMWpAA
Consent-ID	Identification of the consent resource	String	MAN	^.{1,36}$ E.g. Consent-ID: 7890-asdf-4321
Accept	Response format supported. Supported values: application/json	String	OPT	^.{1,50}$ E.g. Accept: application/json
PSU-IP-Address	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}.[0-9]{1,3}$ E.g. PSU-IP-Address: 192.168.16.5
PSU-IP-Port	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

PSU-Accept	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
PSU-Accept-Charset	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Charset: utf-8
PSU-Accept-Encoding	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Encoding: gzip
PSU-Accept-Language	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Language: es-ES
PSU-User-Agent	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)
PSU-Http-Method	HTTP method used at the PSU – TPP interface, if available. Valid values are: • GET • POST • PUT • PATCH • DELETE	String	OPT	E.g. PSU-Http-Method: GET
PSU-Device-ID	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	String	OPT	**UUID** ^[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.

	an installation identification this ID need to be unaltered until removal from device.			PSU-Device-ID: 5b3ab8e8-0fd5-43d2-946e-d75958b172e7
PSU-Geo-Location	The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.	String	OPT	**RFC 2426** ^GEO:[\\d]*.[\\d]*[;][\\d]*.[\\d]*$ E.g. PSU-Geo-Location: GEO:90.023856;25.345963
Digest	The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.	String	MAN	^.{1,100}$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRlMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
Signature	Is contained if and only if the "Signature" element is contained in the header of the request. See 6.1Signature for more information.	String	MAN	See annexes
TPP-Signature-Certificate	A signature of the request by the TPP on application level. See 6.1Signature for more information.	String	MAN	^.{1,5000}$ E.g. TPP-Signature-Certificate: MIIHgzCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ……KoZIhvcNAQELBQAwSTELMAkGA1UEBhMCVVMxEzARBgNVBA

Body

Data are not sent in the body in this request.

3.3.4.2 Response

Header

Field	Description	Type	Man.	Format
Content-Type	Possible values: application/json	String	MAN	E.g. Content-Type: application/json
X-Request-ID	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	**UUID** ^[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
account	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": {…}
transactions	JSON based account report. This account report contains transactions resulting from the query parameters.	AccountReport	OPT	E.g. "transactions": {…}
balances	A list of balances regarding this account, which might be restricted to the current balance.	List<Balance>	OPT	E.g. "balances": […]
_links	List of hyperlinks to be	Links	OPT	E.g. "_links":

	recognised by the TPP. Types supported in this response: "**download**": Download link for the query data when the data returned are of a substantial weight. Only for camt-data.			{…}
psuMessage	Text to show to the PSU	String	OPT	^.{1,512}$ E.g. "psuMessage": "Information for the PSU"
tppMessages	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 2YotnFZFEjr1zCsicMWpAA
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 a search request sending entryReferenceFrom search criteria

```
GET https://www.hub.com/aspsp-name/v1/accounts/qwer3456tzui7890/transactions?entryReferenceFrom=1234-asd-4564700&bookingStatus=both
Accept: application/json
X-Request-ID: 96201400-6ff9-11e8-adc0-fa7ae01bbebc
Authorization: Bearer 2YotnFZFEjr1zCsicMWpAA
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
```

Exampleof 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": [
```

```
{
      "transactionId": "1234567",
      "creditorName": "John Miles",
      "creditorAccount": {
            "iban": "ES1111111111111111111111"
      },
      "transactionAmount": {
            "currency": "EUR",
            "amount": "256.67"
      },
      "bookingDate": "2017-10-25",
      "valueDate": "2017-10-26",
      "remittanceInformationUnstructured": "Example for Remittance Information"
},
{
      "transactionId": "1234568",
      "debtorName": "Paul Simpson",
      "debtorAccount": {
            "iban": "NL354543123456900"
      },
      "transactionAmount": {
            "currency": "EUR",
            "content": "343.01"
      },
      "bookingDate": "2017-10-25",
      "valueDate": "2017-10-26",
      "remittanceInformationUnstructured": "Another example for Remittance Information"
}
],
"pending": [
{
      "transactionId": "123456789",
      "creditorName": "Claude Renault",
```

```
            "creditorAccount": {
                  "iban": "NL354543123456900"
            },
            "transactionAmount": {
                  "currency": "EUR",
                  "amount": "-100.03"
            },
            "valueDate": "2017-10-26",
            "remittanceInformationUnstructured": "Another example
      for Remittance Information"
      }
      ],
      "_links": {
            "account": {
                  "href": "/v1/accounts/qwer3456tzui7890"
            },
            "first": {
                  "href":
            "/v1/accounts/qwer3456tzui7890/transactions?page[numb
            er]=1&page[size]=15
            },
            "previous": {
                  "href":
            "/v1/accounts/qwer3456tzui7890/transactions?page[numb
            er]=2&page[size]=15"
            },
            "next": {
                  "href":
            "/v1/accounts/qwer3456tzui7890/transactions?page[numb
            er]=4&page[size]=15"
            },
            "last": {
                  "href":
            "/v1/accounts/qwer3456tzui7890/transactions?page[numb
            er]=10&page[size]=15"
            }
      }
}
```

```
}
```

Exampleof response with error

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

3.4 FCS: Fund Confirmation Service

3.4.1 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.

Rules that are applied to confirm funds in multi-currency accounts

- If no card number, but the PSU account identifier is contained: check on default account registered by customer.
- If no card number but the PSU and the account identifier with currency is contained: check the availability of funds on the corresponding sub-account.
- If card number and the PSU account identifier is contained: check on sub-account addressed by card, if the addressed card is registered with one of the sub-accounts.
- If the card number is not registered for any of the sub-accounts, or if the card number is registered for a different sub-account the card number might be ignored.

3.4.1.1 Request

Endpoint

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

Path

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

Header

Field	Description	Type	Man.	Format
X-Request-ID	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	**UUID** ^[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
Authorisation	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
Consent-ID	Identifier of the consent obtained in the transaction requesting	String	COND	^.{1,36}$ E.g. Consent-ID: 7890-asdf-4321

	consent. Only if the consent management has been carried out through the API.			
Digest	Is contained if and only if the "Signature" element is contained in the header of the request. See 6.1Signature for more information.	String	MAN	^.{1,100}$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRlMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
Signature	A signature of the request by the TPP on application level. See 6.1Signature for more information.	String	MAN	See annexes
TPP-Signature-Certificate	The certificate used for signing the request, in base64 encoding.	String	MAN	^.{1,512}$ E.g. TPP-Signature-Certificate: MIIHgzCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ……..KoZIhvcNAQELBQAwSTELMAkGA1UEBhMCVVMxEzARBgNVBA

Body

Field	Description	Type	Mand.	Format
cardNumber	Card Number of the card issued by the	String	OPT	E.g.

	PIISP. Should be delivered if available.			"cardNumber": "1111-1111-1111-1111"
account	PSU's account number.	AccountReference	MAN	E.g. "account": {"iban":"ES1111111111111111111"}
payee	The merchant where the card is accepted as an information to the PSU.	String	OPT	^.{1,70}$ E.g. "payee":"Merchant name"
instructedAmount	Transaction amount to be checked within the funds check mechanism.	Amount	MAN	E.g. "instructedAmount": {...}

3.4.1.2 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
Location	Contains the link to the resource generated.	String	MAN	
X-Request-ID	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	**UUID** ^[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
fundsAvailabl	Equals true if	Boolean	MAN	E.g.

e	sufficient funds are available at the time of the request, false otherwise.			"fundsAvailable": true
tppMessages	Message for the TPP.	List<TppMessage>	OPT	E.g. "tppMessages": […]

3.4.1.3 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 2YotnFZFEjr1zCsicMWpAA
Consent-ID: 7890-asdf-4321
Date: Sun, 17 Oct 2017 13:15:17 GMT
{
      "cardNumber": "87432569872156",
      "account": {
            "iban": "ES1111111111111111111111"
      },
      "payee": "Name123",
      "instructedAmount": {
            "currency": "EUR",
            "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
}
```

