PSD2-TPP Technical Design

Version:1.7.1

December 2019

Authorisations and version control

Version	Date	Affects	Brief description of the change
1.6.0	February 2019	EVERYTHING	Initial Version
1.6.1	March 2019	EVERYTHING	New Messages
1.6.2	April 2019	EVERYTHING	Bulk payments
1.6.3	June 2019	EVERYTHING	New Brand BBVA
1.7.0	September 2019	3. DESCRIPTION OF CORE SERVICES	New API 3.4 FCS support: Establish consent for the fund confirmation service
1.7.1	December 2019	5.2. AccountDetails 3.3.1.1. Request 3.3.1.3. Examples 3.3.2.1. Request 3.3.2.3. Examples 6.10 Fallback mechanism	Added field ownerName Added new endpoint version for ownerName Added ownerName example Added new endpoint version for ownerName Added ownerName example Description of fallback mechanism in case of unavailability of APIs

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
	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

Acronym	Definition
	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
CORE	PIS	Initiate simple single signature payment
		Initiate recurring payments
		Initiate recurring multiple/bulk payments
		Initiate future payments
		Check payment status
		Recover payment initiation information
		Cancel payment
	AIS	Establish consent
		Recover consent information
		Check consent status
		Remove consent
		Read list of accounts available with/without balances
		Read list of accounts accessible with/without balances
		Read account details with/without balances
		Read balances
		Read transactions with/without balances
	FCS	Establish consent
		Recover consent information
		Check consent status
		Remove consent
		Fund confirmation
	SCA	SCA by redirected flow
	Common processes	Initiate explicit authorisation
		SCA status query
		Obtain authorisation sub-resources
		Update authorisation data
	OAUTH	Obtain access token
		Renew access token

Table 1: CORE services

Service		Functionality
SVA	ASPSP DIR.	List of available ASPSPs (v1 and v2)
	PIS	Payment initiation with list of accounts available for PISP

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	Unique transaction identifier assigned by the TPP.	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 is contained if the payment initiation transaction forms part of a session (combination of AIS/PIS). Will contain the consentId of the AIS consent that was arranged before the payment initiation.	String	OPT	^.{1,36}$ E.g. Consent-ID: 7890-asdf-4321
PSU-IP-Address	IP address of the HTPP request between the PSU and the TPP. If it is not available, the TPP must use the IP address used by the TPP when it sends 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	IP port of the HTTP request between the PSU and the TPP, if available.	String	OPT	^.{1,5}$ E.g. PSU-IP-Port: 443
PSU-Accept	Accept header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept: application/json
PSU-Accept-Charset	Accept charset header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Charset: utf-8
PSU-Accept-Encoding	Accept encoding header of the HTTP request between the PSU and	String	OPT	^.{1,50}$ E.g. PSU-

	the TPP.			Accept-Encoding: gzip
PSU-Accept-Language	Accept language header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Language: es-ES
PSU-User-Agent	Navigator or operating system of the HTTP request between the PSU and the TPP.	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 in the interface between the PSU and the TPP. Permitted values: • POST • GET • PUT • PATCH • DELETE	String	OPT	E.g. PSU-Http-Method: POST
PSU-Device-ID	UUID (Universally Unique Identifier) for the device. The UUID identifies the device or an installation of an application in a device. This ID must not be modified until the device application is uninstalled.	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	Location corresponding to the HTTP request between the PSU and the TPP.	String	OPT	**RFC 2426** ^GEO:[\\d]*.[\\d]*[;][\\d]*.[\\d]*$ E.g.

				PSU-Geo-Location: GEO:90.023856;25.345963
TPP-Redirect-URI	TPP URI, where the transaction flow must be redirected after one of the phases of the SCA. We recommend always using this header field. In the future, this field may become mandatory.	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 requesting to redirect the transaction flow to this address instead of to TPP-Redirect-URI in case of a negative result with the SCA method using redirection.	String	OPT	^.{1,250}$ E.g. TPP-Nok-Redirect-URI":"https://tpp.example.es/cb/nok"
Digest	It is contained if it carries the Signature field. See 6.1 Signature for more information.	String	MAN	^.{1,100}$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRlMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
Signature	Signature of the request by the TPP. See 6.1 Signature for more information.	String	MAN	See annexes
TPP-Signature-Certificate	The TPP certificate used to sign the request, in base64.	String	MAN	^.{1,5000}$ E.g. TPP-Signature-Certificate: MIIHgzCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ…….KoZIhvcNAQELBQAwSTELMAkGA1UEBhM

				CVVMxEzARBgNVBA

Body

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

3.1.1.2 Response

Header

Field	Description	Type	Man.	Format
Location	Contains the link to the resource generated.	String	MAN	^.{1,512}$ E.g. Location: /v1/payments/{payment-product}/{payment-id}
X-Request-ID	Unique transaction identifier assigned by the TPP.	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 OAuth will be taken as 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 6.4 Status of the	String	MAN	**ISO 20022** E.g. "transactionStatus

	transaction			": "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	OPT	E.g. "transactionFeeIndicator": true
_links	List of hyperlinks to be recognised by the TPP. Types supported in this response: • scaRedirect: in case of SCA by redirection. Link where the PSU navigator must be redirected by the TPP. • self: link to the resource created by this request. • status: link to recover the transaction status.	Links	MAN	E.g. "_links": {...}
psuMessage	Text to show to the PSU.	String	OPT	^.{1,512}$ E.g. "psuMessage": "Information for the PSU"
tppMessages	Message for the TPP	List<Tpp Message>	OPT	E.g. "tppMessages": [...]

3.1.1.3 Examples

Example of redirection 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 the response in the case of SCA via redirection with a sub-resource of authorisation implicitly created

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

3.1.2 Initiation of future payment

Message sent by the TPP to the ASPSP through the Hub to initiate a future 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	Unique transaction identifier assigned by the TPP.	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 is contained if the payment initiation transaction forms part of a session (combination of	String	OPT	^.{1,36}$ E.g. Consent-ID: 7890-asdf-4321

	AIS/PIS). Will contain the consentId of the AIS consent that was arranged before the payment initiation.			
PSU-IP-Address	IP address of the HTPP request between the PSU and the TPP. If it is not available, the TPP must use the IP address used by the TPP when it sends 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	IP port of the HTTP request between the PSU and the TPP, if available.	String	OPT	^.{1,5}$ E.g. PSU-IP-Port: 443
PSU-Accept	Accept header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept: application/json
PSU-Accept-Charset	Accept charset header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Charset: utf-8
PSU-Accept-Encoding	Accept encoding header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Encoding: gzip
PSU-Accept-Language	Accept language header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Language: es-ES
PSU-User-Agent	Navigator or operating system of the HTTP request between the PSU and the TPP.	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 in the interface between the PSU and the TPP. Permitted values: • POST	String	OPT	E.g. PSU-Http-Method: POST

	• GET • PUT • PATCH • DELETE			
PSU-Device-ID	UUID (Universally Unique Identifier) for the device. The UUID identifies the device or an installation of an application in a device. This ID must not be modified until the device application is uninstalled.	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	Location corresponding to the HTTP request between the PSU and the TPP.	String	OPT	**RFC 2426** ^GEO:[\\d]*.[\\d]*[;][\\d]*.[\\d]*$ E.g. PSU-Geo-Location: GEO:90.023856; 25.345963
TPP-Redirect-URI	TPP URI, where the transaction flow must be redirected after one of the phases of the SCA. We recommend always using this header field. In the future, this field may become mandatory.	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 requesting to redirect the transaction flow to this address instead of to TPP-Redirect-URI in case of a negative result with the SCA method using redirection.	String	OPT	^.{1,250}$ E.g. TPP-Nok-Redirect-URI":"https://tpp.example.es/cb/nok"
Digest	It is contained if it carries the Signature	String	MAN	^.{1,100}$ E.g. Digest:

	field. See 6.1 Signature for more information.			SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRlMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
Signature	Signature of the request by the TPP. See 6.1 Signature for more information.	String	MAN	See annexes
TPP-Signature-Certificate	The TPP certificate used to sign the request, in base64.	String	MAN	^.{1,5000}$ E.g. TPP-Signature-Certificate: MIIHgzCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ.....KoZIhvcNAQELBQAwSTELMAkGA1UEBhMCVVMxEzARBgNVBA

Body

The content of the Body is defined in 5.15 SinglePayment 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	Contains the link to the resource generated.	String	MAN	**Max512Text** E.g. Location: /v1/payments/{payment-product}/{payment-

				id}
X-Request-ID	Unique transaction identifier assigned by the TPP.	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: • 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 6.4 Status of the transaction	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	OPT	E.g. "transactionFeeIndicator": true
_links	List of hyperlinks to be recognised by the	Links	MAN	E.g. "_links": {...}

	HUB. Types supported in this response: • scaRedirect: in case of SCA by redirection. Link where the PSU navigator must be redirected by the Hub. • self: link to the resource created by this request. • status: link to recover the transaction status.			
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<Tpp Message>	OPT	E.g. "tppMessages": [...]

3.1.2.3 Examples

Example of redirect for SCA via redirect

```
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 Bulk payment initiation

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-	Payment product to be	String	MAN	E.g.

product	used. List of supported products: • sepa-credit-transfers • instant-sepa-credit-transfers			{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	Unique transaction identifier assigned by the TPP.	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 is contained if the payment initiation transaction forms part of a session (combination of AIS/PIS). Will contain the consentId of the AIS consent that was arranged before the payment initiation.	String	OPT	^.{1,36}$ E.g. Consent-ID: 7890-asdf-4321
PSU-IP-Address	IP address of the HTPP request between the PSU and the TPP. If it is not available, the TPP must use the IP address used by the TPP	String	MAT	^[0-9]{1,3}.[0-9]{1,3}.[0-9]{1,3}.[0-9]{1,3}$ E.g.

	when it sends this request.			PSU-IP-Address: 192.168.16.5
PSU-IP-Port	IP port of the HTTP request between the PSU and the TPP, if available.	String	OPT	^.{1,5}$ E.g. PSU-IP-Port: 443
PSU-Accept	Accept header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept: application/json
PSU-Accept-Charset	Accept charset header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Charset: utf-8
PSU-Accept-Encoding	Accept encoding header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Encoding: gzip
PSU-Accept-Language	Accept language header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Language: es-ES
PSU-User-Agent	Navigator or operating system of the HTTP request between the PSU and the TPP.	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 in the interface between the PSU and the TPP. Permitted values: • POST • GET • PUT • PATCH • DELETE	String	OPT	E.g. PSU-Http-Method: POST
PSU-Device-ID	UUID (Universally Unique Identifier) for the device. The UUID identifies the device or an installation of an application in a	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-

	device. This ID must not be modified until the device application is uninstalled.			F]{12}$ E.g. PSU-Device-ID: 5b3ab8e8-0fd5-43d2-946e-d75958b172e7
PSU-Geo-Location	Location corresponding to the HTTP request between the PSU and the TPP.	String	OPT	**RFC 2426** ^GEO:[\\d]*.[\\d]*[;][\\d]*.[\\d]*$ E.g. PSU-Geo-Location: GEO:90.023856;25.345963
TPP-Redirect-Preferred	If "true", the TPP has communicated to the HUB that it prefers SCA via redirection. If "false", the TPP has communicated to the HUB that it prefers not to be redirected for SCA and that the procedure will be via decoupled flow. If the parameter is not used, the ASPSP will chose the SCA flow 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	TPP URI, where the transaction flow must be redirected after one of the phases of the SCA. We recommend always using this header field. In the future, this field may become mandatory.	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 requesting to	String	OPT	^.{1,250}$ E.g. TPP-Nok-

	redirect the transaction flow to this address instead of to TPP-Redirect-URI in case of a negative result with the SCA method using redirection.			Redirect-URI":"https://tpp.example.es/cb/nok"
Digest	It is contained if it carries the Signature field. See 6.1 Signature for more information.	String	MAN	^.{1,100}$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRlMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
Signature	Signature of the request by the TPP. See 6.1 Signature for more information.	String	MAN	See annexes
TPP-Signature-Certificate	The TPP certificate used to sign the request, in base64.	String	MAN	^.{1,5000}$ E.g. TPP-Signature-Certificate: MIIHgzCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ.....KoZIhvcNAQELBQAwSTELMAkGA1UEBhMCVVMxEzARBgNVBA

Body

Field	Description	Type	Man.	Format
batchBookingPreferred	If this element is "true", the PSU prefers only one entry. If this element is equal to "false", the PSU prefers individual entries for each individual transaction contained. The ASPSP will follow this preference in accordance with the	Boolean	OPT	E.g. "batchBookingPreferred":true

	agreement with the PSU.			
debtorAccount	The debtor's account.	Account Reference	MAN	E.g. "debtorAccount": {"iban":"ES1111111111111111111111"}
requestedExecutionDate	If it is contained, the payments contained in the batch will be executed on the indicated date. This field may or may not be used together with the requestedExecutionTime field	String	OPT	**ISODate** E.g. "requestedExecutionDate":"2018-05-17"
requestedExecutionTime	If it is contained, the payments contained in the batch will be executed at the indicated date/time. This field may not be used together with the requestedExecutionDate field	String	OPT	**ISODateTime**
payments	This element is an array of payment initiations in JSON notation for the payment products supported. Excluding the data: • debtorAccount • requestedExecutionDate • requestedExecutionTime	Array<SinglePayment>	MAN	E.g. "payments":[…]

3.1.3.2 Response

Header

Field	Description	Type	Man.	Format
Location	Contains the link to the resource generated.	String	MAN	^.{1,512}$ E.g. Location: /v1/bulk-payments/{payment-product}/{payment-

				id}
X-Request-ID	Unique transaction identifier assigned by the TPP.	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: • 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 6.4 Status of the transaction	String	MAN	**ISO 20022** E.g. "transactionStatus": "RCVD"
paymentId	Identifier of the resource that references the bulk 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	OPT	E.g. "transactionFeeIndicator": true
_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 Hub. • self: link to the resource created by this request. • status: link to recover the transaction status.			
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": [...]

3.1.3.3 Examples

Example of redirect 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"
    }
    ]
}
```


3.1.4 Initiation of permanent 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 the initiation of a specific permanent order.

