MORNINGSTAR Wealth

DataConnect V4 Lite

User Guide

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USING THE MANUAL

Audience

This manual is targeted at the software professional responsible for implementing a DataConnect client. The guide assumes that the reader has basic programming experience with one or more programming languages and has some experience with XML, Document Type Definitions (DTD), https, and ZIP compression format.

DataConnect consists of two products - DataConnect Lite and DataConnect Ultra. This document describes the capabilities of DataConnect Lite (hereafter known as DataConnect). Please refer to the *DataConnect V4 Ultra User Guide* for details on DataConnect Ultra.

Format

The manual is composed of the following sections:

- **Data Connect Introduction:**
  Provides an overview of DataConnect, its features, and its operation. Also provides a list of terms with which users should be familiar and a reference to related documents.

- **Data Connect Data Specification:**
  Defines the data available through DataConnect.

- **Data Connect Operations:**
  Provides a detailed description of all DataConnect Lite operations.

- **Data Connect Usage Considerations:**
  Describes the access, compression and data availability considerations with which users should be familiar when using DataConnect.

- **Appendices:**
  Consists of a number of appendices that include definitions and sample code used in the implementation of DataConnect.

DATACONNECT INTRODUCTION

Product Overview

DataConnect provides an Application Programming Interface (API) to the ByAllAccounts℠ Aggregation Service. DataConnect consists of the following products:

- **DataConnect Lite**: Enables the retrieval of the financial information for one or more users.
- **DataConnect Ultra**: Provides the methods necessary for building a custom application that uses the service. Includes all capabilities available in DataConnect Lite.

Product Features

The table below summarizes the features currently available in the two DataConnect products.

Functionality	DataConnect Lite	DataConnect Ultra
Access Level		
Individual	√	√
Firm	√	√
Retrieve Basic Financial Information		
User	√	√
Portfolios	√	√
Accounts	√	√
Holdings	√	√
Transactions	√	√
Financial Services	√	√
Securities	√	√
Holding Lots	√	√
Retrieve Extended Financial Information		
Financial Services: Online Access Instructions		√
User: Personal Information		√
Accounts: Access Credentials		√
Operation Styles		
Synchronous	√	√
Asynchronous	√	√
Create and Maintain Information		
Users		√
Portfolios		√
Accounts		√
Additional Operations		
Test account		√
Test account credentials		√
On-demand Update Account (from Financial Service)		√
In-session Activation Codes		√
Aggregation with tax lots		√

Product Description

DataConnect supports communication over an Internet connection using the industry-standard https protocol and XML documents. Data returned is compressed in ZIP standard compression format. DataConnect does not provide any client-side SDK or other software for use in developing a DataConnect client. Programming is done directly to https in a programming language of your choice.

DataConnect can be used to construct a User Interface to the ByAllAccounts data service. It can also be used in conjunction with other products in the ByAllAccounts family as follows:

1. View and edit data for users created via DataConnect using AccountView.
2. Enter online access credentials for accounts owned by each user using AccountView.
3. Administer users created via DataConnect using the User Administration tool.

DataConnect enables you to enroll, maintain, and unsubscribe ByAllAccounts users. You can also create and maintain portfolios and online accounts for those users. Additional functions provide information about the Financial Services supported by ByAllAccounts and the types of information needed (online credentials) to gather data for an account at those Financial Services. You may use DataConnect operations to verify that online credentials for an account were entered correctly and to request that data be gathered for an online account (from its Financial Service) immediately.

DataConnect can return data for a single user, a select set of users, or for the entire set of users associated with a particular ByAllAccounts client. These two retrieval styles are characterized as on-demand and bulk, respectively. If you wish to retrieve data for a single user for presentation in another application, you use the on-demand style of access to retrieve data from the ByAllAccounts servers at any time of day. If you wish to store and serve ByAllAccounts data from your own servers, you use the bulk retrieval style, typically retrieving data from ByAllAccounts once a day.

DataConnect operations with potentially lengthy processing times are provided as asynchronous operations. Some operations are available in both synchronous and asynchronous form. The general style of the asynchronous operation is for the DataConnect server to provide a receipt to you for the requested operation and a data expiration time. Later, you submit a request with this receipt to the DataConnect server to request your data. Data is retained for you to retrieve up to the expiration time.

The DataConnect caller is authenticated through a specially assigned User ID and Password. By necessity, DataConnect must make some sensitive information available to you (needed to build a User Interface to these capabilities), so you must restrict access to this assigned User ID and Password to prevent unauthorized access to ByAllAccounts users' data.

Terminology

The following are some terms with which to be familiar when using DataConnect:

- **Administrator**
  Person who has administrative access to ByAllAccounts
- **Advisor**
  Person providing investment management and advice services to Investors
- **Assistant:**
  Person who assists the advisor in investment management and client service
- **Consultant**
  Person with whom an Investor shares his financial information, usually to obtain advice
- **DataConnect client**
  Program written by ByAllAccounts customer that interacts with the DataConnect server
- **End User**
  Person using a User Interface to the ByAllAccounts server
- **Firm**
  The ByAllAccounts customer
- **Investor**
  Person with investments; an account holder
- **Unassigned Investor**
  An investor that is automatically created and used for accounts that are not assigned to a "real" investor
- **User**
  An end user who is an Investor, Advisor, Assistant, or Consultant
- **ByAllAccounts**
  The entire ByAllAccounts service, both front end and back end

Related Documents

The following related documents are available from ByAllAccounts:

- *DataConnect V4 Ultra User Guide*: Provides details on DataConnect Ultra Version 4.

DATACONNECT DATA SPECIFICATION

This section defines the data available through DataConnect. The **Data Connect Operations** section refers to data defined in this section and provides a detailed description of all DataConnect Lite operations.

The ByAllAccounts product family provides for the creation and maintenance of many types of objects. However, not all ByAllAccounts Advisor/Investor information can be accessed through DataConnect. The objects available through DataConnect are:

- **Person:**
  An individual known to the service. A Person has personal information, such as name and email address. The term **User** refers collectively to a Person, his Profile Access, and his Financial Profile. DataConnect supports the following **User** types:
  - Investor: One who invests
  - Advisor: One who manages investments for an Investor
  - Assistant: One who assists an advisor
  - Consultant: One who advises on investments

  The Consultant in DataConnect V4 is a personal friend, relative, or professional known to the Investor and registered in the service with the ability to view that Investor's financial information. Consultants that span Investors and who are known more broadly in the service are not yet supported.

- **Financial Profile:**
  Container that groups the investments (Portfolios, Accounts, Holdings, and Transactions) and settings for a single Investor (see Person). A Financial Profile may be accessed by several individuals, including the Investor (holder of the accounts) and the Advisor.

- **Profile Access:**
  Persons who are allowed to access Financial Profiles.

- **Portfolio:**
  A collection of investments, usually with an associated investment time horizon, risk tolerance, and target allocation. The Portfolio groups a set of Accounts together for investment planning and analysis. An Account can belong to only one Portfolio.

- **Account Credential:**
  The set of credentials used to access one or more Accounts at a Financial Service. The Account Credential object typically contains the Financial Institution identifier and a login and password to a Financial Institution's web site.

- **Account:**
  A single Account held at a Financial Service. An Account may be online (where account information is available from the Financial Institution online via a web site or data server) or off-line (created and manually maintained by a ByAllAccounts user). Online Accounts have an associated Account Credential object that defines the credentials used to access the Account. ByAllAccounts gathers data for online Accounts from the Financial Service on a nightly basis.

- **Holding:**
  A position in a Security. A Holding is always contained in one Account. A Holding may be related to a marketable Security (see Security) known to ByAllAccounts or it may be a named Holding (i.e., one which has no related Security) identified only by name and not generally marketable.

- **Transaction:**
  A record of activity in a Holding or Account, such as a buy or sell of a Security. A Transaction is always contained in one Account and may be related to a Holding.

- **Security:**
  A financial instrument that can be identified by ByAllAccounts. The most common types of Securities are stock, bond, mutual fund, option, and cash. ByAllAccounts maintains a single Security master referred to by Holdings and Transactions.

- **FI (Financial Institution or Financial Service):**
  A data access service offered by a Financial Institution through which an Investor can view his Account information. A large Financial Institution may provide several different Financial Services with each service providing information for Accounts in a particular segment of business (e.g., Trust Accounts, General Brokerage Accounts, 401(k) Accounts). ByAllAccounts maintains a single Financial Service master referred to by all online Accounts.

The objects and aspects of information not available through DataConnect are:

- **Alert:** Warning delivered to users on a variety of conditions from security price movement to portfolio exposure

- **Historical information:** Historical data (other than Transactions) for Portfolios, Accounts, Holdings, including historical relationships, historical position valuations, and archived Portfolios, Accounts, and positions

In addition, the following objects can be retrieved through DataConnect but cannot be inserted, modified, or deleted through DataConnect:

- **Holdings**
- **Transactions**

Data Model Diagram

People known to the system are kept in the Person object. A Person has a role that identifies his primary use of the service: Investor, Advisor, Assistant, or Consultant. Investor and Advisor users can each have one Financial Profile that holds financial information for their personal accounts. Relationships between people and financial information are stored in the Profile Access object. The Financial Profile is a container of financial information to which different individuals are granted levels of access. An Investor has a relationship to only one Financial Profile - his own. An Advisor can have relationships with multiple Financial Profiles - one is his own, the others belong to Investors for whom he manages investments. An Assistant is assigned to an Advisor and has access to all of the Financial Profiles to which the Advisor has access. This access can be read-only or read-write. One additional type of person is the Consultant. The Consultant has access to one and only one Financial Profile - that of the Investor to whom he provides advice, either directly or indirectly (through the Advisor).

The Financial Profile contains Portfolios, Accounts, Account Credentials, Holdings, and Transactions. Holdings and Transactions may relate to a well-known Security. Accounts may refer to a Financial Service or Financial Institution (FI) supported by ByAllAccounts.

Figure 1 - Data Model Diagram on the following page depicts the structure of the data available in DataConnect. The model is presented in Entity-Relationship notation and includes primary key and foreign key designations to enable you to plan for storage and management of the data. Objects are shown as boxes while relationships are shown as arrows. A relationship arrow points to the parent of the relationship (e.g., Holding is the parent of the Holding-Transaction relationship shown in the Data Model Diagram). The data types used in this diagram and in the detailed object definitions that follow are defined in the Data Types table.

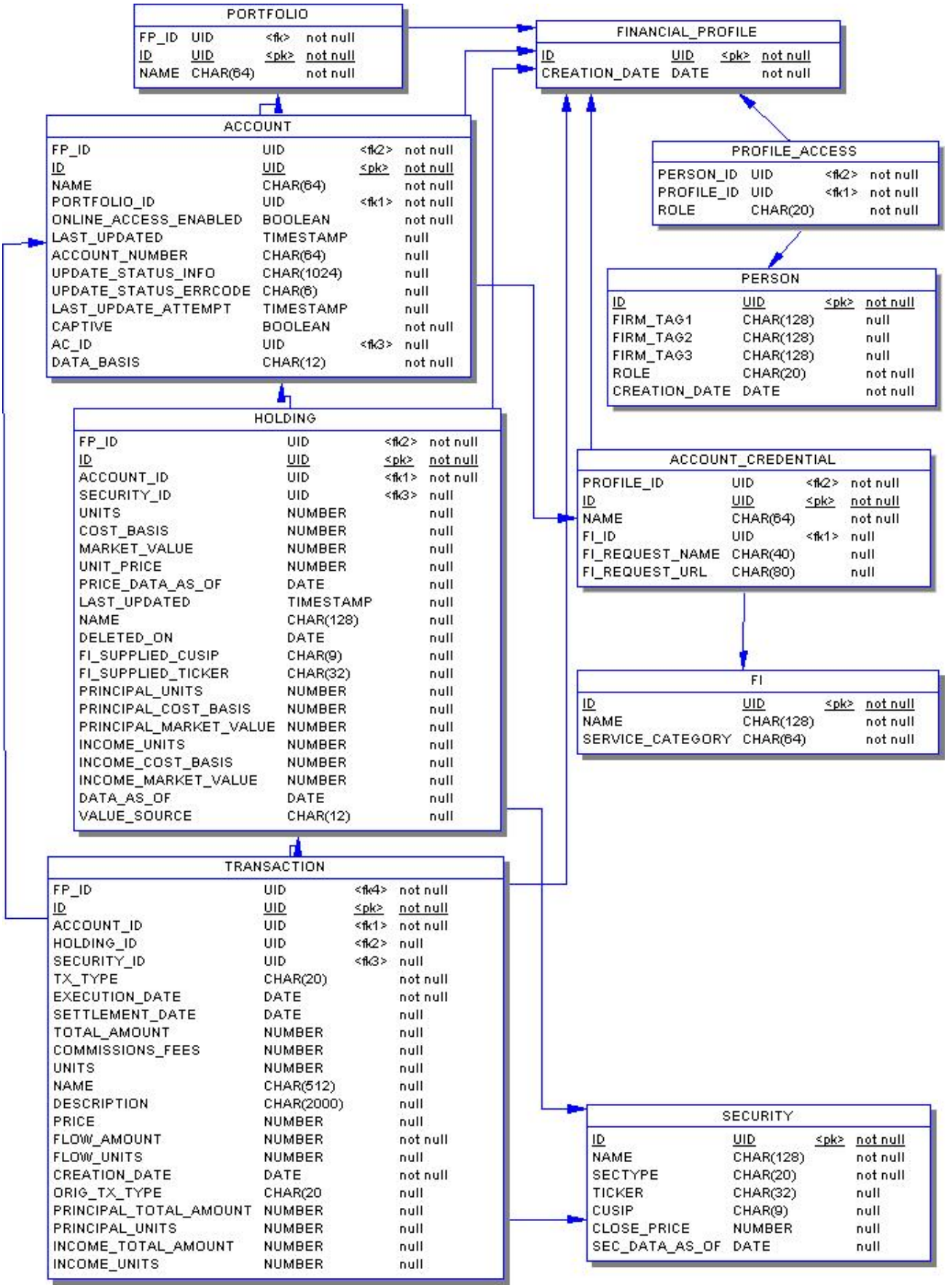

Figure 1 – Data Model Diagram

General Object Information

The following sections define the fields available for each of the data objects available through DataConnect. The following general rules apply to this data:

- Fields designated as required always have values.
- Fields designated as optional may have values.
- The Data Types defined in the table below are used in the following Object Definitions.

Data Types

The following Data Types are the specifications or type definitions that can be assigned to each element of the data objects:

Data Type	Description
BOOLEAN	Value is either **1** (indicating TRUE) or **0** (indicating FALSE).
CHARn	Alphanumeric string containing up to **n** characters.
DATE	Date in the form **YYYYMMDD**, where **YYYY** is a 4-digit year (e.g., 2003), **MM** is a 2-digit month code from 01 (January) through 12 (December), and **DD** is a 2-digit day code from 01 to 31.
NUMBER	Amounts, quantities, and prices use this numeric data type that can contain up to 39 numeric characters including the decimal point. Negative values are indicated by a leading minus sign (-). Values that do not represent whole numbers (e.g., 1.3504) include a decimal point to indicate the start of the fractional amount. No punctuation is used to separate thousands, millions, etc.
TIMESTAMP	Provides a full time stamp, including time zone of the DataConnect server. Currently used to communicate data expiration times to DataConnect clients. The timestamp uses the form: **YYYYMMDDHHmmSS [{gmt-offset}:{tz-name}]** where: **YYYY** is a 4-digit year (e.g., 2003), **MM** is a 2-digit month code from 01 (January) through 12 (December), **DD** is a 2-digit day code from 01 to 31, **HH** is a 2-digit hour code in 24-hour format (00 through 23), **mm** is a 2-digit minute code (00 through 59), **SS** is a 2-digit seconds code (00 through 59) **gmt-offset** is the number of hours that the time zone is offset from GMT; has a leading + or - **tz-name** is the name of the time zone (e.g., EST). Example: 20030721143522 [-5:EST] is July 21, 2003 2:35:22 PM, Eastern Standard Time
UID	Unique persistent numeric identifier (Unique ID) ranging from 0 to 999999999999999999. Fields of this data type are either a primary key or a foreign key and are designated as such in the field data type definition. All ID fields have values generated and maintained by ByAllAccounts. An object's ID is persistent across calls to DataConnect (will not change from one day to the next). ID values for a field are monotonically increasing, meaning that ID values assigned to a new object tomorrow are greater than ID values assigned to a new object created today.

Object Definitions

As depicted in Figure 1 - Data Model Diagram, DataConnect consists of the following objects: Security, FI (Financial Institution or Financial Service), Person, Financial Profile, Profile Access, Portfolio, Account Credential, Account, Holding, Transaction, Investment Option, and Holding Lot. The tables on the following pages provide detailed descriptions of the fields/tags of these objects, including their data type and whether they are required or optional.

Note: Required information is indicated with a √.

Security

Field	Required	Data Type	Description
ID	√	**UID (PKEY)**	Unique numeric ID for this Security
NAME	√	**CHAR128**	Name for this Security (e.g., "Ford Motor Company")
SECTYPE	√	**CHAR20**	Type of Security, one of: ▪ BOND ▪ CASH ▪ MUTUALFUND ▪ OPTION ▪ OTHER ▪ STOCK
TICKER		**CHAR32**	Ticker symbol for this Security (e.g., "F"), if available
CUSIP		**CHAR9**	Committee on Uniform Security Identification Procedures (CUSIP) for this Security (e.g., "345370860"), if available. CUSIP will only be present if the firm is licensed for CUSIP data and the firm is enabled to deliver it.
ASSET_CLASS		**CHAR64**	The asset class of this security, one of: ▪ Unclassified ▪ Stocks ▪ Bonds ▪ Cash ▪ Real Estate ▪ Other The INCSECAC option must be used to have this data included in a DATAGET response.

Security (continued):

Field	Required	Data Type	Description
ASSET_SUBCLASS		**CHAR64**	The asset subclass of this security, one of: Unclassified Large Cap Growth (US) Large Cap Core (US) Large Cap Value (US) Mid Cap Growth (US) Mid Cap Core (US) Mid Cap Value (US) Small Cap Growth (US) Small Cap Core (US) Small Cap Value (US) Large Cap Growth (Emerging Foreign) Large Cap Core (Emerging Foreign) Large Cap Value (Emerging Foreign) Mid Cap Growth (Emerging Foreign) Mid Cap Core (Emerging Foreign) Mid Cap Value (Emerging Foreign) Small Cap Growth (Emerging Foreign) Small Cap Core (Emerging Foreign) Small Cap Value (Emerging Foreign) Large Cap Growth (Developed Foreign) Large Cap Core (Developed Foreign) Large Cap Value (Developed Foreign) Mid Cap Growth (Developed Foreign) Mid Cap Core (Developed Foreign) Mid Cap Value (Developed Foreign) Small Cap Growth (Developed Foreign) Small Cap Core (Developed Foreign) Small Cap Value (Developed Foreign) Unclassified Stocks Invest. Grade Short (US Tax Exempt) Invest. Grade Intermediate (US Tax Exempt) Invest. Grade Long (US Tax Exempt) Medium Grade Short (US Tax Exempt) Medium Grade Intermediate (US Tax Exempt) Medium Grade Long (US Tax Exempt) High Yield Short (US Tax Exempt) High Yield Intermediate (US Tax Exempt) High Yield Long (US Tax Exempt) Invest. Grade Short (US Taxable) Invest. Grade Intermediate (US Taxable) Invest. Grade Long (US Taxable) Medium Grade Short (US Taxable) Medium Grade Intermediate (US Taxable) Medium Grade Long (US Taxable) High Yield Short (US Taxable) High Yield Intermediate (US Taxable) High Yield Long (US Taxable) Invest. Grade Short (Foreign) (continued next page)

Security (continued):

Field	Required	Data Type	Description
ASSET_SUBCLASS (Continued)		**CHAR64**	Invest. Grade Intermediate (Foreign) Invest. Grade Long (Foreign) Medium Grade Short (Foreign) Medium Grade Intermediate (Foreign) \Medium Grade Long (Foreign) High Yield Short (Foreign) High Yield Intermediate (Foreign) High Yield Long (Foreign) Unclassified Bonds Cash Real Estate Hedge Funds Private Equity Investments Options & Futures Precious Metals Natural Resources Other Investments Unclassified Other The INCSECAC option must be used to have this data included in a DATAGET response.
CLOSE_PRICE		**NUMBER**	The closing price of the security for the date in SEC_DATA_AS_OF. The INCSECDETAIL option must be used to have this data included in a DATAGET response.
SEC_DATA_AS_OF		**DATE**	The date for which CLOSE_PRICE is the closing price of the security. The INCSECDETAIL option must be used to have this data included in a DATAGET response.
BOND_MATURITY		**DATE**	The maturity date for a bond.
BOND_COUPON		**NUMBER**	The coupon rate for the bond expressed as a percentage, e.g. 7.5 or 6.625.
MORNINGSTAR_SECID		**CHAR10**	The Morningstar investment identifier.
MORNINGSTAR_PERFID		**CHAR10**	For equities, this field contains the Morningstar performance identifier.
STYLEBOX_CODE		**NUMBER**	Number representation of Morningstar investment style of stocks and portfolios. Only included when licensed for the firm and the INCEXTRASECINFO option is used.
STYLEBOX_NAME		**CHAR12**	String representation of Morningstar investment style of stocks and portfolios. Only included when licensed for the firm and the INCEXTRASECINFO option is used.
SECTOR_CODE		**NUMBER**	Number representation of Morningstar sector code. (Industry groups are consolidated into 11 sectors). Only included when licensed for the firm and the INCEXTRASECINFO option is used.
SECTOR_CODE_NAME		**CHAR22**	String representation of Morningstar Sector code. (Industry groups are consolidated into 11 sectors). Only included when licensed for the firm and the INCEXTRASECINFO option is used.

