

KH PSD2 OPEN BANKING
&
THIRD PARTY PROVIDERS

INTEGRATION GUIDE

v2.0

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| 18/03/2021 | Xiang LI | 2.1 | Update for Resource Path changes |

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Introduction

Open Banking is the result of a regulation introduced by The Competition & Markets Authority. It will deliver a platform for greater competition and choice for customers. It will enable personal and business customers to share their data securely with banks and third parties, allowing them to compare products, initiate payments and request account information. The data is shared via Application Programming Interfaces (APIs).

If you are an authorised Third-Party Provider (TPP) by the FCA please use the following links to access our dedicated Open Banking portals.

1. Onboarding Process

a. Sandbox

You must be enrolled and registered on the Open Banking directory to participate securely within the Open Banking ecosystem.

We currently support Dynamic registration processes. Request details could be found in above open-id configuration well known endpoint. Please request your KH Online access by using contact details in Section 7.

Well-known Endpoint -> <https://openbanking-sandbox.kleinworthambros.com/oauth/v1/.well-known/openid-configuration>

Dynamic Registration -> <https://obapi-sandbox.kleinworthambros.com/auth/api/reg>

KH Online access link -> <https://ebanking-test.kleinworthambros.com>

b. Production

You must be integrated with our sandbox environment before enrolling in production.

Well-known Endpoint -> <https://openbanking.kleinworthambros.com/oauth/v1/.well-known/openid-configuration>

Dynamic Registration -> <https://obapi.kleinworthambros.com/auth/api/reg>

KH Online access link -> <https://ebanking.kleinworthambros.com>

2. Access Links

a. Sandbox – legacy (to be decommissioned by end of May 2021)

This will allow you to perform some early integration and technical Proof-Of-Concept, without the need to request connectivity to the live APIs.

| | |
|---------------|---|
| Token | https://sandbox.kleinworthambros.com/auth/api/token |
| Accounts | https://sandbox.kleinworthambros.com/accounts/open-banking/v3.1/aisp |
| Payments | https://sandbox.kleinworthambros.com/payments/open-banking/v3.1/pisp |
| CBPII | https://sandbox.kleinworthambros.com/cbpii/open-banking/v3.1/cbpii |
| Authorization | https://aspsp.kleinworthambros.com/aspsp/authorize |

b. Sandbox (deployed)

This will allow you to perform some early integration and technical Proof-Of-Concept, without the need to request connectivity to the live APIs.

| | |
|---------------|---|
| Token | https://obapi-sandbox.kleinworthambros.com/auth/api/token |
| Accounts | https://obapi-sandbox.kleinworthambros.com/open-banking/v3.1/aisp |
| Payments | https://obapi-sandbox.kleinworthambros.com/open-banking/v3.1/pisp |
| CBPII | https://obapi-sandbox.kleinworthambros.com/open-banking/v3.1/cbpii |
| Authorization | https://openbanking-sandbox.kleinworthambros.com/aspsp/authorize |

c. Production – (to be decommissioned by end of June 2021)

| | |
|---------------|---|
| Token | https://obapi.kleinworthambros.com/auth/api/token |
| Accounts | https://obapi.kleinworthambros.com/accounts/open-banking/v3.1/aisp |
| Payments | https://obapi.kleinworthambros.com/payments/open-banking/v3.1/pisp |
| CBPII | https://obapi.kleinworthambros.com/cbpii/open-banking/v3.1/cbpii |
| Authorization | https://openbanking.kleinworthambros.com/aspsp/authorize |

d. Production – (to be deployed by end of June 2021)

| | |
|---------------|---|
| Token | https://obapi.kleinworthambros.com/auth/api/token |
| Accounts | https://obapi.kleinworthambros.com/open-banking/v3.1/aisp |
| Payments | https://obapi.kleinworthambros.com/open-banking/v3.1/pisp |
| CBPII | https://obapi.kleinworthambros.com/open-banking/v3.1/cbpii |
| Authorization | https://openbanking.kleinworthambros.com/aspsp/authorize |