3.5 OAuth2 as pre-step

3.5.1 Obtain authorisation

3.5.1.1 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_challenge}&code_challenge_method={code_challenge_method}

Path

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

Query parameters

Field	Description	Type	Man.	Format
response_type	Its value must be established at "code".	String	MAN	E.g. response_type=code

client_id	organizationIdentifier" provided in the eIDAS certificate formed as: - PSD - 2 characters from the NCA country code (according to ISO 3166) - Carácter "-" - 2-8 characters for the NCA identifier (A-Z in upper case) - Carácter "-" - PSP identifier	String	MAN	^.{1,70}$ E.g. client_id=PSDES-BDE-3DFD246
scope	Possible scope: • PIS • AIS • FCS • SVA May indicate more than one, separated by a +	String	MAN	^.{1,64}$ E.g. scope=PIS+AIS+SVA
state	Opaque value generated by the TPP. Used to prevent "cross-site request forgery" XSRF attacks.	String	MAN	^.{1,64}$ E.g. state=XYZ
redirect_uri	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%2Etpp%2Ecom%2Fcb
code_challenge	PKCE challenge used to prevent code injection attacks. According to RFC	String	MAN	^.{1,128}$ E.g. code_challenge=E9Melhoa2OwvFrEMTJguCHaoe

	7636.			K1t8URWbuGJSstw-cM
code_challenge_method	Method to verify the code that may be "plain" or "S256". S256 (SHA 256) preferred	String	OPT	^.{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.

3.5.1.2 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
Location	Contains the URL where the redirection is carried out to the TPP.	String	MAN	E.g. Location: https://www.tpp.com/cb
code	One-time-only authorisation generated by the HUB. A life of not more than 10 minutes is recommended.	String	MAN	^.{1,64}$ E.g. code=SplxlOBeZQQYbYS6WxSbIA
state	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	String	MAN	^.{1,64}$ E.g. state=XYZ

	browser back to the TPP. Used to prevent "cross-site request forgery" attacks.			

Body

Data are not sent in the body in this request.

3.5.1.3 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
Location	Contains the URL that is redirected to the TPP.	String	MAN	E.g. Location: https://www.tpp.com/cb
error	Code that indicates the error that has occurred.	String	MAN	E.g. error=invalid_request
state	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.

3.5.1.4 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
```

Example of OK response

```
HTTP/1.1 302 Found
Location: https://www.tpp.com/cb?code=SplxlOBeZQQYbYS6WxSbIA&state=xyz
```

Example of NOK response

```
HTTP/1.1 302 Found
Location: https://www.tpp.com/cb?error=access_denied&state=xyz
```

3.5.2 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.

3.5.2.1 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
aspsp	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name

Request Parameters

Field	Description	Type	Mand.	Format
grant_type	Must take the value of "authorisation_code"	String	MAN	E.g. grant_type=authorization_code
client_id	"organizationIdentifier" provided in the eIDAS certificate formed as: - PSD - 2 characters from the NCA country code (according to ISO 3166) - Carácter "-" - 2-8 characters for the NCA identifier (A-Z in upper case) - Carácter "-" - PSP identifier	String	MAN	^.{1,70}$ E.g. client_id=PSDES-BDE-3DFD246
code	Authorisation code returned by the ASPSP in the previous application requesting an authorisation code	String	MAN	^.{1,64}$ E.g. code=SplxlOBeZQQY bYS6WxSbIA
redirect_uri	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%2Etpp%2Ecom%2Fcb
code_verifier	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.

3.5.2.2 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
access_token	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"
token_type	Type of token issued. Will take the value "Bearer".	String	MAN	E.g. "token_type":"Bearer"
expires_in	Life of the access token in seconds.	Integer	OPT	E.g. "expires_in":300
refresh_token	Refresh token. May be used to obtain a new access token if	String	OPT	^.{1,64}$ E.g. "refresh_token":"tGzv3JOkF0X

	it has expired.			G5Qx2TlKWIA"

3.5.2.3 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
error	Code that indicates the error that has occurred. For more return codes see the annexes.	String	MAN	E.g. "error":"invalid_request"

3.5.2.4 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=SplxlOBeZQQYbYS6WxSbIA&redirect_uri=https%3A%2F%2Fwww%2Et
pp%2Ecom%2Fcb&code_verifier=dBjftJeZ4CVP-
mB92K27uhbUJU1p1r_wW1gFWFOEjXk
```

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": "2YotnFZFEjr1zCsicMWpAA",
      "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"
}
```

3.6 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.

3.6.1 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
aspsp	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name
grant_type	Must take the value of "refresh_token"	String	MAN	E.g. grant_type=refresh_token
client_id	organizationIdentifier" provided in the eIDAS certificate formed as: - PSD	String	MAN	^.{1,70}$ E.g. client_id=PSDES-BDE-3DFD246

	- 2 characters from the NCA country code (according to ISO 3166) - Carácter "-" - 2-8 characters for the NCA identifier (A-Z in upper case) - Carácter "-" - PSP identifier			
refresh_token	The refresh token necessary to be able to obtain an unexpired access_token.	String	MAN	^.{1,64}$ E.g. refresh_token=tGzv3JOkF0XG5Qx2TlKWIA

Header

No additional data are specified.

Body

No additional data are specified.

3.6.2 Response

Field	Description	Type	Man.	Format
access_token	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"
token_type	Type of token issued. Will take the value "Bearer".	String	MAN	E.g. "token_type":"Bearer"

expires_in	Life of the access token in seconds.	Integer	OPT	E.g. "expires_in":300
refresh_token	Refresh token. May be used to obtain a new access token if it has expired.	String	OPT	^.{1,64}$ E.g. "refresh_token":"28JD3JOkF0NM5Qx2TlCCC"

3.6.3 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,
      "access_token": "28JD3JOkF0NM5Qx2TlCCC"
}
```

3.7 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.

3.8 Processes common to the services.

3.8.1 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 a payment initiation 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 payment cancellation 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 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.

3.8.1.1 Request

Endpoint in the case of Fund Confirmation Consent

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

Endpoint in the case of Payment Cancellation

POST {provider}/{aspsp}/v1/{payment-service}/{payment-product}/{paymentId}/cancellation-authorisations

Path

Field	Description	Type	Man.	Format
provider	URL of the HUB where the service is published.	String	MAN	E.g. hub.example.es
aspsp	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name
payment-service	Possible values are: • payments • bulk-payments • periodic-payments	String	COND	E.g. {provider}/v1/payments
payment-product	Payment product to be used. List of supported products: • sepa-credit-transfers • instant-sepa-credit-transfers • target-2-payments • cross-border-credit-transfers	String	COND	E.g. {provider}/v1/payments/sepa-credit-transfers/
paymentI, consentId	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
Content-Type	Value: application/json	String	MAN	Content-Type: application/json
X-Request-ID	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	**UUID** ^[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
Authorisation	Bearer Token. Obtained in a prior authentication on OAuth2.	String	MAN	E.g. Authorisation: Bearer 2YotnFZFEjr1zCsicMWpAA
PSU-IP-Address	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
PSU-IP-Port	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
PSU-Accept	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
PSU-Accept-Charset	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Charset: utf-8
PSU-Accept-Encoding	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Encoding: gzip
PSU-Accept-Language	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-

				Language: es-ES
PSU-User-Agent	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)
PSU-Http-Method	HTTP method used at the PSU – TPP interface, if available. Valid values are: • GET • POST • PUT • PATCH • DELETE	String	OPT	E.g. PSU-Http-Method: POST
PSU-Device-ID	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	**UUID** ^[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
PSU-Geo-Location	The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.	String	OPT	**RFC 2426** ^GEO:[\\d]*.[\\d]*[;,][\\d]*.[\\d]*$ E.g. PSU-Geo-Location: GEO:90.023856;25.345963
Digest	Is contained if and only if the "Signature"	String	MAN	^.{1,100}$ E.g. Digest: SHA-

	element is contained in the header of the request. See 6.1Signature for more information.			256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRlMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
Signature	A signature of the request by the TPP on application level. See 6.1Signature for more information.	String	MAN	See annexes
TPP-Signature-Certificate	The certificate used for signing the request, in base64 encoding.	String	MAN	^.{1,5000}$ E.g. TPP-Signature-Certificate: MIIHgzCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ……..KoZIhvcNAQELBQAwSTELMAkGA1UEBhMCVVMxEzARBgNVBA

Body

No additional fields are specified.

