PSD2 USER DOCUMENTATION

BNP PARIBAS S.A. GERMANY

CONSORSBANK / BNP PARIBAS WEALTH MANAGEMENT - PRIVATE BANKING / DAB BNP PARIBAS



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1. CHANGE HISTORY

Version	Remarks	Change Date
1.0	Initial published version	11.06.2019
1.1	Minor edits	07.09.2019
1.2	Minor edits	10.09.2019
1.3	Added SWIFT payments, pagination to transaction history with examples	04.11.2020
1.4	Added new mandatory fields in the examples for the SWIFT payment request	24.02.2021
1.5	Removed new mandatory fields in the examples for the SWIFT payment request	20.05.2021
1.6	Added Decoupled SCA approach	24.05.2021
1.7	Minor Edits	06.10.2021

2 GENERAL INFORMATION / USED ABBREVIATIONS

This guideline documents the BNP Paribas S. A. Germany API productive interface under the PSD2 directive for its brands Consorsbank, BNP Paribas Wealth Management - Private Banking and DAB BNP Paribas. The manual describes the usage of individual APIs, process flows of individual scopes, and the meaning of the parameters used.

The Consorsbank, BNP Paribas Wealth Management - Private Banking and DAB BNP Paribas PSD2 API and developer info websites offer a set of Application Programming Interfaces (APIs) that gives the ability to use Consorsbank, BNP Paribas Wealth Management - Private Banking or DAB BNP Paribas functionality in third party applications. The developer info websites offer documentations and testing facility for payment initiation, account information and balance check services.

This PSD2 API Implementation is based on Berlin Group Specification 1.3 following the redirect approach.

Developer info for Consorsbank and BNP Paribas Wealth Management - Private Banking:

https://www.consorsbank.de/ev/Service-Beratung/xs2a

Developer info for DAB BNP Paribas:

https://b2b.dab-bank.de/xs2a/

Contact Consorsbank by email: xs2a@consorsbank.de

Contact BNP Paribas Wealth Management - Private Banking by email: xs2a.privatebanking@de.bnpparibas.com

Contact DAB BNP Paribas by email: xs2a@dab.com

Consorsbank and BNP Paribas Wealth Management - Private Banking profile:

- Bank Identifier Code = CSDBDE71 / DABBDEMM
- National Bank Code = 760 300 80 / 701 204 00
- xs2a Sandbox URL = https://xs2a-sndbx.consorsbank.de (valid from 14.03.2019, see separate documentation)
- xs2a production URL = https://xs2a.consorsbank.de (valid from 14.06.2019)

DAB BNP Paribas profile:

- Bank Identifier Code = DABBDEMM
- National Bank Code = 701 204 00
- xs2a Sandbox URL = https://xs2a-sndbx.dab-bank.de (valid from 14.03.2019, see separate documentation)
- xs2a production URL = https://xs2a.dab-bank.de (valid from 14.06.2019)

Consorsbank is also servicing B2C clients with IBANs of former DAB Bank AG, thus clients with an IBAN with the national bank code 701 204 00 can be either DAB or Consorsbank and BNP Paribas Wealth Management - Private Banking customers. This is the case for both the access to the client web portal and to the XS2A interface.

Therefore a TPP is required to ask customers with the national bank code 701 204 00 if they are DAB Bank or Consorsbank and BNP Paribas Wealth Management - Private Banking customers, if the TPP wants to use an IBAN to determine the endpoint to be used.

As a service BNP Paribas offers an additional API service for the XS2A interface. For the sandbox, it is not necessary, as the IBANs are static as described in the sandbox documentation. This service allows you to check if you have to use xs2a-endpoints for Consorsbank and BNP Paribas Wealth Management - Private Banking or DAB BNP Paribas without asking the client. For further details, see chapter 8.

Explanation of frequently repeated terms:

AISP	Account Information Service Provider
ASPSP	Account Servicing Payment Service Provider
PIISP	Payment Instrument Issuer Service Provider
PISP	Payment Initiation Service Provider
PSD2	Payment Services Directive 2
PSP	Payment Service Provider
PSU	Payment Service User
TPP	Third Party Provider
TSP	Trusted Service Provider (for Certificates)

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3 TPP AUTHENTICATION / CERTIFICATES

3.1 BASIC INFORMATION

For the authentication of the TPP as a client, the eIDAS-based site authentication certificate will be used. The TPP must also be licensed by the BaFin (German banking regulatory authority) or other national authorities within the EU to provide PSD2 services.

Your certificate should always be part of the request header, since we will check it regarding validity and the contained role as a TPP. If your certificate is not valid or it is not embedded in the request header, your request will be refused.

4 XS2A SETUP

4.1 GENERAL SETUP

Since we want to benefit from the possibility regarding the exemption from the BaFin, we will only implement and establish one XS2A interface, and no fall-back API.

The XS2A API will be available for TPPs from 14.06.2019. Between the 14.06.2019 – 13.09.2019, TPPs can test the API in a productive environment with their own productive test accounts or real customers with their corresponding accounts, fulfilling the market test phase.

Sessions, as defined as a set of transactions executed consecutively, will not be supported by the XS2A API.

4.2 SCA USAGE

Until 13.09.2019, there is no SCA required. The TPP acting as a PSU will only need to login with his regular online credentials. The TAN authorisation will be with his established TAN methods for the relevant productive test accounts. For DAB BNP Paribas, only mTAN is currently supported for the PSD2 use cases.

From the 14.09.2019 on, the PSU will need to login with a second factor. The available TAN methods will also be changed, identical to the regular online banking platforms of Consorsbank, BNP Paribas Wealth Management – Private Banking and DAB BNP Paribas. For the usage of the XS2A interface, no further authorisation methods will be required in comparison to the online banking platform.

