HL OPEN BANKING API OVERVIEW

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VERSION CONTROL

Version	Date	Amendments
1.0	14/03/2019	Original version
1.1	18/06/2019	Update to data services Update to Production Endpoints
1.2	31/07/2019	Correction to well-known endpoints
2.0	07/07/2023	TECHNICAL INFORMATION – HL SAVINGS chapter: • Discovery Endpoints updated • Account Information Service Endpoints updated DEVELOPER SANDBOX ENVIRONMENT – HL SAVINGS chapter: • Discovery Endpoints updated • Client Authentication section updated • Sandbox Test Cases updated

Open Banking Data Services At HL

Hargreaves Lansdown Savings Limited ([FCA Registration 751996](#)) ("HL Savings") is using Open Banking to provide access to account information service providers in accordance with the PSD2 Regulations. At this point in time, these Open Banking services are only available for HL Savings' "Active Savings" accounts, and not for any other HL Group account.

ACCOUNT INFORMATION SERVICES

The Account Information interface for HL Savings is being provided using v3.1 of the Open Banking Read/Write Data API Specifications – see https://openbanking.atlassian.net/wiki/spaces/DZ/pages/937656404/Read+Write+Data+API+Specification+-+v3.1 for details.

Products Supported

The Account Information interface is available for the following HL Savings accounts:

- Active Savings
  Please note that the interface only provides Account Information on a client's Active Savings Hub Account, and not on the client's savings accounts with Partner Banks.

Client Authentication

HL Savings will use the browser based Redirect method for client authentication, both during the consent process and during any subsequent authentication.

The user experience for the client authentication process will be exactly the same as for clients that are logging in to their Active Savings account, along with the Open Banking-mandated elements at the end:

- An initial screen to capture their Username and Date of birth credentials.

- A second screen to enter their Online Password and selected digits from their Secure Number.

- A third screen to handle their 2FA credentials.

- Following the completion of the authentication process, there will be the playback of the consent request for the client to verify, along with account selection.
  Should the client not select an account, or not actually have an Active Savings account, they will not be able to confirm the consent process as there would be no accounts for the AISP to access.

  The consent playback and account selection screen will only be shown during the consent process – it will not form part of any subsequent authentications, such as when re-authenticating the client every 90 days.

Data Services

The following Account Information "GET" Services are provided

Endpoint	Offered	Comments
/accounts	**YES** Mandatory	In the main **Account Data** node, the nickname element will not be provided. The **Account** and **Servicer** nodes will not be populated.
/accounts/{AccountId}	**YES** Mandatory	As above
/accounts/{AccountId}/balances	**YES** Mandatory	The **CreditLine** node will not be provided.
/accounts/{AccountId}/transactions	**YES** Mandatory	In the main **Transaction** node, the **TransactionReference**, **StatementReferences**, **TransactionInformation** and **Address** elements will not be provided. The following nodes will not be provided as they have no context for an Active Savings account: • **ChargeAmount** - there are no transaction-level charges on an Active Savings account • **CurrencyExchange** - all transactions are in GBP • **BankTransactionCode** - not relevant to an Active Savings account • **ProprietaryBankTransactionCode** - not relevant to an Active Savings account • **MerchantDetails** - not relevant • **CreditorAgent** - not relevant • **DebtorAgent** - not relevant • **CardInstrument** - not relevant

Endpoint	Offered	Comments
		In the **CreditorAccount** and **DebtorAccount** nodes, only the Name element will be provided.
/accounts/{AccountId}/party	**NO** Conditional	Service not provided
/accounts/{AccountId}/product	**YES** Conditional	In the main **Product** node, the **SecondaryProductId** and **MarketingStateId** elements will not be provided. As Active Savings falls under the Product Type of "Other", the **OtherProductType** node will be included. The **BCA** and **PCA** nodes will not be provided as they are not relevant to Active Savings.
/accounts/{AccountId}/statements	**NO** Conditional	Service not provided
/accounts/{AccountId}/statements/{StatementId}	**NO** Conditional	Service not provided
/accounts/{AccountId}/statements/{StatementId}/transactions	**NO** Conditional	Service not provided
/accounts/{AccountId}/beneficiaries	**NO** Conditional	Has no context for Active Savings.
/accounts/{AccountId}/direct-debits	**NO** Conditional	Has no context for Active Savings.
/accounts/{AccountId}/standing-orders	**NO** Conditional	Has no context for Active Savings.
/accounts/{AccountId}/offers	**NO**	Has no context for Active Savings.