3.8.1.2 Response

Header

Field	Description	Type	Man.	Format
Location	Contains the link related to the resource generated.	String	MAN	E.g. Location: /v1/payments/{payment-product}/{paymentId}/authorisations/123qwert/456
X-Request-ID	Unique identifier of the transaction assigned by the TPP and submitted through the HUB to the ASPSP	String	MAN	**UUID** ^[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
ASPSP-SCA-Approach	Value returned if the SCA method has been fixed. Possible values: • EMBEDDED • DECOUPLED • REDIRECT The SCA based on OAuth2 will be taken as REDIRECT.	String	COND	E.g. ASPSP-SCA-Approach: REDIRECT

Body

Field	Description	Type	Man.	Format
scaStatus	SCA status	String	MAN	E.g. "scaStatus": "received"
authorisationId	Identifier of the resource that references the authorisation of sub-resource created.	String	MAN	^.{1,36}$ E.g. "authorisationId": "1b3ab8e8-0fd5-43d2-946e-d75958b172e7"
scaMethods	This element is contained if SCA is required and if PSU can choose between the different methods of authentication. If this data is contained the link "selectAuthenticationMethod" will also be reported. These methods must be presented to the PSU. **Note:** Only if ASPSP supports selection of the SCA method	List<AuthenticationObject>	COND	E.g. "scaMethods": […]
_links	List of hyperlinks to be recognised by the TPP. Types supported in this response:	Links	MAN	E.g. "_links": {…}

	• scaRedirect: in case of SCA by redirection. Link where the PSU navigator must be redirected by the TPP. • selectAuthenticationMethod: link to the authorisation sub-resource or the cancellation authorisation where the SCA method selected will be reported. • scaStatus: link to query the SCA status corresponding to the authorisation sub-resource.			
psuMessage	Text sent to TPP through the HUB to be shown to PSU.	String	OPT	^.{1,512}$ E.g. "psuMessage": "Information for the PSU"
tppMessages	Message for the TPP sent through the HUB.	List<TppMessage>	OPT	E.g. "tppMessages": […]

3.8.1.3 Examples

Example of request on a Payment Cancellation

```
POST https://hub.example.es/aspsp-name/v1/payments/sepa-credit-transfers/qwert1234tzui7890/cancellation-authorisations
Content-Encoding: gzip
Content-Type: application/json
X-Request-ID: 10391c7e-ad88-49ec-a2ad-00aacb1f6541
Authorization: Bearer 2YotnFZFEjr1zCsicMWpAA
```

```
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
Date: Sun, 26 Sep 2017 15:02:43 GMT
Location: /v1/payments/sepa-credit-transfers/123-qwe-456/cancellation-authorisations/123auth456
Content-Type: application/json
{
      "scaStatus": "received",
      "authorisationId": "123auth456",
      "_links": {
            "scaRedirect": {
                  "href": "https://hub.example.es/authorize "
            },
            "scaStatus": {
                  "href": "/v1/payments/sepa-credit-transfers/123-qwe-456/cancellation-authorisations/123auth456"
            }
      }
}
```

3.8.2 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 my depend on the SCA method selected.

3.8.2.1 Request

Endpoint in the case of Fund Confirmation Consent

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

Endpoint in the case of Payment Cancellation

PUT {provider}/{aspsp}/v1/{payment-service}/{payment-product}/{paymentId}/cancellation-authorisations/{cancellationId}

Path

Field	Description	Type	Man.	Format
provider	URL of the HUB where the service is published.	String	MAN	E.g. hub.example.es
aspsp	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name
payment-service	Possible values are: • payments • bulk-payments • periodic-payments	String	COND	E.g. {provider}/{aspsp}/v1/payments
payment-product	Payment product to be used. List of supported products: • sepa-credit-transfers • instant-sepa-credit-transfers • target-2-payments • cross-border-credit-transfers	String	COND	E.g. {provider}/v1/payments/sepa-credit-transfers/

paymentId, consentId	Identifier of the resource that references the payment initiation.	String	MAN	^.{1,36}$ E.g.123-qwe-456
authorisationId	Identifier of the sub-resource associated with the consent.	String	COND	^.{1,36}$
cancellationId	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
X-Request-ID	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	**UUID** ^[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
Authorisation	Bearer Token. Obtained in a prior authentication on OAuth2.	String	MAN	E.g. Authorisation: Bearer 2YotnFZFEjr1zCsicMWpAA
PSU-IP-Address	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	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

	this request.			
PSU-IP-Port	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
PSU-Accept	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
PSU-Accept-Charset	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Charset: utf-8
PSU-Accept-Encoding	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Encoding: gzip
PSU-Accept-Language	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Language: es-ES
PSU-User-Agent	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)
PSU-Http-Method	HTTP method used at the PSU – TPP interface, if available. Valid values are: • GET • POST • PUT • PATCH • DELETE	String	OPT	E.g. PSU-Http-Method: GET

PSU-Device-ID	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	**UUID** ^[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
PSU-Geo-Location	The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.	String	OPT	**RFC 2426** ^GEO:[\\d]*.[\\d]*[;,][\\d]*.[\\d]*$ E.g. PSU-Geo-Location: GEO:90.023856;25.345963
Digest	Is contained if and only if the "Signature" element is contained in the header of the request. See 6.1Signature for more information.	String	MAN	^.{1,100}$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRlMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
Signature	A signature of the request by the TPP on application level. See 6.1Signature for more information.	String	MAN	See annexes
TPP-Signature-Certificate	The certificate used for signing the request, in base64 encoding.	String	MAN	^.{1,5000}$ E.g. TPP-Signature-Certificate: MIIHgzCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ…….KoZIhvcNAQELBQAwSTELMAkGA1UEBhMCVVMxEzARBgNVBA

Body

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

3.8.2.2 Response

Header

Field	Description	Type	Man.	Format
X-Request-ID	Unique identifier of the transaction assigned by the TPP and submitted through the HUB to the ASPSP	String	MAN	**UUID** ^[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
ASPSP-SCA-Approach	Value returned if the SCA method has been fixed. Possible values: • EMBEDDED • DECOUPLED • REDIRECT The SCA based on OAuth2 will be taken as REDIRECT.	String	OPT	E.g. ASPSP-SCA-Approach: REDIRECT

Body

Field	Description	Type	Man.	Format
_links	List of hyperlinks to be recognised by the HUB. Types supported in this response: • scaRedirect: in case of SCA by	Links	MAN	E.g. "_links": {…}

	redirection. Link where the PSU navigator must be redirected by the TPP. • 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.			
scaStatus	SCA status	String	MAN	E.g. "scaStatus": "received"
psuMessage	Text sent to TPP through the HUB to be shown to PSU.	String	OPT	^.{1,512}$ E.g. "psuMessage": "Information for the PSU"
tppMessages	Message for the TPP sent through the HUB.	List<TppMessage>	OPT	E.g. "tppMessage": […]