4.3 SCA STATUS VALUES

Used SCA status values for payment initiation and account information services are:

- Received
- Finalised
- Failed

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5 PAYMENT INITIATION SERVICE (PIS)

5.1 BASIC INFORMATION

This chapter defines a list of services provided for PISP.

Prerequisites:

- The TPP is registered for the PISP role and valid PISP scope
- The TPP has been successfully authenticated by the provided certificate

Available Payment Products:

- SEPA Single Payment
- SEPA Instant Single Payment
- SEPA Future Dated Payment
- SEPA Recurring Payment (Consorsbank and BNP Paribas Wealth Management – Private Banking only)
- SWIFT Single Payment

Exemptions / Specifics

- A change of a SEPA Recurring Payment or not yet executed Future Dated Payment needs to be performed by cancelling the existing one and creating a new SEPA Recurring Payment.
- SEPA Instant Payment regulation will come into full effect on October 5, 2025.

  At this point, the time for an instant payment to reach a final state (ACCC, RJCT) will be reduced from 20 to 11 seconds. If the payment is not finalized in under 20 seconds in the transition period, it will be automatically rejected (with payment status RJCT).
- Payment Cancellation together with PSU until T-1 is only supported for successful authorised Payment Initiations in these cases:
  - Recurring payment not yet cancelled
  - Future dated payment not yet cancelled or executed
- Payment Cancellations by TPP for Payment Initiations before authorization (therefore in status RCVD) are supported. In any other status, a SCA by the customer is necessary for the cancellation.
- The PSU also has the possibility to cancel a not yet executed Future Dated Payment and Recurring Payment in his logged in area on our websites. The cancellation will be visible within the payment status to the TPP.
- Bulk Payments are not supported.
- Signing Basket SCA is not supported.
- If you set the header parameter "Content-Type" with the value "application/json" and your request body of a GET Request is empty, this combination is rated as not valid by our gateway and leads to a 404-Response.
- **In case the Debtor IBAN is not provided in the initial call, the user will have to manually select the source of the payment after the Login step**

Format:

- JSON

Currency:

- EUR - in case of SEPA payment
- EUR, USD, AUD, CAD, CHF, CZK, DKK, GBP, HUF, HKD, INR, JPY, KRW, NOK, NZD, PLN, SEK, SGD, THB, TRY, ZAR, MXN - in case of SWIFT payment

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Character Set for SEPA and SWIFT payment content:

```
a b c d e f g h i j k l m n o p q r s t u v w x y z
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
0 1 2 3 4 5 6 7 8 9 / - ? : ( ) . , ' + <Space>
```

5.2 SPECIFICS ABOUT RECURRING PAYMENTS

Recurring Payments, as well as Future Dated Payments are only applicable for Consorsbank and BNP Paribas Wealth Management – Private Banking.

Possible frequencies of Recurring Payments:

- Weekly
- EveryTwoWeeks
- Monthly
- EveryTwoMonths
- Quarterly
- SemiAnnual
- Annual

Day of Execution:

For all frequencies, except "Weekly" and "EveryTwoWeeks", the day of execution can be chosen as desired from 1-28 and "last day".

For the frequencies "Weekly" and "Every Two Weeks", the day of execution can only be chosen from Monday to Friday. To determine the desired weekday, you have to send the field "DayOfExecution" with a parameter from 1-5, whereof 1 means "Monday", and 5 means "Friday".

Examples / Summary

To help you define a certain period, here are some examples:

Example #1: Every second Tuesday
Frequency: EveryTwoWeeks
Day of Execution: 2

Example #2: Every Month on a specific day
Frequency: Monthly
Day of Execution: As desired

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5.3 ENDPOINT DEFINITION

Method	Endpoint
POST	/v1/{payment-service}/{payment-product}
GET	/v1/{payment-service}/{payment-product}/{paymentId}
DELETE	/v1/{payment-service}/{payment-product}/{paymentId}
GET	/v1/{payment-service}/{payment-product}/{paymentId}/authorisations
GET	/v1/{payment-service}/{payment-product}/{paymentId}/authorisations/{authorisationId}
POST	/v1/{payment-service}/{payment-product}/{paymentId}/cancellation-authorisations
GET	/v1/{payment-service}/{payment-product}/{paymentId}/cancellation-authorisations
GET	/v1/{payment-service}/{payment-product}/{paymentId}/cancellation-authorisations/{cancellationId}
GET	/v1/{payment-service}/{payment-product}/{paymentId}/status

- Payment-service values: "payments" (single / future dated), "periodic-payments" (Consorsbank and BNP Paribas Wealth Management – Private Banking only)
- Payment-product values: "sepa-credit-transfers" and "instant-sepa-credit-transfers" for SEPA or "cross-border-credit-transfers" for SWIFT (Consorsbank and BNP Paribas Wealth Management – Private Banking only)
- Redirect SCA Approach: Implicit start of the authorisation process for payment initiation and consent creation; Explicit start of the authorisation process for payment cancellation

5.4 EXAMPLES

The following snippet describes an example for a cURL command to create a SEPA Single Payment.

