

Morningstar ByAllAccounts REST API

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About this document

This document describes endpoints for the REST API that can be used with the Morningstar Connect Account Linking component (formerly called Custom Element for Account Setup) to access the Morningstar® ByAllAccountsSM (BAA) aggregation service.

This document assumes that you are familiar with setting up Morningstar Connect Account Linking. Information is included here for using session-based Single Sign-on (SSO) using DataConnect and Morningstar JWT SSO authentication using Morningstar Authentication.

Changes in this release

For information about changes in this and prior releases, refer to [Appendix B Cumulative Changes](#) page B-1.

Related documentation

For information about the Morningstar Connect Account Linking, including authentication for the component and incorporating it into your parent page, refer to the following document:

http://www.byallaccounts.net/Manuals/Accountview/Mstar_Connect_Intro.pdf.

BAA REST API for Morningstar Connect Account Linking

What it can do

This API provides REST API endpoints to:

- Delete an account from the system
- Monitor the status of asynchronous authentication or aggregation activities
- Request aggregation of accounts for an authenticated investor
- Retrieve credentials including account information when available
- Delete a credential and all associated accounts from the system
- Register a new user
- Retrieve profile data associated with a user ID
- Get a collection of all positions

This API is currently for use in conjunction with Morningstar Connect Account Linking.

BAA Rest API URL

The BAA REST API is accessed by a URL invocation point. The following are for the production environment:

- BAA server <https://www.byallaccounts.net/api/v1>
- With Morningstar Authentication <https://www.us-api.morningstar.com/aggapi/v1>

Authentication

Authentication is handled by the parent page before it invokes Morningstar Connect Account Linking. Authentication can be accomplished via SSO (via DataConnect) or Morningstar Authentication which is JWT SSO authentication. Use one method of authentication. Regardless of the method used, only an Investor user can authenticate to the REST API. Advisor and Assistant users cannot authenticate to the REST API.

- Single Sign On (SSO) using the DataConnect API
 - Authenticate and obtain values for `jsessionId` and `csrfToken` by calling the DataConnect API SESSIONAUTHRQ request.
 - Use the `jsessionId` and `csrfToken` to invoke the REST API endpoint(s), sending the `jsessionId` in the URI and the `csrfToken` in a request header.
 - **Note:** The DataConnect Ultra SESSIONAUTHRQ operation has an optional `<READ_ONLY>` tag. When it is present, the REST API enforces read-only functionality for the Account Summary component. The purpose of the tag is to limit the functionality for an investor that self-authenticates in read-only mode or an administrator that is authenticated as an investor in read only mode. When the session is `READ_ONLY`, data cannot be modified even if the target investor has write permissions. Endpoints that manipulate data (such as DELETE accounts and POST new Person) are fully disabled. For details about SESSIONAUTHRQ, refer to the *DataConnect V4 Ultra User Guide* at http://www.byallaccounts.net/Manuals/DataConnect/DataConnect_V4_Ultra_User_Guide.PDF.
 - For more details about DataConnect SSO, refer to http://www.byallaccounts.net/Manuals/DataConnect/DataConnect_V4_Ultra_User_Guide.PDF.
- Single Sign On (SSO) using Morningstar Authentication
 - Implementations that use Morningstar Authentication for SSO use UIM JWT for authentication.
 - When using Morningstar Authentication, the request and response URLs will be Morningstar Authentication-based.
 - Morningstar Authentication issues a JSON web token (JWT) string, which then needs to be submitted to the REST API.
 - When UIM JWT is used to access the REST API, the other existing authentication tokens are not expected nor required. If others are used, there is a precedence order: 1) UIM JWT, 2) DataConnect SSO.
 - The UIM JWT is submitted to the API endpoints using the authorization header with the header value "Bearer *token-value*".
 - The JWT will expire after a pre-determined amount of time (the expiration time is set in the JWT itself by UIM). Requests with expired tokens will receive an error from the REST API indicating that the token has expired. The Morningstar Authentication can then be used to obtain a new token.

Refer to the http://www.byallaccounts.net/Manuals/Accountview/Mstar_Connect_Intro.pdf guide for basic information on authentication for Morningstar Connect Account Linking.

Request Headers

The following table contains information about headers that are applicable to all endpoints with exceptions noted. The X-CSRF-Token header is used only with certain forms of authentication.

Name	Mandatory	Description	Usage
Authorization	Yes*	Used to provide the UIM JWT value, prepended with "Bearer ". *Only used for UIM authentication.	Authorization
X-CSRF-Token	Yes*	CSRF Token for REST API. *Only used for SSO authentication model for endpoints requiring authentication.	Refer to Sample Code for SSO page 3.
Content-type	No*	Indicates media type of resource. *Only required for POST endpoints where content is expected in the POST body. When not required can be omitted or left empty.	application/json
Accept	Yes	Content type client is requesting. Supported type is application/json.	application/json

Sample Code for SSO using DataConnect

This example shows passing the credentials for the summary endpoint. In this example:

- var myCsrfToken = "AD30BFA5CD5B5450515A40ACAF852D66F7456D5432C4DA14"
- var myJsessionId = "CE2D0A6E7C60394ED1D9F46AFC02E632.s1a"
- The url shown as https://www.byallaccounts.net is for production environment

```
var xhttpGetSummary = new XMLHttpRequest();
.
.
.
function getSummaryState() {
    var href = "https://www.byallaccounts.net/api/v1/activities/summary;jsessionid=" + myJsessionId;
    xhttpGetSummary.open("GET", href, true);
    xhttpGetSummary.setRequestHeader("X-CSRF-TOKEN", myCsrfToken);
    xhttpGetSummary.setRequestHeader("Accept", "application/json");
    xhttpGetSummary.send();
}
```

Sample Code for JWT SSO using Morningstar Authentication

This code example assumes that JWT is being used for Morningstar Authentication

- To access the REST API, this example maps to the URL for the Morningstar Authentication server for PROD, which is <https://www.us-api.morningstar.com/aggapi/v1>
- Any URIs returned in the JSON REST API response bodies will also reference this base URL.

```

var xhttpGetSummary = new XMLHttpRequest();
.
.
.
function getSummaryState() {
    var href = "https://www.us-api.morningstar.com/aggapi/v1/activities/summary";
    xhttpGetSummary.open("GET", href, true);
    xhttpGetSummary.setRequestHeader("Authorization", "Bearer "+myUIMJWT);
    xhttpGetSummary.setRequestHeader("Accept", "application/json");
    xhttpGetSummary.send();
}

```

Account Operations

DELETE accounts

DELETE /api/v1/accounts/{id}

Implementation Notes

Use this endpoint to delete from the system the account identified by the *id* parameter.

Parameters

Parameter	Required?	Default Value	Description	Parameter Type	Data Type
id	yes		The unique identifier of an account	path	integer

Response Messages

HTTP Status Code	Reason	Response Model	Headers
204	No Content		
401	Not Authorized		
403	Forbidden		
404	Not Found		
500	Internal Server Error		

Activities Operations

GET activities summary

GET /api/v1/activities/summary

Implementation Notes

Use this endpoint to determine whether any asynchronous activities for the authenticated investor are in progress in the BAA service. The endpoint can monitor activities for just the current session, or it can include other sessions of the user depending on the scope parameter setting.

Asynchronous activities include:

- authenticating credentials
- discovering, adding, and aggregating accounts
- aggregating accounts

This endpoint returns a single Boolean value for *activityInProgress* that indicates whether asynchronous activities are in progress for the user.

The applicable scope of this endpoint is always a single authenticated investor. This endpoint can provide information on asynchronous activity for the current session or for all activity in the system. Use the *scope* parameter with value *session* to request information about activity initiated during the current session. Use the *scope* parameter with value *global* to request information for all activity in the system. When scope is *global*, asynchronous activity progress will be available for terminated sessions up to 15 minutes after completion of that activity. If the scope parameter is not provided, the endpoint will report on activity for the current session if there is one. If there is no current session (Morningstar Authentication) then it will report on all activity for the authenticated investor.

Parameters

Parameter	Required?	Default Value	Description	Parameter Type	Data Type
scope	no	<i>session</i> for session-based users and <i>global</i> for users authenticated by Morningstar Authentication	Value can be <i>session</i> , to include only session-specific activity progress, or <i>global</i> to also include activity progress from other sessions for this user. Cannot be set to <i>session</i> for Morningstar Authentication users. Note: the <i>global</i> setting currently does not return status for accounts aggregating outside the current session.	query	String. Can be either <i>session</i> or <i>global</i> .

Response

The JSON response for the endpoint is one of the following, depending on whether there is activity in progress or not:

```
{"activityInProgress":false}
```

OR

```
{"activityInProgress":true}
```

If scope is not set or is set to *session*, the value is true if any asynchronous activity is in progress for the session for at least one credential. If scope is set to *global*, the value is true if any asynchronous activity is in progress for the session for at least one credential or if authenticate or discovery/add/aggregate is in progress for accounts aggregating for at least one credential outside the current session.

When all activity completes then the value of activityInProgress will be false.

Response Messages

HTTP Status Code	Reason	Response Model	Headers
200	Ok	See Response above.	
401	Not Authorized		
403	Forbidden		
500	Internal Server Error		

Aggregation Operations

POST aggregate accounts

POST /api/v1/accounts/aggregate

Implementation Notes

Use this endpoint to request aggregation of accounts for the authenticated investor from a Financial Institution. Use the *class* parameter to restrict which accounts to aggregate by specifying one or more class values: investment, noninvestment, or other.

Aggregation gathers holdings and transactions for the accounts from associated Financial Institutions. It does not discover new accounts that are available to the user from those Financial Institutions. The request will not attempt to aggregate any account that is disabled due to a login error as repeated retries with incorrect credentials could cause an account to be locked out.

Aggregation runs asynchronously. This endpoint validates inputs and locates target accounts for aggregation. If either of these operations fails, an error code is returned. If both operations succeed, the aggregation is submitted. Progress of the aggregation activity can be monitored using the [GET /api/v1/activities/summary](#) endpoint (page 5) and the [GET /api/v1/credentials/accounts/summary](#) endpoint on page 8.

Parameters

Parameter	Required?	Default Value	Description	Parameter Type	Data Type
class	no		If no class is specified, then all account types are returned.	query	List of one or more of the following classes of investor accounts: <ul style="list-style-type: none">▪ investment which includes BAA account types prefixed with INVESTMENT_ and INSURANCE_▪ nonInvestment which includes BAA account types CREDITCARD and all those prefixed with BANKING_, HEALTHACCOUNT_, and LOAN_▪ other which includes BAA account types: OTHER, UNKNOWN, and NULL For the list of Account Types, refer to Table of Account Types page 23.

Response Messages

HTTP Status Code	Reason	Response Model	Headers
201	Created		
400	Bad request		
401	Not Authorized		
403	Forbidden		
404	Not Found		
500	Internal Server Error		

Credential Operations

GET credentials and accounts

GET /api/v1/credentials/accounts/summary

Note: This endpoint replaces [GET /api/v1/credentials/accounts](#) page A-1, which is being deprecated.

Implementation Notes

This endpoint retrieves credentials and any associated accounts for the authenticated investor. Credentials that have no associated accounts are also included. The response is a single-page collection of data organized into the following groups to provide a comprehensive view *specifically for real-time display to an end user*:

- IN_PROGRESS group – credentials for which newly added accounts are being aggregated
- NEEDS_USER_ACTION group – credentials that need user action
- MAIN_GROUP group – all credentials and accounts for the investor
- FI_REQUEST group – Financial Institution requests

This response also includes information about asynchronous activities that are in progress for the credentials and accounts. This endpoint can provide information on asynchronous activity for the current session or for all activity in the system. Use the *scope* parameter with value *session* to request information about activity initiated during the current session. Use the *scope* parameter with value *global* to request information for all activity in the system. When *scope* is *global*, asynchronous activity progress will be

available for terminated sessions up to 15 minutes after completion of that activity. If the *scope* parameter is not provided, then the endpoint will report on activity for the current session if there is one. If there is no current session (Morningstar Authentication) then it will report on all activity for the authenticated investor. You can specify the number of the page to return and the number of records per page.

Parameters

Parameter	Required?	Default Value	Description	Parameter Type	Data Type
page	No	0	Page number	query	integer
size	No	25	Number of records per page	query	integer
scope	No	<i>session</i> for session-based users and <i>global</i> for users authenticated by Morningstar Authentication	Scope of activity for the authenticated user. Values can be <i>session</i> , to include only session-specific information, or <i>global</i> to also include information from other sessions for this user.	query	String. Either <i>session</i> or <i>global</i> .
view	No	institution	Selects the organization of the information in the response to be either by <i>Institution</i> or by <i>AccountType</i> .	query	string

Response Body

The following is a simple sample response body that shows the overall structure of the response as well as the differing content in each of the separate data sections (IN_PROGRESS, NEEDS_USER_ACTION, MAIN_GROUP, FI_REQUEST).

```
{
  "pageSize": 25,
  "pageNumber": 0,
  "totalPages": 1,
  "totalElements": 6,
```

```

"isFirst": true,
"isLast": true,
"activitySummary": {
  "activityInProgress": true
},
"summary": {
  "inProgressTotal": 1,
  "needsUserActionTotal": 1
},
"data": [
  {
    "id": 72143,
    "group": "IN_PROGRESS",
    "financialInstitution": {
      "id": 47031,
      "name": "Bank of America",
      "icon":
"https://www.byallaccounts.net/WebPortfolio/vendorResources/Default/assets/fi/icons/Banking_Icon.svg"
    }
  },
  {
    "id": 71704,
    "group": "NEEDS_USER_ACTION",
    "unifiedStatusInfoType": "cannotConnectBadLoginPwSqa",
    "unifiedStatusInfoActionableType": "userActionable",
    "unifiedStatusInfoMiniType": "cannotConnect",
    "unifiedStatusInfoActionType": "reAuthenticate",
    "financialInstitution": {
      "id": 31244,
      "name": "Chase",
      "icon":
"https://www.byallaccounts.net/WebPortfolio/vendorResources/Default/assets/fi/icons/Banking_Icon.svg"
    }
  },
  {
    "id": 72142,
    "group": "MAIN_GROUP",
    "credentialComplete": true,
    "creationDate": "2023-03-06",
    "lastAuthenticationAttempt": "2023-03-06T10:10:40.000-05:00",
    "authenticationStatusCode": 1005,