3.8.2.3 Examples

Example of request on a payment cancellation

```
PUT https://hub.example.es/v1/payments/sepa-credit-transfers/123-qwe-456/cancellation-authorisations/123asd456
X-Request-ID: 96201400-6ff9-11e8-adc0-fa7ae01bbebc
Authorization: Bearer 2YotnFZFEjr1zCsicMWpAA
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
ASPSP-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": "/v1/payments/sepa-credit-transfers/123-qwe-456/cancellation-authorisations/123auth456"
      }
}
```

3.8.3 Get authorisation sub-resources

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

3.8.3.1 Request

Endpoint in the case of Payment Cancellation

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

Path

Field	Description	Type	Man.	Format
provider	URL of the ASPSP where the service is published.	String	MAN	E.g. hub.example.es
aspsp	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name
payment-service	Possible values are: • payments • bulk-payments • periodic-payments	String	COND	E.g. {provider}/v1/payments
payment-product	Payment product to be used. List of supported products: • sepa-credit-transfers • instant-sepa-credit-transfers • target-2-payments • cross-border-credit-transfers	String	COND	E.g. {provider}/v1/payments/sepa-credit-transfers/
paymentId	Identifier of the resource that references the payment initiation.	String	MAN	^.{1,36}$ E.g.123-qwe-456

Query parameters

No additional fields are specified.

Header

Field	Description	Type	Man.	Format
X-Request-ID	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	**UUID** ^[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
Authorisation	Bearer Token. Obtained in a prior authentication on OAuth2.	String	MAN	E.g. Authorisation: Bearer 2YotnFZFEjr1zCsicMWpAA
PSU-IP-Address	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
PSU-IP-Port	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
PSU-Accept	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
PSU-Accept-Charset	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Charset: utf-8
PSU-Accept-Encoding	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Encoding: gzip
PSU-Accept-Language	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Language: es-ES
PSU-User-	The forwarded Agent header field of the	String	OPT	E.g.

Agent	HTTP request between PSU and TPP, if available.			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)
PSU-Http-Method	HTTP method used at the PSU – TPP interface, if available. Valid values are: • GET • POST • PUT • PATCH • DELETE	String	OPT	E.g. PSU-Http-Method: DELETE
PSU-Device-ID	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	**UUID** ^[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
PSU-Geo-Location	The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.	String	OPT	**RFC 2426** ^GEO:[\\d]*.[\\d]*[;,][\\d]*.[\\d]*$ E.g. PSU-Geo-Location: GEO:90.023856;25.345963
Digest	Is contained if and only if the "Signature" element is contained in the header of the request.	String	MAN	^.{1,100}$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI

	See 6.1Signature for more information.			4NTRlMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
Signature	A signature of the request by the TPP on application level. See 6.1Signature for more information.	String	MAN	See annexes
TPP-Signature-Certificate	The certificate used for signing the request, in base64 encoding.	String	MAN	^.{1,5000}$ E.g. TPP-Signature-Certificate: MIIHgzCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ……KoZIhvcNAQELBQAwSTELMAkGA1UEBhMCVVMxEzARBgNVBA

Body

No additional data are specified.

3.8.3.2 Response

Header

Field	Description	Type	Man.	Format
X-Request-ID	Unique identifier of the transaction assigned by the TPP and submitted through the HUB to the ASPSP	String	MAN	**UUID** ^[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

cancellationIds	Array of cancellationIds connected to the payment resource. **Note**: mandatory if it is a cancellation	Array<String>	COND	E.g. "cancellationIds": […]
psuMessage	Text sent to TPP through the HUB to be shown to PSU.	String	OPT	^.{1,512}$ E.g. "psuMessage": "Information for the PSU"
tppMessages	Message for the TPP sent through the HUB.	List<TppMessage>	OPT	E.g. "tppMessages": […]

3.8.3.3 Examples

Example of request

```
GET https://hub.example.es/asp-name/v1/payments/sepa-credit-transfers/123-qwe-456/cancellation-authorisations
X-Request-ID: 96201400-6ff9-11e8-adc0-fa7ae01bbebc
Authorization: Bearer 2YotnFZFEjr1zCsicMWpAA
PSU-IP-Address: 192.168.8.16
Content-Type: application/json
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
{
      "cancellationIds": ["123auth456"]
}
```

3.8.4 Get SCA status

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

3.8.4.1 Request

Endpoint in the case of Fund Confirmation Consent

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

Endpoint in the case of Payment Cancellation

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

Path

Field	Description	Type	Man.	Format
provider	URL of the HUB where the service is published.	String	MAN	E.g. hub.example.es
aspsp	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name
payment-service	Possible values are: • payments • bulk-payments • periodic-payments	String	COND	E.g. {provider}/v1/payments
payment-product	Payment product to be used. List of supported products: • sepa-credit-transfers • instant-sepa-credit-transfers • target-2-payments • cross-border-credit-transfers	String	COND	E.g. {provider}/v1/payments/sepa-credit-transfers/
paymentId, consentId	Identifier of the resource that references the payment initiation or consent	String	MAN	^.{1,36}$ E.g.123-qwe-456
authorisationId	Identifier of the sub-resource associated	String	COND	^.{1,36}$

	with the consent.			
cancellationId	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
X-Request-ID	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	**UUID** ^[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
Authorisation	Bearer Token. Obtained in a prior authentication on OAuth2.	String	MAN	E.g. Authorisation: Bearer 2YotnFZFEjr1zCsicMWpAA
PSU-IP-Address	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
PSU-IP-Port	The forwarded IP Port header field consists of the corresponding HTTP request IP Port	String	OPT	^\\d{1,5}$ E.g. PSU-IP-Port: 443

	field between PSU and TPP, if available.			
PSU-Accept	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
PSU-Accept-Charset	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Charset: utf-8
PSU-Accept-Encoding	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Encoding: gzip
PSU-Accept-Language	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Language: es-ES
PSU-User-Agent	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)
PSU-Http-Method	HTTP method used at the PSU – TPP interface, if available. Valid values are: • GET • POST • PUT • PATCH • DELETE	String	OPT	E.g. PSU-Http-Method: GET
PSU-Device-ID	UUID (Universally Unique Identifier) for a device, which is used by the PSU, if available.	String	OPT	**UUID** ^[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}$

	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.			E.g. PSU-Device-ID: 5b3ab8e8-0fd5-43d2-946e-d75958b172e7
PSU-Geo-Location	The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.	String	OPT	**RFC 2426** ^GEO:[\\d]*.[\\d]*[;,][\\d]*.[\\d]*$ E.g. PSU-Geo-Location: GEO:90.023856;25.345963
Digest	Is contained if and only if the "Signature" element is contained in the header of the request. See 6.1Signature for more information.	String	MAN	^.{1,100}$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRlMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
Signature	A signature of the request by the TPP on application level. See 6.1Signature for more information.	String	MAN	See annexes
TPP-Signature-Certificate	The certificate used for signing the request, in base64 encoding.	String	MAN	^.{1,5000}$ E.g. TPP-Signature-Certificate: MIIHgzCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ…….KoZIhvcNAQELBQAwSTELMAkGA1UEBhMCVVMxEzARBgNVBA

Body

No additional data are specified.