A TPP may send a recurring initiation payment in which the initiation date, frequency and termination date (if appropriate) is provided.

Once authorised by the PSU, the payment will be executed by the ASPSP, if possible, following the "permanent order" as sent by the TPP. No additional actions are needed by the TPP.

In this respect, this payment is considered a periodic payment to differentiate it from other types of recurring payments where third parties are initiating the same amount of money.

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	Unique transaction identifier assigned by the TPP.	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 is contained if the payment initiation transaction forms part of a session (combination of AIS/PIS). Will contain the consentId of the AIS consent that was arranged before the payment initiation.	String	OPT	^.{1,36}$ E.g. Consent-ID: 7890-asdf-4321
PSU-IP-Address	IP address of the HTPP request between the PSU and the TPP. If it is not available, the TPP must use the IP address used by the TPP when it sends 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	IP port of the HTTP request between the PSU and the TPP, if available.	String	OPT	^.{1,5}$ E.g. PSU-IP-Port: 443
PSU-Accept	Accept header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept: application/json
PSU-Accept-	Accept charset header of the HTTP request	String	OPT	^.{1,50}$

Charset	between the PSU and the TPP.			E.g. PSU-Accept-Charset: utf-8
PSU-Accept-Encoding	Accept encoding header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Encoding: gzip
PSU-Accept-Language	Accept language header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Language: es-ES
PSU-User-Agent	Navigator or operating system of the HTTP request between the PSU and the TPP.	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 in the interface between the PSU and the TPP. Permitted values: • POST • GET • PUT • PATCH • DELETE	String	OPT	E.g. PSU-Http-Method: POST
PSU-Device-ID	UUID (Universally Unique Identifier) for the device. The UUID identifies the device or an installation of an application in a device. This ID must not be modified until the device application is uninstalled.	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	Location corresponding to the HTTP request between the PSU and the TPP.	String	OPT	**RFC 2426** ^GEO:[\\d]*.[\\d]*[;][\\d]*.[\\d]*$

				E.g. PSU-Geo-Location: GEO:90.023856; 25.345963
TPP-Redirect-URI	TPP URI, where the transaction flow must be redirected after one of the phases of the SCA. We recommend always using this header field. In the future, this field may become mandatory.	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 requesting to redirect the transaction flow to this address instead of to TPP-Redirect-URI in case of a negative result with the SCA method using redirection.	String	OPT	^.{1,250}$ E.g. TPP-Nok-Redirect-URI":"https://tpp.example.es/cb/nok"
Digest	It is contained if it carries the Signature field. See 6.1 Signature for more information.	String	OPT	^.{1,100}$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRlMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
Signature	Signature of the request by the TPP. See 6.1 Signature for more information.	String	MAN	See annexes
TPP-Signature-Certificate	The TPP certificate used to sign the request, in base64.	String	MAN	^.{1,5000}$ E.g. TPP-Signature-Certificate: MIIHgzCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ.....KoZIhvcNAQELBQAwSTELMAkGA1UEBhMCVVMxEz

				ARBgNVBA

Body

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

Field	Description	Type	Man.	Format
startDate	The first execution date applicable after this date is the first payment	String	MAN	**ISODate** E.g. "startDate":"2018-12-20"
executionRule	Supported values: • following • preceding Defines the behaviour when the recurring payment dates are at the weekend or on a bank holiday. The payment is then executed on the preceding or following business day. The ASPSP may reject the request due to the notified value if the Online Banking rules do not support this execution rule.	String	OPT	E.g. "executionRule":"following"
endDate	The last applicable execution day. If there is none it is a permanent order without an end date.	String	OPT	**ISODate** E.g. "endDate":"2019-01-20"
frequency	The frequency of the recurring payment resulting from this permanent order. Permitted values: • Daily • Weekly • EveryTwoWeeks • Monthly • EveryTwoMonths • Quarterly	String	MAN	**ISO 20022 EventFrequency7Code** E.g. "frequency":"Monthly"

	• Annual			

3.1.4.2 Response

Header

Field	Description	Type	Man.	Format
Location	Contains the link to the resource generated.	String	MAN	^.{1,512}$ E.g. Location: /v1/periodic-payments/{payment-product}/{payment-id}
X-Request-ID	Unique transaction identifier assigned by the TPP.	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: • 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 6.4 Status of the transaction	String	MAN	**ISO 20022** E.g. "transactionStatus": "RCVD"
paymentId	Identifier of the resource that references the bulk 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	Boolean	OPT	E.g. "transactionFeeIndicator": true

	been agreed between the ASPSP and the PSU. If equal to "false", the transaction will not involve any additional fee for the PSU.			
_links	List of hyperlinks to be recognised by the TPP. Types supported in this response: • scaRedirect: in case of SCA by redirection. Link where the PSU navigator must be redirected by the TPP. • self: link to the resource created by this request. • status: link to recover the transaction status.	Links	MAN	E.g. "_links": {...}
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": [...]

3.1.4.3 Examples

Example of redirect 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 Obtain 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 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/
paymentId	Identifier of the resource that references the payment initiation. 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	Unique identifier of the request assigned by the TPP.	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: • application/json	String	OPT	^.{1,50}$ E.g. Accept: application/json
PSU-IP-Address	IP address of the HTPP request between the PSU and the TPP.	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	IP port of the HTTP request between the PSU and the TPP, if available.	String	OPT	^\\d{1,5}$ E.g. PSU-IP-Port: 443
PSU-Accept	Accept header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept: application/json
PSU-Accept-Charset	Accept charset header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Charset: utf-8
PSU-Accept-Encoding	Accept encoding header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Encoding: gzip
PSU-Accept-Language	Accept language header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Language: es-ES
PSU-User-Agent	Navigator or operating system of the HTTP request between the PSU and the TPP.	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 in the interface between the PSU and the TPP. Permitted values: • POST • GET • PUT • PATCH • DELETE	String	OPT	E.g. PSU-Http-Method: GET
PSU-Device-ID	UUID (Universally Unique Identifier) for the device. The UUID identifies the device or an installation of an application in a	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}$

	device. This ID must not be modified until the device application is uninstalled.			E.g. PSU-Device-ID: 5b3ab8e8-0fd5-43d2-946e-d75958b172e7
PSU-Geo-Location	Location corresponding to the HTTP request between the PSU and the TPP.	String	OPT	**RFC 2426** ^GEO:[\\d]*.[\\d]*[;][\\d]*.[\\d]*$ E.g. PSU-Geo-Location: GEO:90.023856;25.345963
Digest	It is contained if it carries the Signature field. See 6.1 Signature for more information.	String	MAN	^.{1,100}$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRlMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
Signature	Signature of the request by the TPP. See 6.1 Signature for more information.	String	MAN	See annexes
TPP-Signature-Certificate	The TPP certificate used to sign the request, in base64.	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	Unique identifier of the request	String	MAN	**UUID** ^[0-9a-fA-F]{8}-[0-9a-fA-F]{4}-[0-9a-fA-F]{4}-[0-

	assigned by the TPP.			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 6.4 Status of the transaction	String	MAN	**ISO20022** E.g. "transactionStatus":"ACCP"
fundsAvailable	This data is contained if it is supported by the ASPSP, if a confirmation of funds has been made and if the "transactionStatus" is one of the following: • ATCT • ACWC • ACCP	Boolean	COND	E.g. "fundsAvailable": 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 Recover payment initiation information

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	String	MAN	E.g. {provider}/{aspsp}/v1/payments

	• periodic-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	MAN	E.g. {provider}/{aspsp}/v1/payments/sepa-credit-transfers/
paymentId	Identifier of the resource that references the payment initiation. 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	Unique identifier of the request assigned by the TPP.	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	IP address of the HTPP request between the PSU and the TPP.	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	IP port of the HTTP request between the PSU and the TPP, if available.	String	OPT	^\\d{1,5}$ E.g. PSU-IP-Port: 443
PSU-Accept	Accept header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept: application/json
PSU-Accept-Charset	Accept charset header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Charset: utf-8
PSU-Accept-Encoding	Accept encoding header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Encoding: gzip
PSU-Accept-Language	Accept language header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Language: es-ES
PSU-User-Agent	Navigator or operating system of the HTTP request between the PSU and the TPP.	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 in the interface between the PSU and the TPP. Permitted values: • POST • GET • PUT • PATCH • DELETE	String	OPT	E.g. PSU-Http-Method: GET
PSU-Device-ID	UUID (Universally Unique Identifier) for the device. The UUID identifies the device or an installation of an application in a device. This ID must not be modified until the device application is uninstalled.	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	Location corresponding to the HTTP request between the PSU and the TPP.	String	OPT	**RFC 2426** ^GEO:[\\d]*.[\\d]*[;][\\d]*.[\\d]*$ E.g. PSU-Geo-Location: GEO:90.023856;25.345963
Digest	It is contained if it carries the Signature field. See 6.1 Signature for more information.	String	MAN	^.{1,100}$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRlMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
Signature	Signature of the request by the TPP. See 6.1 Signature for more information.	String	MAN	See annexes
TPP-Signature-Certificate	The TPP certificate used to sign the request, in base64.	String	MAN	^.{1,5000}$ E.g. TPP-Signature-Certificate: MIIHgzCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ.....KoZIhvcNAQELBQAwSTELMAkGA1UEBhMCVVMxEzARBgNVBA

Body

No additional data are specified.

3.1.6.2 Response

Header

Field	Description	Type	Man.	Format
X-Request-ID	Unique identifier of the request assigned by the TPP.	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:

- 3.1.1 Payment initiation
- 3.1.2 Initiation of future payment of future payment
- 3.1.3 Bulk payments initiation
- 3.1.4 Initiation of permanent 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"
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": [...]

3.1.6.3 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 Cancel payment initiation

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 implementation of the ASPSP, this request may be sufficient to cancel the payment, or an authorisation may be necessary.

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: • periodic-payments	String	MAN	E.g. {provider}/v1/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	Unique identifier of the request 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
Authorisation	Bearer Token. Obtained in a prior authentication on OAuth2.	String	MAN	E.g. Authorisation: Bearer 2YotnFZFEjr1zCsicMWpAA
PSU-IP-Address	IP address of the HTPP request between the PSU and the TPP.	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	IP port of the HTTP request between the PSU and the TPP, if available.	String	OPT	^\\d{1,5}$ E.g. PSU-IP-Port: 443
PSU-Accept	Accept header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept: application/json
PSU-Accept-Charset	Accept charset header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Charset: utf-8
PSU-Accept-Encoding	Accept encoding header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Encoding: gzip
PSU-Accept-Language	Accept language header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Language: es-ES
PSU-User-Agent	Navigator or operating system of the HTTP request between the PSU and the TPP.	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 in the interface between the PSU and the TPP. Permitted values: • POST • GET • PUT • PATCH • DELETE	String	OPT	E.g. PSU-Http-Method: DELETE
PSU-Device-ID	UUID (Universally Unique Identifier) for the device. The UUID identifies the device or an installation of an application in 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}$ E.g.

	This ID must not be modified until the device application is uninstalled.			PSU-Device-ID: 5b3ab8e8-0fd5-43d2-946e-d75958b172e7
PSU-Geo-Location	Location corresponding to the HTTP request between the PSU and the TPP	String	OPT	**RFC 2426** ^GEO:[\\d]*.[\\d]*[;][\\d]*.[\\d]*$ E.g. PSU-Geo-Location: GEO:90.023856;25.345963
Digest	It is contained if it carries the Signature field. See 6.1 Signature for more information.	String	MAN	^.{1,100}$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRlMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
Signature	Signature of the request by the TPP. See 6.1 Signature for more information.	String	MAN	See annexes
TPP-Signature-Certificate	The TPP certificate used to sign the request, in base64.	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	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
transactionStatus	Status of the transaction. Values defined in annexes in 6.4 Status of the transaction	String	MAN	**ISO 20022** E.g. "transactionStatus": "CANC"
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 "startAuthorisationWithAuthenticationMethodSelection" will also be informed. 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. Depend on the decision taken by the ASPSP dynamically when evaluating the transaction. Types supported in this response. • startAuthorisation: if an explicit initiation of the transaction authorisation is necessary (there is no selection of the SCA method)	Links	COND	E.g. "_links": {...}

	• 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			
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": [...]