```



```

"activityInProgressStatus": "Complete",
"account": {
  "id": 795280,
  "name": "Steve's Account",
  "marketValue": {
    "amount": 50000,
    "currencyCode": "USD"
  },
  "lastUpdated": "2023-03-06T10:10:40.000-05:00",
  "relativeLastUpdatedText": "Updated 3 mins ago",
  "aggregationStatusErrorCode": 1005,
  "creationDate": "2023-03-06",
  "maskedAccountNumber": "x-2653"
},
"financialInstitution": {
  "id": 31243,
  "name": "Wells Fargo Bank",
  "supportsOauth": false,
  "loginTerm": "Login",
  "pwTerm": "Password",
  "accountNumberTerm": "Account Number",
  "icon":
    "https://www.byallaccounts.net/WebPortfolio/vendorResources/Default/assets/fi/icons/Banking_Icon.svg"
}
},
{
  "id": 71704,
  "group": "MAIN_GROUP",
  "credentialComplete": true,
  "creationDate": "2023-03-01",
  "lastAuthenticationAttempt": "2023-03-01T11:56:59.000-05:00",
  "authenticationStatusErrorCode": 1007,
  "unifiedStatusInfoType": "cannotConnectBadLoginPwSqa",
  "unifiedStatusInfoActionableType": "userActionable",
  "unifiedStatusInfoMiniType": "cannotConnect",
  "unifiedStatusInfoActionType": "reAuthenticate",
  "unifiedStatusInfoMsg": "We cannot connect to this institution. The Login, Password, or answer to a security question is incorrect. Re-authenticate.",
  "activityInProgressStatus": "Complete",
  "financialInstitution": {
    "id": 31244,
    "name": "Chase",

```

```

        "supportsOauth": false,
        "loginTerm": "Login",
        "pwTerm": "Password",
        "accountNumberTerm": "Account Number",
        "icon":
"https://www.byallaccounts.net/WebPortfolio/vendorResources/Default/assets/fi/icons/Banking_Icon.sv
g"
    }
},
{
    "id": 72143,
    "group": "MAIN_GROUP",
    "credentialComplete": true,
    "creationDate": "2023-03-06",
    "lastAuthenticationAttempt": "2023-03-06T10:13:09.000-05:00",
    "authenticationStatusCode": 1005,
    "unifiedStatusInfoType": "cannotLoadDataCheckLater",
    "unifiedStatusInfoActionableType": "nonUserActionable",
    "unifiedStatusInfoMiniType": "cannotConnect",
    "unifiedStatusInfoActionType": "checkBackLater",
    "unifiedStatusInfoMsg": " We are having trouble accessing this institution. Check back later.",
    "activityInProgressStatus": "In Progress",
    "account": {
        "id": 795281,
        "name": "Joe's Checking Account",
        "marketValue": {
            "amount": 0,
            "currencyCode": "USD"
        },
        "creationDate": "2023-03-06",
        "maskedAccountNumber": "x-1234"
    },
    "financialInstitution": {
        "id": 47031,
        "name": "Bank of America",
        "supportsOauth": false,
        "loginTerm": "Login",
        "pwTerm": "Password",
        "accountNumberTerm": "Account Number",
        "icon":
"https://www.byallaccounts.net/WebPortfolio/vendorResources/Default/assets/fi/icons/Banking_Icon.sv
g"
    }
}

```

```

    },
    {
      "id": 71703,
      "group": "FI_REQUEST",
      "creationDate": "2023-03-01",
      "fiRequestName": "Cornerstone Bank (MA) - Personal",
      "maskedAccountNumbers": "x-6789"
    }
  ]
}

```

Response Model

Special Situations for Credentials and Accounts

Credentials and accounts in the aggregation system are complex objects for which the following statements are true:

- Credentials or accounts can be incomplete, meaning they do not contain enough information to access data from the Financial Institution. This situation can occur if the user has not yet provided all necessary information (e.g. has not yet provided their password or completed OAUTH authorization).
- The aggregation system may encounter a variety of errors when attempting to use a credential or an account to access data from a Financial Institution. These errors can occur because the information in the object is incorrect (e.g. a wrong password), there are problems with the aggregation system's support (e.g. Financial Institution web site has changed and we need to update our support), or there are problems at the Financial Institution (e.g. site not available).

These conditions are not errors from an application perspective, but rather they are "normal" things that can happen in the day-to-day of aggregation activities. It is important to properly represent these conditions to the end user and, whenever possible, help the user to understand when they must take action to resolve the condition or when the solution is not under their control. Although these error conditions can be complex. ByAllAccounts is continually improving ways to present them clearly to users. This endpoint provides both organization of the information into groups as well as a concise field set that explains the status of the credential or account for presentation to the user. The fields also include whether a user action is required to resolve the issue (or not), and also the specific recommended action.

In addition to these situations, the system may be asynchronously performing activities that the user requested, directly or indirectly, on credentials and accounts. For example, if a request was made to obtain the latest data for an account, then an asynchronous aggregation process is going on in the background and we want the end user to understand that it is in process and when that process completes. This endpoint includes information at the individual object level (credential or account) as well as the summary level (for the collection) to aid in the presentation of this information to the user. Note also that any asynchronous activity can result in the clearing of an error condition or the encountering of a new condition, so that information should be queried and redisplayed upon completion of the asynchronous activity.

Account and Credential Error Information

Credentials and Accounts can be incomplete (missing required information like a login, or an account number), or they can be complete and have errors as reported by the custodian when the credentials are used to attempt to access a customer's data at the custodian. These errors could include wrong login/password, account number could not be found, etc.

The `unifiedStatusInfoType` field indicates an error condition that should be relayed to the user. If `unifiedStatusInfoType` is absent, then no error condition exists at the present time. The `unifiedStatusInfoMsg` field will contain a suggested text form of the message for presentation to the user.

For more information about `unifiedStatusInfoType`, refer to [Table of Authentication/Aggregation Status Messages](#) on page 22. Note that some errors listed may not occur frequently, but they are included for completeness.

There are other fields in the response that contain a variety of information about status, but these fields should not be used. They are present for historical reasons and are superseded by `unifiedStatusInfoType`. The following fields should NOT be used to determine whether a credential or account is incomplete or has another type of error:

- `aggregationStatusCode`
- `authenticationStatusCode`
- `credentialComplete`

Activity in progress information

As described above, this endpoint can return information about server "activity in progress" for objects in the response collection. Activity in progress includes:

- testing that a credential authenticates at a custodian
- discovering accounts available for a credential at a custodian
- aggregating data for accounts from the custodian

These operations are initiated and running in the `ByAllAccounts` server while the UI or API caller is awaiting the results of those operations. This activity information can be provided for two different scopes: `SESSION` or `GLOBAL`. The default is `SESSION` if you have a session, and `GLOBAL` if you do not (some forms of authentication do not use a session). If you have a session, you can request `GLOBAL` using the `scope` query parameter. For session scope, the progress information is reported for the above operations that were initiated during the current session. For global scope, the information will be reported for all activity initiated through the REST API for the target objects (regardless of who initiated that activity).

The `activityInProgress` field at the top of the response will have a value of "true" if there is activity in progress for any object in the collection, otherwise "false".

For each object, the `activityInProgressStatus` field:

- is absent if no activity occurred for the scope of the request (as determined by the query parameter *scope*).
- if present and value is:
 - "In Progress" then authentication or aggregation activity is currently occurring for this object within the `ByAllAccounts` Server for the scope of the request (as determined by the query parameter *scope*).

- “Complete” then authentication or aggregation activity has completed for this object within the ByAllAccounts Server for the scope of the request (as determined by the query parameter *scope*).

While asynchronous activity is occurring for objects in the response, the error status on objects can change multiple times and additional objects can be added to the response. For example, if a new credential was added and account discovery was initiated (e.g. by the BAA ConsumerUI), then as accounts are discovered they will appear in the response, and subsequently data for those accounts will be aggregated and their market value will appear.

The IN_PROGRESS group will contain credential details when new accounts have just been added and are being aggregated for the first time. If there are no new accounts being aggregated but possibly existing accounts are being aggregated, then credential details for these accounts will be excluded from the IN_PROGRESS group.

Tables of Response Model Contents

The response model contents for this endpoint are shown in separate tables, with each one corresponding to a different group:

- [Group: In Progress](#), page 17
- [Group: Needs User Action](#), page 18
- [Group: Main Group](#), page 19
- [Group: FI Request](#), page 21

The response structure is as follows, with paging and summary information at the top followed by the four optional groups of credential/account information. Paging information applies to all the rows in the data section.

```
{
  "pageSize": 25,
  "pageNumber": 0,
  "totalPages": 1,
  "totalElements": 5,
  "isFirst": true,
  "isLast": true,
  "activitySummary": {
    "activityInProgress": true
  },
  "summary": {
    "inProgressTotal": 1,
    "needsUserActionTotal": 1
  },
  "data": [
    [IN_PROGRESS GROUP]
    [NEEDS_USER_ACTION GROUP]
    [MAIN_GROUP]
    [FI_REQUEST]
```

```

]
}

```

Paging and Summary Fields

Paging and Summary Fields			
Label	Required?	Type	Description
{			
pageSize		integer	Number of records per page
pageNumber		integer	Page number of this page
totalPages		integer	Total number of pages in result set
totalElements		integer	Total number of elements in result set
isFirst		Boolean	True or false. True if and only if this is the first page of data in the result set
isLast		Boolean	True or false. True if and only if this is the last page of data in the result set
activitySummary {			
activityInProgress		Boolean	If scope= <i>session</i> (or not set), then true indicates aggregation or authentication is in-progress for at least one credential in the session. If scope= <i>global</i> , then true indicates aggregation or authentication is in-progress for at least one credential in the session or authentication or discover/add/aggregate is in progress for at least one credential outside the current session.
}			
summary {			
inProgressTotal		integer	The total number of credentials that are in progress
needsUserActionTotal		integer	The total number of credentials that need user action
}			

Group: In Progress

Group: In Progress			
Label	Required?	Type	Description
data [{		array	Credential-account pair. Either an account and its related credential or a credential that has no accounts associated with it.
id	yes	integer	ID of the account credential.
group	yes	string	Identifies the group in which the data is organized. Can be one of: NEEDS_USER_ACTION, MAIN_GROUP, IN_PROGRESS, or FI_REQUEST. For this data group the value will be IN_PROGRESS.
}			
financialInstitution {			
id	yes	integer	The ID of the financial institution.
name		string	Name of the financial institution.
icon		string	The path to the icon for the financial institution. If the financial institution is requested (not supported) it is the path to a default icon.
}]			

Group: Needs User Action

Group: Needs User Action			
Label	Required?	Type	Description
data [{		array	Credential-account pair. Either an account and its related credential or a credential that has no accounts associated with it
id	Yes	integer	ID of the account credential
group	Yes	string	Identifies the group in which the data is organized. Can be one of: NEEDS_USER_ACTION, MAIN_GROUP, IN_PROGRESS, or FI_REQUEST. For this data group the value will be NEEDS_USER_ACTION.
unifiedStatusInfoType		string	Type of status information from the combination of the latest authentication and aggregation attempt. See Table of Authentication/Aggregation Status Messages page 22.
unifiedStatusInfoActionableType		string	If present, the value is userActionable which indicates that a user can act.
unifiedStatusInfoMiniType		string	When present, this is a short message describing the error. Can be one of: cannotConnect, cannotProcess, or noAccountsConnected.
unifiedStatusInfoActionType		string	This field provides the recommended user action for resolving the issue identified in unifiedStatusInfoType. If present, can be one of: authenticate, completeRequest, connectAccounts, reAuthenticate, or reauthorize.
financialInstitution {			
id	yes	integer	The ID of the financial institution
name		string	Name of the financial institution
icon		string	The path to the icon for the financial institution. If the financial institution is requested (not supported) it is the path to a default icon.
}]			

Group: Main Group

Group: Main Group			
Label	Required?	Type	Description
data {		array	Credential-account pair. Either an account and its related credential or a credential that has no accounts associated with it.
id	yes	integer	ID of the account credential.
group	yes	string	Identifies the group in which the data is organized. Can be one of: NEEDS_USER_ACTION, MAIN_GROUP, IN_PROGRESS, or FI_REQUEST. For this data group the value will be MAIN_GROUP.
credentialComplete	yes	Boolean	True or false. Indicates whether the credential contains enough information to perform authentication. This field can be ignored. Instead refer to unifiedStatusInfoType and see Account and Credential Error Information page 14 regarding best practices on understanding the state of the accounts and credentials.
creationDate		string	Date and time stamp of creation of the account credential.
lastAuthenticationAttempt		string	Identifies when the last authentication attempt was made.
authenticationStatusErrorCode		integer	Error code from the latest authentication attempt. <i>This field can be ignored.</i> Instead refer to unifiedStatusInfoType and see Account and Credential Error Information page 14 regarding best practices on understanding the state of the accounts and credentials.
unifiedStatusInfoType		string	Type of status information from the combination of the latest authentication and aggregation attempt. See Table of Authentication/Aggregation Status Messages page 22.
unifiedStatusInfoActionableType		string	Indicates whether and where a user can act. Can be one of: nonUserActionable, userActionable, externallyUserActionable.
unifiedStatusInfoMiniType		string	When present, this is a short message describing the error. Can be one of:

Group: Main Group			
Label	Required?	Type	Description
			cannotConnect, cannotProcess, or noAccountsConnected.
unifiedStatusInfoActionType		string	This field provides the recommended user action for resolving the issue identified in unifiedStatusInfoType. When present, can be one of: accountClosed, authenticate, checkBackLater, completeRequest, connectAccounts, contactProvider,, externalActionRequired, reauthenticate, or reauthorize.
unifiedStatusInfoMsg		string	Long message for unifiedStatusInfoType. See Table of Authentication/Aggregation Status Messages page 22.
activityInProgressStatus		string	Status of authentication or aggregation. "In Progress" or "Complete".
account {			
id	yes	integer	An account identifier assigned by the service.
name		string	Name of the account.
accountType		string	Type of account. See Table of Account Types page 23.
marketValue {			
amount		number	Total market value of the account.
currencyCode		string	ISO 4217 currency code for the position, such as USD.
}			
lastUpdated		string	Date and time stamp of last update. For example: 2018-05-21 2:52:23 AM.
relativeLastUpdatedText		string	Describes how recently the account was updated, if it was relatively recent. For example, if it updated less than a minute ago, it will indicate it updated just now. If it updated between 1 minute and 1 hours, it will indicate how many minutes ago it updated. If it updated more than 24 hours ago, it will give the date it updated.
aggregationStatusCode		integer	Error code from the latest aggregation attempt. <i>This field can be ignored.</i> Instead refer to unifiedStatusInfoType and see Account and Credential Error Information on page 14

Group: Main Group			
Label	Required?	Type	Description
			regarding best practices on understanding the state of the accounts and credentials.
creationDate		string	Date and time stamp of creation.
maskedAccountNumber		string	The account number is masked, with the last four digits unmasked.
}			
financialInstitution {			
id	yes	integer	The ID of the financial institution.
name		string	Name of the financial institution.
supportsOauth	yes	Boolean	True or false. Indicates whether the FI supports Oauth authorization
loginTerm		string	Term used for the login at this financial institution.
pwTerm		string	Term used for the password at this financial institution.
accountNumberTerm		string	Term used for the account number at this financial institution.
icon		string	The path to the icon for the financial institution. If the financial institution is requested (not supported) it is the path to a default icon.
}]			