3.8.4.2 Response

Header

Field	Description	Type	Man.	Format
X-Request-ID	Unique identifier of the transaction assigned by the TPP and submitted through the HUB to the ASPSP	String	MAN	**UUID** ^[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
scaStatus	SCA status	String	MAN	E.g. "scaStatus": "finalised"
psuMessage	Text sent to TPP through the HUB to be shown to PSU.	String	OPT	^.{1,512}$ E.g. "psuMessage": "Information for the PSU"
tppMessages	Message for the TPP sent through the HUB.	List<TppMessage>	OPT	E.g. "tppMessages": […]

3.8.4.3 Examples

Example of request

```
GET https://hub.example.es/aspsp-name/v1/payments/sepa-credit-transfers/123-qwe-456/cancellation-authorisations/123asd456
X-Request-ID: 96201400-6ff9-11e8-adc0-fa7ae01bbebc
Authorization: Bearer 2YotnFZFEjr1zCsicMWpAA
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 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

4.1.1 Payment initiation

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

4.1.1.1 Request

Endpoint

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

Path

Field	Description	Type	Man.	Format
provider	URL of the HUB where the service is published.	String	MAN	E.g. www.hub.com
aspsp	Name of the ASPSP to which the request is made.	String	MAN	E.g. aspsp-name
payment-product	Payment product to be used. List of supported products: • sepa-credit-transfers • instant-sepa-credit-transfers	String	MAN	E.g. {provider}/{aspsp}/v1/payments/sepa-credit-transfers/

	• target-2-payments • cross-border-credit-transfers			

Header

Field	Description	Type	Man.	Format
Content-Type	Value: application/json	String	MAN	Content-Type: application/json
X-Request-ID	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	**UUID** ^[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
Authorisation	Bearer Token. Obtained in a prior authentication on OAuth2.	String	MAN	E.g. Authorisation: Bearer 2YotnFZFEjr1zCsicMWpAA
Consent-ID	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
PSU-IP-Address	The forwarded IP Address header field consists of the corresponding HTTP request IP Address field	String	MAN	^[0-9]{1,3}.[0-9]{1,3}.[0-9]{1,3}.[0-9]{1,3}$ E.g.

	between PSU and TPP. If not available, the TPP shall use the IP Address used by the TPP when submitting this request.			PSU-IP-Address: 192.168.16.5
PSU-IP-Port	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
PSU-Accept	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
PSU-Accept-Charset	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Charset: utf-8
PSU-Accept-Encoding	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Encoding: gzip
PSU-Accept-Language	See above	String	OPT	^.{1,50}$ E.g. PSU-Accept-Language: es-ES
PSU-User-Agent	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)
PSU-Http-Method	HTTP method used at the PSU – TPP interface, if available. Valid values are:	String	OPT	E.g. PSU-Http-Method: POST

	• GET • POST • PUT • PATCH • DELETE			
PSU-Device-ID	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	**UUID** ^[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
PSU-Geo-Location	The forwarded Geo Location of the corresponding HTTP request between PSU and TPP if available.	String	OPT	**RFC 2426** ^GEO:[\\d]*.[\\d]*[;][\\d]*.[\\d]*$ E.g. PSU-Geo-Location: GEO:90.023856;25.345963
TPP-Redirect-Preferred	If it equals "true", the TPP prefers a redirect over an embedded SCA approach. 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. If the parameter is not used, the ASPSP will choose the SCA	Boolean	OPT	E.g. TPP-Redirect-Preferred: true

	approach to be applied depending on the SCA method chosen by the TPP/PSU. **EMBEDDED NOT SUPPORTED IN THIS VERSION**			
TPP-Redirect-URI	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". It is recommended to always use this header field. **Remark for Future**: This field might be changed to mandatory in the next version of the specification.	String	COND	^.{1,250}$ E.g. TPP-Redirect-URI":"https://tpp.example.es/cb"
TPP-Nok-Redirect-URI	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"
Digest	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	String	MAN	^.{1,100}$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRlMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==

	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. **Note**: the ASPSP may not take it into account if it does not support it.			
Signature	Is contained if and only if the "Signature" element is contained in the header of the request. See 6.1Signature for more information.	String	MAN	See annexes
TPP-Signature-Certificate	A signature of the request by the TPP on application level. See 6.1Signature for more information.	String	MAN	^.{1,5000}$ E.g. TPP-Signature-Certificate: MIIHgzCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ……..KoZIhvcNAQELBQAwSTELMAkGA1UEBhMCVVMxEzARBgNVBA

Body

Field	Description	Type	Man.	Format
instructedAmount	Information on the transfer carried out.	Amount	MAN	E.g. "instructedAmount": {…}
creditorAccount	Creditor account	AccountReference	MAN	E.g. "creditorAccount": {"iban":"ES1111111111111111111"}
creditorName	Creditor's name	String	MAN	^.{1,70}$ E.g. "creditorName":"Name"
creditorAgent	BIC of the creditor	String	OPT	^.{1,12}$ E.g.

	account.			"creditorAgent":"XSXHXSMMXXX"
creditorAddress	Creditor's address	Address	OPT	E.g. "creditorAddress":{…}
remittanceInformationUnstructured	Additional information	String	OPT	^.{1,140}$ E.g. "remittanceInformationUnstructured":"Additional information"

4.1.1.2 Response

Header

Field	Description	Type	Man.	Format
Location	Location of the created resource (if created)	String	MAN	E.g. Location: /v1/payments/{payment-product}/{payment-id}
X-Request-ID	ID of the request, unique to the call, as determined by the initiating party.	String	MAN	**UUID** ^[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
ASPSP-SCA-Approach	This data element must be contained, if the SCA Approach is already fixed. Possible values are: • EMBEDDED • DECOUPLED • REDIRECT The OAuth	String	COND	E.g. ASPSP-SCA-Approach: REDIRECT

	SCA approach will be subsumed by REDIRECT.			

Body

Field	Description	Type	Man.	Format
transactionStatus	Status of the transaction. Values defined in annexes in 6.4Transaction status	String	MAN	**ISO 20022** E.g. "transactionStatus": "RCVD"
paymentId	Identifier of the resource that references the payment initiation.	String	MAN	^.{1,36}$ E.g. "paymentId": "1b3ab8e8-0fd5-43d2-946e-d75958b172e7"
transactionFees	Fees associated with the payment.	Amount	OPT	E.g. "transactionFees": {…}
transactionFeeIndicator	If equal to "true", the transaction will involve a fee depending on the ASPSP or what has been agreed between the ASPSP and the PSU. If equal to "false", the transaction will not involve any additional fee for the PSU.	Boolean		E.g. "transactionFeeIndicator": true
_links	List of hyperlinks to be recognised by the TPP. Types supported in this response: • scaRedirect: in	Links	MAN	E.g. "_links": {…}

	case of SCA by redirection. Link where the PSU navigator must be redirected by the TPP. • startAuthorisation: if an explicit initiation of the transaction authorisation is necessary (there is no selection of the SCA method) • startAuthorisationWithAuthenticationMethodSelection: link to the authorisation endpoint where the authorisation sub-resource has to be generated while the SCA method is selected. This link is contained under the same conditions as the "scaMethods" field • self: link to the resource created by this request. • status: link to recover the transaction status. • 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.			
psuMessage	Text to show to the PSU.	String	OPT	^.{1,512}$ E.g. "psuMessage": "Information for the PSU"
tppMessages	Message for the TPP	List<TppMessage>	OPT	E.g. "tppMessages": […]

4.1.1.3 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 2YotnFZFEjr1zCsicMWpAA
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"
      },
      "creditorAccount": {
            "iban": "ES2222222222222222222222"
      },
      "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
accounts	Is asking for detailed account information. 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.	List<AccountReference>	OPT	E.g. "accounts": […]