Request:

```
POST https://xs2a.consorsbank.de/v1/payments/sepa-credit-transfers
POST https://xs2a.dab-bank.de/v1/payments/sepa-credit-transfers


# if needed set your proxy
export https_proxy=http://<your.proxy>:<port>

curl --request POST \
  --url https://xs2a.consorsbank.de/v1/payments/sepa-credit-transfers \
  --key private.key --cert certificate.pem --cert-type PEM \
  --header 'Content-Type: application/json' \
  --header 'PSU-IP-Address: <psu IP adress>' \
  --header 'TPP-Notification-URI: https://your.tpp.notification.uri' \
  --header 'TPP-Redirect-URI: https://your.redirect.uri' \
  --header 'X-Request-ID: <your request ID>' \
  --header 'Accept: application/json' \
  --data '{
    "debtorAccount": {
        "currency": "EUR",
        "iban": "<PSU IBAN>"
    },
```


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```
    "instructedAmount": {
        "currency": "EUR",
        "amount": "0.02"
    },
    "creditorAccount": {
        "currency": "EUR",
        "iban": "<any valid IBAN>"
    },
    "creditorName": "creditor name",
    "remittanceInformationUnstructured": "payment for xyz"
}'
```

or

```
curl --request POST \
  --url https://xs2a.dab-bank.de/v1/payments/sepa-credit-transfers \
  --key private.key --cert certificate.pem --cert-type PEM \
  --header 'Content-Type: application/json' \
  --header 'PSU-IP-Address: <psu IP adress>' \
  --header 'TPP-Notification-URI: https://your.tpp.notification.uri' \
  --header 'TPP-Redirect-URI: https://your.ok.redirect.uri' \
  --header 'TPP-NOK-Redirect-URI: https://your.nok.redirect.uri' \
  --header 'X-Request-ID: <your request ID>\
  --header 'Accept: application/json' \
  --data '{
    "debtorAccount": {
        "currency": "EUR",
        "iban": "<PSU IBAN>"
    },
    "instructedAmount": {
        "currency": "EUR",
        "amount": "1.23"
    },
    "creditorAccount": {
        "currency": "EUR",
        "iban": "<any valid IBAN>"
    },
    "creditorName": "creditor name",
    "remittanceInformationUnstructured": "payment for xyz"
}'
```


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Response:

Find below example responses for a successful payment initiation.

```
{
  "consentStatus": "received",
  "consentId": "<long payment id>",
  "scaMethods": [],
  "_links": {
    "scaRedirect": {
      "href": "https://b2b.dab-
bank.de/Zahlungsverkehr/Freigabe_Kontozugriff/index.xhtml?redirect_
id=<redirect id>&consent_id=<long payment id>&trace_id=<trance id>"
    },
    "self": {
      "href": "https://xs2a.dab-bank.de/v1/consents/<long payment
id>"
    },
    "status": {
      "href": "https://xs2a.dab-bank.de/v1/consents/<long payment
id>/status"
    },
    "scaStatus": {
      "href": "https://xs2a.dab-bank.de/v1/consents/<long payment
id>/authorisations/<redirect id>"
    }
  }
}
```

Consorsbank and BNP Paribas Wealth Management – Private Banking SCA redirects will lead into a different portal than DAB BNP Paribas SCA redirects.

```
{
  "transactionStatus": "RCVD",
  "paymentId": "<long payment id>",
  "transactionFeeIndicator": false,
  "_links": {
    "scaRedirect": {
      "href":
"https://www.redirect.bnpp.de/web/transversal/tpp/pis/login?redirec
t_id=<redirect id>&trace_id=<trance id>"
    },
    "self": {
      "href": "https://xs2a.consorsbank.de/v1/payments/sepa-credit-
transfers/<long payment id>"
    },
    "status": {
      "href": "https://xs2a.consorsbank.de/v1/payments/sepa-credit-
transfers/<long payment id>/status"
    },
    "scaStatus": {
      "href": "https://xs2a.consorsbank.de/v1/payments/sepa-credit-
transfers/<long payment id>/authorisations/<redirect id>"
    }
  }
}
```

The following snippet describes an example for a cURL command to create a SWIFT Single Payment.

Request:

```
POST https://xs2a.consorsbank.de/v1/payments/cross-border-credit-transfers

# if needed set your proxy
export https_proxy=http://<your.proxy>:<port>

curl --request POST \
  --url https://xs2a.consorsbank.de/v1/payments/cross-border-credit-transfers \
  --key private.key --cert certificate.pem --cert-type PEM \
  --header 'Content-Type: application/json' \
  --header 'PSU-IP-Address: <psu IP adress>' \
  --header 'TPP-Notification-URI: https://your.tpp.notification.uri' \
  --header 'TPP-Redirect-URI: https://your.redirect.uri' \
  --header 'X-Request-ID: <your request ID>' \
  --header 'Accept: application/json' \
  --data '{
    "debtorAccount": {
        "currency": "EUR",
        "iban": "<PSU IBAN>"
    },
    "instructedAmount": {
        "currency": "<any valid currency for SWIFT payments (see Currency in 5.1)>",
        "amount": "0.02"
    },
    "creditorAccount": {
        "currency": "<any valid ISO 4217 currency code>",
        "iban": "<any valid IBAN>"
    },
    "creditorName": "creditor name",
    "creditorAgent": "<BIC of the creditor account>",
    "chargeBearer": "<CRED, DEBT or SHAR>",
    "remittanceInformationUnstructured": "payment for xyz"
}'
```


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Response:

Find below example responses for a successful payment initiation.