Security (continued):

Field	Required	Data Type	Description
BUSINESS_COUNTRY_ID		**CHAR03**	ISO code of the business country of the security. For example: USA. Only included when licensed for the firm and the INCEXTRASECINFO option is used.
BONDSTYLEBOX_LONG		**NUMBER**	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. Only included when licensed for the firm and the INCEXTRASECINFO option is used.
BONDSTYLEBOX_LONGNAME		**CHAR50**	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. Only included when licensed for the firm and the INCEXTRASECINFO option is used.
ASSETALLOCATION_USSTOCK		**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%. Only included when licensed for the firm and the INCEXTRASECINFO option is used.
ASSETALLOCATION_NONUSSTOCK		**NUMBER**	The percentage of the fund's assets in Non US stocks (net). Only included when licensed for the firm and the INCEXTRASECINFO option is used.
ASSETALLOCATION_USBOND		**NUMBER**	The percentage of the fund's assets in US bonds (net). Only included when licensed for the firm and the INCEXTRASECINFO option is used.

Field	Required	Data Type	Description
ASSETALLOCATION_NONUSBOND		**NUMBER**	The percentage of the fund's assets in Non US Bonds (net). Only included when licensed for the firm and the INCEXTRASECINFO option is used.
ASSETALLOCATION_PREFERRED		**NUMBER**	The percentage of the fund's assets in preferred stocks (net). Only included when licensed for the firm and the INCEXTRASECINFO option is used.
ASSETALLOCATION_CONVERTIBLE		**NUMBER**	The percentage of the fund's assets in convertibles (net). Only included when licensed for the firm and the INCEXTRASECINFO option is used.
ASSETALLOCATION_CASH		**NUMBER**	The percentage of the fund's assets in cash (net). Only included when licensed for the firm and the INCEXTRASECINFO option is used.
ASSETALLOCATION_OTHER		**NUMBER**	The percentage of the fund's assets in other instruments (net). Only included when licensed for the firm and the INCEXTRASECINFO option is used.
REGION_UNITEDSTATES		**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. Only included when licensed for the firm and the INCEXTRASECINFO option is used.
REGION_CANADA		**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. Only included when licensed for the firm and the INCEXTRASECINFO option is used.
REGION_LATINAMERICA		**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. Only included when licensed for the firm and the INCEXTRASECINFO option is used.
REGION_UNITEDKINGDOM		**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. Only included when licensed for the firm and the INCEXTRASECINFO option is used.

Field	Required	Data Type	Description
REGION_EUROZONE		**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. Only included when licensed for the firm and the INCEXTRASECINFO option is used.
REGION_EUROPEEXEURO		**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. Only included when licensed for the firm and the INCEXTRASECINFO option is used.
REGION_EUROPEEMERGING		**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. Only included when licensed for the firm and the INCEXTRASECINFO option is used.
REGION_AFRICA		**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. Only included when licensed for the firm and the INCEXTRASECINFO option is used.
REGION_MIDDLEEAST		**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. Only included when licensed for the firm and the INCEXTRASECINFO option is used.

Field	Required	Data Type	Description
REGION_JAPAN		**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. Only included when licensed for the firm and the INCEXTRASECINFO option is used.
REGION_AUSTRALASIA		**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. Only included when licensed for the firm and the INCEXTRASECINFO option is used.
REGION_ASIADEVELOPED		**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. Only included when licensed for the firm and the INCEXTRASECINFO option is used.
REGION_ASIAEMERGING		**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. Only included when licensed for the firm and the INCEXTRASECINFO option is used.
STOCKSECTOR_BASICMATERIALS		**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. Only included when licensed for the firm and the INCEXTRASECINFO option is used.

Field	Required	Data Type	Description
STOCKSECTOR_CONSUMERCYCLICAL		**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. Only included when licensed for the firm and the INCEXTRASECINFO option is used.
STOCKSECTOR_FINANCIALSERVICES		**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). Only included when licensed for the firm and the INCEXTRASECINFO option is used.
STOCKSECTOR_REALESTATE		**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. Only included when licensed for the firm and the INCEXTRASECINFO option is used.
STOCKSECTOR_CONSUMERDEFENSIVE		**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. Only included when licensed for the firm and the INCEXTRASECINFO option is used.
STOCKSECTOR_HEALTHCARE		**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. Only included when licensed for the firm and the INCEXTRASECINFO option is used.
STOCKSECTOR_UTILITIES		**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. Only included when licensed for the firm and the INCEXTRASECINFO option is used.

Field	Required	Data Type	Description
STOCKSECTOR_COMMSERVICES		**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. Only included when licensed for the firm and the INCEXTRASECINFO option is used.
STOCKSECTOR_ENERGY		**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. Only included when licensed for the firm and the INCEXTRASECINFO option is used.
STOCKSECTOR_INDUSTRIALS		**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 companied engaged in transportations and logistic services. Only included when licensed for the firm and the INCEXTRASECINFO option is used.
STOCKSECTOR_TECHNOLOGY		**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. Only included when licensed for the firm and the INCEXTRASECINFO option is used.
BONDSUPERSECTOR_GOVERNMENT		**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. Only included when licensed for the firm and the INCEXTRASECINFO option is used.

Field	Required	Data Type	Description
BONDSUPERSECTOR_MUNICIPAL		**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. Only included when licensed for the firm and the INCEXTRASECINFO option is used.
BONDSUPERSECTOR_CORPORATE		**NUMBER**	The corporate Super Sector includes bank loans, convertible bonds, conventional debt securities issued by corporations, and preferred stock. Only included when licensed for the firm and the INCEXTRASECINFO option is used.
BONDSUPERSECTOR_SECURITIZED		**NUMBER**	The securitized Super Sector includes all types of mortgage-backed securities, covered bonds, and asset- backed securities. Only included when licensed for the firm and the INCEXTRASECINFO option is used.
BONDSUPERSECTOR_CASHEQUIVALENT		**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. Only included when licensed for the firm and the INCEXTRASECINFO option is used.
BONDSUPERSECTOR_DERIVATIVE		**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. Only included when licensed for the firm and the INCEXTRASECINFO option is used.

Field	Required	Data Type	Description
STYLEBOX_LARGEVALUE		**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. Only included when licensed for the firm and the INCEXTRASECINFO option is used.
STYLEBOX_LARGEBLEND		**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. Only included when licensed for the firm and the INCEXTRASECINFO option is used.

Field	Required	Data Type	Description
STYLEBOX_LARGEGROWTH		**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. Only included when licensed for the firm and the INCEXTRASECINFO option is used.
STYLEBOX_MIDVALUE		**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. Only included when licensed for the firm and the INCEXTRASECINFO option is used.

Field	Required	Data Type	Description
STYLEBOX_MIDBLEND		**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. Only included when licensed for the firm and the INCEXTRASECINFO option is used.
STYLEBOX_MIDGROWTH		**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. Only included when licensed for the firm and the INCEXTRASECINFO option is used.

Field	Required	Data Type	Description
STYLEBOX_SMALLVALUE		**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. Only included when licensed for the firm and the INCEXTRASECINFO option is used.
STYLEBOX_SMALLBLEND		**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. Only included when licensed for the firm and the INCEXTRASECINFO option is used.

Field	Required	Data Type	Description
STYLEBOX_SMALLGROWTH		**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. Only included when licensed for the firm and the INCEXTRASECINFO option is used.

FI (Financial Institution or Financial Service)

Field	Required	Data Type	Description
ID	√	**UID (PKEY)**	Unique numeric ID for this Financial Service.
NAME	√	**CHAR128**	Name of this Financial Service. The ID for a Financial Service will not change, but **NAME** might change should the Financial Institution rename its service.
SERVICE_CATEGORY	√	**CHAR64**	Category for this Financial Service. The category is used primarily as an aid to help users of the service distinguish between different services offered by the same Financial Institution. This field may contain one of the following values (list is subject to change) and may change at any time for a particular Financial Service: Banking Brokerage Credit Card Health Insurance Investment Loan Other

Person

Field	Required	Data Type	Description
ID	√	**UID (PKEY)**	Unique numeric ID for this Person.
FIRM_TAG1		**CHAR128**	A string you assign that enables you to identify a ByAllAccounts User and correlate it with data in your systems. You can use field in some operations to identify a Financial Profile. If you plan to do this, you should ensure that this field is unique across all of your Persons.
FIRM_TAG2		**CHAR128**	A string used to classify the User.
FIRM_TAG3		**CHAR128**	A string used to classify the User.
ROLE	√	**CHAR20**	One of: INVESTOR, ADVISOR, ASSISTANT, or CONSULTANT.
CREATION_DATE	√	**DATE**	Date when this Person was created.
IS_SSO	√	**BOOLEAN**	Indicates whether the person has single sign on (SSO) access. Either 1 to indicate true, or 0 to indicate false.

Financial Profile

Field	Required	Data Type	Description
ID	√	**UID (PKEY)**	Unique numeric ID for this Financial Profile
CREATION_DATE	√	**DATE**	Date when the Financial Profile was created.

Profile Access

Field	Required	Data Type	Description
PERSON_ID	√	**UID (FKEY: PERSON.ID)**	Unique numeric ID for the Person to whom access is granted.
PROFILE_ID	√	**UID (FKEY: FINANCIAL_PROFILE.ID)**	Unique numeric ID for the Financial Profile to which access is granted.
ROLE	√	**CHAR20**	The role the Person has in relation to the profile. One of: INVESTOR, ADVISOR, ASSISTANT, or CONSULTANT

Portfolio

Field	Required	Data Type	Description
FP_ID	√	**UID (FKEY: FINANCIAL_PROFILE.ID)**	Unique numeric ID for the Financial Profile that contains this Portfolio.
ID	√	**UID (PKEY)**	Unique numeric ID for this Portfolio
NAME	√	**CHAR64**	User-assigned name for the Portfolio. Values are case-sensitive and unique across all Portfolios for a User.

Account Credential

Field	Required	Data Type	Description
PROFILE_ID	√	**UID (FKEY: FINANCIAL_PROFILE.ID)**	ID for the profile that contains the Account Credential.
ID	√	**UID (PKEY)**	Unique numeric ID for this Account Credential.
NAME	√	**CHAR64**	User-assigned name for the Account Credential.
FI_ID	*	**UID (FKEY: FI.ID)**	ID for the Financial Service that the Account Credential accesses.
FI_REQUEST_NAME	*	**CHAR40sq**	Used to specify the name of a Financial Institution Service that ByAllAccounts does not currently support. When all Account Credentials are provided, a request is made to ByAllAccounts to add support for this service. See related field **FI_REQUEST_URL**.
FI_REQUEST_URL	*	**CHAR80**	Used to specify the URL of the login page for a Financial Institution Service that ByAllAccounts does not currently support. When all Account Credentials are provided, a request is made to ByAllAccounts to add support for this service. See related field **FI_REQUEST_NAME**.
AUTO_MANAGE	√	**BOOLEAN**	If 1 (true) accounts for this credential will be automatically maintained by the nightly aggregation process. Note: automatic management of accounts (AAM) must be enabled for the firm and the financial institution must support it.
DATA_BASIS		**CHAR12**	Whether TRADE-based (“TRADE”) or SETTLEMENT-based (“SETTLEMENT”) data should be gathered for the accounts linked to this credential. The value of this field is used only if AUTO_MANAGE set to 1 (true) and the firm allows a choice of Data Basis. When 1 (true), the setting applies to all accounts linked to this Account Credential.

Account Credential (continued):

Field	Required	Data Type	Description
GATHER_LOTS	√	**BOOLEAN**	If 1 (true) tax lot data should be gathered for accounts linked to this credential. The value of this field is used only if AUTO_MANAGE set to 1 (true) and the lot gathering is enabled for the firm. When 1 (true), the setting applies to all accounts linked to this Account Credential.
AUTH_TYPE	√	**CHAR12**	Indicates the authentication type of the financial institution. Is either OAUTH or LOGIN.
OAUTH_TOKEN_ID		**UID**	For ACCOUNT_CREDENTIAL objects of type OAUTH, the aggregation system will set the OAUTH_TOKEN_ID once the end user has successfully completed OAUTH set up for the ACCOUNT_CREDENTIAL at the financial institution. Note that the presence of OAUTH_TOKEN_ID does not guarantee that the accounts associated with the credential can be aggregated.

Notes:

*** =** Only one of **<FI_ID>** or (**<FI_REQUEST_NAME>** + **<FI_REQUEST_URL>**) can be provided. If providing FI request information, **FI_REQUEST_NAME** is required and **FI_REQUEST_URL** is optional.

Account

Field	Required	Data Type	Description
FP_ID	√	**UID (FKEY: FINANCIAL_PROFILE. ID)**	Unique numeric ID for the Financial Profile that contains this Account.
ID	√	**UID (PKEY)**	Unique numeric ID for this Account.
NAME	√	**CHAR64**	User-assigned name for the Account. Values are case-sensitive and unique across all Accounts for a user.
PORTFOLIO_ID	√	**UID (FKEY: PORTFOLIO.ID)**	ID for the Portfolio to which this Account belongs.
ACCOUNT_TYPE		**CHAR32**	Account type as determined by the system from information available from the custodian. Possible types are listed in Notes on Account on page 31.
ONLINE_ACCESS_ENABLED	√	**BOOLEAN**	Is **1** (true) if this Account has sufficient online access credentials for the service to gather data from the Financial Service identified for this Account; is **0** (false) in all other cases. This field is READ-ONLY.
LAST_UPDATED		**TIMESTAMP**	Date/time on which data for this Account was (successfully) last retrieved from the associated Financial Institution. May not be available for the off-line accounts. This field is READ-ONLY.
ACCOUNT_NUMBER		**CHAR128**	Alphanumeric string used to identify this Account at the Financial Service where this Account is held.
UPDATE_STATUS_INFO		**CHAR1024**	The status (textual description) of the last attempt to download this Account from the Financial Institution. This field is READ-ONLY.
UPDATE_STATUS_ERRCODE		**CHAR6**	Error code for the result of the last attempt to download this Account from the Financial Institution. This field is READ-ONLY. Please see Appendix C: Account Update Status Error Codes for valid values.
LAST_UPDATE_ATTEMPT		**TIMESTAMP**	Date/time of the last access test or update attempt for this Account. This field is READ ONLY.
CAPTIVE	√	**BOOLEAN**	If **TRUE**, then the Advisor managing this Account for the Investor considers this Account to contain captive assets (assets under management).
AC_ID		**UID (FKEY: ACCOUNT_ CREDENTIAL.ID)**	ID for the Account Credential object that provides the credentials for accessing the Account at its Financial Service.

Account (continued)

Field	Required	Data Type	Description
DATA_BASIS	√	**CHAR12**	States whether the data in the account is SETTLEMENT (value "SETTLEMENT") basis or TRADE basis (value "TRADE"). This field is READ-ONLY. Accounts will default to TRADE basis and can only be configured to SETTLEMENT basis manually by BAA operations.
CREATION_DATE	√	**TIMESTAMP**	Date/time when the account was created.
GATHER_LOTS	√	**BOOLEAN**	If 1 (true) tax lot data should be gathered for this account. Tax lot data is not gathered by the nightly aggregation process but must be requested through a special Update with Tax Lots operation (ACCTUPDTAXLOTRQ). Note: lot gathering must be enabled for the firm.
FI_SUPPLIED_REP_ID		**CHAR32**	The FI-supplied Advisor / REP identifier for this account. Only available for accounts at select FIs.
FI_SUPPLIED_FIRM_ID		**CHAR32**	FI-supplied Firm ID (Advisor's firm) for the account.
FI_SUPPLIED_ACCOUNT_TAXID		**CHAR32**	FI-supplied TAX ID (SSN or TIN) associated with the account.
FI_SUPPLIED_ACCOUNT_NAME		**CHAR128**	FI-supplied name for the account.
FI_SUPPLIED_ACCOUNT_TITLE		**CHAR128**	FI-supplied title for the account.
FI_SUPPLIED_CLIENT_FIRST		**CHAR64**	FI-supplied first name for the account holder.
FI_SUPPLIED_CLIENT_MIDDLE		**CHAR64**	FI-supplied middle name for the account holder.
FI_SUPPLIED_CLIENT_LAST		**CHAR64**	FI-supplied last name for the account holder.
FI_SUPPLIED_ADDRESS_STREET		**CHAR64**	Street address of the client who owns this account.
FI_SUPPLIED_ADDRESS_LINE2		**CHAR64**	Additional street address of the client who owns this account.
FI_SUPPLIED_ADDRESS_LINE3		**CHAR64**	Additional street address of the client who owns this account.
FI_SUPPLIED_ADDRESS_LINE4		**CHAR64**	Additional street address of the client who owns this account.
FI_SUPPLIED_ADDRESS_LINE5		**CHAR64**	Additional street address of the client who owns this account.
FI_SUPPLIED_ADDRESS_LINE6		**CHAR64**	Additional street address of the client who owns this account.
FI_SUPPLIED_ADDRESS_CITY		**CHAR32**	City portion of the address of the client who owns this account.
FI_SUPPLIED_ADDRESS_STATE		**CHAR32**	State portion of the address of the client who owns this account.
FI_SUPPLIED_ADDRESS_ZIP_CODE		**CHAR16**	Zip code portion of the address of the client who owns this account.
FI_SUPPLIED_CLIENT_PHONE		**CHAR32**	Phone number of the client who owns this account. Will stay in the format provided by the custodian.
FI_SUPPLIED_CLIENT_DOB		**CHAR12**	Date of birth of the client who owns this account, in standard date format YYYYMMDD.

Account (continued)

Field	Required	Data Type	Description
FI_SUPPLIED_CLIENT_EMAIL		**CHAR64**	Email address of the client who owns this account.
FI_SUPPLIED_ACCOUNT_TYPE		**CHAR64**	Custodian reported account type for this account.
FI_SUPPLIED_CUSTODIAN_CODE		**CHAR32**	Custodian-reported custodian code.
FI_SUPPLIED_CUSTODIAN_NAME		**CHAR128**	Custodian-reported custodian name.
PLAN_NAME		**CHAR128**	Name of the plan.
MARKET_VALUE		**NUMBER**	The sum of the position values for the account as of the LAST_UPDATED date.
EXTERNAL_SERVICE_LEVEL	√	**CHAR20**	Specifies how an external application plans to provide service for the account, either POSITIONAL basis (value "POSITIONAL") or TRANSACTIONAL basis (value "TRANSACTIONAL"). This field does not control how the aggregation system handles the account.
END_DATE_LAST_TX		**DATE**	The date used for determining the starting period for retrieval of transactions on the next aggregation. This field cannot be modified.
MARGIN_TRADING_APPROVED		**BOOLEAN**	Value of 0 (false) or 1 (true). Indicates whether margin trading is approved for the account.
ACCOUNTING_METHOD		**CHAR20**	Method of accounting. One of: ▪ FIFO - First In, First Out ▪ INFI - Intraday First in First out ▪ LIFO - Last In, First Out ▪ LOFO - Lowest Cost First Out ▪ LCST - Lowest Cost Short Term ▪ LCLT - Lowest Cost Long Term ▪ HIFO - Highest Cost First Out ▪ HCST - Highest Cost Short Term ▪ HCLT - Highest Cost Long Term ▪ AVG - Average price method ▪ TXSN - Tax Sensitive ▪ STXSN - Short-Term Tax Sensitive ▪ MGML - Minimize gains and maximize losses ▪ MLMG - Minimize losses and maximize gains ▪ OTHER - The value supplied by the financial institution cannot be mapped **Note**: Some financial institutions provide different accounting methods by security type. In those cases, this field is populated with the method for equities.