Endpoint	Offered	Comments
	Conditional	
/accounts/{AccountId}/scheduled-payments	**NO** Conditional	Has no context for Active Savings.
/accounts/{AccountId}/statements/{StatementId}/file	**NO** Conditional	Not supported.
/balances	**NO** Optional	None of the optional bulk services are being offered.
/transactions	**NO** Optional	None of the optional bulk services are being offered.
/beneficiaries	**NO** Optional	None of the optional bulk services are being offered.
/direct-debits	**NO** Optional	None of the optional bulk services are being offered.
/standing-orders	**NO** Optional	None of the optional bulk services are being offered.
/products	**NO** Optional	None of the optional bulk services are being offered.
/offers	**NO** Optional	None of the optional bulk services are being offered.

Endpoint	Offered	Comments
/party	**NO** Optional	None of the optional bulk services are being offered.
/scheduled-payments	**NO** Optional	None of the optional bulk services are being offered.
/statements	**NO** Optional	None of the optional bulk services are being offered.

PAYMENT INFORMATION SERVICES

No Payment Initiation Services interface is available due to the nature of Active Savings - the relevant functionality is not provided to clients.

CONFIRMATION OF FUNDS SERVICES

No Confirmation of Funds interface is available due to the nature of Active Savings - the relevant functionality is not provided to clients.

TECHNICAL INFORMATION – HL SAVINGS

Discovery Endpoint

The URL for the HL Savings .well-known endpoint:

- https://matls.rs.aspsp.api-hls.hl.co.uk/auth/oauth2/tpp/.well-known/openid-configuration

Account Information Service Endpoints

Account Information Service Endpoints for HL Savings for v3.1 of the Open Banking specification, including the Registration and Consent endpoints, are provisioned under the following URI path.

- https://matls.rs.aspsp.api-hls.hl.co.uk/open-banking/v3.1/aisp/accounts
- https://matls.rs.aspsp.api-hls.hl.co.uk/auth/oauth2/tpp/{service}

TPP Registration

All Third Party Providers must be registered by the relevant National Competent Authority (NCA) and enrolled on the Open Banking Directory.

HL Savings support the following "token endpoint auth methods" (as per the "token_endpoint_auth_methods_supported" attribute in the .well-known endpoint).

- private_key_jwt

In the absence of the optional **PUT /register** and **DELETE /register** endpoints, the **POST /register** endpoint can be used to re-state a registration, and a new Client ID will be issued.

The Open Banking Dynamic Client Registration specification states that "A TPP may request for a specific client_id to be issued to it", but that an ASPSP may ignore the claim. HL Savings does not support this facility, so any call of the registration endpoint containing a specific client_id value will be returned with an assigned value.

Additional Information on Client Authentication and Access Tokens

The same **GET /authorize** endpoint will be used for all authentication journeys – during the initial consent process and where re-authentication is required.
The same Consent ID should be used for re-authentications, and the screen flow will be the same as for the initial consent process, except there will be no consent playback or account selection.

Once a Consent request has been authenticated or re-authenticated, HL Savings will issue an Authorisation Code, which can be exchanged for Access and Refresh Tokens using the **POST /access_token.** endpoint.

The Access Token can then be used to call the data services for a limited period of time, as defined in the response from **POST /access_token**. When the Access Token expires, the **POST /access_token** endpoint can then be called using the same Refresh Token to obtain another Access Token – provided the Consent request is still valid.

Number of API Calls

While the PSD2 regulations state that an AISP can access a client's account information up to 4 times a day, any calls in excess of this will be assumed to have been agreed between the AISP and the PSU.