balances	Is asking for balances of the addressed accounts. 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	List<AccountReference>	OPT	E.g. "balances": […]

	dialogue. If the array is empty, also the arrays for accounts or transactions shall be empty, if used.			
transactions	Is asking for transactions of the addressed accounts. 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.	List<AccountReference>	OPT	E.g. "transactions": […]
availableAccounts	Only the value "allAccounts" is admitted.	String	OPT	E.g. "availableAccounts": "allAcounts"
availableAccountsWithBalances	Only the value "allAcounts" is admitted	String	OPT	E.g. "availableAccountsWithBalances": "allAcounts"
allPsd2	Only the value "allAcounts" is admitted	String	OPT	E.g. "allPsd2": "allAcounts"

5.2 AccountDetails

Field	Description	Type	Man.	Format
resourceId	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	String	COND	^.{1,100}$ E.g. "resourceId":"3dc3d5b3702348489853f5400a64e80f"

	ASPSP on the /accounts endpoint.			
iban	IBAN of the account	String	OPT	E.g. "iban":"ES1111111111111111111"
bban	BBAN of the account if it does not have an IBAN.	String	OPT	E.g. "bban":"20385778983000760236"
msisdn	Alias to access a payment account through a registered mobile phone number.	String	OPT	^.{1,35}$ E.g. "msisdn":"…"
currency	Account currency.	String	MAN	**ISO 4217** E.g. "currency":"EUR"
name	Name of the account given by the bank or the PSU in Online-Banking	String	OPT	^.{1,35}$ E.g. "name":"Name"
product	Product Name of the Bank for this account, proprietary definition	String	OPT	^.{1,35}$ E.g. "product":"Main Account"
cashAccountType	Specifies the nature or use of the account.	String	OPT	**ExternalCashAccountType1Code de ISO 20022** E.g. "cashAccountType": ”CACC"
status	Account status. The value is one of the following: • enabled: the account is available • deleted: account closed • blocked: account blocked	String	OPT	E.g. "status":"enabled"

bic	BIC of the account.	String	OPT	^.{1,12}$ E.g. "bic":"XSXHXSMMXXX"
linkedAccounts	This data attribute is a field, where an ASPSP can name a cash account associated to pending card transactions.	String	OPT	^.{1,70}$
usage	Specifies the use of the account. Possible values: • PRIV: private personal account • ORGA: business account	String	OPT	^.{1,4}$ E.g. "usage": "PRIV"
details	Specifications that might be provided by the ASPSP. • Account characteristics • Card characteristics	String	OPT	^.{1,140}$
balances	Account balances.	List<Balance>	COND	"balances": […]
_links	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
iban	IBAN of the account	String	COND	E.g. "iban":"ES1111111111111111111"
bban	BBAN of the account if it does not have an IBAN.	String	COND	E.g. "bban":"20385778983000760236"
pan	Primary Account Number (PAN) of a card, can be tokenised by the ASPSP due to PCI DSS requirements.	String	COND	^.{1,35}$ E.g. "pan":"1234567891234567"
maskedPan	Primary Account Number (PAN) of a card in a masked form.	String	COND	^.{1,35}$ E.g. "maskedPan":"123456******4567"
msisdn	Alias to access a payment account through a registered mobile phone number.	String	COND	^.{1,35}$ E.g. "msisdn":"…"
currency	Currency.	String	OPT	**ISO 4217** E.g. "currency":"EUR"

5.4 AccountReport

Field	Description	Type	Man.	Format
booked	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":[{..}]
pending	Transactions pending in the account.	List<Transactions>	OPT	E.g. "pending":[{..}]

	Not contained if the bookingStatus parameter is established as "booked".			
_links	The following links are accepted in this object: • account (MAN) • first (OPT) • next (OPT) • previous (OPT) • last (OPT)	Links	MAN	E.g. "_links":[{..}]

5.5 Address

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

5.6 Amount

Field	Description	Type	Mand.	Format
currency	Currency of amount.	String	MAN	**ISO 4217** E.g. "currency":"EUR"
amount	Amount The decimal	String	MAN	**ISO 4217**

	separator is a point.			E.g. "amount":"500.00"

5.7 AuthenticationObject

Field	Description	Type	Mand.	Format
authenticationType	Type of authentication method. Possible values: • SMS_OTP • CHIP_OTP • PHOTO_OTP • PUSH_OTP See annex 6.6Types of authentication for more information.	String	MAN	E.g. "authenticationType":"SMS_OTP"
authenticationVersion	Version of the tool associated with the authenticationType.	String	COND	E.g. "authenticationVersion":"1.0"
authenticationMethodId	Id of the authentication method provided by the ASPSP.	String	MAN	^.{1,35}$
name	Name of the authentication method defined by the PSU in the ASPSP online banking. It may also be a description provided by the ASPSP. If the TPP has it available, it must present it to the PSU.	String	MAN	E.g. "name":"SMS OTP to phone 666777888"
explanation	Detailed information about the SCA method for the PSU	String	OPT	

5.8 Aspsp

Field	Description	Type	Man.	Format
bic	BIC code of the ASPSP.	String	MAN	E.g. "bic":" XXXXXXXXXXX"
name	Name of the ASPSP	String	OPT	E.g. "name":"ASPSP Name"
apiName	Name of the ASPSP used in the request PATH. **Note**: Only available for V2 of the list of available ASPSPs.	String	COND	E.g. "apiName": "nombreBanco"

5.9 Balance

Field	Description	Type	Man.	Format
balanceAmount	Amount and currency of the balance	Amount	MAN	E.g. "balanceAmount": {…}
balanceType	Type of balance. Values supported in the annex 6.7Balance type	String	MAN	E.g. "balanceType": "closingBooked"
creditLimitIncluded	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
lastChangeDateTime	Date of the last action carried out on the account.	String	OPT	**ISODateTime** E.g. "lastChangeDateTime": "2017-10-25T15:30:35.035Z"
referenceDate	Reference date of the balance	String	OPT	**ISODate** E.g. "referenceDate": "2017-10-25"
lastCommi	entryReference of	String	OPT	**Max35Text**

ttedTransaction	the last commited transaction to support the TPP in identifying whether all PSU transactions are already known.			E.g. "lastCommittedTransaction": "1234-asd-567"

5.10 ExchangeRate

Field	Description	Type	Man.	Format
currencyFrom	Source currency	String	MAN	E.g. "currencyFrom":"USD"
rate	Defines the exchange rate. E.g. currencyFrom=USD, currencyTo=EUR: 1USD =0.8 EUR and 0.8 is the fee.	String	MAN	E.g. "rate":"0.8"
currencyTo	Destination currency	String	MAN	E.g. "currencyTo":"EUR"
rateDate	Date of fee	String	MAN	**ISODateTame**
rateContract	Reference to the fee contract	String	OPT	

5.11 Href

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

5.12 Links

Field	Description	Type	Man.	Format
scaRedirect	URL used to carry out the SCA, through redirecting the PSU navigator.	Href	OPT	E.g. "scaRedirect": {…}
startAuthorisation	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":{…}
startAuthorisationWithAuthenticationMethodSelection	Link to the endpoint where the authorisation of a transaction or cancellation transaction must be initiated, where the SCA method must be informed with the corresponding call.	Href	OPT	E.g. "startAuthorisationWithAuthenticationMethodSelection ": {…}
selectAuthenticationMethod	Link where the TPP may select the 2-factor authentication method applicable for the PSU, if there is more than one.	Href	OPT	E.g. "selectAuthenticationMethod": {…}
self	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": {…}
status	The link to recover the transaction status. For example, payment initiation status.	Href	OPT	E.g. "status": {…}

account	Link to the resource that provides the information on an account.	Href	OPT	E.g. "account": {…}
balances	Link to the resource that provides the account balances.	Href	OPT	E.g. "balances": {…}
transactions	Link to the resource that provides the account activity.	Href	OPT	E.g. "transactions": {…}
first	Navigation link for reports on paginated accounts.	Href	OPT	E.g. "first": {…}
next	Navigation link for reports on paginated accounts.	Href	OPT	E.g. "next": {…}
previous	Navigation link for reports on paginated accounts.	Href	OPT	E.g. "previous": {…}
last	Navigation link for reports on paginated accounts.	Href	OPT	E.g. "last": {…}
download	Download link for large AIS data packages. Only for camt-data.	Href	OPT	E.g. "download": {…}

5.13 PaymentExchangeRate

Field	Description	Type	Man.	Format
unitCurrency	Currency in which the rate of exchange is expressed in a currency exchange. In the example 1EUR = xxxCUR, the unit currency is EUR.	String	OPT	**ISO 4217** E.g. "unitCurrency": "EUR"