Group: FI Request

Group: FI Request			
Label	Required?	Type	Description
data [{		array	Credential-account pair. Either an account and its related credential or a credential that has no accounts associated with it.
id	yes	integer	ID of the account credential.
group	yes	string	Identifies the group in which the data is organized. Can be one of: NEEDS_USER_ACTION, MAIN_GROUP, IN_PROGRESS, or FI_REQUEST. For this data group the value will be FI_REQUEST.
creationDate		string	Date and time stamp of creation of the FI Request.
fiRequestName		string	Name of the requested financial institution.
maskedAccountNumbers			Comma-separated list of masked account numbers. The last four digits remain unmasked.
}]			

Table of Authentication/Aggregation Status Messages

These status types and messages can be in the response of GET /api/v1/credentials/accounts/summary.

unifiedStatusInfoType	unifiedStatusInfoMsg
accountClosed	This account is closed.
aggCannotLoadDataCheckLater	We are having trouble accessing this institution. Please check back later.
badAccountCheckLater	We are having trouble accessing this institution. Check back later.
badAccountVerifyAccountNum	We are having trouble accessing this institution. Check back later.
cannotConnectBadLoginPw	We cannot connect to this institution. The {{loginTerm}} or {{passwordTerm}} is incorrect. Re-authenticate.
cannotConnectBadLoginPwlsac	We cannot connect to this institution. The {{loginTerm}}, {{passwordTerm}}, or activation code is incorrect. Re-authenticate.
cannotConnectBadLoginPwSqa	We cannot connect to this institution. The {{loginTerm}}, {{passwordTerm}}, or answer to a security question is incorrect. Re-authenticate.
cannotConnectBadLoginPwSqalsac	We cannot connect to this institution. The {{loginTerm}}, {{passwordTerm}}, answer to a security question, or security code is incorrect. Re-authenticate.
cannotConnectMissingAcctNum	We are having trouble accessing this institution. Check back later.
cannotConnectMissingLoginPW	Authenticate to connect.
cannotConnectNotAuthorized	We cannot connect to this institution. Authorize access to connect.
cannotConnectOauthAcctNotAuthorized	Cannot connect. Account is not authorized.
cannotConnectOauthNotConfigured	Further configuration is required to connect to this institution. Contact your aggregation provider for assistance.
cannotConnectUserActionOnetimeCode	To allow the aggregation service to access your accounts, please login on your institution website and turn off the setting that requires identity verification at every login.
cannotConnectUserActionPersonalInfo	This institution requires you to update or verify personal information or preferences on their website and then re-authenticate.
cannotConnectUserActionSecurity	This institution requires you to set up additional security features on their website and then re-authenticate.
cannotConnectUserActionUserAgreement	This institution requires you to accept a user agreement on their website and then re-authenticate.
cannotLoadDataCheckLater	We are having trouble accessing this institution. Check back later.
cannotVerifyFiLimitation	We cannot verify your credentials due to institution limitation. Check back later.
credHasNoAccounts	No accounts have been connected. Connect accounts.
fiLoginCannotConnectBadLoginPw	Cannot connect. The {{loginTerm}} or {{passwordTerm}} is incorrect.
fiNotYetSupported	This institution is not yet supported.
fiRequestMissingElements	Additional inputs are required before this institution request can be processed.

unifiedStatusInfoType	unifiedStatusInfoMsg
isacCannotConnectBadIsac	Cannot connect. The information you provided is incorrect.
noConnectAttemptYet	Authenticate to connect.
specifiedAccountNotFound	Account not found.
sqaCannotConnectBadSqa	Cannot connect. The answer to a security question is incorrect.

Table of Account Types

Account Type	Group
BANKING_CD	ASSET_BANKING
BANKING_CHECKING	ASSET_BANKING
BANKING_CREDITLINE	LIABILITY_LOAN
BANKING_DEPOSIT	ASSET_BANKING
BANKING_MONEYMARKET	ASSET_BANKING
BANKING_OTHER	ASSET_BANKING
BANKING_SAVINGS	ASSET_BANKING
CREDITCARD	LIABILITY_CREDITCARD
HEALTHACCOUNT_FSA	ASSET_BANKING
HEALTHACCOUNT_HRA	ASSET_BANKING
HEALTHACCOUNT_HSA	ASSET_BANKING
HEALTHACCOUNT_OTHER	ASSET_BANKING
INSURANCE_ANNUITY	ASSET_INSURANCE
INSURANCE_LIFEINSURANCE	ASSET_INSURANCE
INSURANCE_OTHER	ASSET_INSURANCE
INVESTMENT_401A	ASSET_INVESTMENT
INVESTMENT_401K	ASSET_INVESTMENT
INVESTMENT_403B	ASSET_INVESTMENT
INVESTMENT_457B	ASSET_INVESTMENT
INVESTMENT_529	ASSET_INVESTMENT
INVESTMENT_BROKERAGE	ASSET_INVESTMENT
INVESTMENT_CASHMGMT	ASSET_INVESTMENT
INVESTMENT_COVERDELL	ASSET_INVESTMENT
INVESTMENT_IRA	ASSET_INVESTMENT
INVESTMENT_KEOGH	ASSET_INVESTMENT
INVESTMENT_MUTUALFUND	ASSET_INVESTMENT
INVESTMENT_OTHER	ASSET_INVESTMENT
INVESTMENT_PENSION	ASSET_INVESTMENT
INVESTMENT_PREPAIDTUITION	ASSET_INVESTMENT
INVESTMENT_PROFITSHARE	ASSET_INVESTMENT
INVESTMENT_RETIREMENT	ASSET_INVESTMENT

Account Type	Group
INVESTMENT_ROTHIRA	ASSET_INVESTMENT
INVESTMENT_SARSEP	ASSET_INVESTMENT
INVESTMENT_SAVINGSBOND	ASSET_INVESTMENT
INVESTMENT_SEPIRA	ASSET_INVESTMENT
INVESTMENT_TREASURYBOND	ASSET_INVESTMENT
INVESTMENT_TRUST	ASSET_INVESTMENT
INVESTMENT_UGMA	ASSET_INVESTMENT
INVESTMENT_UTMA	ASSET_INVESTMENT
LOAN_AUTO	LIABILITY_LOAN
LOAN_BANK	LIABILITY_LOAN
LOAN_BOAT	LIABILITY_LOAN
LOAN_HOMEEQUITY	LIABILITY_LOAN
LOAN_MORTGAGE	LIABILITY_MORTGAGE
LOAN_OTHER	LIABILITY_LOAN
LOAN_PERSONAL	LIABILITY_LOAN
LOAN_STUDENT	LIABILITY_LOAN
OTHER	ASSET_OTHER
UNKNOWN	ASSET_OTHER

Response Messages

HTTP Status Code	Reason	Response Model	Headers
200	OK		
400	Bad request		
401	Not Authorized		
500	Internal Server Error		

DELETE credentials

DELETE /api/v1/credentials/{id}

Implementation Notes

This endpoint deletes the credentials specified by the *id* parameter. All accounts associated with the credentials are also deleted from the system.

Parameters

Parameter	Required?	Default Value	Description	Parameter Type	Data Type
id	yes		Unique identifier of the credential	path	integer

Response Messages

HTTP Status Code	Reason	Response Model	Headers
204	No Content		
401	Not Authorized		
403	Forbidden		
404	Not Found		
500	Internal Server Error		

Financial Institution Operations

GET Financial Institution

GET /api/v1/fis

Implementation Notes

This operation retrieves the collection of Financial Institutions (FIs).

Parameters

Parameter	Required?	Default Value	Description	Parameter Type	Data Type
name			Financial institution name search. Search criteria is a contains-type match, meaning the search string is somewhere in the FI name.	query	string
nameUserLoginURL			Financial institution name plus the user login URL search. Search criteria is a contains-type match, meaning the search string is somewhere in the FI name.	query	string
page		0	Page number.	query	integer
size		25	Number of records per page.	query	integer

Response Body

```
{
  "pageSize": 25,
  "pageNumber": 0,
  "totalPages": 1,
  "totalElements": 1,
  "isFirst": true,
  "isLast": true,
  "summary": {},
  "data": [
    {
      "id": 43154,
      "name": "Data Test 1 - 401(k)",
```



```

"userLoginURL": http://localhost/,
"popularity": 0,
"popularityConsumer": 0,
"loginTerm": "Login",
"pwTerm": "Password",
"accountNumberTerm": "Account Number",
"loginTermDetails": "Enter any value",
"pwTermDetails": "Enter any value",
"accountNumberTermDetails": "This must be a non-blank value.",
"accessInstructions": " This is a Test FI that contains sample 401(k) data for one account. ",
"supportsAccountDiscovery": true,
"supportsOAuth": false,
"supportsTestCredential": true,
"requiresInSessionActivation": false,
"requiresSQA": false,
"requiresSecondPW": false,
"logo": https://localhost/WPDemo/vendorResources/Default/assets/fi/logos/DataTest1401k_logo.svg,
"icon": https://localhost/WPDemo/vendorResources/Default/assets/fi/icons/DataTest1401k_icon.png,
"licensed": true
}
]
}

```

Response Model

Label	Req'd?	Type	Description
{			
pageSize		integer	Number of records per page.
pageNumber		integer	Page number of this page.
totalPages		integer	Total number of pages in result set.
totalElements		integer	Total number of elements in result set.
isFirst		Boolean	True or false. True if and only if this is the first page of data in the result set.
isLast		Boolean	True or false. True if and only if this is the last page of data in the result set.
summary			
data [{			Financial Institution list
id	yes	integer	ID of the Financial Institution
name	yes	string	Name of the Financial Institution
userLoginURL	yes	string	User login URL of the Financial Institution
websiteURL		string	Home page of the Financial Institution

Label	Req'd?	Type	Description
popularity	yes	integer	Popularity of the Financial Institution, with larger values indicating higher popularity level (currently always either 0 or 1, but other values possible in the future)
popularityConsumer	yes	integer	Popularity of the Financial Institution at Consumer UI, with larger values indicating higher popularity level (currently always either 0 or 1, but other values possible in the future)
loginTerm	yes	string	The term used for login at the Financial Institution
login2Term		string	The term used for second login at the Financial Institution
pwTerm	yes	string	The term used for PIN at the Financial Institution
pw2Term		string	The term used for second PIN at the Financial Institution
accountNumberTerm	yes	string	The term used for Account Number at the Financial Institution
accountNumber2Term		string	The term used for second Account Number at the Financial Institution
loginTermDetails	yes	string	Detailed instructions for the login field at this Financial Institution
login2TermDetails		string	Detailed instructions for the second login field at this Financial Institution
pwTermDetails	yes	string	Detailed instructions for the PIN field at this Financial Institution
pw2TermDetails		string	Detailed instructions for the second PIN field at this Financial Institution
accountNumberTermDetails	yes	string	Detailed instructions for the Account Number field at this Financial Institution
accountNumber2TermDetails		string	Detailed instructions for the second Account Number at this Financial Institution
accessInstructions	yes	string	Detailed general access instructions for this Financial Institution
supportsAccountDiscovery	yes	Boolean	Indicates whether the Financial Institution supports automatic discovery of accounts at the Financial Institution.
supportsOAuth	yes	Boolean	Indicates whether the Financial Institution supports OAuth authentication.
supportsTestCredential	yes	Boolean	Indicates whether the Financial Institution supports testing access to the Financial Institution with only credential (and not account) data
requiresInSessionActivation	yes	Boolean	Indicates whether the Financial Institution whether the Financial Institution may potentially prompt for In-Session Activation Codes during Test Credential or Test Account operations

Label	Req'd?	Type	Description
requiresSQA	yes	Boolean	Indicates whether the Financial Institution may require security questions and answer input from the user in order to access the site
requiresSecondPW	yes	Boolean	Indicates whether the Financial Institution requires the second PIN term
setupInstructions		string	The financial institution instructions for setting up accounts at the FI for aggregation
knownConnectionIssue		string	Known connectivity issue for the FI or third party
configuredOAuth		Boolean	Indicates whether the OAuth Credential has been configured for the Financial Institution.
logo		string	The name used for logo at the respective Financial Institution
icon		string	The name used for icon at the respective Financial Institution
knownConnectionIssueLongTerm		string	Known connectivity issue long term for the FI or third party
licensed		Boolean	Indicates whether the Financial Institution is licensed for the user's firm
}]			
}			

Response Messages

HTTP Status Code	Reason	Response Model	Headers
200	OK	See Response Model on page 27	
400	Bad Request		
401	Not Authorized		
500	Internal Server Error		

GET Financial Institution by ID

GET /api/v1/fis/{id}

Implementation Notes

This operation retrieves a financial institution by ID.

Parameters

Parameter	Required?	Default Value	Description	Parameter Type	Data Type
id			The ID of the Financial institution requested	query	integer

Response Body

```
{
  "id": 43154,
  "name": "Data Test 1 - 401(k)",
  "userLoginURL": "http://localhost/",
  "popularity": 0,
  "popularityConsumer": 0,
  "loginTerm": "Login",
  "pwTerm": "Password",
  "accountNumberTerm": "Account Number",
  "loginTermDetails": "Enter any value",
  "pwTermDetails": "Enter any value",
  "accountNumberTermDetails": "This must be a non-blank value.",
  "accessInstructions": " This is a Test FI that contains sample 401(k) data for one account. ",
  "supportsAccountDiscovery": true,
  "supportsOAuth": false,
  "supportsTestCredential": true,
  "requiresInSessionActivation": false,
  "requiresSQA": false,
  "requiresSecondPW": false,
  "logo": "https://localhost/WPDemo/vendorResources/Default/assets/fi/logos/DataTest1401k_logo.svg",
  "icon": "https://localhost/WPDemo/vendorResources/Default/assets/fi/icons/DataTest1401k_icon.png",
  "licensed": true
}
```

Response Model

Label	Req'd?	Type	Description
{			
id	yes	integer	ID of the Financial Institution
name	yes	string	Name of the Financial Institution
userLoginURL	yes	string	User login URL of the Financial Institution
websiteURL		string	Home page of the Financial Institution
popularity	yes	integer	Popularity of the Financial Institution, with larger values indicating higher popularity level (currently always either 0 or 1, but other values possible in the future)
popularityConsumer	yes	integer	Popularity of the Financial Institution at Consumer UI, with larger values indicating higher popularity level (currently always either 0 or 1, but other values possible in the future)
loginTerm	yes	string	The term used for login at the Financial Institution
login2Term		string	The term used for second login at the Financial Institution
pwTerm	yes	string	The term used for PIN at the Financial Institution
pw2Term		string	The term used for second PIN at the Financial Institution
accountNumberTerm	yes	string	The term used for Account Number at the Financial Institution
accountNumber2Term		string	The term used for second Account Number at the Financial Institution
loginTermDetails	yes	string	Detailed instructions for the login field at this Financial Institution
login2TermDetails		string	Detailed instructions for the second login field at this Financial Institution
pwTermDetails	yes	string	Detailed instructions for the PIN field at this Financial Institution
pw2TermDetails		string	Detailed instructions for the second PIN field at this Financial Institution
accountNumberTermDetails	yes	string	Detailed instructions for the Account Number field at this Financial Institution
accountNumber2TermDetails		string	Detailed instructions for the second Account Number at this Financial Institution
accessInstructions	yes	string	Detailed general access instructions for this Financial Institution
supportsAccountDiscovery	yes	Boolean	Indicates whether the Financial Institution supports automatic discovery of accounts at the Financial Institution.
supportsOAuth	yes	Boolean	Indicates whether the Financial Institution supports OAuth authentication.