Notes on Account

- Valid values for **ACCOUNT_TYPE** are:

Account Types	
Type	**Description**
INVESTMENT_CASHMANAGEMENT	Cash management account that provides access to short-term investments such as money market mutual funds and CDs.
BANKING_CD	Certificate of Deposit (CD) is a time deposit financial product commonly sold by banks, thrift institutions, and credit unions.
BANKING_CHECKING	A checking account offers access to money for daily transactional needs via a debit card or checks.

Account Types	
Type	**Description**
INVESTMENT_COVERDELL	A Coverdell Education Savings Account is a trust or custodial account created or organized in the United States only for the purpose of paying the qualified education expenses of the designated beneficiary of the account.
BANKING_CREDITLINE	A line of credit may take several forms, such as overdraft protection, demand loan, special purpose, export packing credit, term loan, discounting, purchase of commercial bills, traditional revolving credit card account, etc. It is effectively a source of funds that can readily be tapped at the borrower's discretion.
BANKING_DEPOSIT	Interest earning account at a bank or other depository institution, the withdrawals from which are limited to the amount of the account's credit balance.
BANKING_MONEYMARKET	A Money Market Account is a type of savings account that pays interest based on current interest rates in the money markets. The minimum balance for this account is often considerably higher than the minimum balance of a basic savings account.
BANKING_OTHER	Banking account; more specific type is not known.
BANKING_SAVINGS	A savings account is an interest-bearing deposit account held at a bank or another financial institution and which provides a modest interest rate.
CREDITCARD	The issuer of the card (usually a bank) creates a revolving account and grants a line of credit to the cardholder, from which the cardholder can borrow money for payment to a merchant or as a cash advance. Credit cards charge interest and are primarily used for short-term financing. A credit card is different from a charge card, which requires the balance to be repaid in full each month.
HEALTHACCOUNT_FSA	Health Savings account of the type Flexible Spending Account (FSA).
HEALTHACCOUNT_HRA	Health Savings account with Health Reimbursement Arrangement (HRA).
HEALTHACCOUNT_HSA	Health Savings Account (HSA) is a savings account used in conjunction with a high-deductible health insurance policy. The HSA enables users to save money tax-free against medical expenses.
HEALTHACCOUNT_OTHER	Health Savings account; more specific type is not known, may be HSA, FSA, or HRA.
INSURANCE_ANNUITY	A contractual financial product sold by financial institutions that is designed to accept and grow a lump sum from an individual and then pay out a stream of regular disbursements to the individual at a later point in time
INSURANCE_LIFEINSURANCE	A life insurance policy is a contract with an insurance company. In exchange for premium payments, the insurance company provides a lump-sum payment, known as a death benefit, to beneficiaries upon the insured's death.
INSURANCE_OTHER	Insurance account; more specific type is not known.
INVESTMENT_401A	A 401(a) plan is a retirement savings plan in which employees cannot choose or change the amount contributed to the plan. It is also called a “money purchase plan”.
INVESTMENT_401K	A 401(k) is a retirement savings plan sponsored by an employer. It lets workers save and invest a piece of their paycheck before taxes are taken out. Taxes are not paid until the money is withdrawn from the account.
INVESTMENT_403B	The 403b plan is an employer-sponsored supplemental retirement savings plan that, similar to a 401k plan, allows employees to contribute on a pre-tax or (if permitted by the 403b plan) Roth after-tax basis. A 403b plan can only be sponsored by a public school or a 501(c)(3) tax-exempt organization.
INVESTMENT_457B	A 457b plan is a supplemental retirement plan for employees who meet eligibility criteria. Typically, if employer is a governmental entity, state or local law will determine who is eligible to participate.
INVESTMENT_529	A plan operated by a state or educational institution, with tax advantages and potentially other incentives to make it easier to save for college and other post-secondary training for a designated beneficiary, such as a child or grandchild.

Account Types	
Type	**Description**
INVESTMENT_BROKERAGE	A brokerage account is an arrangement between an investor and a licensed brokerage firm that allows the investor to deposit funds with the firm and buy and sell stocks, bonds, mutual funds, exchange-traded funds and other types of investments through the brokerage.
INVESTMENT_IRA	An Individual Retirement Account (IRA) is a type of savings account that is designed to help individuals save for retirement and offers many tax advantages. There are two different types of IRAs: Traditional and Roth. See also INVESTMENT_ROTHIRA.
INVESTMENT_KEOGH	A Keogh plan is a tax-deferred retirement savings plan for people who are self-employed, and is much like an individual retirement account (IRA). The main difference between a Keogh and an IRA is the contribution limit, with Keogh plans allowing significantly more contributions than IRAs.
INVESTMENT_MUTUALFUND	Mutual Fund Account is an investment program funded by shareholders that trades in diversified holdings and is professionally managed.
INVESTMENT_OTHER	Investment account; more specific type is not known.
INVESTMENT_PENSION	A pension is a retirement account that an employer maintains to provide employee a fixed payout upon retirement retire. It is a defined benefit plan in which the benefit on retirement is determined by a set formula, rather than depending on investment returns.
INVESTMENT_PREPAIDTUITION	Pre-paid tuition plans generally allow college savers to purchase units or credits at participating colleges and universities for future tuition and, in some cases, room and board. Most prepaid tuition plans are sponsored by state governments and have residency requirements. Many state governments guarantee investments in pre-paid tuition plans that they sponsor.
INVESTMENT_PROFITSHARE	A profit-sharing plan is a defined contribution plan in which the employer has discretion to determine when and how much the company pays into the plan. The amount allocated to each individual account is usually based on the salary level of the participant (employee).
INVESTMENT_RETIREMENT	An account containing investments for retirement; more specific type is not known.
INVESTMENT_ROTHIRA	A Roth IRA is a retirement savings account that allows money to grow tax-free. A Roth IRA is funded with after-tax dollars, meaning taxes were already paid on the money deposited. In return for no up-front tax break, money grows and grows tax free, and when withdrawn at retirement, the investor pays no taxes.
INVESTMENT_SARSEP	A SARSEP is a simplified employee pension (SEP) plan set up before 1997 that includes a salary reduction arrangement. Under a SARSEP, employees can choose to have the employer contribute part of their pay to their Individual Retirement Account or Annuity (IRA) set up under the SARSEP (a SEP-IRA).
INVESTMENT_SAVINGSBOND	An account in which one can purchase and manage U.S. Savings Bonds.
INVESTMENT_SEPIRA	A Simplified Employee Pension Individual Retirement Account (SEP IRA) is a variation of the Individual Retirement Account used in the United States. SEP IRAs are adopted by business owners to provide retirement benefits for themselves and their employees.
INVESTMENT_TREASURYBOND	An account in which one can purchase and manage U.S. Treasury Bonds.
INVESTMENT_TRUST	With a bank trust account, the bank serves as custodian and a trustee keeps legal control of assets in the account. These assets can include cash, savings bonds, stocks, bonds, mutual funds, real estate and other property and/or investments.
INVESTMENT_UGMA	A Uniform Gift to Minors Act (UGMA) account is a type of custodial trust account for a minor. It provides a way for minors to own securities without requiring the services of an attorney to prepare trust documents or the court appointment of a trustee.
INVESTMENT_UTMA	Similar to UGMA accounts, a Uniform Transfers to Minors Act (UTMA) account is a type of custodial trust account that also allows minors to own other types of property, such as real estate, fine art, patents and royalties, and for the transfers to occur through inheritance.

Account Types	
Type	**Description**
LOAN_AUTO	Account used to manage an automobile loan.
LOAN_BANK	Account used to manage a general bank loan.
LOAN_BOAT	Account used to manage a boat loan.
LOAN_HOMEEQUITY	Account used to manage a home equity loan.
LOAN_MORTGAGE	Account used to manage a mortgage.
LOAN_OTHER	Account used to manage a loan. The specific type of loan is not known.
LOAN_PERSONAL	Account used to manage a personal loan.
LOAN_STUDENT	Account used to manage a student loan.
OTHER	An account with an account type that is not represented in our current type set. FI_SUPPLIED_ACCOUNT_TYPE field in file may contain useful information.
UNKNOWN	Unable to determine the type for this account.

Holding

Field	Required	Data Type	Description
FP_ID	√	**UID (FKEY: FINANCIAL_PROFILE.ID)**	Unique numeric ID for the Financial Profile that contains this Holding.
ID	√	**UID (PKEY)**	Unique numeric ID for this Holding
ACCOUNT_ID	√	**UID (FKEY: ACCOUNT.ID)**	ID for the Account that contains this Holding.
SECURITY_ID		**UID (FKEY: SECURITY.ID)**	ID for Security owned by this Holding.
UNITS		**NUMBER**	Units of the Security held.
COST_BASIS		**NUMBER**	Financial Service-supplied cost basis for the Holding. If the cost basis is not available, this field may be populated with a calculated value, derived by multiplying the average Financial Service-supplied per-share cost by the total units of the Holding.
MARKET_VALUE		**NUMBER**	Total market value of this Holding as retrieved from the Financial Institution or entered by the user. Returns at most four decimal places.
UNIT_PRICE		**NUMBER**	Price of the Security.
PRICE_DATA_AS_OF		**DATE**	Date for which **UNIT_PRICE** is valid.
LAST_UPDATED		**TIMESTAMP**	Date/time on which the data for this Holding was last updated with information from the Financial Service. Absent for Holdings maintained manually by the user.
NAME		**CHAR128**	The holding's name (typically identifies the security) as provided by Financial Service or entered by the user (offline accounts).
ASSET_CLASS		**CHAR64**	The asset class of this holding, one of: ▪ Unclassified ▪ Stocks ▪ Bonds ▪ Cash ▪ Real Estate ▪ Other The INCHOLDAC option must be used to have this data included in a DATAGET response.
ASSET_SUBCLASS		**CHAR64**	The asset class of this holding. Possible values can be found in the **Security object definition table**. The INCHOLDAC option must be used to have this data included in a DATAGET response.
DELETED_ON		**DATE**	If present then this holding is a *sold-off* holding (no longer active in the account). This is the date on which the holding was removed from the account.
FI_SUPPLIED_CUSIP		**CHAR20**	If the Financial Service supplied a CUSIP for this Holding it is given here. CUSIP will only be present if the firm is licensed for CUSIP data and the firm is enabled to deliver it.
FI_SUPPLIED_TICKER		**CHAR32**	Any ticker or candidate ticker that the Financial Service supplied for this Holding.

Holding (continued)

Field	Required	Data Type	Description
PRINCIPAL_UNITS		**NUMBER**	Principal units as reported by the Financial Institution. Returns at most six decimal places.
PRINCIPAL_COST_BASIS		**NUMBER**	Principal cost basis as reported by the Financial Institution.
PRINCIPAL_MARKET_VALUE		**NUMBER**	Principal market value as reported by the Financial Institution (e.g. PRINCIPAL CASH market value). Returns at most four decimal places.
INCOME_UNITS		**NUMBER**	Income units as reported by the Financial Institution. Returns at most six decimal places.
INCOME_COST_BASIS		**NUMBER**	Income cost basis as reported by the Financial Institution.
INCOME_MARKET_VALUE		**NUMBER**	Income market value as reported by the Financial Institution (e.g. INCOME CASH market value). Returns at most four decimal places.
DATA_AS_OF		**DATE**	The date which the holding data is 'as of' as reported by the Financial Institution. If the Financial Institution does not report a date then this field is not provided.
VALUE_SOURCE	√	**CHAR12**	The source of the market value for this holding. May be one of the following strings: ▪ FI - the market value was collected from the Financial Institution. ▪ WPAPPROX – The value was approximated by ByAllAccounts using the units reported by the Financial Institution and a closing security price obtained from a third party. ▪ USER – the user edited the market value.
ACCRUED_INCOME		**NUMBER**	Value of the income that has accrued to the holding but has not yet been distributed.
CURRENCY_CODE		**CHAR3**	ISO 4217 currency code for MARKET_VALUE and UNIT_PRICE
FI_SUPPLIED_CURRENCY		**CHAR64**	Currency identifier for MARKET_VALUE and UNIT_PRICE as provided by the Financial Institution.
FI_SUPPLIED_SEDOL		**CHAR7**	Security's SEDOL as provided by the Financial Institution. Only included when enabled for the firm.
FI_SUPPLIED_ISIN		**CHAR12**	Security's ISIN as provided by the Financial Institution. Will only be present if the firm is licensed for CUSIP data and the firm is enabled to deliver it.
COUPON_RATE		**NUMBER**	The interest payment rate of a debt instrument.
MATURITY_DATE		**DATE**	The date a debt instrument becomes due and pays in full.
ORIGINAL_FACE		**NUMBER**	The original face or par value for a security that amortizes or accretes (e.g., a mortgage). For such securities the "current face" is available in the UNITS field.
DETERMINED_SEC_TYPE		**CHAR20**	Possible values for this field are one of the following, however, as of 3/30/16 this field is only valued as BOND or null. One of: ▪ BOND ▪ CASH ▪ MUTUALFUND ▪ OPTION ▪ OTHER ▪ STOCK

Holding (continued)

Field	Required	Data Type	Description
FI_SUPPLIED_SEC_TYPE		**CHAR64**	Any security type provided by the financial institution. Not commonly valued.
PAYDOWN_FACTOR		**NUMBER**	The paydown factor value for bond if provided by the financial institution.
ASSET_LIABILITY_INDICATOR	√	**CHAR9**	Valid values for this field are: ▪ Asset ▪ Liability
ACCRUED_INCOME_BASE		**NUMBER**	Value of the income in the base currency that has accrued to the holding but has not yet been distributed.
ACCRUED_INCOME_LOCAL		**NUMBER**	Value of the income in the local currency that has accrued to the holding but has not yet been distributed.
CURRENCY_CODE_BASE		**CHAR3**	ISO 4217 currency code of the base currency of the account as determined from the FI_SUPPLIED_CURRENCY_BASE field.
CURRENCY_CODE_LOCAL		**CHAR3**	ISO 4217 currency code of the local currency of the holding as determined from the FI_SUPPLIED_CURRENCY_LOCAL field.
FI_SUPPLIED_CURRENCY_BASE		**CHAR64**	The base currency of the account as provided by the Financial Institution.
FI_SUPPLIED_CURRENCY_LOCAL		**CHAR64**	The local currency of the holding as provided by the Financial Institution.
EXCHANGE_RATE_LOCAL_TO_BASE		**NUMBER**	The local-to-base exchange rate as provided by the Financial Institution.
EXCHANGE_RATE_LOCAL_TO_USD		**NUMBER**	The local-to-USD exchange rate as provided by the Financial Institution.
MARKET_VALUE_BASE		NUMBER	The market value of the position converted to the base currency of the account.
MARKET_VALUE_LOCAL		**NUMBER**	The market value of the position in the local currency of the holding.
PRINCIPAL_MARKET_VALUE_BASE		**NUMBER**	The principal portion of the market value of the position in the base currency of the account.
PRINCIPAL_MARKET_VALUE_LOCAL		**NUMBER**	Principal market value as reported by the Financial Institution (e.g. PRINCIPAL CASH market value).
INCOME_MARKET_VALUE_BASE		**NUMBER**	Income market value as reported by the Financial Institution (e.g. INCOME CASH market value).
INCOME_MARKET_VALUE_LOCAL		**NUMBER**	Income market value as reported by the Financial Institution (e.g. INCOME CASH market value).
UNIT_PRICE_BASE		**NUMBER**	The price of the position converted to the base currency of the account.
UNIT_PRICE_LOCAL		**NUMBER**	The price of the position in the local currency of the holding
MORNINGSTAR_SECID		**CHAR10**	Morningstar security identifier (SECID) for this security.

Transaction

Field	Required	Data Type	Description
FP_ID	√	**UID (FKEY: FINANCIAL_PROFILE.ID)**	Unique numeric ID for the Financial Profile that contains this Transaction.
ID	√	**UID (PKEY)**	Unique numeric ID for this Transaction.
ACCOUNT_ID	√	**UID (FKEY: ACCOUNT.ID)**	ID of the Account on which this Transaction represents activity.
HOLDING_ID		**UID (FKEY: HOLDING.ID)**	ID for the Holding on which this Transaction represents activity.
SECURITY_ID		**UID (FKEY: SECURITY.ID)**	ID for the Security for which this Transaction represents activity.
TX_TYPE	√	**CHAR20**	Type of Transaction. Please see the table after this one for a list valid transaction type values.
EXECUTION_DATE	√	**DATE**	Date on which this Transaction was executed.
SETTLEMENT_DATE		**DATE**	Date on which this Transaction was settled.
TOTAL_AMOUNT		**NUMBER**	Total $ value associated with this Transaction (may be negative).
COMMISSIONS_FEES		**NUMBER**	Commission and/or fees associated with this Transaction.
UNITS		**NUMBER**	Number of units (of security) involved in this Transaction.
NAME		**CHAR512**	Either the name of the Security or a short description of the Transaction.
DESCRIPTION		**CHAR2000**	Either the name of the Security and/or a longer description of the Transaction.
PRICE		**NUMBER**	Per share price of the Security for purposes of this Transaction.
FLOW_AMOUNT	√	**NUMBER**	Total amount of the cash flow for this transaction relative to the cash balance of the account.
FLOW_UNITS		**NUMBER**	Normalized units for the transaction. Whereas UNITS contains the units value directly from the Financial Institution and may have great variations in sign within a given transaction type, FLOW_UNITS contains this same units value but normalized by transaction type (e.g. Withdrawal will always have negative FLOW_UNITS.
CREATION_DATE	√	**DATE**	Date when this Transaction object was created in the system.
ORIG_TX_TYPE		**CHAR20**	Transactions reported as a reversal or cancellation by the Financial Institution will have the original transaction type code for in this field. Please see the table after this one for a list valid transaction type values.
FI_SUPPLIED_CUSIP		CHAR20	Security's CUSIP as provided by the Financial Institution. CUSIP will only be present if the firm is licensed for CUSIP data and the firm is enabled to deliver it.
FI_SUPPLIED_TICKER		**CHAR32**	Security's Ticker as provided by the Financial Institution.

Transaction (continued)

Field	Required	Data Type	Description
PRINCIPAL_TOTAL_AMOUNT		**NUMBER**	Principal amount of the transaction as reported by the Financial Institution.
PRINCIPAL_UNITS		**NUMBER**	Principal units of the transaction as reported by the Financial Institution.
INCOME_TOTAL_AMOUNT		**NUMBER**	Income amount of the transaction as reported by the Financial Institution.
INCOME_UNITS		**NUMBER**	Income units of the transaction as reported by the Financial Institution.
ACCRUED_INCOME		**NUMBER**	Accrued Income associated with the transaction. May be valued for bond purchases and sales or for transactions specifically purchasing or selling accrued interest for a bond.
CONTRACTUAL_SETTLEMENT_DATE		**DATE**	The date by which the transaction must contractually settle as provided by the Financial Institution.
POST_DATE		**DATE**	The date that the transaction posted as provided by the Financial Institution.
CURRENCY_CODE		**CHAR3**	ISO 4217 currency code for the TOTAL_AMOUNT.
FI_SUPPLIED_CURRENCY		**CHAR64**	Currency identifier supplied by the Financial Institution for TOTAL_AMOUNT.
TOTAL_AMOUNT_LOCAL		**NUMBER**	The amount of the transaction in the local currency
FI_SUPPLIED_ISIN		**CHAR12**	Security's ISIN as provided by the Financial Institution. Will only be present if the firm is licensed for CUSIP data and the firm is enabled to deliver it.
FI_SUPPLIED_SEDOL		**CHAR7**	Security's SEDOL as provided by the Financial Institution. Only included when enabled for the firm.
FI_SUPPLIED_TX_TYPE		**CHAR64**	Text provided by the Financial Institution that describes the type of activity that this transaction represents.
FI_SUPPLIED_TX_TYPE2		**CHAR64**	Secondary text provided by the Financial Institution that describes the type of activity that this transaction represents.
FI_SUPPLIED_TX_TYPE_CODE		**CHAR16**	Transaction type code or abbreviation provided by the Financial Institution.
ORIGINAL_FACE		**NUMBER**	The original face or par value for a security that amortizes or accretes (e.g., a mortgage). For such securities the "current face" is available in the UNITS field.
LOT_ID *		**CHAR32**	Lot identifier supplied by the Financial Institution.
SUB_LOT_ID *		**CHAR32**	Identifier supplied by the Financial Institution for a sub-lot (split form an original lot).
OPEN_FAIR_MARKET_VALUE *		**NUMBER**	Market value of the shares when the lot was opened or transferred into the account.