3.1.7.3 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 of response where no authorisation for cancellation is required by the PSU

```
HTTP/1.1 204 No Content
X-Request-ID: 0ee25bf4-6ff1-11e8-adc0-fa7ae01bbebc
Date: Sun, 26 Sep 2017 15:02:47 GMT
```

Example of response where an authorisation for cancellation is required 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"
            }
      }
}
```

3.2 AIS: Service to establish consent for account information

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")

Only ongoing consent by TPP and client will be allowed; any new consent will replace the previous consent

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 Information consent on payment accounts

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	Unique transaction identifier assigned by the TPP.	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	IP address of the HTPP request between the PSU and the TPP.	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	IP port of the HTTP request between the PSU and the TPP, if available.	String	OPT	^\\d{1,5}$ E.g. PSU-IP-Port: 443
PSU-Accept	Accept header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept: application/json
PSU-Accept-Charset	Accept charset header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Charset: utf-8
PSU-Accept-Encoding	Accept encoding header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Encoding: gzip

PSU-Accept-Language	Accept language header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Language: es-ES
PSU-User-Agent	Navigator or operating system of the HTTP request between the PSU and the TPP.	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 in the interface between the PSU and the TPP. Permitted values: • POST • GET • PUT • PATCH • DELETE	String	OPT	E.g. PSU-Http-Method: POST
PSU-Device-ID	UUID (Universally Unique Identifier) for the device. The UUID identifies the device or an installation of an application in a device. This ID must not be modified until the device application is uninstalled.	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	Location corresponding to the HTTP request between the PSU and the TPP	String	OPT	**RFC 2426** ^GEO:[\\d]*.[\\d]*[;][\\d]*.[\\d]*$ E.g. PSU-Geo-Location: GEO:90.023856;25.345963
TPP-Redirect-URI	TPP URI, where the transaction flow must be redirected after one of the phases of the SCA. We recommend always using this	String	COND	^.{1,250}$ E.g. TPP-Redirect-URI":"https://tpp.example.es/cb"

	header field. In the future, this field may become mandatory.			
TPP-Nok-Redirect-URI	If this URI is contained, the TPP is requesting to redirect the transaction flow to this address instead of to TPP-Redirect-URI in case of a negative result with the SCA method using redirection.	String	OPT	^.{12,50}$ E.g. TPP-Nok-Redirect-URI":"https://tpp.example.es/cb/nok"
Digest	It is contained if it carries the Signature field. See 6.1 Signature for more information.	String	MAN	^.{1,100}$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRlMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
Signature	Signature of the request by the TPP. See 6.1 Signature for more information.	String	MAN	See annexes
TPP-Signature-Certificate	The TPP certificate used to sign the request, in base64.	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 may support the attributes "availableAccounts",	Account Access	MAN	E.g. "access":{…}

	"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	Indicates the frequency of access to the account every day. 1 if it is one-use only.	Integer	MAN	E.g. "frequencyPerDay":4
combinedServiceIndicator	Indicator that a payment initiation will be carried out in the same session.	Boolean	MAN	E.g. "combinedServiceIndicator": false

3.2.2.2 Response

Header

Field	Description	Type	Man.	Format
Location	Contains the hyperlink to the resource generated	String	MAN	**Max512Text** E.g. Location: /v1/consents/{consentId}
X-Request-ID	Unique transaction identifier assigned by the TPP.	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: • REDIRECT	String	COND	E.g. ASPSP-SCA-Approach: REDIRECT

Body

Field	Description	Type	Man.	Format
consentStatus	Consent authentication status. See values defined in 6.5 Consent statuses	String	MAN	E.g. "consentStatus": "received"
consentId	Identifier of the resource that references the consent. It must be contained if a consent was generated.	String	MAN	^.{1,36}$ E.g. "consentId":"123-QWE-456"
_links	List of hyperlinks to be recognised by the TPP. Types supported in this response: • scaRedirect: in case of SCA by redirection. Link where the PSU navigator must be redirected by the TPP. • self: link to the resource created by this request. • status: link to recover the transaction status.	Links	MAN	E.g. "_links": {...}
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": [...]

3.2.2.3 Examples

Example of consent request for the accounts indicated 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 accounts available 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
}
```

3.2.3 Obtain 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 consent. Sent previously as a response to a request message for consent from the TPP to the HUB.	String	MAN	^.{1,36}$ E.g.123-qwerty-456

Query parameters

No additional fields are specified.

Header

Field	Description	Type	Man.	Format
X-Request-ID	Unique identifier of the request assigned by the TPP.	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	IP address of the HTPP request between the PSU and the TPP.	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	IP port of the HTTP request between the PSU and the TPP, if available.	String	OPT	^\\d{1,5}$ E.g. PSU-IP-Port: 443
PSU-Accept	Accept header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept: application/json
PSU-Accept-Charset	Accept charset header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Charset: utf-8
PSU-Accept-Encoding	Accept encoding header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Encoding: gzip
PSU-Accept-Language	Accept language header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Language: es-ES
PSU-User-Agent	Navigator or operating system of the HTTP request between the PSU and the TPP.	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 in the interface between the PSU and the TPP.	String	OPT	E.g. PSU-Http-Method: GET

	Permitted values: • POST • GET • PUT • PATCH • DELETE			
PSU-Device-ID	UUID (Universally Unique Identifier) for the device. The UUID identifies the device or an installation of an application in a device. This ID must not be modified until the device application is uninstalled.	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	Location corresponding to the HTTP request between the PSU and the TPP.	String	OPT	**RFC 2426** ^GEO:[\\d]*.[\\d]*[;][\\d]*.[\\d]*$ E.g. PSU-Geo-Location: GEO:90.023856;25.345963
Digest	It is contained if it carries the Signature field. See 6.1 Signature for more information.	String	MAN	^.{1,100}$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRlMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
Signature	Signature of the request by the TPP. See 6.1 Signature for more information.	String	MAN	See annexes
TPP-Signature-Certificate	The TPP certificate used to sign the request, in base64.	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	Unique identifier of the request assigned by the TPP.	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 6.5 Consent statuses	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 Recover consent information

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	Unique identifier of the request assigned by the TPP.	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	IP address of the HTPP request between the PSU and the TPP.	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	IP port of the HTTP request between the PSU and the TPP, if	String	OPT	^\\d{1,5}$ E.g. PSU-IP-Port: 443

	available.			
PSU-Accept	Accept header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept: application/json
PSU-Accept-Charset	Accept charset header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Charset: utf-8
PSU-Accept-Encoding	Accept encoding header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Encoding: gzip
PSU-Accept-Language	Accept language header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Language: es-ES
PSU-User-Agent	Navigator or operating system of the HTTP request between the PSU and the TPP.	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 in the interface between the PSU and the TPP. Permitted values: • POST • GET • PUT • PATCH • DELETE	String	OPT	E.g. PSU-Http-Method: GET
PSU-Device-ID	UUID (Universally Unique Identifier) for the device. The UUID identifies the device or an installation of an application in a device. This ID must not be modified until the device application is uninstalled.	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	Location corresponding to the HTTP request between the PSU and the TPP.	String	OPT	**RFC 2426** ^GEO:[\\d]*.[\\d]*[;][\\d]*.[\\d]*$ E.g. PSU-Geo-Location: GEO:90.023856;25.345963
Digest	It is contained if it carries the Signature field. See 6.1 Signature for more information.	String	MAN	^.{1,100}$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRlMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
Signature	Signature of the request by the TPP. See 6.1 Signature for more information.	String	MAN	See annexes
TPP-Signature-Certificate	The TPP certificate used to sign the request, in base64.	String	MAN	^.{1,5000}$ E.g. TPP-Signature-Certificate: MIIHgzCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ.....KoZIhvcNAQELBQAwSTELMAkGA1UEBhMCVVMxEzARBgNVBA

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	Unique identifier of the request assigned by the TPP.	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 value "allAccounts"	AccountAccess	MAN	E.g. "access": {...}
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 accounts indicated

```
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	Unique identifier of the request assigned by the TPP.	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: Bearer

	on OAuth2.			2YotnFZFEjr1zCsicMWpAA
PSU-IP-Address	IP address of the HTPP request between the PSU and the TPP.	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	IP port of the HTTP request between the PSU and the TPP, if available.	String	OPT	^\\d{1,5}$ E.g. PSU-IP-Port: 443
PSU-Accept	Accept header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept: application/json
PSU-Accept-Charset	Accept charset header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Charset: utf-8
PSU-Accept-Encoding	Accept encoding header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Encoding: gzip
PSU-Accept-Language	Accept language header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Language: es-ES
PSU-User-Agent	Navigator or operating system of the HTTP request between the PSU and the TPP.	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 in the interface between the PSU and the TPP. Permitted values: • POST • GET • PUT • PATCH • DELETE	String	OPT	E.g. PSU-Http-Method: DELETE

PSU-Device-ID	UUID (Universally Unique Identifier) for the device. The UUID identifies the device or an installation of an application in a device. This ID must not be modified until the device application is uninstalled.	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	Location corresponding to the HTTP request between the PSU and the TPP.	String	OPT	**RFC 2426** ^GEO:[\\d]*.[\\d]*[;][\\d]*.[\\d]*$ E.g. PSU-Geo-Location: GEO:90.023856;25.345963
Digest	It is contained if it carries the Signature field. See 6.1 Signature for more information.	String	MAN	^.{1,100}$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRlMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
Signature	Signature of the request by the TPP. See 6.1 Signature for more information.	String	MAN	See annexes
TPP-Signature-Certificate	The TPP certificate used to sign the request, in base64.	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	Unique identifier of the request assigned by the TPP.	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
```

3.3 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.

NOTE: A new version (1.1) has been added to include the account holder name (ownerName). Not available in production

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}

GET {provider}/{aspsp}/v1.1/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.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
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	Unique transaction identifier assigned by the TPP.	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	Identifier of the consent obtained in the transaction requesting consent.	String	MAN	^.{1,36}$ E.g. Consent-ID: 7890-asdf-4321
PSU-IP-Address	IP address of the HTPP request between the PSU and the TPP. Must be included if and only if this request was actively initiated by the PSU.	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	IP port of the HTTP request between the PSU and the TPP, if available.	String	OPT	^\\d{1,5}$ E.g. PSU-IP-Port: 443
PSU-Accept	Accept header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept: application/json
PSU-Accept-Charset	Accept charset header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Charset: utf-8
PSU-Accept-Encoding	Accept encoding header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Encoding: gzip
PSU-Accept-Language	Accept language header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Language: es-ES
PSU-User-Agent	Navigator or operating system of the HTTP request between the PSU and the TPP.	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 in the interface between the PSU and the TPP. Permitted values: • POST • GET • PUT • PATCH • DELETE	String	OPT	E.g. PSU-Http-Method: GET
PSU-Device-ID	UUID (Universally Unique Identifier) for the device. The UUID identifies the device or an installation of an application in a device. This ID must not be modified until the device application is uninstalled.	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	Location corresponding to the HTTP request between the PSU and the TPP.	String	OPT	**RFC 2426** ^GEO:[\\d]*.[\\d]*[;][\\d]*.[\\d]*$ E.g. PSU-Geo-Location: GEO:90.023856; 25.345963
Digest	It is contained if it carries the Signature field. See 6.1 Signature for more information.	String	MAN	^.{1,100}$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRlMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==

Signature	Signature of the request by the TPP. See 6.1 Signature for more information.	String	MAN	See annexes
TPP-Signature-Certificate	The TPP certificate used to sign the request, in base64.	String	MAN	^.{1,5000}$ E.g. TPP-Signature-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	Unique transaction identifier assigned by the TPP.	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<Tpp Message>	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
GET https://www.hub.com/aspsp-name/v1.1/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
```

Example of 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",
            "name": "Main Account",
            "_links": {
                  "balances": {
                        "href":  "/v1/accounts/3dc3d5b3-7023-4848-9853-
                  f5400a64e80f/balances"
                  },
                  "transactions": {
                        "href":  "/v1/accounts/3dc3d5b3-7023-4848-9853-
                  f5400a64e80f/transactions"
                  }
            }
      },
      {
            "resourceId": "3dc3d5b3-7023-4848-9853-f5400a64e81g",
            "iban": "ES2222222222222222222222",
            "currency": "USD",
            "name": "US Dollar Account",
            "_links": {
                  "balances": {
                        "href":  "/v1/accounts/3dc3d5b3-7023-4848-9853-
                  f5400a64e81g/balances"
                  }
            }
      }
      ]
}
```


Example of the response obtaining list of accessible PSU accounts and owner name

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


```
HTTP/1.1 200 Ok
HUB-Transaction-ID: 3dc3d5b3-7023-4848-9853-f5400a64e80f
HUB-Request-ID: 870b8698-6ff9-11e8-adc0-fa7ae01bbebc
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",
        "ownerName": "Heike Mustermann",
        "product": "Girokonto",
        "name": "Main Account"
    },
    {
        "resourceId": "3dc3d5b3-7023-4848-9853-f5400a64e81g",
        "iban": "ES2222222222222222222222",
        "currency": "USD",
        "ownerName": "Heike Mustermann",
        "name": "US Dollar Account"
    }
    ]
}
```


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.