DEVELOPER SANDBOX ENVIRONMENT – HL SAVINGS

Discovery Endpoint

The URL for the HL Savings Sandbox .well-known endpoint is as follows:

Sandbox

- https://matls.as.aspsp.sandbox-hls.hl.co.uk/auth/oauth2/tpp/.well-known/openid-configuration

Account Information Service Endpoints

Sandbox Account Information Service Endpoints for HL Savings for v3.1 of the Open Banking specification, including the Registration and Consent endpoints, are provisioned under the following URI path

- https://matls.as.aspsp.sandbox-hls.hl.co.uk /open-banking/v3.1/

TPP Registration for the HL Savings Sandbox

Third Party Providers wishing to use the HL Savings Sandbox environment must be enrolled on the Open Banking Sandbox Directory (and therefore registered and authorised with the relevant NCA, or in the process of becoming so).

Separate onboarding/registration is required for the HL Savings Sandbox environment.

Client Authentication

The client authentication process in the Sandbox mimics the production services by following a 3-step login process, the same as in the production services.

The initial authentication screen will capture a Username and date of birth. If the first step is successful, will be followed by a screen that captures the Online Password and Secure Number, and the third authentication screen is the multi-factor authentication (MFA) screen where a verification code needs to be entered.

In order to simulate a client removing consent through the management facility that will exist on the HL website, please use the **DELETE /account-access-consents/{ConsentId}/** endpoint as that will have exactly the same effect.

Sandbox Test Cases

HL Savings supports a limited number of test cases through the Sandbox version of the Account Information Services.

When the authentication redirect is applied, taking the Sandbox "user" to the HL Savings Sandbox authentication page, use the following Usernames to access the described test conditions – the passwords are the same as the usernames.

Username	Login credentials	Test case
clnt42000101	Username: "clnt42000101" Date of Birth: "1999-12-12" Client Number: "42000101" Online Password: "Sandbox123" Secure Number: "334522" Verification Code: *any 5 digits*	A mix of credit and debit transactions, starting in November 2018. 5 transactions in all. Current positive balance.
clnt42000102	Username: "clnt42000102" Date of Birth: "2000-01-01" Client Number: "42000102" Online Password: "Sandbox123" Secure Number: "334522" Verification Code: *any 5 digits*	Two credit transactions, starting in October 2018. 2 transactions in all, the final one is pending. Current positive balance.
clnt42000103	Username: "clnt42000103" Date of Birth: "1964-10-15" Client Number: "42000103" Online Password: "Sandbox123" Secure Number: "334522" Verification Code: *any 5 digits*	A pair of credit/debit transactions starting in December 2018. 2 transactions in all. Current zero balance.
clnt42000104	Username: "clnt42000104" Date of Birth: "1971-10-08" Client Number: "42000104" Online Password: "Sandbox123" Secure Number: "334522" Verification Code: *any 5 digits*	A mix of credit and debit transactions, starting in January 2019. 3 transactions in all, the final one is pending. Current positive balance - the pending transaction would take it to a zero balance when it clears.
clnt42000105	Username: "clnt42000105" Date of Birth: "1985-04-10" Client Number: "42000105" Online Password: "Sandbox123" Secure Number: "334522" Verification Code: *any 5 digits*	An open Active Savings account but with no transactions. Current zero balance.
clnt42000106	Username: "clnt42000106" Date of Birth: "1956-01-22" Client Number: "42000106" Online Password: "Sandbox123" Secure Number: "334522" Verification Code: *any 5 digits*	A mix of credit and debit transactions, starting in July 2018. 3 transactions in all, the final one is pending. Current zero balance - the pending transaction would take it to a positive balance when it clears.