Label	Req'd?	Type	Description
supportsTestCredential	yes	Boolean	Indicates whether the Financial Institution supports testing access to the Financial Institution with only credential (and not account) data
requiresInSessionActivation	yes	Boolean	Indicates whether the Financial Institution whether the Financial Institution may potentially prompt for In-Session Activation Codes during Test Credential or Test Account operations
requiresSQA	yes	Boolean	Indicates whether the Financial Institution may require security questions and answer input from the user in order to access the site
requiresSecondPW	yes	Boolean	Indicates whether the Financial Institution requires the second PIN term
setupInstructions		string	The financial institution instructions for setting up accounts at the FI for aggregation
knownConnectionIssue		string	Known connectivity issue for the FI or third party
configuredOAuth		Boolean	Indicates whether the OAuth Credential has been configured for the Financial Institution.
logo		string	The name used for logo at the respective Financial Institution
icon		string	The name used for icon at the respective Financial Institution
knownConnectionIssueLongTerm		string	Known connectivity issue long term for the FI or third party
licensed		Boolean	Indicates whether the Financial Institution is licensed for the user's firm
}]			
}			

Response Messages

HTTP Status Code	Reason	Response Model	Headers
200	OK	See Response Model on page 31	
400	Bad Request		
401	Not Authorized		

HTTP Status Code	Reason	Response Model	Headers
404	Not Found		
500	Internal Server Error		

Person Operations

POST new Person

POST /api/v1/persons

Implementation Notes

Add an Investor Person to the system and associate it to a Firm and optionally to an Advisor. Registering a new Person does not require prior authentication.

Notes:

- The Firm to which the Person is to be added must have the 'Investor self-signup' feature enabled.
- The user is created as SSO or non-SSO as determined by the Firm's configuration for creating new "clients".

Request Headers

Registering a new Person does not require prior authentication, so JSESSIONID or CSRF-TOKEN are not required.

A UIM Admin JWT can optionally be submitted to this endpoint using the Authorization header with the header value "Bearer <token-value>". The UIM Admin JWT holds a Service Administrator level authentication context and the uimGuid for the user to be created must be provided in the post body. The endpoint will validate the JWT, extract the UIM Guid, and store the UIM Guid on the Person. The UIM Guid must be unique across the ByAllAccounts system (across all Persons). If not, then the Person is not created and HTTP 409 Conflict is returned with the person URI.

The POST body parameters listed in [Parameters](#), page 35 are to be submitted in JSON format as shown in this example:

```
POST /api/v1/persons
{
  "firstName" : "Chris",
  "middleName" : "Pat",
  "lastName" : "Smith",
  "role" : "investor",
  "emailAddress" : "ChisSmith@email.com",
  "phoneNumber" : "6035551212",
  "taxId" : "111111111",
  "firmCode" : "ABC-12345",
  "advisorId" : 123
}
```


Parameters

Parameter	Required?	Default Value	Description	Parameter Type	Data Type
firstName	yes		First name of the Person.	body	string
middleName	no		Middle name of the Person.	body	string
lastName	yes		Last name of the Person.	body	string
Role	yes		Role of the Person. Currently must be value "".	body	string
emailAddress	yes		Email address of the Person. Must be in the form xx@yy.zzz.	body	string
phoneNumber	no		Phone number of the Person. There are no format requirements.	body	string
taxId	yes*		Social Security Number or Tax ID of the Person	body	string
firmTag1	yes*		Firm tag 1. If specified, the value must be unique within the Firm to which the new Person is to be added. If not, HTTP 409 Conflict is returned.	body	string
firmTag2	yes*		Firm tag 2.	body	string
firmTag3	yes*		Firm tag 3.	body	string
firmCode	yes**		Vendor name value for the Firm to which this Investor should be added. The Firm must already exist.	body	string
advisorId	yes**		BAA Person Id for the Advisor to whom this Investor should be assigned after the Investor is created. The Advisor must already exist and be part of the Firm identified in firmCode (if firmCode is specified).	body	integer
uimGuid	yes***		Used in conjunction with Service Admin JWT. The uimGuid for the user to be created. Must be unique across all Persons in the ByAllAccounts system. If not, HTTP 409 Conflict is returned with the person URI. Ignored if a valid Service Admin JWT is not provided.	body	string

* Only required if the Firm configuration requires a value for this field

** At least one of these must be specified in order identify to which firm to add the Person. If firmCode is specified and advisorId is not, then the Person is created without any association to an advisor. If both are specified, then they must not conflict, meaning the Advisor identified by advisorId must exist within the Firm identified by the firmCode. Otherwise, an HTTP 400 Bad Request is returned.

*** Required when a Service Admin JWT is submitted to the endpoint.

Response Body

Location header: URI to new resource. For example:

```
{
  "uri": "https://www.byallaccounts.net/api/v1/persons/12345"
}
```

Where 12345 is the BAA Person Id for the new Person.

Response Messages

HTTP Status Code	Reason	Response Model	Headers
201	Created	{ "data": {} }	
400	Bad Request Possible causes: <ul style="list-style-type: none">▪ The <field name> field is missing▪ Missing required value▪ The <field name> cannot exceed <max>▪ Invalid Role value▪ Email addresses must be in the form x@x.x and cannot contain spaces▪ Firm <firm> not found▪ Advisor not found. [See Cases where advisor is not found below]▪ One of these is set on the Firm to be required but is not found<ul style="list-style-type: none">○ taxId○ firmTag1○ firmTag2○ firmTag3		
401	Not Authorized Possible causes: <ul style="list-style-type: none">▪ Investor self-signup not allowed.▪ UIM JWT not valid.		
409	Conflict Possible causes: <ul style="list-style-type: none">▪ UIM Guid must be unique (from UIM JWT).▪ firmTag1 must be unique.		
500	Internal Server Error		

Cases where advisor is not found

Case 1: Response when "Advisor advisorId does not exist at Firm firmCode"

```
{
  "type": "invalid-advisorid",
  "title": "Advisor not found",
  "detail": "Person validation error",
  "additionalInfo": {
    "firmCode": "ABC-12345",
    "advisorId": 65376
  }
}
```

Case 2: Response when "advisorId does not exist." OR "advisorId is valid, but is not an advisor"

```
{
  "type": "invalid-advisorid",
  "title": "Advisor not found",
  "detail": "Person validation error",
  "additionalInfo": {
    "advisorId": 65376
  }
}
```

GET persons ID

GET /api/v1/persons/{id}

Implementation Notes

Use this endpoint to fetch the profile data of a Person specified by the *id* parameter.

Parameters

Parameter	Required?	Default Value	Description	Parameter Type	Data Type
id	yes		ID of the Person requested.	path	integer

Response Body

```
{
  "id": 778899,
  "firstName": "Rosalind",
  "middleName": "Elsie",
  "lastName": "Franklin",
  "emailAddress": "RosalindFranklin@email.com",
  "phoneNumber": 5085551212,
  "taxId": 101896403,
  "isSSOUser": true,
  "advisorId": true,
  "firmTag1": "xxx",
  "firmTag2": "yyy",
  "firmTag3": "zzz",
  "userAgreementAccepted": true,
  "uimGuid": "C5E883D3-8B92-438C-A43B-E70455FA1F06"
}
```

Response Model

Label	Req'd?	Type	Description
{			
id	yes	integer	ID of the Person
firstName	yes	string	First name of the Person
middleName		string	Middle name of the Person
lastName	yes	string	Last name of the Person
emailAddress		string	Email address of the Person
phoneNumber		string	Phone number of the Person

Label	Req'd?	Type	Description
taxID		string	Social Security Number or Tax ID of the Person
isSSOUser		Boolean	True if Person is an SSO-enabled user
advisorID		integer	ID of the Person's advisor
firmTag1		string	Firm Tag 1
firmTag2		string	Firm Tag 2
firmTag3		string	Firm Tag 3
userAgreementAccepted	yes	Boolean	Indicates whether or not the user agreement has been accepted
uimGuid		string	UIM Guid for the Person if one was assigned at creation

Response Messages

HTTP Status Code	Reason	Response Model	Headers
200	Ok		
401	Not Authorized Possible reasons: Invalid JSESSIONID and/or CSRF-TOKEN, expired UIM JWT		
404	Not Found		
500	Internal Server Error		

GET persons network

GET /api/v1/persons/me/network

Implementation Notes

Use this endpoint to get a person's net worth, net and percentage change in net worth, and the net worth trend data for the specified period. These details are computed using the history of a user's accounts currently available in the system.

Parameters

Parameter	Required?	Default Value	Description	Parameter Type	Data Type
dateFrom	*		Start date for the net worth data (inclusive). Specify the date in yyyy-mm-dd format. When set, <i>dateTo</i> must be set.	query	string
dateTo	*		End date for the net worth data (exclusive). Specify the date in yyyy-mm-dd format. When set, <i>dateFrom</i> must be set.	query	string
period	*		Period to specify the date range for the net worth data. Possible values are: <ul style="list-style-type: none">▪ 1M - to get the details for a 1-month period▪ 3M - to get the details for a 3-month period▪ YTD - to get the details for a year-to-date period▪ 1Y - to get the details for a 1-year period▪ ALL - to get the details using all available data The latest data point is computed using the closing values from yesterday. The retrospective period date is based on the date for the day before yesterday.	query	String

* Either the *period* parameter or the combination of the *dateFrom* and *dateTo* parameters must be used to define the time frame for which the net worth is requested. When used, parameters *dateFrom* and *dateTo* must be used in combination. If one is specified, the other is required. If values are given for all parameters, the *period* parameter takes precedence.

Response Body

```
{
  "netWorth": { "amount": 150000.00, "currencyCode": "USD" },
  "netChange": { "amount": 50000.00, "currencyCode": "USD" },
  "percentageChange": 50.0,
  "summary": {
    "startDate": "2022-01-15",
    "endDate": "2023-01-16"
  },
  "data": [
    {
      "date": "2022-01-15",
      "marketValue": { "amount": 100000.00, "currencyCode": "USD" }
    },
    {
      "date": "2022-01-16",
      "marketValue": { "amount": 100000.00, "currencyCode": "USD" }
    },
    .....
    {
      "date": "2023-01-14",
      "marketValue": { "amount": 100000.00, "currencyCode": "USD" }
    },
    {
      "date": "2023-01-16",
      "marketValue": { "amount": 150000.00, "currencyCode": "USD" }
    }
  ]
}
```

Response Model

Label	Req'd?	Type	Description
{			
netWorth {			
amount		number	Net worth based on the closing position values from day before yesterday.
currencyCode		string	ISO 4217 currency code for the position, such as USD.
}			
netChange {			
amount		number	Net change in calculated net worth for the specified period.
currencyCode		string	ISO 4217 currency code for the position, such as USD.
}			

percentageChange {	number	Percentage change in net worth of the investor for the specified period.
Summary {		
startDate	string	Beginning of the time period for which the time series data is provided. For predefined trailing periods such as 1M, the startDate is calculated for you based on the requested time period. For time periods requested using <i>dateFrom</i> and <i>dateTo</i> , the startDate will be <i>dateFrom</i> as long as <i>dateFrom</i> is in the past.
endDate	string	End of the time period for which the time series data is provided. Note that there may not be a time series data item for every day in the period. For predefined trailing periods such as 1M, the endDate will be yesterday. For time periods requested using <i>dateFrom</i> and <i>dateTo</i> , the endDate will be one day prior to <i>dateTo</i> if <i>dateTo</i> is in the past. If <i>dateTo</i> is in the future, endDate will be yesterday.
}		
data [Net worth trend of an investor for the specified period.
PesonNetWorth {		
date	string	Historical date to represent previous net worth details.
marketValue {		
amount	number	Net worth based on the closing position values for the specific date.
currencyCode	string	ISO 4217 currency code for the position, such as USD.
}		
}]		
}		

Response Messages

HTTP Status Code	Reason	Response Model	Headers
200	Ok	See Response Model .	
400	Bad Request		
401	Not Authorized		
404	Not Found	Response body: <pre>{ "type": "networth-data-not-found", "title": "Net worth data not found", "detail": "Net worth data not found for the specified period", "additionalInfo": {} }</pre>	
500	Internal Server Error		

GET person summary

GET /api/v1/persons/me/summary

Implementation Notes

Use this endpoint to get the total market value of the investor's accounts.

Parameters

None.

Response Body

```
{
  "marketValue": {
    "amount": 2078.34,
    "currencyCode": "USD"
  },
  "hasFinancialData": true
}
```

Response Model

Label	Req'd?	Type	Description
{			
marketValue {			Currency value.
amount		number	Total market value of the investor's accounts.
currencyCode		string	ISO 4217 currency code for the position, such as USD.
}			
hasFinancialData		Boolean	True if the investor has at least one account credential, otherwise false.
}			

Response Messages

HTTP Status Code	Reason	Response Model	Headers
200	Ok	See Response Model above.	
401	Not Authorized		
500	Internal Server Error		

Delete person

DELETE /api/v1/persons

Implementation Notes

Delete the data for the investor authenticated for this session. This endpoint enables the authenticated user to delete all of their own data from the ByAllAccounts system.

Parameters

Parameter	Required?	Default Value	Description	Parameter Type	Data Type
notifyPerson		false	Indicates if the deleted investor and associated users, such as advisors and assistants, should be notified of the delete operation.	query	Boolean

Response Messages

HTTP Status Code	Reason	Response Model	Headers
200	Ok		
204	No contents		
400	Bad Request		
401	Not Authorized		
403	Bad Request		
404	Not Found		
500	Internal Server Error		

Position Operations

GET positions

GET /api/v1/positions

Implementation Notes

Use this endpoint to get the collection of all positions.

You can specify the number of the page to return and the number of records per page.