NOTE: A new version (1.1) has been added to include the account holder name (ownerName). Not available in production

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}

GET {provider}/{aspsp}/v1.1/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	Unique transaction identifier assigned by the TPP.	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	Identifier of the consent obtained in the transaction requesting consent.	String	MAN	^.{1,36}$ E.g. Consent-ID: 7890-asdf-4321
PSU-IP-Address	IP address of the HTPP request between the PSU and the TPP. Must be included if and only if this request was actively initiated by the PSU.	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	IP port of the HTTP request between the PSU and the TPP, if available.	String	OPT	^\\d{1,5}$ E.g. PSU-IP-Port: 443
PSU-Accept	Accept header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept: application/json
PSU-Accept-Charset	Accept charset header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Charset: utf-8
PSU-Accept-Encoding	Accept encoding header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Encoding: gzip
PSU-Accept-Language	Accept language header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Language: es-ES
PSU-User-Agent	Navigator or operating system of the HTTP request between the	String	OPT	E.g. PSU-User-Agent: Mozilla/5.0

	PSU and the TPP.			(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 in the interface between the PSU and the TPP. Permitted values: • POST • GET • PUT • PATCH • DELETE	String	OPT	E.g. PSU-Http-Method: GET
PSU-Device-ID	UUID (Universally Unique Identifier) for the device. The UUID identifies the device or an installation of an application in a device. This ID must not be modified until the device application is uninstalled.	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	Location corresponding to the HTTP request between the PSU and the TPP.	String	OPT	**RFC 2426** ^GEO:[\\d]*.[\\d]*[;][\\d]*.[\\d]*$ E.g. PSU-Geo-Location: GEO:90.023856; 25.345963
Digest	It is contained if it carries the Signature field. See 6.1 Signature for more information.	String	MAN	^.{1,100}$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRlMzJkYzE3ZmNmMDE3ZG

				FmMjhhNTc5OTU3OQ==
Signature	Signature of the request by the TPP. See 6.1 Signature for more information.	String	MAN	See annexes
TPP-Signature-Certificate	The TPP certificate used to sign the request, in base64.	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	Unique transaction identifier assigned by the TPP.	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<Tpp Message>	OPT	E.g. "tppMessages": [...]

3.3.2.3 Examples

Example of request

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

GET https://www.hub.com/aspsp-name/v1.1/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
```

Example when the response 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",
            "name": "Main Account",
            "_links": {
                  "balances": {
                        "href":  "/v1/accounts/3dc3d5b3-7023-4848-9853-
                  f5400a64e80f/balances"
                  },
                  "transactions": {
                        "href": "/v1/accounts/3dc3d5b3-7023-4848-9853--
                  5400a64e80f/transactions"
                  }
            }
      }
}
```


Example when the account and owner name


```
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",
            "ownerName": "Heike Mustermann",
            "product": "Girokonto",
            "name": "Main Account",
            "_links": {
                  "balances": {
                        "href":  "/v1/accounts/3dc3d5b3-7023-4848-9853-
                  f5400a64e80f/balances"
                  },
                  "transactions": {
                        "href": "/v1/accounts/3dc3d5b3-7023-4848-9853--
                  5400a64e80f/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	String	MAN	^.{1,100}$ E.g. account-id=a1q5w

	reading of the account list. Must be valid at least while the consent lasts. This id may be tokenised.			

Query parameters

No additional fields are specified.

Header

Field	Description	Type	Man.	Format
X-Request-ID	Unique transaction identifier assigned by the TPP.	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	Identifier of the consent obtained in the transaction requesting consent.	String	MAN	^.{1,36}$ E.g. Consent-ID: 7890-asdf-4321
PSU-IP-Address	IP address of the HTPP request between the PSU and the TPP. Must be included if and only if this request was actively initiated by the PSU.	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	IP port of the HTTP request between the PSU and the TPP, if available.	String	OPT	^\\d{1,5}$ E.g. PSU-IP-Port: 443
PSU-Accept	Accept header of the HTTP request between	String	OPT	^.{1,50}$ E.g. PSU-Accept:

	the PSU and the TPP.			application/json
PSU-Accept-Charset	Accept charset header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Charset: utf-8
PSU-Accept-Encoding	Accept encoding header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Encoding: gzip
PSU-Accept-Language	Accept language header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Language: es-ES
PSU-User-Agent	Navigator or operating system of the HTTP request between the PSU and the TPP.	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 in the interface between the PSU and the TPP. Permitted values: • POST • GET • PUT • PATCH • DELETE	String	OPT	E.g. PSU-Http-Method: GET
PSU-Device-ID	UUID (Universally Unique Identifier) for the device. The UUID identifies the device or an installation of an application in a device. This ID must not be modified until the device application is uninstalled.	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 corresponding to the HTTP request	String	OPT	**RFC 2426**

Location	between the PSU and the TPP.			^GEO:[\\d]*.[\\d]*[;][\\d]*.[\\d]*$ E.g. PSU-Geo-Location: GEO:90.023856; 25.345963
Digest	It is contained if it carries the Signature field. See 6.1 Signature for more information.	String	MAN	^.{1,100}$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRlMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
Signature	Signature of the request by the TPP. See 6.1 Signature for more information.	String	MAN	See annexes
TPP-Signature-Certificate	The TPP certificate used to sign the request, in base64.	String	MAN	^.{1,5000}$ E.g. TPP-Signature-Certificate: MIIHgzCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ.....KoZIhvcNAQELBQAwSTELMAkGA1UEBhMCVVMxEzARBgNVBA

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	Unique transaction identifier assigned by	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-

	the TPP.			F]{12}$ E.g. X-Request-ID: 1b3ab8e8-0fd5-43d2-946e-d75958b172e7

Body

Field	Description	Type	Mand.	Format
account	Identifier of the account that is being queried. Note: its use is recommended as it could become a mandatory parameter in future versions.	AccountReference	OPT	E.g. "account": {...}
balances	A list of balances with respect to an account.	List<Balance>	MAN	E.g. "balances": {...}
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
```

Example of response

```
HTTP/1.1 200 Ok
X-Request-ID: 96201400-6ff9-11e8-adc0-fa7ae01bbebc

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

Content-Type: application/json

{
      "account": {
            "iban": "ES1111111111111111111111"
      },
      "balances": [
      {
            "balanceType": "closingBooked",
            "balanceAmount": {
                  "currency": "EUR",
                  "amount": "500.00"
            }
      },
      {
            "balanceType": "expected",
            "balanceAmount": {
                  "currency": "EUR",
                  "amount": "900.00"
            }
      }
      ]
}
```

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	String	MAN	^.{1,100}$ E.g. account-id=a1q5w

	while the consent lasts. This id may be tokenised.			

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
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
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	Unique transaction identifier assigned by the TPP.	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.

	on OAuth2.			Authorisation: Bearer 2YotnFZFEjr1zCsicMWpAA
Consent-ID	Identifier of the consent obtained in the transaction requesting consent.	String	MAN	^.{1,36}$ E.g. Consent-ID: 7890-asdf-4321
Accept	Formats supported by the ASPSP. The TPP may indicate the order and type. Supported values: application/json	String	OPT	^.{1,50}$ E.g. Accept: application/json
PSU-IP-Address	IP address of the HTPP request between the PSU and the TPP. Must be included if and only if this request was actively initiated by the PSU.	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	IP port of the HTTP request between the PSU and the TPP, if available.	String	OPT	^\\d{1,5}$ E.g. PSU-IP-Port: 443
PSU-Accept	Accept header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept: application/json
PSU-Accept-Charset	Accept charset header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Charset: utf-8
PSU-Accept-Encoding	Accept encoding header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Encoding: gzip
PSU-Accept-Language	Accept language header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Language: es-ES
PSU-User-Agent	Navigator or operating system of the HTTP request between the PSU and the TPP.	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 in the interface between the PSU and the TPP. Permitted values: • POST • GET • PUT • PATCH • DELETE	String	OPT	E.g. PSU-Http-Method: GET
PSU-Device-ID	UUID (Universally Unique Identifier) for the device. The UUID identifies the device or an installation of an application in a device. This ID must not be modified until the device application is uninstalled.	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	Location corresponding to the HTTP request between the PSU and the TPP.	String	OPT	**RFC 2426** ^GEO:[\\d]*.[\\d]*[;][\\d]*.[\\d]*$ E.g. PSU-Geo-Location: GEO:90.023856; 25.345963
Digest	It is contained if it carries the Signature field. See 6.1 Signature for more information.	String	MAN	^.{1,100}$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRlMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
Signature	Signature of the request	String	MAN	See annexes

	by the TPP. See 6.1 Signature for more information.			
TPP-Signature-Certificate	The TPP certificate used to sign the request, in base64.	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	Unique transaction identifier assigned by the TPP.	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 account that is being queried. Note: its use is recommended as it could become a	AccountReference	OPT	E.g. "account": {...}

	mandatory parameter in future versions.			
transactions	Return of the data in JSON format, when the data returned have a small size.	AccountReport	OPT	E.g. "transactions": {...}
balances	A list of balances with respect to an account.	List<Balance>	OPT	E.g. "balances": [...]
_links	List of hyperlinks to be recognised by the TPP.	Links	OPT	E.g. "_links": {...}
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 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[number]=1&page[siz
            e]=15
            },
            "previous": {
                "href":                          "/v1/accounts/
            qwer3456tzui7890/transactions?page[number]=2&page[siz
            e]=15"
            },
            "next": {
                "href":                          "/v1/accounts/
            qwer3456tzui7890/transactions?page[number]=4&page[siz
            e]=15"
        }
    }
```

```
}
```

Example of response with error

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

3.4 FCS: Establish consent for the fund confirmation service

3.4.1 Fund confirmation consent

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

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

E.g. does not invalidate prior consent.

3.4.1.1 Request

Endpoint

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

Path

Field	Description	Type	Man.	Format
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	Unique transaction identifier assigned by the TPP.	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	IP address of the HTPP request between the PSU and the TPP.	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	IP port of the HTTP request between the PSU and the TPP, if available.	String	OPT	^\\d{1,5}$ E.g. PSU-IP-Port: 443
PSU-Accept	Accept header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept: application/json
PSU-Accept-Charset	Accept charset header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Charset: utf-8
PSU-Accept-Encoding	Accept encoding header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Encoding: gzip
PSU-Accept-Language	Accept language header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Language: es-ES
PSU-User-Agent	Navigator or operating system of the HTTP request between the PSU and	String	OPT	E.g. PSU-User-Agent: Mozilla/5.0 (Windows; U; Windows NT 6.1;

	the TPP.			en-US; rv:1.9.1.5) Gecko/20091102 Firefox/3.5.5 (.NET CLR 3.5.30729)
PSU-Http-Method	HTTP method used in the interface between the PSU and the TPP. Permitted values: • POST • GET • PUT • PATCH • DELETE	String	OPT	E.g. PSU-Http-Method: POST
PSU-Device-ID	UUID (Universally Unique Identifier) for the device. The UUID identifies the device or an installation of an application in a device. This ID must not be modified until the device application is uninstalled.	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	Location corresponding to the HTTP request between the PSU and the TPP	String	OPT	**RFC 2426** ^GEO:[\\d]*.[\\d]*[;][\\d]*.[\\d]*$ E.g. PSU-Geo-Location: GEO:90.023856;25.345963
TPP-Redirect-Preferred	If "true", the TPP has communicated to the HUB that it prefers SCA via redirection. If "false", the TPP has communicated to the HUB that it prefers not to be redirected for SCA and that the procedure will be via decoupled flow. If the parameter is not used, the ASPSP will chose the SCA flow 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	TPP URI, where the transaction flow must be redirected after one of the phases of the SCA. We recommend always using this header field. In the future, this field may become mandatory. Requires the domain of this URL to be the same as that of the content in the TPP website certificate.	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 requesting to redirect the transaction flow to this address instead of to TPP-Redirect-URI in case of a negative result with the SCA method using redirection. Requires the domain of this URL to be the same as that of the content in the TPP website certificate.	String	OPT	^.{12,50}$ E.g. TPP-Nok-Redirect-URI":"https://tpp.example.es/cb/nok"
Digest	It is contained if it carries the Signature field. See 6.1 Signature for more information.	String	MAN	^.{1,100}$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRlMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
Signature	Signature of the request by the TPP. See 6.1 Signature for more information.	String	MAN	See annexes
TPP-	The TPP certificate	String	MAN	^.{1,5000}$

Signature-Certificate	used to sign the request, in base64.			E.g. TPP-Signature-Certificate: MIIHgzCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ……KoZIhvcNAQELBQAwSTELMAkGA1UEBhMCVVMxEzARBgNVBA

Body

Field	Description	Type	Man.	Format
account	Account on which the fund query will be carried out.	Account Reference	MAN	E.g. "access": {…}
cardNumber	Card number of the card issued by the PIISP. Must be sent if available.	String	OPT	^.{1,35}$
cardExpiryDate	Expiry date of the card issued by the PIISP.	String	OPT	**ISODate** E.g. "validUntil":"2018-05-17"
cardInformation	Additional product information.	String	OPT	^.{1,140}$
registrationInformation	Additional information about the registration process for the PSU. E.g. a reference to the agreement between the TPP and PSU	String	OPT	^.{1,140}$

3.4.1.2 Response

Response code

HTPP 201 response code if the resource is correctly created.

Header

Field	Description	Type	Man.	Format
Location	Contains the hyperlink to the resource generated	String	MAN	**Max512Text** E.g. Location: /v2/consents/confirmation-of-funds/{consentId}
X-Request-ID	Unique transaction identifier assigned by	String	MAN	**UUID** ^[0-9a-fA-F]{8}-[0-

	the TPP.			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: • REDIRECT	String	COND	E.g. ASPSP-SCA-Approach: REDIRECT

Body

Field	Description	Type	Man.	Format
consentStatus	Consent status. See values defined in 6.5 Consent statuses	String	MAN	E.g. "consentStatus": "received"
consentId	Identifier of the resource that references the consent. It must be contained if a consent was generated.	String	MAN	^.{1,36}$ E.g. "consentId":"123-QWE-456"
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 "startAuthorisationWithAuthenticationMethodSelection" will also be informed. 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: • scaRedirect: in case	Links	MAN	E.g. "_links": {...}

	of SCA by redirection. Link where the PSU navigator must be redirected by the TPP. • self: link to the resource created by this request. • status: link to recover the transaction status.			
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": [...]

3.4.1.3 Examples

Example of consent request