Transaction (continued)

Field	Required	Data Type	Description
PURCHASE_DATE *		**DATE**	The date the lot was originally purchased. Used to determine the holding period of the lot. Not necessarily the same as acquisition date. Lot may be purchased on one day then transferred to another account. Purchase date may be listed as 'unknown' or 'various' on the Financial Institution; if so, this field will be left empty.
TRANSFER_DATE *		**DATE**	Date the lot was transferred in or gifted to the account.
TAXES_WITHHELD *		**NUMBER**	The fees or commissions paid on the sale of a closed lot.
LOSS_DISALLOWED *		**NUMBER**	The amount of loss that is disallowed because of a related wash sale.
HOLDING_PERIOD *	√	**CHAR20**	Can be: SHORT_TERM or LONG_TERM
ACQUISITION_METHOD *		**CHAR20**	The method the lot was acquired. May be one of: ▪ GIFT ▪ INHERITANCE ▪ OTHER ▪ PURCHASE ▪ SPLIT TRANSFER
CLOSE_ACCOUNTING_METHOD *		**CHAR20**	Method to be used when closing the lot. One of: ▪ AVG - Average cost, single category ▪ DAVG - Average cost, double category ▪ AVGR - Average cost, single category, whole shares sold ▪ FIFO - First in, first out ▪ LIFO - Last in, first out ▪ MAX - Maximize gain. Sell lowest cost shares first ▪ MIN - Minimize gain; sell highest cost shares first ▪ UNKNOWN VSP – Versus; sell a designated quantity from specific lots
COVERED *		**CHAR20**	Whether the security is covered by new cost basis regulations. One of: NOT_COVERED or COVERED.
ADJUSTMENT_INDICATOR *		**CHAR64**	Indication supplied by the Financial Institution of a corporate action, wash or other adjustment on the lot.
COST_SOURCE *		**CHAR64**	Indication supplied by the Financial Institution of the source of the tax lot information.

Transaction (continued)

Field	Required	Data Type	Description
DETERMINED_SEC_TYPE		**CHAR20**	Possible values for this field are one of the following, however, as of 3/30/16 this field is only valued as BOND or null. One of: ▪ BOND ▪ CASH ▪ MUTUALFUND ▪ OPTION ▪ OTHER ▪ STOCK
COMMISSIONS		**NUMBER**	Commission associated with this transaction.
FEES		**NUMBER**	Non-commission fees associated with this transaction.
SPENDING_CATEGORY		**CHAR32**	The consumer spending category attributed to this transaction. Possible values include but are not limited to: ▪ Housing ▪ Utilities ▪ Insurance ▪ Bills ▪ Groceries ▪ Transportation ▪ Clothing ▪ Medical ▪ Childcare ▪ Loans ▪ Entertainment & Restaurants ▪ Travel ▪ Personal Care ▪ Memberships ▪ Luxury ▪ Other Expenses ▪ Paycheck ▪ Deposits ▪ Other Income
SPENDING_CATEGORY_INFO		**CHAR7**	For consumer spending transactions, specifies if the transaction was an outgoing payment (expense) or incoming receipt (income).
ACCRUED_INCOME_BASE		**NUMBER**	Accrued Income in Base currency.
ACCRUED_INCOME_LOCAL		**NUMBER**	Accrued Income in Local currency
CURRENCY_CODE_BASE		**CHAR3**	ISO 4217 currency code for the account's base currency.
CURRENCY_CODE_LOCAL		**CHAR3**	ISO 4217 currency code for TOTAL_AMOUNT_LOCAL and UNIT_PRICE_LOCAL.
FI_SUPPLIED_CURRENCY_BASE		**CHAR64**	Currency identifier supplied by the Financial Institution for TOTAL_AMOUNT_BASE.

Transaction (continued)

Field	Required	Data Type	Description
FI_SUPPLIED_CURRENCY_LOCAL		**CHAR64**	The local currency of the transaction as provided by the institution.
EXCHANGE_RATE_LOCAL_TO_BASE		**NUMBER**	The local-to-base exchange rate as provided by the Financial Institution.
EXCHANGE_RATE_LOCAL_TO_USD		**NUMBER**	The local-to-USD exchange rate as provided by the Financial Institution.
PRICE_BASE		**NUMBER**	The price of the position converted to the base currency of the account.
PRICE_LOCAL		**NUMBER**	The share price of the security involved in the transaction in the local currency
TOTAL_AMOUNT_BASE		**NUMBER**	Total amount of the transaction in the Base currency for the account.
PRINCIPAL_TOTAL_AMOUNT_BASE		**NUMBER**	The principal portion of the amount of the transaction converted to the base currency of the account
PRINCIPAL_TOTAL_AMOUNT_LOCAL		**NUMBER**	The principal portion of the amount of the transaction in the local currency
INCOME_TOTAL_AMOUNT_BASE		**NUMBER**	The income portion of the amount of the transaction converted to the base currency of the account
INCOME_TOTAL_AMOUNT_LOCAL		**NUMBER**	The income portion of the amount of the transaction in the local currency
FI_SUPPLIED_DESCRIPTION		**CHAR2000**	Transaction description

Notes on Transaction:

- Sold-off Holdings are optionally delivered in a response document. If sold-off holdings are not included in the response, Transactions against sold-off Holdings are still delivered. These Transactions include an **ACCOUNT_ID** but no **HOLDING_ID**. Use the INCHOLDINGSO option of the INCHOLDING aggregate to include sold-off holdings in a DATAGET response.
- Valid values for **TX_TYPE** and **ORIG_TX_TYPE** are:

TX_TYPE Value	Description
ATM	ATM debit or credit (depends on signage of amount)
Buy	Buy a Security
Check	Check written
Closure	Close a position 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

Notes on Transaction (continued):

- The following table defines the sign used for the FLOW_AMOUNT and FLOW_UNITS field in transactions. The sign is based on the transaction type. Signs available are:
  - Positive
  - Negative
  - Neutral – used only by FLOW_AMOUNT, this is a flow of 0
  - As is – the sign in the original data from the Financial Institution. This 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).

TX_TYPE Value	FLOW_AMOUNT Sign	FLOW_UNITS 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

Investment Option

Field	Required	Data Type	Description
FP_ID	√	**UID (FKEY: FINANCIAL_PROFILE.ID)**	Unique numeric ID for the Financial Profile that contains this Investment Option.
ID	√	**UID (PKEY)**	Unique numeric ID for this Investment Option.
ACCOUNT_ID	√	**UID (FKEY: ACCOUNT.ID)**	ID of the Account in which this Investment Option is available.
SECURITY_ID		**UID (FKEY: SECURITY.ID)**	ID for the Security this Investment Option represents.
UNIT_PRICE		**NUMBER**	Price of the Investment Option.
PRICE_DATA_AS_OF		**DATE**	Date for which **UNIT_PRICE** is valid.
LAST_UPDATED		**TIMESTAMP**	Date/time on which the data for this Investment Option was last updated with information from the Financial Service.
NAME	✓	**CHAR128**	The investment option's name (typically identifies the security) as provided by Financial Service.
FI_SUPPLIED_CUSIP		**CHAR9**	If the Financial Service supplied a CUSIP for this Investment Option, it is given here. CUSIP will only be present if the firm is licensed for CUSIP data and the firm is enabled to deliver it.
FI_SUPPLIED_TICKER		**CHAR32**	Any ticker or candidate ticker that the Financial Service supplied for this Investment Option.
DATA_AS_OF		**DATE**	The date which the Investment Option data is 'as of' as reported by the Financial Institution. If the Financial Institution does not report a date then this field is not provided.
CREATION_DATE		**DATE**	The date on which this Investment Option was created.
MORNINGSTAR_FUND_ID		**CHAR10**	This is the Morningstar ID for the investment, which is sometimes called the distinct portfolio level. This field will be populated when the investment option has an associated security that has type MUTUALFUND. It will also be populated for investment options that do not have a security and which are identifiable as a particular mutual fund but with share class unknown.

Holding Lot

Holding Lots are also known as Tax Lots or Position Lots. The aggregation service gathers only open lots from data sources, and does so only when the feature is enabled for the firm.

Field	Required	Data Type	Description
ID	√	**UID (PKEY)**	Unique numeric ID for this Lot.
FP_ID	√	**UID (FKEY: FINANCIAL_PROFILE.ID)**	ID for the Financial Profile that contains this Holding Lot.
ACCOUNT_ID	√	**UID (FKEY: ACCOUNT.ID)**	ID for the Account that contains this Holding Lot.
HOLDING_ID		**UID (FKEY: HOLDING.ID)**	ID for the Holding corresponding to this Holding Lot.
SECURITY_ID		**UID (FKEY: SECURITY.ID)**	ID for the Security held for this Holding Lot.
NAME		**CHAR128**	The name of the security of the Holding, a name provided by the Financial Institution.
STATE	√	**CHAR12**	Will always contain the value: OPEN_LOT.
FI_SUPPLIED_CUSIP		**CHAR20**	The CUSIP for the security corresponding to this lot as provided by the Financial Institution. CUSIP will only be present if the firm is licensed for CUSIP data and the firm is enabled to deliver it.
FI_SUPPLIED_TICKER		**CHAR32**	The ticker symbol for the security corresponding to this lot as provided by the Financial Institution.
FI_SUPPLIED_SEDOL		**CHAR7**	The SEDOL for the security corresponding to this lot as provided by the Financial Institution. Only included when enabled for the firm.
FI_SUPPLIED_ISIN		**CHAR12**	The ISIN for the security corresponding to this lot as provided by the Financial Institution. Will only be present if the firm is licensed for CUSIP data and the firm is enabled to deliver it.
UNITS	√	**NUMBER**	Number of units in this lot.
LOT_ID		**CHAR32**	Lot identifier supplied by the Financial Institution.
SUB_LOT_ID		**CHAR32**	Identifier supplied by the Financial Institution for a sub-lot (split form an original lot).
COST_BASIS		**NUMBER**	Total adjusted cost of the units. May be null if reported as 'unknown' at the site.
ORIGINAL_COST_BASIS		**NUMBER**	Total original cost of the units.
COST_PER_SHARE		**NUMBER**	Adjusted cost per unit.
OPEN_FAIR_MARKET_VALUE		**NUMBER**	Market value of the shares when the lot was opened or transferred into the account
UNIT_PRICE		**NUMBER**	Current market price for open lots.
TOTAL_AMOUNT		**NUMBER**	Current market value for open lots.

Holding Lot (Continued)

Field	Required	Data Type	Description
PURCHASE_DATE		**DATE**	The date the lot was originally purchased. Used to determine the holding period of the lot. Not necessarily the same as acquisition date. Lot may be purchased on one day then transferred to another account. Purchase date may be listed as 'unknown' or 'various' on the Financial Institution; if so, this field will be left empty.
TRANSFER_DATE		**DATE**	Date the lot was transferred in or gifted to the account.
CLOSE_DATE		**DATE**	Date the lot was closed. Not use because the service aggregates only open lots.
COMMISSIONS_FEES		**NUMBER**	The fees or commissions paid on the sale of a closed lot
TAXES_WITHHELD		**NUMBER**	The fees or commissions paid on the sale of a closed lot.
LOSS_DISALLOWED		**NUMBER**	The amount of loss that is disallowed because of a related wash sale.
HOLDING_PERIOD	√	**CHAR20**	Can be: SHORT_TERM or LONG_TERM
ACQUISITION_METHOD		**CHAR20**	The method the lot was acquired. May be one of: ▪ GIFT ▪ INHERITANCE ▪ OTHER ▪ PURCHASE ▪ SPLIT ▪ TRANSFER
CLOSE_ACCOUNTING_METHOD		**CHAR20**	Method to be used when closing the lot. One of: ▪ AVG - Average cost, single category ▪ DAVG - Average cost, double category ▪ AVGR - Average cost, single category, whole shares sold ▪ FIFO - First in, first out ▪ LIFO - Last in, first out ▪ MAX - Maximize gain. Sell lowest cost shares first ▪ MIN - Minimize gain; sell highest cost shares first UNKNOWN ▪ VSP – Versus; sell a designated quantity from specific lots

Holding Lot (Continued)

Field	Required	Data Type	Description
COVERED		**CHAR20**	Whether the security is covered by new cost basis regulations. One of: NOT_COVERED or COVERED.
ADJUSTMENT_INDICATOR		**CHAR64**	Indication supplied by the Financial Institution of a corporate action, wash or other adjustment on the lot.
COST_SOURCE		**CHAR64**	Indication supplied by the Financial Institution of the source of the tax lot information.
LAST_UPDATED	√	**TIMESTAMP**	Date and time when the information in this Holding Lot was last updated from the Financial Institution.

DATACONNECT OPERATIONS

Overview

This section provides a detailed description of all DataConnect Lite operations.

DataConnect URL

The DataConnect API for V4 consists of a single URL invocation point:

https://www.byallaccounts.net/dataconnect/WPServlet?RequestType=DataConnectV4

This URL must be specified exactly (including case). Your request is routed to the appropriate component on ByAllAccounts' servers. You must:

- Use https (http requests are rejected).
- Use a request method type of **POST** (**GET** type requests are rejected).

The data you provide in the **POST:**

- Is the Input Request Document.
- Contains your Login request (with credentials that authenticate you as a valid user of DataConnect).
- Is your data retrieval or data update request.

The DataConnect web server returns a DataConnect response file to you that is compressed using the ZIP compression format.

Protocol

DataConnect complies with the HTTP/V1.1 protocol and requires use of SSL (https). All input request documents must be sent via **POST** over https.

Versioning

This release of DataConnect supports the following version:

<VERSION>VERSION4.0**</VERSION>**

Compression

DataConnect Response documents are always compressed in ZIP format.

General XML Document Information

All DataConnect Request and Response documents must adhere to the following:

- All XML element names must be in upper case. For example, the element **<USER_GROUP>** is correct, while the element **<user_group>** is incorrect.
- Values of elements are not case-sensitive unless specifically noted.
- Each document must include a DTD reference to a publicly available DataConnect DTD. The DTD to use is defined in subsequent sections. DataConnect validates your request document against the DTD referenced in your document. If the document cannot be validated, an error is returned to you.
- UTF-8, a compressed version of Unicode that uses only a single byte for most common characters, is the character set used for all documents.

Overall Document Structure

Input Request

The input request contains the following:

- **DOCTYPE**
- **DataConnect Version Specification**
- **Login Request** providing credentials to authenticate the caller
- **Operation Request**

An input request document has the following overall structure:

<?xml version="1.0" encoding="UTF-8"?>

<!DOCTYPE DATACONNECTRQ PUBLIC
'-//DataConnect DTD//DataConnect//EN'
'http://www.byallaccounts.net/WebPortfolio/com/baa/dtd/v4/DataConnectLiteRQ.dtd'>
<DATACONNECTRQ>
<VERSION>VERSION4.0**</VERSION>**
{ One login request }
{ One data retrieval or update request }
</DATACONNECTRQ>

Output Response

A response document has the following overall structure:

<?xml version="1.0" encoding="UTF-8"?>

<!DOCTYPE DATACONNECTRS PUBLIC
'-//DataConnect DTD//DataConnect//EN'
'http://www.byallaccounts.net/WebPortfolio/com/baa/dtd/v4/DataConnectLiteRS.dtd'>
<DATACONNECTRS>
<VERSION>VERSION4.0**</VERSION>**
{ One login response }
{ One data retrieval or update response }
</DATACONNECTRS>

Authentication

The DataConnect user must provide a username and password that is used to authenticate him. If a user requests an operation for which he is not authorized, an error is returned. Please see the following Authorization section for a description of the privileges required to access DataConnect.

A login request must be included as the first request in each DataConnect input request document. Its purpose is to submit credentials for authentication.

Authorization

The type of login (administrative or non-administrative) and the API privilege level of the login are used to determine which operations are available to that login.

Administrative users of the DataConnect API are given access to all users related to the administrative user's firm. Advisors are given access to their own data and to the data of their clients. If the firm's usage model is Investor-managed, Investors are given full access to their own data. If the firm's usage model is Advisor-managed, the Advisor determines the level of access (if any) that the Investor has to his financial information.

Asynchronous Operation

Potentially, the DataConnect **Get Data** operation can be lengthy because it is primarily used to retrieve a large amount of data (many users, many transactions, etc.). An http connection cannot be maintained for the duration of the operation because it consumes resources unnecessarily and is subject to interruption by a number of factors, including various client and server timeout settings. Therefore, **Get Data** is provided as both a synchronous and an asynchronous operation. The asynchronous operation is distinguished by **_A** at the end of the request and response tags (e.g., **<DATAGETRQ>** is synchronous; **<DATAGETRQ_A>** is asynchronous.). The DataConnect client determines which form to use.

For asynchronous operations, the simple request/response communication sequence used by synchronous operations is replaced with the following steps:

1. DataConnect client sends initial request (**<DATAGETRQ_A>**, etc.).
2. DataConnect server reads and parses initial request. If the request is not valid, an error is returned. If the request is valid, an **Operation Started** status along with a receipt (to retrieve the data later) and an expiration timestamp (point after which the data is no longer retained) are returned. A suggested wait time in milliseconds before issuing the **Claim Data** request is also included in the response.
3. DataConnect server begins processing the request.
4. DataConnect client waits for the number of milliseconds specified in the **<CLAIM_WAIT>** and then sends the subsequent request (<**DATACLAIMRQ>**) including the receipt to determine if the operation is completed. DataConnect server responds with one of the following:
    - Invalid/expired receipt
    - Operation in progress
    - Status and data from the operation
5. Once the client receives data, he should call back the DataConnect server with an Acknowledge Data Receipt request. Upon receipt of this acknowledgement, the DataConnect server removes the data from the temporary data store.

DataConnect clients must accommodate the return of the **Operation Started** status and code to the above scheme in those cases. When the operation completes, the data resulting from the operation is retained until the expiration time of the receipt. Expiration time is determined on a per operation basis.

Aggregates

The following aggregates are used in DataConnect:

- **<STATUS>**

  The **<STATUS>** aggregate is used to communicate the result status of a requested operation. **<STATUS>** is always returned as part of a response message and contains:
  - **<ERRCODE>:** A numeric code that uniquely identifies the error
  - **<ERRMSG>:** The text corresponding to **ERRCODE** (Omitted if **<ERRCODE>** indicates the operation was successful)

  One or more errors (**ERRCODE+ERRMSG**) can be included in a **<STATUS>** aggregate. Typically, multiple error messages are provided if there are multiple errors in the input request. In most other cases, a single error is provided. In the case where multiple errors are provided, it is safe to treat the first error in the list as the primary error.

- **<FILIST>**

  The **<FILIST>** aggregate is used to group one or more **<FI>** elements.

- **<SECURITYLIST>**

  The **<SECURITYLIST>** aggregate is used to group one or more **<SECURITY>** elements.

- **<USER_IDENT>**

  The **<USER_IDENT>** aggregate is used to provide identifying information for a user by specifying one identifier field value and its type:
  - **<PERSON_ID>**
  - **<PERSON_FIRM_TAG1>**
  - **<PERSON_LOGIN_NAME>**

  The **<USER_IDENT>** identifies a Person, and is also used to indirectly identify the Financial Profile for that Person. The Financial Profile for the Person is the profile to which he has a Profile Access relationship with role INVESTOR.

Data Types

In addition to the Data Types defined in the **General Object Information section**, the following Data Type is used in values of request or response elements:

Data Type	Description
RECEIPTnn	A receipt for an asynchronous operation. The receipt is alphanumeric and can contain up to **nn** characters.

Operation Profile

In general, each operation consists of a request/response message pair. The request is what is sent to DataConnect to request that the operation be performed. The response is what DataConnect returns to indicate whether the operation was successfully or not, as well as to return any data related to the request.

Operation Summary

The following table contains all DataConnect operations. It includes the purpose of the operation and its associated Request/Response pair.