3. End Points

a. Accounts and Transactions API

The Account and Transaction API is intended to give a third party, upon consent of the owning customer, access to product, service and transaction information relating to that account such that they may provide the customer with value-adding products or services.

| | |
|----------------------------|--|
| i. Account-access-consents | POST /account-access-consents GET /account-access-consents/{ConsentId} DELETE /account-access-consents/{ConsentId} |
| ii. Accounts | GET /accounts GET /accounts/{AccountId} |
| iii. Balances | GET /accounts/{AccountId}/balances |
| iv. Transactions | GET /accounts/{AccountId}/transactions |
| v. Beneficiaries | GET /accounts/{AccountId}/beneficiaries |
| vi. Direct Debits | GET /accounts/{AccountId}/direct-debits |
| vii. Standing Orders | GET /accounts/{AccountId}/standing-orders |
| viii. Scheduled Payments | GET /accounts/{AccountId}/scheduled-payments |

b. Payments Initiation

The payment initiation API enables any third party, registered as an approved Payment Initiation Service Provider (PISP) with Open Banking, to provision secure payments on behalf of our customers. The payment, once approved and authorised by the customer, is submitted for processing.

We currently support the submission of domestic and international payments from our customer’s UK personal and business current accounts.

| | |
|--|--|
| i. Domestic Payments | POST /domestic-payment-consents GET /domestic-payment-consents/{ConsentId} GET /domestic-payment-consents/{ConsentId}/funds-confirmation POST /domestic-payments GET /domestic-payments/{DomesticPaymentId} |
| ii. Domestic Scheduled Payments | POST /domestic-scheduled-payment-consents GET /domestic-scheduled-payment-consents/{ConsentId} POST /domestic-scheduled-payments GET /domestic-scheduled-payments/{Domestic ScheduledPaymentId} |
| iii. International Payments | POST /international-payment-consents GET /international-payment-consents/{ConsentId} GET /international-payment-consents/{ConsentId}/funds-confirmation POST /international-payments GET /international-payments/{InternationalPaymentId} |
| iv. International Scheduled Payments | POST /international-scheduled-payment-consents GET /international-scheduled-payment-consents/{ConsentId} GET /international-scheduled-payment-consents/{ConsentId}/funds-confirmation POST /international-scheduled-payments GET /international-scheduled-payments/{InternationalScheduledPaymentId} |
| v. Domestic Standing Orders (To be deployed by End of June) | POST /domestic-standing-order-consents GET /domestic-standing-order-consents/{ConsentId} POST /domestic-standing-orders GET /domestic-standing-orders/{DomesticStandingOrderId} |
| vi. International Standing Orders (To be deployed by End of June) | POST /international-standing-order-consents GET /international-standing-order-consents/{ConsentId} POST /international-standing-orders |