```
POST https://www.hub.com/aspsp-name/v2/consents/confirmation-of-funds
Content-Encoding: gzip
Content-Type: application/json
X-Request-ID: 10391c7e-ad88-49ec-a2ad-00aacb1f6541
Authorization: Bearer 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
{
      "account": {
            "iban": "ES1111111111111111111111"
      },
      "cardNumber": "123456781234",
      "cardExpiryDate": "2020-12-31",
      "cardInformation": "MyMerchant Loyalty Card",
      "registrationInformation": "Your contrat Number 1234 with MyMerchant is completed with the registration with your bank."
}
```

3.4.2 Obtain consent status

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

3.4.2.1 Request

Endpoint

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

Path

Field	Description	Type	Man.	Format
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.	String	MAN	^.{1,36}$ E.g.123-qwerty-456

Query parameters

No additional fields are specified.

Header

Field	Description	Type	Man.	Format

X-Request-ID	Unique identifier of the request assigned by the TPP.	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	IP address of the HTPP request between the PSU and the TPP.	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	IP port of the HTTP request between the PSU and the TPP, if available.	String	OPT	^\\d{1,5}$ E.g. PSU-IP-Port: 443
PSU-Accept	Accept header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept: application/json
PSU-Accept-Charset	Accept charset header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Charset: utf-8
PSU-Accept-Encoding	Accept encoding header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Encoding: gzip
PSU-Accept-Language	Accept language header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Language: es-ES
PSU-User-Agent	Navigator or operating system of the HTTP request between the	String	OPT	E.g. PSU-User-Agent: Mozilla/5.0

	PSU and the TPP.			(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 in the interface between the PSU and the TPP. Permitted values: • POST • GET • PUT • PATCH • DELETE	String	OPT	E.g. PSU-Http-Method: GET
PSU-Device-ID	UUID (Universally Unique Identifier) for the device. The UUID identifies the device or an installation of an application in a device. This ID must not be modified until the device application is uninstalled.	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	Location corresponding to the HTTP request between the PSU and the TPP.	String	OPT	**RFC 2426** ^GEO:[\\d]*.[\\d]*[;][\\d]*.[\\d]*$ E.g. PSU-Geo-Location: GEO:90.023856; 25.345963
Digest	It is contained if it carries the Signature field. See 6.1 Signature for more information.	String	MAN	^.{1,100}$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRlMzJkYzE3ZmNmMDE3ZG

				FmMjhhNTc5OTU3OQ==
Signature	Signature of the request by the TPP. See 6.1 Signature for more information.	String	MAN	See annexes
TPP-Signature-Certificate	The TPP certificate used to sign the request, in base64.	String	MAN	^.{1,5000}$ E.g. TPP-Signature-Certificate: MIIHgzCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ.....KoZIhvcNAQELBQAwSTELMAkGA1UEBhMCVVMxEzARBgNVBA

Body

No additional data are sent.

3.4.2.2 Response

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

Response code

HTPP 200 response code.

Header

Field	Description	Type	Man.	Format
X-Request-ID	Unique identifier of the request assigned by the TPP.	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 6.5 Consent statuses	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":[...]

3.4.2.3 Examples

Example of request

```
GET https://www.hub.com/aspsp-name/v2/consents/confirmation-of-funds/123asdf456/status
Accept: application/json
X-Request-ID: 96201400-6ff9-11e8-adc0-fa7ae01bbebc
Authorization: Bearer 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"
```

}

3.4.3 Recover consent information

3.4.3.1 Request

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

Endpoint

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

Path

Field	Description	Type	Man.	Format
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.	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	Unique identifier of the request assigned by the TPP.	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	IP address of the HTPP request between the PSU and the TPP.	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	IP port of the HTTP request between the PSU and the TPP, if available.	String	OPT	^\\d{1,5}$ E.g. PSU-IP-Port: 443
PSU-Accept	Accept header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept: application/json
PSU-Accept-Charset	Accept charset header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Charset: utf-8
PSU-Accept-Encoding	Accept encoding header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Encoding: gzip
PSU-Accept-Language	Accept language header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Language: es-ES
PSU-User-Agent	Navigator or operating system of the HTTP request between the PSU and the TPP.	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 in the interface between the PSU and the TPP. Permitted values: • POST • GET • PUT	String	OPT	E.g. PSU-Http-Method: GET

	• PATCH • DELETE			
PSU-Device-ID	UUID (Universally Unique Identifier) for the device. The UUID identifies the device or an installation of an application in a device. This ID must not be modified until the device application is uninstalled.	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	Location corresponding to the HTTP request between the PSU and the TPP.	String	OPT	**RFC 2426** ^GEO:[\\d]*.[\\d]*[;][\\d]*.[\\d]*$ E.g. PSU-Geo-Location: GEO:90.023856;25.345963
Digest	It is contained if it carries the Signature field. See 6.1 Signature for more information.	String	MAN	^.{1,100}$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRlMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
Signature	Signature of the request by the TPP. See 6.1 Signature for more information.	String	MAN	See annexes
TPP-Signature-Certificate	The TPP certificate used to sign the request, in base64.	String	MAN	^.{1,5000}$ E.g. TPP-Signature-Certificate: MIIHgzCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ.....KoZIhvcNAQELBQAwSTELMAkGA1UEBhMCVVMxEzARBgNVBA

Body

No additional data are sent.

3.4.3.2 Response

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

Response code

HTPP 200 response code.

Header

Field	Description	Type	Man.	Format
X-Request-ID	Unique identifier of the request assigned by the TPP.	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	Account on which the fund query will be carried out.	Account Reference	MAN	E.g. "access": {…}
cardNumber	Card number of the card issued by the PIISP. Must be sent if available.	String	OPT	^.{1,35}$
cardExpiryDate	Expiry date of the card issued by the PIISP.	String	OPT	**ISODate** E.g. "validUntil":"2018-05-17"
cardInformation	Additional product information.	String	OPT	^.{1,140}$
registrationInformation	Additional information about the registration process for the PSU. E.g. a reference to the agreement between the TPP and PSU	String	OPT	^.{1,140}$
consentSta	Consent status. Values	String	MAN	E.g.

tus	defined in annexes.			"consentStatus":"valid"
psuMessage	Text sent to TPP to be shown to the PSU.	String	OPT	^.{1,512}$ E.g. "psuMessage":"Information for PSU"
tppMessages	Message for the TPP.	List<TppMessage>	OPT	E.g. "tppMessages":[...]

3.4.3.3 Examples

Example of request

```
GET https://www.hub.com/aspsp-name/v2/consents/confirmation-of-funds/7890-asdf-4321/
Accept: application/json
X-Request-ID: 96201400-6ff9-11e8-adc0-fa7ae01bbebc
Authorization: Bearer 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
{
      "account": {
            "iban": "ES1111111111111111111111"
      },
      "cardNumber": "123456781234",
      "cardExpiryDate": "2020-12-31",
```

```
      "cardInformation": "MyMerchant Loyalty Card",
      "registrationInformation": "Your contrat Number 1234 with MyMerchant is completed with the registration with your bank."
      "consentStatus": "valid"
}
```

3.4.4 Revoke consent

3.4.4.1 Request

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

Endpoint

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

Path

Field	Description	Type	Man.	Format
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.	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	Unique identifier of the request assigned by the TPP.	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	IP address of the HTPP request between the PSU and the TPP.	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	IP port of the HTTP request between the PSU and the TPP, if available.	String	OPT	^\\d{1,5}$ E.g. PSU-IP-Port: 443
PSU-Accept	Accept header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept: application/json
PSU-Accept-Charset	Accept charset header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Charset: utf-8
PSU-Accept-Encoding	Accept encoding header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Encoding: gzip
PSU-Accept-Language	Accept language header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Language: es-ES
PSU-User-Agent	Navigator or operating system of the HTTP request between the PSU and the TPP.	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 in the interface between the PSU and the TPP.	String	OPT	E.g. PSU-Http-Method: DELETE

	Permitted values: • POST • GET • PUT • PATCH • DELETE			
PSU-Device-ID	UUID (Universally Unique Identifier) for the device. The UUID identifies the device or an installation of an application in a device. This ID must not be modified until the device application is uninstalled.	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	Location corresponding to the HTTP request between the PSU and the TPP.	String	OPT	**RFC 2426** ^GEO:[\\d]*.[\\d]*[;][\\d]*.[\\d]*$ E.g. PSU-Geo-Location: GEO:90.023856;25.345963
Digest	It is contained if it carries the Signature field. See 6.1 Signature for more information.	String	MAN	^.{1,100}$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRlMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
Signature	Signature of the request by the TPP. See 6.1 Signature for more information.	String	MAN	See annexes
TPP-Signature-Certificate	The TPP certificate used to sign the request, in base64.	String	MAN	^.{1,5000}$ E.g. TPP-Signature-Certificate: MIIHgzCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ.....KoZIhvcNAQELBQAwSTELMAkGA1UEBhMCVVMxEzARBgNVBA

Body

No additional data are sent.

3.4.4.2 Response

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

Response code

HTPP 204 response code for correct cancellation.

Header

Field	Description	Type	Man.	Format
X-Request-ID	Unique identifier of the request assigned by the TPP.	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.

3.4.4.3 Examples

Example of request

```
DELETE https://www.hub.com/aspsp-name/v2/consents/confirmation-of-funds/7890-asdf-4321
Accept: application/json
X-Request-ID: 96201400-6ff9-11e8-adc0-fa7ae01bbebc
Authorization: Bearer 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
```

3.5 FCS: Fund Confirmation Service (v1)

3.5.1 Fund query

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 the "cardNumber" is not shown, but the PSU account identifier is contained → Check default account registered by the customer
- If the "cardNumber" is not shown, but the PSU account identifier together with the currency is contained → Check the fund availability on the sub-account indicated by the id+currency
- If the "cardNumber" and the PSU account identifier is contained → Check the fund availability on the sub-account represented by the "cardNumber"
- If the "cardNumber" is not registered for any of the sub-accounts, or if the "cardNumber" is registered for a different sub-account, the "cardNumber" could be ignored.

3.5.1.1 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	Unique transaction identifier assigned by the TPP.	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
Digest	It is contained if it carries the Signature field. See 6.1 Signature for more information.	String	MAN	^.{1,100}$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRlMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
Signature	Signature of the request by the TPP. See 6.1 Signature for more information.	String	MAN	See annexes
TPP-Signature-Certificate	The TPP certificate used to sign the request, in base64.	String	MAN	^.{1,512}$ E.g. TPP-Signature-Certificate: MIIHgzCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ.....KoZIhvcNAQELBQAwSTELMAkGA1UEBhMCVVMxEzARBgNVBA

Body

Field	Description	Type	Mand.	Format
cardNumber	Numbering of the card issued by the PIISP. Must be sent if	String	OPT	E.g. "cardNumber": "1111-1111-1111-

	available.			1111"
account	PSU account number.	AccountReference	MAN	E.g. "account": {"iban":"ES1111111111111111111"}
payee	Merchant where the card is accepted as information for the PSU.	String	OPT	^.{1,70}$ E.g. "payee":"Merchant name"
instructedAmount	Contains the amount and currency to query.	Amount	MAN	E.g. "instructedAmount": {...}

3.5.1.2 Response

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

Header

Field	Description	Type	Man.	Format
Location	Contains the link to the resource generated.	String	MAN	
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
fundsAvailable	Takes the "true" value if there are sufficient funds available at the time of the request. otherwise "false".	Boolean	MAN	E.g. "fundsAvailable": true
tppMessages	Message for the TPP.	List<TppMessage>	OPT	E.g. "tppMessages":

				[...]

3.5.1.3 Examples

Example of request