General Operations		
Login	Authenticates the caller as a user with sufficient privilege to perform DataConnect functions.	Request: **<LOGINRQ>** Response: **<LOGINRS>**
General Error	General Error is a response-only message that is returned when DataConnect is unable to process the input request document because it is empty, malformed, or otherwise fundamentally incorrect.	Request: N/A Response: **<GENERALRS>**
Asynchronous Helper Operations		
Claim Data	Retrieves data resulting from a previously requested asynchronous operation.	Request: **<DATACLAIMRQ>** Response: **<DATACLAIMRS>**
Acknowledge Data Received	Informs the DataConnect server that the data was successfully retrieved and that DataConnect may release the data.	Request: **<DATAACKRQ>** Response: **<DATAACKRS>**
Claim File	Used in conjunction with the Export Data (Asynchronous) operation to download the ZIP file.	Request: **<FILECLAIMRQ>** Response: **ZIP file containing CSV exports or <FILECLAIMRS>**
Retrieval Operations		
Get Data (Synchronous)	Retrieves personal profiles and financial information for one or more users.	Request: **<DATAGETRQ>** Response: **<DATAGETRS>**
Get Data (Asynchronous)	Provides the same data retrieval capability as the Synchronous Get Data function.	Request: **<DATAGETRQ_A>** Response**:** **<DATAGETRS_A>**
Export Data (asynchronous)	Retrieves accounts, holdings, transactions, and clients in CSV-delimited format.	Request: **<DATAEXPORTRQ_A>** Response: **<DATAEXPORTRS_A>**

General Operations

This section describes the operations of general utility, including authentication and general error response.

The following items are defined for each DataConnect operation (**Note:** Sections identified as optional are omitted if there is no relevant information for that operation.):

- **Purpose:** Why or for what the operation is used
- **Restrictions:** Limitations or notes on the use of the operation
- **Behavior (optional):** For complex operations, explains in detail the behavior of the operation under different circumstances
- **User Notifications (optional):** User notifications resulting from the function (if any)
- **Request:** Form of the function request
- **Response:** Form of the function response
- **Errors:** Status codes that may be returned in the response
- **Sample XML:** Examples of the operation request and response (**Note:** Ellipses (...) are used in the Sample XML to indicate the presence of additional information not shown.)

Login

Purpose

Authenticates the caller as a user with sufficient privilege to perform DataConnect API functions.

Restrictions

The following restriction applies to the use of this function:

There must be only one **LOGINRQ** in an input request document and it must be the first request in the document.

Request: <LOGINRQ>

The **<LOGINRQ>** request can contain the following:

Tag	Required	Field	Description
<LOGIN_NAME>	√	**LOGIN_NAME**	Login name for a user with DataConnect API privileges.
<LOGIN_PW>	√	**LOGIN_PW**	Password that goes with **LOGIN_NAME**.
<NEW_LOGIN_PW>		**NEW_LOGIN_PW**	Changes password for **LOGIN_NAME** to **NEW_LOGIN_PW**. The current **LOGIN_PW** must be provided in **LOGIN_PW**. This option is typically used when **LOGIN_PW** has expired and must be reset to gain access to DataConnect. If the password change does not succeed, then the **LOGINRQ** fails and any subsequent requests fail as well.

Response: <LOGINRS>

The **<LOGINRS>** response can contain the following:

Tag	Required	Field	Description
<STATUS>	√		See **<STATUS> aggregate** description.

Errors

This operation may return the following errors in the **<STATUS>** portion of the response:

Error Code	Severity	Error Message
56003	Error	The login name or password is incorrect.
56011	Error	Caller's account is disabled. Contact technical support for assistance.
56019	Error	Caller has been unsubscribed and can no longer log in.
56027	Error	The password has expired.
56803	Error	The new password does not meet minimum length requirements.
56811	Error	The new password cannot be a single repeated character.
56819	Error	The new password cannot be all letters or all numbers.
56827	Error	The new password must be different than your old password.
56835	Error	The password has too many sequential or repeating characters (e.g. AAAA or 1234).
56843	Error	The new password cannot be the same as the login.
56851	Error	The new password must have at least one letter.
67739	Error	Access was not performed from an allowed IP address.

Sample XML

The Login Request is always the first request in an input request document. An additional request to retrieve or update data follows the Login Request.

The following is a sample Login Request:

```
<DATACONNECTRQ>
    <VERSION>VERSION4.0</VERSION>
    <LOGINRQ>
    <LOGIN_NAME>joesmith</LOGIN_NAME>
    <LOGIN_PW>xyz123</LOGIN_PW>
    </LOGINRQ>
...
</DATACONNECTRQ>
```

The following is a sample Login Response:

```
<DATACONNECTRS>
    <VERSION>VERSION4.0</VERSION>
    <LOGINRS>
    <STATUS>
        <ERRCODE>0</ERRCODE>
        <ERRMSG>Success</ERRMSG>
    </STATUS>
    </LOGINRS>
...
</DATACONNECTRS>
```

General Error

Purpose

General Error is a response-only message that is returned when DataConnect is unable to process the input request document because it is empty, malformed, or otherwise fundamentally incorrect.

Restrictions

None

Response: <GENERALRS>

The **<GENERALRS>** can contain the following:

Tag	Required	Field	Description
<STATUS>	√		See **<STATUS> aggregate** description.

Errors

The <GENERALRS> operation may return the following errors in the **<STATUS>** portion of the response:

Error Code	Severity	Error Message
65547	Error	An Internal error occurred
65699	Error	>** Parsing error, line 11 Element "XXXX" does not allow "xxxx" here
65747	Error	The DataConnect version is unsupported or invalid
65819	Error	The request was empty

Sample XML

In response to a malformed request, a response similar to the following may be received:

```
<DATACONNECTRS>

    <VERSION>VERSION4.0</VERSION>
    <GENERALRS>
    <STATUS>
        <ERRCODE>65819</ERRCODE>
        <ERRMSG>The request was empty </ERRMSG>
    </STATUS>
    </GENERALRS>

</DATACONNECTRS>
```

Asynchronous Helper Operations

Used in conjunction with asynchronous operations, the operations presented in this section are used to complete the operation. These helper operations provide generic messages for retrieving data resulting from an asynchronous operation and for releasing that data once the DataConnect client receives it.

Claim Data

Purpose

Retrieves data resulting from a previously requested asynchronous operation.

Restrictions

The following restrictions apply to this operation:

The credentials provided in the **<LOGINRQ>** accompanying this operation and the credential used to originally submit the operation request must be identical. If they are not, an error is returned.

Request: <DATACLAIMRQ>

The **<DATACLAIMRQ>** can contain the following:

Tag	Required	Data Type	Description
<RECEIPT>	√	**RECEIPT64**	Receipt previously issued to the DataConnect client for an asynchronous operation.

Response: <DATACLAIMRS>

The following is a response to a **<DATACLAIMRQ>** request.

If the asynchronous operation is not completed, a **<DATACLAIMRS>** response, containing the following, is returned:

Tag	Required	Data Type	Description
<STATUS>	√		See **<STATUS> aggregate** description.
<RECEIPT>	√	**RECEIPT64**	Receipt provided in request.
<CLAIM_WAIT>			Provided only if **<RECEIPT>** is valid. Value is the number of milliseconds to wait before reattempting the **Claim Data** request.

The status typically indicates that the operation is in progress, or it could report that the receipt expired.

If the asynchronous operation is complete, the data returned is the full response for that operation, e.g., **<DATAGETRS>**. (**Note:** In this case, the **<DATACLAIMRS>** response tags are not used.).

Errors

This operation may return the following errors in the **<STATUS>** portion of the response:

Error Code	Severity	Error Message

0	Success	Success
0	Success	Operation started
0	Success	Operation in progress
65547	Error	An Internal error occurred
65570	Warning	The operation did not complete in its allotted time
65579	Error	The receipt has expired

Sample XML

The following is a sample request:

```
<DATACONNECTRQ>

    <VERSION>VERSION4.0</VERSION>
    <LOGINRQ>...</LOGINRQ>

    <DATACLAIMRQ>
     <RECEIPT>445685847112929088O</RECEIPT>
     </DATACLAIMRQ>

</DATACONNECTRQ>
```

The following is a sample response:

```
<DATACONNECTRS>

    <VERSION>VERSION4.0</VERSION>
    <LOGINRS>...</LOGINRS>

    <DATACLAIMRS>
    <STATUS>
        <ERRCODE>0</ERRCODE>
        <ERRMSG>Operation in progress </ERRMSG>
     </STATUS>
     <RECEIPT>445685847112929088O</RECEIPT>
     <CLAIM_WAIT>5000</CLAIM_WAIT>
     </DATACLAIMRS>

</DATACONNECTRS>
```

Acknowledge Data Received

Purpose

Informs the DataConnect server that the data was successfully retrieved and that DataConnect can release the data. Upon receiving this request, the DataConnect server removes that data from storage and the receipt is expired regardless of any prior expiration date issued with the receipt.

Restrictions

None

Behavior

This operation exhibits the following behaviors:

1. If the **<DATAACKRQ>** is submitted while the operation corresponding to the receipt is still in progress, an error is returned. The operation must complete prior to retrieving the data and acknowledging data receipt.
2. If the credentials provided in the **<LOGINRQ>** accompanying this operation and these credential differ from those originally used to submit the operation request, an error is returned.

Request: <DATAACKRQ>

The **<DATAACKRQ>** can contain the following:

Tag	Required	Data Type	Description
<RECEIPT>	√	**RECEIPT64**	Receipt previously issued to the DataConnect client for this asynchronous operation.

Response: <DATAACKRS >

The **<DATAACKRS>** can contain the following:

Tag	Required	Data Type	Description
<STATUS>	√		See **<STATUS> aggregate** description.
<RECEIPT>	√	**RECEIPT64**	Receipt provided in request.

Errors

This operation may return the following error in the **<STATUS>** portion of the response:

Error Code	Severity	Error Message
0	Success	Success
65547	Error	An Internal error occurred
65579	Error	The receipt has expired

Sample XML

The following is a sample request:

<DATACONNECTRQ>

```
<VERSION>VERSION4.0</VERSION>
<LOGINRQ>...</LOGINRQ>

<DATAACKRQ>
 <RECEIPT>4456858471129290880</RECEIPT>
 </DATAACKRQ>

</DATACONNECTRQ>
```

The following is a sample response:

```
<DATACONNECTRS>

<VERSION>VERSION4.0</VERSION>
<LOGINRS>...</LOGINRS>

<DATAACKRS>
<STATUS>
    <ERRCODE>0</ERRCODE>
    <ERRMSG>Success</ERRMSG>
 </STATUS>
 <RECEIPT>4456858471129290880</RECEIPT>
 </DATAACKRS>

</DATACONNECTRS>
```

Claim File

Purpose

The Claim File operation is used in conjunction with the **Export Data (Asynchronous)** operation. Once an Export Data operation has completed and indicated that a requested export file is ready to download, a Claim File operation should be submitted to actually download the ZIP file.

Restrictions

Available to all user types. The Claim File must be performed by the same user who submitted the original Export Data request.

Behavior

This operation exhibits the following behaviors:

1) In normal successful usage a ZIP file of CSVs is produced containing a README.txt and CSV files (listed in the response table on page 61). Whether a particular CSV file is included depends on two factors: if it was requested and if there is data for it.

   For example, export_accounts.csv is included if and only INCACCOUNTFILE was included in the request AND at least one account was found. The same is true for export_positions.csv (INCHOLDINGFILE), and for export_transactions.csv (INCTXFILE). It is possible to have no CSVs and just the README.txt file. The README.txt file will always be present, and will include error messages if any unexpected errors occurred when generating any of the files.

   Here are examples of README.txt file files. There is always one ZIP file present. In this one, the user requested four of the CSV files and got four CSV files:

   2014-02-25 15:52 EST, Accounts exported to export_accounts.csv
   2014-02-25 15:52 EST, Positions exported to export_positions.csv
   2014-02-25 15:52 EST, Transactions exported to export_transactions.csv
   2014-02-25 15:52 EST, Clients exported to export_clients.csv

   Here the user requested only accounts (via including INCACCOUNTFILE), but there were none, so the user received no CSV files:

   2014-02-25 15:52 EST, There were no Accounts to export

2) If no file is found (due to an unexpected error condition), then a ZIP file containing a standard DataConnect XML response with a FILECLAIMRS (or possibly a GENERALRS or LOGINRS) indicating the error condition.

Request: <FILECLAIMRQ>

The request consists of the RECEIPT associated with a given DATAEXPORTRS_A operation which has already been established to be completed.

The **<FILECLAIMRQ>** request can contain the following:

Tag	Required	Field	Description
<RECEIPT>	√	RECEIPT	The receipt provided during the original DATAEXPORTRS_A operation.

Response: ZIP file containing CSV exports, or <FILECLAIMRS>

A normal response to a FILECLAIMRS will be a ZIP file containing:

Filename	Required	Description
README.txt	√	A brief log file

export_accounts.csv		A list of accounts, included only if 1) INCACCOUNTFILE tag was included in original request, and 2) at least one account to export was found
export_positions.csv		A list of holdings, included only if 1) INCHOLDINGFILE tag was included in original request, and 2) at least one holding to export was found
export_transactions.csv		A list of transactions, included only if 1) INCTXFILE tag was included in original request, and 2) at least one transaction to export was found
export_clients.csv		A list of clients, included only if 1) INCCLIENTFILE tag was included in the original request and 2) at least one client to export was found
export_investmentoptions.csv		A list of the investment options, included only if 1) **INCINVOPTFILE** tag was included in original request, and 2) at least one investment option to export was found.

For details about these files, refer to the *AccountView and DataConnect Export* guide posted at **http://www.byallaccounts.net/manuals/accountview/BAA_Export.PDF**.

The **<FILECLAIMRS>** XML response will contain the following (error cases only):

Tag	Required	Field	Description
<STATUS>	√		See **<STATUS> aggregate** description.

Errors

This operation may return the following errors in the **<STATUS>** portion of the response:

Error Code	Severity	Error Message
0	Success	Success
65547	Error	An Internal error occurred
65579	Error	The receipt has expired
67499	Error	Bulk Export files not generated

Sample XML

The following is a sample **<FILECLAIMQ>** request:

```
<DATACONNECTRQ>
    <VERSION>VERSION4.0</VERSION>
    <LOGINRQ>
        <LOGIN_NAME>JoeSmith1</LOGIN_NAME>
        <LOGIN_PW>JoeSmith1</LOGIN_PW>
    </LOGINRQ>
    <FILECLAIMRQ>
            <RECEIPT>4456858471129290880<RECEIPT>
    </FILECLAIMRQ>
</DATACONNECTRQ>
```

The operation should yield a ZIP file containing a README.txt file possibly one or more CSV files.

Retrieval Operations

This section defines operations for retrieving data from DataConnect.

Get Data (Synchronous)

Purpose

Retrieves personal profiles and financial information for one or more users.

Restrictions

None

Behavior

This operation exhibits the following behaviors:

1. Administrative users are not returned in the response data.
2. The response data is structured so that Securities, Financial Services, and Users are delivered in their own separate aggregate at the beginning of the document. Subsequent data for each User refers to those shared Securities and Financial Services. Data returned for each of these object types is determined by which Users are included in the response set. Specifying **<INCHOLDING/>** or **<INCTX>** does not affect the Securities included in the **<SECURITYLIST>**.

Request: <DATAGETRQ>

The request consists of the following two primary items:

- Type of information to include in the response. Choose from any combination of the following: FI (Financial Institution or Financial Service), Security, User (Person and Profile Access), Financial Profile, Portfolio, Account, Account Credential, Holding, and Transaction. Designate the type of information to include using the **<INCxxx>** tags.

- Data to include in the response. You can specify data retrieval criteria for a single type of object per request, and you may choose from one of the following object types: User, Financial Profile, Portfolio, or Account. If Transactions are to be included, then you can specify a date range or ID range to constrain the set of Transactions returned.

  The type of object you use to constrain the request affects how data for other object types is retrieved. For example, if you retrieve data for a single Account, but elect to receive Security and Portfolio information, then only the Portfolio that contains that Account and the Securities for Holdings in that Account are returned to you.

  Designate the data to include in the response using the **<GET_DATA_QUERY>** element.

The **<DATAGETRQ>** request can contain the following:

Tag	Required	Field	Description
<GET_DATA_QUERY>			See the **<GET_DATA_QUERY> aggregate** description on the following page. If no **GET_DATA_QUERY** is provided then all data available to the caller is returned constrained by any Transaction range specified in **<INCTX>.**
<GETOPTIONS>			Options for data retrieval. See the **<GETOPTIONS> Aggregate** description following.
<INCSECURITY>			See the **<INCSECURITY> Aggregate**description following. Provides an option for including security closing prices. If present, specifies that Security information should be included in the response. If absent, Securities are not included in the response.
<INCFI/>			Empty tag: If present, specifies that Financial Service information should be included in the response. If absent, Financial Services are not included in the response.
<INCUSER/>			Empty tag: If present, specifies that Person, Login, and Profile Access information should be included in the response. If absent, this information is not included in the response.
<INCFP/>			Empty tag: If present, specifies that Financial Profile objects should be included in the response. If absent, Financial Profiles are not included in the response.
<INCPORTFOLIO/>			Empty tag: If present, specifies that Portfolios should be included in the response. If absent, Portfolios are not included in the response.
<INCACCTCRED/>			Empty tag: If present, specifies that Account Credentials should be included in the response. If absent, Account Credentials are not included in the response.
<INCACCOUNT/>			Empty tag: If present, specifies that Accounts should be included in the response. If absent, Accounts are not included in the response.
<INCHOLDING>			If present, specifies that holdings should be included in the response. The aggregate provides for inclusion of sold-off holdings. **Note:** See the **<INCHOLDING> Aggregate** description following.
<INCHOLDINGLOT/>			Empty tag: If present, specifies that holding lots should be included in the response.
<INCTX>			If present, specifies that Transactions should be included in the response. If absent, Transactions are not included in the response. **Note:** See the **<INCTX> aggregate** description following.
<INCINVOPT>			Empty tag: If present, specifies that Investment Options should be included in the response.

<GET_DATA_QUERY> Aggregate

The **<GET_DATA_QUERY>** aggregate identifies the objects to be retrieved. If omitted, all objects available to the caller are returned. This is combined with the specification of which type of information to include in the response (see **<INCxxx>** elements in the table on the prior page). First, you must choose which type of object you will use to drive your query. Then, you may specify search criteria for one or more objects of that type. The following object types are available (see their corresponding query components in the table below):

- User
- Financial Profile
- Portfolio
- Account

Data included in the response is filtered according to the driving objects. Therefore, if you identify a single Portfolio to be retrieved using **<PORTFOLIO_QUERY>** and you specify the **<INCACCOUNTS/>** element only, your response data includes details for all the Accounts that are members of the specified Portfolio. Similarly, going up the data 'tree', if you specify **<INCUSER/>** instead of **<INCACCOUNTS/>**, the information for the user who 'owns' the Portfolio (i.e., the Portfolio contained in the Financial Profile for that INVESTOR user) is included in the response. The broadest filter you can specify is by User.

<GET_DATA_QUERY> can contain one of the following:

Tag	Required	Field	Description
<USER_QUERY>			Identifies the Users for which data should be retrieved. See **USER_QUERY aggregate**.
<FINANCIAL_PROFILE_QUERY>		**Financial_Profile.ID**	Identifies the Financial Profiles for which data should be retrieved. More than one **<FINANCIAL_PROFILE>** can be included.
<PORTFOLIO_QUERY>		**Financial_Profile.ID** **Portfolio.ID**	Identifies the Portfolios within the designated Financial Profile for which data should be retrieved. More than one **<PORTFOLIO>** can be included.
<ACCOUNT_QUERY>		**Financial_Profile.ID Account.ID**	Identifies the Accounts within the designated Financial Profile for which data should be retrieved. More than one **<ACCOUNT>** can be included.

<USER_QUERY> Aggregate

Identifies the set of users to return in the result data. This aggregate contains one of the following:

- **<USER_IDENT>**: Identifies a particular Person for whom data should be retrieved. More than one **<USER_IDENT>** can be given in the **<USER_QUERY>**.
- **<PERSON_ROLE>**: Gives a **ROLE** value for a Person - INVESTOR, ADVISOR, ASSISTANT, or CONSULTANT. Use this to retrieve only certain types of users (e.g., Advisors). If not specified, users of all types (INVESTOR, ADVISOR, ASSISTANT, CONSULTANT) are returned. When an INVESTOR type user is requested, the system-created Unassigned Investor(s) may be returned.
- **<HAVING_ADVISOR>**: Contains a **<USER_IDENT>** for an Advisor. Use this to retrieve data for all Persons who are served by this Advisor. Provide an empty **<HAVING_ADVISOR/>** tag to retrieve persons who are not assigned to an Advisor.
- **<USER_SEARCH>**: Allows for a case-insensitive containment-based search using at least one of **FIRST_NAME** and/or **MIDDLE_NAME** and/or **LAST_NAME**. If multiple search fields are used, the results will include only users which match all of the search criteria. Optionally the USER_SEARCH may also include one or more **ROLE** values for a Person: INVESTOR, ADVISOR, ASSISTANT, or CONSULTANT; the user search will be restricted to users which match the given **ROLE**(s).