Parameters

Parameter	Required?	Default Value	Description	Parameter Type	Data Type
page		0	Page number	query	integer
size		25	Number of records per page	query	integer
incExtraSecInfo		false	If the firm is licensed for extra Morningstar security data and this parameter is set to <i>true</i> , the response will append additional security fields as applicable.	query	Boolean

Response Body

This section shows two response body examples. The first is the default example, and the second includes the licensed Morningstar security data.

Default Example

```
{
  "pageSize": 25,
  "pageNumber": 0,
  "totalPages": 1,
  "totalElements": 1,
  "isFirst": true,
  "isLast": true,
  "data": [
    {
      "ticker": "SIEGY",
      "cusip": 826197501,
      "name": "Siemens AG",
      "morningstarSecId": "E0DEU00CVS",
      "morningstarPerfId": "0P000004XO",
      "units": 12,
      "unitPrice": {
```

```

    "amount": 2078.34,
    "currencyCode": "USD"
  },
  "marketValue": {
    "amount": 2078.34,
    "currencyCode": "USD"
  },
  "lastUpdated": "2021-08-19T09:08:10.000-04:00",
  "assetLiabilityIndicator": "Asset",
  "secType": "Bond",
  "costBasis": {
    "amount": 2078.34,
    "currencyCode": "USD"
  },
  "couponRate": 24,
  "maturityDate": "2021-08-19",
  "originalFace": 12484,
  "paydownFactor": 12484,
  "fiSuppliedSecType": 5566,
  "id": 778899,
  "accountId": 778899,
  "securityId": 778899
}
]
}

```

Example with licensed Morningstar security data fields

This example has one Mutual Fund and one Stock with the licensed Morningstar security data fields.

```

{
  "pageSize": 25,
  "pageNumber": 0,
  "totalPages": 1,
  "totalElements": 2,
  "isFirst": true,
  "isLast": true,
  "data": [
    {
      "ticker": "CBFAX",
      "name": "AMERICAN FUNDS GLOBAL BALANCED 529-A",
      "morningstarSecId": "F00000LIUD",
      "units": 2.0000,

```

```

"unitPrice": {
  "amount": 2,
  "currencyCode": "USD"
},
"marketValue": {
  "amount": 200.00,
  "currencyCode": "USD"
},
"lastUpdated": "2023-02-06T20:58:38.000-05:00",
"assetLiabilityIndicator": "Asset",
"secType": "Mutualfund",
"costBasis": {
  "amount": 400,
  "currencyCode": "USD"
},
"fiSuppliedSecType": "MUTUALFUND",
"id": 828887,
"accountId": 790641,
"securityId": 5,
"bondStyleBoxLong": 2,
"bondStyleBoxLongName": "Moderate Sensitivity High Quality",
"assetAllocationUSStock": 27.27,
"assetAllocationNonUSStock": 31.79,
"assetAllocationUSBond": 17.42,
"assetAllocationNonUSBond": 15.99,
"assetAllocationPreferred": 0.49,
"assetAllocationConvertible": 0,
"assetAllocationCash": 5.44,
"assetAllocationOther": 1.59,
"regionUnitedStates": 46.18,
"regionCanada": 5.23,
"regionLatinAmerica": 2.87,
"regionUnitedKingdom": 7.97,
"regionEurozone": 14.23,
"regionEuropeExEuro": 7.93,
"regionEuropeEmerging": 0,
"regionAfrica": 0,
"regionMiddleEast": 0,
"regionJapan": 2.19,
"regionAustralasia": 1.94,
"regionAsiaDeveloped": 4.27,
"regionAsiaEmerging": 7.19,
"stockSectorBasicMaterials": 7.47,

```

```

"stockSectorConsumerCyclical": 3.87,
"stockSectorFinancialServices": 18.09,
"stockSectorRealEstate": 2.39,
"stockSectorConsumerDefensive": 9.09,
"stockSectorHealthcare": 13.25,
"stockSectorUtilities": 8.33,
"stockSectorCommunicationServices": 5.93,
"stockSectorEnergy": 6.85,
"stockSectorIndustrials": 13.72,
"stockSectorTechnology": 11.02,
"bondSuperSectorGovernment": 63.42,
"bondSuperSectorMunicipal": 0.08,
"bondSuperSectorCorporate": 14.77,
"bondSuperSectorSecuritized": 6.5,
"bondSuperSectorCashAndEquivalents": 15.24,
"bondSuperSectorDerivative": 0,
"styleBoxLargeValue": 26.09,
"styleBoxLargeBlend": 47.05,
"styleBoxLargeGrowth": 17.45,
"styleBoxMidValue": 2.79,
"styleBoxMidBlend": 5.3,
"styleBoxMidGrowth": 1.06,
"styleBoxSmallValue": 0,
"styleBoxSmallBlend": 0.26,
"styleBoxSmallGrowth": 0
},

{
  "ticker": "T",
  "name": "AT&T INC",
  "morningstarSecId": "E0USA00D7T",
  "morningstarPerfId": "0P00000031",
  "units": 333.9320,
  "unitPrice": {
    "amount": 35.1,
    "currencyCode": "USD"
  },
  "marketValue": {
    "amount": 11721.01,
    "currencyCode": "USD"
  },
  "lastUpdated": "2023-02-03T01:10:38.000-05:00",
  "assetLiabilityIndicator": "Asset",

```

```

    "secType": "Stock",
    "fiSuppliedSecType": "STOCK",
    "id": 775066,
    "accountId": 781076,
    "securityId": 24,
    "businessCountryId": "USA",
    "styleBoxCode": 1,
    "styleBoxName": "Large Value",
    "sectorCode": 308,
    "sectorCodeName": "Communication Services"
  }
]
}

```

Response Model

Label	Req'd?	Type	Description
pageSize		integer	Number of records per page.
pageNumber		integer	Page number of this page.
totalPages		integer	Total number of pages in the result set.
totalElements		integer	Total number of elements in the result set.
isFirst		Boolean	True if and only if this is the first page of data in the result set.
isLast		Boolean	True if and only if this is the last page of data in the result set.
data		array	Position.
{			
ticker		string	Ticker symbol of the position.
cusip		string	Committee on Uniform Security Identification Procedures (CUSIP) for this position. Will only be present if the firm is licensed for CUSIP data and CUSIP delivery is enabled for the firm.
name	yes	string	Name of the position.
morningstarSecId		string	Morningstar security identifier of the position.
morningstarPerfId		string	Morningstar performance identifier of the position.
units		number	Units of the position.
unitPrice {			Currency value.
amount		number	Numeric value for the position.
currencyCode		string	ISO 4217 currency code for the position, such as USD.
}			
marketValue {			Currency value.
amount		number	Total market value of this Position as retrieved from the Financial Institution.

Label	Req'd?	Type	Description
currencyCode		string	ISO 4217 currency code for the position, such as USD.
}			
lastUpdated		string	Last updated date of the position.
assetLiabilityIndicator	yes	string	Valid values are: Asset or Liability.
secType		string	Security type of the position. Can be BOND, CASH, MUTUALFUND, OPTION, OTHER, or STOCK.
costBasis {			Currency value.
amount		number	Financial Service-supplied cost basis for the Position. (Note: This is a total basis not a per-share basis.)
currencyCode		string	ISO 4217 currency code for the position, such as USD.
}			
couponRate		number	The interest payment rate of a debt instrument.
maturityDate		string	Maturity date of the position.
originalFace		number	The original face or par value for a security that amortizes or accretes (e.g., a mortgage).
paydownFactor		number	The paydown factor value for bond if provided by the financial institution.
fiSuppliedSecType		string	The security type as supplied by the financial institution.
id	yes	integer	Unique identifier of the position.
accountId	yes	integer	Identifier for the Account that contains this Position.
securityId		integer	Identifier for Security owned by this Position.
businessCountryId		string	ISO code of the business country of the security. For example: USA. Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.
styleBoxCode		integer	Number representation of Morningstar investment style of stocks and portfolios. Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.
styleBoxName		string	String representation of Morningstar investment style of stocks and portfolios. Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.
sectorCode		integer	Number representation of Morningstar sector code. (Industry groups are consolidated into 11 sectors.) Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.

Label	Req'd?	Type	Description
sectorCodeName		string	String representation of Morningstar Sector code. (Industry groups are consolidated into 11 sectors.) Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.
bondStyleBoxLong		integer	This model is based on the two pillars of fixed-income performance: interest-rate sensitivity and credit quality. The three duration groups are short, intermediate, and long-term, and the three credit quality groups are high, medium, and low quality. These groupings display a portfolio's effective duration and credit quality to provide an overall representation of the fund's risk, given the length and quality of bonds in its portfolio. As with equity funds, nine possible combinations exist, ranging from short duration/high quality for the safest funds to long duration/low quality for the riskiest. Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.
bondStyleBoxLongName		string	This model is based on the two pillars of fixed-income performance: interest-rate sensitivity and credit quality. The three duration groups are short, intermediate, and long-term, and the three credit quality groups are high, medium, and low quality. These groupings display a portfolio's effective duration and credit quality to provide an overall representation of the fund's risk, given the length and quality of bonds in its portfolio. As with equity funds, nine possible combinations exist, ranging from short duration/high quality for the safest funds to long duration/low quality for the riskiest. For example: Limited Sensitivity Low Quality. Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.
assetAllocationUSStock		number	The percentage of the fund's assets in US Stocks (net). This figure is calculated separately for the short and long positions of the portfolio, and the sum of the asset allocation of each will not necessarily equal 100%. The net value is derived by subtracting the short positions from the long. The long and short positions can be rescaled as well. Rescaling ensures that the sum of the asset allocation breakdown will sum to 100%. Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.

Label	Req'd?	Type	Description
assetAllocationNonUSStock		number	The percentage of the fund's assets in Non US stocks (net). Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.
assetAllocationUSBond		number	The percentage of the fund's assets in US bonds (net). Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.
assetAllocationNonUSBond		number	The percentage of the fund's assets in Non US Bonds (net). Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.
assetAllocationPreferred		number	The percentage of the fund's assets in preferred stocks (net). Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.
assetAllocationConvertible		number	The percentage of the fund's assets in convertibles (net). Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.
assetAllocationCash		number	The percentage of the fund's assets in cash (net). Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.
assetAllocationOther		number	The percentage of the fund's assets in other instruments (net). Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.
regionUnitedStates		number	This data set provides a broad breakdown of an investment's geographical exposure in the United States. Each region's exposure is presented as a percentage of non-cash equity assets held by the fund. Regional exposure information summarizes a portfolio's exposure to geopolitical risk. Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.

Label	Req'd?	Type	Description
regionCanada		number	This data set provides a broad breakdown of an investment's geographical exposure in Canada. Each region's exposure is presented as a percentage of non-cash equity assets held by the fund. Regional exposure information summarizes a portfolio's exposure to geopolitical risk. Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.
regionLatinAmerica		number	This data set provides a broad breakdown of an investment's geographical exposure in Latin America. Each region's exposure is presented as a percentage of non-cash equity assets held by the fund. Regional exposure information summarizes a portfolio's exposure to geopolitical risk. Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.
regionUnitedKingdom		number	This data set provides a broad breakdown of an investment's geographical exposure in the United Kingdom. Each region's exposure is presented as a percentage of non-cash equity assets held by the fund. Regional exposure information summarizes a portfolio's exposure to geopolitical risk. Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.
regionEurozone		number	This data set provides a broad breakdown of an investment's geographical exposure in the Eurozone region. Each region's exposure is presented as a percentage of non-cash equity assets held by the fund. Regional exposure information summarizes a portfolio's exposure to geopolitical risk. Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.
regionEuropeExEuro		number	This data set provides a broad breakdown of an investment's geographical exposure in the Europe Ex Euro region. Each region's exposure is presented as a percentage of non-cash equity assets held by the fund. Regional exposure information summarizes a portfolio's exposure to geopolitical risk. Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.

Label	Req'd?	Type	Description
regionEuropeEmerging		number	This data set provides a broad breakdown of an investment's geographical exposure in the Europe Emerging region. Each region's exposure is presented as a percentage of non-cash equity assets held by the fund. Regional exposure information summarizes a portfolio's exposure to geopolitical risk. Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.
regionAfrica		number	This data set provides a broad breakdown of an investment's geographical exposure in Africa. Each region's exposure is presented as a percentage of non-cash equity assets held by the fund. Regional exposure information summarizes a portfolio's exposure to geopolitical risk. Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.
regionMiddleEast		number	This data set provides a broad breakdown of an investment's geographical exposure in the Middle East. Each region's exposure is presented as a percentage of non-cash equity assets held by the fund. Regional exposure information summarizes a portfolio's exposure to geopolitical risk. Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.
regionJapan		number	This data set provides a broad breakdown of an investment's geographical exposure in Japan. Each region's exposure is presented as a percentage of non-cash equity assets held by the fund. Regional exposure information summarizes a portfolio's exposure to geopolitical risk. Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.
regionAustralasia		number	This data set provides a broad breakdown of an investment's geographical exposure in the Australasia region. Each region's exposure is presented as a percentage of non-cash equity assets held by the fund. Regional exposure information summarizes a portfolio's exposure to geopolitical risk. Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.

Label	Req'd?	Type	Description
regionAsiaDeveloped		number	This data set provides a broad breakdown of an investment's geographical exposure in the Asia Developed region. Each region's exposure is presented as a percentage of non-cash equity assets held by the fund. Regional exposure information summarizes a portfolio's exposure to geopolitical risk. Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.
regionAsiaEmerging		number	This data set provides a broad breakdown of an investment's geographical exposure in the Asia Emerging region. Each region's exposure is presented as a percentage of non-cash equity assets held by the fund. Regional exposure information summarizes a portfolio's exposure to geopolitical risk. Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.
stockSectorBasicMaterials		number	The percentage of the fund's assets that are invested in Basic Materials (rescaled long positions). The Basic Materials sector includes companies that manufacture chemicals, building materials, and paper products. This sector also includes companies engaged in commodities exploration and processing. Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.
stockSectorConsumerCyclical		number	The percentage of the fund's assets that are invested in the Consumer Cyclical sector (rescaled long positions). The Consumer Cyclical sector includes retail stores, auto and auto parts manufacturers, companies engaged in residential construction, lodging facilities, restaurants, and entertainment companies.
stockSectorFinancialServices		number	The percentage of the fund's assets that are invested in the Financial Services sector (rescaled long positions). The Financial Services sector includes companies that provide financial services (banks, savings and loans, asset management companies, credit services, investment brokerage firms, and insurance companies).
stockSectorRealEstate		number	The percentage of the fund's assets that are invested in the Real Estate sector (rescaled long positions). The Real Estate sector includes mortgage companies, property management companies, and REITs. Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.