```
POST https://www.hub.com/aspsp-name/v1/funds-confirmations
Content-Encoding: gzip
Content-Type: application/json
X-Request-ID: 96201400-6ff9-11e8-adc0-fa7ae01bbebc
Date: Sun, 17 Oct 2017 13:15:17 GMT
{
      "cardNumber": "87432569872156",
      "account": {
            "iban": "ES1111111111111111111111"
      },
      "payee": "Nombre123",
      "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
}
```

3.6 FCS: Fund Confirmation Service (v2)

3.6.1 Fund query

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 the "cardNumber" is not shown, but the PSU account identifier is contained → Check default account registered by the customer
- If the "cardNumber" is not shown, but the PSU account identifier together with the currency is contained → Check the fund availability on the sub-account indicated by the id+currency
- If the "cardNumber" and the PSU account identifier is contained → Check the fund availability on the sub-account represented by the "cardNumber"
- If the "cardNumber" is not registered for any of the sub-accounts, or if the "cardNumber" is registered for a different sub-account, the "cardNumber" could be ignored.

3.6.1.1 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	Unique transaction identifier assigned by the TPP.	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	COND	E.g. Authorisation: Bearer 2YotnFZFEjr1zCsicMWpAA

	Only if the consent management has been carried out through the API.			
Consent-ID	Identifier of the consent obtained in the transaction requesting consent. Only if the consent management has been carried out through the API.	String	COND	^.{1,36}$ E.g. Consent-ID: 7890-asdf-4321
Digest	It is contained if it carries the Signature field. See 6.1 Signature for more information.	String	MAN	^.{1,100}$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRlMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
Signature	Signature of the request by the TPP. See 6.1 Signature for more information.	String	MAN	See annexes
TPP-Signature-Certificate	The TPP certificate used to sign the request, in base64.	String	MAN	^.{1,512}$ E.g. TPP-Signature-Certificate: MIIHgzCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ.....KoZIhvcNAQELBQAwSTELMAkGA1UEBhMCVVMxEzARBgNVBA

Body

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

	Must be sent if available.			"cardNumber": "1111-1111-1111-1111"
account	PSU account number.	AccountReference	MAN	E.g. "account": {"iban":"ES1111111111111111111"}
payee	Merchant where the card is accepted as information for the PSU.	String	OPT	^.{1,70}$ E.g. "payee":"Merchant name"
instructedAmount	Contains the amount and currency to query.	Amount	MAN	E.g. "instructedAmount": {...}

3.6.1.2 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	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
fundsAvailable	Takes the "true" value if there are sufficient funds available at the time of the request. otherwise "false".	Boolean	MAN	E.g. "fundsAvailable": true
tppMessages	Message for the TPP.	List<TppM	OPT	E.g. "tppMessages":

		essage>		[…]

3.6.1.3 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
}
```

3.7 OAuth2 as pre-step

3.7.1 Obtain authorisation

3.7.1.1 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	String	MAN	^.{1,64}$ E.g.

	• FCS • SVA May indicate more than one, separated by a space (%20).			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 7636.	String	MAN	^.{1,128}$ E.g. code_challenge=E9Melhoa2OwvFrEMTJguCHaoeK1t8URWbuGJSstw-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.

3.7.1.2 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 browser back to the TPP. Used to prevent "cross-site request forgery" attacks.	String	MAN	^.{1,64}$ E.g. state=XYZ

Body

Data are not sent in the body in this request.

3.7.1.3 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.

3.7.1.4 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
```

3.7.2 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.

3.7.2.1 Request

Endpoint

POST {provider}/{aspsp}/token

Path

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

	published.			
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.

3.7.2.2 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 it has expired.	String	OPT	^.{1,64}$ E.g. "refresh_token":"tGzv3JOkF0XG5Qx2TlKWIA"

3.7.2.3 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"

3.7.2.4 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%2Etpp%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"
}
```

3.8 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.

3.8.1 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 - 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

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.

3.8.2 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"

3.8.3 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"
}
```

3.9 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.

3.10 Processes common to the services.

3.10.1 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.

3.10.1.1 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: • periodic-payments	String	COND	E.g. {provider}/v1/payments
payment-product	Payment product to be used. List of supported products: • 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-	Unique identifier of the	String	MAN	**UUID**

Request-ID	transaction assigned by the TPP and submitted through the HUB to the ASPSP			^[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	IP address of the HTPP request between the PSU and the TPP. If it is not available, the TPP must use the IP address used by the TPP when it sends 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	IP port of the HTTP request between the PSU and the TPP, if available.	String	OPT	^\\d{1,5}$ E.g. PSU-IP-Port: 443
PSU-Accept	Accept header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept: application/json
PSU-Accept-Charset	Accept charset header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Charset: utf-8
PSU-Accept-Encoding	Accept encoding header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Encoding: gzip
PSU-Accept-Language	Accept language header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Language: es-ES
PSU-User-Agent	Navigator or operating system of the HTTP request between the PSU and the TPP.	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 in the interface between the PSU and the TPP. Permitted values: • POST • GET • PUT • PATCH • DELETE	String	OPT	E.g. PSU-Http-Method: POST
PSU-Device-ID	UUID (Universally Unique Identifier) for the device. The UUID identifies the device or an installation of an application in a device. This ID must not be modified until the device application is uninstalled.	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	Location corresponding to the HTTP request between the PSU and the TPP	String	OPT	**RFC 2426** ^GEO:[\\d]*.[\\d]*[;,][\\d]*.[\\d]*$ E.g. PSU-Geo-Location: GEO:90.023856;25.345963
Digest	It is contained if it carries the Signature field. See 6.1 Signature for more information.	String	MAN	^.{1,100}$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRlMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
Signature	Signature of the request by the TPP. See 6.1 Signature for more information.	String	MAN	See annexes
TPP-Signature-Certificate	The TPP certificate used to sign the request, in base64.	String	MAN	^.{1,5000}$ E.g. TPP-Signature-Certificate: MIIHgzCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ…….KoZIhvcNAQELBQAwSTELMAkGA1UEBhM

				CVVMxEzARBgNVBA

Body

No additional fields are specified.

3.10.1.2 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: • 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	List<AuthenticationObject>	COND	E.g. "scaMethods": [...]

	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			
_links	List of hyperlinks to be recognised by the TPP. Types supported in this response: • scaRedirect: in case of SCA by 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.	Links	MAN	E.g. "_links": {...}
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": [...]

3.10.1.3 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"
            }
      }
}
```

3.10.2 Obtain the SCA status

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

3.10.2.1 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: • periodic-payments	String	COND	E.g. {provider}/v1/payments
payment-product	Payment product to be used. List of supported products: • 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 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	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
Authorisation	Bearer Token. Obtained in a prior authentication on OAuth2.	String	MAN	E.g. Authorisation: Bearer 2YotnFZFEjr1zCsicMWpAA
PSU-IP-Address	IP address of the HTPP request between the PSU and the TPP.	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	IP port of the HTTP request between the PSU and the TPP, if available.	String	OPT	^\\d{1,5}$ E.g. PSU-IP-Port: 443
PSU-Accept	Accept header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept: application/json
PSU-Accept-Charset	Accept charset header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Charset: utf-8
PSU-Accept-Encoding	Accept encoding header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Encoding: gzip
PSU-Accept-Language	Accept language header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Language: es-ES
PSU-User-Agent	Navigator or operating system of the HTTP request between the	String	OPT	E.g. PSU-User-Agent:

	PSU and the TPP.			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 in the interface between the PSU and the TPP. Permitted values: • POST • GET • PUT • PATCH • DELETE	String	OPT	E.g. PSU-Http-Method: GET
PSU-Device-ID	UUID (Universally Unique Identifier) for the device. The UUID identifies the device or an installation of an application in a device. This ID must not be modified until the device application is uninstalled.	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	Location corresponding to the HTTP request between the PSU and the TPP	String	OPT	**RFC 2426** ^GEO:[\\d]*.[\\d]*[;,][\\d]*.[\\d]*$ E.g. PSU-Geo-Location: GEO:90.023856;25.345963
Digest	It is contained if it carries the Signature field. See 6.1 Signature for more information.	String	MAN	^.{1,100}$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRlMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
Signature	Signature of the request by the TPP. See 6.1 Signature for more information.	String	MAN	See annexes
TPP-	The TPP certificate	String	MAN	^.{1,5000}$

Signature-Certificate	used to sign the request, in base64.			E.g. TPP-Signature-Certificate: MIIHgzCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ…….KoZIhvcNAQELBQAwSTELMAkGA1UEBhMCVVMxEzARBgNVBA

Body

No additional data are specified.

3.10.2.2 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

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": […]

3.10.2.3 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 Available ASPSPs service

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

4.1.1 Version 1

4.1.1.1 Request

Endpoint
GET {provider}/v1/sva/aspsps

Path

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

Header

Field	Description	Type	Man.	Format
X-Request-ID	Unique transaction identifier assigned by the TPP.	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
Digest	It is contained if it carries the Signature field. See 6.1 Signature for more information.	String	MAN	E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRlMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
Signature	Signature of the request by the TPP. See 6.1 Signature for more information.	String	MAN	See annexes

TPP-Signature-Certificate	The TPP certificate used to sign the request, in base64.	String	MAN	**eIDAS** E.g. TPP-Signature-Certificate: MIIHgzCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ.....KoZIhvcNAQELBQAwSTELMAkGA1UEBhMCVVMxEzARBgNVBA

Body

No additional fields are specified.

4.1.1.2 Response

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

4.1.1.3 Examples

Example of request

```
GET https://www.hub.com/v1/sva/aspsps
Content-Encoding: gzip
Content-Type: application/json
X-Request-ID: 29391c7e-ad88-49ec-a2ad-99ddcb1f7721
Date: Sun, 27 Oct 2017 13:15:17 GMT
```

Example of response

```
HTTP/1.1 200 Ok
{
      "aspsps": [
            {
                  "bic": "XXXXESMMXXX",
                  "name": "aspsp1"
            },
```

```
            {
                "bic": "YYYYESMMXXX",
                "name": "aspsp2"
            }
        ]
}
```

4.1.2 Version 2

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

4.1.2.1 Request

Endpoint
GET {provider}/v2/sva/aspsps

Path

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

Header

Field	Description	Type	Man.	Format
X-Request-ID	Unique transaction identifier assigned by the TPP.	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
Digest	It is contained if it carries the Signature field. See 6.1 Signature for more information.	String	MAN	E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRlMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
Signature	Signature of the request by	String	MAN	See annexes

	the TPP. See 6.1 Signature for more information.			
TPP-Signature-Certificate	The TPP certificate used to sign the request, in base64.	String	MAN	**eIDAS** E.g. TPP-Signature-Certificate: MIIHgzCCBmugAwIBAgIIZzZvBQlt0UcwDQYJ.....KoZIhvcNAQELBQAwSTELMAkGA1UEBhMCVVMxEzARBgNVBA

Body

No additional fields are specified.

4.1.2.2 Response

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

4.1.2.3 Examples

Example of request

```
GET https://www.hub.com/v2/sva/aspsps
Content-Encoding: gzip
Content-Type: application/json
X-Request-ID: 29391c7e-ad88-49ec-a2ad-99ddcb1f7721
Date: Sun, 27 Oct 2017 13:15:17 GMT
```

Example of response

```
HTTP/1.1 200 Ok
{
```

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

4.2 SVA: initiation of payment with list of accounts available 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

4.2.1 Initiate payment

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

4.2.1.1 Request

Endpoint

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

Path

Field	Description	Type	Man.	Format
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/

Header

Field	Description	Type	Man.	Format
Content-Type	Value: application/json	String	MAN	Content-Type: application/json
X-Request-ID	Unique transaction identifier assigned by the TPP.	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 is contained if the payment initiation transaction forms part of a session (combination of AIS/PIS). Will contain the consentId of the AIS consent that was arranged before the payment initiation.	String	OPT	^.{1,36}$ E.g. Consent-ID: 7890-asdf-4321
PSU-IP-Address	IP address of the HTPP request between the PSU and the TPP. If it is not available, the TPP must use the IP address used by the TPP	String	MAN	^[0-9]{1,3}.[0-9]{1,3}.[0-9]{1,3}.[0-9]{1,3}$ E.g. PSU-IP-Address:

	when it sends this request.			192.168.16.5
PSU-IP-Port	IP port of the HTTP request between the PSU and the TPP, if available.	String	OPT	^\\d{1,5}$ E.g. PSU-IP-Port: 443
PSU-Accept	Accept header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept: application/json
PSU-Accept-Charset	Accept charset header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Charset: utf-8
PSU-Accept-Encoding	Accept encoding header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Encoding: gzip
PSU-Accept-Language	Accept language header of the HTTP request between the PSU and the TPP.	String	OPT	^.{1,50}$ E.g. PSU-Accept-Language: es-ES
PSU-User-Agent	Navigator or operating system of the HTTP request between the PSU and the TPP.	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 in the interface between the PSU and the TPP. Permitted values: • POST • GET • PUT • PATCH • DELETE	String	OPT	E.g. PSU-Http-Method: POST
PSU-Device-ID	UUID (Universally Unique Identifier) for the device. The UUID identifies the device or an installation of an application in a device. This ID must not be modified until the	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.

	device application is uninstalled.			PSU-Device-ID: 5b3ab8e8-0fd5-43d2-946e-d75958b172e7
PSU-Geo-Location	Location corresponding to the HTTP request between the PSU and the TPP.	String	OPT	**RFC 2426** ^GEO:[\\d]*.[\\d]*[;][\\d]*.[\\d]*$ E.g. PSU-Geo-Location: GEO:90.023856;25.345963
TPP-Redirect-URI	TPP URI, where the transaction flow must be redirected after one of the phases of the SCA. We recommend always using this header field. In the future, this field may become mandatory.	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 requesting to redirect the transaction flow to this address instead of to TPP-Redirect-URI in case of a negative result with the SCA method using redirection.	String	OPT	^.{1,250}$ E.g. TPP-Nok-Redirect-URI":"https://tpp.example.es/cb/nok"
Digest	It is contained if it carries the Signature field. See 6.1 Signature for more information.	String	MAN	^.{1,100}$ E.g. Digest: SHA-256=NzdmZjA4YjY5M2M2NDYyMmVjOWFmMGNmYTZiNTU3MjVmNDI4NTRlMzJkYzE3ZmNmMDE3ZGFmMjhhNTc5OTU3OQ==
Signature	Signature of the request by the TPP. See 6.1 Signature for more information.	String	MAN	See annexes
TPP-Signature-Certificate	The TPP certificate used to sign the request, in base64.	String	MAN	^.{1,5000}$ E.g. TPP-Signature-Certificate: MIIHgzCCBmugAwIBAgIIZzZvBQlt0UcwD

				QYJ.....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 account.	String	OPT	^.{1,12}$ E.g. "creditorAgent":"XSXHXSMMXXX"
creditorAddress	Creditor's address	Address	OPT	E.g. "creditorAddress":{...}
remittanceInformationUnstructured	Additional information	String	OPT	^.{1,140}$ E.g. "remittanceInformationUnstructured":"Additional information"

4.2.1.2 Response

Header

Field	Description	Type	Man.	Format
Location	Contains the link to the resource generated.	String	MAN	E.g. Location: /v1/payments/{payment-product}/{payment-id}
X-Request-ID	Unique transaction identifier assigned by the TPP.	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: • 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 6.4 Status of the transaction	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 case of SCA by	Links	MAN	E.g. "_links": {...}

	redirection. Link where the PSU navigator must be redirected by the TPP. • self: link to the payment initiation resource created by this request. • status: link to recover the payment initiation transaction status.			
psuMessage	Text to show to the PSU.	String	OPT	^.{1,512}$ E.g. "psuMessage": "Information for the PSU"
tppMessages	Message for the TPP	List<Tpp Message>	OPT	E.g. "tppMessages": [...]