```
{
  "transactionStatus": "RCVD",
  "paymentId": "<long payment id>",
  "transactionFeeIndicator": false,
  "_links": {
    "scaRedirect": {
      "href":
"https://www.redirect.bnpp.de/web/Transversal/tpp/pis/login?redirec
t_id=<redirect id>&trace_id=<trance id>"
    },
    "self": {
      "href": "https://xs2a.consorsbank.de/v1/payments/cross-
border-credit-transfers/<long payment id>"
    },
    "status": {
      "href": "https://xs2a.consorsbank.de/v1/payments/cross-
border-credit-transfers/<long payment id>/status"
    },
    "scaStatus": {
      "href": "https://xs2a.consorsbank.de/v1/payments/cross-
border-credit-transfers/<long payment id>/authorisations/<redirect
id>"
    }
  }
}
```


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Status Values:

Used status values for payment status:

- RCVD received
- PDNG pending
- CANC cancelled
- RJCT rejected
- ACSC AcceptedSettlementCompleted
  (debtor account booked – in case of a SEPA or SWIFT single payment)
- ACTC AcceptedTechnicalValidation
  (in case of a SEPA recurring or future dated payment)

More details (e.g. http error codes) you will find in the .yaml file also provided for the download on our developer info sites:
https://www.consorsbank.de/ev/Service-Beratung/xs2a

https://b2b.dab-bank.de/xs2a/

6 ACCOUNT INFORMATION SERVICE (AIS)

6.1 BASIC INFORMATION

This chapter defines a list of services provided for AISP.

Prerequisites:

- The TPP is registered for the AISP role and valid AISP scope
- The TPP has been successfully authenticated

Available Consent Models:

- Dedicated IBAN / Dedicated List of IBANs
- Bank Offered Consent

Exemptions / Specifics

- Supported transaction type values are BOOKED, PENDING, BOTH and INFORMATION (for standing orders)
- Supported balance type values are CLOSING BOOKED (Consorsbank, BNP Paribas Wealth Management – Private Banking and DAB BNP Paribas) and INTERIM BOOKED (Consorsbank and BNP Paribas Wealth Management – Private Banking only)
- Multicurrency accounts are not supported, all currency accounts are operated at a stand-alone IBAN
- As an additional service, we will provide for the PSUs from 14.09.2019 an additional consent cockpit in their logged in account area, where they will have the possibility to revoke their personally granted consents directly. In this case, the status of the consent will be updated to "revokedByPsu".
- The daily maximum counter for the access of a TPP without PSU is 4 per Endpoint and IBAN. If you send a request and a PSU is involved, the field "PSU-IP-Address" should be filled. In this case, the daily counter will not be raised.
- The transaction history is no longer limited to up to 90 days in the past, and the transaction history request now has an optional pagination parameter, and the transaction history response now has pagination links. The new optional query-parameter is the "pageIndex" (the value "0" represents the first page). The pagination links will be shown in the response on the same level as the "transactions" property, inside the "_links" property and can typically contain the following properties: "first", "next", "previous" and "last". The "next" and "previous" links will not be present in the response, if there are no next or previous pages. For example the "next" link will be missing on the last page, and the "previous" link will be missing on the first page, and in case there is only one page, the "first" and "last" links will be identical, while the "next" and "previous" links will be absent.

Format:

- JSON

6.2 ENDPOINT DEFINITION

Method	Endpoint
POST	/v1/consents
GET	/v1/consents/{consentId}
DELETE	/v1/consents/{consentId}
GET	/v1/consents/{consentId}/authorisations
GET	/v1/consents/{consentId}/authorisations/{authorisationId}
GET	/v1/consents/{consentId}/status
GET	/v1/accounts
GET	/v1/accounts/{account-id}
GET	/v1/accounts/{account-id}/balances
GET	/v1/accounts/{account-id}/transactions
GET	/v1/accounts/{account-id}/transactions/{resource-id}

Redirect SCA Approach: Implicit Start of the Authorisation Process

Account ID: Technical key as returned in attribute resourceId in Request GET /v1/accounts

6.3 EXAMPLES

Request dedicated consent:

```
POST https://xs2a.consorsbank.de/v1/consents
POST https://xs2a.dab-bank.de/v1/consents
```

The following snippet describes a sample cURL command to create a dedicated consent.

```
# if needed set your proxy
export https_proxy=http://<your.proxy>:<port>

curl --request POST \
  --url https://xs2a.dab-bank.de/v1/consents \
  --key private.key --cert certificate.pem --cert-type PEM \
  --header 'Content-Type: application/json' \
  --header 'PSU-IP-Address: <psu IP adress>' \
  --header 'TPP-Redirect-URI: https://your.ok.redirect.uri' \
  --header 'TPP-NOK-Redirect-URI: https://your.nok.redirect.uri' \
  --header 'TPP-Notification-URI: https://your.tpp.notification.uri' \
  --header 'X-Request-ID: <your request ID>' \
  --header 'Accept: application/json' \
  --data '{
    "access": {
        "accounts": [],
        "balances": [
            {
```


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```
                "iban": "<DAB IBAN>"
            }               ],
        "transactions": [
            {
                "iban": "<DAB IBAN>"
            }
        ]
    },
    "recurringIndicator": true,
    "validUntil": "2019-09-14",
    "frequencyPerDay": 4
}'
```

Request bank offered consent:

```
POST https://xs2a.consorsbank.de/v1/consents
POST https://xs2a.dab-bank.de/v1/consents
```

The following snippet describes a sample cURL command to create a **bank offered consent**.

```
# if needed set your proxy
export https_proxy=http://<your.proxy>:<port>

curl --request POST \
  --url https://xs2a.consorsbank.de/v1/consents \
  --key private.key --cert certificate.pem --cert-type PEM \
  --header 'Content-Type: application/json' \
  --header 'PSU-IP-Address: <psu IP adress>' \
  --header 'TPP-Redirect-URI: https://your.ok.redirect.uri' \
  --header 'TPP-NOK-Redirect-URI: https://your.nok.redirect.uri' \
  --header 'TPP-Notification-URI: https://your.tpp.notification.uri' \
  --header 'X-Request-ID: <your request ID>' \
  --header 'Accept: application/json' \
  --data '{
    "access": {
        "accounts": [],
        "balances": [],
        "transactions": []
    },
    "recurringIndicator": true,
    "validUntil": "2019-09-14",
    "frequencyPerDay": 4
}'
```

Response:

```
{
  "consentStatus": "received",
  "consentId": "<consent id>",
  "_links": {
    "scaStatus": {
      "href": "https://xs2a.consorsbank.de/v1/consents/<consent
id>/authorizations/<authorization id>"
```


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```
    },
    "scaRedirect": {
      "href":
"https://redirect.bnpparibas.de/web/Transversal/tpp/ais/login?redirect_id=<authorizati
on id>&consent_id=<consent id>&trace_id=<trace id>"
    },
    "self": {
      "href": "https://xs2a.consorsbank.de/v1/consents/<consent id>"
    },
    "status": {
      "href": "https://xs2a.consorsbank.de/v1/consents/<consent id>/status"
    }
  }
}
```

Request transaction history:

```
GET https://xs2a.consorsbank.de/v1/accounts/<resource id>/transactions
```

The following snippet describes a sample cURL command to request the **transaction history of an account**.