NklqRXhPVEkxTUNJc0luTjBZWFixY3IJNklrRmpkR2wyWINJc0ltRjFkR2h2Y21sellYUnBiMjV6SWpwYmV5SnRaVzFpWlhKZmMzUmhkr1VpT2IKSFF
pSXNJbKp2YkdWeklqcGJJa0ZKVTFBaUxDSIFTvk5RSWwxOUxlc2liV1Z0WW1WeVgzTjBZWFJsSWpvaVNVVWIMQOp5YjJ4bGN5STZXEUpCU1ZOU
Ulpd2IVRWxUVUNKZGZTeDdJbTFsYldKbGNsOXpkR0YwWINJNklrNU1JaXdpY205c1pYTWPbHNpUVVsVFDVDSXNJbEJKVTFBaVhYMWRmU3dpYzI
5bWRIZGhjbVZmYkc5bmIxOTFjbWtpT2IKb2RIUndjem92TDNkM2R5NXJiR1ZwYm5kdmNuUm9ZVzFpY205ekxtTnZiUzltYvD4bFIXUnRhVzR2ZFhO
bGNsOTFjR3h2WVdRdmJHOW5iM012UzBndFJuVjBkWEIOWlcOdWMzWm5JaXdpYjNkblgzTjBZWFixY3IJNklrRmpkR2wyWINJc0ltOXlaMTlwWkN
JNklqQXdNVFU0TURBd01ERklVVkZ6UTBGQldDSXNJbTI5WjE5dVIXMWxJam9pVTBjZ1MyeGxhVzUzYjNKMElFaGhiV0p5YjNNZ1FtRnVheUJNYVcx
cGRHVmtJaXdpYjNkblgyTnZiblJoWTNSeklqcGJleUp1WVcxblq2IRblZ6YVc1bGMzTWIMQ0psYldGcGDSTZJa3RJTFVODmJXMWxbU5wWVd3d
FZHVMhiVUjYkdWcGJuZHZjblJvWVcxaWNTOXpMbU52YINJc0luQm9iMjVsSWpvaU1ESXdOelU1TnpNd01EQWIMQ0owZVhCbElq2IRblZ6YVc1
bGMzTWImU3g3SW01aGJXVWIPaUpVWldOb2JtbGpZV3dpTENkBgJXRnBiQ0k2SWt0SUXVTnZiVzFsY21OcFXd3RWR1ZoYIVCcmJHVnBibmR2Y2
5Sb1IXMWjlbTI6TG1OdMjTSXNJbkJvYjI1bElq2INREI3TnpVNU56TXdNREFpTENKMGVYQmxJam9pVkdWamFHNXBZMkZzSW4xZEXDSnZjbWRm
YW5kcmMxOWxibVJ3YjJsdWRDSTZjWgWZEhCek9pOHZhMIY1YzNSdmNtVXViM0JsYm1KaGjtdHBibWQwWlhOMExtOXlaeTuxYXk4d01ERTFPR
EF3TURBeFNGRIjME5CUVZndk1EQXhOVGd3TURBd01VaFJVWE5EUUVVGWUxtcDNhM01pTENKdmNtZGZhbMryYzE5eVpYwNzhMIZrWDJWdV
plQnZhVzUwSWpvaWFIUjBjSE02Thk5clpYbHpkRzI5WIM1dmNHVnVZbUZ1YTJsdVozUmxjM1F1YjNkKbkuVnJMekF3TVRVNE1EQXdNREZJVZGe
lEwRkXQzI5WlhadmEyVmtMekF3TVRVNE1EQXdNREZJVZGelEwRkXQzVxZDJ0eklpd2lMjltZEhkaGNtVmZhbMryYzE5bGJtUndiMmx1ZENJNkl
taDBkSEJ6T2k4dmEyVjVjM1J2Y21VdWlZQmxibUpoYm10cGjTZDBaWE4wTG05eVp5NTFheTh3TURFMU9EQXdNREF4U0ZGUmMwTkJRVmd2V0
ZCR1dUUXdWRE5sT1hKbVeyUXhkRE0xWTFsSUxtcDNhM01pTENKemyWjBkMkZ5WIY5cWQydHpYM0psZG05clpXUmZaVzVrY0c5cGJuUWIPaU
pvZEhSd2N6b3ZMMnRsZVhOMGizSmxMbTI3Wlc1aVIXNXJhVzVzEdWemRDNXZjbWN1ZFdZdk1EQXhOVGd3TURBd01VaFJVWE5EUUVVGWUwz
SmxkbTlyWldRldGQkdXVFF3VkrObE9Ysm1RMIF4ZERNMVkxbElMbXAZYTNNaUxDSnpiMlowZDJGeVpWOXdiMnhwWTNsZmRYSnBJam9pYUh
SMGNITTZMeTkzZDNjdWEyeGxhVzUzYjNKMGFHRnRZbkp2Y3k1amlyMHZaVzR2SWI3aWMyOW1kSGRoY21WZmRHOXpYM1Z5YVNJNkltaDBkS
EJ6T2k4dmQzZDNMbXRzWlDsdWQyOXIkR2hoYldKeWlZTXVZMjI0TDJWdUx5SXNJbk52Wm5SM1IYSmxYMjI1WDJkbGFHRnNabDI2Wmw5dmNt
Y2lPaUpUUnICTGJHVnBibmR2Y25RZ1NHRnRZbkp2Y3ICQ1IXNXJJRXhwYldsMFpXUWlmUS5DVDN6Qj1fUzJHeHIXejhKWmVfWFptU2FuMIVSdEd
iZ3N3eVRMbHBHS2VEa3JoU0FjU3piS3dKRC1Ea0NHQ3NkaDRyZFlieO5kM1FNbHA3cGNnc1VzQzZ4aUwzTW5RdkMzRUZ0X3dJQIJTemRpNVg4T
npjankyY003S0VTcDZhdIM1b1ZmMDNXTkZaM0s3ZF83U00zNFNwamtyaThUbnhTcjNOc292T2c5YmM1UWJURW56VXRleVdnTkhsNIZNSFhMR
nBmZThVSng0bzhaQ0ZMSnExdFU1aDRsZTI3WnU4MVMZ2tLR3p3amdYMXk5V3RQRzJ5by14UmlQQTfiRmpDZkQwY1A5YVUwTGVPbIVXynpC
R196TU5oRjhhVGF6WIAzNOJMMDNqUnVky25paWtoRGxZOVpaUFg5VVdidnM2TjVqd2o4bHZUSXFPQkxYzN4bXpNY1EiLCJhcHBsaWNhdGlvbl
90eXBlljoid2ViliwiaWRfdG9rZW5fc2lnbmvkX3Jlc3BvbnNlX2FsZyI6lJTMjU2liwicmVxdWVzdF9vYmpIY3Rfc2lnbmluZ19hbGciOiJub25lIiwidG9rZ
W5fZW5kcG9pbnRfYXV0aF9zaWduaW5uX2FsZyI6lJTMjU2In0.FLafviRKiESj3bz-
BnonAxwXG8EshwXFrP3tqtH2Roh8UjNm7fJOYp5mV6Jkhj73rcSxxdq1yOYx3r2iNkMDAK4TmCjGW9huOpfOIMWuRGp4Y2s381opDq0Q10tgZiK
Uad8P6Q6lkCfcxrRzTp3vfx_I_BOT3CjCwabEGN7jFouWDltH0qGRq3Zo4M_o8tLOEH7iVHe3_raPtwxn3ypL7klpoigxUQu3iftPf6kjlvd_V3Dn36yOC
y1xvJ1GjSHs83kPky0WDKBaDF_t8GRgye5wHIZ7aEO7DPLpRxFklehHagMfWANxbTXHJw_ftOLvPphPFO4hy-H6f56ianqna