Label	Req'd?	Type	Description
stockSectorConsumerDefensive		number	The percentage of the fund's assets that are invested in the Consumer Defensive sector (rescaled long positions). The Consumer Defensive sector includes companies engaged in the manufacturing of food, beverages, household and personal products, packaging, or tobacco. Also includes companies that provide services such as education and training services. Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.
stockSectorHealthcare		number	The percentage of the fund's assets that are invested in the Healthcare sector (rescaled long positions). The Healthcare sector includes biotechnology, pharmaceuticals, research services, home healthcare, hospitals, long-term care facilities, and medical equipment and supplies. Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.
stockSectorUtilities		number	The percentage of the fund's assets that are invested in the Utilities sector (rescaled long positions). The Utilities sector includes electric, gas, and water utilities. Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.
stockSectorCommunicationServices		number	The percentage of the fund's assets that are invested in the Communication Services sector (rescaled long positions). The Communication Services sector includes companies that provide communication services using fixed-line networks or those that provide wireless access and services. This sector also includes companies that provide internet services such as access, navigation, and internet related software and services. Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.
stockSectorEnergy		number	The percentage of the fund's assets that are invested in the Energy sector (rescaled long positions). The Energy sector includes companies that produce or refine oil and gas, oil field services and equipment companies, and pipeline operators. This sector also includes companies engaged in the mining of coal. Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.

Label	Req'd?	Type	Description
stockSectorIndustrials		number	The percentage of the fund's assets that are invested in the Industrials sector (rescaled long positions). The Industrials sector includes companies that manufacture machinery, hand-held tools, and industrial products. This sector also includes aerospace and defense firms as well as companies engaged in transportations and logistic services. Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.
stockSectorTechnology		number	The percentage of the fund's assets that are invested in the Technology sector (rescaled long positions). The Technology sector includes companies engaged in the design, development, and support of computer operating systems and applications. This sector also includes companies that provide computer technology consulting services. Also includes companies engaged in the manufacturing of computer equipment, data storage products, networking products, semiconductors, and components. Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.
bondSuperSectorGovernment		number	The government Super Sector includes all conventional debt issued by governments other than those which are included in the Municipal sector, including bonds issued by a Central Bank or Treasury, and bonds issued by local governments, cantons, regions, and provinces. Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.
bondSuperSectorMunicipal		number	The municipal Super Sector includes taxable and tax-exempt debt obligations issued under the auspices of states, cities, counties, provinces, and other nonfederal government entities. This sector includes issues of private entities which are considered to municipal issues from a regulatory perspective. Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.
bondSuperSectorCorporate		number	The corporate Super Sector includes bank loans, convertible bonds, conventional debt securities issued by corporations, and preferred stock. Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.

Label	Req'd?	Type	Description
bondSuperSectorSecuritized		number	The securitized Super Sector includes all types of mortgage-backed securities, covered bonds, and asset-backed securities. Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.
bondSuperSectorCashAndEquivalents		number	The cash and equivalents Super Sector includes cash in the bank, certificates of deposit, currency, and money market holdings. Cash can also be any fixed-income securities that mature in fewer than 92 days. This Super Sector also includes commercial paper, and any repurchase agreements held by the fund. Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.
bondSuperSectorDerivative		number	The derivative Super Sector includes the common types of fixed-income derivative contracts: futures and forwards, options, and swaps. For display purposes, products may elect to identify this sector as Other. Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.
styleBoxLargeValue		number	Top row, left corner quadrant of the Morningstar Style Box™. The Morningstar Style Box™ is a nine-square grid – three stock investment styles for each of three size categories: small, mid, and large. Two of the three style categories are “value” and “growth.” However, the third, central column definition differs: for funds, the central column represents “blend” funds, which include value, core, and growth stocks; for stocks, it represents “core” stocks, those for which neither growth characteristics nor value characteristics are dominant. A stock is classified as large, mid, or small based on its position in the cumulative market capitalization of its style zone. Large-cap stocks are those that together account for the top 70% of the capitalization of each style zone; mid-cap stocks represent the next 20%; and small-cap stocks represent the balance. The market caps that correspond to these breakpoints are flexible and may shift from month to month as the market changes. Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.

Label	Req'd?	Type	Description
styleBoxLargeBlend		number	Top row, middle column quadrant of the Morningstar Style Box™. The Morningstar Style Box™ is a nine-square grid – three stock investment styles for each of three size categories: small, mid, and large. Two of the three style categories are “value” and “growth.” However, the third, central column definition differs: for funds, the central column represents “blend” funds, which include value, core, and growth stocks; for stocks, it represents “core” stocks, those for which neither growth characteristics nor value characteristics are dominant. A stock is classified as large, mid, or small based on its position in the cumulative market capitalization of its style zone. Large-cap stocks are those that together account for the top 70% of the capitalization of each style zone; mid-cap stocks represent the next 20%; and small-cap stocks represent the balance. The market caps that correspond to these breakpoints are flexible and may shift from month to month as the market changes. Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.
styleBoxLargeGrowth		number	Top row, right corner quadrant of the Morningstar Style Box™. The Morningstar Style Box™ is a nine-square grid – three stock investment styles for each of three size categories: small, mid, and large. Two of the three style categories are “value” and “growth.” However, the third, central column definition differs: for funds, the central column represents “blend” funds, which include value, core, and growth stocks; for stocks, it represents “core” stocks, those for which neither growth characteristics nor value characteristics are dominant. A stock is classified as large, mid, or small based on its position in the cumulative market capitalization of its style zone. Large-cap stocks are those that together account for the top 70% of the capitalization of each style zone; mid-cap stocks represent the next 20%; and small-cap stocks represent the balance. The market caps that correspond to these breakpoints are flexible and may shift from month to month as the market changes. Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.

Label	Req'd?	Type	Description
styleBoxMidValue		number	Middle row, left column quadrant of the Morningstar Style Box™. The Morningstar Style Box™ is a nine-square grid – three stock investment styles for each of three size categories: small, mid, and large. Two of the three style categories are “value” and “growth.” However, the third, central column definition differs: for funds, the central column represents “blend” funds, which include value, core, and growth stocks; for stocks, it represents “core” stocks, those for which neither growth characteristics nor value characteristics are dominant. A stock is classified as large, mid, or small based on its position in the cumulative market capitalization of its style zone. Large-cap stocks are those that together account for the top 70% of the capitalization of each style zone; mid-cap stocks represent the next 20%; and small-cap stocks represent the balance. The market caps that correspond to these breakpoints are flexible and may shift from month to month as the market changes. Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.
styleBoxMidBlend		number	Middle row, middle column quadrant of the Morningstar Style Box™. The Morningstar Style Box™ is a nine-square grid – three stock investment styles for each of three size categories: small, mid, and large. Two of the three style categories are “value” and “growth.” However, the third, central column definition differs: for funds, the central column represents “blend” funds, which include value, core, and growth stocks; for stocks, it represents “core” stocks, those for which neither growth characteristics nor value characteristics are dominant. A stock is classified as large, mid, or small based on its position in the cumulative market capitalization of its style zone. Large-cap stocks are those that together account for the top 70% of the capitalization of each style zone; mid-cap stocks represent the next 20%; and small-cap stocks represent the balance. The market caps that correspond to these breakpoints are flexible and may shift from month to month as the market changes. Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.

Label	Req'd?	Type	Description
styleBoxMidGrowth		number	Middle row, right column quadrant of the Morningstar Style Box™. The Morningstar Style Box™ is a nine-square grid – three stock investment styles for each of three size categories: small, mid, and large. Two of the three style categories are “value” and “growth.” However, the third, central column definition differs: for funds, the central column represents “blend” funds, which include value, core, and growth stocks; for stocks, it represents “core” stocks, those for which neither growth characteristics nor value characteristics are dominant. A stock is classified as large, mid, or small based on its position in the cumulative market capitalization of its style zone. Large-cap stocks are those that together account for the top 70% of the capitalization of each style zone; mid-cap stocks represent the next 20%; and small-cap stocks represent the balance. The market caps that correspond to these breakpoints are flexible and may shift from month to month as the market changes. Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.
styleBoxSmallValue		number	Bottom row, left column quadrant of the Morningstar Style Box™. The Morningstar Style Box™ is a nine-square grid – three stock investment styles for each of three size categories: small, mid, and large. Two of the three style categories are “value” and “growth.” However, the third, central column definition differs: for funds, the central column represents “blend” funds, which include value, core, and growth stocks; for stocks, it represents “core” stocks, those for which neither growth characteristics nor value characteristics are dominant. A stock is classified as large, mid, or small based on its position in the cumulative market capitalization of its style zone. Large-cap stocks are those that together account for the top 70% of the capitalization of each style zone; mid-cap stocks represent the next 20%; and small-cap stocks represent the balance. The market caps that correspond to these breakpoints are flexible and may shift from month to month as the market changes. Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.

Label	Req'd?	Type	Description
styleBoxSmallBlend		number	Bottom row, middle column quadrant of the Morningstar Style Box™. The Morningstar Style Box™ is a nine-square grid – three stock investment styles for each of three size categories: small, mid, and large. Two of the three style categories are “value” and “growth.” However, the third, central column definition differs: for funds, the central column represents “blend” funds, which include value, core, and growth stocks; for stocks, it represents “core” stocks, those for which neither growth characteristics nor value characteristics are dominant. A stock is classified as large, mid, or small based on its position in the cumulative market capitalization of its style zone. Large-cap stocks are those that together account for the top 70% of the capitalization of each style zone; mid-cap stocks represent the next 20%; and small-cap stocks represent the balance. The market caps that correspond to these breakpoints are flexible and may shift from month to month as the market changes. Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.
styleBoxSmallGrowth		number	Bottom row, right column quadrant of the Morningstar Style Box™. The Morningstar Style Box™ is a nine-square grid – three stock investment styles for each of three size categories: small, mid, and large. Two of the three style categories are “value” and “growth.” However, the third, central column definition differs: for funds, the central column represents “blend” funds, which include value, core, and growth stocks; for stocks, it represents “core” stocks, those for which neither growth characteristics nor value characteristics are dominant. A stock is classified as large, mid, or small based on its position in the cumulative market capitalization of its style zone. Large-cap stocks are those that together account for the top 70% of the capitalization of each style zone; mid-cap stocks represent the next 20%; and small-cap stocks represent the balance. The market caps that correspond to these breakpoints are flexible and may shift from month to month as the market changes. Can only be present if the firm is licensed for extra Morningstar security data and the <i>incExtraSecInfo</i> parameter is set to true.
}]			
}			

Response Messages

HTTP Status Code	Reason	Response Model	Headers
200	Ok	See Response Model above.	
400	Bad Request		
401	Not Authorized		
404	Not Found		
500	Internal Server Error		

Transaction Operations

GET transactions

GET /api/v1/transactions

Implementation Notes

Use this endpoint to get a collection of all transactions.

Parameters

Parameter	Required?	Default Value	Description	Parameter Type	Data Type
accountIds			Limits the result set to transactions associated with the given accountIds. When not specified, parameter is ignored. Specify using a comma-separated list of accountIds.	query	string
sort			By default, results are sorted by <i>executionDate</i> in descending order, and then by <i>totalAmount</i> in ascending order. Use the <i>sort</i> parameter to change the sort order for <i>executionDate</i> . Valid values for this parameter are <i>executionDate.asc</i> and <i>executionDate.desc</i> . The following setting changes to sorting by <i>executionDate</i> in ascending order: GET /api/v1/transactions?sort=executionDate.asc	query	string
page		0	Page number	query	integer
size		25	Number of records per page	query	integer

Response Body

```
{
  "pageSize": 25,
  "pageNumber": 0,
  "totalPages": 1,
  "totalElements": 2,
  "isFirst": true,
  "isLast": true,
  "data": [{
    "id": 12345,
    "accountId": 34567,
    "txType": "Dividend",
    "ticker": "CADE",
    "cusip": "12740C103",
    "name": "CADENCE BANK",
    "description": "DIVIDEND",
    "units": 200,
    "executionDate": "2023-01-03",
    "totalAmount": {
      "amount": 44,
      "currencyCode": "USD"
    },
    "fiSuppliedDescription": "CADENCE BANK 010323 200",
    "flowUnits": 200.0000,
    "flowAmount": {
      "amount": 44,
      "currencyCode": "USD"
    },
    "morningstarSecId": "E0USA003DE",
    "morningstarPerfId": "0P000000P5",
    "positionId": 37890,
    "securityId": 15793
  },
  {
    "id": 8811223,
    "accountId": 76234,
    "txType": "Sell",
    "ticker": "LFCR",
    "cusip": "514766104",
    "name": "LIFECORE BIOMEDICAL INC",
    "description": "ASSET SOLD",
    "units": -100,
    "price": {
```

```

    "amount":6.0214,
    "currencyCode":"USD"
  },
  "executionDate":"2023-01-05",
  "totalAmount":{
    "amount":557.12,
    "currencyCode":"USD"
  },
  "fiSuppliedDescription":"LIFECORE BIOMEDICAL INC",
  "flowUnits":-100.0000,
  "flowAmount":{
    "amount":557.12,
    "currencyCode":"USD"
  },
  "morningstarSecId":"EOUSA00NLZ",
  "morningstarPerfId":"OP0000038H",
  "positionId":98765,
  "securityId":65432
}
]
}

```

Response Model

Label	Req'd?	Type	Description
pageSize		integer	Number of records per page.
pageNumber		integer	Page number of this page.
totalPages		integer	Total number of pages in result set.
totalElements		integer	Total number of elements in result set.
isFirst		Boolean	True or false. True if and only if this is the first page of data in the result set.
isLast		Boolean	True or false. True if and only if this is the last page of data in the result set.
data [{			Transaction data.
id	yes	integer	Unique numeric identifier for the transaction.
accountId	yes	integer	Identifier of the Account on which the transaction represents activity.
txType	yes	string	Type of the transaction. See the table of Transaction Values for txType and origTxType on page 68.
ticker		string	The ticker identifying the security the transaction executed against.

Label	Req'd?	Type	Description
cusip		string	Committee on Uniform Security Identification Procedures (CUSIP) identifying the security the transaction executed against. Will only be present if the firm is licensed for CUSIP data and CUSIP delivery is enabled for the firm.
name		string	Either the name of the Security or a short description of the Transaction. It will be the first valid value taken from related objects in this order: 1) security name, 2) position name, and 3) transaction name.
description		string	Either the name of the Security and/or a longer description of the Transaction.
units		number	Number of units (of security) involved in the Transaction.
price {			Currency value.
amount		number	Numeric value for the price associated with the transaction.
currencyCode		string	ISO 4217 currency code for the position, such as USD.
}			
executionDate	yes	string	Date on which this Transaction was executed. Also called Trade Date.
totalAmount {			Total currency amount.
amount		number	Numeric value for the total amount associated with the transaction.
currencyCode		string	ISO 4217 currency code for the position, such as USD.
}			
commissions {			Commission amount.
amount		number	Numeric value for the commissions associated with the transactions.
currencyCode		string	ISO 4217 currency code for the position, such as USD.
}			
commissionsFees {			Commission fees.
amount		number	Numeric value for the commission fees for the transactions.
currencyCode		string	ISO 4217 currency code for the position, such as USD.
}			
fees			Fees.
{			
amount		number	Numeric value for the fees
currencyCode		string	ISO 4217 currency code for the position, such as USD
}			
fiSuppliedDescription		string	Description for the transaction as supplied by the financial institution.
spendingCategory		string	The consumer spending category attributed to the transaction.