exchangeRate	Factor used to convert an amount	String	OPT	E.g. "exchangeRate": "1.3"

	from one currency into another. This reflects the price at which one currency was bought with another currency.			
contractIdentification	Unique identification to unambiguously identify the foreign exchange contract.	String	OPT	E.g. "contractIdentification" : "1234-qeru-23"
rateType	Specifies the type used to complete the currency exchange. Permitted values: • SPOT • SALE • AGRD	String	OPT	E.g. "rateType": "SPOT"

5.14 ReportExchangeRate

Field	Description	Type	Man.	Format
sourceCurrency	Currency from which an amount is to be converted in a currency conversion.	String	MAN	**ISO 4217** E.g. "sourceCurrency": "EUR"
exchangeRate	Factor used to convert an amount from one currency into another. This reflects the price at which one currency was bought with another currency.	String	MAN	E.g. "exchangeRate": "1.3"
unitCurrency	Currency in which the rate of exchange is expressed in a currency exchange. In the example 1EUR	String	MAN	**ISO 4217** E.g. "unitCurrency": "EUR"

	= xxxCUR, the unit currency is EUR.			
targetCurrency	Currency into which an amount is to be converted in a currency conversion.	String	MAN	**ISO 4217** E.g. "targetCurrency": "USD"
quotationDate	Date at which an exchange rate is quoted.	String	MAN	**ISODate** E.g. "quotationDate": "2019-01-24"
contratcIdentification	Unique identification to unambiguously identify the foreign exchange contract.	String	OPT	E.g. "contractIdentification" : "1234-qeru-23"

5.15 SinglePayment

Field	Description	Type	Man.	Format
instructedAmount	Information on the transfer carried out.	Amount	MAN	E.g. "instructedAmount": {…}
debtorAccount	The debtor's account. **Note**: this field may be optional in some services such as bulk payments	Account Reference	MAN	E.g. "debtorAccount": {"iban":"ES1111111111111111111111"}
creditorAccount	Creditor account	Account Reference	MAN	E.g. "creditorAccount": {"iban":"ES1111111111111111111"}
creditorName	Creditor's name	String	MAN	^.{1,70}$ E.g. "creditorName":"Name"
creditorAgent	BIC of the creditor account.	String	OPT	E.g. "creditorAgent":"XSXHXSMMXXX"
creditorAddress	Creditor's address	Address	OPT	E.g. "creditorAddress":{…}
chargeBearer	Only for payment-product:	String	OPT	**ChargeBearerType1Code of ISO 20022**

	• target-2-payments • cross-border-credit-transfers Permitted values: • DEBT • CRED • SHAR • SLEV			E.g. “chargeBearer”:"SLEV"
remittanceInformationUnstructured	Additional information. See annex 6.9Good practice guide remittanceInformationUnstructured field for recommendations on use.	String	OPT	^.{1,140}$ E.g. "remittanceInformationUnstructured":"Additional information"
requestedExecutionDate	Execution date requested for future payments. **Note**: only if supported by the ASPSP	String	COND	**ISODate**
requestedExecutionTime	Requested time of execution. **Note**: only if supported by the ASPSP	String	COND	**ISODateTime**

5.16 TppMessage

Field	Description	Type	Man.	Format
category	Category of type of message received. Possible values: ERROR or WARNING	String	MAN	E.g. "category": "ERROR"
code	Response code. All the return codes for the service are	String	MAN	E.g. "code":"CONSENT_INVALID"

	listed in annex 6.3Return codes.			
path	Path to the field with a reference to the error.	String	COND	E.g. "path":"…"
text	Additional explanatory text.	String	OPT	E.g. "text":"Example of text"

5.17 Transactions

Field	Description	Type	Man.	Format
transactionId	Can be used as access-ID in the API, where more details on an transaction is offered.	String	OPT	E.g. "transactionId":"123-asdf-456"
entryReference	Is the identification of the transaction as used e.g. for reference for deltafunction on application level.	String	OPT	^.{1,35}$ E.g. "entryReference":"1234-asdf-456"
endToEndId	Unique end-to-end identifier.	String	OPT	^.{1,35}$ E.g. "endToEnd":"…"
mandateId	Identification of Mandates, e.g. a SEPA Mandate ID	String	OPT	^.{1,35}$ E.g. "mandateId":"…"
checkId	Cheque identifier	String	OPT	^.{1,35}$ E.g. "checkId":"…"
creditorId	Identification of the beneficiary. For example, an ID of a SEPA beneficiary.	String	OPT	^.{1,35}$ E.g. "creditorId":"…"
bookingDate	The Date when an entry is posted to an account on the	String	OPT	**ISODate** "bookingDate":"2017-

	ASPSPs books.			10-23"
valueDate	The Date at which assets become available to the account owner in case of a credit	String	OPT	**ISODate** E.g. "valueDate":"2017-10-23"
transactionAmount	The amount of the transaction as billed to the account.	Amount	MAN	E.g. "transactionAmount": [{..}]
currencyExchange	Exchange rate	List<ReportExchangeRate>	OPT	E.g. "currencyExchange": [{…}]
creditorName	Name of the creditor if a "Debited" transaction	String	OPT	^.{1,70}$ E.g. "creditor": "Nombre"
creditorAccount	Creditor's account.	AccountReference	COND	E.g. "creditorAccount": {...}
ultimateCreditor	Ultimate creditor.	String	OPT	^.{1,70}$ E.g. "ultimateCreditor": "Nombre"
debtorName	Name of the debtor if a "Credited" transaction	String	OPT	^.{1,70}$ E.g. "debtor": "Nombre"
debtorAccount	The debtor's account.	AccountReference	COND	E.g. "debtorAccount": {...}
ultimateDebtor	Name of ultimate debtor.	String	OPT	^.{1,70}$ E.g. "ultimateDebtor": "Nombre"
remittanceInformationUnstructured	Field to include additional information on the remittance.	String	OPT	^.{1,140}$ E.g. "remittanceInformationUnstructured":"Additional information"
remittanceInformationStructured	Reference as contained in the structured remittance reference structure	String	OPT	^.{1,140}$ E.g. "remittanceIinformationStructured":"Ref. 12344567"
purposeCo	ExternalPurpose1Cod	String	OPT	**ExternalPurpose1Co**

de	e ISO 20022			**de ISO 20022**
bankTransactionCode	Bank transaction code as used by the ASPSP and using the sub elements of this structured code defined by ISO20022	String	OPT	**ExternalBankTransactionDomain1Code**
proprietaryBankTransactionCode	Proprietary bank transaction code	String	OPT	^.{1,35}$
_links	Possible values: • transactionDetails	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
keyId	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= YYYYYYYYYYYYYYY" Where "XXX" is the serial number of the certificate in hexadecimal code and "YYYYYYYYYYYYYYY" is the full "Distinguished Name" of the certification authority.
Algorithm-ID	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.
Headers	String	OPT	Is used to specify the list of HTTP headers included when the	The required fields to be signed are: • digest

			signature is generated for the message. 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. 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.	• x-request-id Conditionally, if they travel and are supported, they must include: • psu-id • psu-corporate-id • tpp-redirect-uri
Signature	String	MAN	The "signature" parameter must be in Base64 according to RFC 4648. 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.	There are no additional requirements.

6.1.3 Example

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

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

- Hexadecimal: A5F1CF405B28E44ED29507E0F64495859BA877893D2A714512D16CE3BD8BE562

- Base64: pfHPQFso5E7SlQfg9kSVhZuod4k9KnFFEtFs472L5WI=

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

SHA256=pfHPQFso5E7SlQfg9kSVhZuod4k9KnFFEtFs472L5WI=

The headers you have so far are:

X-Request-ID=a13cbf11-b053-4908-bd06-517dfa3a1861f]
Digest=SHA256=pfHPQFso5E7SlQfg9kSVhZuod4k9KnFFEtFs472L5WI=

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=pfHPQFso5E7SlQfg9kSVhZuod4k9KnFFEtFs472L5WI=

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+uJMN37NQg9tJNE2yKIJlEPlAYOjC2PA/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=pfHPQFso5E7SlQfg9kSVhZuod4k9KnFFEtFs472L5WI=

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+uJMN37NQg9tJNE2yKIJlEPlAYOjC2PA/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
200 OK	PUT, GET Response Codes 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. The POST for a Funds request will also return 200 since it does not create a new resource. DELETE Response Code where a payment resource has been cancelled successfully and no further cancellation authorisation is required.
201 Created	POST response code where Payment Initiation or Consent Request was correctly performed.