4.2.1.3 Examples

Example of request

```
POST https://www.hub.com/aspsp-name/v1/sva/payments/sepa-credit-transfers
Content-Encoding: gzip
Content-Type: application/json
X-Request-ID: 10391c7e-ad88-49ec-a2ad-00aacb1f6541
Authorization: Bearer 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	Indicates the accounts on which to ask for detailed information. If the list is empty, the TPP requests all the accessible accounts and they will be queried in a dialogue between PSU-ASPSP. In addition, the list of balances and transactions must also be empty if they are used.	List<AccountReference>	OPT	E.g. "accounts": [...]
balances	Indicates the accounts on which to ask for balances. If the list is empty, the TPP requests all the accessible accounts and they will be queried in a dialogue between PSU-ASPSP. The list of accounts and transactions must also be empty if they are used.	List<AccountReference>	OPT	E.g. "balances": [...]
transactions	Indicates the accounts on which to ask for transactions. If the list is empty, the TPP requests all the accessible	List<AccountReference>	OPT	E.g. "transactions": [...]

	accounts and they will be queried in a dialogue between PSU-ASPSP. In addition, the list of balances and accounts must also be empty if they are used.			
availableAccounts	Only the value "allAcounts" is permitted	String	OPT	E.g. "availableAccounts": "allAcounts"
availableAccountsWithBalances	Only the value "allAcounts" is permitted	String	OPT	E.g. "availableAccountsWithBalances": "allAcounts"
allPsd2	Only the value "allAcounts" is permitted	String	OPT	E.g. "allPsd2": "allAcounts"

5.2 AccountDetails

Field	Description	Type	Man.	Format
resourceId	Identifier of the account to be used in the PATH when data are requested on a dedicated account.	String	COND	^.{1,100}$ E.g. "resourceId":"3dc3d5b3702348489853f5400a64e80f"
iban	IBAN of the account	String	OPT	E.g. "iban":"ES1111111111111111111"
bban	BBAN of the account if it does not have an IBAN. **NOT AVAILABLE**	String	OPT	E.g. "bban":"20385778983000760236"
msisdn	Alias to access a payment account through a registered mobile phone number. **NOT AVAILABLE**	String	OPT	^.{1,35}$ E.g. "msisdn":"..."
currency	Account currency.	String	MAN	**ISO 4217** E.g. "currency":"EUR"
OwnerName	Name of the legal account owner. If	String	OPT	^.{1,140}$

	there is more than one owner, then e.g. two names might be noted here. For a corporate account, the corporate name is used for this attribute.			E.g. "ownerName":"Heike Mustermann"
name	Name given by the bank or the PSU to the online bank account.	String	OPT	^.{1,35}$ E.g. "name":"Name"
product	Name of the product given by the ASPSP to this account.	String	OPT	^.{1,35}$ E.g. "product":"Main Account"
cashAccountType	Specifies the nature or use of the account. **NOT AVAILABLE**	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 **NOT AVAILABLE**	String	OPT	E.g. "status":"enabled"
bic	BIC of the account. **NOT AVAILABLE**	String	OPT	^.{1,12}$ E.g. "bic":"XSXHXSMMXXX"
linkedAccounts	In this field the ASPSP may name an account associated with the pending card transactions.	String	OPT	^.{1,70}$
usage	Specifies the use of the account. Possible values:	String	OPT	^.{1,4}$ E.g. "usage": "PRIV"

	• PRIV: private personal account • ORGA: business account **NOT AVAILABLE**			
details	Specifications that must be provided by the ASPSP. • Account characteristics • Card characteristics **NOT AVAILABLE**	String	OPT	^.{1,140}$
balances	Account balances.	List<Balance>	COND	"balances": [...]
_links	Links to the account to recover information on balances and/or activity in the account. Links supported only when the corresponding consent has been granted for the account.	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 of the card. May be tokenised by the ASPSP to comply with the PCI DSS	String	COND	^.{1,35}$ E.g. "pan":"1234567891234567"

	requirements.			
maskedPan	Primary Account Number of the card in masked form. **NOT AVAILABLE**	String	COND	^.{1,35}$ E.g. "maskedPan":"123456*****4567"
msisdn	Alias to access a payment account through a registered mobile phone number. **NOT AVAILABLE**	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 established as "booked" or "both".	List<Transactions>	COND	E.g. "booked":[{..}]
pending	Transactions pending in the account. Not contained if the bookingStatus parameter is established as "booked". **NOT AVAILABLE**	List<Transactions>	OPT	E.g. "pending":[{..}]
_links	The following links are accepted in this object: • account (MAN) • first (OPT) • next (OPT) • previous (OPT) • last (OPT) **NOT AVAILABLE**	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 separator is a point.	String	MAN	**ISO 4217** E.g. "amount":"500.00"

5.7 AuthenticationObject

Field	Description	Type	Mand.	Format
authenticationType	Type of authentication method. Possible values: • SMS_OTP See annex 6.6 Types 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 6.7 Types of balances	String	MAN	E.g. "balanceType": "closingBooked"

creditLimitIncluded	Flag indicating whether the credit limit of the corresponding account is included in the balance calculation, when applicable.	Boolean	OPT	E.g. "creditLimitIncluded":true
lastChangeDateTime	Date of the last action carried out on the account. **NOT AVAILABLE**	String	OPT	**ISODateTime** E.g. "lastChangeDateTime": "2017-10-25T15:30:35.035Z"
referenceDate	Reference date of the balance **NOT AVAILABLE**	String	OPT	**ISODate** E.g. "referenceDate": "2017-10-25"
lastCommittedTransaction	entryReference of the last transaction to assist the TPP in identifying whether all the PSU transactions are already known. **NOT AVAILABLE**	String	OPT	**Max35Text** 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	Href	OPT	E.g. "status": {...}

	the transaction status. For example, payment initiation 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. **NOT AVAILABLE**	Href	OPT	E.g. "last": {...}
download	Download link for large AIS data packages. Only for camt-data. **NOT AVAILABLE**	Href	OPT	E.g. "download": {...}

5.13 PaymentExchangeRate

Field	Description	Type	Man.	Format
unitCurrency	Currency in which the exchange rate is expressed in foreign currency. In the following example EUR 1 = CUR xxx, the monetary unit is the EUR.	String	OPT	**ISO 4217** E.g. "unitCurrency": "EUR"

exchangeRate	Factor used to convert an amount in one currency to another. Reflects the price in which a currency was purchased with another currency.	String	OPT	E.g. "exchangeRate": "1.3"
contractIdentification	Unique identification to identify the currency exchange contract	String	OPT	E.g. "contractIdentification" : "1234-qeru-23"
rateType	Specifies the rate 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 will be converted in a currency conversion	String	MAN	**ISO 4217** E.g. "sourceCurrency": "EUR"
exchangeRate	Factor used to convert an amount in one currency to another. Reflects the price in which a currency was purchased with another currency.	String	MAN	E.g. "exchangeRate": "1.3"
unitCurrency	Currency in which the exchange rate is expressed in foreign currency. In the following example EUR 1 = CUR xxx, the monetary unit is the EUR.	String	MAN	**ISO 4217** E.g. "unitCurrency": "EUR"
targetCurrency	Currency into which an amount will be converted in a currency conversion.	String	MAN	**ISO 4217** E.g. "targetCurrency": "USD"

quotationDate	Date on which an exchange rate is quoted.	String	MAN	**ISODate** E.g. "quotationDate": "2019-01-24"
contratcIdentification	Unique identification to identify the currency 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":"ES1111111111111111111111"}
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: • target-2-payments • cross-border-credit-transfers Permitted values: • DEBT • CRED • SHAR • SLEV	String	OPT	**ChargeBearerType1Code of ISO 20022** E.g. "chargeBearer":"SLEV"
remittanceInformationUnstructured	Additional information. See annex 6.9 Good practice guide	String	OPT	^.{1,140}$ E.g. "remittanceInformationUnstructured":"Addition

	remittanceInformationUnstructured field for recommendations on use.			al 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 listed in annex 6.3 Return codes.	String	MAN	E.g. "code":"CONSENT_INVALID"
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	May be used as access-ID in the API, where more details on the transaction may be offered. If this data is provided there may be access to the request for transaction details.	String	OPT	E.g. "transactionId":"123-asdf-456"
entryReference	Identification of the transaction that may be used, for example, in delta queries. **NOT AVAILABLE**	String	OPT	^.{1,35}$ E.g. "entryReference":"1234-asdf-456"
endToEndId	Unique end-to-end identifier. **NOT AVAILABLE**	String	OPT	^.{1,35}$ E.g. "endToEnd":"..."
mandateId	Identification of the mandate. For example, an ID of a SEPA mandate.	String	OPT	^.{1,35}$ E.g. "mandateId":"..."
checkId	Cheque identifier **NOT AVAILABLE**	String	OPT	^.{1,35}$ E.g. "checkId":"..."
creditorId	Identification of the beneficiary. For example, an ID of a SEPA beneficiary. **NOT AVAILABLE**	String	OPT	^.{1,35}$ E.g. "creditorId":"..."
bookingDate	Transaction annotation date	String	OPT	**ISODate** "bookingDate":"2017-10-23"
valueDate	Date on which the entry becomes available for the account holder in case of a loan.	String	OPT	**ISODate** E.g. "valueDate":"2017-10-23"
transactionAmount	Transaction amount	Amount	MAN	E.g. "transactionAmount": [{..}]
currencyExchange	Exchange rate **NOT AVAILABLE**	List<ReportExchangeRate>	OPT	E.g. "currencyExchange": [{...}]
creditorNa	Creditor name if the transaction is a	String	OPT	^.{1,70}$

me	debit.			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	Debtor's name if the transaction is a credit.	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	Field to include a reference to the remittance. **NOT AVAILABLE**	String	OPT	^.{1,140}$ E.g. "remittanceIinformationStructured":"Ref. 12344567"
purposeCode	ExternalPurpose1Code ISO 20022 **NOT AVAILABLE**	String	OPT	**ExternalPurpose1Code ISO 20022**
bankTransactionCode	Bank transaction code as used by the ASPSPs in the ISO 20022 format **NOT AVAILABLE**	String	OPT	**ExternalBankTransactionDomain1Code**
proprietaryBankTransactionCode	Proprietary bank transaction code **NOT AVAILABLE**	String	OPT	^.{1,35}$
_links	Possible values: • TransactionDetails **NOT AVAILABLE**	Links	OPT	E.g. "_links": {...}

6. ANNEXES

6.1 Signature

6.1.1 Mandatory "Digest" header

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 signature is generated for the message. If specified, it must be a list between inverted commas and in lower case, separated by a	The required fields to be signed are: • digest • x-request-id Conditionally, if they travel and are supported, they must include: • psu-id

			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.	• 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	• Response code for PUT and GET requests • This code is permitted if the request was repeated due to a time-out. The response may be a 200 or 201, depending on the implementation of the ASPSP • The FCS POST request also allows 200 to be returned given that a new resource is not created. • Response code for DELETE requests when the request has been carried out correctly and no authorisation is required.
201 Created	Response code for POST requests where a new resource has been correctly created.
202 Accepted	Response code for DELETE requests when a payment resource may be cancelled but that requires authorisation for cancellation by PSU.
204 No Content	Response code for DELETE requests where the consent resource has been correctly deleted. The code indicates that the response was carried out, but no content has been returned. Also used in DELETE requests of a payment initiation where authentication is not needed.
400 Bad Request	A validation error has occurred. This code covers errors in syntax in incorrect requests or data in the payload.
401 Unauthorised	The TPP or the PSU is not correctly authorised to make the request. Retry the request with the correct authentication information.
403 Forbidden	Returned if the resource that was referenced in the path exists but may not be accessed by the TPP or the PSU. This code must only be used for identifiers that are not sensitive, as this may reveal that the resource exists but that it may not

	be accessed.
404 Not found	Returned if the resource or endpoint that was referenced in the path exists but may not be accessed by the TPP or the PSU. In case of doubt whether a specific ID in the path is sensitive or not, use this code instead of 403.
405 Method Not Allowed	This code is sent only when the method (POST, PUT, GET...) is not supported in a specific endpoint. Response code for DELETE in case of payment cancellation, where a payment initiation may not be cancelled due to legal or other operational reasons.
406 Not Acceptable	The ASPSP cannot generate the content that the TPP specifies in the Accept header field
408 Request Timeout	The server is still working correctly, but the request has timed out.
409 Conflict	The request may not be completed due to a conflict with the current status of the referenced use.
415 Unsupported Media Type	The TPP has requested a "media type" that the ASPSP does not support.
429 Too Many Requests	The TPP has exceeded the maximum number of requests permitted by the consent or by the RTS
500 Internal Server Error	An internal server error has occurred.
503 Service Unavailable	The ASPSP server is temporarily unavailable. Generally it 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 content of the signature certificate is not valid.
	401	CERTIFICATE_EXPIRED	The signature certificate has expired.