<FINANCIAL_PROFILE_QUERY>, <PORTFOLIO_QUERY>, <ACCOUNT_QUERY> Aggregates

Each of these three aggregates can contain one or more **<ID>s** that identify objects of that type to include in the result data.

A **FINANCIAL_PROFILE_QUERY** identifies the **ID(s)** of the target profiles:

<FINANCIAL_PROFILE_QUERY>
<ID>145**</ID>**
<ID>553**</ID>**
</FINANCIAL_PROFILE_QUERY>

A **PORTFOLIO_QUERY** identifies a single Financial Profile and one or more Portfolios from that Financial Profile that should be included. The following example requests that data for the Portfolios with **ID** 123 or 125 be included in the result data:

<PORTFOLIO_QUERY>
<FP_ID>45226**</FP_ID>**
<ID>123**</ID>**
<ID>125**</ID>**
</PORTFOLIO_QUERY>

The **ACCOUNT_QUERY** is very similar to the **PORTFOLIO_QUERY**. It identifies a single Financial Profile and one or more Accounts from that Financial Profile that should be included:

<ACCOUNT_QUERY>
<FP_ID>45226**</FP_ID>**
<ID>123**</ID>**
<ID>125**</ID>**
</ ACCOUNT_QUERY>

<GETOPTIONS> Aggregate

The <GETOPTIONS> aggregate allows the user to specify that only data for captive or non-captive counts is to be included in the response. This tag is optional. GETOPTIONS can contain the following:

- One of the following to control inclusion of captive or non-captive accounts in the response:
    - <CAPTIVEONLY/> - directs that accounts, account credentials, holdings, transactions, and FIs should only be returned in the response if the account (itself or as the related account for account credentials, holdings, transactions, and FIs) is captive (CAPTIVE field is true).
    - <NONCAPTIVEONLY/> - directs that accounts, account credentials, holdings, transactions, and FIs should only be returned in the response if the account (itself or as the related account for account credentials, holdings, transactions, and FIs) is non-captive (CAPTIVE field is false).
- <INCMULTICURR/> - causes multi-currency information to be included for any positions and transactions in the response.

<INCSECURITY> Aggregate

The <INCSECURITY> aggregate is used to request that securities be included in the DATAGET response. INCSECURITY can take one of the following forms:

- can be an empty tag, <INCSECURITY/>
- can include a subordinate tag to request that security prices be delivered in the security data:
  <INCSECURITY>
  <INCSECDETAIL/>
  </INCSECURITY>
- Can include a subordinate tag <INCSECAC/> to request that ASSET_CLASS and ASSET_SUBCLASS fields be delivered in the security data:
  <INCSECURITY>
  <INCSECAC/>
  </INCSECURITY>
- Can include a subordinate tag <INCEXTRASECINFO/> to include additional Morningstar security data INCEXTRASECINFO able if the Firm is licensed through Morningstar ByAllAccounts to receive the data:
  <INCSECURITY>
  < INCEXTRASECINFO />
  </INCSECURITY>

<INCHOLDING> Aggregate

The <INCHOLDING> aggregate is used to request that holdings be included in the DATAGET response. A holding is either *active* or *sold-off*. Active holdings are those that the Financial Institution reports as present in the account. Sold-off holdings are those that were once present in an account but that the Financial Institution no longer reports as present due to sale, transfer, exchange, or otherwise removal of the position from the account. Sold-off holdings are identified by the presence of a DELETED_ON tag in the holding element that provides the date on which the holding was removed from the account.

The <INCHOLDING> can have one of the following forms:

- Can be the empty tag <INCHOLDING/>. This causes only active holdings to be included in the response.
- Can also include a sub-tag <INCHOLDINGSO> that controls the inclusion of sold-off holdings in the response. Note that active holdings are always included when the INCHOLDING tag is specified regardless of the use of the subordinate INCHOLDINGSO tag. The INCHOLDINGSO tag can take one of the following forms:
    - can be an empty tag, <INCHOLDINGSO/>, would be used as follows:
      <INCHOLDING>
      <INCHOLDINGSO/>
      </INCHOLDING>

      This specifies that sold-off holdings should be included in the response. If the request does not specify the INCTX tag then all sold-off holdings are included in the response. Caution should be taken when using this option as this the number of sold-off holdings could be very large. If the request includes the INCTX tag then only sold-off holdings referenced by transactions included in the response are included.

    - can include a date restriction:
      <INCHOLDING>
      <INCHOLDINGSO>20040101</INCHOLDINGSO>
      </INCHOLDING>

      The date restricts the sold-off holdings included in the response. Only those holdings with a DELETED_ON date on or after the specified date will be included in the response. When this form of INCHOLDINGSO is used no other criteria (such as the presence of an INCTX tag in the DATAGETRQ) are used to restrict the sold-off holdings returned in the response.
- Can also include a subordinate tag <INCHOLDAC/> to request that ASSET_CLASS and ASSET_SUBCLASS fields be delivered in the holding data:
  <INCHOLDING>
  <INCHOLDAC/>
  </INCHOLDING>

<INCTX> Aggregate

The **<INCTX>** aggregate:

- Can be an empty tag (in which case, **all Transactions** are returned).

OR

- Can contain one of the following to restrict the set of Transactions returned:

Tag	Required	Field	Description
<TX_START_DATE>	√	**Transaction.EXECUTION_DATE**	See **<INCTX> aggregate notes** below.
<TX_END_DATE>		**Transaction.EXECUTION_DATE**	See **<INCTX> aggregate notes** below.

OR

Tag	Required	Field	Description
<TX_START_ID>	√	**Transaction.ID**	See **<INCTX> aggregate notes** below.
<TX_END_ID>		**Transaction.ID**	See **<INCTX> aggregate notes** below.

OR

Tag	Required	Field	Description
<TX_SETTLE_START_DATE>	√	**Transaction.SETTLEMENT_DATE**	See **<INCTX> aggregate notes** below.
<TX_SETTLE_END_DATE>		**Transaction.SETTLEMENT_DATE**	See **<INCTX> aggregate notes** below.

Two additional options are available in <INCTX>. The **<INCEXINFO/>** option in the <INCTX> aggregate causes the inclusion of additional fields that contain descriptive information about the transaction from the custodian: FI_SUPPLIED_DESCRIPTION, FI_SUPPLIED_TX_TYPE, FI_SUPPLIED_TX_TYPE2, and FI_SUPPLIED_TX_TYPE_CODE. The < INCHOLDINGLOTINFO> option in the <INCTX> aggregate is an empty tag which if present, specifies that holding lot related information for the transactions should be included in the response.

<INCTX> aggregate notes:

- **<TX_START_DATE>** and (optionally) **<TX_END_DATE>** are used to constrain the set of Transactions returned by **EXECUTION_DATE**:
  - The date range is applied to the transaction's **EXECUTION_DATE** field.
  - **YYYYMMDD:** The format used to identify the date, where **YYYY** is a four-digit year such as 2003, **MM** is a two-digit month identifier ranging from 01 (January) to 12 (December), and **DD** is a two-digit day identifier ranging from 01 to 31.
  - If there is a start date but no end date, the end date is set to the day of the API call.
  - The start date must be before or the same as the end date.
  - The date range is inclusive of start date and exclusive of end date. If a start date is specified, then all Transactions with execution dates on or after that date are included. If an end date is also specified, then only Transactions with an execution date before the given end date are included.

- **<TX_START_ID>** and (optionally) **<TX_END_ID>** are used to constrain the set of Transactions returned by **Transaction.ID:**
  - **NNN:** A Transaction ID (see **ID** field in the **Transaction section** and see UID Data Type description in DataConnect **Data Types section**) - a positive integer from 0 to 999999999999999999 (18 digits). No punctuation (such as comma "," separator or decimal point) should be used in this ID value.
  - If there is start Transaction number but no end Transaction number, then all Transactions with an ID equal to or greater than the ID specified in <**TX_START_ID**> are returned.
  - The start ID must be less than or equal to the value of the end ID.
  - The ID range is inclusive of the start ID and exclusive of the end ID. If a start ID is specified, then all Transactions with IDs equal to or greater than the start ID are included. If an end ID is also specified, then only Transactions with IDs less than the end ID are included.
- **< TX_SETTLE_START_DATE>** and (optionally) **< TX_SETTLE_END_DATE>** are used to constrain the set of Transactions returned by**:**
  - The date range is applied to the Transaction's **SETTLEMENT_DATE** field.
  - **YYYYMMDD:** The format used to identify the date, where **YYYY** is a four-digit year such as 2003, **MM** is a two-digit month identifier ranging from 01 (January) to 12 (December), and **DD** is a two-digit day identifier ranging from 01 to 31.

- If there is a start date but no end date, the end date is set to the day of the API call.
- The start date must be before or the same as the end date.
- The date range is inclusive of start date and exclusive of end date. If a start date is specified, then all Transactions with settlement dates on or after that date are included. If an end date is also specified, then only Transactions with an settlement date before the given end date are included.

Response: <DATAGETRS>

The **<DATAGETRS>** response can contain the following:

Tag	Required	Field	Description
<STATUS>	√		See **<STATUS> aggregate**.
<SECURITYLIST>		**SECURITY.***	See **<SECURITYLIST> aggregate**. List contains one or more Securities. Includes Securities referenced by Users included in the response.
<FILIST>		**Financial_Service.ID**, **Financial_Service.NAME**, **Financial_Service.SERVICE_CATEGORY**	See **<FILIST> aggregate**. List contains one or more Financial Services. Includes services referenced by the Users in this response.
<USERLIST>		**Person.*, Profile_Access.***	See **<USER> aggregate**. List contains one or more Users.
<FP_DATA>			See **<FP_DATA> aggregate**. Financial Profile data for the Users selected.

*** =** indicates **All** fields

The **<FP_DATA>** aggregate contains the financial data for a single Investor. It can contain the following:

Tag	Required	Field	Description
<FINANCIAL_PROFILE>	√	**Financial_Profile.***	See **Financial Profile object data definition**.
<PORTFOLIO>		**Portfolio.***	Can have more than one. See **Portfolio object data definition**.
<ACCOUNT_CREDENTIAL>		**Account_Credential.***	Can have more than one. See **Account Credential object data definition**.
<ACCOUNT>		**Account.***	Can have more than one. See **Account object data definition**.
<HOLDING>		**Holding.***	Can have more than one. See **Holding object data definition**.
<HOLDING_LOT>		**Holding_Lot***	Can have more than one. See **Holding Lot object data definition**.
<TRANSACTION>		**Transaction.***	Can have more than one. See **Transaction object data definition**.
<INVESTMENT_OPTION>		**Investment_Option ***	Can have more than one. See **Investment Option object data definition**.

*** =** indicates **All** fields

The **<USER>** aggregate contains the personal and access information for a single user. It can contain the following:

Tag	Required	Field	Description
<PERSON>	√	**Person.***	See **Person object data definition**.
<PROFILE_ACCESS>		**Profile_Access.***	Can have more than one if the Person is an Advisor or Assistant.

Errors

This operation may return any of the following errors in the **<STATUS>** portion of the response:

Error Code	Severity	Error Message
65699	Error	The request is invalid or formatted incorrectly
65707	Error	The date is invalid or formatted incorrectly
65715	Error	The transaction ID range is invalid
65723	Error	The transaction date range is invalid
65731	Error	The transaction start date is invalid
65739	Error	The transaction end date is invalid
65939	Error	The requested user was not found
65947	Error	Caller is not authorized to make this request
66099	Error	The <object name> could not be found
66107	Error	The requested user was not found
66115	Error	The requested user has been unsubscribed. No further operations can be performed on the user
67635	Error	At least one of first name, middle name, or last name must be provided.
67643	Error	The user type must be one of INVESTOR, ADVISOR, ASSISTANT, or CONSULTANT

Sample XML

The following is a sample **<DATAGETRQ>** request that gets Financial Services, Portfolios, Accounts, and user information for the user with the person ID 8000.

```
<DATACONNECTRQ>
    <VERSION>VERSION4.0</VERSION>
    <LOGINRQ>.... </LOGINRQ>
    <DATAGETRQ>
        <GET_DATA_QUERY>
            <USER_QUERY>
                <USER_IDENT>
                    <PERSON_ID>8000</PERSON_ID>
                </USER_IDENT>
            </USER_QUERY>
        </GET_DATA_QUERY>
        <INCUSER/>
        <INCFP/>
        <INCACCTCRED/>
        <INCACCOUNT/>
        <INCHOLDING/>
        <INCTX/>
    </DATAGETRQ>
</DATACONNECTRQ>
```

The following is a sample of a corresponding **<DATAGETRS>** response:

```
<DATACONNECTRS>
    <VERSION>VERSION4.0</VERSION>
    <LOGINRS>
        <STATUS>
            <ERRCODE>0</ERRCODE>
            <ERRMSG>Success</ERRMSG>
        </STATUS>
    </LOGINRS>
    <DATAGETRS>
        <STATUS>
            <ERRCODE>0</ERRCODE>
            <ERRMSG>Success</ERRMSG>
        </STATUS>
        <USERLIST>
            <USER>
                <PERSON>
                    <ID>8000</ID>
                    <FIRM_TAG1>FirmTag1</FIRM_TAG1>
                    <ROLE>INVESTOR</ROLE>
                    <CREATION_DATE>20030826</CREATION_DATE>
                    <IS_SSO>1</IS_SSO>
                </PERSON>
                <LOGIN>
                    <PERSON_ID>8000</PERSON_ID>
                    <LOGIN_NAME>BOBSMITH</LOGIN_NAME>
                    <LOGIN_PW>
                    <VALUE_PRESENT />
                </LOGIN_PW>
                <PROFILE_ACCESS>
                    <PERSON_ID>8000</PERSON_ID>
                    <PROFILE_ID>11000</PROFILE_ID>
                    <ROLE>INVESTOR</ROLE>
                    <ACCESS>READWRITE</ACCESS>
                </PROFILE_ACCESS>
            </USER>
        </USERLIST>
        <FP_DATA>
            <FINANCIAL_PROFILE>
                <ID>11000</ID>
                <NAME>Bob Joseph Smith</NAME>
                <CREATION_DATE>20090930</CREATION_DATE>
            </FINANCIAL_PROFILE>
        </FP_DATA>
    </DATAGETRS>
</DATACONNECTRS>
```

Sample XML

The following is a sample **<DATAGETRQ>** request that gets Financial Services, Portfolios, Accounts, and user information for the Users whose first name contains Bob and whose ROLE is INVESTOR:

```
<DATACONNECTRQ>
    <VERSION>VERSION4.0</VERSION>
    <LOGINRQ> ... </LOGINRQ>
    <DATAGETRQ>
        <GET_DATA_QUERY>
            <USER_QUERY>
                <USER_SEARCH>
                    <FIRST_NAME>Bob</FIRST_NAME>
                    <PERSON_ROLE>INVESTOR</PERSON_ROLE>
                </USER_SEARCH>
            </USER_QUERY>
        </GET_DATA_QUERY>
        <INCUSER/>
        <INCFP/>
        <INCACCTCRED/>
        <INCACCOUNT/>
        <INCHOLDING/>
        <INCTX/>
    </DATAGETRQ>
</DATACONNECTRQ>
```

The following is a sample of a corresponding **<DATAGETRS>** response:

```
<DATACONNECTRS>
    <VERSION>VERSION4.0</VERSION>
    <LOGINRS>
        <STATUS>
            <ERRCODE>0</ERRCODE>
            <ERRMSG>Success</ERRMSG>
        </STATUS>
    </LOGINRS>
    <DATAGETRS>
        <STATUS>
            <ERRCODE>0</ERRCODE>
            <ERRMSG>Success</ERRMSG>
        </STATUS>
        <USERLIST>
            <USER>
                <PERSON>
                    <ID>8000</ID>
                    <FIRM_TAG1>FirmTag1</FIRM_TAG1>
                    <ROLE>INVESTOR</ROLE>
                    <CREATION_DATE>20030826</CREATION_DATE>
                    <IS_SSO>1</IS_SSO>
                </PERSON>
                <LOGIN>
                    <PERSON_ID>8000</PERSON_ID>
                    <LOGIN_NAME>BOBSMITH</LOGIN_NAME>
                    <LOGIN_PW>
                        <VALUE_PRESENT />
```

```
                <LOGIN_PW>
            </LOGIN>
            <PROFILE_ACCESS>
                <PERSON_ID>8000</PERSON_ID>
                <PROFILE_ID>11000</PROFILE_ID>
                <ROLE>INVESTOR</ROLE>
                <ACCESS>READ</ACCESS>
            </PROFILE_ACCESS>
        </USER>
    </USERLIST>
    <FP_DATA>
        <FINANCIAL_PROFILE>
            <ID>8000</ID>
            <NAME>Bob J Smith</NAME>
            <CREATION_DATE>20020613</CREATION_DATE>
        </FINANCIAL_PROFILE>
    </FP_DATA>
 </DATAGETRS>
</DATACONNECTRS>
```

Get Data (Asynchronous)

Purpose

This asynchronous function provides the same data retrieval capability as the **Synchronous Get Data** function. Please refer to the description of that function for details on data retrieval. Only additional tags relating to the asynchronous nature of the function are presented in this section.

Restrictions

1. This function is asynchronous. Please refer to **Asynchronous Operation section** for details of using asynchronous functions and to the **Asynchronous Helper Operations section** for details of related operations.
2. DataConnect clients use the **<DATACLAIMRQ>** request to retrieve data resulting from an **Asynchronous Get Data** operation.
3. DataConnect clients should send a **<DATAACKRQ>** request to tell the DataConnect server that data from a prior asynchronous operation can be released. If this request is not sent, DataConnect retains the data until it expires.

Request: <DATAGETRQ_A>

Identical to **<DATAGETRQ>** but the operation is processed asynchronously. Please refer to **<DATAGETRQ>** for details.

Response: <DATAGETRS_A>

The **<DATAGETRS_A>** contains the following:

Tag	Required	Data Type	Description
<STATUS>	√		See **<STATUS> aggregate** description.
<RECEIPT>		**RECEIPT64**	Receipt for the client to inquire later about the result of this operation. Only issued if **<STATUS>** is successful.
<RECEIPT_EXP>		**TIMESTAMP**	Expiration time of **<RECEIPT>**, including time zone. Only present if **<RECEIPT>** is present.
<CLAIM_WAIT>		**NUMBER**	Number of milliseconds to wait before attempting to retrieve the results of the **Get Data** operation via the **Claim Data** request. Only present if **<RECEIPT>** is present.

This response provides the receipt needed to claim the results of the **Data Get** operation later. A **<DATACLAIMRQ>** must be subsequently submitted to check on the status of the **Data Get** operation and to retrieve the final results of the operation. Once the operation is completed, a **<DATAGETRS>** response containing the requested data is received. Please see the Response section of the **Get Data (Synchronous)** operation (**<DATAGETRQ>**) for the details of the data returned.

Errors

Please refer to the Errors section of the **Get Data (Synchronous)** operation (**<DATAGETRQ>**).

Sample XML

See the sample code provided in the **Get Data (Synchronous)** section.

Export Data (Asynchronous)

Purpose

Retrieves accounts, positions, transactions, and clients in CSV-delimited format.

Restrictions

This is an asynchronous operation. Please see the **Asynchronous Operation** section for general information on handling asynchronous functions.

Behavior

This operation exhibits the following behaviors:

1. The request is always asynchronous. After initial submission, Data Claim requests are needed to check whether the file is ready.
2. Once a Data Claim response is received, which indicates that the file is ready, a Claim File request must be used to obtain the final result.
3. The result of the Claim File will be a ZIP file containing a README.txt and possibly CSV output files. (CSV files are only produced when at least one data record is found for the particular object type.) Possible CSV files are listed in the response table on page 61.
   See **Claim File** operation.

Request: <DATAEXPORTRQ_A>

The request consists of the following two primary items:

- Type of information to include in the response. Choose from any combination of the following: Accounts, Holdings (positions), Transactions, Clients, and Investment Options.
  Designate the type of information to include using the **<INCxxx>** tags.
- Data to include in the response. You can specify data retrieval criteria for a set of Accounts, or opt to leave out the account set and get data for all accounts.