```
# if needed set your proxy
export https_proxy=http://<your.proxy>:<port>

curl --request GET \
  --url https://xs2a.consorsbank.de/v1/accounts/<resource
id>/transactions?bookingStatus=both&dateFrom=2020-01-01 \
  --key private.key --cert certificate.pem --cert-type PEM \
  --header 'Accept: application/json' \
  --header 'PSU-IP-Address: <psu IP adress>' \
  --header 'TPP-Redirect-URI: https://your.ok.redirect.uri' \
  --header 'TPP-NOK-Redirect-URI: https://your.nok.redirect.uri' \
  --header 'X-Request-ID: <your request ID>' \
  --header 'Consent-ID: <consent id>' \
```


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Response:


```
{
    "account": {
        "iban": "<account IBAN>",
        "currency": "EUR"
    },
    "transactions": {
        "booked": [
            {
                "transactionId": "<transaction id>",
                "endToEndId": "<end to end id>",
                "mandateId": "<mandate id>",
                "creditorId": "<creditor id>",
                "bookingDate": "2020-10-08",
                "valueDate": "2020-10-08",
                "transactionAmount": {
                    "currency": "EUR",
                    "amount": "105.00"
                },
                "creditorAccount": {
                    "iban": "<account IBAN>",
                    "currency": "EUR"
                },
                "debtorName": "<debtor name>",
                "debtorAccount": {
                    "iban": "<debtor IBAN>",
                    "currency": "EUR"
                },
                "remittanceInformationUnstructured": "Rueckzahlung",
                "proprietaryBankTransactionCode": "EURO-Überweisung"
            }
        ],
        "_links": {
            "account": {
                "href": "https://xs2a.consorsbank.de/v1/accounts/<resource id>"
            }
        }
    },
    "_links": {
        "first": {
            "href": "https://xs2a.consorsbank.de/v1/accounts/<resource
id>/transactions?bookingStatus=both&dateFrom=2020-01-01&pageIndex=0"
        },
        "last": {
            "href": "https://xs2a.consorsbank.de/v1/accounts/<resource
id>/transactions?bookingStatus=both&dateFrom=2020-01-01&pageIndex=0"
        }
    }
}
```

The following snippet describes a sample cURL command to request the **transaction history of an account** with a "pageIndex" which does not exist

```
# if needed set your proxy
export https_proxy=http://<your.proxy>:<port>

curl --request GET \
  --url https://xs2a.consorsbank.de/v1/accounts/<resource
id>/transactions?bookingStatus=both&dateFrom=2020-01-01&pageIndex=1000 \
  --key private.key --cert certificate.pem --cert-type PEM \
  --header 'Accept: application/json' \
  --header 'PSU-IP-Address: <psu IP adress>' \
  --header 'TPP-Redirect-URI: https://your.ok.redirect.uri' \
  --header 'TPP-NOK-Redirect-URI: https://your.nok.redirect.uri' \
  --header 'X-Request-ID: <your request ID>' \
  --header 'Consent-ID: <consent id>' \
```

Response:

```
{
    "account": {
        "iban": "<account IBAN>",
        "currency": "EUR"
    },
    "_links": {
        "first": {
            "href": "https://xs2a.consorsbank.de/v1/accounts/<resource
id>/transactions?bookingStatus=both&dateFrom=2020-01-01&pageIndex=0"
        },
        "last": {
            "href": "https://xs2a.consorsbank.de/v1/accounts/<resource
id>/transactions?bookingStatus=both&dateFrom=2020-01-01&pageIndex=0"
        }
    }
}
```

Status Values:

Used status values for Account Information consent:

- received
- rejected

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- valid
- revokedByPsu
- terminatedByTpp
- expired

More details (e.g. http error codes) you will find in the .yaml file also provided for the download on our developer info sites:
https://www.consorsbank.de/ev/Service-Beratung/xs2a

https://b2b.dab-bank.de/xs2a/

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7 PAYMENT INSTRUMENT ISSUING SERVICE (PIIS)

7.1 BASIC INFORMATION

This chapter defines a list of services provided for PIISP.

Prerequisites:

- The TPP is registered for the PIISP role and valid PIIS scope
- The TPP has been successfully authenticated
- The PSU has given a consent to the ASPSP

Format:

- JSON

Process / Specifics:

- For establishing a PIIS consent, you or the PSU send a consent form via mail to us. If the form is filled out with all the necessary data, we will create the consent for you so that you will be able to request the funds confirmation endpoint.

  Here are the relevant contact addresses:

Consorsbank	BNP Paribas Wealth Management – Private Banking	DAB BNP Paribas
Consorsbank 90318 Nürnberg	Europa-Allee 18 60327 Frankfurt am Main	DAB BNP Paribas Serviceline Landsberger Str. 300 80687 München

- As an additional service, we will provide for the PSUs from 14.09.2019 an additional consent cockpit in their logged in account area, where they will have the possibility to revoke their personally granted consents directly. In this case, the status of the consent will be updated to “revokedByPsu”.

7.2 ENDPOINT DEFINITION

Method	Endpoint
GET	/v1/funds-confirmations

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7.3 EXAMPLES

Request:

```
curl -v -X POST "https://xs2a.dab-bank.de/v1/funds-confirmations" \
  --key private.key --cert certificate.pem --cert-type PEM \
  -H "Content-Type: application/json" \
  -H "Accept: application/json" \
  -H "X-Request-ID: <your request ID>" \
  -d '{
  "cardNumber": "CARD-NUMBER",
  "payee": "Testuser",
  "account": {
    "currency": "EUR",
    "iban": "<PSU iban>"
  },
  "instructedAmount": {
    "currency": "EUR",
    "amount": "15"
  }
}'
```

Response:

```
{
  "fundsAvailable": true
}
```

Or

```
{
    "tppMessages": [
        {
            "category": "ERROR",
            "code": "NO_PIIS_ACTIVATION",
            "text": "The PSU has not activated the addressed account
for the usage of the PIIS associated with the TPP."
        }
    ]
}
```

Status Values:

Response values: true, false

More details (e.g., http error codes) you will find in the .yaml file also provided for the download on our developer info sites:
https://www.consorsbank.de/ev/Service-Beratung/xs2a

https://b2b.dab-bank.de/xs2a/

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8 IBAN CHECK

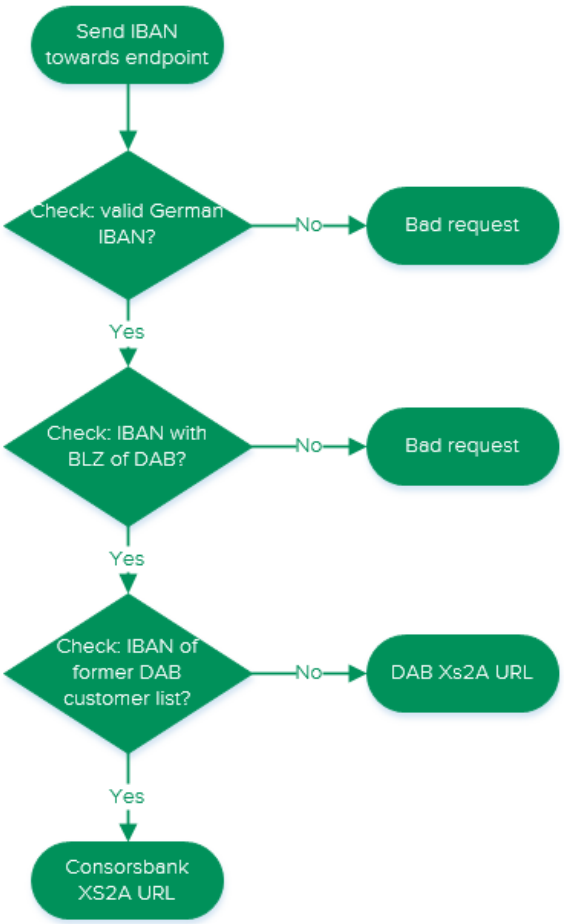
8.1 BASIC INFORMATION

Due to the fact Consorsbank and BNP Paribas Wealth Management – Private Banking are also servicing B2C clients with IBANs of former DAB Bank AG we offer an additional API service. This service allows you to check if you have to use xs2a-endpoints for Consorsbank / BNP Paribas Wealth Management – Private Banking or DAB BNP Paribas.

Within this IBAN check, you will send an IBAN against the endpoint, defined in 8.2. If your IBAN is an IBAN of DAB BNP Paribas, you will receive the correct DAB redirect host. If your IBAN is not a DAB BNP Paribas IBAN, you will receive a bad request as answer, even if your IBAN is an IBAN of Consorsbank or BNP Paribas Wealth Management- Private Banking.

Only if your Consorsbank or BNP Paribas Wealth Management – Private Banking IBAN is a former DAB IBAN (has the same BIC as DAB), you will receive the Consorsbank host.

You can find a diagram below:



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Consorsbank / BNP Paribas Wealth Management – Private Banking profile:

- Bank Identifier Code = CSDBDE71 / DABBDEMM
- National Bank Code = 760 300 80 / 701 204 00

DAB BNP Paribas profile:

- Bank Identifier Code = DABBDEMM
- National Bank Code = 701 204 00

8.2 ENDPOINT DEFINITION

Method	Endpoint
GET	/v1/validate-iban

8.3 EXAMPLES

Request:

```
curl -X GET \
 'https://xs2a.consorsbank.de/banking/v1/validate-iban?<PSU IBAN>"' \
 --key private.key --cert certificate.pem --cert-type PEM \
 -H 'Accept: application/json' \
 -H 'x-request-id: <consent id>"'
```

Response:

```
{
   "url": "xs2a.consorsbank.de"
}
```

Response Values:

For a Consorsbank or BNP Paribas Wealth Management – Private Banking IBAN there is a consorsbank url response:
`{"url": "xs2a.consorsbank.de"}`
For a dab IBAN there will is a dab url response:
`{"url": "xs2a.dab-bank.de"}`

9 DECOUPLED SCA APPROACH

9.1 BASIC INFORMATION

The Decoupled SCA Approach can be used when the following conditions are met:

- Both the Consorsbank or BNP Paribas Wealth Management and TPP mobile Apps are installed on the mobile device of the customer
- Device-binding is active for the mobile device in the Consorsbank or BNP Paribas Wealth Management App

The Decoupled SCA Approach can be used instead of the Redirect SCA approach, when creating consents, initiating or cancelling payments. To use it, the TPP mobile App can request a device identifier (UUID) from the Consorsbank or BNP Paribas Wealth Management App, and when sending the corresponding REST request (consent creation, payment initiation or payment cancellation) it will need to provide the device identifier using the "PSU-Device-ID" header parameter. It can be used for all payment initiation, payment cancellation as well as consent creation requests.

The response structure for the requests sent by using the new header parameter will no longer contain the "scaRedirect" link, but instead will contain a new property, called "scaMethods" which is an array, that will contain an object with the property "explanation". In the "explanation" property the response can contain one of the following two messages "Decoupled SCA started successfully." or "Decoupled SCA could not be started. Please retry using the REDIRECT approach.".

In the case that the "Decoupled SCA started successfully." message is returned, it means that the Decoupled SCA approach has been started, and the TPP mobile application can notify the customer that he should check his notifications, in order to proceed with authorizing the requested resource.

Otherwise, if the "Decoupled SCA could not be started. Please retry using the REDIRECT approach." message is returned, it means that the Decoupled SCA approach could not be started, using the provided device identifier, and the TPP mobile application can try to instead resend the request without the device identifier, thus falling back to the Redirect SCA approach. This message can be returned under the following conditions:

- The device identifier is expired
- The device identifier is invalid or unknown

9.2 ANDROID TECHNICAL SOLUTION

The TPP app can request the device UUID by invoking a specific android intent from the Consorsbank or BNP Paribas Wealth Management Apps. The Consorsbank or BNP Paribas Wealth Management apps obtain the device UUID and return it to the TPP app using an intent result.

Below is a code sample for how to obtain device UUID from The Consorsbank or BNP Paribas Wealth Management Apps:

```
val bankingAppId = "" //applicationId of apps. Refer the table 3.1.1 below.
val intentAction = bankingAppId.plus(".tpp.uuid.APP_TO_APP")
val uuidIntent = Intent().apply {
    action = intentAction
}

// Verify that the intent will resolve to an activity
if (uuidIntent.resolveActivity(packageManager) != null) {
    startActivityForResult(sendIntent, UUID_ACTIVITY)
} else {
    // Consorsbank or BNP Paribas Wealth Management apps are not installed.
}
```

Below is the data structure for the device UUID:

```
{
    "deviceUUID": "a device UUID",
    "expiryDate": "Date with timezone (yyyy-MM-dd'T'HH:mm:ss.SSSXXX format) until UUID
```


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```
is valid"
}
```

9.3 APPLICATION IDS FOR THE ANDROID APPS

App	Application Id
Consorsbank	de.consorsbank
BNP Paribas Wealth Management	de.bnp.wm

9.4 IOS TECHNICAL SOLUTION

The TPP apps can request the device UUID by invoking the Consorsbank or BNP Paribas Wealth Management apps via URL requests.

The URL by which to invoke the Consorsbank or BNP Paribas Wealth Management apps must have the following pattern:
<cb_app_scheme>://TPP?<base64_encoded_request_data>

The <base64_encoded_request_data> part represents an encoded JSON string containing the request parameters.

Below is an example of the request data:

```
{
  "REQUEST_TYPE": "DEVICE_UUID",
  "RESPONSE_URL_FORMAT": "<tpp_app_scheme>://<response_path>?{RESPONSE_DATA}"
}
```

The Consorsbank or BNP Paribas Wealth Management apps obtain the device UUID and return it to the TPP apps via an URL request (provided by the invoking app in the initial request).

The RESPONSE_URL_FORMAT must contain a valid URL of the following pattern:
<tpp_app_scheme>://<response_path>?{RESPONSE_DATA}

The {RESPONSE_DATA} format specifier will be replaced (by the Consorsbank or BNP Paribas Wealth Management app) with the actual response JSON string, encoded in base 64.

Below is an example of the response data:

```
{
  "DEVICE_UUID": "a device UUID",
  "EXPIRY_DATE": "Date and time, with timezone (ISO8601 format - yyyy-MM-
dd'T'HH:mm:ss.SSSXXX) when the device UUID expires"
}
```

Below is a code sample for how to obtain device UUID from The Consorsbank or BNP Paribas Wealth Management Apps:

```
let requestDataString = "{\"REQUEST_TYPE\": \"DEVICE_UUID\", \"RESPONSE_URL_FORMAT\":
\"<tpp_app_scheme>://<response_path>?{RESPONSE_DATA}\"}"
let encodedDataString = requestDataString.data(using: .utf8)?.base64EncodedString() ??
String()
let requestURLString = "<cb_app_scheme>://TPP?".appending(encodedDataString)

if let requestURL = URL(string: requestURLString) {
    UIApplication.shared.open(requestURL, options: [:], completionHandler: nil)
}
```

9.5 URL SCHEMES FOR THE IOS APPS

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App	URL Scheme
Consorsbank	de.consorsbank.universalapp
BNP Paribas Wealth Management	de.wealthmanagement.universalapp

9.6 EXAMPLES

Request SWIFT-Payment initiation:

```
POST https://xs2a.consorsbank.de/v1/payments/cross-border-credit-transfers
```

The following snippet describes an example for a cURL command to create a SWIFT Single Payment.

```
curl --request POST \
  --url https://xs2a.consorsbank.de/v1/payments/cross-border-credit-transfers \
  --key private.key --cert certificate.pem --cert-type PEM \
  --header 'Content-Type: application/json' \
  --header 'PSU-IP-Address: <psu IP adress>' \
  --header 'TPP-Notification-URI: https://your.tpp.notification.uri' \
  --header 'TPP-Redirect-URI: https://your.redirect.uri' \
  --header 'X-Request-ID: <your request ID>' \
  --header 'Accept: application/json' \
  --header 'PSU-Device-ID: <device identifier>' \
  --data '{
    "debtorAccount": {
        "currency": "EUR",
        "iban": "<PSU IBAN>"
    },
    "instructedAmount": {
        "currency": "<any valid currency for SWIFT payments (see Currency in 5.1)>",
        "amount": "0.02"
    },
    "creditorAccount": {
        "currency": "<any valid ISO 4217 currency code>",
        "iban": "<any valid IBAN>"
    },
    "creditorName": "creditor name",
    "creditorAgent": "<BIC of the creditor account>",
    "chargeBearer": "<CRED, DEBT or SHAR>",
    "remittanceInformationUnstructured": "payment for xyz"
}'
```