	401	CERTIFICATE_BLOCKED	The signature certificate has been blocked by the ASPSP.
	401	CERTIFICATE_REVOKED	The signature certificate has been revoked by the QTSP.
	401	CERTIFICATE_MISSI	The signature certificate

		NG	was not present in the request.
SIGNATURE	401	SIGNATURE_INVALID	The signature is incorrect.
	401	SIGNATURE_MISSING	The signature is not in the message when this is required.
GENERAL	400	FORMAT_ERROR	The format of certain request fields is wrong. The fields will be indicated. This applies to the body and header fields. It also applies to cases where these entries refer to instances of inexistent or erroneous data.
	400	PARAMETER_NOT_CONSISTENT	Parameters sent by the TPP are not consistent. Only applies to query parameters.
	400	PARAMETER_NOT_SUPPORTED	The parameter is not supported by the ASPSP. This will only be used by parameters whose support is optional for the ASPSP.
	401	PSU_CREDENTIALS_INVALID	The PSU-ID is not related to the ASPSP or is blocked, or the password or OTP was incorrect.
	400 (payload) 405 (HTTP method)	SERVICE_INVALID	The service requested is not valid for the resource indicted, or for the data sent.
	403	SERVICE_BLOCKED	The service is not available for the PSU, due to a block on the channel by the ASPSP.
	401	CORPORATE_ID_INVALID	The PSU-Corporate-ID has not been related in the ASPSP systems.
	403 (if resource on path) 400 (if resource in payload)	CONSENT_UNKNOWN	The Consent-ID does not coincide for the TPP and ASPSP that was requested.
	401	CONSENT_INVALID	The consent was created by the TPP, but it is not valid for the

			recourse/service requested. Or, the definition of the consent is not complete, or is invalid.
	401	CONSENT_EXPIRED	The consent was created by the TPP, but it has expired and needs to be renewed.
	401	TOKEN_UNKNOWN	The token received is not known by the TPP.
	401	TOKEN_INVALID	The token is associated with the TPP, but is invalid for the service/resource which is being accessed.
	401	TOKEN_EXPIRED	The token is associated with the TPP, but it 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 resource requested is not known by the TPP.
	403 (if resource on path) 400 (if resource in payload)	RESOURCE_EXPIRED	The resource requested is associated with the TPP, but has expired and will not be available again.
	400	RESOURCE_BLOCKED	The directed resource cannot be directed by the request. The request may be blocked, for example, for a grouping in the "signing basket".
	400	TIMESTAMP_INVALID	Timestamp not in period of accepted time.
	400	PERIOD_INVALID	The period of time requested is outside the range.
	400	SCA_METHOD_UNKNOWN	The SCA method selected in the request for selecting the authentication method is unknown or may not be related by the ASPSP with

			the PSU.
	409	STATUS_INVALID	The resource directed does not permit additional 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_response_type	The authorisation server does not support the method used to obtain the authorisation code.
	302	invalid_scope	The scope requested is invalid, unknown or badly formed.
	302	server_error	Error 500 that may not be returned in a redirect. It is returned with this code.
	302	temporarily_unavailable	The authorisation server is temporarily unable to process the request, due to a temporary overload or due to maintenance.
	400	invalid_request	The request is not well formed because parameters are missing, the value is not supported, parameters are repeated, it includes multiple credentials or uses more than one of the client's authentication mechanisms.
	401	invalid_client	Client authentication failure.
	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 payment product requested is not available for the PSU.
	404	PRODUCT_UNKNOWN	The payment product requested is not supported by the ASPSP
	400	PAYMENT_FAILED	Payment failed. This may be for risk management reasons.
	400	EXECUTION_DATE_INVALID	The requested execution date is not a valid execution date for the ASPSP.
	405	CANCELLATION_INVALID	The directed payment cannot be cancelled. For example, too much time has passed, or there are legal restrictions.
AIS	401	CONSENT_INVALID	The consent was created by the TPP, but it is not valid for the recourse/service requested. Or, the definition of the consent is not complete, or is invalid.
	400	SESSIONS_NOT_SUPPORTED	The combined service indicator does not support the ASPSP to which the request is directed.
	429	ACCESS_EXCEEDED	The accesses to the account have exceeded the accesses allowed per day without a PSU present.
	406	REQUESTED_FORMATS_INVALID	The format requested in the Accept field does not correspond to the formats

			offered by the ASPSP.
FCS	400	CARD_INVALID	The numbering of the card is unknown by the ASPSP, or is not associated with the PSU.
	400	NO_PIIS_ACTIVATION	The PSU has not activated the account for which it is used by the PIIS associated with the TPP.

6.4 Status of the transaction

Code	Name	Description
ACCC	AcceptedSettelmentCompleted	The entry in the creditor's account has been completed.
ACCP	AcceptedCustomerProfile	The prior check of the technical validation was correct. The check of the client profile was also correct.
ACFC	AcceptedFundsChecked	As well as the client profile, the availability of funds has been positively checked. Note: needs ISO 20022 approval
ACSC	AcceptedSettlementCompleted	The entry in the debtor's account has been completed. Use: it is used by the first agent (the ASPSP of the ordering party through the HUB) to inform the ordering party that the transaction has been completed. Important: the reason for this status is to provide the transaction status, not for financial information. It can only be used after a bilateral agreement.
ACSP	AcceptedSettlementInProcess	The previous controls such as technical validations and the profile of the client were correct, and thus the payment initiation has been accepted for its execution.
ACTC	AcceptedTechnicalValidation	Syntactic and semantic authentication and validation are correct.
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	The payment instruction included in the

		credit transfer has been accepted without being sent to the account of the creditor client.
RCVD	Received	The payment initiation has been received by the agent (the ASPSP through the HUB)
PATC	PartiallyAcceptedTechnicalCorrect	These are payment initiations that have been authorised at least by one PSU, but that have not been finally authorised yet by all the applicable PSUs. (SCA multilevel) Note: needs ISO 20022 approval
PDNG	Pending	The payment initiation or the individual transaction included in the payment indication is pending. Additional verifications and updates in the status will be carried out.
RJCT	Rejected	The payment initiation or the individual transaction included in the payment initiation has been rejected.
CANC	Cancelled	The start of payment has been cancelled before its execution. Note: needs ISO 20022 approval
PART		A number of transactions were accepted, while the other number of transactions have not yet reached the "accepted" status. Note: this code must be used only in the case of bulk payments. It is only used in situations where all the authorisations requested have been applied, but some payments have been rejected.

6.5 Consent statuses

Code	Description
received	The consent has been received and is technically correct. The data have not yet been authorised.
rejected	The consent has been rejected.
partiallyAuthorised	Due to a multi-level SCA, some but not all the authorisations needed have been carried out.
valid	The consent is accepted and valid for data read requests and specified in the consent.
revokedBy Psu	The consent has been revoked by the PSU to the ASPSP.

expired	The consent has expired.
terminated ByTpp	The corresponding TPP has terminated the consent using the DELETE request on the recourse of the consent created.

6.6 Types of authentication

Code	Description
SMS_OTP	SCA method where an OTP associated with the transaction to be authorised is sent to the PSU via an SMS channel.
CHIP_OTP	SCA method where an OTP is generated by an electronic card. Normally the PSU needs a device to use it. After completing the challenge, the device derives an OTP and is shown to the PSU.
PHOTO_OTP	SCA method where the challenge is a QR or visual data codified in a similar way, which can be read by a client device or a specific mobile app. The device or app creates a visual challenge OTP and displays it to the PSU.
PUSH_OTP	The OTP is sent via PUSH to a dedicated authentication APP and displayed to the PSU.

6.7 Types of balances

Code	Description
closingBooked	Account balance at the end of the agreed period for the report. This is the sum of the "openingBooked" balances at the start of the period and all the entries entered into the account during the pre-agreed period for the report.
expected **(NOT AVAILABLE)**	Transactions composed of annotated entries and the entries pending at the request time.
openingBooked **(NOT AVAILABLE)**	Account balance at the start of the report period. It is always equal to the "closingBooked" balance of the report for the previous period.
interimAvailable	Balance provisionally available. Calculation based on the entries of credit and debit items during the specified period of time.
interimBooked **(NOT AVAILABLE)**	Balance calculated during the working day, at the time specified and subject to changes during the day. This balance is calculated based on the credit

	and debit items entered during the specified time/period.
forwardAvailable	Advance of the cash balance available to the account holder at the specified date.

6.8 Types of charge sharing

Code	Description
DEBT	All the transaction charges are payable by the debtor
CRED	All the transaction charges are payable by the creditor
SHAR	Shared charges. The creditor and debtor are responsible for their corresponding charges.
SLEV (NOT AVAILABLE)	The charges applicable follow the rules agreed at the service and/or scheme level

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 Fallback mechanism

6.10.1 Introduction

We propose this initiative to address any possible non-compliance with the regulations, as well as the periodic reviews of the Bank of Spain on the performance of PSD2's APIs vs. the same functionality in our channels. The goal is to make available a fallback mechanism, which basically consists of allowing direct access to our distance banking by TPPs. However, these TPPs would be identified, i.e. they would have to propagate their eIDAS certificate in a header so that we can confirm the certificate's validity and allow them access.

The objective is for TPPs to make their calls to ASPSPs and for ASPSPs to be able to identify and authorize TPPs through their eIDAS certificate, while verifying the message's integrity.

The proposal for the fallback mechanism should cover the requirements already mentioned by the EBA with regard to message integrity and non-repudiation; and this should apply to each of the requests received on the regulated services in the channel itself.

BBVA's proposal is that, from the point of view of the TPP, a Hash (summary) is generated with the data related to the Path Param (URL data), plus the data of the message's body. Later, this information will be signed with the eIDAS certificate's private code, and the corresponding data will be added to various headers in requests for the services regulated by PSD2 when accessing our distance banking.

To do this, we have relied on the following standard:

https://www.ietf.org/id/draft-cavage-http-signatures-12.txt

6.10.2 TPP

6.10.2.1 Starting the payment and/or aggregating information

The TPP makes a call to the ASPSP with a data query. The ASPSP must be able to identify and authorize.

For the TPP, the message data is collected and a HASH is performed of it, which must subsequently be signed with the private portion of the eIDAS certificate and included as the header in the HTTP request to the ASPSP.

The headers to be used are those defined in the reference standard:

- **request-target.** With the method and the requested URI.
- **date.** With the value of the date it is signed, in ISO format.
- **digest**. A SHA-256 summary of the message body if it exists, for the body of POST requests
- **req-uuid**. UUID with a nonce value that allows you to search for messages and serves as cryptographic protection.
- **signature**. With the calculation of the signature, and with the format based on base64 cavage-11

6.10.3 ASPSP

For the TPP to consume a service, different parameters are validated to ensure "non-repudiation" and "integrity"

6.10.3.1 Integrity

A hash of the received message is performed with the same algorithm as the TPP and then compared to the hash provided by the TPP.

6.10.3.2 Non-repudiation

Since the message is signed, the following should also be confirmed:

- The message has been signed by the issuer, i.e. public portion of the certificate
- The public portion of the certificate is correct, i.e.:
  - The certificate's date is on the start of the validity period or later or on the end of the validity period or earlier
  - It was issued by an authority subject to domestic or European oversight (QTSPs - Qualified Trusted Service Providers)
  - The certificate has not been revoked (CRL/OCSP)

Finally, it should be validated that the TPP's own ROLE, as obtained from the eIDAS certificate, matches the role required to consume that service

This series of validations ensure that the message has not been modified by any intermediary and that the sender is truly who it claims to be; additionally, the eIDAS certificate's information is used to confirm that the TPP's role allows it access the information it is requesting on the call.

6.10.4 Diagram