Label	Req'd?	Type	Description
spendingCategoryInfo		string	For consumer spending transactions, specifies if the transaction was an outgoing payment (expense) or incoming receipt (income).
flowUnits		number	Normalized units for the transaction. Whereas the <i>units</i> field contains the value directly from the financial institution and may have variations in sign within a given transaction type, <i>flowUnits</i> contains this same units value but is normalized by transaction type (e.g. withdrawal will always have negative <i>flowUnits</i>). For more details about sign, refer to Sign used for flowAmount and flowUnits field in transactions on page 69.
flowAmount	yes		Total amount of the cash flow for this transaction relative to the cash balance of the account. For more details about sign, refer to Sign used for flowAmount and flowUnits field in transactions on page 69.
{			
amount		number	Total amount of the cash flow for this transaction relative to the cash balance of the account.
currencyCode		string	ISO 4217 currency code for the position, such as USD.
}			
origTxType		string	Transactions reported as a reversal or cancellation by the financial institution will have the original transaction type code in this field. See the table of Transaction Values for txType and origTxType on page 68.
morningstarSecId		string	Morningstar security identifier of the transaction.
morningstarPerfId		string	For equities, this field contains the Morningstar performance identifier. This field is empty for anything other than equities.
positionId		integer	Unique internal identifier for the position associated with the transaction.
securityId		integer	ID for the Security for which the Transaction represents activity.
}]			
}			

Transaction Notes

Transaction Values for txType and origTxType

This table lists the possible transaction values for txType and origTxType, which are described in the [Response Model](#) table that starts on page 65.

Transaction Type Value	Description
ATM	ATM debit or credit (depends on signage of amount)
Buy	Buy a Security
Check	Check written
Closure	Close a holding for an option
Credit	Generic credit
Debit	Generic debit
Deposit	Deposit
Direct debit	Merchant initiated debit
Direct deposit	Direct deposit
Dividend	Dividend paid
Fee	Financial Institution fee
Income	Investment income is realized as cash into the investment Account
Interest	Interest earned or paid (depends on signage of amount)
Expense	Miscellaneous investment expense that is associated with a specific Security
Journal	Journal cash or Securities between Sub-Accounts within the same investment Account
Margin interest	Margin interest expense
Other	Other
Payment	Electronic payment
Point of sale	Point of sale debit or credit (depends on signage of amount)
Reinvestment	Reinvestment of income
Repeat payment	Repeating payment/standing order
Return of capital	Return of capital
Sell	Sell a Security
Service charge	Service charge
Split	Stock or Mutual Fund split
Transfer	Transfer cash or Holdings in or out (depends on signage of amount)
Withdrawal	Withdraw funds from Account

Sign used for flowAmount and flowUnits field in transactions

This table defines the sign used for the flowAmount and flowUnits fields which are described in the [Response Model](#) table that starts on page 65. The sign is based on the transaction type. Signs available are:

- Positive
- Negative
- Neutral – used only by flowAmount; Neutral is a flow of 0
- As is – the sign in the original data from the Financial Institution. Using the sign from the original data is usually done to preserve the full meaning of the transaction (e.g. transfer in vs. transfer out are not distinguished by type alone, but by type plus unit sign).

Transaction Type	flowAmount Sign	flowUnits Sign
ATM	As is	As is
Buy	Negative	Positive
Check	Negative	Negative
Closure	Neutral	As is
Credit	Positive	Positive
Debit	Negative	Negative
Deposit	Positive	Positive
Direct debit	Negative	Negative
Direct deposit	Positive	Positive
Dividend	Positive	Positive
Fee	Negative	Negative
Income	Positive	Positive
Interest	As is	As is
Expense	Negative	Negative
Journal	As is	As is
Margin interest	As is	As is
Other	Neutral	As is
Payment	Negative	Negative
Point of sale	Negative	Negative
Reinvestment	Neutral	Positive
Repeat payment	Negative	Negative
Return of capital	Positive	Positive
Sell	Positive	Negative
Service charge	Negative	Negative
Split	Neutral	As is
Transfer	As is	As is
Withdrawal	Negative	Negative

Response Messages

HTTP Status Code	Reason	Response Model	Headers
200	Ok	See Response Model above.	
400	Bad Request		
401	Not Authorized		
404	Not Found		
500	Internal Server Error		

Appendix A. Deprecated Endpoints

This appendix describes any endpoint(s) being deprecated from the REST API that are described in this guide.

- GET /api/v1/credentials/accounts is being replaced by GET /api/v1/credentials/accounts/summary which is described in [GET credentials and accounts](#) on page 8. This endpoint is still supported as of 3/2/2023.

GET credentials including account info when available

GET /api/v1/credentials/accounts

Implementation Notes

This endpoint retrieves credentials and any associated accounts in a single list. Credentials that have no associated accounts will also be included. This response also includes information about asynchronous activities for the credentials and accounts. Use the *limitToProgressAfter* parameter to request that information for asynchronous activities in the response should be limited to those initiated after the specified point in time.

The applicable scope of this endpoint is always a single authenticated investor. This endpoint can provide information on asynchronous activity for the current session or for all activity in the system. Use the *scope* parameter with value *session* to request information about activity initiated during the current session. Use the *scope* parameter with value *global* to request information for all activity in the system. When *scope* is *global*, asynchronous activity progress will be available for terminated sessions up to 15 minutes after completion of that activity. If the *scope* parameter is not provided then the endpoint will report on activity for the current session if there is one. If there is no current session (Morningstar Authentication) then it will report on all activity for the authenticated investor.

You can specify the number of the page to return and the number of records per page.

Parameters

Parameter	Required?	Default Value	Description	Parameter Type	Data Type
limitToProgressAfter	no		Show only credentials/accounts authenticated/aggregated by the user after the specified date. If not specified will return the full list of credentials/accounts.	query	date-time ISO 8601 JSON format yyyy-mm-ddThh:mm:ss.nnnnnn+ -hh:mm Local time relative to GMT. For example: 2019-08-22T15:16:33.045-04:00
page	no	0	Page number.	query	integer
size	no	25	Number of records per page.	query	integer
scope	no		Scope of activity for the authenticated user. Values can be <i>session</i> , to include only session-specific information, or <i>global</i> to also include information from other sessions for this user.	query	String. Either <i>session</i> or <i>global</i> .

Response Body

This example shows part of a response. Also see [Response Model](#) page A-4.

```
{
  "pageSize": 25,
  "pageNumber": 0,
  "totalPages": 1,
  "totalElements": 1,
  "isFirst": true,
  "isLast": true,
  "activitySummary": {
    "activityInProgress": false
  },
  "summary": {},
  "data": [
    {
      "account": {
        "accountNumber": "ABCD12345678",
        "accountNumber2": "XYZ12345",
        "accountType": "CREDITCARD",
        "aggregationStatusErrorCode": 1005,
        "id": 11223344,
        "lastUpdated": "2022-05-21 2:52:23 AM",
        "marketValue": {
          "amount": 2078.34,
          "currencyCode": "USD"
        },
      },
      "name": "BofA Checking Account"
    },
    "activityInProgressStatus": "In Progress",
    "alarm": false,
    "authenticationStatusErrorCode": 1006,
    "credentialComplete": true,
    "financialInstitution": {
      "accountNumber2Term": "Other Account Number",
      "accountNumberTerm": "Plan Number",
      "icon":
        "https://www.byallaccounts.net/WebPortfolio/vendorResources/Default/assets/fi/icons/icon.svg",
      "id": 254367,
      "login2Term": "Other Login",
      "loginTerm": "Login",
      "name": "Bank of America - Banking",
    }
  ]
}
```

```

    "pw2Term": "Other Password",
    "pwTerm": "Password",
    "supportsAccountDiscovery": true,
    "supportsOauth": true,
    "supportsTestCredential": true,
    "userLoginURL": "https://chaseonline.chase.com/Logon.aspx?LOB=COLLogin",
    "websiteURL": "https://chaseonline.chase.com/Logon.aspx?LOB=COLLogin"
  },
  "id": 778899,
  "unifiedStatusInfoMsg": "Authenticate to connect.",
  "unifiedStatusInfoType": "cannotConnectMissingLoginPW"
}
]
}

```

Response Model

Special Situations for Credentials and Accounts

Credentials and accounts in the aggregation system are complex objects for which the following statements are true:

- Credentials or accounts can be incomplete, meaning they do not contain enough information to access data from the Financial Institution. This situation can occur if the user has not yet provided all necessary information (e.g. has not yet provided their password or completed OAUTH authorization).
- The aggregation system may encounter a variety of errors when attempting to use a credential or an account to access data from a Financial Institution. These errors can occur because the information in the object is incorrect (e.g. a wrong password), problems with the aggregation system's support (e.g. Financial Institution web site has changed and we need to update our support), or problems at the Financial Institution (e.g. site not available).

These conditions are not errors from an application perspective, instead they are "normal" things that can happen in the day-to-day of aggregation activities. It is important to properly represent these conditions to the end user and, whenever possible, help the user to understand when they must take action to resolve the condition or when the solution is not under their control. Due to the complexity of these error conditions, it is not always possible to make the condition clear to the user. ByAllAccounts continues to work to improve the clarity of these error conditions.

In addition to these situations, the system may be asynchronously performing activities that the user requested, directly or indirectly, on credentials and accounts. For example, if a request was made to obtain the latest data for an account then an asynchronous aggregation process is going on in the background and we want the end user to understand that it is in process and when that process completes. This endpoint includes information at the individual object level (credential or account) as well as the summary level (for the collection) to aid in the presentation of this information to the user. Note also that any asynchronous

activity can result in the clearing of an error condition or the encountering of a new condition, so that information should be queried and redisplayed upon completion of the asynchronous activity.

Account and Credential Error Information

Credentials and Accounts can be incomplete (missing required information like a login, or an account number), or they can be complete and have errors as reported by the custodian when the credentials are used to attempt to access a customer's data at the custodian. These errors could include wrong login/password, account number could not be found, etc.

The `unifiedStatusInfoType` field indicates an error condition that should be relayed to the user. If `unifiedStatusInfoType` is absent, then no error condition exists at the present time. When `unifiedStatusInfoType` is present there will always be a `unifiedStatusInfoMsg` that will contain a suggested text form of the message for presentation to the user.

For more information about `unifiedStatusInfoType`, refer to [Table of Authentication/Aggregation Status Messages](#) on page A-8. Note that some errors listed may not occur frequently, but they are included for completeness.

There are other fields in the response that contain a variety of information about status, but these fields should not be used. They are present for historical reasons and are superseded by `unifiedStatusInfoType`. These fields will likely be removed in a future version of the REST API. The following fields should NOT be used to determine whether a credential or account is incomplete or has another type of error:

- `aggregationStatusCode`
- `authenticationStatusCode`
- `alarm`
- `credentialComplete`

Activity in progress information

As described above, this endpoint can return information about server "activity in progress" for objects in the response collection. Activity in progress includes:

- testing that a credential authenticates at a custodian
- discovering accounts available for a credential at a custodian
- aggregating data for accounts from the custodian

These operations are initiated and running in the `ByAllAccounts` server while the UI or API caller is awaiting the results of those operations. This activity information can be provided for two different scopes: `SESSION` or `GLOBAL`. The default is `SESSION` if you have a session, and `GLOBAL` if you do not (some forms of authentication do not use a session). If you have a session you can request `GLOBAL` using the `scope` query parameter. For session scope, the progress information is reported for the above operations that were initiated during the current session. For global scope, the information will be reported for all activity initiated through the REST API for the target objects (regardless of who initiated that activity).

The `activityInProgress` field at the top of the response will have a value of "true" if there is activity in progress for any object in the collection, otherwise "false".

For each object, the `activityInProgressStatus` field:

- is absent if no activity occurred for the scope of the request (as determined by the query parameters: *scope* and *limitToProgressAfter*).

- if present and value is:
 - “In Progress” then authentication or aggregation activity is currently occurring for this object within the ByAllAccounts Server for the scope of the request (as determined by the query parameters: *scope and limitToProgressAfter*).
 - “Complete” then authentication or aggregation activity has completed for this object within the ByAllAccounts Server for the scope of the request (as determined by the query parameters: *scope and limitToProgressAfter*).

While asynchronous activity is occurring for objects in the response, the error status on objects can change multiple times and additional objects can be added to the response. For example, if a new credential was added and account discovery was initiated (e.g. by the BAA ConsumerUI), then as accounts are discovered they will appear in the response, and subsequently data for those accounts will be aggregated and their market value will appear.

Table of Response Model Contents

Label	Req'd?	Type	Description
{			
pageSize		integer	Number of records per page.
pageNumber		integer	Page number of this page.
totalPages		integer	Total number of pages in result set.
totalElements		integer	Total number of elements in result set.
isFirst		Boolean	True or false. True if and only if this is the first page of data in the result set.
isLast		Boolean	True or false. True if and only if this is the last page of data in the result set.
activitySummary {			
activityInProgress		Boolean	If scope= <i>session</i> (or not set), then true indicates aggregation or authentication is in-progress for at least one credential in the session. If scope= <i>global</i> , then true indicates aggregation or authentication is in-progress for at least one credential in the session or authentication or discover/add/aggregate is in progress for at least one credential outside the current session.
}			
summary {}			
data		array	Credential-account pair. Either an account and its related credential or a credential that has no accounts associated with it.
{			
account{			
accountNumber		string	The account number at this financial institution.
accountNumber2		string	The optional account number at this financial institution.
accountType		string	Type of account. See Table of Account Types page A-9.

Label	Req'd?	Type	Description
aggregationStatusCode		integer	Error code from the latest aggregation attempt. This field can be ignored. Instead refer to unifiedStatusInfoType and see Account and Credential Error Information page A-5 regarding best practices on understanding the state of the accounts and credentials.
id	yes	integer	An account identifier assigned by the service.
lastUpdated		string	Date and time stamp of last update. For example: 2018-05-21 2:52:23 AM.
marketValue {			Total market value of the account.
amount		number	A read-only value .
currencyCode		string	ISO 4217 currency code for the position, such as USD.
}			
name		string	Name of the account.
}			
activityInProgressStatus		string	Status of authentication or aggregation. "In Progress" or "Complete".
alarm	yes	Boolean	True or false. If true, credential requires attention from user. This field can be ignored. Instead refer to unifiedStatusInfoType and see Account and Credential Error Information page A-5 regarding best practices on understanding the state of the accounts and credentials.
authenticationStatusCode		integer	Error code from the latest authentication attempt. This field can be ignored. Instead refer to unifiedStatusInfoType and see Account and Credential Error Information page A-5 regarding best practices on understanding the state of the accounts and credentials.
credentialComplete	yes	Boolean	True or false. Indicates whether the credential contains enough information to perform authentication. This field can be ignored. Instead refer to unifiedStatusInfoType and see Account and Credential Error Information page A-5 regarding best practices on understanding the state of the accounts and credentials.
financialInstitution {			
accountNumber2Term		string	Term used for the optional account number at this FI.
accountNumberTerm		string	Term used for the account number at this financial institution.
icon		string	The path to the icon for the financial institution. If the financial institution is requested (not supported) it is the path to a default icon.
id	yes	integer	The ID of the financial institution.
login2Term		string	Term used for the account number at this FI.
loginTerm		string	Term used for the login at this financial institution.