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Response:
Find below example responses for a successful payment initiation.

```
{
  "transactionStatus": "RCVD",
  "paymentId": "<long payment id>",
  "transactionFeeIndicator": false,
  "scaMethods": [
    {
      "explanation": "Decoupled SCA started successfully."
    }
  ],
  "_links": {
    "self": {
      "href": "https://xs2a.consorsbank.de/v1/payments/cross-
border-credit-transfers/<long payment id>"
    },
    "status": {
      "href": "https://xs2a.consorsbank.de/v1/payments/cross-
border-credit-transfers/<long payment id>/status"
    },
    "scaStatus": {
      "href": "https://xs2a.consorsbank.de/v1/payments/cross-
border-credit-transfers/<long payment id>/authorisations/<redirect
id>"
    }
  }
}
```

The following snippet describes an example for a cURL command to create a SWIFT Single Payment.

```
curl --request POST \
  --url https://xs2a.consorsbank.de/v1/payments/cross-border-credit-transfers \
  --key private.key --cert certificate.pem --cert-type PEM \
  --header 'Content-Type: application/json' \
  --header 'PSU-IP-Address: <psu IP adress>' \
  --header 'TPP-Notification-URI: https://your.tpp.notification.uri' \
  --header 'TPP-Redirect-URI: https://your.redirect.uri' \
  --header 'X-Request-ID: <your request ID>' \
  --header 'Accept: application/json' \
  --header 'PSU-Device-ID: <device identifier>' \
  --data '{
    "debtorAccount": {
        "currency": "EUR",
        "iban": "<PSU IBAN>"
    },
    "instructedAmount": {
        "currency": "<any valid currency for SWIFT payments (see Currency in 5.1)>",
        "amount": "0.02"
    },
    "creditorAccount": {
        "currency": "<any valid ISO 4217 currency code>",
        "iban": "<any valid IBAN>"
    },
    "creditorName": "creditor name",
    "creditorAgent": "<BIC of the creditor account>",
```


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```
    "chargeBearer": "<CRED, DEBT or SHAR>",
    "remittanceInformationUnstructured": "payment for xyz"
}'
```


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Response:

Find below example responses for a payment initiation where the Decoupled approach could not be started.

```
{
  "transactionStatus": "RCVD",
  "paymentId": "<long payment id>",
  "transactionFeeIndicator": false,
  "scaMethods": [
    {
      "explanation": "Decoupled SCA could not be started. Please
retry using the REDIRECT approach."
    }
  ],
  "_links": {
    "self": {
      "href": "https://xs2a.consorsbank.de/v1/payments/cross-
border-credit-transfers/<long payment id>"
    },
    "status": {
      "href": "https://xs2a.consorsbank.de/v1/payments/cross-
border-credit-transfers/<long payment id>/status"
    },
    "scaStatus": {
      "href": "https://xs2a.consorsbank.de/v1/payments/cross-
border-credit-transfers/<long payment id>/authorisations/<redirect
id>"
    }
  }
}
```

Request a bank offered consent:

```
POST https://xs2a.consorsbank.de/v1/consents
```

The following snippet describes a sample cURL command to create a **bank offered consent** using the Decoupled approach.

```
curl --request POST \
  --url https://xs2a.consorsbank.de/v1/consents \
  --key private.key --cert certificate.pem --cert-type PEM \
  --header 'Content-Type: application/json' \
  --header 'PSU-IP-Address: <psu IP adress>' \
  --header 'TPP-Redirect-URI: https://your.ok.redirect.uri' \
  --header 'TPP-NOK-Redirect-URI: https://your.nok.redirect.uri' \
  --header 'TPP-Notification-URI: https://your.tpp.notification.uri' \
  --header 'X-Request-ID: <your request ID>' \
  --header 'Accept: application/json' \
  --header 'PSU-Device-ID: <device identifier>' \
  --data '{
    "access": {
        "accounts": [],
        "balances": [],
        "transactions": []
    },
    "recurringIndicator": true,
    "validUntil": "2019-09-14",
    "frequencyPerDay": 4
```


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```
}'
```

Response:

```
{
  "consentStatus": "received",
  "consentId": "<consent id>",
  "scaMethods": [
    {
      "explanation": "Decoupled SCA started successfully."
    }
  ],
  "_links": {
    "scaStatus": {
      "href": "https://xs2a.consorsbank.de/v1/consents/<consent
id>/authorizations/<authorization id>"
    },
    "self": {
      "href": "https://xs2a.consorsbank.de/v1/consents/<consent id>"
    },
    "status": {
      "href": "https://xs2a.consorsbank.de/v1/consents/<consent id>/status"
    }
  }
}
```

10 TEST DATA

TPPs are able to either create their own productive test accounts, or test with real customers and their corresponding accounts.

To receive one or more test accounts for Consorsbank, BNP Paribas Wealth Management – Private Banking or for DAB BNP Paribas, you have to create the desired test accounts over the relevant website:

Consorsbank: www.consorsbank.de

BNP Paribas Wealth Management – Private Banking: https://www.wealthmanagement.bnpparibas.de/web/home

DAB BNP Paribas: https://b2b.dab-bank.de/

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