Username	Login credentials	Test case
clnt42000107	Username: "clnt42000107" Date of Birth: "1967-08-15" Client Number: "42000107" Online Password: "Sandbox123" Secure Number: "334522" Verification Code: *any 5 digits*	A mix of credit and debit transactions, starting in July 2018. 6 transactions in all. Current positive balance.
clnt42000108	Username: "clnt42000108" Date of Birth: "1976-03-20" Client Number: "42000108" Online Password: "Sandbox123" Secure Number: "334522" Verification Code: *any 5 digits*	An open Active Savings account but with no transactions. Current zero balance.
clnt42000109	Username: "clnt42000109" Date of Birth: "1980-09-30" Client Number: "42000109" Online Password: "Sandbox123" Secure Number: "334522" Verification Code: *any 5 digits*	A single transaction from June 2018. Current positive balance.
clnt42000110	Username: "clnt42000110" Date of Birth: "1988-06-18" Client Number: "42000110" Online Password: "Sandbox123" Secure Number: "334522" Verification Code: *any 5 digits*	A mix of credit and debit transactions, starting in February 2019. 5 transactions in all. Current positive balance.
clnt42000111	Username: "clnt42000111" Date of Birth: "1974-01-20 " Client Number: "42000111" Online Password: "Sandbox123" Secure Number: "334522" Verification Code: *any 5 digits*	Does not have an Active Savings account - it should not be possible to set up consent for this client as there is no accounts to access.
clnt42000112	Username: "clnt42000112" Date of Birth: "1962-04-15 " Client Number: "42000112" Online Password: "Sandbox123" Secure Number: "334522" Verification Code: *any 5 digits*	A mix of credit and debit transactions, starting in May 2018. 6 transactions in all. Current zero balance.
clnt42000113	Username: "clnt42000113" Date of Birth: "1971-01-01" Client Number: "42000113" Online Password: "Sandbox123" Secure Number: "334522" Verification Code: *any 5 digits*	A mix of credit and debit transactions, starting in June 2018. 7 transactions in all, the final one is pending. Current positive balance - the pending transaction would take it to a zero balance when it clears.

APPENDIX A

This appendix contains examples of the JSON body of the requests, before a signed JWT has been generated.

1. **register endpoint - /auth/oauth2/tpp/register**
   The JSON body for the register endpoint should be in the following format:

```json
{
 "token_endpoint_auth_signing_alg": "PS256",
  "request_object_encryption_alg": "RSA-OAEP-256",
  "grant_types": [
    "authorization_code",
    "refresh_token",
    "client_credentials"
  ],
  "iss": "{{software_statement_id}}",
  "redirect_uris": [
    "{{redirect_uri}}"
  ],
  "token_endpoint_auth_method": "private_key_jwt",
  "software_statement": "{{SSA_JWT}}",
  "scope": "openid accounts",
  "request_object_signing_alg": "PS256",
  "request_object_encryption_enc": "A256GCM",
  "jti": "7b5c2671-0009-46a6-b3d2-7277b936d3cb",
  "id_token_signed_response_alg": "PS256",
  "subject_type": "pairwise",
  "client_name": "{{CLIENT_NAME}}",
  "response_types": ["code id_token"]
}
```

2. **Client Credentials Grant – /auth/oauth2/tpp/access_token**
   The JSON body for the client credential grant – obtain access token for the TPP endpoint should be in the following format:

```
{
  "sub": "{{CLIENT_ID}}",
  "iss": "{{CLIENT_ID}}",
  "aud": "{{HL_MTLS_HOST}}/auth/oauth2/tpp"
}
```

In the **"aud"** field above should be the **"issuer"** field from the well-known endpoint.

3. Hybrid Flow – {{My Accounts and Dealing URL}}/my-accounts/external-access/authorize – the "authorization_endpoint" field from the well-known endpoint
   The JSON body for the Hybrid flow endpoint should be in the following format:

```
{
  "aud": "{{HL_MTLS_HOST}}/auth/oauth2/tpp",
  "scope": "openid accounts",
  "iss": "{{CLIENT_ID}}",
  "claims": {
   "id_token": {
     "acr": {
         "values": [
               "urn:openbanking:psd2:sca"
             ],
      "essential": true
    },
    "openbanking_intent_id": {
     "value": "{{ConsentId}}",
     "essential": true
    }
   },
   "userinfo": {
    "openbanking_intent_id": {
     "value": "{{ConsentId}}",
     "essential": true
    }
   }
  },
  "response_type": "code id_token",
  "redirect_uri": "{{CLIENT_REDIRECT_URI}}",
  "state": "{{STATE}}",
  "nonce": "{{NONCE}}",
  "client_id": "{{CLIENT_ID}}"
}
```

In the **"aud"** field above should be the **"issuer"** field from the well-known endpoint.