The **<DATAEXPORTRQ_A>** request can contain the following:

Tag	Required	Field	Description
<EXPORT_DATA_QUERY>		Aggregate	Like the GET_DATA_QUERY used by Get Data, however only allows an inner ACCOUNT_QUERY tag which will accept any number of IDs. If omitted, all data available to the user is returned.
<EXPORT_DATA_AS_OF_DATE>		DATE	Specifies an historical date. If not specified, default is 'current', non-historical data. If specified, it must be a date prior to today. To get the current data omit this tag. To get data as of the close of business yesterday, use yesterday's date. Although this tag primarily affects the holdings table, it has some effect on all three files: Accounts, Holdings (positions), and Transactions. The format will be the same, but many fields will be empty because there is no historical value available or because the field is not relevant from an historical context. For descriptions of the files, refer to the *ByAllAccounts Export* guide posted at http://www.byallaccounts.net/manuals/accountview/BAA_Export.PDF
<INCACCOUNTFILE>	*		Empty tag. If present, specifies that Accounts CSV file should be included in the response if any accounts to export are found. If the tag is absent, the Accounts file is not included in the response.
<INCHOLDINGFILE>	*		Empty tag. If present, specifies that Holdings (positions) CSV file should be included in the response if any positions to export are found. If the tag is absent, the holdings file is not included in the response.
<INCTXFILE>	*		Empty tag. If present, specifies that Transactions CSV file should be included in the response. If absent, the Transactions file is not included in the response.
<INCCLIENTFILE/>	*		Empty tag. If present, specifies that Clients CSV file should be included in the response. If absent, the Clients file is not included in the response.
<INCINVOPTFILE/>	*		Empty tag. If present, specifies that the Investment options CSV file should be included in the response. If absent, the Investment options file is not included in the response.

* indicates one of them is required.

<EXPORT_DATA_QUERY> Aggregate

The **<EXPORT_DATA_QUERY>** aggregate filters the objects to be retrieved. If omitted, all objects available to the caller are retrieved. The usage of EXPORT_DATA_QUERY is similar to the usage of GET_DATA_QUERY in the Get Data operation, however, only ACCOUNT_QUERY is allowed inside of an EXPORT_DATA_QUERY.

Data included in the response is filtered according to the accounts identified in the ACCOUNT_QUERY. So, if you identify a single Account to be retrieved using **<ACCOUNT_QUERY>**, and specify the **<INCACCOUNTFILE/>** element only, the response data includes details for all the

Accounts that were specified in the **<ACCOUNT_QUERY>**. Similarly if you specify **<INCTXFILE/>** instead of **<INCACCOUNTFILE/>**, the information for the transactions within the specified set of accounts is included in the response.

<EXPORT_DATA_QUERY> must contain the following:

Tag	Required	Field	Description
<ACCOUNT_QUERY>	√	**Account.ID**	Identifies the Accounts for which data should be retrieved. More than one **<ACCOUNT>** can be included.

The **ACCOUNT_QUERY** identifies accounts to be retrieved, grouped by Financial Profile:

<ACCOUNT_QUERY>
<FP_ID>45226**</FP_ID>**
<ID>123**</ID>**
<ID>125**</ID>**
    <FP_ID>45227**</FP_ID>**
<ID>126**</ID>**
<ID>127**</ID>**
</ACCOUNT_QUERY>

<INCTXFILE> Aggregate

The presence of the INCTXFILE tag indicates that a Transactions CSV file should be created if any transactions to export are found. The INCTXFILE tag may also optionally contain a nested start date and end date. Specifically, the **<INCTXFILE>** aggregate:

- Can be an empty tag (in which case, **all Transactions** for the selected accounts are returned).

OR

- Can contain either one or both of the following to restrict the set of Transactions returned:

Tag	Required	Field	Description
<TX_START_DATE>		**Transaction.EXECUTION_DATE**	See **<INCTXFILE> aggregate notes** below.
<TX_END_DATE>		**Transaction.EXECUTION_DATE**	See **<INCTXFILE> aggregate notes** below.

<INCTXFILE> aggregate notes:

- **<TX_START_DATE>** and (optionally) **<TX_END_DATE>** are used to constrain the set of Transactions returned by **EXECUTION_DATE**:
  - The date range is applied to the **EXECUTION_DATE** field of the Transaction.
  - **YYYYMMDD:** The format used to identify the date, where **YYYY** is a four-digit year such as 2003, **MM** is a two-digit month identifier ranging from 01 (January) to 12 (December), and **DD** is a two-digit day identifier ranging from 01 to 31.
  - If there is a start date but no end date, the end date is set to the day of the API call.
  - The start date must be before or the same as the end date.
  - The date range is inclusive of start date and exclusive of end date. If a start date is specified, then all Transactions with execution dates on or after that date are included. If an end date is also specified, then only Transactions with an execution date before the given end date are included.

Response: <DATAEXPORTRS_A>

The **<DATAEXPORTRS_A>** response can contain the following:

Tag	Required	Field	Description
<STATUS>	√		See **<STATUS> aggregate** description.

Errors

This operation may return any of the following errors in the **<STATUS>** portion of the response:

Error Code	Severity	Error Message
65699	Error	The request is invalid or formatted incorrectly
65707	Error	The date is invalid or formatted incorrectly
65723	Error	The transaction date range is invalid
65731	Error	The transaction start date is invalid
65739	Error	The transaction end date is invalid
65843	Error	Only dates prior to today are allowed
65939	Error	The requested user was not found
65947	Error	Caller is not authorized to make this request
66099	Error	The <object name> could not be found
67466	Warning	Account file not completed
67474	Warning	Position file not completed
67482	Warning	Transaction file not completed
67499	Error	Bulk Export files not generated
67507	Error	At least one type of file must be included
67514	Warning	Investment Option file not completed
67522	Warning	Client file not completed
67722	Warning	Multiple files not completed

Sample XML

The following is a sample **<DATAEXPORTRQ>** request that gets three files (accounts, holdings, and transactions) for two specific accounts, with a specific date and a specific date range.

```
<DATACONNECTRQ>
        <VERSION>VERSION4.0</VERSION>
         <LOGINRQ>
                 <LOGIN_NAME>JoeSmith1</LOGIN_NAME>
                  <LOGIN_PW>JoeSmith1</LOGIN_PW>
        </LOGINRQ>
        <DATAEXPORTRQ_A>
                <EXPORT_DATA_QUERY>
                        <ACCOUNT_QUERY>
                                <FP_ID>202</FP_ID>
                                 <ID>123456</ID>
                                 <ID>123457</ID>
                        </ACCOUNT_QUERY>
                </EXPORT_DATA_QUERY >
                <EXPORT_DATA_AS_OF_DATE>20140604</EXPORT_DATA_AS_OF_DATE>
                <INCACCOUNTFILE/>
                <INCHOLDINGFILE/>
                <INCTXFILE>
                        <TX_START_DATE>20140504</TX_START_DATE>
                        <TX_END_DATE>20140604</TX_END_DATE>
                </INCTXFILE>
        </DATAEXPORTRQ_A>
</DATACONNECTRQ>
```

The following is a sample of an initial **<DATAEXPORTRS_A>** response:

```
<DATACONNECTRS>
         <VERSION>VERSION4.0</VERSION>
         <LOGINRS>...</LOGINRS>
         <DATAEXPORTRS_A>
                  <STATUS>
                        <ERRCODE>0</ERRCODE>
                        <ERRMSG>Operation in progress</ERRMSG>
                  </STATUS>
              <RECEIPT>445685847112929088O<RECEIPT>
              <RECEIPT_EXP>20030621183522 [-5:EST]</RECEIPT_EXP>
                <CLAIM_WAIT>1000</CLAIM_WAIT>
          </DATAEXPORTRS_A>
</DATACONNECTRS>
```

A Data Claim request submitting the given receipt should follow. The Data Claim request may need to be repeated until a final DataExportRS_A response is provided.

The following is a sample of a final **<DATAEXPORTRS_A>** response which indicates that the file is ready.

<**DATACONNECTRS>**
<VERSION>VERSION4.0**</VERSION>**
<LOGINRS>...**</LOGINRS>**
<DATAEXPORTRS_A>
<STATUS>
<ERRCODE>0**</ERRCODE>**
<ERRMSG>Success**</ERRMSG>**
</STATUS>
<RECEIPT>445685847112929088**0<RECEIPT>**
</DATAEXPORTRS_A>
</DATACONNECTRS>

This operation should be followed by a Claim File request which will obtain the needed ZIP file.

Import Data (Asynchronous)

Purpose

Import Investors in CSV-delimited format.

Restrictions

- This is an asynchronous operation. Please see the **Asynchronous Operations** section for general information on handling asynchronous operations.
- This operation is available to Advisor and Assistant user types. It is not available to Administrators.

Behavior

This operation exhibits the following behaviors:

1. The request is always asynchronous. After initial submission, Claim Data requests should be performed to check whether the file is ready.
2. The Import operation produces a result file that shows you how each row was processed (success or failure). When the result file is ready a Claim Data response is received; a Claim File request must be used to obtain the final result.
3. The result of the Claim File will be a ZIP file containing a README.txt and possibly a CSV output file. A CSV file is only produced when at least one data record is found for the object type. A description of the ZIP file contents is provided in the Response: <DATAIMPORTRS_A> section.

Request: <DATAIMPORTRQ_A>

The request consists of the following items:

- Type of object being imported (INVESTORS)
- Include the data to be imported in in-line CSV format (IMPORT_FILE).

The **<DATAIMPORTRQ_A >** request can contain the following:

Tag	Required	Field	Description
INVESTORS	√		Indicates that the IMPORT_FILE tag has Investors data. This data is used to create an investor that is assigned to the target Advisor. The optional <GENERATE_LOGINS> aggregate may be used.
IMPORT_FILE	√		Data in CSV format to be imported. See Import File Format.

√ indicates required field

The **<GENERATE_LOGINS>** aggregate for INVESTORS is optional. When it is used:

1. The system will generate a unique login and pre-expired password for the new users and send a welcome email to the new user with the login and pre-expired password.
2. When generating the unique login for the user, the system will try the user's email address as the login. If the email address is not *unique within* the system, then the system will attempt to create a unique login by truncating the email address to 28 characters and adding a "-nnn" string to the end where nnn is a randomly generated number from 000 to 999. If the system exhausts all possible generated logins without creating a unique one, then the row will not be imported. The result file will show a 'failure' for that row.
3. Rows in the import file that do not have an email address will fail to import.
4. GENERATE_LOGINS option can only be used to import users for firms that have 'new clients default to SSO' option OFF. Otherwise an error is returned by DataConnect at the Import operation level (i.e. it does not attempt to import anything in the file).

When used, the **<GENERATE_LOGINS>** aggregate can use any of the following optional tags to customize the email sent to investors.

Tag	Required	Field	Description
CC_SELF		BOOLEAN	Defaults to 0 (false). If set to 1 (true), will send a copy of the email to the sender with the login and password masked out. Regardless of this setting, a copy of the email will be sent to the Firm's BCC email address if one is defined for the Firm. If the sender is an Assistant, a copy will be sent to the Advisor with username and password masked.
EMAIL_SUBJECT *		CHAR900	If present, this text is used as the email subject for the welcome email instead of the default email subject.
EMAIL_PREPEND_MSG *		CHAR2048	If present, this text is prepended to the welcome email content.
INC_PRODUCT_LINK		BOOLEAN	Defaults to 0 (false). If set to 1 (true), then AccountView URL link is included in the welcome email.

* Do not use if Firm is set to not allow users to modify text of email sent to clients.

Import File Format

The import file is a .csv file with one header row and one row for each client to be created, up to a maximum of 10,000 rows. Any rows beyond 10,000 will be ignored and the README will indicate that not all rows were processed. The import file must minimally contain the required columns, and the column headers must match the Column header listed in the table below. The columns can be in any order, and extra columns not listed below are ignored, but tolerated.

Column Header	Data Type	Description	Required Column
FIRST_NAME	CHAR64	Investor's first name	√
MIDDLE_NAME	CHAR64	Investor's middle name	
LAST_NAME	CHAR64	Investor's last name	√
EMAIL	CHAR64	Investor's email address, must contain one @ character	
TAX_ID	CHAR32	Investor's tax ID (SSN or TIN). Should be numeric, with or without hyphen separators (e.g. 000-00-0000)	√*

√ indicates required field

√* this field is required if the Firm for this Investor has been configured to require TAX_ID

Import will determine if an Investor already exists for the target advisor using the following matching logic:

- If TAX_ID is provided in the Import file then it will be used to match to existing investors.
- If TAX_ID is not provided in the Import file, then FIRST_NAME, MIDDLE_NAME, and LAST_NAME will be used to match to existing Investors (but only existing Investors that have no TAX_ID value).

Matching is case-insensitive and Tax IDs are normalized to remove punctuation and non-numeric characters for matching (i.e. a Tax Id of 010-22-1234 will match a Tax Id of 010221234).

If Import determines through this matching process that an Investor in a row in the Import file matches an Investor that already exists for the target advisor, then the candidate investor will not be created. The Import result file will, for that row, contain a LOAD_STATUS column value of "Succeeded" and a LOAD_DETAILS column value of "Import record ignored because it matched an existing investor".

Response: <DATAIMPORTRS_A>

The **<DATAIMPORTRS_A>** response can contain the following:

Tag	Required	Field	Description
<STATUS>	√		See **<STATUS> aggregate** description.
<RECEIPT>		**RECEIPT64**	Receipt provided in request.
<RECEIPT_EXP>		**TIMESTAMP**	Expiration time of **<RECEIPT>**, including time zone. Only present if **<RECEIPT>** is present.
<CLAIM_WAIT>		**NUMBER**	Number of milliseconds to wait before attempting to retrieve the results. Only present if **<RECEIPT>** is present.

- The RECEIPT associated with the DATAIMPORTRS_A operation which has already been established to be completed is used in the <FILECLAIMRQ> request to retrieve the <DATAIMPORTRS_A> generated .csv files.

A normal response to a FILECLAIMRS will be a ZIP file containing:

Filename	Required	Description
README.txt	√	A brief log file
Importstatus_investors.csv		The Investor import file with additional columns LOAD_STATUS and LOAD_DETAILS that give an operation status for the import of that row. The possible values for LOAD_STATUS and LOAD_DETAILS are shown in the following table.

LOAD_STATUS	**LOAD_DETAILS**
Succeeded	New investor record created from import record.
Succeeded	▪ Import record ignored because it matched an existing investor.
Succeeded	New investor created from import record but failed to send welcome email to investor
Failed	Failed to import because a required field has no data: <name of field>
Failed	▪ Failed to import because of invalid data in field.
Failed	Failed to import because of system error.
Failed	Failed to import because exhausted maximum attempts to generate unique login

Errors

This operation may return any of the following errors in the **<STATUS>** portion of the response:

Error Code	Severity	Error Message
65563	Error	The <field name> cannot exceed <max> characters
65947	Error	Caller is not authorized to make this request
65963	Error	User type not supported for this operation.
67995	Error	GENERATE_LOGINS cannot be used; usage conflicts with firm configuration that creates new Investors as SSO by default

Sample XML

The following is a sample **<DATAIMPORTRQ>** request for investors.

```
<DATACONNECTRQ>
    <VERSION>Version4.0<VERSION>
<LOGINRQ>...</LOGINRQ>
        <DATAIMPORTRQ_A>
            <INVESTORS/>
                <IMPORT_FILE>
                    "FIRST_NAME","MIDDLE_NAME","LAST_NAME","EMAIL","TAX_ID"
                    "Mary","C","Jones ","MCJones@email.com",""
                    "Mary","","Jones ","MJones@email.com",""
                    "Kip","S","Thorne ","KipperT@email.com","012345678"
                    "Rainer","","Weiss ","Weiss_R@email.com",""
                    "Barry","","Barish ","BarBar@email.com","123456789"
                </IMPORT_FILE>
        </DATAIMPORTRQ_A>
</DATACONNECTRQ>
```

The same can be expressed without the quotation marks:

```
<DATACONNECTRQ>
    <VERSION>Version4.0<VERSION>
<LOGINRQ>...</LOGINRQ>
        <DATAIMPORTRQ_A>
            <INVESTORS/>
                <IMPORT_FILE>
                    FIRST_NAME,MIDDLE_NAME,LAST_NAME,EMAIL,TAX_ID
                    Mary,C,Jones,MCJones@email.com,
                    Mary,,Jones,MJones@email.com,
                    Kip,S,Thorne,KipperT@email.com,012345678
                    Rainer,,Weiss,Weiss_R@email.com,
                    Barry,,Barish,BarBar@email.com,123456789
                </IMPORT_FILE>
        </DATAIMPORTRQ_A>
</DATACONNECTRQ>
```

The following is a sample of an initial **<DATAIMPORTRS_A>** response:

```
<DATACONNECTRS>
    <VERSION>VERSION4.0</VERSION>
    <LOGINRS>...</LOGINRS>
        <DATAIMPORTRS_A>
            <STATUS>
                <ERRCODE>0</ERRCODE>
                <ERRMSG>Operation started</ERRMSG>
            </STATUS>
            <RECEIPT>4846791201899833473</RECEIPT>
            <RECEIPT_EXP>20180817110528 [-5:EDT]</RECEIPT_EXP>
            <CLAIM_WAIT>1000</CLAIM_WAIT>
        </DATAIMPORTRS_A>
</DATACONNECTRS>
```

A Claim Data request submitting the given receipt should follow. The Claim Data request may need to be repeated until a final DATAIMPORTRS_A response is provided.

The following is a sample of **<DATACLAIMRQ>** response:

```
<DATACONNECTRS>
    <VERSION>VERSION4.0</VERSION>
    <LOGINRS>...</LOGINRS>
    <DATACLAIMRQ>
            <RECEIPT>4846791201899833473</RECEIPT>
    </DATACLAIMRQ>
</DATACONNECTRQ>

<DATACONNECTRS>
    <VERSION>VERSION4.0</VERSION>
    <LOGINRS>
        <STATUS>
            <ERRCODE>0</ERRCODE>
            <ERRMSG>Success</ERRMSG>
        </STATUS>
    </LOGINRS>
    <DATAIMPORTRS_A>
        <STATUS>
            <ERRCODE>0</ERRCODE>
            <ERRMSG>Success</ERRMSG>
        </STATUS>
    </DATAIMPORTRS_A>
</DATACONNECTRS>
```

The following is a sample of **<FILECLAIMRQ>** request:

```
<DATACONNECTRS>
    <VERSION>VERSION4.0</VERSION>
    <LOGINRQ>...</LOGINRQ>
    <FILECLAIMRQ>
            <RECEIPT>4846791201899833473</RECEIPT>
    </FILECLAIMRQ>
</DATACONNECTRQ>
```

The following is a sample **<DATAIMPORTRQ>** request for investors using the optional GENERATE_LOGINS aggregate with some of the optional tags to customize the email.

```
<DATACONNECTRQ>
    <VERSION>VERSION4.0</VERSION>
    <LOGINRQ>...</LOGINRQ>
        <DATAIMPORTRQ_A>
            <INVESTORS>
                <GENERATE_LOGINS>
                    <CC_SELF>1</CC_SELF>
                    <INC_PRODUCT_LINK>1</INC_PRODUCT_LINK>
                </GENERATE_LOGINS>
            </INVESTORS>
                <IMPORT_FILE>
                    "FIRST_NAME","MIDDLE_NAME",LAST_NAME","EMAIL","TAX_ID"
                    "Mary","","Smith","mary@email.com","22-222-2222"
                    "Steve","","Jones","steve@email.com","33-333-3333"
                </IMPORT_FILE>
        </DATAIMPORTRQ_A>
</DATACONNECTRQ>
```

DATACONNECT USAGE CONSIDERATIONS

DataConnect Access

Users must be authorized to use DataConnect. When ByAllAccounts deploys the product, the following items are addressed:

- **Access Credentials**: Selected users are given an Administrative User ID and Password that allow them to retrieve data for their users using DataConnect. It is the user's responsibility to manage and secure these credentials, since they provide access to a limited set of the Investors' personal and financial information.
- **Access Frequency**: Users are given a choice whether to use the bulk or on-demand styles. If they need to change their usage style, they must contact their ByAllAccounts relationship manager.
- **Access Time**: If users choose bulk access, they must agree upon an expected access time and frequency with ByAllAccounts. If they need to change this agreement, they must contact their ByAllAccounts relationship manager.

Compression

Response documents and error documents returned by DataConnect are always compressed in the ZIP compression format. Users must ensure that their program performs decompression of the returned data.