Label	Req'd?	Type	Description
name		string	Name of the financial institution.
pw2Term		string	Term used for the optional second password at this FI.
pwTerm		string	Term used for the password at this financial institution.
supportsAccountDiscovery	yes	Boolean	True or false. Indicates whether the FI supports account discovery.
supportsOauth	yes	Boolean	True or false. Indicates whether the FI supports Oauth authorization.
supportsTestCredential	yes	Boolean	True or false. Indicates whether the FI supports test credential (testing authentication).
userLoginURL	yes	string	User login URL of the financial institution.
websiteURL		string	Website URL of the financial institution.
}			
id	yes	integer	ID of the account credential.
unifiedStatusInfoType		string	Type of status information from the combination of the latest authentication and aggregation attempt. See Table of Authentication/Aggregation Status Messages page A-8.
unifiedStatusInfoMsg		string	Status information from the combination of the latest authentication and aggregation attempt. See Table of Authentication/Aggregation Status Messages page A-8.
}}			

Table of Authentication/Aggregation Status Messages

These status types and messages are provided in the response of GET /api/v1/credentials/accounts.

unifiedStatusInfoType	unifiedStatusInfoMsg
accountClosed	This account is closed.
aggCannotLoadDataCheckLater	We are having trouble accessing this institution. Please check back later.
badAccountCheckLater	We are having trouble accessing this institution. Check back later.
badAccountVerifyAccountNum	We are having trouble accessing this institution. Check back later.
cannotConnectBadLoginPw	We cannot connect to this institution. The {{loginTerm}} or {{passwordTerm}} is incorrect. Re-authenticate.
cannotConnectBadLoginPwlsac	We cannot connect to this institution. The {{loginTerm}}, {{passwordTerm}}, or activation code is incorrect. Re-authenticate.
cannotConnectBadLoginPwSqa	We cannot connect to this institution. The {{loginTerm}}, {{passwordTerm}}, or answer to a security question is incorrect. Re-authenticate.
cannotConnectBadLoginPwSqalsac	We cannot connect to this institution. The {{loginTerm}}, {{passwordTerm}}, answer to a security question, or security code is incorrect. Re-authenticate.
cannotConnectMissingAcctNum	We are having trouble accessing this institution. Check back later.
cannotConnectMissingLoginPW	Authenticate to connect.

unifiedStatusInfoType	unifiedStatusInfoMsg
cannotConnectNotAuthorized	We cannot connect to this institution. Authorize access to connect.
cannotConnectOauthAcctNotAuthorized	Cannot connect. Account is not authorized.
cannotConnectOauthNotConfigured	Further configuration is required to connect to this institution. Contact your aggregation provider for assistance.
cannotConnectUserActionOnetimeCode	To allow the aggregation service to access your accounts, please login on your institution website and turn off the setting that requires identity verification at every login.
cannotConnectUserActionPersonalInfo	This institution requires you to update or verify personal information or preferences on their website and then re-authenticate.
cannotConnectUserActionSecurity	This institution requires you to set up additional security features on their website and then re-authenticate.
cannotConnectUserActionUserAgreement	This institution requires you to accept a user agreement on their website and then re-authenticate.
cannotLoadDataCheckLater	We are having trouble accessing this institution. Check back later.
cannotVerifyFiLimitation	We cannot verify your credentials due to institution limitation. Check back later.
credHasNoAccounts	No accounts have been connected. Connect accounts.
filoginCannotConnectBadLoginPw	Cannot connect. The {{loginTerm}} or {{passwordTerm}} is incorrect.
fiNotYetSupported	This institution is not yet supported.
fiRequestMissingElements	Additional inputs are required before this institution request can be processed.
isacCannotConnectBadIsac	Cannot connect. The information you provided is incorrect.
noAccountsFound	No accounts found at this institution.
noConnectAttemptYet	Authenticate to connect.
noNewAccountsFound	All accounts are already set up.
oauthCannotConnectBadAuthorization	Cannot connect. Authorization failed.
sqaCannotConnectBadSqa	Cannot connect. The answer to a security question is incorrect.

Table of Account Types

Type	Type	Type
UNKNOWN	INSURANCE_LIFEINSURANCE	INVESTMENT_SARSEP
OTHER	INSURANCE_OTHER	INVESTMENT_SAVINGSBOND
INVESTMENT_CASHMANAGEMENT	INVESTMENT_401A	INVESTMENT_SEPIRA
BANKING_CD	INVESTMENT_401K	INVESTMENT_TREASURYBOND
BANKING_CHECKING	INVESTMENT_403B	INVESTMENT_TRUST
INVESTMENT_COVERDELL	INVESTMENT_457B	INVESTMENT_UGMA
BANKING_CREDITLINE	INVESTMENT_529	INVESTMENT_UTMA
BANKING_DEPOSIT	INVESTMENT_BROKERAGE	LOAN_AUTO
BANKING_MONEYMARKET	INVESTMENT_IRA	LOAN_BANK

Type	Type	Type
BANKING_OTHER	INVESTMENT_KEOGH	LOAN_BOAT
BANKING_SAVINGS	INVESTMENT_MUTUALFUND	LOAN_HOMEEQUITY
CREDITCARD	INVESTMENT_OTHER	LOAN_MORTGAGE
HEALTHACCOUNT_FSA	INVESTMENT_PENSION	LOAN_OTHER
HEALTHACCOUNT_HRA	INVESTMENT_PREPAIDTUITION	LOAN_PERSONAL
HEALTHACCOUNT_HSA	INVESTMENT_PROFITSHARE	LOAN_STUDENT
HEALTHACCOUNT_OTHER	INVESTMENT_RETIREMENT	
INSURANCE_ANNUIITY	INVESTMENT_ROTHIRA	

Response Messages

HTTP Status Code	Reason	Response Model	Headers
200	Ok		
400	Bad Request		
401	Not Authorized		
500	Internal Server Error		

Appendix B. Cumulative Changes

This appendix is a running list of changes to this guide, beginning with changes made on January 9, 2019.

Date	Summary of Changes
January 9, 2020	Document now describes multiple endpoints of the BAA REST API for the custom element.
January 23, 2020	Documentation revised to reflect a change made in December 2019 to two account type names. BANKING_CASHMANAGEMENT is now INVESTMENT_CASHMANAGEMENT and BANKING_COVERDELL is now INVESTMENT_COVERDELL.
February 3, 2020	The session= <i>global</i> now monitors authenticating credentials outside the current session in addition to monitoring the discovery/adding/aggerating. The text was clarified around what was returned for the global setting; session= <i>global</i> does not monitor aggregating outside the current session. Also, the guide now shows code examples for two types of authentication. A fix to the API improves the ability to add an account in the Custom Element for Account Setup component. (BAPP-23493)
February 6, 2020	Minor documentation change put POST /accounts/aggregate in a different section.
March 13, 2020	The POST /accounts/aggregate endpoint will no longer submit for demand aggregation any account that is disabled due to a login error because retrying repeatedly without fixing the error would cause the account to be locked out. (BAPP-2506)
April 2, 2020	The following new values are available for the unified status fields: cannotConnectUserActionUserAgreement, cannotConnectUserActionPersonallInfo, cannotConnectUserActionSecurity, and userActionRequiredShort. (BAPP-2527)
June 5, 2020	The new POST /persons endpoint allows registration of investor users. The GET /persons endpoint enables fetching a Person by ID. Support was added for User Agreement status.
June 25, 2020	All endpoints support UIM authentication. The REST API is accessible through Morningstar as a Service (MaaS) URLs.
July 17, 2020	All endpoints support UIM authentication. The REST API is accessible through Morningstar as a Service (MaaS) URLs.
July 28, 2020	Documentation fix. Corrected note about Authorization header; it is used for UIM only.
September 3, 2020	Existing error message titles are standardized. For example, "Advisor advisorId does not exist" is now "Advisor not found". (BAPP-3069) Doc fix. Added clarification about body parameters for POST new Person (POST /api/v1/persons)
September 17, 2020	The POST new Person endpoint (POST /api/v1/persons) no longer incorrectly requires a trailing slash for non-UIM users. (BAPP-3105) On account creation, an internal field value on the account is set to 1 to indicate that it is positional. This field is not visible but is part of a set of changes coming to attributes on accounts. (BAPP-3159)
February 4, 2021	The message for badAccountCheckLater has been refined. (BAPP-3647)

February 25, 2021	The following new value is available for the unified status fields: cannotConnectOauthNotConfigured. (BAPP-3648)
March 18, 2021	Support for UIM V2 JWT tokens was added. (BAPP-3843)
April 8, 2021	Support for service account JWT on POST /persons (BAPP-3843)
April 29, 2021	Changes in this release do not affect this guide.
June 10, 2021	The following new values are available for the unified status fields: <ul style="list-style-type: none"> ▪ oauthCannotConnectBadAuthorization ▪ cannotConnectNotAuthorized ▪ cannotConnectOauthNotConfigured ▪ cannotLoadDataCheckLaterShort Other changes in this release do not affect this guide.
July 2, 2021	<ul style="list-style-type: none"> ▪ SAML is no longer supported, so references to SAML SSO have been removed, including the POST SAML Session claim endpoint. (BAPP-4192) ▪ This new value is available for the unified status fields: cannotConnectOauthAcctNotAuthorized (BAPP-4187)
July 22, 2021	The descriptions have been enhanced for error conditions and activity in progress for the GET /api/v1/credentials/accounts endpoint. Also, the short form unified status fields were removed.
August 12, 2021	<ul style="list-style-type: none"> ▪ A new supportsOauth field in the financialInstitution response for GET /credentials/accounts indicates whether the institution supports Oauth authorization. (BAPP-3288) ▪ For POST /api/v1/persons, if a Person cannot be created because the UIM Guid is not unique, the HTTP 409 conflict error now returns the existing person URI. (BAPP-4004)
September 23, 2021	New GET /api/v1/positions endpoint.
December 23, 2021	The following Authentication/Aggregation Status Message was added: <ul style="list-style-type: none"> ▪ credHasNoAccounts: No accounts are connected to this credential yet. The Custom Element for Account Setup component (also called CUI2 custom element competent) has been renamed to Morningstar Connect.
March 23, 2022	<ul style="list-style-type: none"> ▪ The GET /credentials/accounts endpoint response now includes an FI icon. ▪ Morningstar as a Service (MaaS) is now referred to as Morningstar Authentication.
June 10, 2022	Documentation update to refresh the links to the Morningstar Connect documentation.
August 25, 2022	Added the GET /api/v1/persons/me/summary endpoint.
October 6, 2022	The following new value is available for the unified status fields: cannotConnectUserActionOnetimeCode
November 17, 2022	<ul style="list-style-type: none"> ▪ GET person summary endpoint now has <i>hasFinancialData</i> flag.

December 29, 2022	<ul style="list-style-type: none"> ▪ Added the GET transactions endpoint. ▪ Documentation enhancements to endpoints GET /api/v1/credentials/accounts and GET /api/v1/positions.
February 9, 2023	Improved scalability of the GET /api/v1/persons/{id} and POST /api/v1/persons endpoints for better performance. (BAPP-6774 and BAPP-6773)
March 2, 2023	<ul style="list-style-type: none"> ▪ Added GET /api/v1/credentials/accounts/summary endpoint. With the addition of this new endpoint, the GET /api/v1/credentials/accounts is being deprecated. The description for the endpoint being deprecated has been moved to Appendix A Deprecated Endpoints. ▪ Firms that are licensed for extra Morningstar security data fields can now set an <i>incExtraSecInfo</i> parameter on the GET /api/v1/positions endpoint to get additional security fields as applicable. The fields are described in the Response Model table that starts on page 49. ▪ Parameters were added to the GET /api/v1/transactions to enable filtering by <i>accountId</i> and change the sort order for <i>executionDate</i>. (BAPP-6137)
April 21, 2023	<ul style="list-style-type: none"> ▪ Throughout our products, CUSIP data now will only appear if the firm is licensed for CUSIP data and CUSIP delivery is enabled for the firm. ▪ The Morningstar Connect component has been renamed to Morningstar Connect Account Linking.
May 25, 2025	<ul style="list-style-type: none"> ▪ Added endpoints <ul style="list-style-type: none"> ○ GET /api/v1/fis endpoint ○ Added GET /api/v1/fis/{id} endpoint ▪ Several unifiedStatusInfoMsg messages have been updated.
June 15, 2023	Added <i>view</i> parameter to GET /api/v1/credentials/accounts/summary endpoint.
August 17, 2023	This change affects DataConnect SSO. The DataConnect Ultra SESSIONAUTHRQ operation has new, optional <READ_ONLY> tag that enables an investor to self-authenticate in read-only mode or an administrator to authenticate as an investor in read only mode. When it is present, the REST API enforces read-only functionality for the Account Summary component. For details about SESSIONAUTHRQ, refer to the <i>DataConnect V4 Ultra User Guide</i> at http://www.byallaccounts.net/Manuals/DataConnect/DataConnect_V4_Ultra_User_Guide.PDF .
September 7, 2023	The response for the GET Financial Institution by ID operation (GET /api/v1/fis/{id}) now has a <i>licensed</i> field to indicate whether the financial institution is licensed for the user's firm.
November 9, 2023	The response for the GET Financial Institution operation (GET /api/v1/fis) now has a <i>licensed</i> field to indicate whether the financial institution is licensed for the user's firm.
December 21, 2023	Added GET /api/v1/persons/me/networth endpoint.
January 18, 2024	Added <i>dateFrom</i> and <i>dateTo</i> parameters to the GET /api/v1/persons/me/networth endpoint.

February 29, 2024	<ul style="list-style-type: none"> ▪ Added DELETE /api/v1/persons endpoint. ▪ Updated GET /api/v1/persons/me/networth endpoint New summary block was added to the response of the endpoint. It includes a startDate and endDate that define the time period for which data was requested. Also, the description for the period parameter has been updated for clarity.
April 11, 2024	<ul style="list-style-type: none"> ▪ Changes in this release were for maintenance purposes.