e. API Response Codes

| | |
|-----|--|
| 200 | OK |
| 201 | Created |
| 204 | No Content |
| 400 | Bad Request (Standard Error Codes to be found in R/W Data API Specification -v3.1) |
| 401 | Unauthorized |
| 403 | Forbidden |
| 405 | Method Not Allowed |
| 406 | Not Acceptable |
| 429 | Too Many Requests |
| 500 | Internal Server Error |
| 503 | Service Unavailable |

4. Test Data

All the relevant test data / test clients will be provided to TPP’s once they are onboarded to test the Sandbox.

- Test Clients
- Test Accounts
- Test Beneficiaries
- Remaining test data like transactions, statements...etc
- eBanking login credentials

5. Access to KH Online Test environment

- Kleinwort Hambros will provide the login credentials
- Download the KH Online test app through the link provided
- Install application
- Register using eBanking user id and email provided
- Set up PIN for the KH Online test app
- Activate eBanking user profile (when the email is triggered, please contact KH’s OB team for activation)

- Consent Authorisation – Web Flow
 - o When its redirected from TPP, eBanking login page will be shown
 - o Enter the user id provided
 - o Accept the notification received through the registered smart device
 - o Login through PIN/Biometric
 - o Authorise the consent (Account/Payment/CBPII) through mobile app
 - o Redirected back to the TPP web flow.
- Consent Authorisation – Mobile Flow
 - o When its redirected from TPP app, eBanking app is opened
 - o Login through PIN/Biometric
 - o Authorise the consent (Account/Payment/CBPII) through mobile app
 - o Redirect back to the TPP mobile app.

6. Limited Functionality

- We do not support internal transfers until further notice

7. Contact Details

Email: openbankingsupport@kleinworthambros.com