Data Availability

DataConnect can be invoked at any time. However, new data may not always be available for a User or Account due to the following limitations:

- The service may download data from Financial Services only during certain hours of the day (e.g., when the service website is available for access).
- Account data may only be as current as that available from the Financial Service. Many Financial Services update their online data within specific time intervals.

ByAllAccounts cannot guarantee that all accounts are updated with the previous day's information or that a particular account is updated by a particular time of day. ByAllAccounts updates account data once a day (during the early morning hours) at the time known to be best for each particular Financial Service. Therefore, there is a suggested "best time" to call the API in order to obtain fresh data. This does not imply that the API cannot be used at other times, only that the new data returned might not be different than the data returned in the previous call. The suggested "best time" depends on the Financial Services being used by the firm.

For bulk usage, it is strongly recommended that you call the API after the suggested "best time" to reduce unnecessary bulk data downloading. The timestamp indicating freshness of the object data is provided on each Account (**Account.LAST_UPDATED**) field, Transaction (**Transaction.CREATION_DATE**) field, and Holding (**Holding.LAST_UPDATED**) field.

APPENDIX A: DATACONNECT ACCESS AND DOCUMENT TYPE DEFINITIONS

This section provides a quick reference to the DataConnect access point and DataConnect definitions.

The main DataConnect URL (case-sensitive):

https://www.byallaccounts.net/dataconnect/WPServlet?RequestType=DataConnectV4

Response documents and error documents returned by DataConnect are always compressed in the ZIP compression format.

To return the response documents and error documents in non-compressed format, specify compressResponse=false in the URL (as shown below),
https://www.byallaccounts.net/dataconnect/WPServlet?RequestType=DataConnectV4&compressResponse=false
Note that compressResponse=false can be used for all DataConnect operations except FILECLAIMRQ. The response for FILECLAIMRQ it will always have ZIP compression.

DataConnect Lite provides two public Document Type Definition (DTD) files.

This document describes the inbound requests:
http://www.byallaccounts.net/WebPortfolio/com/baa/dtd/v4/DataConnectLiteRQ.dtd

This document describes the responses that come back:
http://www.byallaccounts.net/WebPortfolio/com/baa/dtd/v4/DataConnectLiteRS.dtd

APPENDIX B: DATACONNECT ERROR CODES

When errors occur in DataConnect, an error code and accompanying message are generated. These error codes are of the following severity:

- Success
- Informational
- Warning
- Error

Error Code	Severity	Error Message
0	Success	Success
56003	Error	The login name or password is incorrect
56011	Error	Caller's account is disabled. Contact technical support for assistance.
56019	Error	Caller has been unsubscribed and can no longer log in.
56027	Error	The password has expired
56803	Error	The new password does not meet minimum length requirements.
56811	Error	The new password cannot be a single repeated character.
56819	Error	The new password cannot be all letters or all numbers.
56827	Error	The new password must be different than the old password.
56835	Error	The password has too many sequential or repeating characters (e.g. AAAA or 1234).
56843	Error	The new password cannot be the same as the login.
56851	Error	The new password must have at least one letter.
65547	Error	An internal error occurred
65555	Error	One or more required fields are missing
65563	Error	One or more fields exceed their maximum length
65570	Warning	The operation did not complete in its allotted time
65579	Error	The receipt has expired
65699	Error	The request is invalid or formatted incorrectly
65707	Error	The date is invalid or formatted incorrectly
65715	Error	The transaction ID range is invalid
65723	Error	The transaction date range is invalid
65731	Error	The transaction start date is invalid
65739	Error	The transaction end date is invalid
65747	Error	The DataConnect version is unsupported or invalid
65779	Error	The <field name> is outside the valid range valid range of 0 to 99999999999999999
65795	Error	The request referred to unsupported or invalid DTD
65803	Error	The DOCTYPE is missing or incomplete
65819	Error	The request was empty
65843	Error	Only dates prior to today are allowed
65939	Error	The requested user was not found
65947	Error	Caller is not authorized to make this request
65947	Error	Caller is not authorized to make this request
65955	Error	DataConnect product is not licensed
66099	Error	The requested data could not be found
66107	Error	The requested user was not found
66115	Error	The requested user has been unsubscribed. No further operations can be performed on the user
66129	Informational	Some requested users were not found
66139	Error	The profile was not found
67466	Warning	Account file not completed
67474	Warning	Position file not completed
67482	Warning	Transaction file not completed

Error Code	Severity	Error Message
67499	Error	Bulk Export files not generated
67507	Error	At least one type of file must be included
67514	Warning	Investment Option file not completed
67522	Warning	Client file not completed
67722	Warning	Multiple files not completed
67739	Error	Access was not performed from an allowed IP address.
67938	Warning	Response contains partial data set
67995	Error	GENERATE_LOGINS cannot be used; usage conflicts with firm configuration that creates new Investors as SSO by default

APPENDIX C: ACCOUNT UPDATE STATUS ERROR CODES

The **Account.UPDATE_STATUS_ERRCODE** field is used to store the status from the most recent account access test or update operation invoked by another tool (e.g., AccountView) and presented in DataConnect. The following table lists the error codes and messages that may be returned in the **UPDATE_STATUS_ERRCODE** field of the **Account object**. Note that the actual error message may be different, depending on what is returned from the site. An error category is included to indicate the likely source of each error. A table listing these error categories follows the table below.

Error Code	Problem/Error Category	Possible Error Message
1005	Success (No Problem)	Account updated successfully.
400	Internal Product	Internal Error: Incorrect download command.
401	Financial Service	Internal Error: Incorrect download command authorization.
403	Financial Service	Internal Error: Incorrect download command access.
404	Financial Service	Internal Error: Download target not found.
500	Financial Service	Internal Error: Download command caused server error.
503	Financial Service	The institution's server is not available. Try again later.
1001	Internal Product	Unable to parse downloaded data.
1002	Internal Product	Internal Error: WebPortfolio server incorrectly configured.
1003	Financial Service or Credential	Unable to navigate remote web site. If this account has worked previously the financial institution's online services may be temporarily unavailable -- if the condition persists beyond a few hours, contact ByAllAccounts Technical Support.
1004	Financial Service or Credential	The data downloaded contained no holding balance or status information. This may be a temporary problem with the institution's server or may indicate a problem in WebPortfolio's support for the web site. If the condition persists, please notify ByAllAccounts Technical Support.
1006	Successful Test	Account test succeeded.
1007	Credential	WebPortfolio is unable to log in to this institution using the credentials you provided. Until the credentials are corrected, WebPortfolio will not log in to your account automatically (to avoid account lockout). Verify the information you entered, including the Financial Institution you selected, in WebPortfolio and try manually updating the account. If the condition persists, please notify ByAllAccounts Technical Support.
1008	Financial Service or Credential	WebPortfolio is unable to process your account information and has determined that the financial institution's website has changed.
2000	Financial Service	The institution's server is not available. Try again later.
2001	Credential	Invalid account number. Check that the number is correct. If the number includes punctuation marks (such as dashes) or blanks, try removing them. See the institution's instructions for more details.
2002	Credential	Unable to access account. If the number includes punctuation marks (such as dashes) or blanks, try removing them. See the institution's instructions for more details.
2003	Credential	The account number is not available to this online login.
2004	Credential	Information not available. This account has been closed.

Appendix C: Account Update Status Error Codes (continued)

Error Code	Error Category	Error Message
2005	Credential	This account does not allow data to be downloaded. Contact your financial institution.
2018	Internal Product	Internal error: The specified server ID does not exist.
2019	Internal Product	Internal error: Duplicate **<TRNUID>**.
2020	Internal Product	Internal error: Unparseable date time.
2021	Internal Product	Internal error: Message set version not supported.
2023	Internal Product	Internal error: The specified **FITID/BILLID** does not exist.
2025	Internal Product	Internal error: **<BRANCHID>** required for this country system.
12250	Internal Product	The institution does not support investment transaction download.
12251	Internal Product	The institution does not support investment position download.
12252	Internal Product	The institution does not support downloading investment positions for the specified date.
12253	Internal Product	The institution does not support open order download.
12254	Internal Product	The institution does not support investment balances download.
15000	Credential	The next account access must specify a new online password. See the institution's instructions for more details.
15500	Credential	Unable to log in. Either the online login or password is incorrect. See the institution's instructions for more details.
15501	Credential	Unable to log in. Your online login was being accessed from elsewhere. The institution does not support concurrent access.
15502	Credential	Unable to log in. Your online access is locked out by the institution. Contact your financial institution.
15505	Internal Product	Internal error: Country system not supported
15506	Internal Product	Internal error: No information requested.
15507	Credential	Unable to log in. You must supply a new password. See the institution's instructions for more details.

Category codes are used to classify the error codes returned in the **UPDATE_STATUS_ERRCODE** field of the **Account object**. They indicate the likely source of the error.

Problem/Error Category	Description
Credential	Error codes in this category indicate a problem with the online access credentials for the account, including: • **ACCOUNT_LOGIN**, **ACCOUNT_PIN**, **ACCOUNT_NUMBER** (or other credential information) incorrect • Insufficient information to log in (e.g., new password must be provided on first log in) • Account not properly enabled for online access at the financial service Often requires action by the end user to correct.
Financial Service	The financial service is unavailable or responding in an abnormal way. Try the operation again later. If the error persists, contact ByAllAccounts Technical Support.
Internal Product	Infrequently occurring, these errors indicate an internal WebPortfolio error and should be reported to ByAllAccounts Technical Support.
Success	Successful result

APPENDIX D: SAMPLE CALL TO THE API

The following is a program fragment written in the Java programming language. It uses the capabilities available in the Java 2 programming environment (Java 1.3 Runtime). This fragment demonstrates the invocation of the DataConnect URL, posting of a request document to that URL, receipt of a response stream, and the writing of that compressed data (ZIP) to a file.

The compressed file produced by the fragment:

- Can be read using a tool capable of decompressing data in ZIP compression format (such as WinZip® or GNU gzip)
- Should be given a file extension of .zip
- Will contain a single XML file with the response data or an error response document
- Will be named **WpGetDatammddhhmi.xml** where **mmddhhmi** is a date and time (**mm**=month, **dd**=day, **hh**=hour, **mi**=minute)

```
...
import java.io.ByteArrayOutputStream;
import java.io.File;
import java.io.FileInputStream;
import java.io.FileOutputStream;
import java.io.FileReader;
import java.io.InputStream;

import java.net.HttpURLConnection;
import java.net.URL;
...

try {
// Configure for use of https

      System.setProperty( "java.protocol.handler.pkgs","com.sun.net.ssl.internal.www.protocol");
      java.security.Security.addProvider( new com.sun.net.ssl.internal.ssl.Provider());

// open the URL to DataConnect
//
      String contactUrl =
            "https://www.byallaccounts.net/dataconnect/WPServlet?RequestType=DataConnectV4";

      String inputFileName = "myRequest.xml";  // my request document

      URL url = new URL(contactUrl);
      HttpURLConnection urlc = (HttpURLConnection)url.openConnection();

    urlc.setDoOutput (true);
      urlc.setUseCaches (false);
      urlc.setRequestProperty ("Content-Type", "text/xml; charset=UTF-8");
      urlc.setRequestProperty ("Accept-Encoding", "zip");
      urlc.setRequestMethod ("POST");
      ByteArrayOutputStream byteStream =
            (ByteArrayOutputStream)urlc.getOutputStream();
```

Appendix D: Sample Call to the API (continued)

```
// write the request document (POST it) to the DataConnect URL

    FileReader fileReader = new FileReader(new File(inputFileName));
    int next=fileReader.read();
    while ( next != (-1) )
    {
            byteStream.write(next );
      next=fileReader.read();
    }
    byteStream.flush();

// create the file to store the response - response data will be compressed in ZIP format

  String outputFileName = “responseFile”;

  FileOutputStream reply = new FileOutputStream(File.createTempFile(outputFileName, “.zip”));
  InputStream input = urlc.getInputStream();


// read compressed bytes from the response write them to our file

  int received = input.read();
  while (received != (-1))
  {
            reply.write(received);
            received=input.read();
  }
  input.close();
  reply.close();

} catch (Exception e) {
      // report exception
}
...
```

APPENDIX E: SAMPLE ERROR RESPONSE DOCUMENTS

This section presents three common error Response Documents and includes suggested actions for correcting them.

See **Appendix B: DataConnect Document Type Definitions** for the Request and Response DTD files.

Example 1:

Error Message: The DOCTYPE is missing or incomplete.

Possible Error: No DTD definition provided for DATACONNECTRQ in Request Document

Error Received:

You receive the following error in response to a Request Document:

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE DATACONNECTRS PUBLIC '-//DataConnect DTD//DataConnect//EN'
'http://www.byallaccounts.net/WebPortfolio/com/baa/dtd/v4/DataConnectLiteRS.dtd'>

<DATACONNECTRS>
 <VERSION>VERSION4.0</VERSION>
 <GENERALRS>
  <STATUS>
   <ERRCODE>65803</ERRCODE>
   <ERRMSG>The DOCTYPE is missing or incomplete</ERRMSG>
  </STATUS>
 </GENERALRS>
</DATACONNECTRS>
```

Appendix E: Sample Error Response Documents (continued)

Example 1 (continued)

Your Input:

You provided a Request Document to DataConnect similar to the following:

```
<?xml version="1.0" encoding="UTF-8"?>
<DATACONNECTRQ>
    <VERSION>VERSION4.0</VERSION>
    <LOGINRQ>
        <LOGIN_NAME>mylogin</LOGIN_NAME>
        <LOGIN_PW>mypassword1234</LOGIN_PW>
    </LOGINRQ>
    <DATAGETRQ>
        <GET_DATA_QUERY>
            <USER_IDENT>
            <PERSON_FIRM_TAG1>000111222</PERSON_FIRM_TAG1>
            </USER_IDENT>
            <USER_IDENT>
            <PERSON_FIRM_TAG1>435242</PERSON_FIRM_TAG1>
            </USER_IDENT>
        </GET_DATA_QUERY>
        <INCFI/>
        <INCPORTFOLIO/>
        <INCACCOUNT/>
    </DATAGETRQ>
</DATACONNECTRQ>
```

Appendix E: Sample Error Response Documents (continued)

Example 1 (continued)

Suggested Action:

The error indicates that in attempting to parse the Request Document, the parser had no DTD definition for the first element, **DATACONNECTRQ**. The reason for the error is that the Request did not provide a **DOCTYPE** reference to identify the DTD to use to validate the document. Correct the Request Document to include the **DOCTYPE**.

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE DATACONNECTRQ PUBLIC '-//DataConnect DTD//DataConnect//EN'
    'http://www.byallaccounts.net/WebPortfolio/com/baa/dtd/v4/DataConnectLiteRQ.dtd'>

    <DATACONNECTRQ>
        <VERSION>VERSION4.0</VERSION>
        <LOGINRQ>
            <LOGIN_NAME>mylogin</LOGIN_NAME>
            <LOGIN_PW>mypassword1234</LOGIN_PW>
        </LOGINRQ>
        <DATAGETRQ>
            <GET_DATA_QUERY>
                <USER_IDENT>
                <PERSON_FIRM_TAG1>000111222</PERSON_FIRM_TAG1>
                </USER_IDENT>
                <USER_IDENT>
                <PERSON_FIRM_TAG1>435242</PERSON_FIRM_TAG1>
                </USER_IDENT>
            </GET_DATA_QUERY>
            <INCFI/>
            <INCPORTFOLIO/>
            <INCACCOUNT/>
        </DATAGETRQ>
    </DATACONNECTRQ>
```

Appendix E: Sample Error Response Documents (continued)

Example 2:

Error Message: Element "DATAGETRQ" does not allow "get_data_query" here.

Possible Error: Lower case lettering used in element name

Error Received:

You receive the following error in response to a Request Document:

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE DATACONNECTRS PUBLIC '-//DataConnect DTD//DataConnect//EN'
   'http://www.byallaccounts.net/WebPortfolio/com/baa/dtd/v4/DataConnectLiteRS.dtd'>

<DATACONNECTRS>
 <VERSION>VERSION4.0</VERSION>
 <LOGINRS>
  <STATUS>
   <ERRCODE>0</ERRCODE>
   <ERRMSG>Success</ERRMSG>
  </STATUS>
 </LOGINRS>
 <GENERALRS>
  <STATUS>
   <ERRCODE>65699</ERRCODE>
   <ERRMSG>Element "DATAGETRQ" does not allow "get_data_query" here</ERRMSG>
  </STATUS>
 </GENERALRS>
</DATACONNECTRS>
```

Appendix E: Sample Error Response Documents (continued)

Example 2 (continued)

Your Input:

You provided a Request Document to DataConnect similar to the following:

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE DATACONNECTRQ PUBLIC '-//DataConnect DTD//DataConnect//EN'
'http://www.byallaccounts.net/WebPortfolio/com/baa/dtd/v4/DataConnectLiteRQ.dtd'>
    <DATACONNECTRQ>
        <VERSION>VERSION4.0</VERSION>
        <LOGINRQ>
            <LOGIN_NAME>mylogin</LOGIN_NAME>
            <LOGIN_PW>mypassword1234</LOGIN_PW>
        </LOGINRQ>
        <DATAGETRQ>
            <get_data_query>
                <USER_IDENT>
                <PERSON_LOGIN_NAME>marysmith</PERSON_LOGIN_NAME>
                </USER_IDENT>
            </ get_data_query >
            <INCPORTFOLIO/>
        </DATAGETRQ>
    </DATACONNECTRQ>
```

Suggested Action:

The error indicates that the element **get_data_query** is not allowed within **DATAGETRQ**. The reason for the error is that element names are case-sensitive. Always use upper case element names for DataConnect. Correct the error in the Request Document by using **GET_DATA_QUERY** instead of **get_data_query**.

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE DATACONNECTRQ PUBLIC '-//DataConnect DTD//DataConnect//EN'
'http://www.byallaccounts.net/WebPortfolio/com/baa/dtd/v4/DataConnectLiteRQ.dtd'>
    <DATACONNECTRQ>
        <VERSION>VERSION4.0</VERSION>
        <LOGINRQ>
            <LOGIN_NAME>mylogin</LOGIN_NAME>
            <LOGIN_PW>mypassword1234</LOGIN_PW>
        </LOGINRQ>
        <DATAGETRQ>
            <GET_DATA_QUERY>
                <USER_IDENT>
                <PERSON_LOGIN_NAME>marysmith</PERSON_LOGIN_NAME>
                </USER_IDENT>
            </GET_DATA_QUERY>
            <INCPORTFOLIO/>
        </DATAGETRQ>
    </DATACONNECTRQ>
```

Appendix E: Sample Error Response Documents (continued)

Example 3:

Error Message: The requested user was not found

Possible Error: Error in spelling the user's name

Error Received:

You receive the following error in response to a Request Document:

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE DATACONNECTRS PUBLIC '-//DataConnect DTD//DataConnect//EN'
'http://www.byallaccounts.net/WebPortfolio/com/baa/dtd/v4/DataConnectLiteRS.dtd'>

<DATACONNECTRS>
 <VERSION>VERSION4.0</VERSION>
 <LOGINRS>
  <STATUS>
   <ERRCODE>0</ERRCODE>
   <ERRMSG>Success</ERRMSG>
  </STATUS>
 </LOGINRS>
 <DATAGETRS>
  <STATUS>
   <ERRCODE>66107</ERRCODE>
   <ERRMSG>The requested user was not found</ERRMSG>
  </STATUS>
 </DATAGETRS>
</DATACONNECTRS>
```

Appendix E: Sample Error Response Documents (continued)

Example 3 (continued)

Your Input:

You provided a Request Document to DataConnect to retrieve the user MARYSMITH, but misspelled the user's login name:

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE DATACONNECTRQ PUBLIC '-//DataConnect DTD//DataConnect//EN'
'http://www.byallaccounts.net/WebPortfolio/com/baa/dtd/v4/DataConnectLiteRQ.dtd'>

    <DATACONNECTRQ>
        <VERSION>VERSION4.0</VERSION>
        <LOGINRQ>
            <LOGIN_NAME>mylogin</LOGIN_NAME>
            <LOGIN_PW>mypassword1234</LOGIN_PW>
        </LOGINRQ>
        <DATAGETRQ>
            <GET_DATA_QUERY>
                <USER_IDENT>
                <PERSON_LOGIN_NAME>marysmit</PERSON_LOGIN_NAME>
                </USER_IDENT>
            </GET_DATA_QUERY>
            <INCPORTFOLIO/>
        </DATAGETRQ>
    </DATACONNECTRQ>
```

Suggested Action:

Check and correct the spelling of the user's login name in the Request Document (i.e., marysmith in this example).