202 Accepted	DELETE response code, where a payment resource can be cancelled in general, but where a cancellation authorisation is needed in addition.
204 No Content	DELETE response code where a consent resource was successfully deleted. The code indicates that the request was performed, but no content was returned. Also used in DELETE requests of a payment initiation where authentication is not needed.
400 Bad Request	Validation error occurred. This code will cover malformed syntax in request or incorrect data in payload.
401 Unauthorised	The TPP or the PSU is not correctly authorized to perform the request. Retry the request with correct authentication information.
403 Forbidden	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.
404 Not found	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. 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.
405 Method Not Allowed	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.
406 Not Acceptable	The ASPSP cannot generate the content that the TPP specified in the Accept header.
408 Request Timeout	The server is still working correctly, but an individual request has timed out.
409 Conflict	The request could not be completed due to a conflict with the current state of the target resource.
415 Unsupported Media Type	The TPP has supplied a media type which the ASPSP does not support.
429 Too Many Requests	The TPP has exceeded the number of requests allowed by the consent or by the RTS.
500 Internal Server Error	Internal server error occurred.
503 Service Unavailable	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**
SIGNATURE CERTIFICATE	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_MISSI	Signature/corporate seal

		NG	certificate was not available in the request but is mandated for the corresponding.
SIGNATURE	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.
GENERAL	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.
	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 addtitional authorisation.
OAuth2	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_respon	The authorisation server does not support the

		se_type	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.
	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.
PIS	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.
AIS	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.

FCS	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
ACCC	AcceptedSettelmentCompleted	Settlement on the creditor's account has been completed.
ACCP	AcceptedCustomerProfile	Preceding check of technical validation was successful. Customer profile check was also successful.
ACFC	AcceptedFundsChecked	Pre-ceeding check of technical validation and customer profile was successful and an automatic funds check was positive . **Remark:** This code is accepted as new code by ISO20022.
ACSC	AcceptedSettlementCompleted	Settlement on the debtor's account has been completed. **Usage:** this can be used by the first agent to report to the debtor that the transaction has been completed. **Warning:** this status is provided for transaction status reasons, not for financial information. It can only be used after bilateral agreement
ACSP	AcceptedSettlementInProcess	All preceding checks such as technical validation and customer profile were successful and therefore the payment initiation has been accepted for execution.
ACTC	AcceptedTechnicalValidation	Authentication and syntactical and semantical validation are successful
ACWC	AcceptedWithChange	The instruction has been accepted, but needs a change; for example, the date or other data has not been sent.

		Also to inform that a change has been applied, for example, on the payment initiation, and that the execution date has been changed.
ACWP	AcceptedWithoutPosting	Payment instruction included in the credit transfer is accepted without being posted to the creditor customer's account.
RCVD	Received	Payment initiation has been received by the receiving agent.
PATC	PartiallyAcceptedTechnicalCorrect	The payment initiation needs multiple authentications, where some but not yet all have been performed. Syntactical and semantical validations are successful. **Remark**: This code is is accepted as new code by ISO20022.
PDNG	Pending	Payment initiation or individual transaction included in the payment initiation is pending. Further checks and status update will be performed.
RJCT	Rejected	Payment initiation or individual transaction included in the payment initiation has been rejected.
CANC	Cancelled	Payment initiation has been cancelled before execution **Remark:** This code is accepted as new code by ISO20022.
PART	PartiallyAccepted	A number of transactions have been accepted, whereas another number of transactions have not yet achieved 'accepted' status. **Remark:** 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.

6.5 Consent status

Code	Description

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

6.6 Types of authentication

Code	Description
SMS_OTP	An SCA method, where an OTP linked to the transaction to be authorised is sent to the PSU through a SMS channel.
CHIP_OTP	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.
PHOTO_OTP	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.
PUSH_OTP	An OTP is pushed to a dedicated authentication APP and displayed to the PSU.

6.7 Balance type

Code	Description
closingBooked	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.
expected	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.
openingBooked	Book balance of the account at the beginning of the account reporting period. It always equals the closing book balance from the previous report.
interimAvailable	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.
interimBooked	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.
forwardAvailable	Forward available balance of money that is at the disposal of the account owner on the date specified.

6.8 Charge Bearer

Code	Description
DEBT	All transaction charges are to be borne by the debtor.
CRED	All transaction charges are to be borne by the creditor.
SHAR	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.
SLEV	Charges are to be applied following the rules agreed in the service level and/or scheme.

6.9 Good practice guide

6.9.1 remittanceInformationUnstructured field

This field may be used following the EACT *"Association of European Treasurers"* standard adopted in BG in the *"Mobile P2P Interoperability Framework – Implementation Guidelines v1.0"*

The format is as follows:

Field	Description
/DNR/	Debtor's alias
/CNR/	Creditor's alias. (we recommend sending the merchant's FUC)
/DOC/	Reference data for the corresponding request. (The Hub mobilises X-Request-Id of the TPP)
/TXT/	Additional text/item

Example
"remittanceInformationUnstructured": "/DOC/db617660-d60d-11e8-9f8b-f2801f1b9fd1/TXT/Purchase in merchant xxx"

6.9.2 Life of the scaRedirect link

The Berlin Group recommends a duration of 5 minutes for this type of link.

6.10 Annex exposed services Entity

The architecture designed for the provision of payment service providers of the services linked to the PSD2 directive follow all the functional and technical specifications of the Redsys API.

The functionalities supported in our Entity configuration are the following:

PIS: Payment initiation service

- Payment initiation
- Payment initiation for future dated payments
- Initiation for standing orders for recurring/periodic payments
- Get payment status
- Get payment initiation
- Payment cancellation
- Multilevel sca for payments

AIS: Establish account information consent service

- Get Consent Status
- Retrieve Consent Information
- Remove Consent

AIS: Account Data Reading Service

-Accounts list Reading
- Reading account details
- Reading Balance
- Reading of Transaction

FCS: Fund Confirmation Service

- Confirmation of funds

INFRASTRUCTURE:

-Oauth2 as pre-step
- Obtain Authorization
- Obtain access token
- Token renewal request

The **functionalities under construction:**

- PIS: payment initiation for bulk payments
- SVA: payment initiation with list of available accounts for PISP

The **functionalities not supported** in the configuration of our entity as they are not currently available in our electronic banking, are the following:

- AIS: Card Data Reading
- SIGNING BASKET: Simultaneous signing of multiple operations